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Literature List
Corneometer®

S.-R. Park, J. Han, Y.M. Yeon, N.Y. Kang, E. Kim, **Effect of face mask on skin characteristics changes during the COVID-19 pandemic**, Skin Research & Technology, Volume 27, Issue 4, July 2021, p. 554-559

Background: Previous studies have demonstrated the possibility of adverse effects of prolonged wearing of personal protective equipment in healthcare workers. However, there are a few studies about the effects on skin characteristics after wearing a mask for non-healthcare workers. In this study, we evaluated the dermatologic effects of wearing a mask on the skin over time. Materials and Method: Twenty-one healthy men and women participated in the study. All participants wore masks for 6 hours consecutively. Three measurements were taken (a) before wearing the mask, (b) after wearing the mask for 1 hour, and (c) after wearing the mask for 6 hours. Skin temperature, skin redness, sebum secretion, skin hydration, trans-epidermal water loss, and skin elasticity were measured. Results: The skin temperature, redness, hydration, and sebum secretion were changed significantly after 1 and 6 hours of wearing a mask. Skin temperature, redness, and hydration showed significant differences between the mask-wearing area and the non–mask-wearing area. Conclusion: Mask-wearing conditions and time can change several skin characteristics. In particular, it is revealed that the perioral area could be most affected.

T.-F. Hsu, Z.-R. Su, Y.-H. Hsieh, M.-F. Wang, M. Oe, R. Matsuoka, Y. Masuda, **Oral Hyaluronan Relieves Wrinkles and Improves Dry Skin: A 12-Week Double-Blinded, Placebo-Controlled Study,** Nutrients 2021, 13, 2220

Hyaluronan (HA) is present in all connective tissues and organs, including the skin and joint fluid. However, few clinical trials have comprehensively evaluated the impacts of oral HA on skin conditions, including wrinkles and moisturization. In this study, we conducted a placebocontrolled, randomized, double-blind trial of daily HA (120 mg) intake for 12 weeks in 40 healthy Asian men and women (aged 35–64 years). Skin condition was determined by the evaluation of wrinkles, stratum corneum water content, the amount of transepidermal water loss, elasticity, and through image analysis. After 12 weeks, skin condition was significantly improved in terms of wrinkle assessment, stratum corneum water content, transepidermal water loss, and elasticity in the HA group compared to the placebo group. Regarding the percentage change from baseline, wrinkle assessment, stratum corneum water content, and skin elasticity were significantly improved in the HA group versus the placebo group after 8 and 12 weeks of ingestion. The present findings indicate that oral ingestion of HA may suppress wrinkles and improve skin condition.

Sonne, wir kommen, Stiftung Warentest Juli 2021, p. 10-15

Sonnenschutzmittel - Sehr guten UV-Schutz gibt es schon fur wenig Geld. Drei teure Sprays versagen: die von Biosolis, Lavera und Vichy. Noch ein Corona-Sommer, für den wir bleiben wir Plane schmieden. Die einen bleiben weiter zuHause, die anderen wollen los und raus. Mit etwas Vorsicht geht das schon wieder. Egal wo: Neben dem Schutz vor dem Virus gehort auf jeden Fall der Schutz vor der Sonne dazu. Ob auf dem eigenen Balkon, an heimischen Seen und Füssen oder am Mittelmeerstrand- überall kann die UV-Strahlung aus dem Sonnenlicht schmerzhaften Sonnenbrand verursachen, frühzeitige Hautalterung und langfristig auch Hautkrebs.

A.P. Carrieri, N. Haiminen, S. Maudsley-Barton, L.-J. Gardiner, B. Murphy, A.E. Mayes, S. Paterson, S. Grimshaw, M. Winn, C. Shand, P. Hadjidoukas, W.P.M. Rowe, S. Hawkins, A. MacGuire-Flanagan, J. Tazzioli, J.G. Kenny, L. Parida, M. Hoptrof, E.O. Pyzer-Knapp, **Explainable AI reveals changes in skin microbiome composition linked to phenotypic differences**, www.nature.com/scientificreports 2021

Alterations in the human microbiome have been observed in a variety of conditions such as asthma, gingivitis, dermatitis and cancer, and much remains to be learned about the links between the microbiome and human health. The fusion of artifcial intelligence with rich microbiome datasets can ofer

an improved understanding of the microbiome's role in human health. To gain actionable insights it is essential to consider both the predictive power and the transparency of the models by providing explanations for the predictions. We combine the collection of leg skin microbiome samples from two healthy cohorts of women with the application of an *explainable artifcial intelligence (EAI)* approach that provides accurate predictions of phenotypes with explanations. The explanations are expressed in terms of variations in the relative abundance of key microbes that drive the predictions. We predict skin hydration, subject's age, pre/post-menopausal status and smoking status from the leg skin microbiome. The changes in microbial composition linked to skin hydration can accelerate the development of personalized treatments for healthy skin, while those associated with age may ofer insights into the skin aging process. The leg microbiome signatures associated with smoking and menopausal status are consistent with previous fndings from oral/respiratory tract microbiomes and vaginal/gut microbiomes respectively. This suggests that easily accessible microbiome samples could be used to investigate health-related phenotypes, ofering potential for non-invasive diagnosisand condition monitoring. Our EAI approach sets the stage for new work focused on understanding the complex relationships between microbial communities and phenotypes. Our approach can be applied to predict any condition from microbiome samples and has the potential to accelerate thedevelopment of microbiome-based personalized therapeutics and non-invasive diagnostics.

G. Boyer, S. Brédif, G. Bellemère, C. de Belilovsky, C. Baudouin, **Investigation of Pediatric Sensitive Skin: Characterization by in vivo approach and development of an in vitro model,** Poster at the ISBS Digital Congress 2021, 3-5 June 2021, Berlin, Germany

Skin sensitivity is a self-reported syndrome which affects about 50% of adult population. Recently, a group of expert defined sensitive skin as "A syndrome defined by the occurrence of unpleasant sensations (stinging, burning, pain, pruritus, and tingling sensations) in response to stimuli that normally should not provoke such sensations.These unpleasant sensations cannot be explained by lesions attributable to any skin disease. The skin can appear normal or be accompanied by erythema. Sensitive skin can affect all body locations, especially the face" [2]. There are therefore two kinds of signs that defined sensitive skin, objective signs characterized by erythema and subjective signs characterized by sensations like stinging, burning or tingling. Concerning children, previous work indicates a prevalence of sensitive skin over 30% under 6 years old [3]. The differences between a "normal" immature skin of infant and a "specific" sensitive skin remain unclear. A clinical study was performed to investigate the sensitive skin syndrome in a pediatric population. Based on clinical findings, an in vitro skin model mimicking the features of pediatric sensitive skin was developed.

A. Roca, M. Aso-Perez, B. Martinez-Teipel, J. Bosch, **Balancing epigenetics for skin wellbeing**, PERSONAL CARE MAGAZINE, June 2021

Rather than looking younger, the more mature generations want to feel at one with their age and show off the very best version of themselves. Since more than 90% of decisions are made subconsciously, Provital - with its everlasting commitment to innovation and technological progress in the interests of caring for people – used Artificial Intelligence to demonstrate the emotional impact that its active ingredient Wonderage had on the subconscious of 47 volunteers, providing a holistic approach to an ingredient with a physical improvement on skin luminosity, hydration and density achieved by its effect on the epigenetic signature and on the endogenous hyaluronic acid production. Because overall wellbeing is seen as integrative beauty that embraces both the physical aspect and emotional health. Because happiness is the key to beauty

C. Uhl, D. Khazaka, **Skin sensitization in pandemic times,** PERSONAL CARE MAGAZINE, June 2021

For almost a year and a half, an unprecedented pandemic has had us in its grip worldwide, forcing us to abandon many cherished activities and realign our entire daily lives. It is particularly important in these times to prevent the spread of the pandemic through protective measures, distance and significantly increased requirements for hygiene measures such as the wearing of protective mouth-nose masks and the frequent use of sanitisers on all kinds of surfaces and naturally also on the skin.

I. Dolečková, A. Čápová, L. Machková, S. Moravčíková, M. Marešová, V. Velebný, **Seasonal variations in the skin parameters of Caucasian women from Central Europe,** Skin Research & Technology, Volume 27, Issue 3, May 2021, p. 353-357

Background: The human skin is greatly affected by external factors such as UV radiation (UVR), ambient temperature (T), and air humidity. These factors oscillate during the year giving rise to the seasonal variations in the skin properties. The aim of this study was to evaluate the effect of seasons, environmental T, relative and absolute humidity on the skin parameters of Caucasian women, perform

a literature review and discuss the possible factors lying behind the found changes.Materials and Methods: We measured stratum corneum (SC) hydration, transepidermal water loss (TEWL), sebum level, erythema index, and elasticity parameters R2 and R7 on the forehead and the cheek of Caucasian women from the Czech Republic throughout the year. We also performed a non-systematic literature review focused on the seasonal variations in these skin parameters. Results: We confirmed a well-documented low SC hydration and sebum production in winter. In spring, we found the lowest TEWL (on the forehead) and the highest SC hydration but also the highest erythema index and the lowest elasticity presumably indicating skin photodamage. For most of the skin parameters, the seasonal variations probably arise due to a complex action of different factors as we extensively discussed. Conclusion: The data about the seasonal variations in the skin parameters are still highly inconsistent and further studies are needed for better understanding of the normal skin changes throughout the year.

Y. Gabe, K. Takeda, M. Tobiishi,| S. Kikuchi, K. Tsuda, Y. Haryuu, Y. Nakajima, Y. Inomata, S. Nakamura, D. Murase, S. Tokunaga, M. Miyaki, Y. Takahashi, **Evaluation of subclinical chronic sun damage in the skin via the detection of long-lasting ultraweak photon emission**, Skin Research & Technology, 2021, Volume 27

Background: It is well known that solar radiation accelerates skin photoaging. To evaluate subclinical photodamage in the skin especially from the early phase of ultraviolet (UV)-induced damage, we have focused on ultraweak photon emission (UPE), also called biophotons. Our previous study reported that the amount of long-lasting UPE induced by UV, predominantly from lipid peroxidation, is a valuable indicator to assess cutaneous photodamage even at a suberythemal dose, although it was only applied to evaluate acute UV damage. The aim of this study was to further investigate whether long-lasting UPE could also be a useful marker to assess subclinical chronic sun damage in the course of skin photoaging. Materials and Methods: Forty-three Japanese females in their 20s were recruited and were divided into two groups according to their history of sun exposure based on a questionnaire (high- and low-sun-exposure groups). Several skin properties on the cheek and outer forearm were measured in addition to UV-induced UPE. Results: Among the skin properties measured, water content, average skin roughness, and the lateral packing of lipids in the stratum corneum were significantly deteriorated in the high-sun-exposure group as were changes in some skin photoaging scores such as pigmented spots and wrinkles. In addition, those skin properties were correlated with the UPE signals, suggesting the possible impact of oxidative stress on chronic skin damage. Conclusion: Subtle oxidative stress detected by long-lasting UPE may contribute to subclinical cutaneous damage at the beginning phase of chronic sun exposure, which potentially enhances skin photoaging over a lifetime.

C. Fei, Y. Xu, T. Cao, W. Jiang, Y. Zou, H. Maibach, **Effect of scratching and friction on human skin in vivo,** Skin Research & Technology, 2021, Volume 27,

Objective: To investigate effect of scratching and friction on human skin function and functional differences between scratching and friction. Method: Forty healthy volunteers were enrolled. Scratching and friction behavior was modeled by scalpel and sandpaper simulation to forearm for 80 times, respectively. Noninvasive bioengineering devices were used to measure basic skin physiological parameters and exfoliated stratum corneum collected and protein quantified. Parameters were recorded at baseline (BL) and after every 20 times interventions (20, 40, 60, and 80 times). Results: Compared to BL, transepidermal water loss (TEWL) value increased significantly at both scratched and friction sites ($P < .001$) with a significant higher value for friction ($P < .001$). There was no significant difference in stratum corneum hydration (SCH) value postscratching ($P > .05$), while it decreased first and then increased significantly at friction site ($P < .001$). Roughness values (contract (CONT), variety (VAR), and scaliness (SEsc)) were raised significantly at both sites ($P < .001$). Net change in CONT and SEsc values of friction was higher than scratched sites ($P > .05$). There was no significant difference in blood flow after both scratching and friction ($P > .05$). Quantity of keratinocyte protein from friction sites was statistically higher than scratching after 80 times interventions ($P < .05$). Conclusion: Both noninvasive detections and protein quantification indicated more damage from friction, which may have significance for behavior guidance of patients with pruritus and implication for further investigation.

R. Nitiyarom, L. Anuntarumporn, W. Wisuthsarewong, **Skin hydration and transepidermal water loss after bathing compared between immersion and showering**, Skin Research & Technology, 2021, Volume 27

Background: Various methods of bathing may affect skin properties differently. Aims: To compare the effects of immersion and showering on skin hydration and transepidermal water loss (TEWL). Method: This experimental study included healthy volunteers whose forearms were immersed and showered for 3 minutes. Skin hydration and TEWL were assessed serially before and after immersion and showering of volunteer forearms. Results: Seventy-eight healthy volunteers (49 females,

29 males) were enrolled with an age range of 12-55 years (mean 31.41 ± 10.33). Both methods significantly increased skin hydration and TEWL ($P < .001$). The capacitance value significantly increased immediately after bathing, and then rapidly decreased within 3 minutes. It returned to baseline by 10 minutes after bathing. There was no statistically significant difference of capacitance between the two methods at any measurement ($P > .05$). TEWL at every measurement after bathing was significantly increased compared to baseline for both bathing methods ($P < .001$). The highest TEWL was observed immediately after bathing, but then significantly decreased compared to the previous measurement ($P < .001$). Conclusion: Immersion and showering similarly demonstrated significant increase in skin hydration and TEWL. The increment of capacitance after bathing returned to baseline level within 10 minutes.

S. Jarząbek-Perz, P. Mucha, H. Rotsztejn, **Corneometric evaluation of skin moisture after application of 10% and 30% gluconolactone,** Skin Research & Technology, 2021, Volume 27

Background: Dry skin, caused by improper care or genetic conditions, can affect people of all ages. Skin hydration is determined its lipid content, which inhibits water loss from the epidermis, as well as other substances such as polyhydroxy acids and gluconolactone that can bind water. The aim of this study was to evaluate skin hydration after the application of 10% and 30% gluconolactone solution in a split face model. Materials and methods: Sixteen healthy women were qualified for the study. Three split face treatments were performed, with 10% and 30% gluconolactone solution applied to two sides of the face. Skin moisture was measured before each treatment and a week after the last treatment at three measurement sites on either side of the face, that is, on the forehead, around the eye and on the cheek. Results: Corneometric measurements showed a significant increase in facial skin hydration after gluconolactone treatment. No significant differences were observed between the application of 10% and 30% solution. Conclusion: Gluconolactone is a moisturizing substance which works well in dry skin care.

H. Stettler, R. de Salvo, R. Olsavszky, E.A. Nanu, V. Dumitru, S. Trapp, **Performance and Tolerability of a New Topical Dexpanthenol-Containing Emollient Line in Subjects with Dry Skin: Results from Three Randomized Studies**, Cosmetics 2021, *8*, 18

Three studies were conducted with three new dexpanthenol-containing emollients containing increasing lipid contents (Emollients 1–3) to assess their performances in healthy adults with dry skin. All three studies (N = 42 each) followed virtually the same design. A single skin application of the study product was performed followed by once-daily usage. Skin hydration, transepidermal water loss (TEWL), skin biomechanical properties, and lipid content of the stratum corneum (SC) were regularly assessed over the 28-day study period; a subset (N = 22) underwent a sodium lauryl sulfate (SLS) challenge prior to product application. All three emollients were well tolerated and showed good performances with only minor differences in instrumental measurements. After single and prolonged once-daily applications of Emollients 1–3 to dry skin and dry SLS-damaged skin, skin hydration significantly increased from baseline (BL) (by 38.1–72.4% in unchallenged skin, $p < 0.001$ for all three). This was paralleled by significant increases in skin elasticity parameters. Usage of Emollients 1 and 3 caused increases from BL in SC cholesterol (by 9.8–12.5%, $p < 0.05$ for both) and SC free fatty acid levels (by 3.7–26.3%, $p < 0.05$ for both) at the end of the study. No sustained effects on TEWL were recorded. Our findings support the once-daily use of all three emollients in adults with dry skin.

G. Boyer, S. Bredif, A. Ferret, S. Leclere-Bienfait, M. Le Roux, **Algae-derived active for sensitive skin**, PERSONAL CARE, April 2021, p. 29-35

Born from a close collaboration between two French companies, the active ingredient Algaenia®, made from the green gold produced by the culture of *Chlamydomonas acidophila* (Glycerin, Propanediol, Water, *Chlamydomonas Acidophila* Extract) was developed through a biotechnological process (enzymatic hydrolysis). Algaenia®, a 100% made-in-France active ingredient, is thus bio-inspired from the ecosystem of this microalgae: as it prospered in very inhospitable waters, the resulting peptides allow the skin to withstand the harsh conditions of its environment.

P. Orzol, I. Doleckova, J. Starigazdova, G. Huerta-Angeles, V. Velebny, **Safe and strategic – Hyaluronic and retinoic acid derivate allays aging and acne,** Cosmetics & Toiletries, April 2021, p. 61-70

Retinoids are a group of active molecules comprising vitamin A and its natural and synthetic derivatives. Commonly used in cosmetic products, these lipophilic molecules bind to specific nuclear receptors that modulate the expression of genes involved in cellular proliferation and differentiation, e.g., of keratinocytes, which can normalize desquamation. The topical application of retinoic acid, for one, has been shown to improve clinical features of aged skin by reducing wrinkles and diminishing hyperpigmentation.

D. Leskur, I. Perišić, K. Romac, H. Šušak, A. Šešelja Perišin, J. Bukić, D. Rušić, N. Kladar, B. Božin, D. Modun, **Comparison of mechanical, chemical and physical human models of in vivo skin damage: Randomized controlled trial**, Skin Research & Technology, Volume 27, Issue 2, March 2021 p. 208-216

Introduction: Human in vivo models of skin damage were often used in research of cutaneous disorders. The most commonly used models were tape-stripping as mechanical, sodium lauryl sulphate-induced irritation as chemical and ultraviolet radiation as physical damage model. In regard to differences between models, they were expected to have different responses to damage and recovery, with unique skin parameters' changes over time. Objective: The aim was to compare skin parameters in three different skin damage models on the same anatomical location, with and without topical treatment. Methods: Four test sites on each forearm were randomly assigned to three skin damage models with the fourth sites on each forearm chosen as a control, undamaged site. Skin parameters were assessed using non-invasive methods. Results: Sodium lauryl sulphate irritation caused the strongest damage with delayed reaction to the irritant. Tape stripping leads to highest initial skin barrier disruption but afterwards it showed the fastest skin recovery. Ultraviolet radiation did not affect skin barrier function, but it elevated skin erythema and melanin level. Tested preparation did not lead to changes in measured parameters. Conclusion: The skin of the participants had different response to three skin damage models with distinct changes of skin parameters and recovery.

A. Roca, M. Perez-Aso, B. Martinez-Teipel, J. Bosch, **Glowing Review - Monk Fruit Encourages Epigenetic Well Aging**, Cosmetics & Toiletries, March 2021, p. 53-62

Aging is characterized by the accumulation of macromolecular damage, impaired tissue renewal and progressive loss of physiological integrity. Over the past decade, a growing number of studies also has revealed that progressive changes to epigenetic information have a major influence on the aging process. Lifestyle habits, diet, pollution and other environmental factors all impact the human life span by altering epigenetic information. Therefore, given the reversible nature of epigenetic mechanisms, these studies provide promising avenues for healthy aging.

E. Besic Gyenge, S. Hettwer, B. Suter, B. Obermayer, **Genderless cosmetics with gender-specific efficacy**, PERSONAL CARE, March 2021, p. 50-52

Unisex was yesterday's trend – genderless beauty is here to stay. The definition of gender has become very fluid. It now goes beyond simply 'male' and 'female', taking the form of a desire for acceptance and empowerment in one's own person. Man, woman, transgender and those who fall under any other definitions of gender should be able not only to share fashion but also their lotions and potions. From the consumers' point of view, this makes cosmetics more practical and sustainable. Nevertheless, genderless cosmetics should not be defined in terms of non-binary fragrances but rather by their mode of action, which should adapt to the respective needs of various skin types. However, where to start? Can genderless skin care truly cater to the distinct needs of male and female skin? Are there differences between male and female skin? With this in view, our approach has been to develop Reforcyl®-Aion, an active ingredient with the capability to spring clean skin cells, activating and rejuvenating them, improving overall skin appearance and positively influencing the personal perception of beauty. Reforcyl-Aion meets the individual needs of skin regardless of gender or age.

S. Leoty-Okombi, F. Gillaizeau, S. Leuillet, B. Douillard, S. le Fresne-Languille, T. Carton, A. de Martino, P. Moussou, C. Bonnaud-Rosaye, V. André, **Effect of Sodium Lauryl Sulfate (SLS) Applied as a Patch on Human Skin Physiology and Its Microbiota**, Cosmetics 2021, *8*, 6

In this study, we assessed the change in skin microbiota composition, relative abundance, and diversity with skin physiology disruption induced by SLS patch. Healthy women declaring to have a reactive skin were submitted to a 0.5% aqueous sodium lauryl sulfate solution application under occlusive patch condition for 24 h. Skin properties were characterized by tewametry, corneometry, and colorimetry and bacterial diversity was assessed by 16S rRNA sequencing. Analysis before and one day after SLS patch removal revealed an increase of skin redness and a decrease of stratum corneum hydration and skin barrier function. The relative abundance of taxa containing potential pathogens increase (Firmicutes: Staphylococcaceae; Proteobacteria: Enterobacteriaceae, Pantoea) while some of the most occurring Actinobacteria with valuable skin protection and repair capacities decreased (Micrococcus, Kocuria, and Corynebacterium). We observed an impaired skin barrier function and dehydration induced by SLS patch disturb the subtle balance of skin microbiota towards skin bacterial community dysbiosis. This study provides new insights on the skin bacterial composition and skin physiology simultaneously impaired by a SLS patch.

J. Kottner, U. Blume-Peytavi, **Reliability and agreement of instrumental skin barrier measurements in clinical pressure ulcer prevention research**, Int Wound J. 2021; p. 1-12

In skin and wound research the instrumental measurement of skin function is established. Despite the widespread use, empirical evidence about measurement errors is widely lacking. The aim of this study was to measure reliability and agreement of skin temperature, transepidermal water loss, epidermal hydration, and erythema at the heel and sacral skin. Four experienced researchers performed skin measurements in 15 subjects. Lowest reliability was observed for transepidermal water loss at the sacral skin (ICC (1) 0.46 (95% CI 0.00-0.78)) and highest for skin temperature at the heel skin (ICC (1) 0.99 (95% CI 0.99-1.00)). Lowest Standard Errors of Measurement were calculated for skin temperature measurements at the heels (0.11°C) and highest for erythema measurements at the sacral skin (26.7 arbitrary units). There was a clear association between variability of estimates and reliability coefficients. Single measurements of skin temperature, stratum corneum, and epidermal hydration at the sacral and heel skin areas can be used in clinical research and practice. Means of at least two measurements should be used for estimating transepidermal water loss and erythema. Evidence is needed to inform researchers about relative and absolute measurement errors of commonly applied instruments and measurements in skin and wound research.

C. Uhl, D. Khazaka, **Pomiar Rzeczywistego Wieku Skóry,** CHEMIA I BIZNES. 1/2021

Nagłówki w czasopismach i blogi coraz częściej ogłaszają, że „50 lat to nowe 30". Czy to faktycznie prawda? Czy osoby „po pięćdziesiątce" rzeczywiście są dziś bardziej sprawne fzycznie i umysłowo – i wyglądają młodziej – niż kiedyś?

A. Tortora, M. Bimonte, A. Tito, C. Zappelli, F. Apone, **Soothing Moves - Cannabis Sativa Cell Culture Alleviates Inflammation**, Cosmetics & Toiletries, January 2021, p. 34-44

Originating from central Asia, Cannabis sativa is an annual herbaceous flowering plant. Although used medicinally for centuries, it recently has experienced a significant resurgence in interest, becoming a buzzword in beauty. The main reasons behind this are the richness of chemical compounds produced by the plant and the significant opening up of regulatory markets. Cannabis plants contain more than 500 known compounds.

G.G. Hillebrand, P. Dimitriu, K. Malik, Y. Park, D. Qu, W.W. Mohn, R. Kong, **Temporal Variation of the Facial Skin Microbiome: A 2-Year Longitudinal Study in Healthy Adults**, Plast. Reconstr. Surg. 147: 50S, 2021

Background: The human skin microbiome is highly personalized, depending on, for example, body site, age, gender, and lifestyle factors. The temporal stability of an individual's skin microbiome—its resiliency and robustness over months and years—is also a personalized feature of the microbiome. The authors measured the temporal stability of the facial skin microbiome in a large cohort of subjects. In addition to measuring microbiome dynamics, they tracked facial skin condition using noninvasive, objective imaging and biophysical measures to identify signifcant facial features associated with temporal changes in microbiome diversity and composition. Methods: The authors used 16S ribosomal RNA amplicon sequencing to track cheek and forehead skin microbiome diversity and composition annually over a 2-year period (2017–2019) in 115 healthy adult men and women. Skin metadata included facial features, such as wrinkles, hyperpigmentation, porphyrins, and skin color tone, as well as biophysical parameters for stratum corneum barrier function, pH, hydration, and elasticity. Results: Across the subject population, the facial skin microbiome composition and diversity were relatively stable, showing minor variation over the 2-year period. However, for some subjects, composition, diversity, and relative abundance of specifc organisms showed substantial changes from one year to the next, and these changes were associated with changes in stratum corneum barrier function and follicular porphyrins. Conclusions: For healthy people, facial skin microbiome diversity and composition are relatively stable from year to year. Tracking the temporal changes in the microbiome along with skin phenotypic changes allows for a deeper understanding of the skin microbiome's role in health and disease. These results should be helpful in the design of longer-term intervention trials with microbiome-based skin care treatments.

H. Stettler, J.M. Crowther, M. Brandt, B. Lu, A. Boxshall, R. de Salvo, S. Laing, N. Hennighausen, S. Bielfeldt, P. Blenkiron, **Targeted dry skin treatment using a multifunctional topical moisturizer**, International Journal of Cosmetic Science, 2021, 43, p. 191–200

Objective: The development of dry skin is a complex process, with a wide variety of factors each playing different roles in its evolution. Given this, it is important when designing a formulation to tackle dry skin that these varied aspects of skin behaviour are addressed. Presented here are the results of a 3-week moisturization study carried out on dry legs. A wide range of traditional and more recently

developed biophysical measurement methods have been combined with visual assessment of skin condition to enable multiple aspects of skin function to be determined. The observed changes in the skin are discussed in terms of the ingredients used in the moisturizing formulation. Methods: A range of novel and traditional skin assessment methods and techniques were used to assess the effects of an oil in water-based moisturizing product compared to an untreated site during a 3-week in vivo study on dry lower leg skin. Results: Statistically significant improvements were observed in a range of skin parameters as a result of product usage. Skin hydration assessed using Corneometer, Epsilon and visual dry skin grading all increased after 3 weeks of use. Skin barrier function measured using transepidermal water loss also improved. Levels of cholesterol, free fatty acids and Ceramide NH increased, as well as the average length of the stratum corneum (SC) lipid lamella bilayers, and the ratio of lipid to protein increased (measured using Lipbarvis and in vivo Confocal Raman Spectroscopy). Increases in the levels of Ceramide EOS and NP were also observed, along with an improvement in corneocyte maturity, although these were not statistically significant. Conclusions: Using a variety of traditional and novel skin assessment techniques, a wide range of factors associated with the evolution of dry skin have been assessed upon treatment with a new topical moisturizer. Product usage resulted in significant improvements to skin hydration and barrier function, the levels and morphology of SC barrier lipids, and overall epidermal differentiation. As a result there was a significant reduction in the characteristics associated with the development of dry skin after use of the test product.

H. Stettler, J. M. Crowther, M. Brandt, A. Boxshall,B. Lu, R. de Salvo, S. Laing, N. Hennighausen, S. Bielfeldt, P. Blenkiron, **Multi parametric biophysical assessment of treatment effects on xerotic skin**, Health and Disease, 1, 2021

Background: Topical moisturizing products are widely used to alleviate the problems associated with xerotic skin. Their use affects many properties of the stratum corneum (SC) in a complex and interrelated manner. The range of measurement techniques available to the researcher has increased in recent years. However, few studies have looked for correlations between the different techniques for assessing how aspects of xerotic skin change over time as a result of topical moisturizer usage. Objectives: A 3-week in vivo study using an oil-in-water based moisturizing product and an untreated site was conducted to determine the clinical signifcance of and any correlations between a range of different approaches for the measurement of skin lipid content and also skin hydration and visual grading of dry skin. Methods: A range of traditional and more recently developed skin measurement techniques have been used to examine a variety of SC properties in normal and xerotic skin during topical moisturizer usage. Results: In vivo confocal Raman spectroscopy and analysis of SC lipids from tape strips both showed an increase in SC lipid level and organization after 3 weeks of moisturizer usage on xerotic skin. Hydration, measured both optically and electrically, also increased and skin barrier function improved, with strong correlations between the different measures of dryness being observed. Conclusions: Strong correlations were observed between the skin measurements for lipid assessment and skin hydration with regard to the assessment of xerotic skin, providing valuable new information for future in vivo clinical research into dry and atopic skin.

R. Grabenhofer, **Burt's Bees Proves Bakuchiol's Retinollike and Turmeric's Anti-inflammatory Effects**, C&T online, December 2020

The anti-aging and anti-inflammatory properties of bakuchiol, a natural and gentler alternative to retinol, were demonstrated in skin, as was the efficacy of a natural turmeric lip balm. Following its efficacy-first approach to naturals, Burt's Bees presented research during the virtual Integrative Dermatology Symposium proving the effects of bakuchiol and turmeric to defend and restore healthier-looking skin. More specifically, the anti-aging and anti-inflammatory properties of bakuchiol, a natural and gentler alternative to retinol, were demonstrated in skin, as was the efficacy of a natural lip balm containing turmeric for its benefits in dry or compromised lip conditions.

L. Binder, V. Klang, S. Sheikh Rezaei, O. Neuer, M. Wolzt, C. Valenta, ***In vivo*** **analysis of physiological skin parameters: Confocal Raman spectroscopy and classical biophysical techniques**, Poster University of Vienna, Department of Pharmaceutical Technology and Biopharmaceutica

New drug delivery systems have to overcome the skin barrier without causing irritation. Thus, knowledge of the skin composition is essential to obtain reliable data about the impact of dermal products. Besides the formulations' physicochemical properties and stability, its influence on skin physiology is an important aspect in the development of new dermal drug delivery systems. We have recently developed novel concentrated water-in-oil (W/O) emulsions based on a non-ionic silicone surfactant. The aim of this study was to assess the effect of these formulations on physiological skin

parameters of healthy volunteers after repeated application. To this end, confocal Raman spectroscopy (CRS) and classical biophysical techniques were used.

D.J. Son, J.C. Jung, Y.M. Choi, H.Y. Ryu, S. Lee, B.A. Davis, **Wheat Extract Oil (WEO) Attenuates UVB-Induced Photoaging via Collagen Synthesis in Human Keratinocytes and Hairless Mice**, Nutrients 2020, 12, 300

The efficacy of wheat extract oil (WEO), standardized to glucosylceramides, for protectingagainst ultraviolet B (UVB)-induced damage of skin barrier function was assessed using the SHK-1 hairless mouse model and two human skin cell lines, namely, CCD-986sk and HeCaT. The ability of repeated oral administration of 30, 60, and 120 mg of WEO/kg/day for 12 weeks to prevent skin damage of SKH-1 hairless mice induced by UVB irradiation was evaluated. The results demonstrated that UVB-induced water evaporation (transepidermal water loss, TEWL) was significantly decreased by WEO. Similarly, UVB-induced losses in moisture and skin elasticity were improved by WEO supplementation. WEO attenuated the tissue procollagen type I, hyaluronic acid (HA), and ceramide reductions induced by UVB treatment as well. Collagen concentrations in skin tissue were increased in the WEO-treated mice, while UVB-induced epidermal thickening was reduced. In vitro studies using HeCaT human keratinocytes confirmed increased HA and collagen synthesis in response to WEO treatment. This may occur via WEO suppression of matrix metallopeptidase-1 (MMP-1), since its induction by UVB treatment was diminished in treated CCD- 986sk cells. Oral administration of WEO improves skin barrier function in UVB-irradiated mice by attenuating damage typically observed in photoaging. This research further clarifies the clinical benefits previously observed by dietary WEO consumption.

T. Yazdanparast, K. Yazdani, S.A. Nasrollahi, L. Izadi Firouzabadi, P. Humbert, A. Khatami, M. Kassir, A. Firooz, **Biophysical and ultrasonographic changes in early patch/plaque stage of mycosis fungoides, compared with uninvolved skin,** Skin Research & Technology, Volume 26, Issue 6, November 2020, p. 859-866

Background: The goal of this study was evaluation of the skin biophysical properties in early patch/plaque stage of mycosis fungoides (MF) and its comparison with uninvolved skin in order to gain a better understanding of the pathogenesis of diseases. Materials and Methods: The stratum corneum hydration, transepidermal water loss (TEWL), surface friction, pH, sebum, melanin, erythema, temperature, elasticity parameters (R0, R2, R5), thickness, and echo density of epidermis and dermis were measured on lesions of 21 patients and compared with controls (average measures of uninvolved perilesional and symmetrical skins) by paired sample *t* test. Results: Stratum corneum hydration ($P < 0.001$) and echo density of dermis ($P = 0.044$) were significantly lower, whereas pH (P-value = 0.007), erythema ($P < 0.001$), and melanin content ($P = 0.007$) were significantly higher in lesions. There was not any significant difference in TEWL, friction index, sebum, temperature, R0, R2, R5, thickness of epidermis and dermis, and echo density of epidermis between lesions and normal skin. Conclusion: Parapsoriasis/MF lesions are specified by a set of certain changes in biophysical properties which are mainly correlated with histological changes. These sets of alterations may help in noninvasive, early diagnosis of parapsoriasis/MF.

N. Chaiwong, P. Leelapornpisid, K. Jantanasakulwong, P. Rachtanapun, P. Seesuriyachan, V. Sakdatorn, N Leksawasdi, Y. Phimolsiripol, **Antioxidant and Moisturizing Properties of Carboxymethyl Chitosan with Different Molecular Weights**, Polymers 2020, 12, 1445

This research aimed to synthesize carboxymethyl chitosan (CMCH) from different molecular weights of chitosan including low MW (L, 50–190 kDa), medium MW (M, 210–300 kDa) and high MW (H, 310–375 kDa) on the antioxidant and moisturizing properties. The L-CMCH, M-CMCH and H-CMCH improved the water solubility by about 96%, 90% and 89%, respectively when compared to native chitosan. Higher MW resulted in more viscous of CMCH. For antioxidant properties, IC50 values of DPPH and ABTS radical scavenging activity for L-CMCH were 1.70 and 1.37 mg/mL, respectively. The L-CMCH had higher antioxidant properties by DPPH and ABTS radical scavenging assay and FRAP. The moisturizing properties on pig skin using a Corneometer® showed that 0.5% H-CMCH significantly presented (p □ 0.05) greater moisturizing effect than that of untreated-skin, distilled water, propylene glycol and pure chitosan from three molecular weights.

J. Pavla□ková, P. Egner, R. Slavík, P. Mokrejš, R. Gál, **Hydration and Barrier Potential of Cosmetic Matrices with Bee Products**, Molecules 2020, 25, 2510

Honey, honey extracts, and bee products belong to traditionally used bioactive molecules in many areas. The aim of the study was primarily to evaluate the effect of cosmetic matrices containing honey and bee products on the skin. The study is complemented by a questionnaire survey on the

knowledge and awareness of the effects and potential uses of bee products. The effect of bee molecules at various concentrations was observed by applying 12 formulations to the skin of the volar side of the forearm by non-invasive bioengineering methods on a set of 24 volunteers for 48 h. Very good moisturizing properties have been found in matrices with the glycerin extract of honey. Matricescontaining forest honey had better moisturizing effects than those containing flower honey. Barrier properties were enhanced by gradual absorption, especially in formulations with both glycerin and aqueous honey extract. The observed organoleptic properties of the matrices assessed by sensory analysis through 12 evaluators did not show statistically significant differences except for color and spreadability. There are differences in the ability to hydrate the skin, reduce the loss of epidermal water, and affect the pH of the skin surface, including the organoleptic properties between honey and bee product matrices according to their type and concentration.

S. Laneri, I. Dini, A. Tito, R. di Lorenzo, M. Bimonte, A. Tortora, C. Zappelli, M. Angelillo, A. Bernardi, A. Sacchi, M.G. Colucci, F. Apone, **Plant cell culture extract of Cirsium eriophorum with skin pore refiner activity by modulating sebum production and inflammatory response**, Phytotherapy Research. 2020; p. 1–11

Facial pore enlargement is considered a significant esthetic and health concern in skincare cosmetics. The pores fulfill the critical function of keeping the skin surface hydrated and protected against microbial infections. The hyperseborrhea, the stress factors, and the hormonal triggers can cause pore size enlargement, causing higher susceptibility of the skin to microbe aggressions and inflammatory reactions. Thus, reducing excessive sebum production and keeping functional pores are two of the most requested activities in skincare cosmetics. A Cirsium eriophorum cell culture extract was investigated for its role in sebum regulation, stratum corneum desquamation, and anti-inflammation. The extract was able to regulate essential markers associated with sebum secretion and pore enlargements, such as the enzyme 5□-reductase, which plays a central role in sebum production, and the trypsin-like serine protease Kallikrein 5, which promotes skin exfoliation and antimicrobial response. Moreover, the extract showed a sebum-normalizing and pore refining activity in individuals having seborrheic or acne-prone skins, suggesting a role of the C. eriophorum extract in rebalancing altered skin conditions responsible for pore enlargement.

E. Tamura, H. Yasumori, T. Yamamoto, **The efficacy of a highly occlusive formulation for dry lips**, International Journal of Cosmetic Science, 2020, 42, p. 46–52

Objective: Since skin on the lips has a lower water content in the stratum corneum (SC) and a higher transepidermal water loss (TEWL) value than skin on the cheek, the lips are usually very dry and rough areas. Therefore, a lip balm approach to increase occlusivity of the lips is generally used to reduce water loss. Although there have been reports of an improvement effect on lip roughness by specific care agents, differences in the effects due to the occlusivity of a formulation without a specific care agent have not been reported. The purpose of this study was to clarify the improvement effect on dryness and roughness of the lips by a highly occlusive formulation consisting of a combination of common oil and wax, not by a specific care agent. Methods: Twenty Japanese female subjects with normal skin (age range 20–39 years; mean 28.1) were enrolled in this study. A 4-week continuous use test was conducted using samples with low and high occlusivity. The degree of lip roughness and wrinkles was scored, the hollow index was assessed using ANTERA 3D images, and values of capacitance and TEWL were measured. RESULTS: The hollow index was significantly correlated with both the appearance roughness score and the wrinkle score. The sample with high occlusivity showed significant improvement in the appearance roughness score, wrinkle score, the hollow index and capacitance of the SC. In a comparison between the groups of samples with different occlusive properties, a significant improvement effect in rough appearance was seen in subjects using the highly occlusive formulation. CONCLUSION: The hollow index assessed by ANTERA 3D imaging allowed the objective evaluation of the improvement in appearance. In the case of continuous use of the highly occlusive formulation, an improvement of capacitance in the SC, which is most correlated with lip roughness, was obtained after 2 and 4 weeks. These results demonstrate for the first time that a highly occlusive formulation is effective in improving the roughness of the lips, and this effect is due to the difference in the occlusive property not by a specific care agent.

R.L. Evans , S. Bates, R.E. Marriott, D.S. Arnold, **The impact of different hair-removal behaviours on the biophysical and biochemical characteristics of female axillary skin**, International Journal of Cosmetic Science, 2020, 42, p. 436–443

Objective: The impact of hair removal on the biophysical and biochemical characteristics of human axillary skin is not fully understood. This study investigated the effect of different hair-removal techniques on biophysical parameters and the concentrations of key inflammatory biomarkers in the

axillae of female Thai subjects. Axillary hair was removed by shaving, plucking or waxing. Methods: Following a 2-week washout phase without hair removal, subjects underwent visual assessment for erythema and skin dryness in one (randomized) axilla, then hair was removed from the axilla by shaving, plucking or waxing according to each subject's established habit. Erythema and dryness were assessed again 30 min after hair removal, and buffer scrubs collected from depilated and non-depilated axillae and analysed for inflammatory cytokines; after a further 48 h, erythema, dryness and post-inflammatory hyperpigmentation (PIHP) were assessed in the depilated axilla. Biophysical assessments (skin hydration, barrier integrity, elasticity and roughness) were made in depilated and non-depilated axillae. Results: All three hair-removal techniques induced an increase in axillary erythema and skin dryness. Shaving was associated with significantly less erythema ($P < 0.01$), but significantly greater skin dryness ($P < 0.05$) versus the other techniques 30 min after hair removal. There were no between-technique differences in PIHP or biophysical parameters. Interleukins IL-1a and IL-1RA concentrations increased, and IL-8 concentration decreased following hair removal by each technique. Conclusion: This is the first study to identify the principal cytokines associated with the inflammatory process triggered by axillary hair removal. A single hair-removal treatment did not appear to induce PIHP or further biophysical changes to the skin.

J. H. Alfonso, A.K. Afanou, J.-0. Holm, E. Stylianou, **Skin bioengineering in the diagnosis of occupational protein contact dermatitis**, Occupational Medicine 2020;70:282-285

Protein contact dermatitis (PCD) often presents as chronic hand eczema (CHE) with an immediate hypersensitivity to protein proved by a positive skin prick test or by the presence of specific immunoglobulin E.This is frequently induced by occupational exposure to proteins in food workers, farmers, animal breeders, veterinarians and healthcare professionals.While skin barrier impairment is crucial in the pathogenesis of PCD, methods to assess skin barrier function such as trans-epidermal water loss and stratum corneum hydration are not widely used in clinical settings. We describe the diagnostic workup of occupational PCD due to Argentinean shrimps and discuss how the use of skin bioengineering methods including assessment of corneocytes morphology by Scanning Electron Microscopy provides with insightful information on skin barrier function. Diagnosis of PCD is timeconsuming and a multidisciplinary team contributes to early diagnosis and proper occupational rehabilitation.

I. Konya, I. Shishido, Y.M. Ito, R. Yano, **Combination of minimum wiping pressure and number of wipings that can remove pseudo-skin dirt: A digital image color analysis**, Skin Research & Technology, Volume 26, Issue 5, September 2020, p. 639-647

Background: Excessive wiping friction in skin care may lead to skin damage. Bed baths are required to remove skin dirt without affecting the skin barrier function; the wiping pressure and number of wipings that satisfy these two requirements have not been clarified. This study aimed to determine the minimum wiping pressure and number of wipings that can remove skin dirt. Materials and Methods: In this quasi-experimental study, 50 healthy adults received an adhesion of pseudo-oily and aqueous dirt, randomly assigned to the left and right forearms. Each participant was wiped three times with wiping pressure classified into six randomly assigned categories. The dirt removal rate was calculated by coloranalyzing images captured before and after each wiping, and its dependence on the combination of wiping pressure and number of wipings was assessed using a linear mixed model. Results: The combinations achieving oily dirt removal rates of 80% or more were wiping once and pressure ≥50 mmHg, wiping twice and pressure ≥40 mmHg, and wiping thrice and pressure ≥10 mmHg. Aqueous dirt was removed almost completely by wiping once, even with pressure ≥5 mmHg. Conclusion: Wiping with at least 10 mmHg or more three times can sufficiently remove both oily and aqueous dirt. Dirt removal rates with weak pressure can be made about as effective as those achieved with strong pressure by increasing the number of wipings. This result can be applied to daily nursing, home care, and long-term care health facilities.

J. Yang, Y. Tu, M.-Q. Man, Y.-J. Zhang, Y.i Cha, X. Fan, Z. Wang, Z. Zeng, L. He, **Seasonal variations of epidermal biophysical properties in Kunming, China: A self-controlled cohort study,** Skin Research & Technology, Volume 26, Issue 5, September 2020, p. 702-707

Background: Epidermal biophysical properties can be affected by many factors, including body site, age, gender, ethnicity, disease, temperature, humidity, and ultraviolet (UV) radiation. Information about variation of epidermal biophysical properties with seasons is still limited. In the present study, we determined seasonal variation of epidermal biophysical properties of women in Kunming, China. Materials and Methods: A total of 72 women, aged 22.96 ± 2.11 years, were enrolled in this study. Transepidermal water loss rates (TEWL), stratum corneum (SC) hydration, sebum content, melanin index (MI), erythema index (EI), and *L*a** values were measured on the right cheek and the right forearm,

using a non-invasive skin physiological instrument in the spring, summer, autumn, and winter in Kunming, China. Results: On the cheek, TEWL, SC hydration, sebum, MI, and *L*a** values varied greatly with seasons ($P < .05$). SC hydration, sebum, MI, and *a**value peaked in the summer, but went lowest in winter. In contrast, TEWL and *L**value went lowest in summer but peaked in winter. Similarly, SC hydration, MI, and *L**value also varied with seasons on the forearm ($P < .05$). In addition, SC hydration, sebum, MI, EI, and *a**value of the cheek were higher than that of the forearm ($P < .001$), but *L**values of the cheek were lower than that of the forearm ($P < .001$). There were no correlations among TEWL and MI, EI, and *L*a**values in any season ($P > .05$). Conclusions: Both epidermal permeability barrier function, sebum, and skin pigment in healthy women vary seasons in Kunming, China.

L. Nakab, C.K. Hee, O. Guetta, **Improvements in Skin Quality Biological Markers in Skin Explants Using Hyaluronic Acid Filler VYC-12L**, Plast Reconstr Surg Glob Open 2020

Background: Hyaluronic acid (HA), both crosslinked and uncrosslinked, is usedclinically to treat fne lines and provides additional improvements in skin quality attributes. The purpose of this study was to assess potential early differences in the expression of biological markers of skin quality in living human skin explants injected with uncrosslinked and crosslinked HA gels. Methods: Living human skin explants injected with VYC-12L or noncrosslinkedHA with mannitol (HYD) and noninjected controls were assessed via microscopy, histology, and immunohistochemistry on days 3 and/or 8 for biological markers of elasticity (collagen density, elastin, fbrillin-1) and hydration [aquaporin-3, acidic glycosaminoglycans (GAGs), HA]. Hydration was also assessed via a corneometer probe on days 0, 1, 2, and 8. Results: On day 3 versus controls, VYC-12L moderately increased collagen density in the upper reticular dermis and clearly increased fbrillin-1 expression, with slight increases persisting on day 8. Increases with HYD were smaller and did not persist on day 8. Both VYC-12L and HYD increased aquaporin-3 expression and GAG content on days 3 and 8, but VYC-12L produced greater GAG increases in the reticular dermis. Day 8 instrument-assessed hydration increased by 49% and 22% for VYC-12L and HYD, respectively. Elastin expression in oxytalan and elaunin fbers was unchanged. Upper-dermal HA reductions suggested HA injectioninduced hyaluronidase expression. Conclusion: VYC-12L produced greater, more lasting improvements in biological markers of skin quality than HYD.

J. Yo, .J.Y. Choi, B.Y. Lee, C.H. Shin, J.-W. Shin, C.H. Huh, J.-I. Na, **Therapeutic Effects of Saline Groundwater Solution Baths on Atopic Dermatitis: A Pilot Study**, Evidence-Based Complementary and Alternative Medicine, Volume 2020

Background: Saline groundwater, collected from the east coast of Korea, has been shown to have protective effects against 2,4- dinitrochlorobenzene- (DNCB-) induced atopic dermatitis-like skin lesions in the murine model. Objectives: To determine the effects of saline groundwater solution baths as a treatment of mild-to-moderate atopic dermatitis. Methods: Twenty-four subjects with mild-to-moderate atopic dermatitis were instructed to take a bath in saline groundwater solution for 20 minutes per day for two weeks. Evaluations were performed at baseline and week 2, including SCORing Atopic Dermatitis (SCORAD) index, corneometry, transepidermal water loss, visual analogue scale for pruritus, and collection of adverse events. Results: Subjects showed significant improvement with respect to the SCORAD index, skin hydration, transepidermal water loss, and pruritus at week 2 when compared with the baseline. Conclusion: Baths in saline groundwater solution may be an alternative therapeutic strategy for treating atopic dermatitis.

E. Sofrona, L.-A. Tziveleka, M. Harizani, P. Koroli, I. Sfiniadakis, V. Roussis, M. Rallis, E. Ioannou, **In Vivo Evaluation of the Wound Healing Activity of Extracts and Bioactive Constituents of the Marine Isopod Ceratothoa oestroides**, Mar. Drugs 2020, 18, 219

Wound healing is a fundamental response to tissue injury and a number of natural products has been found to accelerate the healing process. Herein, we report the preparation of a series of different polarity (organic and aqueous) extracts of the marine isopod Ceratothoa oestroides and the in vivo evaluation of their wound healing activity after topical administration of ointments incorporating the various extracts on wounds inflicted on SKH-hr1 hairless mice. The most active extract was fractionated for enrichment in the bioactive constituents and the fractions were further evaluated for their wound healing activity, while their chemical profiles were analyzed. Wound healing was evaluated by clinical assessment, photo-documentation, histopathological analysis and measurement of biophysical skin parameters, such as transepidermal water loss (TEWL), hydration, elasticity, and skin thickness. The highest levels of activity were exerted by treatment of the wounds with a fraction rich in eicosapentaenoic acid (EPA), as well as myristic and palmitoleic acids. Topical application of the bioactive fraction on the wounds of mice resulted in complete wound closure with a skin of almost normal architecture without any inflammatory elements.

D. Maggioni, A. Cimicata, A. Praticò, R. Villa, F.M. Bianchi, S. Busoli Badiale, C. Angelinetta, **A Preliminary Clinical Evaluation of a Topical Product for Reducing Slight Rosacea Imperfections**, Clinical, Cosmetic and Investigational Dermatology 2020:13, p. 299–308

Introduction: Rosacea is a chronic multifactorial skin disorder mainly affecting facial skin with an estimated prevalence of about 5% worldwide. Its main symptoms, occurring early during pathology development, are skin dehydration, redness, erythema, and telangiectasia. Given the lack of a resolutive cure, therapeutic approaches able to relieve the main symptoms are needed. Purpose: The aim of this research article is to evaluate the beneficial effect of a topical product (Serum BK46) on rosacea symptoms. Patients and Methods: A monocentric single-arm, non-blinded study was performed to assess the clinical effect of Serum BK46 in relieving the main symptoms of rosacea: skin dryness, increased transepidermal water loss (TEWL), redness, and abnormal vascularization. Twenty patients with mild to moderate rosacea were enrolled in the study and asked to apply the product twice per day for 56 days. Skin moisturization, TEWL, and erythema index were instrumentally assessed at baseline and following 24 h and 14, 28 and 56 days of treatment. Clinical parameters, including redness and telangiectasia imperfection visibility, were evaluated on a 5-point scale by a specialized dermatologist at baseline and after 14, 28, and 56 days of treatment. Finally, the visibility of vessel diameter was evaluated at baseline and after 28 and 56 days of treatment. Results: Serum BK46 application restored skin hydration and prevented the loss of water by the skin. Long-term treatment with Serum BK46 significantly reduced skin redness, erythema index, and the visibility of telangiectasia imperfections and superficial vessels. The investigated product's clinical effect was demonstrated by both instrumental and clinical evaluation. Furthermore, Serum BK46 was completely tolerated and no adverse effects were recorded. Conclusion: The moisturizing and skin barrier restoring action of Serum BK46 has been clearly proven in patients displaying mild to moderate rosacea; thus, this product is a good candidate for rosacea treatment.

M.G. Suh, G. Y. Bae, K. Jo, J.M. Kim, K.-B. Hong, H.J. Suh, **Photoprotective Effect of Dietary Galacto-Oligosaccharide (GOS) in Hairless Mice via Regulation of the MAPK Signaling Pathway**, Molecules 2020, 25, 1679

This study investigated the suppression of photoaging by galacto-oligosaccharide (GOS) ingestion following exposure to ultraviolet (UV) radiation. To investigate its photoprotective effects, GOS along with collagen tripeptide (CTP) as a positive control was orally administered to hairless mice under UVB exposure for 8 weeks. The water holding capacity, transepidermal water loss (TEWL), and wrinkle parameters were measured. Additionally, quantitative reverse-transcription polymerase chain reaction and Western blotting were used to determine mRNA expression and protein levels, respectively. The GOS or CTP orally-administered group showed a decreased water holding capacity and increased TEWL compared to those of the control group, which was exposed to UVB (CON) only. In addition, the wrinkle area and mean wrinkle length in the GOS and CTP groups significantly decreased. Skin aging-related genes, matrix metalloproteinase, had significantly different expression levels in the CTP and GOS groups. Additionally, the tissue inhibitor of metalloproteinases and collagen type I gene expression in the CTP and GOS groups significantly increased. Oral administration of GOS and CTP significantly lowered the tissue cytokine (interleukin-6 and -12, and tumor necrosis factor-α) levels. There was a significant difference in UVB-induced phosphorylation of JNK, p38, and ERK between the GOS group and the CON group. Our findings indicate that GOS intake can suppress skin damage caused by UV light and has a UV photoprotective effect.

H.J. Choi, B.R. Song, J.E. Kim, S.J. Bae, Y.J. Choi, S.J. Lee, J.E. Gong, H.S. Lee, C.Y. Lee, B.-H. Kim, D.Y. Hwang, **Therapeutic Effects of Cold-Pressed Perilla Oil Mainly Consisting of Linolenic acid, Oleic Acid and Linoleic Acid on UV-Induced Photoaging in NHDF Cells and SKH-1 Hairless Mice**, Molecules 2020, 25, 989

Positive physiological benefits of several plant oils on the UV-induced photoaging have been reported in some cell lines and model mice, but perilla oil collected from the seeds of *Perilla frutescens* L. has not been investigated in this context. To study the therapeutic effects of cold-pressed perilla oil (CPO) on UV-induced photoaging in vitro and in vivo, UV-induced cellular damage and cutaneous photoaging were assessed in normal human dermal fibroblasts (NHDFs) and HR-1 hairless mice. CPO contained five major fatty acids including linolenic acid (64.11%), oleic acid (16.34%), linoleic acid (11.87%), palmitic acid (5.06%), and stearic acid (2.48%). UV-induced reductions in NHDF cell viability, ROS production, SOD activity, and G2/M cell cycle arrest were remarkably improved in UV + CPO treated NHDF cells as compared with UV + Vehicle treated controls. Also, UV-induced increases in MMP-1 protein and galactosidase levels were remarkably suppressed by CPO. In UV-radiated hairless mice, topical application of CPO inhibited an increase in wrinkle formation, transepidermal water loss (TEWL), erythema value, hydration and melanin index on dorsal skin of UVB-irradiated hairless mice.

CPO was observed to similarly suppress UV-induced increases in epidermal thickness, mast cell numbers, and galactosidase and MMP-3 mRNA levels. These results suggest CPO has therapeutic potential in terms of protecting against skin photoaging by regulating skin morphology, histopathology and oxidative status.

N. Tangkijngamvong, P. Phaiyarin, S. Wanichwecharungruang, C. Kumtornrut, **The anti-sebum property of chitosan particles**, J Cosm Dermatol, August 2020

Background: Seborrhea is linked to several medical and mental conditions. Although it is common, effective agents and the standardized sebum level for seborrhea are not elucidated. Aims: To determine the efficacy of chitosan particles (CP) formulation on controlling sebum secretion, its extended effects on skin redness and texture after combining with proretinal nanoparticles (CP-PRN), and a correlation of the clinical grading with sebum levels that affect mental health. Patients/methods: A four-week clinical trial with forty subjects was conducted. Subjects applied either CP formulation or CP-PRN during nighttime. Objective measurements including sebum levels, transepidermal water loss (TEWL), skin corneometry, skin redness, and texture were analyzed. Subjects completed a self-assessment clinical grading of skin oiliness at every visit. Results: Both CP and CP-PRN significantly decreased sebum levels (P □ .01) at week 4 compared to baseline. CP also resulted in significant decreases in TEWL (P □ .05) and skin corneometry (P □ .05) throughout the study. A significant improvement in skin redness was observed with CP-PRN (P □ .01). A moderate correlation between the clinical grading and sebum levels was detected (coefficient of 0.5, P □ .001), with a sebum level of 106 □g cm indicating emotional discomfort. One subject experienced local irritation with the CP-PRN. Mild pruritic symptoms were reported in both groups. Conclusions: Chitosan particles exhibited an interesting anti-sebum effect. It could be combined with PRN to extend benefits without losing the sebum controlling effect. The clinical grading may be useful in practice due to a modest correlation with sebum levels.

W. Hua, Y. Zuo, R. Wan, L. Xiong, J. Tnag, L. Zou, X. Shu, L. Li, **Short-term Skin Reactions Following Use of N95 Respirators and Medical Masks**, Contact Dermatitis, 2020 Aug;83(2): p. 115-121

Background: In the context of the COVID-19 pandemic, cases of adverse skin reactions related to masks have been observed. Objective: To analyze the short-term effects of N95 respirators and medical masks, respectively, on skin physiological properties and to report adverse skin reactions caused by the equipment. Methods: This study used a randomized crossover design with repeated measurements. Twenty healthy Chinese volunteers were recruited. Skin parameters were measured on areas covered by the respective mask and on uncovered skin 2 and 4 hours after donning, 0.5 and 1 hour after doffing, including skin hydration, transepidermal water loss (TEWL), erythema, pH and sebum secretion. Adverse reactions were clinically assessed, and perceived discomfort and incompliance measured. Results: Skin hydration, TEWL and pH increased significantly after donning. Erythema values increased from baseline. Sebum secretion increased both on the covered and uncovered skin with equipment-wearing. There was no significant difference between the physiological values between the two types of equipment. More adverse reactions were reported following N95 mask use that following use of medical mask, and a higher score of discomfort and incompliance. Conclusions: This study demonstrates that skin biophysical characters changes owing to mask and respirator wearing. N95 respirators were associated with more skin reactions than medical masks.

K. Zdu□ska-P□ciak, H. Rotsztejn, **The effectiveness of ferulic acid and microneedling in reducing signs of photoaging: a split-face comparative study**, Dermatol Ther, Jul 2020

Background: Photoaging is closely related to UV-induced oxidative stress. Ferulic acid is a plant-based antioxidant with anti-aging activity. Combining ferulic acid peel with microneedling enhances it's transdermal penetration. This study was designed to evaluate the efficacy of 14% ferulic acid peel combined with microneedling for facial photoaging. Materials and methods: 16 women aged 45-60 with Fitzpatrick skin type II and III, were enrolled in this trial. All patients received 8 treatment sessions with a full face application of chemical peeling based on 14% ferulic acid in 1-week intervals. During each session, on the right half of patient's face, peeling application was followed by microneedling. Efficacy was measured using MPA (Courage+Khazaka electronic). The measurement of hydration, elasticity, melanin index and erythema index were taken before treatments, after 8th session and 1 month after the last application. Results: The objective evaluation showed statistically significant improvement in all measured skin parameters ($p<0,05$), after ferulic acid peel application, as well as ferulic acid peel followed by microneedling. Combined therapy showed significantly greater improvement especially in skin elasticity, comparing to peeling administered alone. Conclusion: Ferulic acid has a significant bleaching, anti-redness, smoothing and moisturizing activity. When combined with microneedling, the efficiency is increased, in particular regarding skin elasticity.

F. Elban, E. Hahnel, U. Blume-Peytavi, J. Kottner, **Reliability and agreement of skin barrier measurements in a geriatric care setting**, Journal of Tissue Viability online, July 2020

Background: The non-invasive skin barrier measurements transepidermal water loss, stratum corneum hydration and the skin surface pH are widely used in clinical skin research. Relative and absolute measurement errors of these measurements are unknown in geriatric care settings. Material and methods: Transepidermal water loss, stratum corneum hydration, skin surface pH and temperature were measured on the volar forearm and lower leg twice by trained raters within a cross-sectional study in ten nursing homes. Intra-rater reliability was calculated using the ICC (1,1). Intra-rater agreement was analyzed using Bland Altman Plots with limits of agreement. Results: Two hundred twenty-three residents were included and mean age was 84.2 years. The highest ICC was found for transepidermal water loss and skin surface temperature of the leg with 0.95 (95% CI 0.93 to 0.96). The ICC of the stratum corneum was 0.91 (95% CI 0.88 to 0.93) for both investigated skin areas. The measurement of the pH at the lower leg had the lowest ICC with 0.73 (95% CI 0.66 to 0.78). Highest limits of agreement of approximately 8 a.u. were calculated for stratum corneum hydration and lowest limits of agreement of approximately 1 ¤C were calculated for skin surface pH. Conclusion: Relative measurement errors of transepidermal water loss and stratum corneum hydration were very low indicating that single measurements provide reliable estimates in this population and setting. However, the absolute measurement errors were high for both of these parameters. To increase reliability of skin surface pH we recommend at least two repeated measurements.

A. Mandeau, P. Daigle, E. Loing, M. Shortt, **Hydration Regulation – Hybiscus Sabdariffa Osmolyte for Barrier Moisture Control**, Cosmetics & Toiletries, Vol. 135, No. 7, July/August 2020

Hibiscus sabdariffa L., also know as wild rosella (w. rosella) in Australia, is an annual crop grown in temperate and tropic climate.

Moderne Hautanalyse - Die ungeschminkte Wahrheit, Fit for Fun, Juli 2020

Ein geschultes Auge sieht der Haut auf Anhieb das Wichtigste an – aber nicht alles. Präzise Informationen über den Hautzustand liefern diese fünf technischen Geräte.

S. Laneri, R. di Lorenzo, A. Bernardi, A. Sacchi, I. Dini, ***Aloe barbadensis*: A Plant of Nutricosmetic Interest**, Natural Product Communications Volume 15(7): 1–6

Aloe barbadensis Miller (Aloe Vera Linne) products have long been employed in health foods and for medical purposes. It has antiinflammatory, antifungal, antioxidant properties, which indicates excellent potential in antiaging cosmetic and skin protection products. The objective of this study is to evaluate the antiaging efficacy of dermocosmetic formulations containing *A. barbadensis* extract on young and mature skin using biophysical and skin imaging techniques. Twenty healthy adult volunteers participated in the study, aged between 20 and 65. The cream formulation, with 10% (w/w) of *A. barbadensis* extract, and placebo, were applied to the face of the volunteers. The effects were evaluated in terms of skin hydration and barrier effect by the measurement of transepidermal water loss (TEWL), derma firmness, and elasticity. The formulation containing *A. barbadensis* extract significantly improves water contained in the stratum corneum, firmness, elasticity of the skin, and decreased TEWL.

S.Y. Choi, E.J. Ko, K.H. Yoo, H.S. Han, B.J. Kim, **Effects of hyaluronic acid injected using the mesogun injector with stamp-type microneedle on skin hydration**, Dermatologic Therapy, July 2020

Introduction: The elasticity of the skin and its capacity to hold water decrease with aging because of the loss of hyaluronic acid (HA) in the skin. Therefore, there is an increasing interest in the use of HA fillers in skinrejuvenation beyond its conventional use which is supplementing decreased dermis volume and filling deep wrinkles. Objective: We investigated the efficacy and safety of a novel device (Dermashine® balance™) that injects HA into the dermis using a stamp-type microneedle for maintenance of hydration and elasticity of the skin. Methods: A single-center randomized double-blinded parallel-group clinical study was conducted, and 60 participants enrolled in this study. The subjects were randomized to receive HA injections or a placebo 3 times across the face using an automatic intradermal injector. At 4, 8, and 12 weeks after the treatment, skin hydration was measured using a corneometer. Results: The patients who received HA showed significantly greater skin hydration than those who received the placebo. However, a significant difference was not noted in skin elasticity between the groups. No severe adverse event were reported. Conclusion: Intradermal supplementation of HA using mesogun multi-needle injector may be a safe and effective treatment for improving skin hydration.

H. Sekine, Y. Kijima, M. Kobayashi, J. Itami, K. Takahashi, H. Igaki, Y. Nakai, H. Mizutani, Y. Nomoto, K. Kikuchi, H. Matsushita, K. Nozawa, **Non-invasive quantitative measures of qualitative grading**

efectiveness as the indices of acute radiation dermatitis in breast cancer patients, Breast Cancer 2020

Background: Recent improvement of machinery evaluation for the skin changes in various therapies enabled us to evaluate fine changes quantitatively. In this study, we performed evaluation of the changes in radiation dermatitis (RD) using quantitative and qualitative methods, and verified the validity of the conventional qualitative assessment for clinical use. Methods: Forty-three breast cancer patients received conventional fractionated radiotherapy to whole breast after breast conserving surgery. Erythema, pigmentation and skin dryness were evaluated qualitatively, and biophysical parameters of RD were measured using a Multi-Display Device MDD4 with a Corneometer for capacitance, a Tewameter for transepidermal water loss (TEWL), a Mexameter for erythema index and melanin index. Measurements were performed periodically until 1 year. Results: The quantitative manifestations developed serially from skin erythema followed by dryness and pigmentation. Quantitative measurements detected the effects of irradiation earlier than that of qualitative indices. However, the grades of the domains in RD by qualitative and quantitative assessment showed similar time courses and peak periods. However, no significant correlation was observed between the skin dryness grade and skin barrier function. In contrast to serial increase in pigmentation grades, melanin index showed initial decrease followed by marked increase with significant correlation with pigmentation grades. Conclusion: Subjectively and objectively measured results of RD were almost similar course and peak points through the study. Therefore, validity of the conventional qualitative scoring for RD is confirmed by the present quantitative assessments. Instrumental evaluations revealed the presence of modest inflammatory changes before radiotherapy and long-lasting skin dryness, suggesting indication of intervention for RD.

L. Téot, T.A. Mustoe, E. Middelkoop, G.G. Gauglitz (Editors): **Textbook on Scar-Management - State of the Art Management and Emerging Technologies** (ebook), Springer 2020

The interest in wound healing goes back to the beginning of history and has not diminished throughout the centuries also because practical implications of wound healing studies have remained very relevant for public health. During the last century, much progress has been made in the understanding of basic mechanisms of skin wound healing, and it has been realized that healing processes evolve similarly in various organs. It has been established that fbrotic diseases are regulated by analogous mechanisms, albeit less controlled, compared to those regulating wound healing. Moreover, many advances, such as the use of antiseptics and, later, of antibiotics, as well as the introduction of skin transplants have facilitated the treatment of wounds. It has been shown that wound healing evolution depends on several factors including the type of injury causing the damage, the tissue and/or organ affected, and the genetic or epigenetic background of the patient. This Compendium has the merit of discussing a broad spectrum of topics, including the general biology of wound healing, modern diagnostic approaches, and therapeutic tools, applied to many different clinical situations. It should be of interest to teachers, students, and clinicians working in different aspects of wound healing biology and pathology. I am sure that it will rapidly become an important reference book in these fields.

L. Vaillant, G. Georgescou, C. Rivollier, A. Delarue, **Combined effects of glycerol and petrolatum in an emollient cream: A randomized, double-blind, crossover study in healthy volunteers with dry skin**, J Cosm Dermatol, June 2020

Background: The stratum corneum plays an important protective physiological role in providing a barrier to preventing skin desiccation and penetration of external agents. Emollients are used commonly to improve barrier function and skin hydration. Aims: The primary objective of this study was to evaluate the effect of an emollient, V0034CR cream, and its active ingredients, to restore the cutaneous barrier. Secondary objectives included assessment of the moisturizing activity of each product and tolerance. The study was not designed to evaluate therapeutic benefit. Methods: In this randomized, double-blind, 4-arm crossover, clinical pharmacology study, the full emollient V0034CR, its vehicle formulation alone, or with glycerol, or petrolatum, was applied to the forearms of healthy volunteers (n = 51) with dry skin (Kligman score of 2 or 3). Cutaneous permeability by Trans Epidermal Water Loss (TEWL) and skin moisture content by corneometry were serially measured for 12 hours following application. An analysis of variance with repeated measures was performed on the evolution of TEWL and corneometry. Results: V0034CR emollient significantly reduced mean TEWL compared to vehicle ($P = .0018$) and vehicle + glycerol ($P = .0001$) and significantly increased mean corneometry scores compared to vehicle ($P < .0001$) and vehicle + petrolatum ($P < .0001$). Conclusions: The emollient V0034CR presented combined effects, with the petrolatum component improving skin barrier function, with a reduction in TEWL, and the glycerol component improving skin hydration.

A. Charpentier, **Clinically supporting 'antiage' and 'pro-age' claims**, Personal Care Europe, June 2020

Claims of personal care evolve following trends and various innovations in the field of the active ingredient development, the finished product formulation and the way both are evaluated, demonstrating their performances. Since 2014, the cosmetics industry is gradually leaving the era of anti-ageing behind. Today, most consumers are more in the mood for a well ageing, slow ageing or pro ageing approach. The philosophy of the 'pro-ageing' movement has sought to remove all 'anti' claims because, according to this concept, women over 50 are not interested in looking younger; they want to look healthy and be honest about their age. Some brands have used the idea of "improves the appearance of skin quality", and "restore the skin comfort", for example. A new vocabulary of renewal, regeneration, plumpness and "glow" now dominates the language of the beauty industry.

C. Uhl, D. Khazaka, **Measuring skin's "true age"**, PERSONAL CARE June 2020, p. 66-68

The human desire to look young is as old as mankind and our skin plays central role in this craving. Even in ancient civilizations, people developed formulations for creams, tonics and bath additives to keep skin young and beautiful. The physiological process of skin ageing involves structural, biochemical and functional changes. Starting at approximately age 25, the content of collagen and other components of the connective tissue, such as elastin or hyaluronic acid, in the skin continuously decreases. This gradually results in a loss of bound water, leading to a deterioration of the water-protein interaction and an alteration of the overall protein stability.

A.A. Hebert, F. Rippke, T.M. Weber, N. Heer Nicol, **Efficacy of Nonprescription Moisturizers for Atopic Dermatitis: An Updated Review of Clinical Evidence**, American Journal of Clinical Dermatology, June 2020

Twice-daily moisturization is recommended by international guidelines as the bedrock of the management of atopic dermatitis (AD). Moisturizers should be selected based on proven clinical effectiveness in improving the skin barrier and improving the symptoms of AD. We searched the PubMed database for clinical trials assessing daily moisturization for the treatment of AD published between 2006 and 2019. Studies had to assess the efficacy of commercially available moisturizers using objective measures of corneometry, transepidermal water loss, or incidence of flare as endpoints, and treatments had to be currently available to patients. Clinical studies showed that moisturization (typically twice daily) significantly improved the skin barrier in adults and children with AD. Longer-term flare studies showed that daily moisturization reduced the incidence of flares and extended the time between flares. Proactive moisturization of infants at high risk of developing AD may reduce its manifestation. Therapeutic moisturizers for AD are specifically formulated with ingredients that target symptoms of AD, such as itch, inflammation, or compromised skin barrier. The US FDA requires that any moisturizer available in the USA and claiming to treat AD must contain colloidal oatmeal. Healthcare providers can maximize compliance and outcomes by educating patients on the benefits of liberally applying a therapeutic moisturizer twice daily to support the skin barrier and help reduce the incidence of flares. Specific recommendations should be for clinically tested moisturizers evaluated using objective, validated skin assessments.

N. Hazwani Mohd Ariffin, R. Hasham, **Assessment of non-invasive techniques and herbal-based products on dermatological physiology and intercellular lipid properties**, Heliyon 6 (2020)

Skin is the largest external organ of the human body. It acts as a barrier to protect the human body from environmental pollution, mechanical stress, and excessive water loss. The defensive function resides primarily on top of the epidermis layer commonly known as stratum corneum (SC). Human SC consists of three major lipids, namely ceramide, free fatty acid, and cholesterol that comprise approximately 50%, 25%, and 25% of the total lipid mass, respectively. The optimal composition of SC lipids is the vital epidermal barrier function of the skin. On the other hand, skin barrier serves to limit passive water loss from the body, reduces chemical absorption from the environment, and prevents microbial infection. In contrast, epidermal lipids are important to maintain the cell structure, growth and differentiation, cohesion and desquamation as well as formation of a permeability barrier. Multiple non-invasive in vivo approaches were implemented on a regular basis to monitor skin physiological and intercellular lipid properties. The measurement of different parameters such as transepidermal water loss (TEWL), hydration level, skin elasticity, collagen intensity, melanin content, sebum, pH, and tape stripping is essential to evaluate the epidermal barrier function. Novel non-invasive techniques such as tape stripping, ultrasound imaging, and laser confocal microscopy offer higher possibility of accurate and detailed characterisation of skin barrier. To date, these techniques have also been widely used to determine the effects of herbal plants in dermatology. Herbal plants have been traditionally used for ages to treat a variety of skin diseases, as reported by the World Health Organisation (WHO). Their

availability, lower cost, and minimal or no side effects have created awareness among society, thus increase the demand for natural sources as the remedy to treat various skin diseases. This paper reviews several non-invasive techniques and evaluations of herbal-based product in dermatology.

S. Yoo, M.-R. Kim, T.-Y. Kim, S.J. Hwang, J.-M. Lim, S.G. Park, **Relationship of transcutaneous oxygen tension with age and skin elasticity in Korean women**, Skin Research & Technology, Volume 26, Issue 3, May 2020, p. 325-328

Background: Oxygen has several positive effects on the skin, including improving collagen synthesis and accelerating wound healing. However, only a few studies have investigated the relationship between skin oxygenation and skin aging parameters. Therefore, this study aimed to assess the correlation between skin oxygenation and skin aging parameters-elasticity, hydration, sebum, color (lightness, redness), and blood perfusion— in Korean women. Materials and Methods: We evaluated the transcutaneous partial pressure of oxygen, also known as transcutaneous oxygen tension ($TcP0_2$), and skin aging parameters, including elasticity, hydration, sebum, color (lightness or redness), and blood perfusion, in the cheek of 34 healthy women (aged 20-69 years) and assessed the correlation between $TcP0_2$ and other skin aging parameters using IBM SPSS Statistics 25 software (SPSS Inc). Results: Facial $TcP0_2$ was negatively correlated with age ($P < .05$). There were positive correlations between facial $TcP0_2$ and elasticity parameters ($P < .01$). We noted no correlation between facial $TcP0_2$ and skin lightness; however, skin lightness tended to slightly improve with increasing $TcP0_2$. Skin aging parameters, including hydration, sebum, skin redness, and blood perfusion, showed no correlations with $TcP0_2$. Conclusion: In Korean women, facial TcP02 tends to decrease with increasing age and is positively correlated with gross, net, and biological skin elasticity. Therefore, this study demonstrated that oxygen tension of facial skin can be a major causative factor of skin aging.

F. Murina, C. Caimi, R. Felice, S. di Francesco, I. Cetin, **Characterization of female intimate hygiene practices and vulvar health: A randomized double-blind controlled trial,** Journal of Cosmetic Dermatology, Apr 2020

Background: Inappropriate feminine hygiene practices are related to vulvar unpleasant symptoms (such as skin changes, lesions, burning, pruritus, fissures, and dyspareunia). Aims: We assessed the daily use effects of intimate cleansers on vulvar skin by comparing two specific products for intimate care: Saugella Hydraserum (SIS), based on natural extracts, and a standard product based on lactic acid, such as Lactacyd Feminine Hygiene (LTC). Forty healthy women were enrolled in this double-blind controlled study. Methods: After randomization, the cleansers were used twice daily for 30 days. The hydration level was determined using the Corneometer® CM 825, the pH using the Skin-pH-Meter PH 905® and the sebum level using the Sebumeter SM815®. Measurements were performed at baseline and on day 30 on the labia majora and labia minora. Results: Both cleansers showed a reduction in the hydration level, but this was much less evident in the SIS group (−6.3% SIS vs −23.7% LTC). The pH values of the SIS group were lower than those of the LTC group, especially on the labia minora (5.27 ± 0.08 and 5.6 ± 0.1, respectively, $P = .025$). The sebum increased in both groups, but in the LTC group, it was higher on the labia majora (+96.2% vs +46.8%, respectively, $P = .003$), while on the labia minora, it was higher in the SIS group (+24.7% vs +17.1%, respectively P = NS). Conclusions: Both cleansers tested showed high performance for safety and tolerability on vulvar skin, but SIS showed better efficacy than LTC on some parameters.

T. Jörger, **Hautphysiologische Untersuchungen an dermatologischen Patienten vor, während und nach Therapie in Abhängigkeit körperspezifischer Einflussgrößen, Dissertation** der Medizinischen Fakultät der Ludwig-Maximilians-Universität zu München, April 2020

Die Haut ist nicht nur das größte und schwerste Organ des Menschen, sondern sicherlich auch eines der wichtigsten. Begegnen wir einem Mitmenschen, ist sie eines der ersten Dinge, die wir an ihm wahrnehmen. Nach ihrem Aussehen beurteilen wir, ob er gesund erscheint oder eher blass und kränklich. Ist die Haut glatt und straff, oder schlaff und faltig? Allein dadurch ist es oftmals möglich, das Alter eines Mitmenschen zu schätzen. Ist die Haut stark gebräunt, folgt oft unweigerlich eine Frage wie: „Warst du im Urlaub?“. Wirkt die Haut gepflegt oder unrein und fettig? Hat unser Gegenüber einen Ausschlag im Gesicht und wenn ja, ist er vielleicht ansteckend? Sollten wir uns lieber von ihm fernhalten? Solche, teils unbewusste Gedanken und noch viele mehr können bereits ein festes Bild von einem Mitmenschen in uns festlegen, bevor wir überhaupt ein Wort mit ihm gewechselt oder ihm die Hand geschüttelt haben.

D. Duscher, Z.N. Maan, M.S. Hu, D. Thor, **A single-center blinded randomized clinical trial to evaluate the antiaging effects of a novel HSF™-based skin care formulation**, J Cosmet Dermatol, 2020 Apr

Background: Similar to chronic wounds, skin aging is characterized by dysfunction of key cellular regulatory pathways. The hypoxia-inducible factor-1 alpha (HIF-1¤) pathway was linked to both conditions. Recent evidence suggests that modulating this pathway can rejuvenate aged fibroblasts and improve skin regeneration. Here, we describe the application of a novel HIF stimulating factor (HSF™)-based formulation for skin rejuvenation. Methods: Over a period of 6 weeks using a split-face study design, the effects on skin surface profile, skin moisture, and transepidermal water loss were determined in 32 female subjects (mean age 54, range 32-67 years) by Fast Optical in vivo Topometry of Human Skin (FOITS), Corneometer, and Tewameter measurements. In addition, a photo documentation was performed for assessment by an expert panel and a survey regarding subject satisfaction was conducted. Results: No negative skin reactions of dermatological relevance were documented for the test product. A significant reduction in skin roughness could be demonstrated. The clinical evaluation of the images using a validated method confirmed significant improvement of wrinkles, in particular of fine wrinkles, lip wrinkles, and crow's feet. A significant skin moisturizing effect was detected while skin barrier function was preserved. The HSF™-based skin care formulation resulted in a self-reported 94% satisfaction rate. Conclusion: With no negative skin reactions and highly significant effects on skin roughness, wrinkles, and moisturization, the HSF™-based skin care formulation achieved very satisfying outcomes in this clinical trial. Given the favorable results, this approach represents a promising innovation in aesthetic and regenerative medicine.

S. Nagase, K. Ogai, T. Urai, K. Shibata, E. Matsubara, K. Mukai, M. Matsue, Y. Mori, M. Aoki, D. Arisandi, J. Sugama, S. Okamoto, **Distinct Skin Microbiome and Skin Physiological Functions Between Bedridden Older Patients and Healthy People: A Single-Center Study in Japan**, Frontiers in Medicine, April 2020, Volume 7, Article 101

With the increase in the older populations, the number of bedridden older patients is becoming a matter of concern. Skin microbiome and skin physiological functions are known to change according to lifestyle and community; however, such changes in case of movement- and cleaning-restricted bedridden older patients have not yet been revealed. To address this issue, we analyzed skin microbiome and skin physiological functions, including pH, hydration, sebum level, and transepidermal water loss (TEWL), of bedridden older patients, compared with those of ambulatory older and young individuals. For this analysis, we enrolled 19 healthy young and 18 ambulatory older individuals from the community and 31 bedridden older patients from a single, long-term care hospital in Japan. The area of interest was set to the sacral (lower back) skin, where pressure injuries (PIs) and subsequent infection frequently occurs in bedridden older patients. We observed a higher number of gut-related bacteria, fewer commensals, higher skin pH, and lower TEWL on the sacral skin of bedridden older patients than on that of young or ambulatory older individuals. In addition, we observed that 4 of the 31 bedridden older patients developed PIs during the research period; a higher abundance of pathogenic skin bacteria were also observed inside the PI wounds. These findings imply distinct skin microbiome and skin physiological functions in bedridden older patients in comparison with healthy individuals and may suggest the need for more stringent cleaning of the skin of bedridden older patients in light of the closeness of skin and wound microbiome.

Z. Chaoshuai, W. Xin, M.Yaqi, X. Ziqian, S. Yue, M. Xingyu, S. Weimin, **Variation of biophysical parameters of the skin with age, gender, and lifestyles,** J Cosmet Dermatol., April 2020

Background: Sweet, spicy or greasy food, staying up late, and using electronic products for a long time are common bad habits nowadays. Their role in skin diseases has been paid much attention. Objective: The aim of this study was to investigate whether unhealthy lifestyles would affect the skin sebum content, SC hydration, and pH and how do they affect. Methods: A total of 300 volunteers were enrolled, and a multifunctional skin physiology monitor measured the three skin biophysical properties on the forehead and dorsal hand. Lifestyle factors were evaluated by a self-administered questionnaire. Results: Eating oily, sweet, spicy food, and staying up late increased the sebum content of the forehead significantly. Dorsal hand SC hydration was higher in people eating more sweet food and oily food, and forehead SC hydration was higher in people eating more sweet food and go to bed earlier. Eating sweet food could increase pH in both forehead and dorsal hand. The forehead pH decreased in using electronic products over 6 hours a day or staying up late. There are significant differences in sebum, hydration, and pH value among different age groups. In males, the pH was lower than females, but the sebum was higher. Conclusion: Sebum content, SC hydration, and pH are affected by unhealthy lifestyles, age, and gender.

K. Yonezawa, M.i Haruna, R. Kojima, **Validity of Infant Face Skin Assessment by Parents at Home**, Asian/Pacific Island Nursing Journal Volume 4(4): p. 159-164, 2020

Parents had better to assess their infant's skin daily to prevent the development of any skin problems. However, there are no standard methods for assessing infant skin at home. This study aimed

to validate the assessment of infant face skin conditions by parents as compared to using skin barrier function clinical tests. In addition, we evaluated the degree of agreement between parents and physicians/midwives when assessing an infant's skin. A cross-sectional study involving 184 infants aged 3 months was conducted. To evaluate the parents' infant skin assessment, we used the Neonatal Skin Condition Score (NSCS). On the same day, we evaluated the skin barrier function on the infant's forehead and cheek, including transepidermal water loss (TEWL), stratum corneum hydration, skin pH, and sebum secretion. Skin barrier function values were correlated with infant skin condition assessed by parents, especially in cases of TEWL of the cheek, for which a moderate positive correlation was found between parental assessment score (□ = 0.448). In addition, infant with skin problems based on parental assessment had a significantly higher TEWL, lower SCH, and higher skin pH. However, there was weak agreement between parental and physician/midwife assessment. Thus, there was a relationship between parental assessment and skin barrier function; thus, parents can use at-home assessment to assist with infant skin care. In the future, research focused on developing methods of examining infant skin conditions should consider incorporate parental daily skin assessment.

G. Bifulco, F. Rastrelli, G. Rastrelli, G. Tosti, **Postbiotics in Anti-Ageing Care**, COSSMA 3, 2020, p. 16-19

Recently, the use of living probiotics- tyndallized bacteria and lysates- and prebiotics has been blooming. However, the production of stable, reproducible and safe formulations containing most of these ingredients remains a topic of discussion. Big effort is currently devoted in elucidating the interactions between beneficial microbes and skin.

K. Thadanipon, J. Kitsongsermthon, **Comparative study into facial sebum level, pore size, and skin hydration between oily-skinned and dry-skinned Thai women**, Skin Res Technol., March 2020, Volume 26, Issue 2, p. 163-168

Background: Subjective facial skin type is most frequently determined by the amount of sebum, which showed trends across subjective skin types in most previous studies while not in some. This study was conducted to evaluate the associations among subjective skin type, amount of sebum, stratum corneum hydration, and pore size in Thai women. Methods: Sixty-two healthy women with either self-described subjective oily or dry skin type were included and casual sebum level (CSL), sebum excretion rate (SER), clinical pore size score, mean pore area, and stratum corneum hydration were measured at several facial sites. Correlation coefficients between amount of sebum and other parameters were estimated. Results: Casual sebum level and sebum excretion rate were significantly higher in oily-skinned than dry-skinned group by 1.6-2.1 times. Mean pore area and clinical pore size score were not different between the 2 groups, nor did they correlate with CSL or SER. Corneometry was shown to be significantly higher in dry-skinned than oily-skinned group. Significant, negative correlations between corneometry and CSL were also found. Conclusion: The subjective facial skin types were consistent with the amount of sebum,but not pore size or corneometry, among Thai women.

S.I. Jang, My. Lee, J. Han, J. Kim, A.R. Kim, J.S. An, J.O. Park, B.J. Kim, E. Kim, **A study of skin characteristics with long-term sleep restriction in Korean women in their 40s**, Skin Res Technol., March 2020, Volume 26, Issue 2, p. 193-199

Background: Previous studies have demonstrated increased pore size and darkening skin color with total sleep deprivation. There are many studies of skin characteristics with short-term sleep restriction, but there are few studies on skin characteristics when sleep is restricted more than three consecutive days. This study evaluated skin changes with sleep limited to 4 hours per night for six nights. Materials and Methods: The study included 32 Korean women in their 40s. Skin hydration, desquamation, barrier recovery, texture, gloss, transparency, elasticity, crow's feet, frown lines, and color were measured. Individual sleep time was monitored by smartwatches. Subjects slept 8 hours per night for six nights in week one and 4 hours per night for six nights in week two. Results: Skin hydration was significantly reduced after 1 day of sleep deprivation, and it continued to decrease. Skin gloss, desquamation, transparency, elasticity, and wrinkles were significantly aggravated after 1day of sleep deprivation. Skin texture was significantly aggravated on the fourth day of sleep restriction. Elasticity was most affected by reduced sleep, with a standardized coefficient of -.320, indicating a significant decrease over time as compared to other characteristics. Conclusion: Skin hydration was gradually decreased with sleep restriction. Skin texture did not change after only1day of sleep restriction. It is a new finding that elasticity decreases more than other skin characteristics with prolonged sleep restriction.

M. Ijaz, N. Akhtar, **Fatty acids based □-Tocopherol loaded nanostructured lipid carrier gel: In vitro and in vivo evaluation for moisturizing and anti-aging effects**, J Cosm Dermatol, March 2020

Background: ◘-Tocopherol is a potent antioxidant present in the skin. Its concentration decreases with age, synthetically available ◘-tocopherol is viscous, irritating to skin and unstable toward oxidation and ultraviolet, (UV) light. Aims: To develop fatty acids based nanostructured lipid carrier (NLC) gel loaded with ◘-tocopherol and to evaluate its moisturizing and anti-aging properties. Methods: Lauric acid, oleic acid, and Tween-80 were used as solid lipid, liquid lipid, and surfactant, respectively. Seven formulations (F0-F6) were developed by using different concentration of ingredients. Most optimized formulation (F2) was selected for further study on the basis of characterization. Dialysis tube method was used for release study. F2 was incorporated in gel, and then, in vitro and noninvasive in vivo study regarding skin moisture content by corneometer and skin mechanical properties by cutometer for 12 weeks on human volunteers (n = 13) was conducted. Results: Size, polydispersibility index (PDI), zeta potential, and %entrapment efficiency (%EE) of optimized formulation (F2) were found 82 nm, 0.261, -28.6, and 94.88 ± 1.16, respectively. Particles were spherical in shape. The release profile showed initial burst and then sustained release, and release data were best fitted to weibull model. ◘-tocopherol loaded NLC gel (NLCG) appeared physically stable for 12 weeks at room temperature and showed significant results in terms of skin capacitance and mechanical properties. Rheological assessment showed non-Newtonian behavior. Conclusion: Fatty acids based NLC proved to be a promising carrier of photochemically unstable lipophilic vitamin E with enhanced moisturizing and anti-aging properties.

S.J. Nisbet, P. Dykes, J. Snatchfold, **Single application of lamellar moisturizers provides significantly increased hydration of the stratum corneum for up to 24 hours in a randomized trial**, J Cosm Dermatol, March 2020

Background: Some moisturizing formulations can help restore and maintain the barrier function of the skin. Objectives: This study was designed to assess the hydration potential of three lamellar moisturizers relative to a control (nonlamellar) moisturizer. Methods: Healthy adults aged 18 to 65 years with self-reported sensitive skin, dry or very dry skin and Corneometry values of ◘40 a.u. on the lower legs, entered this randomized, evaluator-blind study. Products A and B together with a control product (Control X) were applied to one leg, while Product C and Control Y were applied to the other leg; with an untreated control site in both cases. The primary efficacy variable was the change from baseline in Corneometer assessments at 24 hours (Products A and B) or 12 hours (Product C) postapplication. Results: At all timepoints (n = 30), Products A and B showed higher mean Corneometer readings compared to baseline and changes from baseline were statistically significant when compared to untreated sites. Higher mean readings relative to baseline were seen at sites treated with Control X (smaller magnitude than Product A and B) and with Product C. These changes were significant compared to the untreated site at 30 minutes and 2 hours (Control X), and at 30 minutes and 12 hours (Product C). Additionally, Control Y increased significantly at 12 hours. Conclusion: A single application of a lamellar moisturizer significantly increased hydration of the stratum corneum for up to 24 hours (Products A and B) or 12 hours (Product C).

M. Denzinger, S. Krauss, M. Held, L. Joss, J. Kolbenschlag, A. Daigeler, J. Rothenberger, **A quantitative study of hydration level of the skin surface and erythema on conventional and microclimate management capable mattresses and hospital beds**, J Tissue Viability, 2020 Feb;29(1): p. 2-6

Background: In addition to pressure itself, microclimate factors are gaining more attention in the understanding of the development of pressure ulcers. While there are already various products to reduce pressure on sore-prone areas to prevent pressure ulcers, there are only a few mattresses/hospital beds that actively influence skin microclimate. In this study, we investigated if microclimate management capable mattresses/hospital beds can influence skin hydration and skin redness/erythema. Methods: We included 25 healthy subjects in our study. Measurements were made using Courage & Khazaka Multi Probe Adapter MPA with Corneometer CM825 and Mexameter MX18 to determine skin hydration of the stratum corneum and skin redness/erythema before and after the subjects were lying in conventional (Viskolastic® Plus, Wulff Med Tec GmbH, Fedderingen, Germany and Duo™ 2 mattress, Hill-Rom GmbH Essen, Germany) or microclimate management capable mattresses/hospital beds (ClinActiv + MCM™ and PEARLS AFT, Hill-Rom GmbH Essen, Germany). Results: While there was no difference in skin redness/erythema on the different mattresses/hospital beds, skin hydration of the stratum corneum decreased significantly in an air fluidized bed compared to baseline values and values measured on standard mattress/Viskolastic® Plus.

N. Muizzuddin, R. Benjamin, **Beauty from within: Oral administration of a sulfur-containing supplement methylsulfonylmethane improves signs of skin ageing**, International Journal for Vitamin and Nutrition Research, February 2020

Abstract: Background: Methylsulfonylmethane (MSM) is an organosulfur compound with known benefits for joint health, sports nutrition, immune function, and anti-aging formulations and is gaining popularity as a nutritional supplement for the support of hair, skin and nails. Methods: The study was conducted in two steps; in Part I (pilot study) a panel of 20 participants ingested either 3 g a day of MSM or placebo capsules for 16 weeks. Visual and subject self assessment of wrinkles and skin texture as the predominant sign of ageing was observed. In Part II (dose-response study), 63 participants ingested either 1 g or 3 g per day of MSM for 16 weeks. Expert clinical grading, instrumental measurements and consumer perception was used to evaluate skin conditions like lines and wrinkles. Additionally, instrumentational analysis was conducted using corneometer and cutometer for investigation of skin hydration, firmness and elasticity. Results: Part I of the study clearly indicates that oral ingestion of MSM (3 g/d) reduces signs of ageing like facial wrinkles ($p < 0.05$) and skin roughness ($p < 0.05$) as compared to placebo. Detailed analysis in Part II instrumentation assessments showed a significant ($p < 0.05$) improvement from baseline in the severity of facial wrinkles, as well as improved skin firmness, elasticity and hydration with MSM. Some of these parameters exhibited a good dose response indicating that the higher (3 g/d) of the supplement was more effective than the lower dose of 1 g/d, but generally the lower dose of 1 g/d appeared to be sufficiently effective in reducing the facial signs of ageing. Conclusion: This study indicated that MSM is effective in reducing visual signs of skin ageing even at a low dose of 1 g/d.

B. Vogelsang, **Dermocosmetic Strategies to Rebalance the Skin's Ecosystem**, EURO COSMETICS 1-2/20, p. 12-15

Consumers of skin care products are concerned by the potential damage that external factors (antibacterial agents, pollution, UV exposure etc) can cause to their skin health for the long-term. They increasingly prefer products that not only address cosmetic concerns like fine line reduction or moisturization, but that also preserve or improve skin health. From birth, the skin surface is colonized by the microbiota: a microflora composed of bacteria, yeasts, fungi and viruses. This invisible, but abundant microbiota can reach up to one million microorganisms per cm2. Its composition continues to evolve throughout life, depending on the skin conditions (water, pH, lipids, proteins) or depending on the skin environment (temperature, sun exposure). Moreover, among all countries, regardless of socio-clemographic index level, instances of skin and subcutaneous diseases correlated with microbiota imbalance, such as psoriasis, dermatitis, acne vulgaris and fungal diseases are increasing1. Consequently, consumers are shifting their interests and purchases towards using skin care products which incorporate prebiotics, probiotics and/or biome-friendly components. These products address the root cause of microbiome imbalance. In the never-ending search for appealing new products, the cosmetic industry is being empowered to acquire new data and knowledge on the ecosystem of the skin microbiota in order to shift the direction of their research towards the development of new products. At present, probiotics and the microbiome are the biggest drivers in the growth of science-based skin care products. It is likely that this growth will persist in the coming years

D. Schmid, F. Wandrey, F. Zülli, **Treating large pores -Chios mastic to improve oily skin, large pores and acne**, Household and Personal Core Today - Vol. 15(1) January/February 2020

Mastic is the resin harvested from the Pistacia lentiscus trees from the Greek island of Chios. It has been used as a precious natural remedy against various ailments since ancient times. The water-insoluble oleoresin was made available for skin care application by using special extraction techniques. In this form, mastic inhibits the sebum production enhancing enzyme 5a-reductase type I and blocked IL- 1a effects in vitro. In clinical studies with volunteers suffering from oily skin, enlarged pores and acne signs it was shown that mastic visibly reduces pore size, shininess and the number of blemishes, which makes mastic an ideal active to treat impure skin.

C. O'Connor, C. Messaraa, E.M. Kearney, N. Robertson, L.P. Doyle, M. Walsh, A. Mavon, **Clinical Confirmation: Multi-step Routines Deliver Better Benefts to Skin**, Cosmetics & Toiletries, Vol. 135, January 2020, p. 38-43

Several factors internal and external contribute to the aging of skin, and recognizing these factors and their causes allows us to care for it. Intrinsic aging affects not only skin, but all the organs of the body and is in large part pre-determined by our genetics. However, to delay the manifestation of wrinkles, we can concentrate on the role of extrinsic aging and develop approaches to protect skin. As is well-known, the skin plays an important role physiologically through protection, regulation and sensation, and has an important impact on the psychological health of an individual.2 3 Thus, it is not only important to defend our skin from aggressors, but also to maintain our appearance for overall health and well-being. Proper skin care helps to protect our epidermis, maintaining skin's overall hydration and supporting a healthy barrier. Keeping skin functioning and healthy is critical to our own health, and

protecting, cleansing and moisturizing are the key components of an effective skin care routine to maintain the skin's quality and integrity. In recent times, the use of a full skin care routine is frequently recommended by brands to ensure best results and maximize the likelihood of realizing the claimed benefits. While one might expect an advanced routine to deliver stronger skin benefits, no apparent clinical investigations have been carried out to support this theory scientifically.

M.G. Almeida Leite, P.M.B.G. Maia Campos, **Correlations between sebaceous glands activity and porphyrins in the oily skin and hair and immediate effects of dermocosmetic formulations**, J Cosmet Dermatol. 2020;00: p. 1–7

Background: Oily skin and hair not only contain a large amount of sebum, but also exhibit other changes that compromise their physiology. The immediate effects of dermocosmetics are very important for adhesion to treatment. Aim: The aim of the present study was to characterize oily skin and scalp, to evaluate the correlation of sebum production with porphyrin counts and the immediate effects of topical formulations for sebum control. Patients/Methods: A total of 100 women aged 18-49 years were recruited. Sebaceous gland activity, sebum amount, stratum corneum water content (SCWC) transepidermal water loss (TEWL), skin gloss, amount of porphyrins and pores were determined in the face and SCWC, sebum amount, porphyrin count, and TEWL were also determined in the scalp. The immediate effects of formulations containing a guarana extract were determined after 2 hours of application. Results: A correlation between sebaceous gland activity and presence of porphyrins in the frontal region of the face was detected. Low gloss values and large amounts of pores in the malar region were related to lower skin uniformity. High sebum values and low SCWC and porphyrin count were also observed in the vertex region. The studied formulations reduced the sebum content of face and scalp after 2 hours of application. Conclusion: Oily skin and hair showed high sebum values, which were correlated with porphyrin count and with the activity of sebaceous glands. Finally, the studied formulations had immediate reducing effects on sebum amounts on the skin and scalp.

N. Tangkijngamvong, P. Phaiyarin, S. Wanichwecharungruang, C. Kumtornrut, **The anti-sebum property of chitosan particles**, J Cosmet Dermatol., 2020 January

Background: Seborrhea is linked to several medical and mental conditions. Although it is common, effective agents and the standardized sebum level for seborrhea are not elucidated. Aims: To determine the efficacy of chitosan particles (CP) formulation on controlling sebum secretion, its extended effects on skin redness and texture after combining with proretinal nanoparticles (CP-PRN), and a correlation of the clinical grading with sebum levels that affect mental health. Patients/Methods: A four-week clinical trial with forty subjects was conducted. Subjects applied either CP formulation or CP-PRN during nighttime. Objective measurements including sebum levels, transepidermal water loss (TEWL), skin corneometry, skin redness, and texture were analyzed. Subjects completed a self-assessment clinical grading of skin oiliness at every visit. Results: Both CP and CP-PRN significantly decreased sebum levels (P .01) at week 4 compared to baseline. CP also resulted in significant decreases in TEWL (P .05) and skin corneometry (P 05) throughout the study. A significant improvement in skin redness was observed with CP-PRN (P .01). A moderate correlation between the clinical grading and sebum levels was detected (coefficient of 0.5, P .001), with a sebum level of 106 g/cm^{-2} indicating emotional discomfort. One subject experienced local irritation with the CP-PRN. Mild pruritic symptoms were reported in both groups. Conclusions: Chitosan particles exhibited an interesting anti-sebum effect. It could be combined with PRN to extend benefits without losing the sebum controlling effect. The clinical grading may be useful in practice due to a modest correlation with sebum levels.

P. Rattanawiwatpong, R. Wanitphakdeedecha, A. Bumrungpert, M. Maiprasert, **Anti-aging and brightening effects of a topical treatment containing vitamin C, vitamin E, and raspberry leaf cell culture extract: A split-face, randomized controlled trial**, J Cosmet Dermatol. 2020 Jan

Background: Skin aging has many manifestations such as wrinkles, uneven skin tone, and dryness. Both intrinsic and extrinsic factors, especially ultraviolet light-induced oxidative radicals, contribute to the etiology of aging. Human skin requires both water- and lipid-soluble nutrient components, including hydrophilic and lipophilic antioxidants. Vitamins C and E have important protective effects in the aging process and require exogenous supply. Raspberry leaf extracts contain botanical actives that have the potential to hydrating and moisturizing skin. Topical products with these ingredients may therefore combine to provide improved anti-aging effects over single ingredients. Objectives: To evaluate the anti-aging and brightening effects of an encapsulated serum containing vitamin C (20% w/w), vitamin E, and European raspberry (Rubus idaeus) leaf cell culture extract. Methods: Fifty female volunteers aged 30-65 years were allocated one capsule of serum for topical application on one side of the face for 2 months, in addition to self-use of facial skin products. Both test (treated) and contralateral (untreated) sides were dermatologically assessed after 4 and 8 weeks. Skin

color (melanin index), elasticity, radiance, moisture, and water evaporation were measured by Mexameter MX18®, Cutometer®, Glossymeter GL200®, Corneometer CM825®, and Tewameter TM300® instruments, respectively (Courage + Khazaka Electronic GmbH). Skin microtopography parameters, smoothness (SEsm), roughness (SEr), scaliness (SEsc), and wrinkles (SEw), were measured by Visioscan® VC98 USB (Courage + Khazaka Electronic GmbH), and gross lifting effects were measured by VECTRA® H1 (Canfield Scientific), and adverse reactions and satisfaction were also assessed. Results: Skin color, elasticity, and radiance were significantly improved. The smoothness, scaliness, and wrinkles were also revealed significant improvement. Mild adverse reactions were tingling and tightness. Conclusions: The vitamin C, vitamin E, and raspberry leaf cell culture extract serum has anti-aging and brightening effects of skin.

K. Yonezawa, M.i Haruna, R. Kojima, **Validity of Infant Face Skin Assessment by Parents at Home**, Asian/Pacific Island Nursing Journal Volume 4(4): p. 159-164, 2020

Parents had better to assess their infant's skin daily to prevent the development of any skin problems. However, there are no standard methods for assessing infant skin at home. This study aimed to validate the assessment of infant face skin conditions by parents as compared to using skin barrier function clinical tests. In addition, we evaluated the degree of agreement between parents and physicians/midwives when assessing an infant's skin. A cross-sectional study involving 184 infants aged 3 months was conducted. To evaluate the parents' infant skin assessment, we used the Neonatal Skin Condition Score (NSCS). On the same day, we evaluated the skin barrier function on the infant's forehead and cheek, including transepidermal water loss (TEWL), stratum corneum hydration, skin pH, and sebum secretion. Skin barrier function values were correlated with infant skin condition assessed by parents, especially in cases of TEWL of the cheek, for which a moderate positive correlation was found between parental assessment score (□ = 0.448). In addition, infant with skin problems based on parental assessment had a significantly higher TEWL, lower SCH, and higher skin pH. However, there was weak agreement between parental and physician/midwife assessment. Thus, there was a relationship between parental assessment and skin barrier function; thus, parents can use at-home assessment to assist with infant skin care. In the future, research focused on developing methods of examining infant skin conditions should consider incorporate parental daily skin assessment.

E. Kotroni, E. Simirioti, S. Kikionis, I. Sfiniadakis, A. Siamidi, V. Karalis, A. Vitsos, M. Vlachou, E. Ioannou, V. Roussis, M. Rallis, **In Vivo Evaluation of the Anti-Inflammatory Activity of Electrospun Micro/Nanofibrous Patches Loaded with *Pinus halepensis* Bark Extract on Hairless Mice Skin**,* Materials 2019, 12

Abstract: Skin inflammation is the most common symptom in dermatological diseases. It is usually treated by topically applied products, such as creams, gels and lotions. Skin dressings offer a promising alternative as they are endowed with more controlled administration conditions. In this study, the anti-inflammatory activity of electrospun alginate micro/nanofibrous dressings loaded with the aqueous extract of *Pinus halepensis* bark (PHBE) was evaluated in vivo in mice. The upper back skin of SKH-1 female hairless mice was exposed to a single dose of ultraviolet radiation (3 MEDs) and the inflamed area was treated daily by the direct application of a nanofibrous patch. The condition of the skin was evaluated primarily on the basis of clinical observation, photo-documentation and histopathological assessment, while measurements of the erythema, hydration, transepidermal water loss (TEWL) and sebum production were also taken into account. The results showed that the topical application of alginate micro/nanofibrous dressings loaded with PHBE on UV-inflamed skin significantly attenuated inflammation damage, reducing the healing period. Increase of the loading dose of PHBE resulted in a proportional reduction of the extent, the density and the depth of skin inflammation. With the steadily increasing interest of the skin dressing industry towards nanofibrous matrices, electrospun nonwovens could serve as ideal candidates for the development ofmultifunctional anti-inflammatory care systems.

R. Lubart, I. Yariv, D. Fixler, A. Lipovsky, **Topical Hyaluronic Acid Facial Cream with New Micronized Molecule Technology Effectively Penetrates and Improves Facial Skin Quality: Results from In-vitro, Exvivo, and In-vivo (Open-label) Studies**, J Clin Aesthet Dermatol. 2019;12(10): p. 39–44

Background: Topical hyaluronic acid (HA) has shown e□ectiveness in maintaining skin hydration. Topical creams containing HA are widely available, but their efficacy is limited by their lack of penetration into the skin due to the large molecule size of HA, the result of being formulated into a cream base. Objective: In this three-part study (in vitro, ex vivo, and in vivo), molecule sizes, penetration levels, and antiaging qualities of a topical HA facial cream that was formulated using a new technology that micronizes HA molecules (m-HA) were assessed. Methods and Results: Particle sizes of m-HA were evaluated using electron microscopy, which showed varying sizes, the smallest of which was 100nm in

diameter. The antioxidation capabilities of m-HA were measured using electron spin resonance and were found to be higher than original HA. Skin penetration of the m-HA formulation was evaluated via immunohistochemical staining of porcine skin samples, which demonstrated penetration of the formulation into the stratum corneum and the deep epidermal layers toward the dermis. Antiaging qualities of the m-HA formulation were assessed in an open-label clinical study that included 36 healthy adult women. Skin parameters were measured objectively (e.g., Corneometer, Cutometer) and subjectively via patient questionnaire, results of which indicated significant improvements in facial skin hydration, elasticity, and wrinkle depth. Conclusion: The topical HA facial cream with m-HA technology demonstrated penetration into the epidermal skin layer, and, to our knowledge, our formulation is the first HA facial cream to achieve this. Clinical application of the facial cream demonstrated objective and subjective improvements in facial skin quality of healthy adult female subjects. Our results support the use of this new HA facial cream with m-HA technology as an e□ective antiaging topical therapy. Larger randomized, controlled studies are needed to confirm our findings.

F. Spada, A.H. Lui, T.M. Barnes, **Use of formulations for sensitive skin improves the visible signs of aging, including wrinkle size and elasticity**, Clinical, Cosmetic and Investigational Dermatology 2019:12, p. 415–425

Background: Sensitive skin affects an increasingly large proportion of the population and is less tolerant to frequent and prolonged use of cosmetics. This study investigates the antiaging effects of a skin care system developed for use on sensitive skin. Methods: A total of 30 healthy Caucasian females, aged 32–72, were enrolled in this doubleblind randomized placebo-controlled split-face study. A routine consisting of twice daily topical applications of the test cleanser and test moisturizer or placebo or positive control products was followed for 28 days, with parameters measured at baseline and at 7-day intervals. Objective skin assessments for hydration, transepidermal water loss (TEWL), skin surface topography, elasticity and safety assessment were conducted. Results: Wrinkle surface, length and depth significantly improved by 34.8±4.7% ($P<0.001$), 19.0±3.2% ($P<0.05$) and 24.3±3.5% ($P<0.05$), respectively, after 28 days of skin care treatment with the test cleanser and test moisturizer. R2 (gross elasticity), R5 (net elasticity) and R7 (biological elasticity) significantly increased by 32.8±6.5% ($P<0.001$), 47.3±8.6% ($P<0.001$) and 50.6±5.1% ($P<0.001$), respectively, while R6 (viscoelastic portion) significantly decreased by 33.4±4.6% ($P<0.001$) after 28 days. Skin hydration was also found to increase significantly after 28 days by 42.2±8.5% ($P<0.01$), but there was no change in TEWL. No adverse events were reported. Conclusions: A novel skin care routine developed for use on sensitive skin significantlyimproves the signs of aging including hydration, wrinkle size and elasticity without significant adverse effects.

M. Mei-Hsia Chan, L. Siyun Tan, Y.-H. Leow, A. Teik-Jin Goon, C.L. Goh, **Comparison of Irritancy Potential of Sodium Lauryl Sulfate-free Aqueous Cream to Other Moisturizers: An Intraindividual Skin Occlusive Study**, *J Clin Aesthet Dermatol.,* 2019;12(7): p. 52–58

Objective: We compared the irritancy potential of sodium lauryl sulfate (SLS)-free aqueous cream to SLS-containing aqueous cream and other moisturizers. Design: This was a double-blind, intraindividual occlusive study. SLS-containing aqueous cream; SLS-free aqueous cream; white soft para n; urea cream; Physiogel® (Stiefel Laboratories, Brentford, United Kingdom); QV cream (Ego Pharmaceuticals Pty. Ltd., Braeside, Australia); Cetaphil RestoraDerm® (Galderma Laboratories, Fort Worth, Texas); Ceradan® (Hyphens Pharma International Ltd., Singapore); normal saline; and SLS 1% aqueous were applied with Finn chamber occlusion to different sites on each participant's back for 72 hours. Skin assessments were carried out on Day 0 preapplication and Day 3 and Day 7 postapplication. Participants: Twelve healthy adult volunteers were included in this study. Measurements: Study subjects were clinically evaluated by an experienced dermatologist using a four-point severity scale to assess the severity of erythema, dryness, desquamation, stinging or burning, and pruritus. Corneometer® and transepidermal water loss (TEWL) readings were taken to assess skin hydration and skin barrier integrity, respectively. All measurements were performed on Days 0, 3, and 7. Results: Application of the SLS-free aqueous cream resulted in no signi- cant changes in TEWL or Corneometer® readings throughout the study period. The SLS-containing aqueous cream resulted in a signi- cant increase in TEWL from Day 0 to Days 3 and 7. All test moisturizer creams showed no signi- cant changes in their clinical assessment scores. Conclusion: The results of our study indicate that SLS-free aqueous cream has a lower irritancy potential than SLS-containing aqueous cream, with the same level of maintenance of skin barrier integrity and hydration. SLS-free aqueous cream also appears to be less irritating to the skin than other non-SLS generic and commercial moisturizers tested.

M.O. de Melo, P.M.B.G. Maia Campos, **Application of biophysical and skin imaging techniques to evaluate the film-forming effect of cosmetic formulations**, Int J Cosmet Sci. 2019 Dec;41(6): p. 579-

584

Objective: Products with film-forming effect, or 'second skin', which guarantees an immediate protective effect after application, is a highlight, especially when composed of natural ingredients. Thus, the objective of this study was to evaluate the immediate film-forming effect on skin of a gel and emulsion formulations added with Kappaphycus alvarezii and Caesalpinia spinosa extracts through biophysical and skin imaging techniques, especially with the Reflectance Confocal Microscopy (RCM). Methods: The measurements were done in the forearm region before (baseline) and 1 h after of application of the developed formulation and its control. The parameters related to the stratum corneum water content, transepidermal water loss (TEWL), cutaneous microrelief and morphological and structural characteristics of the epidermis were analysed through the following biophysical and skin imaging techniques: Corneometer® CM 825, Tewameter® TM 300, Visioscan® VC98 and Vivascope® 1500, respectively. A sensorial analysis was also performed to study how the formulations were perceived on the skin. Results: The obtained results showed that the active ingredient under study allows the film formation on the skin surface, leading to a reduction of TEWL and skin desquamation. The obtained images from RCM showed a reduction of furrows on the skin surface and a film formation after a single application of the formulations. However, these effects were more pronounced in the emulsion formulation, which suggests a synergistic effect of the active ingredient under study with the emollients of formulation composition. This result was also observed in the sensorial analysis, as both formulations added with the active substance were well evaluated. Conclusion: The presence of Kappaphycus alvarezii and Caesalpinia spinosa extracts in the studied cosmetic formulations, enabled a film formation on a skin surface, bringing benefits as a reduction of transepidermal water loss and skin desquamation, as well as a furrows reduction and an improvement of stratum corneum after 1h of application. Finally, the skin imaging techniques can be suggested as an excellent tool to evaluate a film-forming effect of cosmetic formulations.

S. Boisnic, M. Keophiphath, A.L. Serandour, M.C. Branchet, S. Le Breton, I. Lamour, E. Gaillard, **Polar lipids from wheat extract oil improve skin damages induced by aging: Evidence from a randomized, placebo-controlled clinical trial in women and an ex vivo study on human skin explant**, J Cosmet Dermatol., 2019 Dec;18(6): p. 2027-2036

Background: Polar lipids from wheat (Triticum vulgare/aestivum) extract oil (WEO) are known to improve skin hydration. Aims: These studies aimed to assess WEO benefits on the skin appearance of middle-aged women. Methods: A double-blind, randomized, placebo-controlled clinical study was carried out on 64 healthy women, aged from 45 to 60 years, to investigate antiaging effects and benefits for the skin. The study lasted 20 weeks including 12 weeks of oral supplementation with WEO or placebo and 8 weeks of follow-up. Wrinkles in the "crow's-feet" area were evaluated by the Lemperle score. Skin hydration was measured using a *corneometer*, while roughness and radiance were determined by clinical scoring. Collagen content was quantified in human skin explants exposed to ultraviolet (UV) irradiations and treated with WEO or vehicle control. Results: Compared to the placebo group, the Lemperle score was significantly reduced in the WEO group between W0 and W8 to reach a clinically significant 1 grade at W12. Facial hydration was significantly improved in the WEO group from W0 to W12, whereas leg hydration was significantly increased after 4 weeks and lasted throughout the supplementation period. Skin roughness and radiance were also significantly improved from W0 to W8 in the WEO group compared to placebo group. A higher collagen content was measured in the UV-irradiated skin explants treated with WEO compared to the untreated ones. Conclusion: These results confirmed the moisturizing effect of WEO and, for the first time, revealed its potential antiaging properties.

M. Denzinger, S. Krauss, M. Held, L. Joss, J. Kolbenschlag, A. Daigeler, J. Rothenberger, **A quantitative study of hydration level of the skin surface and erythema on conventional and microclimate management capable mattresses and hospital beds**, J Tissue Viability, December 2019

Background: In addition to pressure itself, microclimate factors are gaining more attention in the understanding of the development of pressure ulcers. While there are already various products to reduce pressure on sore-prone areas to prevent pressure ulcers, there are only a few mattresses/hospital beds that actively influence skin microclimate. In this study, we investigated if microclimate management capable mattresses/hospital beds can influence skin hydration and skin redness/erythema. Methods: We included 25 healthy subjects in our study. Measurements were made using Courage & Khazaka Multi Probe Adapter MPA with Corneometer CM825 and Mexameter MX18 to determine skin hydration of the stratum corneum and skin redness/erythema before and after the subjects were lying in conventional (Viskolastic® Plus, Wulff Med Tec GmbH, Fedderingen, Germany and Duo™ 2 mattress, Hill-Rom GmbH Essen, Germany) or microclimate management capable mattresses/hospital beds

(ClinActiv+MCM™ and PEARLS AFT, Hill-Rom GmbH Essen, Germany). Results: While there was no difference in skin redness/erythema on the different mattresses/hospital beds, skin hydration of the stratum corneum decreased significantly in an air fluidized bed compared to baseline values and values measured on standard mattress/Viskolastic® Plus. Conclusion: Air-fluidized therapy reduces skin hydration and therefore could contribute to prevent moisture associated ulcers. Changes in skin hydration as one important factor of skin microclimate can be detected after a short time of incubation and even before an erythema appears.

Y. Duan, L. Ma, C. Galzote, F.-Q. Kong, C.-P. Shen, **A Randomized Pilot Clinical Assessment Of Three Skincare Regimens On Skin Conditions In Infants**, Clinical, Cosmetic and Investigational Dermatology 2019:12, p. 895–909

Introduction: Few data are available on the comparison between the effects on infant skin of skin care products and those of water alone. Patients and methods: In this single-center, evaluator-blind, parallel-group pilot study, healthy infants were randomized to near-daily washing for 12 weeks (starting in the summer and finishing in the winter months) with a mild liquid baby wash followed by use of baby lotion (wash+lotion), water followed by baby lotion (water+lotion), or water alone. Clinical and instrumental assessments of skin moisturization and barrier function were made. Results: As expected the skin condition in all groups was affected by the change of the season. The skin of infants in all groups was mildly deteriorated (clinical grading) and with reduced moisture levels and increased barrier function. Instrumental measurements indicated that skin moisture and barrier function were better maintained in the wash+lotion and water +lotion groups than in the water-only group at week 12. Clinical assessment scores increased slightly over 12 weeks in all groups ($P<0.05$). At week 12, the wash+lotion group (n = 44) had significantly less change from baseline in overall skin condition and softness (lower scores) than did the water+lotion (n = 43) or water-only (n = 43) groups. The wash+lotion regimen maintained stable erythema and rash scores with lower mean values over time than in the other groups. Conclusion: A regimen of a liquid baby wash and a baby skin lotion for 12 weeks resulted in less detrimental changes in instrumental and clinical measures of skin than using water and lotion or water alone.

N. Braun, S. Binder, H. Grosch, C. Theek, J. Ulker, H. Tronnier, U. Heinrich, **Current Data on Effects of Long-Term Missions on the International Space Station on Skin Physiological Parameters**, Skin Pharmacol Physiol 2019; 32: p. 43-51

Background: Skin reaction to spaceflight has not really been studied yet, although the skin has a very important barrier function to protect the body and can contribute to a more general understanding of physiology. It is proposed here to make a more thorough investigation of the skin during longterm spaceflight, using noninvasive techniques. Aims: The aim of the present Skin-B study is to investigate the kinetics and range of possible skin modifications during long-duration spaceflights and their recovery. Methods: In order to investigate the effect on skin physiological parameters during spaceflight, measurements were carried out on 6 astronauts with respect to skin hydration, transepidermal water loss/barrier function, and surface evaluation of the living skin in orbit. Additional measured parameters on the ground were skin elasticity, skin density and thickness, as well as microcirculation. Results: Data from the Skin-B subjects (n = 6) contradict the results obtained in the previous pilot study SkinCare (n = 1 subject).In the present study, no deterioration of the skin was found but rather an improvement in skin hydra tion and skin barrier function, and no changes or improvement in the appearance of the skin surface. Furthermore, the skin density and skin thickness as well as skin elasticity values were unchanged from pre-flight values. Conclusion: In conclusion, we found that spaceflight under present conditions has no negative impact on skin physiological parameters.

N. Braun, S. Thomas, H. Tronnier, U. Heinrich, **Self-Reported Skin Changes by a Selected Number of Astronauts after Long-Duration Mission on ISS as Part of the Skin B Project**, Skin Pharmacol Physiol 2019; 32: p. 52-57

Background: One of the most challenging and important factors of manned space missions is to keep astronauts healthy on orbit. In a study on 46 ISS crew members who were on 6-month (average) missions, skin rashes were the most self-reported event. Furthermore, among notable events, 40% were classified as skin rashes/hypersensitivities. Thus, especially skin conditions during space travel are of major clinical interest and require further research. Aims: The aim of the study was to determine skin conditions in space flight among US and European astronauts, especially taking into account the terrestrial skin conditions as well as on-orbit skin care habits. Methods: A preflight questionnaire was given to the astronauts asking about their terrestrial skin care habits and skin conditions/atopy before launch. In addition, they were asked to fill out a postflight questionnaire asking about their on-orbit skin care routine and whether any special observations regarding the skin were made during flight.Results:

A total of 23 skin symptoms were recorded by 8 nonatopic astronauts (mean age: 41 years) during the mission. The symptoms were peeling (21.74%), rash (17.39%), dryness (13.04%), severe dryness (8.70%), reddening (8.70%), itchiness (8.70%), bruising (4.35%), skin sensitivity (4.34%), bumps (4.35%), acne (4.35%) and slow healing of contusions and lacerations (4.35%). Especially the hands and feet were affected by skin problems. As a result of this examination, it was shown that the skin symptoms correlate with poor hygiene on orbit, whereas the factor "environment" on the ISS plays a minor role. Surprisingly, 2 astronauts even experienced positive effects on their skin. Conclusion: Based on these prelim ary data, it is important to pay more attention to skin hygiene and maintenance in Space.

F. Spada, T.M. Barnes, K.A. Greive, **Skin hydration is signifcantly increased by a cream formulated to mimic the skin's own natural moisturizing systems**, Clinical, Cosmetic and Investigational Dermatology 2018:11, p. 491–497

Background: Moisturizers are topical products designed to improve and maintain the skin barrier function and to help prevent dry skin. Materials and methods: A new moisturizer (Ceramide cream) was formulated containing ingredients which mimic the skin's own natural moisturizing systems. Corneometry was performed at baseline, 2, 4, 6 and 24 hours following a single application of Ceramide cream to healthy skin, and compared to three reference moisturizers available over-the-counter, and placebo. Transepidermal water loss (TEWL) was also measured following a single application of Ceramide cream compared to baseline, and its safety was assessed by repeat insult patch test, ophthalmologist and pediatric testing. Results: A single topical application of either the Ceramide cream or the three reference moisturizers resulted in a signifcant increase in skin hydration over time (P<0.001). The placebo cream did not signifcantly increase skin hydration at any time point. At 24 hours post-application, skin hydration measured for Ceramide cream was signifcantly greater (P<0.05) than that measured for all three of the reference moisturizers tested. Ceramide cream was also found to significantly decrease TEWL (P<0.001) over 24 hours, and was shown to be non-sensitizing to the skin of both adults and children and non-irritating to the skin, eyes and related eye area. Conclusion: Ceramide cream increases skin hydration and improves barrier function which may make it suitable for use on dry skin.

L. Bolke, G. Schlippe, J. Gerß, W. Voss, **A Collagen Supplement Improves Skin Hydration, Elasticity, Roughness, and Density: Results of a Randomized, Placebo-Controlled, Blind Study**, Nutrients 2019, 11, 2494

The purpose of this randomized, placebo-controlled, blind study was to investigate the effects of the drinkable nutraceutical ELASTENfi (QUIRIS Healthcare, Gütersloh, Germany) on skin aging and skin health. Drinking ampoules provides a blend of 2.5 g of collagen peptides, acerola fruit extract, vitamin C, zinc, biotin, and a native vitamin E complex. This controlled interventional trial was performed on 72 healthy women aged 35 years or older. They received either the food supplement (n = 36) or a placebo (n = 36) for twelve weeks. A skin assessment was carried out and based on objective validated methods, including corneometry (skin hydration), cutometry (elasticity), the use of silicon skin replicas with optical 3D phase-shift rapid in-vivo measurements (PRIMOS) (roughness), and skin sonography (density). The verum group was followed for an additional four weeks (without intake of the test product) to evaluate the sustainability of the changes induced by the intake of the test product. The test product significantly improved skin hydration, elasticity, roughness, and density. The differences between the verum group and the placebo group were statistically significant for all test parameters. These positive effects were substantially retained during the follow-up. The measured effects were fully consistent with the subjective assessments of the study participants. The nutraceutical was well tolerated.

S. Favrel, E. Mielewczyk, A. Liberek, E. Paw, I. Chabowska, A. Sirvent, V. Ribet, A. Delarue, **A high-emollient liquid cleanser for very dry and atopic-prone skin: Results of an in-use tolerance and efficacy study conducted under dermatological, pediatric, and ophthalmological supervision**, J Cosmet Dermatol. 2019 Nov

Background: Emollients play a key role in the treatment of eczematous lesions and xerosis such as in atopic dermatitis. However, studies that show the actual benefits of cleansers are few and far between. Aims: This study aims to evaluate the tolerance and efficacy of a high-emollient liquid cleanser (HELC) designed for very dry and atopic-prone skin, in the absence of any additional skin care. The product is a soap-free and fragrance-free liquid cleanser, containing mild surfactants and a ternary system of selected emollients: glycerin, vaseline, and paraffin. Methods: In-use study was conducted under dermatological, pediatric, and ophthalmological supervision in 50 subjects (infants, children, and adults) with "dry to very dry and atopic-prone" skin. The primary objective of this monocentric, open, and intra-individual study was to assess the dermatological and ophthalmological tolerance of HELC after 21 days of using it at least once a day on the face and body. The secondary objectives were to evaluate

its efficacy based on a clinical score (SCORAD), assess its short- and long-term moisturizing effect by measuring hydration rates (*Corneometer®*), and ascertain its cosmetic acceptability through a subjective evaluation questionnaire. Results: The study validates the good dermatological and ophthalmological tolerance of HELC. Its efficacy was demonstrated by improvements in the SCORAD and moisturizing scores. Furthermore, the product was very well accepted by the subjects. Conclusion: The fragrance-free HELC tested in this study for 21 days on "dry to very dry and atopic-prone skin" improves skin dryness and pruritus while ensuring good tolerance.

M. Kubiak, P. Mucha, H. Rotsztejn, **Comparative study of 15% trichloroacetic acid peel combined with 70% glycolic acid and 35% trichloroacetic acid peel for the treatment of photodamaged facial skin in aging women,** J Cosmet Dermatol., 2019 Oct

Background: Photoaging (extrinsic aging) is caused by environmental exposure to ultraviolet radiation. Superficial and medium-depth chemical peels with trichloroacetic acid (TCA) are performed to reduce wrinkles, hyperpigmentation, dryness, and erythema caused by photoaging process. Aim: The aim of this study was to compare the efficacy and tolerability of 15% TCA peel against the combined 70% glycolic acid and 35% TCA for the treatment of photodamaged facial skin. Patients/methods: Forty female patients with types II and III of Glogau photoaging scale were divided into two groups of twenty subjects (GA/TCA and 35% TCA). The GA/TCA group was treated with combination peeling of 70% GA and 15% TCA, whereas the 35% TCA group was treated with monopeeling of 35% trichloroacetic acid. Each patient was submitted to five sessions of these peels, with an interval of 14 days between each session. The following skin aging parameters were examined before treatments, before each session, and 3 months after the last application: hydration, elasticity, melanin index, and erythema index (MPA-5; Courage-Khazaka, Germany); and depth and volume of wrinkles (PRIMOS; GFMesstechnik GmbH, Germany). Results: Both peel methods achieved significant improvement in all skin parameters: elasticity, hydration, melanin index, and erythema index. Significant differences between the GA/TCA and 35% TCA groups were found only for hydration and melanin index. GA/TCA was characterized by significantly higher values of the hydration parameter and lower values of melanin index compared with 35% TCA. Combination peel GA/TCA did not cause dryness, edema, or intensive lysis of the epidermis, and the frequency of peel-induced erythema did not increase with the addition of glycolic acid, but with higher concentration of the TCA solution. However, subject-perceived improvements of the 35% TCA peel did not differ significantly from subject-perceived improvements of combination peel treatment. Adverse events requiring intervention or discontinuing treatment were not observed in either group. Conclusion: The addition of glycolic acid before 15% TCA chemical peel application significantly enhanced TCA-induced improvement in photoaging parameters (increase in skin elasticity and hydration; reduction in melanin index and erythema index), and subject-perceived improvements. However, 35% TCA peel is more effective in reducing wrinkles, despite a lower tolerability. Both medium-depth chemical peels including 15% TCA in combination with 70% GA and 35% TCA alone proved to be useful for the removal of epidermal or superficial lesions and to improve the texture of photodamaged facial skin (grade II-III Glogau photoaged skin).

P. Rerknimitr, K. Kantikosum, N. Chottawornsak, N. Tangkijngamvong, S.J. Kerr, P. Prueksapanich, P. Sithisarankul, C. Kumtornrut, P. Asawanonda, S. Sutheparuk, R. Panchaprateep, **Chronic occupational exposure to lead leads to significant mucocutaneous changes in lead factory workers**, Journal of the European Academy of Dermatology and Venereology, Volume 33, Issue 10, October 2019

Background: Chronic lead toxicity is a worldwide public health problem. Lead possesses deleterious effects on many organ systems. However, little is known regarding its clinical and biophysical effects on the skin. Objective: To investigate mucocutaneous signs and biophysical property changes in skin after chronic lead toxicity. Methods: One hundred and eighty-seven patients who were car battery workers participated in the study. Complete history and physical examination were performed. Blood was collected for laboratory analyses. Thorough skin examination by dermatologists was carried out in 134 subjects. Additionally, 96 patients with blood lead levels (BLL) >70 □g/dL were further evaluated for skin elasticity, sebum content, transepidermal water loss (TEWL), hydration, pH and pigmentation. An equal number of age-, sex- and skin-type-matched subjects were recruited as controls. Results: The mean BLL of all subjects was 74.15 ± 11.58 □g/dL. The most frequently observed signs were gingival brown pigmentation in 112 (83.6%), gingivitis in 111 (82.8%) and lead line in 66 (49.3%) patients. The lead line was found in subjects with significantly higher BLLs (adjusted mean difference 6.45, 95% CI 2.30–10.60 □g/dL, $P = 0.003$) and in association with gingivitis (adjusted OR 7.32, 95% CI 2.08–25.74, $P = 0.002$). Mean BLL of the patients who underwent biophysical assessment was 82.77 ± 9.80 □g/dL. Patients exhibited a statistically significant lower skin hydration observed by corneometer as well as elasticity. The adjusted ORs of having dry skin and lower elasticity were 15.32 (95% CI 4.41–53.24),

P < 0.001) and 1.96 (95% CI 1.06–3.60), *P* = 0.031), respectively. These differences were not significant for sebum content, TEWL, pH and pigmentation. Conclusion: Importantly, even in normal-appearing skin, level of hydration and elasticity decreased in lead-intoxicated patients. These results suggest that lead might possess harmful effects on the skin at measurable levels.

A.P. Eijkenboom, **Nichtinvasive Untersuchung hautphysiologischer Parameter bei Ekzempatienten im Langzeitverlauf - Eine explorative Analyse**, Dissertation an der Medizinischen Fakultät der Ludwig-Maximilians-Universität zu München, Oktober 2019

Das atopische Ekzem (AE) ist eine verbreitete, chronisch entzündliche Hauterkrankung die in westlichen Ländern gehäuft vorkommt. Nur teilweise verstandene Wechselbeziehungen zwischen genetischen und Umweltfaktoren sind an der Entstehung der Erkrankung beteiligt. Die Erkrankung zeichnet sich durch einen variablen klinischen Phänotyp mit einer heterogenen Pathophysiologie aus. Das atopische Ekzem ist häufig mit Asthma, allergischer Rhinoconjunctivitis und durch Nahrungsmittelallergien ausgelösten, erhöhten Immunoglobulin E (IgE)-Spiegeln assoziiert [1]. Die Prävalenz des AE wird bei Erwachsenen auf 2 – 10 % und bei Kindern auf 15 - 20 % geschätzt [2, 3]. Der Schweregrad ist bei Patienten, welche einen Arzt konsultieren, in 70 % der Fälle mild, in 20 % der Fälle moderat und in 2 % der Fälle schwer [4]. Davon treten 85 % der Fälle vor dem 5. Lebensjahr auf, wobei bis zu 70 % der Fälle bis zum Erwachsenenalter remittieren. Ein AE, das sich erst im Erwachsenenalter manifestiert, lässt sich oft schwer therapieren [5].

J.V. Gruber, V. Stojkoska, **NLRP inflammasomes and induced skin inflammation, barrier recovery and extended skin hydration**, International Journal of Cosmetic Science, October 2019

Objective: *In vitro* assays were designed to examine the release of active Caspase-1 (ACasp-1) from NLRP inflammasome-activated Normal Human Epidermal Keratinocytes (NHEK) employing a bioluminescent assay specific for measuring inflammasome-induced ACasp-1 expression. Methods: Four anticipated exogenous activators of the NLRP inflammasome including: UVB, ATP, Nigericin and Urban Dust were examined. Follow-up studies examined the influence of extracellular application of three different natural blends of known anti-inflammatories, one a polysaccharide blend and the other two antioxidant blends, one oil-soluble the other water-soluble, to examine ACasp-1 inhibition. Clinical work using the same blend of polysaccharides employed at 3% in a moisturizing formulation was examined for skin barrier recovery, measured with TEWL over a 60-h time frame after tape stripping on 10 individuals, and extended moisturization, measured using corneometer conductance after a single product application out through a 48-h regression on 10 individuals. Results: *In vitro* results indicated that two exogenous activators, 60 mJ cm^{-2} UVB and 5 mM ATP, worked to upregulate expression of ACasp-1 within a 20-h timeframe. Additional studies were conducted to examine the influence of three extracellularly applied active ingredient blends. A blend of polysaccharides demonstrated potential to inhibit ACasp-1 expression in both UVB- and ATP-activated skin cells. Oil-soluble and water-soluble antioxidant blends inhibited ACasp-1 expression in UVB-activated keratinocytes but not ATP-activated keratinocytes. Barrier disruption studies indicated that 3% of the polysaccharide blend accelerated barrier recovery in a 60-h time frame as measured by TEWL. Skin hydration studies showed an ability for the polysaccharide blend to show significant improvements in skin hydration out to 48 h after a single application vs. a moisturizing placebo. Conclusions: The role of the skin's innate immune response, controlled by NLRP inflammasomes, is beginning to be linked to numerous skin conditions including inflammaging. In this work, it was found that: (i) an *in vitro* assay could activate NHEKs to express NLRP inflammasome-induced ACasp-1 expression, (ii) Ingredient blends inhibited UVB and ATP-induced NLRP inflammasome-induced ACasp-1 expression, and (iii) skin barrier disruption improvements and extended skin hydration could be achieved with 3% of the polysaccharide blend.

S. Cambos**, Positive impact of performance emulsifiers on end-users skin benefits**, presentation at the 25th IFSCC Conference Milan, October 2019

The primary function of an emulsifier is to stabilize an emulsion. But actually, excipients such as emulsifiers can contribute to skin benefits. The most universal skin need is hydration. Hydration intensity depends on its mechanism: film forming effect, interaction with the stratum corneum lipids, etc. The aim of our study is to measure the impact of stable basic emulsions on end-user performance by varying only the emulsifier nature, and, in a second step, to understand the mechanism of action.

S. Lueangarun, B. Soktepy, T. Tempark, **Efficacy of anti-inflammatory moisturizer vs hydrophilic cream in elderly patients with moderate to severe xerosis: A split site, triple-blinded, randomized, controlled trial,** J Cosmet Dermatol., 2019 Oct

Background: Xerosis is a common problem among the elderly, characterized by dry-scaling erythema, fissuring, or pruritus, which could be treated by anti-inflammatory moisturizers without side

effects of steroids. Aims: We aimed to investigate the efficacy of anti-inflammatory moisturizer (MAS062D lotion) vs hydrophilic cream for the improvement of dry and barrier function skin in xerosis patients. Methods: A split site, triple-blinded, randomized, controlled trial was conducted in the elderly with moderate to severe xerosis, who received the 28-day twice daily application of MAS062D lotion and hydrophilic cream on the assigned shins. The evaluations on day 0, 14, and 28 were performed using clinical assessment, skin hydration by corneometer, transepidermal water loss (TEWL), and biometric assessment. Results: There were 24 Thai elderly patients, of whom 87.5% were female (mean age = 58.04 years and mean xerosis severity scale (XSS) = 4.83). Both treatments revealed similar statistically significant improvement in XSS ($P < .001$). Interestingly, MAS062D lotion-treated side remarkably showed improvement of skin hydration compared with hydrophilic-treated side for 26.86 ± 7.94 vs 25.84 ± 5.1, 41.24 ± 6.92 vs 20.96 ± 6.8, 50.49 ± 8.2 vs 21.75 ± 8.29 at baseline, day 14, and 28, respectively (P-value < .001). Moreover, MAS062D lotion significantly yielded greater decrease in TEWL measurement and more erythema improvement than hydrophilic cream (P-value < .001). No serious adverse effects were observed with either treatment. Conclusion: The MAS062D lotion could potentially be an efficacious treatment for improvement of xerosis in the elderly, which is also safe and refrains from steroid side effects.

I. Faccini, A. Arnese, C. Gambardella, S. Bettinelli, G. Depta, **Prebiotic make-up: self-preserving natural foundation that boosts the skin microbiota**, presentation at the 25th IFSCC Conference Milan, October 2019

Human skin is a unique and variable ecosystem that is inhabited by a wide range of microorganisms such as bacteria, fungi and viruses. This microbial community, called microbiota, is based on a delicate symbiotic balance between the properties of the microorganisms and the human host. The majority of these bacteria are commensal and create a dense coating that occupies the environmental and nutritional niches avoiding the colonisation of pathogens. Moreover, the commensal microbial population plays an important role in terms of antimicrobial compound synthesis and immunity. Different studies have demonstrated that a disrupted balance in the skin ecosystem could be associated to numerous skin diseases, such as atopic dermatitis, acne vulgaris, psoriasis and chronic wounds. Based on this evidence, maintaining the health of good skin microbes is vital for a healthy skin. A simple way to turn skin into a welcoming and nurturing environment for skin bacteria is the use of prebiotics. Prebiotics are fermented ingredients that act as nutrient sources; they selectively stimulate the growth and activity of beneficial 'normal' skin microbiota [4], at the expense of pathogens. Over the last few years, skincare brands have paid close attention to prebiotic science and severalformulations have been launched on the market, claiming benefit and nourishment for good bacteria on skin. Therefore, the consumer's attention regarding skin's health has increased, and interest is starting to spread also into the make-up field. The lack of make-up products with proven efficacy and scientific support encouraged us to analyze the effect of a coloured cosmetic on the skin microbiota. The challenge of this study was to formulate a natural high performing foundation in which convey a blend of prebiotic ingredients, and to explore with an *in-vitro* and *in-vivo* tests its every-day use in safeguarding the skin microbiota of 20 women with dry and sensitive skin.

M. Napoli, S. Gervason, J.-Y. Berthon, E. Filaire, **Psycholobiological approach for a positive skin ageing: target senescence cells to boost emotion**, presentation at the 25th IFSCC Conference Milan, October 2019

The world's population isgetting older. According to Euromonitor, as of 2019, 1.7 billion people globally, or 23% of the global population, is aged 50 or above. Life expectancy is rising around the globe. The average global life expectancy is 72.3 years with some countries exceeding this average, such as Japan at 84.1 years, the United Kingdom at 81.3 years and the United States at 79 years. Thus, population ageing has become a global phenomenon in recent decades. Even if people are living longer, they have a growing desire to be healthier. Healthy living is no longer a sub-culture; it is a prominent part of mainstream culture globally across all industries, ranging from sleep devices to supplements, healthy snacks and beverages... The pursuit of healthier lifestyles is driven by a desire for two things: the ability to live a quality life in the present and the ability to live a long life in the future. It is the distinction between prolonging life and prolonging quality of life, which differentiates the topics of health and ageing. Thus, the desire to be healthier is changing the narrative of ageing, moving away from fighting the signs of ageing to focusing on "looking and feeling good at any age". This shift is most evident in the beauty industry. Terms such as 'successful ageing', 'active ageing' and 'positive ageing' are now part of the discourse with regards to growing older. From this trend, a new dermo-cosmetic concept emerged, well ageing, which focuses on wellness in order to maintain health capital. This concept is linked to the psychophysiological approach.

J.A. Boras. A. Grau-Campistany, S. Pastor, P. Carulla, E. Bisceglia, **Modulation of cell-to-cell communication in skin by a novel peptide increases skin brightness**, presentation at the 25th IFSCC Conference Milan, October 2019

Hyperpigmentation is one of the most common concerns of cosmetic consumers. With the increasing awareness of the role of exposure to ultraviolet radiation in the development of photoaging, there is an urgent need for new active ingredients that act on this undesired pigmentation, which are highly active, safe, stable and compatible with sun exposure, some of the drawbacks of the current lightening agents in the market. However, skin coloration is a result of many complex processes and years of investigation in pigmentation have been able to establish that there are multiple factors that regulate skin pigmentation.

V.R. Morares, P.M.B.G. Maia Campos, **Characterization of Nondiabetic and Diabetic Type 2 Skin in the Aging Process Using Biophysical and Skin Imaging Techniques**, presentation at the 25th IFSCC Conference Milan, October 2019

The aging process is a biological, multifactorial and complex phenomenon that includes intrinsic and extrinsic factors. The intrinsic factors are correlated with genetic and metabolism and the extrinsic factors are caused by sun exposition, pollution and other. Both processes results in skin aging, where signs as wrinkles, expression lines, changes in dermal thickness can be observed. Advanced glycation end products – AGEs, are originated from no enzymatic reactions which involves the reduction of sugars and amino groups of proteins and aminoacids. Collagens are essential proteins since they are responsible for the extracellular matrix structure. The AGEs cause modifications on the matrix, once the skin collagen deteriorates by crosslinking process. People with Diabetes have more AGEs in the tissue due to the high glucose concentration, which can cause skin damages. Thus, diabetic patients are more predisposed to signs of early aging than healthy people. In this context, it is very important the better comprehension of the diabetic skin in comparison to the no diabetic one. Thus, the aim of this study was to evaluate the clinical changes in the diabetic type 2 skin by biophysical skin imaging techniques.

F. Carlomagno, **Effectiveness of a Biotechnological Active Ingredient for Cosmetics Targeting Skin Microbiota Protection,** presentation at the 25th IFSCC Conference Milan, October 2019

The skin is the largest organ of the human body in surface, mainly serving as a physical barrier which protects the body from external aggression. An adult's skin hosts an average population of 1,000 billion microorganisms among fungi, viruses and bacteria. This fauna lives and moves on the skin surface as well as in the superficial layers of the epidermis to down to the hair follicles and glands. Microorganisms form a complex ecosystem collectively referred to as skin microbiota. This tiny, but important micro-world is essential for the skin to main it healthy and to work as a perfect barrier. A distinctive combination of microorganisms all over our body is peculiar for all of us, although scientists point out that skin microbiome varies a lot during our lives. This variation is linked to age, changes of lifestyle and to the external stressors we are submitted to (4). Different body sites can also have completely different skin microbiota configurations, both inter- and intra-personally, linked to the peculiar characteristics of that precise micro-environment. For example, just focusing on the face, studies show that there are great differences between forehead and cheek skin microbiota, due to the existence of moist, dry and sebaceous skin sites (5). Despite continuous changes in its composition, when the body is healthy, skin microbiota seems to be an equilibrium between protective and pathogens microorganisms. These live together in a complex community and have a number of different symbiotic interactions. If we consider bacteria, the most important and frequent phyla living on human skin are Actinobacteria, Firmicutes, Proteobacteria and Bacteroidetes, without huge differences among ethnicities. Further, looking more deeply into specific taxonomic classification, as class or genus or species, we can find differences among peoples' microbiomes even by looking at subjects with very similar age, lifestyle, and from the same ethnicities. The general truth for everyone's healthy condition seems to be the homeostasis of skin microbiota with its singular peculiarities.

L. Xiao, B. Che, H. Lu, J. Li, G. Zhou, Y. E, **Evaluation of a Scalp Essence on Human Scalp Health and Subclinical Conditions Based on Multiple Dimensions Physiological and Biological Approaches,** presentation at the 25th IFSCC Conference Milan, October 2019

Varieties of methods have long been considered to evaluate cosmetic efficacies and health benefits on hair care and scalp care products. In general, scalp health and its conditions are normally determined at the following dimensions including scalp hydration level, scalp oil level, dandruff scale, scalp micro organism conditions, and scalp sensations such as itching, stinging, burning, pain, numb, and other related scalp sensational issues. It is believed that scalp health conditions are influenced by hair cleansing habits, scalp microorganism environment, inflammatory lesions such as psoriasis, and hair follicle health status. On the other hand, scalp health and its conditions are also well documented

and determined by Traditional Chinese Medicine (TCM) theories and clinical diagnosis. This is because TCM practitioners consider most of the symptoms such as scalp conditions through a integral grading system as Qi-Blood, of which represents functions of vital energy and nutritional supporting mass respectively, range from balance to stagnation and to deficiency including the deficiency of vital energy, stagnation of the circulation of vital energy, weakness of vital energy, deficiency of blood, stasis of Blood, cold in Blood, heat in Blood, to stagnation of vital energy and Blood stasis, and both Qi-Blood deficiency, etc. Here, we considered to measure hair follicle hydrocortisone level one of the TCM Qi-Blood markers. This presented study focused on evaluation of a commercial scalp essence with an integrated quantification methods on human subject scalp moisture, dandruff, redness, acidity, sensations, hair quality, as well as Qi-Blood based on TCM categorized as Blood balance, stagnation and deficiency.

E. Lee, J.Y. Lee, S. Woo, Y. Noh, J. Shin, P. Ruan, J. Ha, **Variation of Biophysical Parameter with Skin Aging from Distinct Geographic Locations in South Korean and Chinese women**, presentation at the 25th IFSCC Conference Milan, October 2019

There are the differences of skin properties with aging in various ethnic groups. Within the same ethnic group, it is also important to understand that the change of skin with aging as well as skin characteristics be influenced by external environment, such as climatic condition, UV radiation and environmental pollution. The purpose of this study was to investigate the alteration of biophysical parameter with aging in different locations.

C. Klose, J. Fröbel, F. Lauffer, N. Garzorz-Stark, **Skin profiling reveals lipidomic pattern in functional skin parameters for cosmetics**, presentation at the 25th IFSCC Conference Milan, October 2019

Heat, physical activity, abrasive clothes, humidity and disease: external and internal factors stress the *stratum corneum*, the upmost layer of the skin, and affect functional skin parameters such as skin hydration and trans-epidermal water loss. In this study, we align skin lipidome data with functional skin parameters. Using high-resolution shotgun lipidomics analysis applying mass spectrometry (MS) and MSMS, we have discovered lipid profiles mirroring the effects of external and internal factors on functional skin parameters, such as skin hydration or trans-epidermal water loss.

V.T. Ferreira, P.M.B.G. Maia Campos, **Design and development of sunscreen formulations: correlation of physicalmechanical properties and skin biophysical measurements**, presentation at the 25th IFSCC Conference Milan, October 2019

Although UVA radiation accounts for only 9.5% of the solar radiation, it can lead to impairment of dermis and epidermis, even in the case of non-extreme exposures. Long UVA rays are the most significant part of the UVA spectrum as it penetrates the skin most deeply and play a decisive role in many aspects as photoaging, DNA damaging through the production of free radicals, immune system responses and various photodermatoses. Avobenzone is a consolidated UVA filter, yet its low photo stability is related to undesirable photochemical reactions which may compromise physical and chemical properties of formulations, mostly when associated with inorganic UV filters, which may further increase research and development challenges. Considerable effort is necessary developing photoprotective products with satisfactory UVB/UVA protection ratio, that are visually and sensorially pleasing and match safety and efficacy by forming a stable and homogeneous film over skin surface, both avoiding adverse effects and ensuring the photoprotective activity. Herein, definition of the appropriate vehicle is fundamental where emulsifying agents not only influence efficacy of fatty components but also model surface tension and the cutaneous film formation, compatibility, physical-mechanical properties and distribution on the skin, greatly influencing sunscreens efficacy. In this context, this study aims to systematic develop formulations of satisfactory UVB/UVA protection ratio, with ability to form a stable and homogeneous film on the skin surface, and to evaluate the effect of waxes concentration in the formulations over the rheological behaviour as well their clinical effects by skin biophysical techniques.

A. Gimenez, O. Laporta, E. Canadas, E. Gonzalez, R. Delgado, **The eyes: a reflection of genderless beauty,** PERSONAL CARE NORTH AMERICA, October 2019, p. 18-20

Given the expansion of masculine products for facial skin care on the shelves around the world, eye contour ranges are in the spotlight as they can help reduce unwanted bags, dark circles and fatigue signs, offering excellent improvements in facial appearance. The skin surrounding the eyes is one of the most delicate of the body, which is why it can experience more accentuated aging changes that easily worsen the appearance of such important area. Eyeseryl® peptide acts son the mechanisms of glycation, vascular permeability and lipid accumulation, to minimize the presence of eyebags and dark circles and reduce skin damage in the fragile eye contour. As the clinical studies show, the ingredient is a good candidate to introduce in skin care formulations to improve the overall eye contour region of both men and women.

A.M. Motta, **A new natural and biomimetic detergent concept,** PERSONAL CARE NORTH AMERICA, October 2019, p. 27-30

It is widely recognized that a toned and well moisturized skin can be maintained only if the superficial layers of the epidermis are able to fully accomplish their barrier function, protecting the deepest and delicate areas of the derma from sensitizing agents and controlling permeability and transpiration of the physiological water present in the intercellular spaces. The skin barrier function is continuously exposed to aggressions. The daily use of soaps and potentially aggressive detergents can alter the hydrolipidic skin film and skin barrier integrity, reducing its impermeabilizing action and favoring skin dehydration. Trans Epidermal Water Loss (TEWL) constitutes one of the main indicator to evaluate skin barrier integrity. The ideal detergent must be able to effectively remove dirt, greasiness and pollutants, meanwhile respecting the lipidic and protein fractions of the horny layer and the superficial hydrolipidic film.

Experience incomparable skin comfort with ALPAFLOR® SCUTELLARIA AO, customer information, H&PC Today, Vol. 14(5) September/October 2019

DSM's ALPAFLOR® SCUTELLARIA AO offers relief for sensitive skin and improves skin comfort by soothing and softening. This sustainable, organic bioactive targets multiple steps in the inflammation process. It is a strong antioxidant and stimulates key neuromediators in the epidermis that preserve the skin barrier, reducing burning sensations, irritation and pain. By addressing feelings of irritation in the skin it can also lift negative mood associated with skin sensitivity

S. Hettwer, E. Besic Gyenge, B. Suter, S. Breitenbach, B. Obermayer, **Natural Shin Barrier Supplement to Resist Artificial Radiation,** söfw journal, 145, 10/19

Artificial radiation is all around us. This refers not only to high energy visible light emitted by all kinds of screens but also WiFi radiation of smart devices. As we cannot escape from it and the consequences for our skin are still poorly investigated, protective measures can be taken in advance. Here we describe the use of an alga extract enriched in carotenoids capable of keeping the radiation

threats away from our skin. The extract reduces WiFi and blue light-induced ROS generation and preventsoverly carotenoid loss of the skin barrier leading to significant reduction in ageing parameters.

D. Khazaka, C. Uhl, **In-house tests complement CRO final product testing,** PERSONAL CARE EUROPE, September 2019

Before a cosmetic product is offered on the market, final tests are obligatory for the manufacturer to prove its safety and to substantiate the various claims on the products, e.g. reduces wrinkles up to 20%, increases skin hydration for 24 h. There are no limits to modern claims. All over the world, contract research organisations (CROs) varying from small laboratories to vast multinational institutes offer their services to the cosmetic manufacturers to perform all kind of tests and compile the final necessary product documentation.

E. Metral, **Using autophagy to prevent and reduce skin ageing,** PERSONAL CARE EUROPE, September 2019

Autophagy is a cellular mechanism which preserves cell health by recycling long-lived proteins and damaged organelles. With the discovery of its mechanisms by Professor Yoshinori Ohsumi (Nobel Prize in Physiology and Medicine 2016), autophagy has been the subject of intense research interest that revealed its role in various physiological and pathological conditions. This catabolic pathway consists of multiple sequential steps, promoted through two well-characterised signalling cascades known as mTOR (mammalian Target Of Rapamycin)-dependent and mTOR independent pathways.

X. Zeng, X. Li, X. Wang, X. Wen, X. Jiang, **The effect of Zanthoxylum bungeanum maxim extract on crow's feet: A double-blind, split-face trial,** Dermatologic Therapy 32(6), September 2019

Introduction: As one of the most obvious signs of aging, wrinkles have long been the concern of many people and continue to be a major topic in dermal-cosmetic industry. Accordingly, there is a need to develop products with good efficacy and safety profile. The Zanthoxylum bungeanum Maxim (ZBM) extract is a natural food which may possess the property of a toxin-like botulinum. Objective: To evaluate the efficacy and safety of a formulation that contains 2% ZBM pericarp extract in the treatment of wrinkles. Methods: 20 females aged 35 to 60 years old were enrolled in this randomized, vehicle-controlled, double-blind and split-face trial. The trial lasted for 30 days, when participants randomly used formulations containing 2% ZBM extract on one side of the temporal canthus and vehicle formulation on the other side. Skin roughness, skin hydration and skin elasticity were evaluated by Primospico, Corneometer® CM825 and Cutometer® MPA580, respectively. Results: The formulation containing 2% ZBM extract has a significant short-term anti-crow's feet effect compared with vehicle. No adverse effect was shown during the study. Conclusion: Topical application of 2% ZBM extract is tolerable and can be used as an effective cosmetic agent for short-term wrinkle treatment.

V. Mazzarello, G. Piu, M. Ferrari, G. Piga, **Efficacy of a Topical Formulation of Sodium Bicarbonate in Mild to Moderate Stable Plaque Psoriasis: a Randomized, Blinded, Intrapatient, Controlled Study**, Dermatol Ther (Heidelb) (2019) 9: p. 497–503

Introduction: Psoriasis is a chronic inflammatory disease characterized by the presence of erythematosquamous lesions. A wide variety of topical treatments for therapy of this pathology are available, including sodium bicarbonate (SB). A few papers reported in literature focus on use of SB baths for treatment of psoriasis, but none assess evidence concerning the efficacy of SB topical preparations. This study aimed to determine the effectiveness of a galenic SB in lanette vax formulation compared with lanette vax base in mild to moderate stable plaque psoriasis. Methods: A randomized, double-blind, intrapatient, controlled study was performed in 28 days. Thirty patients of both genders were selected for testing. A blinded investigator evaluated the patients' psoriasis using a modified Psoriasis Area and Severity Index (PASI), body surface area (BSA), and objective parameters using sensors (Multiprobe Adapter MPA5; Courage & Khazaka Electronic GmbH, Cologne, Germany). Results: Data analysis of objective parameters highlighted that use of the SB topical preparation led to no improvement in skin hydration, no reduction in transepidermal water loss, and no decrease of erythema. The modified PASI and BSA did not change from baseline. Conclusions: The results obtained show that use of the studied product did not improve psoriatic lesions.

F. Santoro, N. Lachmann, **An Open-Label, Intra-Individual Study to Evaluate a Regimen of Three Cosmetic Products Combined with Medical Treatment of Rosacea: Cutaneous Tolerability and Effect on Hydration**, Dermatol Ther (Heidelb) (2019) 9: p. 775–784

Introduction: Although rosacea management includes general skincare, previous studies have not evaluated comprehensive skincare regimens as adjuvants to other treatments. Methods: The primary objective of this openlabel, intra-individual study of subjects with rosacea was to evaluate the

cutaneous tolerability of a regimen consisting of Cetaphil PRO Redness Control Day Moisturizing Cream (once daily in the morning), Cetaphil PRO Redness Control Night Repair Cream (once daily in the evening) and Cetaphil PRO Redness Control Facial Wash (foam once in the morning and once in the evening). Secondary objectives were to evaluate the effect on transepidermal water loss (TEWL) and cutaneous hydration and to determine the subjects' evaluation of efficacy, tolerability and future use. A dermatologist examined subjects and measured TEWL and cutaneous hydration on day (D) 0, D7 and D21, when subjects ranked symptoms. Subjects completed a questionnaire on D21. Results: The per-protocol population consisted of 42 subjects receiving treatment for rosacea. Eleven subjects developed adverse events, none of which were considered to be related to the skincare products. Five subjects showed signs or symptoms that were potentially associated with the skincare products that might suggest poor cutaneous tolerability; these were generally mild. TEWL decreased significantly by a mean of 17% on D7 and a mean of 28% on D21 compared with baseline (both P \ 0.001). Skinhydration increased significantly by a mean of 5% on D7 (P = 0.008) and a mean of 10% on D21 (P \ 0.001) compared with baseline. Subjects reported that the regimen was pleasant (98%) and effective (95%) and that it offered various benefits; 90% of subjects reported that they would like to continue to use the regimen and would buy the products. Conclusion: The skincare regimen improved skin hydration and skin barrier function in subjects receiving medical treatment for rosacea and was well tolerated.

P. Gonry, **The skin microbiota: all about food,** PERSONAL CARE ASIA PACIFIC, September 2019

The skin microbiota is a collection of bacteria, fungi, viruses and microscopic animals that we collected during our lifetime. These microorganisms have become an essential part of the epidermis. They protect us against pathogenic invasions. Just like the human society, the microbiota is meticulously organised. Although most aspects of this ingenious microbial organisation remain hidden to us through a veil of mystery, one aspect is partially revealed: the members of the skin microbiota need food to survive and to thrive. Microorganisms are endlessly resourceful because they possess 15 million genes. However, they are powerless without the appropriate food supply. No food means no gene expression. With DNA sequencing the disturbance of preservatives and mild natural surfactants on the skin microbial community has been clearly mapped. The supporting effect of a specific molecular weight Inulin on the ingenious microbial food supply has been revealed *in vivo.* Through this mechanism Inulin is a necessary asset for the skin and the skin microbiota to perform all their essential tasks. Inulin is an essential skin careingredient to keep the skin healthy.

T.-Y. Kim, N.-J. Park, J. Jegal, S. Choi, S.W. Lee, J. Hang, S.-N. Kim, M.H. Yang, **Chamaejasmine Isolated from *Wikstroemia dolichantha* Diels Suppresses 2,4-Dinitrofluoro-benzene-Induced Atopic Dermatitis in SKH-1 Hairless Mice**, Biomolecules 2019, 9, 697

Plants of the genus *Wikstroemia* have long been used as traditional medicines to treat diseases like pneumonia, rheumatism, and bronchitis. This study was designed to determine the effect of chamaejasmine, a biflavonoid present in *W. dolichantha*, on atopic dermatitis (AD)-like skin lesions in a 2,4-dinitrochlorobenzene (DNCB)-induced murine model of AD. Initially, we examined the anti-allergic activities of ten flavonoids from *W. dolichantha* by measuring ◘-hexosaminidase release from RBL-2H3 cells. Subsequently, an SKH-1 hairless mouse model of AD was developed based on the topical application of DNCB. Chamaejasmine (0.5%) or pimecrolimus (1%, positive control) were applied to dorsal skins of DNCB-sensitized AD mice for two weeks. Serum IL-4 and IgE levels were determined using enzyme-linked immunosorbent assay kits and transepidermal water loss (TEWL) and skin hydration were measured using a Tewameter TM210 and a SKIN-O-MAT, respectively. Of the ten flavonoids isolated from *W. dolichantha*, chamaejasmine most potently inhibited DNP-specific IgE-induced degranulation in RBL-2H3 cells. Topical administration of chamaejasmine attenuated the clinical symptoms of DNCB-induced dermatitis (i.e., itching, dryness, erythema, and edema). Histological analyses demonstrated that dermal thickness and mast cell infiltration in dermis were significantly reduced by chamaejasmine. In addition, 0.5% chamaejasmine inhibited DNCB-induced increases in total IL-4 and IgE levels in serum, improved skin barrier function, and increased epidermis moisture. Our findings suggest chamaejasmine might be an effective therapeutic agent for the treatment of atopic diseases.

A. Stork, A. Mehling, P. Schulte, **Gentle Care for Delicate Skin**, SOFW Journal 09/19, Volume 145, Germany, September 11, 2019

When babies set out to explore the world around them, they do not yet have the protection adults count on. Baby skin is thinner and more sensitive, calling for tailored care to defend it from moisture loss, sun and environmental aggressors. *Anja Stork*, *Annette Mehling* and *Petra Schulte* explain how BASF's baby care concept delivers essential and safe care.

A. Koł odziejczak, A. Wieczorek, H. Rotsztejn, **The assessment of the effects of the combination of microdermabrasion and cavitation peeling in the therapy of seborrhoeic skin with visible symptoms of acne punctate**, J Cosmet Laser Ther. 2019 Aug;21(5): p. 286-290

Objective: The aim of this study was to assess objectively the effects of the combination of corundum microdermabrasion and cavitation peeling in the therapy of seborrheic skin with visible symptoms of acne punctata. Material and methods: The study involved a group of nine women. A series of six treatments with the combination of microdermabrasion and cavitation peeling were performed within facial skin at 10–14 days intervals. Corneometric measurements examining skin hydration level and sebumetric measurements analyzing skin sebum level were made before the series of treatments and after second, fourth and sixth procedure in five facial areas. Clinical assessment of the efficacy of the therapy was performed on the basis of photographic documentation (Fotomedicus). Anonymous questionnaires were used in order to evaluate patients' satisfaction rate. Results: Statistically significant improvement in skin sebum level was observed in all examined areas (forehead $p = 0.002$; nose $p = 0.001$, chin $p = 0.01$, left cheek $p = 0.009$, right cheek $p = 0.007$). In case of skin hydration, significant improvement was found only in the area of chin ($p = 0.03$). 78% of participants estimated that the improvement was in the range of 55–70%, while 22% of participants of 75–100%. The reduction in the amount and visibility of comedones and pimples were demonstrated on the basis of questionnaire and photographic documentation. Conclusions: Combined microdermabrasion and cavitation peeling treatments improve the condition of seborrheic skin.

P. Tarka , K. Gutkowska, A. Nitsch-Osuch, **Assessment of tolerability and acceptability of an alcohol-based hand rub according to a WHO protocol and using apparatus tests**, Antimicrobial Resistance and Infection Control (2019), 8:191

Background: The effectiveness of alcohol-based hand rubs (ABHRs) depends substantially on their acceptability and tolerability. In this study, we assessed the acceptability and tolerability of a new ABHR (product EU 100.2018.02). Methods: Among physicians, nurses, and cosmetologists who used the ABHR for 30 days, we assessed the product's acceptability and tolerability according to a WHO protocol. Additionally, we used instrumental skin tests. Participants assessed the product's color, smell, texture, irritation, drying effect, ease of use, speed of drying, and application, and they gave an overall evaluation. Moreover, they rated the tolerability, i.e. their skin condition, on the following dimensions: intactness, moisture content, sensation, and integrity of the skin. The tolerability was also assessed by an observer as follows: redness, scaliness, fissures, and overall score for the skin condition. Instrumental skin tests included transepidermal water loss, skin hydration, sebum secretion, and percentage of skin affected by discolorations. All assessments were made at baseline (visit 1), and 3–5 days (visit 2) and 30 days (visit 3) later. Results: We enrolled 126 participants (110 [87%] women) with a mean age of 34.3 ± 11.65 years. Sixty-five participants (52%) were healthcare professionals (physicians, nurses), and 61 (48%) were cosmetologists. During visit 2 and visit 3, about 90% of participants gave responses complying with the WHO's benchmark for acceptability and tolerability. Similarly, the ABHR met the WHO criteria for observer-assessed tolerability: on all visits, in more than 95% of participants, the observer gave scores complying with the WHO benchmark. Transepidermal water loss decreased from baseline to visit 3 ($p < 0.001$), whereas skin hydration, sebum secretion, and the percentage of skin affected by discolorations did not change significantly during the study (p ◘ 130). Conclusions: The EU 100.2018.02 had both high acceptability and tolerability, meeting the WHO criteria. The WHO protocol proved useful in the analysis of acceptability and tolerability of ABHRs.

J.-P. Santos-Caetano, C.F. Gfeller, H. Mahalingam, M. Thompson, D.J. Moore, R. Vila, R. Doi, M.R. Cargill, **Cosmetic benefits of a novel biomimetic lamellar formulation containing niacinamide in healthy females with oily, blemish-prone skin in a randomised proof-of-concept study**, Int J Cosmet Sci., 2019 Aug

Objective: A randomized study was designed to evaluate the potential cosmetic benefit of a biomimetic, niacinamide-containing moisturizing cream in oily, blemish-prone skin. Methods: Healthy adult women with oily, blemish-prone skin were randomized to one of three treatment groups: test, control, or positive control. In the test group, subjects used the test product (containing 4% niacinamide), plus the standard cleanser (Simple® Kind to Skin Moisturizing Facial Wash). In the control group, subjects received no moisturizer but used the standard cleanser. In the positive control group, subjects used Vivatinell Acnecinamide® Gel Cream (containing 4% niacinamide) as a moisturizer and Neutrogena Visibly Clear® Spot Clearing Facial Wash (containing 2% salicylic acid) as a cleanser. The positive control regimen was included to provide a comparison for estimates of effect size. The primary objective was to evaluate skin moisturization as a change from baseline in corneometer values at 8 h for the test regimen vs. the control regimen. Analysis of covariance was applied for the primary efficacy analysis. Results: A total of 132 subjects were randomized with 44 included in each treatment group. A significant

difference was observed in the primary endpoint for the test regimen compared with the control regimen (least-squares mean difference [95% CI]: 3.12 [0.68, 5.56], $P = 0.0128$). A trend was observed in favour of the positive control regimen compared with the control regimen. Secondary measurements of moisturization supported the primary efficacy outcome. Assessment of blemishes showed a significant difference between the test regimen vs. the control regimen for change from baseline in mean total blemish count at Week 8 (least-squares mean difference [95% CI]: −1.80 [−3.41, −0.19], $P = 0.0290$). No statistical comparisons between the positive control group and the test group were performed. Conclusion: This study provides proof-of-concept evidence that a novel lamellar lipid moisturizer containing niacinamide, in combination with a standard cleanser, can help moisturize the skin and provide an overall improvement in the complexion appearance of people with blemish-prone skin.

I. Meyer, M. Pesaro, D. Stuhlmann, L. Garbe, G. Schmaus, **Practical Probiotics: Live Microbial Skin Benefits without Limits**, Cosmetics & Toiletries, Vol. 134, No. 8, p. DM14-22

Driven by modem S lifestyle and the eclectic evolution of new technologies, consumers are aware *r* of the potential skin damage environmental stressors can induce. As such, consumers increasingly seek topical products that improve skins endogenous firstline defense mechanisms. In relation, the concept of probiotics to improve gut health is well-established in both the scientific literature and consumer perception.1 In fact, 79% of consumers already believe the use of probiotics is beneficial for skin health and 63% of consumers think probiotics fit well into the beauty care category. Regardless, the benefits of microorganisms applied topically are not widely described.

S. Laneri, R. di Lorenzo, A. Sacchi, I. Dini, **Dosage of Bioactive Molecules in the Nutricosmeceutical *Helix aspersa* Muller Mucus and Formulation of New Cosmetic Cream with Moisturizing Effect**, Natural Product Communications August 2019: p. 1–7

The present study was carried out to provide the allantoin and glycolic acid contents in the *Helix aspersa* Muller mucus of common Campania land (Italy) by using chromatographic method. The study continued with the formulation of a snail mucus cosmetic cream, whose ability to hydrate the skin was evaluated comparing the skin hydration and trans-epidermal water loss (TEWL) effects of a stable cosmetic preparation. The skin TEWL and skin hydration effects were measured by Tewameter and Corneometer probe, respectively, at the beginning, after 1 hour, and 24 hours.

C. Uhl, **Claim support for Microbiome Skin Care**, happi, July 2019

Since the dawn of mankind, humans have struggled to understand why they were struck by disease. Many theories have been established, most of them discarded now. In the first century BC, Roman medical author Cornelius Aulus Celsus mentioned the term"virus,"the Latin term for"poison."He used it to describe the phlegm that transmits rabies. Until the 17th Century, this term was used for all infectious diseases.

J. Kim, B. Kim, S. Kim, Y.I. Lee, J. Kim, J.H. Lee, **The effect of human umbilical cord blood-derived mesenchymal stem cell media containing serum on recovery after laser treatment: A double-blinded, randomized, split-face controlled study**, J Cosmet Dermatol., 2019 Jul

Background: Ablative CO2 fractional laser (AFL) is a common cosmetic procedure to improve skin laxity. However, due to prolonged downtime and the risk of postinflammatory hyperpigmentation, laser-assisted delivery of active ingredients as post-laser treatment has gained interest in past years. Among various active ingredients, human umbilical cord blood-derived mesenchymal stem cells (hUCBMSCs) can be a promising agent promoting skin regeneration. Aims: We evaluated the efficacy and safety of a human cord blood cell-conditioned media containing serum and cream on patients who underwent AFL treatment. A randomized, investigator-blinded, prospective, split-face comparison study was conducted. Materials and Methods: Twenty-three patients who underwent AFL on both cheeks applied a human umbilical cord blood-derived mesenchymal stem cell (hUCBMSC)-conditioned media containing cream with or without stem cell containing serum application. As a primary outcome measure, we evaluated the total area of microcrusts and post-treatment erythema using digital photographs. Additionally, skin biophysical parameters (corneometer, TEWL) and global improvement scores for skin texture were assessed. Results: The area of total microcrusts was reduced in the study group which applied both serum and cream. The global improvement score of the post-treatment erythema was significantly reduced. Investigator-assessed global improvement scores were higher in the combination treatment group. Additionally, there was no adverse event, which was associated with the use of either hUCBMSCs containing serum or cream. Conclusion: The application of human cord blood cell containing serum and cream resulted in accelerated wound healing and reduced post-treatment erythema, which effectively reduced recovery time after ablative laser treatment.

J. Piskorz, G. Wójcik, W. Bulikowski, D. Kozak-Putowska, **Assessment of changes of skin moisture in patients subject to general anesthesia with neurological diseases in an interview**, Wiad Lek. 2019;72(7): p. 1288-1294

Objective: Introduction: General anaesthesia is carried out using anaesthetic agents that among others depress the circulatory system and CNS. Central and peripheral thermoregulation occurs, which is due to mild hypothermia as well as changes in skin moisture. An important element of therapy in the perioperative period is adequate intravenous fluid therapy, which affects the final effects of treatment. The aim: Evaluation of skin moisture as a result of changes in central and peripheral thermoregulation during general anaesthesia and evaluation of the hydration status of patients. Patients and Methods: Material and methods: The study included 180 patients undergoing general anaesthesia for elective surgery, aged 20-85 years of age. Before general anaesthesia, patients were evaluated for ASA-related risk of anaesthesia (ASA 1 - healthy patients, ASA 2 and 3 - patients with neurological and circulatory disorders). Patients were divided into 2 groups, the study group (90 people) were patients who were given no intravenous fluids before the surgery and the control group (90 patients) were those receiving doses of 500 ml crystalline intravenously one hour before anaesthesia. The research was carried out at the Operational Block of the Provincial Hospital in Tarnobrzeg, from November 2013 to November 2014. Skin moisture was measured using a CM 825 *Corneometer*: before general anaesthesia, after induction for anaesthesia, 15 min after surgical incision of the skin and after awakening the patient. Results: Results: Both in the test and control groups, statistically significant differences were found in subsequent skin moisture measurements. Pairwise comparisons indicate statistically significant differences between each pair of measurements. In both groups of patients, there is a clear decrease in skin moisture after induction of anaesthesia compared to the measurement performed before general anaesthesia. The skin moisture values are reduced in subsequent measurements, however the difference is much lower. Conclusion: 1 Measurement of skin moisture can be used as one of the parameters to assess perioperative stress and changes in body temperature during general anaesthesia, which indirectly determines the functioning of the hypothalamus. 2 By measuring the skin moisture it is possible to indirectly assess the hydration status of patients as well as the decrease of the metabolism during general anaesthesia. 3 The decrease in skin moisture during general anaesthesia is the effect of changes in central and peripheral thermoregulation.

M.P. Szczepanik, P.M. Wilkoł ek, Ł.R. Adamek, G. Kalisz, M. Goł y□ski, W. Sitkowski, I. Taszkun, **Transepidermal water loss and skin hydration in healthy cats and cats with non-flea non-food hypersensitivity dermatitis (NFNFHD)**, Pol J Vet Sci. 2019 Jun; 22(2): p. 237-242

Allergic skin diseases in cats are amongst the most prevalent dermatological conditions in this species. The objectives of this study were to evaluate different types of skin barrier measurements in healthy cats and cats with non-flea non-food hypersensitivity dermatitis (NFNFHD). 24 clinically healthy and 19 NFNFHD cats were included in this clinical trial. In each animal, the transepidermal water loss (TEWL) and skin hydration (SH) were assessed on six clipped body sites by VapoMeter SWL 4605 and Corneometer® CM 825, respectively. Results of TEWL measurement were, significantly higher in one of the six examined body sites, namely on the lumbar area (p=0.0049). Furthermore, a statistically significant difference was found between the average TEWL values (p=0.019). Statistically notable differences were measured at least in one certain body site for SH: in the groin (p=0.02), where the values in the affected cats were lower than in the healthy individuals. These results may suggest that in NFNFHD cats transepidermal water loss is higher than in healthy cats. Skin hydration is, at least, in certain body sites, lower in atopic feline patients than in healthy individuals.

A. Gimenez, O. Laporta, E. Canadas, M. Vincendet, R. Delgado, **Beautiful skin for a busy day,** Euro Cosmetics, 6-2019, p. 28-31

Leading an active lifestyle, being involved on many activities around the clock and having too little rest at night has a negative impact on the appearance of the skin, resulting in dullness, puffiness and dehydration as well as early appearance of aging signs. DAWNERGY™ peptide is an energizing and anti-aging active ingredient developed to help the skin awaken in the morning. It targets the protein JARID1a, a histone-modifying element that plays a role in the activation of the cell's biological clock and the regulation of circadian rhythms. As a result, the active ingredient can turn ahead the clock machinery to wake up skin cells in the early morning. It also acts on the mitochondria of skin cells, boosting energy production and with anti-aging effects.

M.P. Szczepanik, P.M. Wilkoł ek, Ł.R. Adamek, G. Kalisz, M. Goł y□ski, W. Sitkowski, I. Taszkun, **Transepidermal water loss and skin hydration in healthy cats and cats with non-flea non-food hypersensitivity dermatitis (NFNFHD)**, Pol J Vet Sci. 2019 Jun;22(2): p. 237-242

Allergic skin diseases in cats are amongst the most prevalent dermatological conditions in this species. The objectives of this study were to evaluate different types of skin barrier measurements in healthy cats and cats with non-flea non-food hypersensitivity dermatitis (NFNFHD). 24 clinically healthy and 19 NFNFHD cats were included in this clinical trial. In each animal, the transepidermal water loss (TEWL) and skin hydration (SH) were assessed on six clipped body sites by VapoMeter SWL 4605 and Corneometer® CM 825, respectively. Results of TEWL measurement were , significantly higher in one of the six examined body sites, namely on the lumbar area (p=0.0049). Furthermore, a statistically significant difference was found between the average TEWL values (p=0.019). Statistically notable differences were measured at least in one certain body site for SH: in the groin (p=0.02), where the values in the affected cats were lower than in the healthy individuals. These results may suggest that in NFNFHD cats transepidermal water loss is higher than in healthy cats. Skin hydration is, at least, in certain body sites, lower in atopic feline patients than in healthy individuals.

I. Meyer, D. Stuhlmann, L. Garbe, G. Schmaus, **How to mimic probiotics circumventing hurdles of handling alive microorganisms?** Euro Cosmetics, 6-2019, p. 24-36

The concept of probiotics to improve gut health is well established in scientific literature and consumer's perception 1. However, benefits of microorganisms applied topically are much less described. According to Symrise's Consumer Market Insight research already 79% of consumers believe that the use of probiotics is beneficial for the skin health 2. 63% of consumers think that probiotics fits well to beauty care products.

F. Carlomagno, S. Zanzottera, **Empowering the Micro-World of the Skin Microbiota: Appraoches to Maintain Nature's Ideal Homeostasis for Betterment of Cosmetic Products,** Euro Cosmetics, 6-2019, p. 18-22

Skin is a complex environment where billions of microorganisms live providing a unique environment for each host, collectively referred to as the skin micriobiota. Skin microbiota is, therefore, the result of an equilibrium between protective and pathogens species of those microorganisms. However, this balance can be disrupted by stressors. The alteration of skin microbiota, known as dysbiosis, has been associated with skin disorders. This article is designed to demonstrate different approaches to the prevention of skin microbiota dysbiosis.

M. Kanlayavattanakul, N. Lourith, P. Chaikul, **Youth in Yields - Jasmine Rice Extract Whitens, Protects and Smooths Skin,** Cosmetics & Toiletries, Vol. 134, No, 5, May 2019, p. 26-33

The demand from consumers for natural products including cosmetics continues to inrease. Eco-friendly, organic and sustainable options are in the mainstream of this trend. Moreover, active phenolics derived from natural sources are playing an important role in the safety and efficacy of cosmetics. In relation, rice, or Oryza sativacv. Indica (Oryzeae), is well-known as the major staple in Asian cuisine. It has long been used in traditional Asian medicines as well as Italian remedies, including for aesthetic benefits for skin.

M. Nawaz, H.M. Shoaib Khan, N. Akhtar, T. Jamshed, R. Qaiser, H. Shoukat, M. Farooq, **Photodamage and Photoprotection: An *In vivo* Approach Using Noninvasive Probes**, Photochemistry and Photobiology 95(5), May 2019

Solar radiations trigger the physiological alteration in skin which progress toward photoaging. Sunscreens are known to be effective against the photodamaging effects of sunlight. The purpose of this study was to evaluate the extent to which aging signs caused by real-life sunlight exposure could be avoided by comparing various parameters between sun-exposed and sun-protected skin using noninvasive probes. Female volunteers (n = 11) after getting their consent were provided with marketed sunscreen product to apply onto their skin for 6 months. Measurements were scheduled every 15 days from the baseline reading for 6 months. Cutometer, Mexameter and Corneometer were used for evaluation of facial skin parameters. Clinical evaluations showed the effects of sunlight exposure on different skin parameters by comparing sun-protected and unprotected skin, where Gross elasticity (R2), Net elasticity (R5), Viscoelasticity (R6) and Biological elasticity (R7) showed insignificant results, while Hydration, Melanin and Erythema showed significant results. Sun-exposed skin presented 0.72%, 0.66%, 0.77%, 1.39%, 1.99%, 2.01% and 3.15% changes in R2, R5, R6 and R7, melanin, erythema and hydration, respectively, which were potentially prevented by sunscreen application. Premature aging is inhibited by following photoprotective regimen on routine basis, emphasizing the potential benefit of sunscreen against early aging signs.

H. Azaryan, **Comparative Aanalysis of the Effiencency of the Skin Functional Statement Correction Methodas in Women with 3rd Degree of Photo Aging**, Georgian Med News, 2019 May;(290): p. 100-107

The purpose of this study was to conduct a comparative analysis of the effectiveness of isolated and combined use of intradermal injections of bioreparant (hyaluronic acid modified with vitamin C, glutathione and cysteine) and platelet-rich autologous plasma on functional indicators of the face skin of women with signs of 3-rd degree of photoaging. In this study, 120 women with 3-rd degree of photoaging were examined (mean age 34.5±1.54) and divided into 3 groups in accordance with the applied therapy method (isolated and combined use of plasma therapy and bio reparation). The study of the functional parameters of the skin, including corneometry (determination of the degree of epidermal hydration), sebometry (assessment of the sebum regulating function of the epidermis), cutometry (determination of the deformation and elastic properties of the skin), TEWL (determination of the transepidermal water loss level), mexametry (assessment of skin pigmentation) and pH-metry (assessment of the skin acid-base balance) was performed in all examined patients. The obtained results testify to various shifts in functional parameters, caused by the use of various therapeutic approaches. A comparative analysis of the data obtained has provided a basis for concluding that efficacy of the autologous plasma and modified hyaluronic acid combined implementation is significantly higher compared to the isolated application of these methods.

B. Mosna, J. Emond, K. Trudeau, M.-E. Leclaire, P. Simard, G. Nault, M.-H. Dufresne, K. Theberge, **Direct Connect – Dry mask vectors drive active delivery,** Cosmetics & Toiletries, Vol. 134, No, 5, May 2019, p. 48-57

Dry mask product forms are based on three fundamental technologies that have revolutionized the cosmetic industry in the past 10 to 15 years: cosmeto-textiles, active ingredient delivery systems and sheet masks. Combining and optimizing these innovations allows forsynergized benefits, and has emerged as a new way to apply skin care products for enhanced efficacy (see Figure 1a-b). This article considers what these technologies can lend to dry mask innovation and how to optimize them; the resulting dry masks were then put to the test in vitro and clinically.

M.M.F. Shirata, P.M.B.G.M Campos, **Eficácia clínica de formulações cométicas contendo tetraisopalmitato de ascorbila e peptídeos de arroz na pele jovem com fotoenvelhecimento,** Congresso Colamiqc, São Paulo, May 21-23, 2019

Considerando que a intensidade do fotoenvelhecimento está diretamente relacionada ao grau de exposição a radiação solar, a pele de pessoas ainda jovens pode apresentar alterações decorrentes do mesmo, como hiperpigmentações e redução da elasticidade da pele. Nesse contexto, o desenvolvimento de formulações fotoprotetoras e de formulações cosméticas contendo substâncias ativas com propriedades antioxidantes, hidratantes e com potencial para atuar na derme é fundamental para a prevenção e atenuação de tais alterações cutâneas. Para a comprovação dos beneficios dessas formulações na pele fotoenvelhecida, a avaliação da eficácia clinica por técnicas de biofisica e análise de imagem permite a análise objetiva de várias caracteristicas da pele além da correlação dos resultados obtidos por meio de diterentes parãmetros, o que possibilita a obtenção de resultados mais conclusivos.

M.E. Maldonador, D.B. Cobos Yanez, **Estudio in vivo de la capacidad hidratante de la pulpa de chirimoya (Annona chirimola) en un forma cosmética,** Congresso Colamiqc, São Paulo, May 21-23, 2019

La cosmética natural utiliza sustancias provenientes de especies vegetales en la formación de productos.

P. Geraldini, S.A. Monteiro e Silva, **Avaliação do potential hidratante de bases Corretivas facias por técnica de electroscopia de infravermelho de refectãncia total e conductãncia elétrica,** Congresso Colamiqc, São Paulo, May 21-23, 2019

Inúmeros resurcos tecnológicos de formação são propotos como estratégias de involção para atender um mercado cada vez mais exigente e critico.

T. Yazdanparast, K. Yazdani, P. Humbert, A. Khatami, S.A. Nasrollahi, H. Zartab, L. Izadi Firouzabadi, A. Firooz, **Biophysical and ultrasonographic changes in lichen planus compared with uninvolved skin**, International Journal of Women's Dermatology 5 (2019), p. 100–104

Background: Lichen planus (LP) is a chronic inflammatory disease of the skin. Currently, noninvasive techniques are used to evaluate biophysical properties of the skin in vivo. Objective: In this study, we aimed to evaluate skin biophysical properties in patients with LP and make a comparison

between involved and uninvolved skin to provide a better understanding of the pathogenesis of LP. Methods: The stratum corneum hydration, transepidermal water loss, pH, erythema, melanin, sebum, friction, temperature, elasticity parameters (R0, R2, R5), and thickness and echo-density of the epidermis, dermis, and subepidermal low echogenic band were measured on lesions of classic LP in 21 patients and compared with the average of perilesional and symmetrical uninvolved skin (as control) with a paired t test. Results: Stratum corneum hydration (p = .002), sebum (p = .04), R0 (p = .005), and echo-density of the dermis (p = .005) were significantly lower, but pH (p = .007), melanin content (p b .001), erythema (p b .001), temperature (p = .01), thickness of dermis (p = .02), and subepidermal low echogenic band (p b .001) were significantly higher in LP lesions. Conclusion: An evaluation of its biophysical, biomechanical, and ultrasonographic characteristics showed that the skin is an objective, noninvasive, and quantitative measuring tool that can be used to provide valuable information about skin changes in classic LP.

H. Kim, M. Lee, S.Y. Park, Y.M. Kim, J. Han, E. Kim, **Age-related changes in lip morphological and physiological characteristics in Korean women,** Skin Res Technol. 2019; 25: p. 277-282

Objective: Age-related changes in lip morphological and physiological characteristics are key indices for estimating age based on facial features, as reported in many studies. Yet, a majority of studies have focused on Caucasian individuals, with few studies characterizing these changes in Asian female populations. Therefore, the aim of this study was to investigate lip morphological and physiological characteristics in a cohort of Korean women. Methods: A total of 114 volunteers participated in the study. Linear distances (length of philtrum, length of lip, width of lip, and lengths of lower and upper oral commissures), angle of the upper lip, 3D lip heights, and wrinkles were calculated and averaged for each age-group. We also measured lip color, hydration, trans-epidermal water loss (TEWL), and blood flow. Statistical analyses were performed using SPSS version 20.0 (significance level $P < 0.05$). Results: Length of the philtrum and lip width significantly increased with age while upper and lower lip lengths and length of the lower oral commissure significantly decreased with age. The angle of the upper lip tended to decrease with age, but this finding was no significance. Three-dimensional height of the upper lip, wrinkles, and TEWL also decreased with age while hydration increased with age. Finally, redness of the upper and lower lips as well as blood flow significantly decreased with age. Conclusion: Lips tended to shorten in length and widen with age, resulting in a thinner and longer appearance. With regard to physiological parameters, there were important age-related changes in hydration and lip color.

C. Cho, E. Cho, N. Kim, J. Shin, S. Woo, J. Lee, J. Lee, E. Lee, J. Ha, **Biophysical properties of striae rubra and striae alba in human skin: Comparison with normal skin,** Skin Res Technol. 2019; 25: p. 283-288

Background: Striae distensae are common dermal lesions that progress through two different stages: the striae rubra, which appears to be erythematous, and striae alba, which is characterized by a hypopigmented feature. The clinical characteristics between striae distensae stages and normal skin remain unknown. Objectives: We aimed to investigate the clinical characteristics according to stages of striae distensae in terms of their biophysical properties, using objective noninvasive measurements in comparison with adjacent normal skin. Methods: Sixty-one healthy female subjects with striae distensae were included as follows: 30 with striae rubra and 31 with striae alba on the abdomen and thighs. Hydration of the epidermis and dermis, skin color brightness, and Erythema index were measured. Skin elasticity, roughness, and dermal echo-density of the skin with striae distensae and adjacent normal skin were also measured. Results: Hydration of the epidermis and dermis showed no significant difference between the skin with striae distensae and normal skin. Brightness of skin with striae alba and normal skin was significantly higher than that of skin with striae rubra. Erythema index of skin with striae rubra was significantly higher than that of skin with striae alba and normal skin. Skin with striae rubra and striae alba had a rougher surface than normal skin. Elasticity and dermal echo-density were significantly lower in striae distensae skin. Conclusions: Striae rubra and striae alba had similar biophysical properties in terms of skin hydration, elasticity, roughness, and dermal density. Moreover, striae distensae have less elasticity, more roughness, and lower dermal density than normal skin.

Y. Song, Y. Pan, H. Wang, Q. Liu, H. Zhao, **Mapping the face of young population in China: Influence of anatomical sites and gender on biophysical properties of facial skin,** Skin Res Technol. 2019; 25: p. 333-338

Background: Facial skin exhibits unique biophysical properties, which are influenced by anatomical regions and genders. The aim of this study was to comprehensively assess the regional and gender differences in facial skin biophysical parameters among Chinese population. Materials and Methods: The 12 skin biophysical parameters at four distinct facial skin sites (forehead, cheek, canthus

and chin) were measured in a normal population (n = 212) with 42 males and 141 females aged 18-29 years living in Beijing. These parameters consisted of skin hydration, transepidermal water loss, sebum content, erythema/melanin indices, L*a*b* color, skin gloss and elasticity, all quantifying with non-invasive instruments. Results: The results demonstrated that the characteristics of the facial skin were significantly different between the regions and genders. The forehead had weaker skin barrier function but secreted the most sebum content, while the cheek was the driest and brightest region on the face. The canthus was the most hydrated area and the chin displayed higher sebum secretion, darker skin color and less elastic. The females showed more hydrated, less oil, lighter and more elastic facial skin compared with males. Conclusion: This study indicates that the young Chinese facial skin significantly varies with face anatomical regions and differs between genders.

H. Cortes, J.J. Magana, O.D. Reyes-Hernandez, N. Zacaula-Juarez, M. Gonzalez-Torres, W. Diaz-Beltran, M.C. Leon-Trejo, L. Carino-Calvo, G. Leyva-Gomez, M. Gonzalez-Del Carmen, **Non-invasive analysis of skin mechanical properties in patients with lamellar ichthyosis,** Skin Res Technol. 2019;25: p. 375-381

Background: Reliable methods for the quantitative evaluation of skin of patients with ichthyosis are critically needed. Our purpose was to evaluate the biomechanical parameters of skin in a cohort of patients with clinically diagnosed lamellar ichthyosis. Materialsand methods: Twenty-two patients diagnosed with lamellar ichthyosis were studied. Ichthyosis plaques located in upper distal limbs were assayed, and a nearby anatomical region without plaques from the same patient was employed as control.Skin biomechanical properties were studied through a non-invasive device (Cutometer ' ' MPA 580). Results: Ichthyosis plaques had higher values for the Uf-Ua parameter and lower values for the Ua/Uf, Ur/Ue, and Ur/Uf parameters. Adults and children showed similar statistical differences.There wereno significant differencesin data from men, whereas in women differences for all of the parameters were found. There was a significant decrease in the hydration and an increase in melanin index in the ichthyosis plaques. Conclusion: Our results suggest that analysis of parameters Uf-Ua, Ua/Uf, Ur/Ue, Ur/Uf, hydration, and melanin index could be employed for quantitative monitoring of skin. Therefore, the non-invasive method applied may be suitable for evaluation of skin of patients with ichthyosis in response to medical treatments.

S. Jung, J. Schleusener, F. Knorr, M. Kraft, G. Thiede, H. Richter, M.E. Darvin, S. Schanzer, S. Gallinger, U. Wegener, J. Lademann, **Influence of polyester spacer fabric, cotton, chloroprene rubber, and silicone on microclimatic and morphologic physiologic skin parameters in vivo,** Skin Res Technol. 2019;25: p. 389-398

Background: Skin diseases can develop upon disadvantageous microclimate in relation to skin contact with textiles of supporting devices.Increased temperature, moisture, mechanical fracture, pressure, and inflammatory processes often occur mutually and enhance each other in their adverse effects. Therefore, the early prevention of skin irritations by improvement of microclimatic properties of skin in contact with supporting devices is important. Materials and Methods: In this study, the microclimate under occlusion with polyester, cotton, chloroprene rubber, and silicone textiles, used for supporting devices, was analyzed by determining several characteristic physiologic skin parameters in vivo, including temperature, moisture, and transepidermal water loss (TEWL). This is achieved by comparing a miniaturized in vivo detection device with several established optical and sensory methods in vivo. Results: A highly significant TEWL decrease was found after polyester, chloroprene rubber, and silicone application. The application of all materials showed highly significant decrease in skin surface temperature, with chloroprene rubber showing the lowest. Similarly, all materials showed highly significant increase in relative moisture, where the highest increase was found for chloroprene rubber and silicone and the lowest increase for cotton. The cutaneous carotenoid concentration of chloroprene rubber, silicone, and polyester decreased. A manipulation of the surface structure of the stratum corneum was recognized for all materials except for cotton by laser scanning microscopy. Conclusion: The skin parameters temperature, relative moisture, antioxidant status, and TEWL can effectively characterize the microclimatic environment during occlusion with medical supporting materials. These parameters could potentially be used to develop standardized testing procedures for material evaluation.

S.-I. Jang, J. Han, M.I. Lee, J. Seo, B.-J. Kim, E. Kim, **A study of skin characteristics according to humidity during sleep**, Skin Res Technol. 2019; 25: p. 456-460

Introduction: During sleep, the skin is exposed to various environments for example low or high humidity and temperature. And the average of 7-8 hours of sleeping in those situations can affect skin condition. Therefore, the objective of this study was to determine skin characteristics according to humidity during sleep. Method: Eleven healthy women in their ages of 20s and 30s were controlled. They slept more than 7 hours at lower than 30% relative humidity (RH) environment on the first day and

at higher than 70% on the second day. The room temperature was controlled to 22 ± 5°C. Three measurement points were (a) before for sleep (after wash), (b) after 7 hours sleep (morning), and (c) after wash. Skin hydration, sebum secretion, and trans-epidermal water loss (TEWL) were measured. The statistical significance was determined at $P < 0.05$. Result: After 7 hours of sleep in 30% RH condition, skin hydration decreased by 24.23% significantly, but there was no significant difference after sleeping in 70% RH. The sebum level was increased after sleep at 30% RH. The TEWL did not show differences according to the humidity during sleep but significantly increased after facial cleansing in 30% RH sleeping condition. Discussion: In this study, we confirmed that the changes in skin characteristics may be affected by humidity during sleep. When sleeping in dry environment, skin hydration decreases but the amount of sebum increases to compensate for skin dryness. Therefore, this study might suggest how to care the skin before sleep depending on the room humidity.

C. Cho, E. Cho, N. Kim, J. Shin, S. Woo, E. Lee, J. Hwang, J. Ha, **Age-related biophysical changes of the epidermal and dermal skin in Korean women,** Skin Res Technol. 2019; 25: p. 504-511

Introduction: The clinical characteristics of skin were investigated to study the interrelationship and changes in the biophysical properties of the epidermal and dermal layers associated with aging using noninvasive methods. Methods: Our study included 100 healthy women aged between the early 20s and late 60s. Biophysical characteristics of skin such as color (brightness and spots), transparency, wrinkle on crow's feet, elasticity, hydration, sebum content, glossiness, and transepidermal water loss measured under controlled conditions. Results: This study performed in a Korean population demonstrated that aging significantly affects human skin in terms of parameters such as wrinkles, skin color, elasticity, and epidermal hydration. Age-related changes in skin hydration showed varying patterns between the epidermis and dermis. Skin color showed heterogeneous characteristics between the upper and lower epidermal layers associated with aging. Skin elasticity and wrinkles were observed to show and inversely proportional relationship in the early 40s. Conclusions: We confirmed the significant influence of aging on the biophysical properties of skin and determined the distinct age-related biophysical changes in the epidermal and dermal layers of skin using noninvasive method. This study indicates the need for further research to investigate the distinctive age-related changes in characteristics of the epidermal and dermal layers of human skin.

H. Cortés, N. Mendoza-Muñoz, F.A. Galván-Gil, J.J. Magaña, E. Lima, M. González-Torres, G. Leyva-Gómez, **Comprehensive mapping of human body skin hydration: A pilot study**, Skin Res Technol. 2019; 25: p. 187-193

Background: Previous studies analyzed a series of representative anatomical regions in the human body; however, there is a wide structural and cellular variability in the constitution of the skin. Our objective was to perform a comprehensive assessment of human skin hydration throughout the largest possible area. Materials and Methods: Hydration was registered by Corneometer® CM825 probe in 23 anatomical regions of five healthy men. Each zone was analyzed by 2-cm segments in the supine, prone, and lateral positions. A total of 7863 measurements were registered. Results: Differences in the degree of hydration among the prone, supine, and lateral regions were observed. The chest and back showed a pattern of increased hydration toward the neck area. Higher levels of hydration were evidenced in the proximal areas and in the regions near the elbow and knee. The regions of greater mechanical wear and with greater exposure to the sun exhibited a lower degree of hydration. Conclusion: The human skin exhibited hydration patterns influenced by anatomical function and the degree of sun exposure. Detailed information of the hydration patterns could serve as reference for the design of topical products, as an indicator of their effectiveness, and for the monitoring of skin pathologies.

H. Cortés, J.J. Magaña, O.D.Reyes-Hernández, N. Zacaula-Juárez, M. González-Torres, W. Diaz-Beltrán, M.C. León-Trejo, L. Cariño-Calvo, G. Leyva-Gómez, M. González-Del Carmen, **Non-invasive analysis of skin mechanical properties in patients with lamellar ichthyosis**, Skin Res Technol. 2019; 25: p. 375-381

Background: Reliable methods for the quantitative evaluation of skin of patients with ichthyosis are critically needed. Our purpose was to evaluate the biomechanical parameters of skin in a cohort of patients with clinically diagnosed lamellar ichthyosis. Materials and methods: Twenty-two patients diagnosed with lamellar ichthyosis were studied. Ichthyosis plaques located in upper distal limbs were assayed, and a nearby anatomical region without plaques from the same patient was employed as control. Skin biomechanical properties were studied through a non-invasive device (Cutometer® MPA 580). Results: Ichthyosis plaques had higher values for the Uf-Ua parameter and lower values for the Ua/Uf, Ur/Ue, and Ur/Uf parameters. Adults and children showed similar statistical differences. There were no significant differences in data from men, whereas in women differences for all of the parameters

were found. There was a significant decrease in the hydration and an increase in melanin index in the ichthyosis plaques. Conclusion: Our results suggest that analysis of parameters Uf-Ua, Ua/Uf, Ur/Ue, Ur/Uf, hydration, and melanin index could be employed for quantitative monitoring of skin. Therefore, the non-invasive method applied may be suitable for evaluation of skin of patients with ichthyosis in response to medical treatments.

***H.-C. Lee, S.-Y. Park*, Preliminary Comparison of the Efficacy and Safety of Needle-Embedding Therapy with Acupuncture for Atopic Dermatitis Patients,** Evidence-Based Complementary and Alternative Medicine, Volume 2019

Objectives: Among Traditional Korean Medicine approaches, needle-embedding therapy is used in various fields and consistently studied; however, there have been no clinical studies of the treatment of adult atopic dermatitis (AD) with needle-embedding therapy. Tus, there is a need to investigate the effects of needle-embedding therapy for treatment of AD. Tis study was performed to identify possible effects of needle-embedding therapy at Quchi acupoint (LI11) on AD and to compare these effects with those of acupuncture therapy. Methods: A total of 14 participants were enrolled in this study. Participants received acupuncture or needle embedding treatments for 4 weeks and then were followed for an additional 2 weeks because of safety assessment. The participants were divided into 2 groups: the acupuncture group, receiving treatment at Quchi acupoint (LI11) 3 times per week, and the needleembedding group, receiving treatment at Quchi acupoint (LI11) once per week. Te groups were compared on the basis of the SCORing Atopic Dermatitis (SCORAD) index, Transepidermal Water Loss (TEWL), skin hydration, and Dermatology Life Quality Index (DLQI) at baseline and 1 week after treatment was completed (5th week). Results: The SCORAD index, TEWL, Skin hydration, and DLQI at 1 week after treatment were significantly improved in both groups ($p<0.05$). However, there were no significant differences between the acupuncture and needle-embedding groups in any of the main evaluation indices ($p>0.05$). The study participants received a total of 84 acupuncture treatments or 28 needle-embedding treatments. No adverse events occurred during the study period. Conclusions: Based on changes in the SCORAD index, TEWL, skin hydration, and DLQI value, we found that both needle-embedding and acupuncture treatments at the Quchi acupoint (LI11) were effective in decreasing the symptoms of AD and exhibited similar therapeutic effects, which suggests that needle-embedding treatment may be more clinically convenient than acupuncture, with longer effects and fewer treatments.

***T. Westphal, W. Konschake, H. Haase, M. Vollmer, M. Jünger, H. Riebe,* Medical compression stockings on the skin moisture in patients with chronic venous disease, Vasa** (2019), 48, p. 502–508

Background: Because of side effects like skin dryness and consecutive symptoms like itching the therapy of chronic venous insufficiency (CVI) with medical compression stockings (MCS) can lead to a diminished wear comfort and restricted compliance. Compression stockings with integrated skin care may have a positive influence on the skin hydration and moreover a positive effect on patients compliance. Patients and methods: In this monocentric, randomized prospective, controlled trial a below knee conventional MCS was compared to a medical compression stocking with integrated skin care (MCS-SC), interface pressure range 23–32 mmHg. Participants: 50 patients with CVI. Primary outcome: skin hydration. Secondary outcomes: transepidermal water loss, skin roughness, leg volume, interface pressure and questionnaires about quality of life and wear comfort. Results: In patients wearing MCS the skin moisture decreased ($p = 0.021$) and the skin roughness increased significantly ($p = 0.001$), whereas in patients wearing the MCS-SC skin moisture and skin roughness changed only slightly (n.s.). These protective effects of MCS-SC compared to MCS were most common in patients with CVI at stage 3 ($p = 0.046$), in male patients ($p = 0.013$) and patients with initial dry skin ($p = 0.034$). Both MCS reduced lower leg volume, MCS by 80 ml ($p < 0.001$) and MCS-SC by 60 ml ($p < 0.001$), both MCS improved quality of life: leg complaints ($p = 0.0003$); functional status ($p = 0.010$), well-being and life satisfaction ($p = 0.030$). Wear comfort: In terms of tightness, constriction in bond area and strenuous donning the MCS-SC was assessed significantly more comfortable than MCS ($p < 0.001$). Conclusions: MCS-SC revealed to be superior to MCS with regard to skin moisture, particularly in patients with low skin humidity, in male patients and in patients with C3, varicose veins accompanied by edema.

A.-R. Im, I.W. Park, K.-Y. Ji, J.Y. Lee, K.M. Kim, M.K. Na, S.W. Chae, **Protective effects of Oxya chinensis sinuosa Mishchenko against ultraviolet B-induced photodamage in hairless mice**, BMC Complementary and Alternative Medicine (2019) 19:286

Background: Edible insects, including Oxya chinensis sinuosa Mishchenko (Oc), which is consumed as food in Asia, are considered as a human food shortage alternative, and also as a preventive measure against environmental destruction. Ultraviolet B (UVB) irradiation, which causes

skin photodamage, is considered as an extrinsic skin aging factor. It reduces skin hydration, and increases wrinkle formation and reactive oxygen species (ROS) and inflammatory cytokine expression. Thus, the objective of this study was to investigate the anti-aging effects of an ethanol extract of Oc (Oc.Ex). Methods: A UVB-irradiated hairless mouse model was used to examine relevant changes in skin hydration, wrinkle formation, and skin epidermal thickness. Also, antioxidant markers such as superoxide dismutase (SOD) and catalase (CAT) were analyzed, and Oc. Ex skin protective effects against UVB irradiation-induced photoaging were examined by determining the levels of skin hydration factors. Results: Oc.Ex improved epidermal barrier dysfunctions such as increased transepidermal water loss (TEWL) and capacitance reduction in UVB-irradiated mice. It upregulated skin hydration-related markers, including hyaluronic acid (HA), transforming growth factor (TGF)-¤, and pro-collagen, in UVB-irradiated mice, compared with the vehicle control group. It also reduced UVB-induced wrinkle formation, collagen degradation, and epidermal thickness. Additionally, it remarkably suppressed the increased expression of matrix metalloproteinases (MMPs), and restored the activity of SOD and CAT in UVB-irradiated mice, compared with the vehicle control group. Furthermore, Oc. Ex treatment downregulated the production of inflammatory cytokines and phosphorylation of the mitogen-activated protein kinases (MAPKs) signaling pathway activated by UVB irradiation. Conclusion: This study revealed that Oc. Ex reduced skin thickness and the degradation of collagen fibers by increasing hydration markers and collagen-regulating factors in the skin of UVB-irradiated mice. It also inhibited UVB-induced antioxidant enzyme activity and inflammatory cytokine expression via MAPK signaling downregulation, suggesting that it prevents UVB-induced skin damage and photoaging, and has potential for clinical development in skin disease treatment.

S.J. Kim, J. Bae, S.E. Lee, J.B. Lee, C.H. Park, D.H. Lim, M. S. Park, J. Ha, **A novel in vivo test method for evaluating the infrared radiation protection provided by sunscreen products,** Skin Res Technol., 2019 ;25, p. 890-895

Background: Infrared radiation (IR) exposure generates reactive oxygen species and induces matrix metalloproteinase-1expression in human skin. Moreover, while not as acute as ultraviolet radiation, repeated infrared irradiation can result in the photoaging of skin. Broad-spectrum sunscreens can protect skin from IR, but no human in vivo test methods for the evaluation of sunscreens' IR protection effect have been developed. We aimed to develop such a method. Materials and Methods: We included 155 Korean subjects in our three-part clinical study. The IR reflectance of subjects' skin was measured using a benchtop model of an IR light source and a reflectance measuring probe. We measured the IR reflectance in relation to skin color and hydration level to set up our experimental conditions. We then calculated the infrared protection factors (IPFs) of cosmetic emulsions as the IR reflectance ratio between cosmetic sunscreen-applied skin and non-sunscreen-applied skin and assessed the relationship between IPFs and the amount of sunscreen ingredients. Finally, this method was validated using several commercial sunscreen cosmfetics. Results: Skin color and hydration level did not influence the IR reflectance of subjects' skin. The IPFs of cosmetic sunscreens showed a positive correlation with the amount of inorganic sunscreen ingredients. Conclusion:In this study, we developed a simple, fast, and ethically acceptable human in vivo test method for evaluating the IPFs of cosmetic sunscreens.

H. Dobrev, **Value of non-invasive bioengineering investigations of the human skin in vivo,** Dissertation in Dermatology and Venerology at the University of Plodiv, 2019, Bulgaria

The skin is the largest organ of the human body. It has a surface area of about 2 m^2 and a weight of about 16% of the body weight. Skin is a great visual field. Most of the changes that occur in it are visible and accessible to dermatologists. For centuries, the dermatologist's eyes and fingers have been his main diagnostic tools. Old physicians are known to describe the rash elements with great love, diligence and methodicality, especially with regard to morphological details. Today, this descriptive phase in the evolution of dermatology has lost its dominance. According to Prof. J. Serup, "*The dermatologist's eyes and hands are already becoming archaic diagnostic tools.*" With the introduction of modern skin bioengineering methods, there has been a transition from the "visible" to the "invisible". From the "visual" field, dermatology is increasingly becoming an "instrumental" field. The advantage of the new research methods created is that they enable the detection of invisible changes in skin functions, as well as their objective and quantitative measurement. This dissertation is devoted to the new methods of skin functional diagnostics. It illustrates the practical application of some of them in the field of dermatology and cosmetic science based on the experience of the sector of "Functional diagnostics of the skin" at the Department of Dermatology and Venereology, University Hospital "St. George", Plovdiv, Bulgaria. The literature review part provides an overview of current bioengineering methods for functional skin diagnostics. The apparatus used to carry out the present work is described in detail. Additionally, two little-known aspects of skin bioengineering research are presented - protocol

and research ethics. Data on Bulgarian experience in the field of skin functional diagnostics have also been reported.

R. Voegeli, J. Gierschendorf, B. Summers, A.V. Rawlings, **Facial skin mapping: from single point bio-instrumental evaluation to continuous visualization of skin hydration, barrier function, skin surface pH, and sebum in different ethnic skin types**, International Journal of Cosmetic Science, 2019, p. 1–14

Dry skin is one of the most important concerns of consumers worldwide. Despite huge efforts over several decades, the personal care industry still does not offer a perfect solution to satisfy the unmet needs of consumers for moisturising treatments in different ethnic groups. The paucity of data for the underlying cellular and biochemical problems in, and the effects of moisturisers on photodamaged facial skin may partly explain this. Mainly, single point measurements are used to understand the effects of products on skin physiology even on surrogate skin sites such as the non-photodamaged volar forearm. Some groups have developed discontinuous facial maps of skin biophysical properties, however, in 2014 a continuous facial analysis of bio-instrumental evaluations was developed using a heat map approach. These maps enabled a continuous visualization of features that not only revealed an unexpected complexity of facial skin but also indicated that use of surrogate skin sites for facial skin is inappropriate. We have demonstrated that remarkable gradients of skin hydration, TEWL, skin surface pH and sebum exist within short distances across the face and the gradients are distinctive among different ethnic groups. In addition, these studies have demonstrated that darkly-pigmented individuals do not necessarily have a better skin barrier function than their less-pigmented counterparts and that Caucasians have a lower facial skin surface pH compared with more pigmented subjects. Overall, there are no correlations between capacitance, TEWL and skin surface pH including individual topology angle values. Novel 3D camera approaches have also been used to facilitate a more precise assignment of measurement sites and visualisation. The 3D facial colour mappings illustrated precisely the local moisturising effects of a moisturising cream. There were subtle ethnic differences in efficacy that may be related to underlying skin biochemistry and/ or ethnic differences in product application. A placebo-controlled study using conductance measurements in Chinese subjects is also reported. Finally, a new whole face statistical approach has been taken to prove differences in skin parameters but also of moisturiser treatment that adds further to our understanding of the ethnic differences in skin physiology and product application. This paper reviews the background of the development and application of this methodology.

A. Charpentier, **Soothing effect dedicated to sensitive skin,** PERSONAL CARE EUROPE, April 2019, p. 76-77

The skin plays multiple roles of protection, perception, immunity, regulation of blood and lymphatic reservoir for the whole body. Thanks to several mechanical, chemical or biological (sebum, biofilm...) reactions, the skin ensures its integrity according to the various endogenous or exogenous environmental variations. Today, the increase in the fragile phenomena of skin is a major issue in the development of dermo-cosmetics.

S. Pain, F. Trombini, A. Courtois, V. André, **Efficiently fighting oily skin - Bixa orellana seed extract keeps sebum production at bay**, H&PC Today, Vol. 14(2) March/April 2019

Sebaceous glands in the skin help to presen/e healthy skin by producing sebum, an oil-like substance that, among other functions, waterproofs and lubricates the skin and hair. However, overproduction of sebum can cause seborrhea, better known as oily skin. 35% of the world population suffer from this phenomenon and its associated clinical signs: shininess, enlarged pores, comedones and blemishes. BASF's new active ingredient - an extract from *Bixa orellana* seeds- reduces sebum production by restricting the proliferation of sebocytes, without dehydrating the skin. In addition, it blocks the signal that induces hyperkeratinisation, helping to refine pores. Because it keeps microbiome virulence at bay, the agent also aids in reducing skin blemishes.

S. Brink, Y.U. Wang, B. Blum, M. Baccam, A. Varbanov, V. Boeh, Y. Wang, J. Christman, C.E. Cella, M.B. Johnson, M.A. Farage, **Clinical Skin Mildness Evaluations of Direct and Indirect Exposure to Two Commercial Laundry Detergents with Markedly Different pH Designed for Sensitive Skin Using a Hand-Laundering Model,** J Cosmet Sci., 2019 Mar/Apr; 70(2): p. 89-105

The skin mildness of two commercial laundry detergents designed for sensitive skin, Tide Free and Gentle® (TFG) versus All Free Clear® (AFC), was compared in clinical studies, and the role of marked product pH differences was assessed. Two double-blind randomized human studies were conducted. Study 1 was a 1-day repeat insult forearm test, in which four exposures to solutions of TFG or AFC were performed to mimic direct exposure to dilute detergent during hand-laundering.

Corneometer, erythema and dryness grading, transepidermal water loss (TEWL), and skin surface pH evaluations were carried out. Study 2 was a 21-day arm patch test of fabrics washed with TFG or AFC to mimic indirect contact to skin of detergent residues, with erythema grading. Separately, pH and reserve alkalinity were determined for each detergent. In Study 1, TFG was significantly milder than AFC in all measures except TEWL (no significant difference). In Study 2, the detergents were approximately equivalent in erythema grading. Analysis showed AFC was substantially more alkaline (pH 10.8) than TFG (pH 7.9) with higher reserve alkalinity. TFG was significantly milder than AFC in Study 1, which may be due in part to the increased skin surface pH seen with direct exposure to AFC's high alkalinity.

L.-Y. Lin, S.-C. Chiou, S.-H. Wang, C.-C. Chi, **Effects of Facial Threading on Female Skin Texture: A Prospective Trial with Physiological Parameters and Sense Assessment**, Evidence-Based Complementary and Alternative Medicine, Volume 2019

Background: Facial threading is a common tradition in Taiwan, Southeast Asia (called “Bande Abru”), Middle East (called “Khite”), and Egypt (called “Fatlah”). In addition to the ability to remove facial vellus hairs, facial threading can make the skin fairer and shinier. However, there has been a lack of hard evidence regarding the effects of facial threading on the skin. Objective: To examine the effects of facial threading on skin physiology as well as visual and touch senses by using scientific instruments. Methods. A total of 80 participants were allocated to receive facial threading, application of powder only, exfoliation, and shaving. Prior to and following the assigned treatment, a noninvasive skin condition detection device was used to measure skin coarseness, hydration, melanin, and erythema index. Sense assessment and image analysis were also performed. Results: This study showed that facial threading was found to improve the facial skin roughness indices with significant decreases by 30.4%, 35.9%, and 16.7%, respectively, for the participants’ forehead, cheek, and mouth corner skin. No significant adverse changes in moisture levels and skin pigment indices were detected. In addition, there was improvement in subjects’ touch sense of their skin and feelings about skin color. Conclusions. Traditional facial threading can remove facial vellus hairs and lower skin roughness levels, thereby improving the skin texture. However, pricking sensation appeared during the facial threading process, which might causeconcerns about irritation.

P. Suchonwanit, K. Triyangkulsri, M. Ploydaeng, K. Leerunyakul, **Assessing Biophysical and Physiological Profiles of Scalp Seborrheic Dermatitis in the Thai Population**, BioMed Research International, Volume 2019

Background: Scalp seborrheic dermatitis (SD) is a common and chronic inflammatory skin disease which tends to recur over time. By measuring biophysical properties of the stratum corneum, many studies report abnormal biophysical profiles and their association in various dermatologic diseases. The aim of the study is to analyze the biophysical properties and skin barrier defects of scalp SD compared to healthy controls. Materials and Methods: Tis study is a cross-sectional study assessing the correlation of various biophysical and physiological profiles in scalp SD. Forty-two Tai participants with scalp SD were enrolled in the study and 40 healthy participants were also enrolled as the control group. Both SD and control group were subjected to a one-time biophysical and physiological properties’ measurement of transepidermal water loss (TEWL), stratum corneum hydration (SCH), skin surface pH, skin surface lipid, and skin roughness. Results: The mean TEWL of lesional skin of SD cases were significantly higher than those of control group ($P<0.05$). Relating to high mean TEWL, the mean SCH was found to be significantly lower in SD cases ($P<0.05$). Skin surface lipid was also found to be significantly higher in SD group ($P<0.05$). However, there were no differences in skin surface pH ($P=0.104$) and roughness ($P=0.308$) between the two groups. Pairwise comparison of each subgroup found that moderate and severe SD demonstrated significantly higher mean skin surface lipid than that of control group ($P<0.05$). Conclusion: Scalp SD may be associated with seborrhea in Tai population. Monitoring of SCH, TEWL, and skin surface lipid could be helpful in assessing severity and evaluating the treatment outcome in patients with scalp SD.

D.-M. Ding, Y. Tu, M.-Q. Man, W.-J. Wu, F.-Y. Lu, X. Li, Y. Li, J.-T. Yang, Y.-M. Jin, C.-Y. Yang, L. He, **Association between lactic acid sting test scores, self-assessed sensitive skin scores and biophysical properties in Chinese females**, International Journal of Cosmetic Science, 2019, 41, p. 398–404

Background: Lactic acid sting test (LAST) is a classical method to identify sensitive skin. However, some subjects with self-perceived sensitive skin are negative for LAST. Objective: To determine whether LAST scores are associated with specific phenotype of sensitive skin. METHODS: A total of 292 subjects with self-perceived sensitive skin were enrolled in this study. The Sensitive Scale was used to evaluate the severity of burning, stinging, itching, tautness, erythema and scaling based on

0–10 scale scores. In addition to the assessment of LAST scores, epidermal biophysical properties were measured using an MPA system. Results: The Sensitive Scale scores of stinging, itching, tautness and scaling were significantly different between the LAST-positive and -negative groups. However, burning and erythema scores did not differ between the LAST-positive and -negative groups. LAST scores were positively correlated with the Sensitive Scale scores for stinging, itching, tautness and scaling, but not for burning and erythema scores. Moreover, LAST scores negatively correlated with stratum corneum hydration, but positively with transepidermal water loss (TEWL) rates. CONCLUSIONS: Lactic acid sting test scores positively correlated with TEWL rates. LAST scores could be used to identify subjects with sensitive skin characterized mainly by stinging and itching, but not those mainly by burning and erythema.

F. Barone, S. Bashey, F.W. Woodin Jr., **Clinical Evidence of Dermal and Epidermal Restructuring from a Biologically Active Growth Factor Serum for Skin Rejuvenation,** J Drugs Dermatol. 2019 Mar 1;18(3): p. 290-295

Background: Topical skin care products use various technologies to promote skin repair. Growth factors of human, animal, and plant-derived origins have clinically demonstrated the ability to repair skin by promoting collagen, elastin, and glycosaminoglycan (GAG) production to reconstruct and reinforce skin's extracellular matrix (ECM). Human skin cells respond to instructions from highly specialized proteins or hormones referred to as growth factors. These growth factors initiate cellular communication that instigates cellular replication, production, or proliferation. The production of elastin and collagen dermal connective fibers slows, and, with age, the regenerative rates of GAGs become delayed. These biological issues can be exacerbated by extrinsic factors such as sun exposure, pollutants, and various other factors. Growth factor-based products have become important topical treatment modalities for addressing signs of skin aging such as fine lines, deep wrinkles, dryness, laxity, and textural irregularities. Objective: The aim of a 12-week clinical trial of a growth factor composition was to assess its effectiveness at restoring skin health through dermal and epidermal restructuring of aged skin. Results: Data from expert grading, and from corneometer and cutometer evaluations, as well as 2D and 3D image analysis, reflected significant improvements in facial skin appearance, firmness, elasticity, and hydration. Elements that improved most dramatically in investigators' assessments included radiance, firmness, tactile elasticity, textural smoothness, overall appearance, and crow's feet. Ultrasound imaging showed continual increases in dermal and epidermal restructuring throughout the study duration. Subject assessments reflected positive product tolerability and positive perception across a broad range of efficacy attributes through 12 weeks of usage. Conclusion: The results verified the ability of a multi-modal plant and enzymatically derived growth factor-based product to achieve skin rejuvenation improvements by stimulating dermal ECM and fibrous tissue regeneration to reduce fine lines and coarse wrinkles, and improve skin firmness and elasticity, while restoring skin to a properly hydrated state.

C. Uhl, **Efficacy testing of microbiome skin care**, PERSONAL CARE EUROPE, April 2019, p. 41-45; PERSONAL CARE ASIA, May 2019, p. 51-55, косметолог 2 [94] 2019 (in Ukranian), Cosmetics & Toiletries Brasil, Vol. 31, Mai-June, 2019, p. 22-27 (in Portuguese)

For years now, we have accepted the idea that we can nourish our intestinal tract with dedicated bacterial ingredients from food supplements and thereby improve our general health. Books written on this subject have become bestsellers. But why should we focus only on our intestinal tract? There are so many different microbial communities that can be found on and inside our body. Especially the colonization of the skin being our largest organ, tangible to the hands, visible to the eye, and in constant contact with the outside environment has moved to the front of cosmetic research. The idea of being a complex ecosystem is adding to the existing trend of personalised cosmetics, and will confirm the customer in their feeling of uniqueness.

В течение многих лет мы принимали идею о том, что можем обогащать наш кишечный тракт специальными бактериальными ингредиентами из пищевых добавок и тем самым улучшать общее состояние здоровья. Книги, написанные на эту тему, стали бестселлерами. Но можем ли мы сосредотачиваться только на нашем кишечном тракте?

O microbioma cutâneo é a população de microrganismos que habita a pele. Neste trabalho, o autor apresenta uma breve descrição da importância da atividade do microbioma e dos meios analíticos instrumentais para medir a eficácia de produtos cosméticos de interesse do microbioma cutâneo.

S. Bielfeldt, J. Blaak, S. Laing, M. SchleiBinger, C. Theiss, K.P. Wilhelm, P. Staib, **Deposition of plant lipids after single application of a lip care product determined by confocal raman spectroscopy,**

corneometry and transepidermal water loss, International Journal of Cosmetic Science / Volume 41, Issue 3, 2018

Objective: Up treatment products often incorporate oils and waxes in their formulations, and a desired outcome of their use is to prevent lip dryness and roughness as well as help to repair this condition. The objective of this study was to combine confocal Raman spectroscopy with skin capacitance (corneometry) and transepidermal water loss (closed chamber Aquaflux system) measurements, in the evaluation of the degree of moisturization and lip skin penetration of a fruit wax *(Rhus verniculo* peel cera) and natural oil based *(Cocos nucifero* fruit oil and *Oleo europeo* oil) lip care product, following a single application. Methods: The study was conducted on a total of 15 healthy female volunteers. Instrumental measurements were performed before and 30 min, 2 h and 6 h after a single application of the product. Results: Lip skin barrier function as well as lip hydration were significantly improved and penetration of olive oil was maintained for at least 6 h post product application. The deposition of the three component lipids (berry fruit wax, coconut oil and olive oil) into the *stratum corneum* after a single application of the lip care product was maintained and data significant for 2-6 h post product application. Lipid deposition was regarded as a positive long lasting skin care (depot) effect combined with a profound hydrating effect for about 6 h. Conclusion: The tri method approach taken in this study is deemed relevant and valid for measuring lip hydration offering a complimentary assessment of the barrier function of lip skin and interactive effects of cosmetic ingredients.

J.C. Kardorff, M.I. Kardorff, B. Kardorff, **Notwendige Berücksichtigung der jahreszeitlichen Schwankungen im Hautfeuchtigkeitsgehalt bei der Therapie der Akne**, Kosmetische Medizin 2/19

Hintergrund: Auch die Haut von Akne-Patienten fühlt sich je nach Jahreszeit unterschiedlich an. Bislang existieren aber keine Empfehlungen zur jahreszeitlich adaptierten Therapie bei Akne. Daraus resultieren die Fragen: 1. Unterliegt der Feuchtigkeitsgehalt von zu Akne neigender Haut auch jahreszeitlichen Schwankungen? 2. Konnen daraus Empfehlungen für die Therapie der Akne abgeleitet werden? Methodik: Im Winter 2016, im Frühjahr und Sommer 2017 wurde an 12 und im Herbst 2017 an 24 Testpersonen der Feuchtigkeitsgehalt im Bereich der Stirnhaut mittels Corneometrie (SD27 RC&K) gemessen. Die Testpersonen befanden sich im bevorzugten Akne-Alter zwischen 16 und 25 Jahren, bei denen entweder eine leichte Acne comedonica Grad MI Oder eine Acne papulopustulosa Grad I bestand. Ergebnisse: Der durchschnittlich höchste Hautfeuchtigkeitsgehalt wurde mit einem Punktwert von 43,8 ±11,8 im Sommer gemessen, der niedrigste mit Punktwert 24,5 ±13,5 im Winter. Die Hautfeuchtigkeitsdifferenzen zeigten sich zwischen Sommer und Winter, Frühling und Sommer, Sommer und Herbst (jeweils $p < 0,001$) sowie zwischen Herbst und Winter ($p < 0,01$) als signifikant und zwischen Winter und Frühling als nicht signifikant. Schlussfolgerungen: Die Ergebnisse belegen einen unterschiedlichen Feuchtigkeitsgehalt der Gesichtshaut in den verschiedenen Jahreszeiten. Darauf muss sowohl bei der Therapie, der Hautpflege und Hautreinigung geachtet werden. Starker austrocknende Medikamente und Akne-Kosmetika sollten somit nur in den Sommermonaten, aber nicht im Winter angewendet werden.

J.P. Andrade, T.A.L. Wagemaker, D.G. Mercurio, P.M.B.G. Maia Campos, **Benefts of a dermocosmetic formulation with vitamins B3 and a B6 derivative combined with zinc-PCA for mild inflammatory acne and acne-prone skin**, Biomed Biopharm Res., 2018; (15) 2: p. 214-223

Acne is a chronic inflammatory disorder of the pilosebaceous follicles that a□ects 80% of the population. As topical agents for acneic skin treatment are often irritants, dermocosmetics, may improve therapy. Thus, we developed cosmetic formulations with nicotinamide (vitamin B3), pyridoxine tris-hexyldecanoate (a vitamin B6 derivative) and zinc- pyrrolidone carboxylic acid (PCA) in association, and evaluated their clinical efcacy, skin compatibility, and sensory properties. The formulation (vehicle) added with vitamin B3, the vitamin B6 derivative and zinc-PCA in combination was applied twice daily for six weeks on the forehead, malar and chin skin regions of sixteen subjects. Before (pre-treatment) and after treatment, these regions were evaluated using biophysical and skin imaging techniques. Inflammatory acne lesions were reduced by 60% after application of the complete formulation. Porphyrine reduction was shown in the majority of volunteers. The results shown an improvement of inflammatory acne lesions based on porphyrine reduction, lesion counts, skin compatibility and comedogenicity testing. The skin barrier function was not impaired by the experimental formulation, which demonstrates its efcacy in acne treatment without undesirable e□ects. The combination of Zn-PCA and vitamins B3 and B6 vehiculated in an adequate topical formulation can be considered as a safe and e□ective alternative treatment for mild inflammatory acneic skin.

J.S. Lee, J. Ha, K. Shin, H. Kim, S. Cho, **Different Cosmetic Habits Can Affect the Biophysical Profile of Facial Skin: A Study of Korean and Chinese Women**, Ann Dermatol 31(2), p. 175-185, 2019

Background: Previous studies on the age-, climate, and skin care habit-related changes of biophysical parameters have mainly focused on Caucasians, and studies on Asians are in paucity. Objective: This study was aimed to investigate the variations of cutaneous biophysical parameters in Chinese and Korean women (northeast Asians) and to assess the association between those parameters and age, climate, and cosmetic habits. Methods: A cross-sectional study included 361 healthy Chinese and Korean women between 18 and 49 years of age in 4 cities (Guangzhou, Nanjing, and Shijiazhuang in China, and Suwon in Korea). We measured skin surface temperature, hydration, transepidermal water loss (TEWL), sebum, elasticity, skin pore, wrinkle, and skin tone (brightness) using non-invasive instruments. Demographic profiles and cosmetic habits were assessed using a questionnaire. Results: Skin elasticity and tone decreased, and pore size and wrinkle increased with age. Subjects in Suwon (Korean) showed higher hydration level, lower TEWL and lower sebum, less severe wrinkle and brighter skin than those in the 3 cities in China. After adjusting for age and region, using sunscreen everyday, wearing base makeup daily, and using moisturizers improved hydration, TEWL, and elasticity significantly. Conclusion: Women in Suwon (Korea) were found to have a better profile of biophysical parameters than women in the 3 Chinese cities, which might be attributed to cosmetic habits, besides age and climatic factors. The fact that appropriate cosmetic habits are associated with favorable skin biophysical parameters underscores the importance of daily skin care routine in preserving skin functions.

J.I. Yablonski, D.R. Winne, **Beginner's Guide to Natural Organic – Product Safety, Claims Support and Preservation**, Cosmetics & Toiletries, Volume 134, No. 2, February 2019, p. 18-31

Browsing a cosmetic counter, searching online or tuning into home shopping networks, one cannot help but notice the ever-increasing number of cosmetic and personal care products purporting to be *green*, *natural* or *organic* that are obviously targeting the rapidly growing environmentally conscious consumer and spa markets. Entire sections of exhibitions and trade shows have been dedicated.

N. Lourith, M. Kanlayavattanakul, **Hello Hydration – Spinach Hydrogels Deliver Saturated Skin,** Cosmetics & Toiletries, Volume 134, No. 2, February 2019, p. 49-55

Moisturizing or hydrating polysaccharides are derived from several natural sources. These botanical and edible biopolysaccharides are largely used to meet consumer demand for natural and sustainable cosmetic products. Polysaccharides are composed of multiple saccharides that form a large branched or unbranched chain. These polymers are constructed with simple sugar building blocks that are hydrated in an aqueous environment and create gel structures referred to as *hydrogels* or *hydrocolloids.* Water is immobilized by insoluble polymers in this system, which can be used to moisturize skin. The moist gels are very compatible with biological tissues and are biodegradable, classifying them as biopolymers. They are inexpensive and vastly available from natural sources, which work to highlight their health benefits in cosmetic applications. Altogether, these factors strengthen consumer opinions of the safety and efficacy of biopolysaccharides.

V. Brancato, A. Ratti, K.Tudisco, **Ozosnail Extract® - Evaluation of the hydrating efficacy**, Cosmetic Technology, Jan/Feb 2019, 22 (1), (Article in Italian)

Hydration is a key factor for skin health. Our largest organ, the skin, is composed by two main layers: the dermis, the inner layer, and the epidermis, the inner layer. Epidermal water content has a gradient: 70% in the viable epidermis which decays to 15-30% at the skin surface. In order to prevent any change of skin moisture; skinaging and other kind of alterations, a daily hydrating routine is needed. Choosing the best product is not so simple, skin hydration is Q complex process and different molecules can regulate the water content in several ways. In the present study, we show the in vivo hydrating efficacy (instrumentally assessed) of three emulsions containing different concentration of snail slime against a blank formulation. This secretion contains several components: altantoin, collagene, elastin, mucopolysaccharides, and glycolic add among others, conferring to the slime hydrating, regenerating, nourishing and exfoliating effects when applied onto the skin.

C. Gfeller, G. Hardie, G. Shanga, H. Mahalingam, **Evaluating the Moisturizing Abilities and Sun Protection Factor of New Lip Balm Formulations**, J Cosmet Sci., 2019 Jan/Feb; 70(1): p. 1-15

This report explores dry-skin models to assess the potential of a new lip balm formulation to hydrate dry skin or lips, and presents sun protection factor (SPF) values for five new lip balm formulations. Evaporimeter [for transepidermal water loss (TEWL)], Skicon®, and Corneometer® were used to measure hydrating effects of lip balm formulations in a dry-skin leg model, and TEWL, DermaLab® Moisture Meter, Corneometer®, and visual assessments were used with a dry-lip model. SPF studies were conducted in accordance with either the U.S. Food and Drug Administration

monograph final rule or international standard ISO 24444. Data from dry-skin leg model demonstrate that a new lip balm formulation significantly improves skin hydration compared with untreated leg skin and four comparator products. Data obtained from a dry-lip model proved unreliable. Five new lip balm formulations exhibited sunscreen capability; however, they did not meet the intended SPF. There were no product-related adverse events with the formulations. Although the new lip balm formulation improved hydration, data from a novel dry-lip model proved unreliable therefore further testing is required to confirm these benefits. Five new lip balm formulations provided sunscreen capability but did not meet the intended SPF, and will undergo reformulation and retesting.

S.A. Morris, N. McCardy, R. Thompson, T. Allen, A. Altemeier, K. Wehmeyer, R. Hinkle, M. Jones, R. Spruell, P. Stoffolano, M.A. Miller, P. Styczynski, R. Glenn, G.B. Kasting, **Comparing Surfactant Penetration into Human Skin and Resulting Skin Dryness Using *In Vivo* and *Ex Vivo* Methods,** J Cosmet Sci., 2019 Jan/Feb; 70(1): p. 33-45

Numerous tests have been developed to estimate a surfactant's mildness in rinse-off formulations. In this study, mixed surfactant systems were examined for their impact on surfactant penetration into the skin and skin hydration using *in vivo* and *ex vivo* methods. A forearm controlled application test (FCAT) was conducted, and skin hydration was evaluated using corneometry and visual dryness grading. Tape strip and cup scrub extractions were completed within the FCAT to examine the penetration of five individual surfactants into the skin *in vivo*. The ratio of surfactant mass extracted by five pooled tape strips to surfactant mass extracted by cup scrubs was found to be in the range of 40-59%. Furthermore, cup scrub collection and analysis was less time-consuming and less expensive to conduct than tape stripping. Thus, we recommend cup scrub extraction as a suitable substitute for tape stripping in future surfactant skin penetration analyses. *In vivo* results were compared with *ex vivo* ^{14}C-sodium dodecyl sulfate (^{14}C-SDS) penetration into human cadaver skin from the same surfactant systems. *In vivo* measurements conducted in the FCAT, including corneometer reading, visual dryness score, and individual surfactant (sodium laureth (1) ether sulfate and cocamidopropyl betaine) extracted from the skin, were found to correlate well with ^{14}C-SDS penetration into the skin *ex vivo* for anion-based surfactant systems. Thus, ^{14}C-SDS skin penetration may be a useful preclinical test for skin dryness induced by rinse-off products containing anionic surfactants.

J. István, V. Tünde, **Diagnosztikai lehet□ségek és jelent□ségük a sebkezelésben** (in Hungarian), XXI. évfolyam, 2018. 1. Szám

A sebkezel□ legfontosabb feladata, hogy a sebgyógyulás komplex folyamata menedzselése során a lehet□ legoptimálisabb feltételeket biztosítsa, azaz a hatékony sebgyógyuláshoz szükséges terápiás döntéseket folyamatosan meghozza. Ehhez megfelel□ információra van szüksége, amely a sebkezelésben a diagnosztikus tevékenységünk fontosságára hívja fel a fgyelmet. A seb gyógyítása során akkor dolgozhatunk leghatékonyabban, vagy számíthatunk egyáltalán a seb záródására, ha az általános sebkezelési feladatok mellett megfelel□ hangsúlyt fektetünk a változatos etiológiának megfelel□ oki kezelésre. Súlyos hibát véthetünk - mely a kezelésünk eredményességét veszélyezteti, ha a sebkezelés diagnózis felállítása nélkül indul el, vagy ha nem megfelel□ diagnózis születik.

C. Messaraa, L. Doyle, A. Mansfield, C. O'Connor, A. Mavon, **Ageing profiles of Caucasian and Chinese cohorts – focus on hands skin**, International Journal of Cosmetic Science, Volume 41, Issue 1, 2019

Objective: In spite of hand care being a dynamic segment of skin care, hands skin physiology has been receiving little attention in comparison to facial skin. In the present study, we aimed at gathering a comprehensive set of skin data from the dorsal part of the hand to study age related-changes in two ethnic groups (Caucasian and Chinese). Methods: Skin topographic, skin colour/colour heterogeneities, skin chromophores and skin biophysical measurements of 116 Caucasian and Chinese female volunteers aged 30– 65 years old were collected in Ireland and in China as part of a cross-sectional study. Results: Topographic alterations happened at both micro and macro scales with a noticeable delay in the onset of 10 years for the Chinese cohort. Similar evolution of skin colour with ageing was observed between the two cohorts and strong dissimilarities were seen when it came to colour heterogeneities and melanin hyper concentration, with a 20-year delay in severity for the Chinese cohort. A similar sharp drop of skin hydration occurred when reaching the 60's regardless of the group and substantial di8erences were recorded for skin biomechanical properties of the skin. Conclusion: These results provide additional insights about hand skin physiology in relation to ageingand ethnic di8erences, especially when put into perspective with what is currently known about facial ageing. This research yield additional material for hand cream product rationale and strategies for mitigating the appearance of ageing hands.

M. Kerscher, A.T. Nurrisyanti, C. Eiben-Nielson, S. Hartmann, J. Lambert-Baumann, **Skin physiology and safety of microfocused ultrasound with visualization for improving skin laxity**, Dove Press, January 2019 Volume 2019:12, p. 71-79

Purpose: The efficacy of microfocused ultrasound with visualization (MFU-V; Ultherapy®) has been demonstrated in clinical studies and daily practice. However, data addressing skin physiology after MFU-V treatment are lacking. This observational evaluation was aimed to assess skin physiology before and after MFU-V treatment using noninvasive biophysical measurements. Patients and methods: Twenty-two female patients with moderate-to-severe skin sagging at the jawline and submental region on the Merz Aesthetics Scale obtained a single MFU-V treatment according to protocol. Skin function measurements focused on short-term effects up to 3 days and long-term effects up to 24 weeks after treatment. Skin temperature, transepidermal water loss, skin hydration, erythema, elasticity, and skin thickness and density were evaluated under standardized conditions. Pain was assessed using a validated numeric visual analog scale. Results: Skin temperature remained in a physiologic range and no significant increase was noted at day 3 after MFU-V treatment. Transepidermal water loss, hydration, and erythema values were fairly stable and showed no significant differences at short- and long-term measurements vs baseline. At week 4 after a single MFU-V treatment, gross and net elasticity values were significantly decreased (P=0.003 and P=0.0001, respectively), followed by significantly increased values at week 12 (P=0.015, P=0.046) and week 24 (P=0.001, P=0.049). Edema due to MFU-V treatment resolved without sequelae. For all patients, pain diminished shortly after treatment. No adverse events occurred during the 24-week follow-up period. Conclusions: MFU-V treatment is well tolerated and it does not alter the epidermal barrier function or physiology of skin. Significant increase in the elasticity of skin was observed at 12 and 24 weeks after a single treatment, which reflects improvement in dermal tissue function. These short- and long-term effects are congruous with the mode of action of MFU-V due to a proven intrinsic tissue remodeling process.

D. Cobiella, L. Archer, M. Bohannon, D. Santoro, **Pilot study using five methods to evaluate skin barrier function in healthy dogs and in dogs with atopic dermatitis**, Vet. Dermatology, January 2019

Background: Atopic dermatitis is associated with skin barrier defects. In people, noninvasive techniques are used to quantify the skin barrier functionality. In dogs, transepidermal water loss (TEWL), stratum corneum hydration and pH have been used to assess skin barrier function. However, few studies have determined their repeatability. Objective: To assess the repeatability of measurements of skin hydration, TEWL, pH, skin absorbance and erythema in healthy and atopic dogs. Animals: Fifteen healthy and 15 atopic privately owned dogs. Methods and materials: Three repeated measurements using Corneometer®, Skin-pH-Meter®, Colorimeter® and VapoMeter® were obtained from inguinal, axilla, pinna and interdigital space by three investigators. Intra- and interobserver variability (coefficient of variation, correlation coefficients and intraclass correlation coefficients) and difference between the two groups (t-test or Mann–Whitney U-test) were determined. Results: High repeatability and low variation were observed both intra- and interobservers for all devices except the VapoMeter®. The most repeatable device was the Skin-pH-Meter®, whereas the VapoMeter® was the device with the highest intra- and interobserver variability. Atopic dogs had a significantly increased pH (inguinal P = 0.03; axilla P = 0.02) and erythema (inguinal P = 0.01; axilla P = 0.02) compared to healthy dogs. No differences between the two groups were detected using the Corneometer®, VapoMeter® or Colorimeter® (tartrazine absorption). Conclusion and clinical significance: The results of this pilot study support the use of Corneometer®, Skin-pH-Meter® and Colorimeter® in the assessment of skin barrier function in dogs; further investigations to optimize measurements and confirm these results are needed.

B. Algiert-Zieli□ska, P. Mucha, H. Rotsztejn, **Effects of lactobionic acid peel, aluminum oxide crystal microdermabrasion, and both procedures on skin hydration, elasticity, and transepidermal water loss**, J Cosmet Dermatol. January 2019

Background: Topical applications of alpha-hydroxy acids and poly hydroxy acids in the form of peels gained popularity. To enhance the effect of these substances, aluminum oxide crystal microdermabrasion can be used in one procedure. Aims: The assessment of skin hydration, elasticity, and TEWL after using lactobionic acid in the form of 20% peel and lactobionic acid in the form of 20% peel combined with aluminum oxide crystal microdermabrasion. Material and Methods: The study involved 20 Caucasian female subjects. Six treatments were performed at weekly intervals, using the Split face method-20% LA was used on the left side of the face and aluminum oxide crystal microdermabrasion followed by 20% LA application on the right side of the face. Results: Corneometric measurement showed statistically significant differences between the hydration level for sessions 1 and 3 and 1 and 6. A higher hydration level was found on the side with the combined procedure. Tewametric measurement showed that the TEWL values were different for sessions 1 and 3 and 1 and 6-they decreased. There were no statistically significant differences between the two procedures. The utometric

measurement indicated statistically significant differences between skin elasticity for pairs in session 1 and 3 and 1 and 6. Conclusions: The results of the study indicate that the combination of LA peel with microdermabrasion increases its moisturizing effect and improves skin elasticity. The use of both procedures also contributed to the decrease in TEWL; however, greater exfoliation of the epidermis in combined procedures resulted in slightly higher TEWL values.

D. Leskur, J. Bukić, A. Petrić, L. Zekan, D. Rušić, A. Šešelja Perišin, I. Petrić, M. Stipić, N. Puizina-Ivić, D. Modun, **Anatomical Site Differences of Sodium Laurylsulphate Induced Irritation: randomised controlled trial,** Br J Dermatol. 2019 January

Background: Sodium laurylsulphate (SLS) induced contact dermatitis is a commonly used model for testing effects of different topical formulations. Volar forearms are preferred testing site by the guidelines, but other anatomical locations were used in previous research, especially upper back, as the clinically used site for testing different antigens. Objectives: Aim of the present study was to investigate existence of anatomical variations of skin response to irritation and its' effects on response to treatment. Methods: Irritation was induced with SLS on symmetrical sites on both forearms and sides of upper back with additional sites exposed to water as controls. Half of the sites were treated with emollient cream while the other half were left untreated. Irritation was assessed using bioengineering methods and clinical scoring. Results: Upper back skin showed higher reactivity to irritants with stronger barrier disruption (measured by Tewameter, 80·2±18·3 vs 48·0±24·2 gm^{-2} h^{-1}), more pronounced erythema (measured by Mexameter, 186·5±88·4 vs 92·1±58·2 AU) and dryness (measured by Corneometer, -28·6±14·5 vs 2·7±16·9 AU). Skin recovery rates were also influenced by anatomical location with the upper back showing faster recovery (316·7±223·1 vs 156·2±198·5). Treatment didn't lead to improvement in measured parameters, regardless of anatomical location. Conclusion: Skins' reaction to irritant and recovery were dependant on anatomical location. Location where testing was conducted should always be reported as treatments tested across different locations could not be directly compared to each other.

H. Stettler, P. Kurka, C. Wagner, K. Sznurkowska, O. Czernicka, A. Böhling, S. Bielfeldt, K.-P. Wilhelm, H. Lenz, **A new topical panthenol-containing emollient: skin-moisturizing effect following single and prolonged usage in healthy adults, and tolerability in healthy infants**, Journal of Dermatological Treatment, 28:3, p. 251-257

Purpose: Two studies were conducted with a new topical panthenol-containing emollient (NTP-CE) to investigate the skin-moisturizing effect in healthy adults and tolerability in healthy infants. Methods: In Study 1 (N ¼ 44), a single skin application of NTP-CE was performed followed by a 4-week twice-daily application. Skin hydration and stratum corneum (SC) water content change (using Raman spectroscopy) were measured. In the 4-week Study 2 (N ¼ 65, aged 3–25 months), NTP-CE tolerability was assessed using a 5-point scoring system; skin hydration was determined in a subset (N ¼ 21). Results: In Study 1, mean AUC0 24 h for skin capacitance change from baseline was 302.03 i.u. with NTPCE and 15.90 i.u. in control areas ($p < .001$). With NTP-CE (at 4 h), the water content within the upper SC part was reduced (45.10 vs. 13.39 g/cm^2, p ¼ .013) and the water gradient increased (0.51 vs. 0.11 g/cm4, p ¼ .036), indicating relocation of water into deeper layers. In Study 2, there was no statistically significant change from baseline in mean cutaneous tolerability scores. At days 7, 14, and 28, skin hydrationhad increased by 42%, 54%, and 49%, respectively (all $p < .001$). Conclusions: Single and prolonged NTP-CE usage is associated with sustained and deep skin moisturization. NTP-CE is well tolerated by healthy infants.

Der Winter kann kommen – Handcremes im Test bei Stiftung Warentest, Stiftung Warentest Magazin, Dezember 2018

Handcremes: Die meisten Cremes pflegen trockene Winterhande gut. Aber nur wenige ziehen zudem schnell ein. Der Winter macht sich bei vielen an den Händen bemerkbar. Oft beginnt es an den Fingerknöcheln: Die Haut wird trocken, beginnt zu schuppen, im schlimmsten Fall reißt sie ein. Cremes sollen davor schützen, indem sie die Haut mit Fett und Feuchtigkeit versorgen und sie so geschmeidig halten. Aber welche Produkte helfen wirklich? Die Stiftung Warentest hat 17 Handcremes für trockene Haut geprüft.

S. Osseran, J. dela Cruz, S. Jeong, H. Wang, C. Ftenakis, C.L. Evans, **Characterizing the stratum corneum structure, barrier function, and chemical content of human skin with coherent Raman scattering imaging**, Biomedical Optics Express 6425, Vol. 9, No. 12, Dec 2018

The most superficial layer of the epidermis, the stratum corneum, plays a crucial role in retaining hydration; if its structure or composition is compromised, dry skin may result as a consequence of poor water retention. Dry skin is typically treated with topical application of humectant agents that attract

water into the skin. Corneometry, the industry standard for measuring skin hydration, works by assessing the bulk electrical properties of skin. However, this technique samples a large volume of tissue and thus does not resolve the biochemical changes that occur at the cellular level that may underlie mechanisms of dry skin. These limitations can be addressed using coherent Raman scattering (CRS) microscopy to probe the intrinsic vibrational modes of chemical groups such as lipids and water. In the present study, *ex vivo* human skin explants undergoing dehydration and humectant-induced rehydration were measured via CRS imaging and corneometry. Corneometry data and chemically specific images were obtained from the stratum corneum of each patient sample at each timepoint. The resulting data was statistically analyzed using linear mixed effect model regression analysis. The cellular imaging data revealed water loss in the stratum corneum during dehydration that was correlated with corneometer readings. Interestingly, the imaging data and corneometer readings show differences under the experimental rehydration conditions. The rehydration results suggest that hydration restored by the humectant agents may not be retained by the corneocytes in the *ex vivo* model system. Given the complementary nature of corneometry, a bulk assessment tool, and CRS microscopy, a modality with subcellular resolution implemented here in an en-face tissue imaging setup, these techniques can be used to measure uptake and efficacy of topical compounds in order to better understand their mode of action and improve therapeutic applications.

B. Algiert-Zieli□ska, P. Mucha, H. Rotsztejn, **Comparative evaluation of skin moisture after topical application of 10% and 30% lactobionic acid**, J Cosmet Dermatol. 2018 Dec; 17(6): p. 1096-1100

Background: Dry skin is characterized by symptoms such as itching, redness, excessive exfoliation. These symptoms cause discomfort and contribute to secondary bacterial infections. Dry skin treatments are based on topical applications of various formulations. Among many of them are polyhydroxy acids, which recently gained more attention. Aims: The aim of this study was a comparative assessment of hydration level (corneometric) after application of lactobionic acid (LA) in the form of peel at concentrations of 10% and 30%. Material and Methods: The study involved 10 Caucasian individuals aged 26-73 years. Eight treatments were performed at weekly intervals. The peels were applied using the "Split face" method-on the left side of the face 10% LA, and the right side 30% LA which consisted of specified concentration of LA, deionized water, xanthan gum, ethoxydiglycol. The test subjects received a 5% LA cream for overnight use. The cream consisted of deionized water, LA, isopropyl palmitate, ascorbyl palmitate, methylparaben. The products for this study were provided by Grehen Ltd. Celestynów, Poland. Prior to each procedure, the skin hydration level was measured using Corneometer CM 825 from Courage + Khazaka electronic GmbH. Results: There was a statistically significant improvement in hydration level after 8 treatments for all measuring points and both concentrations. The difference of the skin hydration level between 10% LA and 30% LA could not be determined. Conclusions: Lactobionic acid is a highly moisturizing agent. There was no significant difference in moisturizing effect between 10% LA concentration and 30% LA concentration.

M. Yiman, Y.-C. Lee, M. Hong, L. Brownell, Q. Jia, **A Randomized, Active Comparator-controlled Clinical Trial of a Topical Botanical Cream for Skin Hydration, Elasticity, Firmness, and Cellulite,** J Clin Aesthet Dermatol. 2018; 11(8): p. 51–57

Background: The skin is where initial visual signs of aging manifest, including increased skin dryness and decreased frmness and elasticity. Cellulite, a skin condition characterized by changes in the skin morphology due to excessive lipid deposition in subcutaneous adipose tissue, is another characteristic of skin aging. Objective: We sought to assess the e□ectiveness of a topical botanical cream on cellulite, skin hydration, frmness, and elasticity after two, four, and eight weeks of use compared to an active comparator. Design: The study was a single-blind, randomized, controlled study conducted on subjects with mild-to-severe cellulite on the thighs. Subjects were treated with a topical botanical cream (UP1307) and an active comparator for eight weeks. A total of 44 women 18 to 59 years of age were enrolled. Test products were gently applied in a circular motion to the area identifed by subjects as the target cellulite area twice per day. Measurements: Measurements using Corneometer® (for skin hydration) and Cutometer® (for skin elasticity and frmness) were carried out at each visit in addition to expert clinical grader evaluations for cutaneous changes and cellulite. Outcomes were also assessed by patients using subject questionnaires. Results: Patients reported signifcant improvement in skin hydration, frmness, and elasticity over time. Findings were corroborated with objective instrumental measurements. At Week 8, 44.4- and 42.7-percent improvement in appearance of cellulite was also observed for the UP1307 cream and the active comparator group, respectively. Conclusion: Use of UP1307 cream produced signifcant improvements in skin hydration, frmness, and elasticity, with associated improvement in cellulite appearance. There was overall superiority of UP1307 between groups. Progressive subject perceptions of product e□ects are reported.

V. Mazzarello, M. Ferrari, P. Ena, **Werner syndrome: quantitative assessment of skin aging**, Clinical, Cosmetic and Investigational Dermatology 2018: 11, p. 397–402

Background: Werner syndrome (WS) is a rare autosomal recessive disorder characterized by premature aging in adults. Although not suffcient to diagnose WS, persistent short stature and alteration of the dentition are among the few early signs that appear at puberty and can lead to a suspected diagnosis. Objective: The study aimed at quantifying the signs of WS skin aging through biophysical parameters to fnd new parameters to be applied together with clinical observations in order to diagnose the disease early. Patients and methods: The skin disorders induced by the disease were studied using noninvasive techniques: Tewameter TM300, Corneometer CM825, Skin-pH-Meter PH900, Mexameter MX16, Visioscan VC98, and Cutometer MPA580. Twenty-four patients divided into young group, WS group, and elderly group were recruited for the study. Results: The WS skin is quite similar to aged skin, with some differences concerning the barrier function and skin elasticity; for instance, a WS patient of 30 years of age has the same skin roughness of a 50/60 years old subject with a more severe skin condition leading to higher dryness, high transepidermal water loss, and less distensibility correlating with skin indurations. Conclusion: In patients with WS, the biophysical parameters can quantify the damage induced on the skin by the disease. In order to stage the degree of the disease, biophysical parameters could be used in the future as a diagnostic procedure in the initial stages of the disease as they may reveal lesions not yet clinically perceptible or in advanced stages.

T. Yadzanparast, S.A. Nasrollah, L.I. Firouzbadi, A. Firooz, **A Phase II Trial to Assess the Safety and Efficacy of a Topical Repair Cream Containing Skin-identical Ceramide Complex in Patients with Contact Dermatitis**, J Clin Aesthet Dermatol. 2018; 11(11): p. 40–44

Background: Contact dermatitis is a common skin condition observed by dermatologists, presenting a burden on healthcare systems. Recently, there has been a trend in producing skin-identical topical preparations for the repair of skin. However, there is a limited number of experimental studies to assess the safety and efficacy of this products. Objective: This study assessed the clinical efficacy and safety of a skin-identical ceramide complex cream (Dermalex Repair Contact Eczema; Omega Pharma, Nazareth, Belgium) in the treatment of contact dermatitis. Design: This was a Phase II, before-after trial. Setting: This study was conducted at the Center for Research and Training in Skin Diseases and Leprosy (CRTSDL) at Tehran University of Medical Sciences in Tehran, Iran. Participants: Fifteen patients with contact dermatitis (8 men and 7 women) between the ages of 25 and 62 years (median age: 36.4 years) were enrolled in this study. Measurements: Changes were assessed using six skin biophysical parameters (transepidermal water loss [TEWL], stratum corneum [SC] hydration, melanin index, erythema index, skin pH, and skin friction), Physician Global Assessment (PGA) score, and Three-Item Severity (TIS) score at baseline, Week 2, and Week 4 of the study. Results: Skin hydration and TIS showed a statistically significant improvement after treatment with study cream (p=0.023 and p=0.007, respectively). Although the reduction in TEWL was not significant, a slight decrease was observed at Week 4. Conclusions: The skin-identical ceramide complex cream improved contact dermatitis with a decrease in TIS and an increase in skin hydration, implying a repair of the skin barrier.

F. Spada, T.M. Barnes, K.A Greive, **Skin hydration is signifcantly increased by a cream formulated to mimic the skin's own natural moisturizing systems**, Clinical, Cosmetic and Investigational Dermatology 2018:11, p. 491–497

Background: Moisturizers are topical products designed to improve and maintain the skin barrier function and to help prevent dry skin. Materials and methods: A new moisturizer (Ceramide cream) was formulated containing ingredients which mimic the skin's own natural moisturizing systems. Corneometry was performed at baseline, 2, 4, 6 and 24 hours following a single application of Ceramide cream to healthy skin, and compared to three reference moisturizers available over-the-counter, and placebo. Transepidermal water loss (TEWL) was also measured following a single application of Ceramide cream compared to baseline, and its safety was assessed by repeat insult patch test, ophthalmologist and pediatric testing. Results: A single topical application of either the Ceramide cream or the three reference moisturizers resulted in a signifcant increase in skin hydration over time (P<0.001). The placebo cream did not signifcantly increase skin hydration at any time point. At 24 hours post-application, skin hydration measured for Ceramide cream was signifcantly greater (P<0.05) than that measured for all three of the reference moisturizers tested. Ceramide cream was also found to significantly decrease TEWL (P<0.001) over 24 hours, and was shown to be non-sensitizing to the skin of both adults and children and non-irritating to the skin, eyes and related eye area. Conclusion: Ceramide cream increases skin hydration and improves barrier function which may make it suitable for use on dry skin.

O. Qin, Y. Tan, W. Jiang, Q. Fu, Y. Xu, C. Jiang, **Non-invasive assessment of changes and repair dynamics post irritant intervention in skin barrier**, Int J Clin Exp Med 2018;11(5): p. 4490-4499

This study aimed to investigate the changes of skin conditions after interventions of sodium lauryl sulfate (SLS) and tape stripping (TAPE), and explore the correlation of parameters between different non-invasive tools. Twenty-three healthy volunteers were enrolled in this randomized, controlled study, and 4 evaluating skin surfaces on their left forearms were randomly divided into SLS, TAPE, flter, and control groups. Skin surfaces in SLS and TAPE groups were intervened by SLS and tape stripping respectively. Changes of skin conditions were recorded by noninvasive devices. SLS and TAPE both worsened the skin conditions according to the elevated ICD scores. Compared with control, the TAPE group showed increased transepidermal water loss (TEWL) values. Thicker epidermal thickness was observed in the TAPE group, while thinner cuticle thickness by RCM fnally recovered to normal level. Roughness by OCT in TAPE declined frst and then recovered, whereas reduced roughness was observed in VC98 detection. Blood flow volume detected by OCT was unchanged in TAPE, while flux by FLPI was raised. Compared to the flter group, SLS exhibited raised TEWL and decreased thickness data, while reduced epidermal thickness by OCT ultimately elevated. Roughness declined, while roughness by OCT fnally recovered. Flux by FLPI decreased, whereas blood flow volume by OCT presented an instant reduction followed by a recovery. This study displays the changes of skin conditions post irritation, and discloses a positive correlation of flux parameters between OCT and FLPI as well as a positive correlation of moisture parameters between CM825 and VC98.

M.J. Lis Arias, L. Coderch, M. Martí, C. Alonso, O. García Carmona, C. García Carmona, F. Maesta, **Vehiculation of Active Principles as a Way to Create Smart and Biofunctional Textiles**, Materials 2018, 11, 2152

In some specific fields of application (e.g., cosmetics, pharmacy), textile substrates need to incorporate sensible molecules (active principles) that can be affected if they are sprayed freely on the surface of fabrics. The effect is not controlled and sometimes this application is consequently neglected. Microencapsulation and functionalization using biocompatible vehicles and polymers has recently been demonstrated as an interesting way to avoid these problems. The use of defined structures (polymers) that protect the active principle allows controlled drug delivery and regulation of the dosing in every specific case. Many authors have studied the use of three different methodologies to incorporate active principles into textile substrates, and assessed their quantitative behavior. Citronella oil, as a natural insect repellent, has been vehicularized with two different protective substances; cyclodextrine (CD), which forms complexes with it, and microcapsules of gelatin-arabic gum. The retention capability of the complexes and microcapsules has been assessed using an in vitro experiment. Structural characteristics have been evaluated using thermogravimetric methods and microscopy. The results show very interesting long-term capability of dosing and promising applications for home use and on clothes in environmental conditions with the need to fight against insects. Ethyl hexyl methoxycinnamate (EHMC) and gallic acid (GA) have both been vehicularized using two liposomic-based structures: Internal wool lipids (IWL) and phosphatidylcholine (PC). They were applied on polyamide and cotton substrates and the delivery assessed. The amount of active principle in the different layers of skin was determined in vitro using a Franz-cell diffusion chamber. The results show many new possibilities for application in skin therapeutics. Biofunctional devices with controlled functionality can be built using textile substrates and vehicles. As has been demonstrated, their behavior can be assessed using in vitro methods that make extrapolation to their final applications possible.

A. Garre, M. Narda, P. Valderas-Martinez, J. Piquero, C. Granger, **Antiaging effects of a novel facial serum containingl-ascorbic acid, proteoglycans, and proteoglycanstimulating tripeptide: ex vivo skin explant studies and in vivo clinical studies in women**, Clinical, Cosmetic and Investigational Dermatology 2018:11, p. 253–263

Background: With age, decreasing dermal levels of proteoglycans, collagen, and elastin lead to the appearance of aged skin. Oxidation, largely driven by environmental factors, plays a central role. Aim: The aim of this study was to assess the antiaging effcacy of a topical serum containing l-ascorbic acid, soluble proteoglycans, low molecular weight hyaluronic acid, and a tripeptide in ex vivo and in vivo clinical studies. Methods: Photoaging and photo-oxidative damage were induced in human skin explants by artifcial solar radiation. Markers of oxidative stress – reactive oxygen species (ROS), total glutathione (GSH), and cyclobutane pyrimidine dimers (CPDs) – were measured in serum-treated explants and untreated controls. Chronological aging was simulated using hydrocortisone. In both ex vivo studies, collagen, elastin, and proteoglycans were determined as measures of dermal matrix degradation. In women aged 21–67 years, hydration was measured up to 24 hours after a single application of serum, using Corneometer and hygrometer. Subjects' perceptions of effcacy and acceptability were assessed via questionnaire after once-daily serum application for 4 weeks. Studies were performed under the

supervision of a dermatologist. Results: In the photoaging study, irradiation induced changes in ROS, CPD, GSH, collagen, and elastin levels; these changes were reversed by topical serum application. The serum alsoprotected against hydrocortisone-induced reduction in collagen, elastin, and proteoglycan levels, which were signifcantly higher in the serum-treated group vs untreated hydrocortisonecontrol explants. In clinical studies, serum application signifcantly increased skin moisture for 6 hours. Healthy volunteers perceived the product as effcient in making the skin brighter, more hydrated, and decreasing wrinkles and wished to continue using it. The serum was well tolerated and noncomedogenic. Conclusion: The serum protected against oxidative damage and dermal protein loss caused by photo- and chronological aging in human skin explants. In-vivo, the serum hydrated skin for 6 hours, and users perceived increased skin brightness, hydration, and fewer wrinkles.

Y. Brenner, **Ein natürlicher Wirkstoff, der den aktuellen Erwartungen des deutschen Hautpflegemarktes entspricht**, SÖFW Journal 10/2018

Der Markt fur Kosmetik und Hautpflegeprodukte in Deutschland ist der Ort, an dem sich Tradition und Fortschritt treffen. Seit mehr als eineinhalb Jahrhunderten setzen Hautpflegepraparate - wie Cremes, Masken, Lotionen und Spezialbehandlungen - auf die Verwendung von Pflanzen, Wurzeln und Bluten. Kosmetikhersteller aus Bayern, Niedersachsen, dem Saarland und anderen Landern haben seit Jahrzehnten eine Wissensbasis aufgebaut, die die belebenden Krafte der in der Natur vorhandenen Inhaltsstoffe nutzt und sie in Verbraucherprodukten zur auBerlichen Hautpflege umsetzt.

J. Pierre, G. Francois, A.M. Benize, V. Rubert, J. Coutet, F. Flament, **Mapping, in vivo, the uniformity of two skin properties alongside the human face by a 3D virtual approach**, Int J Cosmet Sci. 2018 Oct; 40(5): p. 482-487

Objective: To determine the homogeneity in the distribution of two cutaneous functions (hydration and elasticity) along the entire human face. Material and Methods: The half faces (right or left, randomly chosen) of two groups of Caucasian women were measured on 24 different small sites (elasticity) and 41 others (hydration), by instruments of small-sized probes (Cutometer® and Corneometer®, respectively). Hydration of the face was recorded at different times (up to 24 h), post application of a highly hydrating product. The recorded values (left and right half faces) were further gathered and digitally positioned on a virtual feminine face and their intensity was illustrated through a colored white (lower values)-blue (higher values) scale. Results: The reconstitution of the mapping of the two measured parameters (from the left and right sides of different subjects), shows a perfect symmetry vis à vis the nose axis. However, both parameters present slightly variable but significant values along the human face. Sites from the temple are less elastic than chin or forehead. The upper and lower parts of the forehead show slight disparities in their elasticity values. Cheeks are significantly less prone at retaining their imparted hydration status (lost 2 h after application of a hydrating product) as compared to sub-ocular regions or chin that retain their hydration up to 24 h. Attempts to establish a mutual relationship between the two skin properties unsurprisingly failed. Conclusion: The two studied skin properties show a slight but highly symmetric disparity along the entire human face.

K.-H. Busch, A. Aliu, N. Walezko, M. Aust, **Medical Needling: Effect on Moisture and Transepidermal Water Loss of Mature Hypertrophic Burn Scars,** Cureus, 10(3) 2018

Background: Burn scars remain a serious psychological and physiological problem for affected people. Clinical studies and scientific research have already shown that medical needling improves the scar quality in terms of skin elasticity and erythema. At the same time, patients are confronted with a low-risk therapy and face comparatively less postoperative complications. Objective: The goal of our study was to examine the influence of medical needling on the skin moisture and transepidermal water loss (TEWL) of hypertrophic dry scars. Therefore, 20 patients, of an average age of 34.63 years, with deep second- and third-degree burn scars have been treated. Methods: Medical needling is performed using a roller covered with needles of 3-mm length. The needling device is rolled over the scar in three directions: vertically, horizontally, and diagonally in order to create as many puncture channels as possible. The puncturing leads to multiple micro-wounds and intradermal bleeding, which evokes the post-needling regeneration cascade. The patients were followed up for 12 months postoperatively. The results have been evaluated by means of objective as well as subjective measurement methods. Results: The objective measures show that medical needling influences epidermal thickness and improves the epidermal barrier function at a molecular level. Outcomes are marked by a measurable increase in skin moisture and a reduction in TEWL. Conclusion: Medical needling seems to be a promising approach for the treatment of mature hypertrophic burn scars with a focus on skin moisture and TEWL.

D.-U. Kim, H.-C. Chung, J. Choi, Y. Sakai, B.-Y. Lee, **Oral Intake of Low-Molecular-Weight Collagen Peptide Improves Hydration, Elasticity, and Wrinkling in Human Skin: A Randomized, Double-Blind, Placebo-Controlled Study**, Nutrients 2018, 10, 826

Collagen-peptide supplementation could be an effective remedy to improve hydration, elasticity, and wrinkling in human skin. The aim of this study was to conduct a double-blind, randomized, placebo-controlled trial to clinically evaluate the effect on human skin hydration, wrinkling, and elasticity of Low-molecular-weight Collagen peptide (LMWCP) with a tripetide (Gly-X-Y) content >15% including 3% Gly-Pro-Hyp. Individuals (n = 64) were randomly assigned to receive either placebo or 1000 mg of LMWCP once daily for 12 weeks. Parameters of skin hydration, wrinkling, and elasticity were assessed at baseline and after 6 weeks and 12 weeks. Compared with the placebo group, skin-hydration values were significantly higher in the LMWCP group after 6 weeks and 12 weeks. After 12 weeks in the LMWCP group, visual assessment score and three parameters of skin wrinkling were significantly improved compared with the placebo group. In case of skin elasticity, one parameter out of three was significantly improved in the LMWCP group from the baseline after 12 weeks, while, compared with the placebo group, two parameters out of three in the LMWCP group were higher with significance after 12 weeks. In terms of the safety of LMWCP, none of the subjects presented adverse symptoms related to the test material during the study period. These results suggest that LMWCP can be used as a health functional food ingredient to improve human skin hydration, elasticity, and wrinkling.

J. Pierre, G. Francois, A.M. Benize, V. Rubert, J. Coutet, F. Flament, **Mapping, in vivo, the uniformity of two skin properties alongside the human face by a 3D virtual approach**, Int J Cosmet Sci., 2018 Oct; 40(5): p. 482-487

Objective: To determine the homogeneity in the distribution of two cutaneous functions (hydration and elasticity) along the entire human face. Material and Methods: The half faces (right or left, randomly chosen) of two groups of Caucasian women were measured on 24 different small sites (elasticity) and 41 others (hydration), by instruments of small-sized probes (Cutometer and Corneometer, respectively). Hydration of the face was recorded at different times (up to 24 h), post application of a highly hydrating product. Results: The recorded values (left and right half faces) were further gathered and digitally positioned on a virtual feminine face and their intensity was illustrated through a colored white (lower values)-blue (higher values) scale. The reconstitution of the mapping of the two measured parameters (from the left and right sides of different subjects), shows a perfect symmetry vis à vis the nose axis. However, both parameters present slightly variable but significant values along the human face. Sites from the temple are less elastic than chin or forehead. The upper and lower parts of the forehead show slight disparities in their elasticity values. Cheeks are significantly less prone at retaining their imparted hydration status (lost 2 h after application of a hydrating product) as compared to sub-ocular regions or chin that retain their hydration up to 24 h. Attempts to establish a mutual relationship between the two skin properties unsurprisingly failed. Conclusion: The two studied skin properties show a slight but highly symmetric disparity along the entire human face

M. Portugal-Cohen, Z. Ma'or, M. Oron, **Full Scale Customization,** Cosmetics & Toiletries, Vol 133, No. 9, September 2018

The drive for personalized consumer products is no longer a passing fad. Personalization stems from deep motivations. The emotional wish to purchase products created "especially for me" comes across with an understanding of diversity between individuals and the prospects for more effective solutions to meet each individuals special needs. However, efforts to introduce personalized skin care—i.e., for unique skin with distinctive characteristics — on an industrial scale means products formulated for generalized needs, which could not be as effective.

T. Quinn, **Natural emulsifier with texture and skin care benefits**, PERSONAL CARE ASIA PACIFIC, September 2018, p. 65 - 67

Emulsun [INCI: Hydrogenated Sunflower Seed Oil Polyglyceryl-3 Esters (and) Hydrogenated Sunflower Seed Oil Glyceryl Esters (and) Cetearyl Alcohol (and) Sodium Stearoyl Lactylate] is a sunflower-derived o/w emulsifier, in particle form, that can be utilized in skin and hair care applications. This versatile emulsifier helps create stable, aesthetically pleasing emulsions.

J. Gallagher, P. Rosher, O. Novac, **Skin hydration comparison of five prescribed emollients, JAAD,** September 2018, Volume 79, Issue 3, Supplement 1, p. AB263

Emollient therapy is the mainstay for treating dry skin conditions such as atopic eczema and psoriasis.

G. Bressier, F. Labarrade, C. Meyrignac, C. Capallere, C. Gondran, Y. Ferreira, G. Oberto, K. Cucumel,

O. Dueva-Koganov, L. Zhang, A. Duev, P. Recht, S. Miccer, M. Koganov, **Exposure to Ultrafine Particles from Air Pollution Affects Skin Barrier, Keratinocyte Sternness Potential and Niche Microenvironment: Protective Effects of Giant Kelp Zeta Fraction,** IFSCC Congress, Munich, September 2018

There is an increasing focus on the health effects of exposure to environmental, particularly pollution associated with exposure to particulate matter (PM), which in terms of size is defined as coarse (2.5-10 pm) or fine (0.1-2.5 pm). Exposure to ultrafine particles (UFPs; <0.1 pm in size) was identified as more harmful toxic than exposure to larger ones, as they have a greater area to mass ratio, providing a greater surface for contact with toxic chemicals such as polycyclic aromatic hydrocarbons (PAHs), and metals to tissues. Pluman exposure to UFPs occurs every day, both outdoor, from sources such as vehicle emissions and air pollution, and indoor in home, office and commercial locations. Exposure of the skin to air pollutants has been associated with skin aging and the appearance of facial age spots, and the aggravation of some skin diseases. In the present study, we evaluated the protective effect against the exposure of UFP pollution and by skin application of a sustainably-created plant fraction of *Macrocystis pyrifera* (Giant Kelp Zeta Fraction), which was obtained by the application of Ashland's proprietary Zeta Fraction technology.

N. Portal, L. Blaizot, C. Boissard, M. Jullien, E. Segot-Chicq, A. Thakur, F. Bodin, **Addressing body skin discomfort with a cleansing rinse-off product adapted to dry, sensitive or atopic skins. Age-transversal *in vivo* studies, from babies to adults,** IFSCC Congress, Munich, September 2018

Background: Unlike the case of facial skin, a dry, sensitive and/or atopic body skin is a scarcely studied topic. These skin types, subjected to daily washes under warm conditions, share in common frequent feelings of discomfort. Objective: To create a tailor-made body wash able to soothe body skin discomforts felt by all concerned subjects. In short, to develop, from concept to in vitro and in vivo studies, a body wash that would fit all skin types from babies to adults. Methods: Subjects' expectations in term of key benefits were explored through a qualitative study on a representative group of 30 people. From thereby acquired knowledge, a product balancing both cleansing and caring properties was developed. The body wash performances have been demonstrated with a valorization program through six in vivo studies, involving 254 subjects, complaining of dry, sensitive body skin, atopic included, among which babies (3months-3y) and children (3-12y). Results: Results of a first clinical study on 43 subjects showed a significant reduction in skin dryness, graded by DermascoreÒ, immediately after the shower and up to 24 hours. A study on 25 subjects with extreme skin dryness showed that without applying any other cosmetic product onto the body, the use of the daily body wash for 2 weeks conveyed the atopic skin to reach healthy subjects pH value (close to 5). A new index of body skin discomfort was used in a study on 49 subjects with dry and uncomfortable body skin. After daily use of the body wash for 4 weeks, these subjects reached the level of comfort of normal skin. The body wash was submitted to a panel of 113 subjects with atopy prone skin and a sensitive body skin for evaluations of the cosmetic properties through questionnaires, after the first application and after 28 days of daily applications. In addition to the excellent acceptance of its cosmetic properties, the body wash clearly brought feeling of a restored skin comfort. Conclusion: More than a standard shower, this hybrid new texture cleans and cares in only one gesture with a high tolerance level. It efficiently addresses consumers' expectations with respect to very dry, sensitive and atopic skins. After a couple of weeks of daily use, the parameters of a normal skin are restored. It suits adults, children and babies.

C. Carrasco, G. Kimmel, L. Mallet, L. Le Mauff, P. Bellon, **How to create a technology to make a fragrance last longer showing improved skin moisture benefit?,** IFSCC Congress, Munich, September 2018

The perfume market is highly competitive and is driven by technological innovations. Market research has shown that among perfume users, consumers are dissatisfied with the impact of perfume performance. In many cases, respondents complained that perfumes fade too quickly or change over time or dehydrate the skin. We believe it is important to develop a technology that can be added to the fragrance to provide functional benefits, such as hydration and durability. This research project raises several questions. What is the impact of skin hydration on the retention of fragrance molecules? Can we say that the addition of moisturizing raw material in a concentrate makes it possible to improve the lasting effect of the perfume on the skin? Can we create an alcoholic scent, both moisturizing and long-lasting? All these questions are part of the challenge of this project to find solutions to improve perfume performance.

S. Pain, L. Danoux, N. Berthelemy, S. Cadau, D. Herault, V. Andre, A.F. de Bengy, N. Forraz, C. McGuckin, **Highly efficient plant extract against oily skin determined by 2D and 3D sebaceous models,** IFSCC Congress, Munich, September 2018

People with oily skin often complain that their skin feels unclean and is shiny. Oily skin is not only an aesthetic concern, but can also contribute to acne development. The main origin of oily skin is the hyperactivity of sebocytes, which results in an excessive secretion of sebum from sebaceous glands. Sebaceous glands are mostly found on scalp, face, and trunk in association with hair follicles forming the pilosebaceous unit. The secretion of sebum is carried out through a holocrine breakdown of mature sebocytes characterized by a high density of cytoplasmic lipid droplets. Sebum is a unique complex mixture of lipids with triglycerides (30- 50%), free fatty acids (15-30%), wax esters (26-30%) and squalene (12-20%). However, sebum is beneficial as it helps to protect and moisturize the skin and hair, keeping them healthy. Therefore, managing or treating oily skin is always a challenge to retain an appropriate moisturization. Sebaceous glands also support the growth of facultative anaerobes such as *Propionibacterium acnes* (*P. acnes*), a common skin commensal bacterium. Encoding lipases of *P. acnes* degrade skin lipids of sebum, they especially hydrolyses the triglycerides present in sebum, releasing irritant free fatty acids onto the skin. Managing the lipase activity may contribute to decrease *P. acnes* virulence and related skin impact.

R. Voegeli, J.M. Monneuse, C. Klose, R. Schoop, B. Summers, T. Rudolph, A.V. Rawlings, **Phenotypic changes in the corneome and ceramidome of photodamaged dry facial stratum corneum from different ethnic groups,** IFSCC Congress, Munich, September 2018

Dry facial skin remains a major concern to consumers globally despite decades of moisturizer development [1]. This is probably a result of two issues: most stratum corneum (SC) understanding in this respect is on body skin rather than facial skin and the biochemical changes in such conditions have largely been conducted on an analyte by analyte basis rather than global changes in analyte composition. These approaches have been highly successful in helping us to determine the general composition of the SC but have their limitations. The use of mass spectrometry-based 'omic' approaches is on the increase for investigating skin biochemistry, especially proteomics and lipidomics. However, these approaches have not been used to study the corneome and ceramidome of facial SC. Compared with other body sites facial SC is thinner, has elevated serine protease activities, reduced levels of natural moisturising factor (NMF), impaired barrier function and a greater proportion of immature corneocyte envelopes (CEs), particularly on photoexposed sites [2-6]. Our aim was to utilize these mass spectrometry-based ceramidomics and proteomics to understand more precisely the effects of SC maturation (Figure 1) and its relation to facial photodamage, skinpigmentation and ethnicity and to explain some of these differences.

A. de Lago, E. Hernandez, T.Z. Reyes, J.R. Pinto, V.C. Albarici, G. Facchini, M.S. Silva, A. Pinheiro, A.S. Pinheiro, S. Eberlin, **Pre-clinical and Clinical evaluation of antiaging properties of a dermocosmetic formulation,** IFSCC Congress, Munich, September 2018

Studies has shown many factors, such skin inflammatory process and prolonged exposure to sunlight, could affect the skin barrier and extracellular matrix inducing a decrease in the synthesis of the major dermal proteins, collagen, elastin and hyaluronic acid, clinically characterized by wrinkles, rough skin, loss of water and skin tone. In this study, we evaluated *in vivo* effects of a dermocosmetic formulation in the increase of firmness, elasticity and hydration of the skin by instrumental techniques and perceived efficacy. Preclinical studies consisted on the production of collagen and hyaluronic acid using an *in vitro* model of human fibroblasts. Clinical evaluation was performed after 14, 30 and 60 days of treatment with the dermocosmetic product and consisted in the sensorial analysis of perceived efficacy through the application of a questionnaire answered by the participants of research. In addition, the following instrumental analysis was performed: cutometry - to evaluate skin firmness and elasticity, corneometry for hydration and image analysis to evaluate wrinkles and expression lines. Human dermal fibroblasts were incubated with noncytotoxic concentrations of dermocosmetic formulation. Cell culture medium and treatment of cell cultures were replaced each 2 days. Culture supernatants were collected after 1, 14 and 30 days incubation. The levels of total collagen and hyaluronic acid were measured using commercially available kits. ANOVA test was used followed by Bonferroni post-test with a 5% significance level. The instrumental results obtained for firmness and elasticity parameters revealed progressive increases after 14, 30 and 60 days of cosmetic treatment on the face and neck. The analysis of cutaneous hydration, evaluated after 24 hours of application, revealed a 12% increase by corneometry technique. Imaging of the depth and size of wrinkles also revealed significant reductions. In the evaluation of the perceived efficacy, over 80% of the volunteers reported improvements in the attributes of nutrition, softness, luminosity, appearance of wrinkles and expression lines, after 14, 30 and 60 days of cosmetic treatment. *In vitro* results corroborated the clinical findings demonstrating an increase in the production of total collagen and hyaluronic acid in cultures of fibroblasts treated with the dermocosmetic formulation. According to the results obtained, we can conclude that then dermocosmetic formulation has the ability to stimulate the synthesis of total collagen and hyaluronic acid

when compared to untreated group. This effect is directly related to the improvement in skin support, favoring tissue repair and regeneration. In addition, the stimulation in the production of extracellular matrix components contributes to the reduction in formation of expression lines and wrinkles, one of the most important changes in skin aging, conferring an anti-aging activity to the evaluated product.

G. Boyer, S. Brédif, G. Bellemère, C. De Belilovsky, C. Baudouin, **Investigation of Pediatric Sensitive Skin: Characterization by *in vivo* approach and development of an *in vitro* model**, IFSCC Congress, Munich, September 2018

Skin sensitivity is a self-reported syndrome which affects about 50% of adult population [1]. Recently, a group of expert defined sensitive skin as “A syndrome defined by the occurrence of unpleasant sensations (stinging, burning, pain, pruritus, and tingling sensations) in response to stimuli that normally should not provoke such sensations. These unpleasant sensations cannot be explained by lesions attributable to any skin disease. The skin can appear normal or be accompanied by erythema. Sensitive skin can affect all body locations, especially the face” [2]. There are therefore two kinds of signs that defined sensitive skin, objective signs characterized by erythema and subjective signs characterized by sensations like stinging, burning or tingling. Concerning children, previous work indicates a prevalence of sensitive skin over 30% under 6 years old [3]. The differences between a“normal” immature skin of infant and a “specific” sensitive skin remain unclear. A clinical study was performed to investigate the sensitive skin syndrome in a pediatric population. Based on clinical findings, an *in vitro* skin model mimicking the features of pediatric sensitive skin was developed.

J. Blaak, D. Dähnhardt, S. Bielfeldt, I. Simon, M. Schleißinger, K.-P. Wilhelm3, C. Wagner, S. Dähnhardt-Pfeiffer, P. Staib, **Aged epidermal barrier reveals decreased lipid lamellae density and shows alterations in lipid profile and ratio**, IFSCC Congress, Munich, September 2018

In aged skin, alterations of epidermal barrier function such as reduced stratum corneum (SC) integrity and recovery are described. More precisely, enhanced skin surface pH (ss-pH), impaired epidermal SC lipid synthesis as well as altered composition of the intercellular SC lipids are displayed amongthe elderly. These facts are dermatological challenges as functional and structural changes in SC are accompanied by age-specific clinical signs, such as dryness, roughness and irritation. Although aged skin has previously been examined by biophysical parameters and SC lipid analysis, no investigation has yet been performed regarding the SC lipid lamellae length accompanied by lipid ratio analysis in aged skin. To verify well-known changes in elderly and further to evaluate SC lipids and lamellae, the present work combines baseline data of two consecutive studies on aged epidermal barrier. Additionally, the SC lipid bilayer was evaluated by analyzing the normalized intercellular lipid lamellae length (nICLL) as well as SC lipid profile and ratio. The present study confirms age-related changes in SC and reveals modifications in SC lipid ratio and structure. The calculated nICLL of aged skin was for the first time shown to be decreased compared to published data of adult skin.

F.A Galván-Gil, G Vidal-Romero, M.L. Del Prado-Audelo, G. Leyva-Gómez, **Anatomical Study to Provide a Detailed Profile of Skin Hydration by Corneometer,** IFSCC Congress, Munich, September 2018

Background. The skin is the most extensive organ of our body. It provides security against the environment, against certain pathogens, and controls the loss of water loss, among others. Aim. We focused on determining the degree of hydration of the stratum corneum in five volunteers to detail reference parameters that could be implemented in persons who experienced burns in order to improve their treatment and recovery. Method. Since there is, to our knowledge, no established data that can be applied to the diagnosis of improvements in anatomical regions damaged by burns, 23 anatomical regions, (the T zone of the face, chest, back, arms, legs, palms of the hands, and soles of the feet), were evaluated with Corneometer® CM 825 equipment, determining the degree of hydration on the stratum corneum. Corneometer measurements are based on the capacitance of a dielectric medium, and the analysis was performed every 2 centimeters in supine, prone, and laterals orientations. Males were selected as volunteers, with an age range between 20 and 35 years, with skin phototypes III and IV to avoid variations in the study, with a weight of 60-95 kg and a height of 1.50-1.90 meters, after at least 8 hours of personal hygiene and avoiding the application of cosmetics on the measuring and nearby areas, tending toward the skin being free of agents that could interfere with the study. Results. A total of 7,863 points were statistically represented with higher values of hydration in the T zone of the face, back, and chest, compared with the lower values in the palms of the hands and the soles of the feet. The behavior of the skin was observed based on hydration patterns obtained depending on the anatomical region, taking into account the flexibility of the region, the presence of water, and the continuous movement that individuals perform in their daily living activities. It was observed that the face is the anatomical region that presents the greatest amount of hydration, in comparison with the arms,

palms, and soles of the feet, since these regions markedly decreased in degree of humectation. In the case of the arms, the supine position, which is that most exposed to the sun radiation, pollution, and natural agents of the environment, decreased significantly compared to the prone and lateral regions- In the flexion of the elbow, the values decreased in that this is a region of continuous flexibility. In terms of the case of the soles of the feet, hydration depends on the care that the person habitually uses. In persons who suffer from athlete's foot, the moisture values are higher, compared to a person without these conditions, in whom the moisture value decreases. For or the palms of the hands, the distal part decreases in hydration: because this is a region widely used to perform any activity, wear is greater and hydration decreases. In the same way, the production of sebum on the stratum corneum influences in the degree of hydration values. Thus, it is essential to keep our skin well moistened at all times to avoid certain pathologies generated by water loss on the stratum corneum. Conclusion. Since the amount of water varied depending on the anatomical region analyzed, taking these together, we achieved standardizing hydration values in a population represented by five volunteers, which will be applied to persons with burns to complement their recovery based on the treatments applied.

M. Mourelle-Mancini, **Upregulation of CXCL14 by Activys RedOut improves clinical signs of atopic skin,** IFSCC Congress, Munich, September 2018

Skin redness is a true concern: Visible signs in sensitive and sensitized skin Redness is an indication that there's inflammation in the skin and blood is rushing in to try to heal it. It is skin's default reaction to any number of conditions but the three most common are rosacea, allergies and skin sensitivity. Sensitized skin reacts in an instant. It's a hostile, toxic world where UV light, chemicals, allergens and pollution pose a daily threat to healthy skin.

M. Hisama, A. Kishita, N. Yamaguchi, C. Takeuchi, S. Matsuda, K. Yoshio, H. Kanayama, K. Masui, T. Miyazawa, R. Takimi, **Age Related Changes of Human Skin Investigated on Biophysical, Physiological and Histological Characteristics**, IFSCC Congress, Munich, September 2018

Japan's life expectancy has increased steadily over the past century, and currently stands as the highest in the world at almost eighty-four years. As life expectancy increases and with it the proportion of the aged in the population appropriate care of elderly skin becomes a medical concern of increasing importance. The skin is the largest multifunctional organ in the body. It functions as a protective physical barrier by absorbing UV radiation, preventing microorganism invasion and chemical penetration, and controlling the passage of water and electrolytes. The skin has a major role in thermoregulation of body, in addition to immunological, sensory, and autonomic functions. As skin ages, the intrinsic structural changes that are a natural consequence of passing time are inevitably followed by subsequent physiological changes that affect the skin's ability to function as the interface between internal and external environments. As numbers of the elderly increase, cosmetic dermatological interventions will be necessary to optimize the quality of life for this segment of the population. It is important to examine the associations between elderly skin condition and aging for development of anti-aging care products for elderly skin. Understanding the physiological, chemical, and biophysical characteristics of the skin helps us to arrange a proper approach to the management of skin diseases. However, it is critical to consider the influence of genetic and environmental factors on most of the skin characteristics. In this study, we investigated the comparison between the elderly skins in five different age groups on biophysical, physiological and histological characteristics by in *vivo* measurements in order to quantify aging processes on human skin.

N. Braun, S Binder, H Grosch, C Theek, J Ülker, H Tronnier, U. Heinrich, **Effect of microgravity on skin physiology: new findings,** IFSCC Congress, Munich, September 2018

The skin is the largest organ of the human body and has several functions, such as protection, thermal regulation, sensation and endocrine functions. Despite recorded skin problems in space and the fact that the skin is easily accessible and can be continuously examined by means of a large number of non-invasive test methods, investigations of the effects of space flight on skin are underrepresented so far. A first pilot study (SkinCare) was performed by Tronnier et al. on a single astronaut during a 6 month mission. Different skin compartments, namely the surface, epidermis and dermis were analyzed before, during and after the mission. Here, main skin physiological changes observed were a coarsening of the epidermis and a loss of skin elasticity confirmed by changes in the ultrasound picture on the skin. These changes appear to be reversible because after a year, the skin's condition returns to normal [1]. The aim of the present Skin B project was to validate these results on an increased number of astronauts with advanced devices and additional measurements. Therefore, measurements were carried out on 6 astronauts with respect to skin hydration, transepidermal water loss / barrier function and surface evaluation of the living skin in-orbit. Additional measured parameters on ground were skin elasticity, skin density and thickness as well as microcirculation. Thus, the Skin B experiment will complement the

SkinCare experiment and aims to confirm the changes observed in the original experiment. However, the skin is not the only or primary focus of the project, but rather serves as a model for all organs covered with epithelial and connective tissue. This study will help the astronauts to prepare for a long stay in space and to set up space travels, e.g. planned exploration of the moon and deeper space.

Q. Peijin, C. Jianjie, J. Lili, D. Gan, W. Yue, **Composition and diversity of microbial community of Chinese female facial skin from different age and its association with skin characteristics,** IFSCC Congress, Munich, September 2018

Skin is the largest organ of the human body. As the interface between the body and the external environment, skin is the first line to protect the human body against the pathogen invasion. Meanwhile human skin harbors a variety of commensals, including bacteria, fungi and viruses. Each area of human body hosts its unique microbial community. Many factors contribute to the structure and function of skin microbiome, for example the host, their age, genetic variation, hygiene, life style and it shifts according to the characteristics of the micro-environments. The adverse shifts might cause a dysbiosis state and it has been reported to be associated with skin disease, such as atopic dermatitis, acne and dandruff. Therefore, exploration of skin microbiome not only helps us understand the correlation between microorganisms and the skin physiological status, but also provide a new perspective to pathogenic factors and new therapeutic targets. In previous study, skin microbiota was demonstrated that varies from different body sites and individuals. However, the reports mainly focused on the Western people and limited study on Chinese skin microbiome. In preliminary work, researchers paid more attention on skin microbiome associated with skin disorders, especially in AD patients, while the relationship between descriptive skin-related characteristics of individual (like wrinkles, hydration, *etc.*) and skin microbiota is ambiguous. In this work, 34 Chinese female volunteers living in Shanghai were recruited for facial skin microbial community study. Skin samples were collected and Miseq gene sequencing platform was operated. To achieve overall and details of skin appearances, the skin types and characteristics were clinically graded by dermatologist and measured by instruments. The goal of this study is to characterize the composition and variability of the skin microbiota in health people divided into age groups. Moreover, the aim of study is to evaluate the association of the skin microbial distribution with skin physical and physiological properties and the interaction of microorganisms themselves. In our study, it is suggested that *Proteobacterium* is prevalent in elder group together with wrinkles. Additionally, higher trans-epidermal water loss is correlated with *S. aureus* and this may in turn to design a product to recover the skin microbiome balance. In addition, gain more knowledge about microbes interaction with each other is critical to design the skin care products with probiotics and prebiotics. These findings expand our insights in health skin microbiome and will be useful in clinical treatment near the further.

J. Namkoong, D. Kern, M. Riggs, K.C. Holley, H.E. Knaggs, **Progressive Improvement of the Skin Following Use of a Novel Treatment Cleansing Technology,** IFSCC Congress, Munich, September 2018

With busy daily lives, people want to reduce their routines to save time. Cleansing is not a step people could remove from their daily routines. Thorough cleansing of the skin is an important step to remove accumulated impurities. We developed a novel treatment cleansing technology that cleanses the skin thoroughly while gently exfoliating to improve the skin surface texture. Improper cleansing and exfoliating could lead to irritation and barrier impairment, while proper cleansing and exfoliating leaves the skin invigorated and potentially helps with absorption of additional treatment products applied. In order to evaluate the progressive improvement of the skin after using this novel treatment cleansing technology, we ran IRB-approved clinical studies in two different sites for 12 weeks. Both studies enrolled female subjects with normal healthy skin where they used a skin treatment/cleansing regimen consisting of a novel treatment/cleansing device and an associated treatment/cleansing topical, designed for normal to combination skin. In total, there were 40 subjects in the studies. High resolution photographs of the whole face, corneometer evaluation, dermatologist-investigator assessments and subject self-assessments were performed throughout the 12-week study period to evaluate skin improvements. Photographs of the whole face using automated subject positioning were taken with fixed camera background, distances, angles, settings, color bars, white balance and were standardized and digitally certified unretouched. The key attributes of this treatment cleansing technology are improvements in skin smoothness and softness. For example, statistically significant improvement immediately after one-time usage of the regimen for skin softness was demonstrated by clinical assessment, subject self-assessment as well as texture image analysis of a subject photography. This improvement had incremental further improvement over the 12-week period, without any tolerability issues. This novel technology demonstrated that skin features improved immediately and progressively saving time by treating the skin while thoroughly cleansing.

V. Cenizo, G. Lemaire, A. Dutilleul, M. Devincenzi, S. Grasset, S. Rivoire, V. Rouquet, C. Decombe, P. Portes, **Instant and Long-Term Skin Barrier Strengthening Help Reduce Skin Discomfort and Increase Skin Hydration**, IFSCC Congress, Munich, September 2018

Skin barrier is ensured at multiple levels including lipids, cornified envelope (CE) and tight junctions (TJ). It prevents water loss and protects skin against physical and chemical stress. The calcium gradient, required for skin barrier establishment, is disturbed during skin aging or barrier dysfunction diseases (atopic dermatitis, psoriasis). We sourced a mineral-rich natural water from the French Alps, Réotier water (RW), which has been used since ancient times to cure and soothe skin conditions. The analysis of its mineral composition revealed a particularly high calcium concentration (15 mM). Therefore, we investigated its potential benefits to barrier function and skin hydration. We first cultured human epidermal keratinocytes in a low-calcium medium and treated them with RW from 1% to 20% or calcium at equal concentrations (0.15 to 3 mM). After 7 days of differentiation, RW significantly and dose-dependently induced keratinocytes proliferation (MKI67) and differentiation genes expression (cytokeratin 10 (KRT10), involucrin (IVL) and filaggrin (FLG)). Surprisingly, while RW/calcium activities were similar from up to 10%/1.5 mM, RW at 20% induced higher genes expression than 3 mM calcium suggesting the benefit of other ions. In order to confirm this observation at the tissue level, RW was sprayed on a reconstructed human epidermis (RHE) during the second week of differentiation. RW improved barrier function, reflected by 19% less Lucifer Yellow penetration in treated RHE. Moreover, it increased the expression of transglutaminase 1 (TGM1), several CE proteins (IVL, FLG, LOR) and TJ protein claudin 1. Notably, IVL was 2.7-fold ($p<0.001$) more associated with cell membrane in treated RHE. As a TGM1 cofactor, calcium in RW could favour the crosslinking of IVL to the CE. Then, integrity of the permeability barrier constituted by TJ was evaluated with Trans-Epidermal Electrical Resistance (TEER). We sprayed RW every day on skin explants in culture (3 donors) and measured TEER at different time points for 7 days. After 5 hours, TEER already increased by 30% ($p<0.0001$) in treated vs control-RHE and stayed stable until day 7. The calcium-sensing receptor pathway has been shown to trigger TJ proteins relocation at the cell membrane 30 min after calcium addition. Our results suggest that RW could also have an instant action on TJ functionality. Two clinical tests were then conducted during winter when skin barrier is most affected. First, 33 women with dry skin sprayed RW twice a day on one of their forearms. After 28 days, hydration level (corneometry) of the control forearm decreased while it increased in the treated forearm resulting in a 17% hydration improvement ($P < 0.0001$). In a second study, 22 volunteers with sensitive skin (stinger positive) sprayed RW twice a day on their face. After 28 days, 68% of the volunteers had a decreased stinging sensation and 41% were stinger negative (score < 3). The stinging sensation decreased by 26% ($P = 0.0056$) among the panel. Taken together, these results suggest that Réotier water can decrease discomfort and increase skin hydration by both immediate and long-term barrier function improvement.

M. Kim, J. Ryu, Y. Chang, K.-E. Lee, K.-Y. Shim, S. Kang, M.S. Park, **Multi-moisturizer complex for satisfying all skin effects and solving problems of dry skin,** IFSCC Congress, Munich, September 2018

There are many kinds of moisturizers for satisfying dry skin problems. However, there are few materials that fulfill all skin effects *in vitro* and *in vivo* and most of them are chemicals. These days, many people want ecofriendly and safe cosmetics that have multi effects. Thus, the aim of this study was to investigate moisturizing materials for covering all skin problems by dryness. In this study, new materials for the prevention and treatment of skin dryness were producted by mixing two types of fermented beans and glyceryl glucoside. Also, this multimoisturizer complex (MMC) was compared with common moisturizing materials *in vivo* and *in vitro*. Skin function deteriorates with aging, and the skin water content decreases. In prior study, we have analyzed the mechanism of aging-related skin dryness focusing on aquaporin3 (AQP3) and hyaluronan synthase 3 (HAS3) by using young and aged cells, respectively. In aged cells, AQP3 and HAS3 were significantly lower than that in young cells, showing skin dryness. The results showed that the expression level of AQP and HA in the skin decreased with aging, suggesting the possibility that this was one of the causes of skin dryness. In the present study, we evaluated skin enhancing effects of MMC *in vitro* and *in vivo*. First, we verified that old keratinocytes (50's) showed lower HAS3 and AQP3 gene expressions than young keratinocytes (20's), but dryness of old keratinocytes recovered in MMC treatment. In addition, using H&E staining and immunohistochemistry, we confirmed that skin structure and AQP3 expression were recovered by MMC treatment in 3D skin. In human dermal fibroblast, we verified regeneration effect of MMC by cell migration assay. In clinical results, changes of visual assessment showed differences between the test group and the control group at 4 weeks. Also, water content, skin texture, and degree of transparency were improved after MMC treatment. Especially, MMC was greater than common moisturizing materials such as glycerine and HA. In conclusion, MMC effectively satisfies skin needs by dryness, as showing skin effects in every aspect.

Y. Seo, H. Jeong, J. Koh, **Comparison of biophysical parameters of the skin aging in face and hand**, IFSCC Congress, Munich, September 2018

Background: In today's society, improving the quality of life makes people look younger than their chronological age, and therefore increases their interest in anti-aging. Most of the aging studies have been done on facial skin and only little known about the body aging. Among body parts, the hands are exposed like a face, making them a good part to assess aging externally. So far, the studies have led to hand wrinkles, volume of cavity assessment due to loss of fat and change in elasticity and skin texture. In this study, we aimed to aging patterns by comparing facial and hand skin aging parameters. Method: A preliminary test was carried out on 9 subjects (3 each in their 20s, 40s and 60s) and the main test is planned to be carried out after confirming the possibility. Those in their 20s, 40s and 60s were divided into three groups. Skin moisture, elasticity, roughness, wrinkle grading, skin tone evenness and skin volume of cavity were evaluated. Also, the level of the advancd glycation end products (AGEs) was measured as an aging protein. Result: As a result, skin hydration was no difference between age in face and hand, and skin elasticity, wrinkle grading, and AGEs level were difference with age in both face and hand. Skin roughness showed a tendency to increases with age in the face and hands for the 60s only, and the skin volume of cavity showed increases with age in the 60s in the case of the hands. Skin tone evenness tends to increase with age of the hands. Conclusion: This study has shown that the skin elasticity, wrinkle grading and AGEs levels are possible indicators of aging parameters in the face and hands. For further continuations of this study need a greater number of subjects to confirm correlation between aging parameters on the face and hands.

N. Zacaula Juárez, A. Galvan, Gerardo, L. Gómez, **Evaluation of the recovery of the biomechanical properties in hypertrophic burn scar: Looking for a suitable treatment and Care**, IFSCC Congress, Munich, September 2018

Background: The skin is the largest organ of the human body and serves as physical and chemical barrier to the environment. Burn injuries are one of the most common traumatic wounds, this represents a costly public health problem. Many of burned patients develops a hypertrophic scar that can cause an aesthetic and functional problems. The aim of this research was had a better understanding of the recovery of biomechanical properties in hypertrophic burn scar to find new therapeutic strategies to control adverse scarring. Method: Cutometer MPA 580 is a non-invasive an objective suction device to make measurements of scar components as melanin, erythema, hydration, sebum, elasticity and viscoelasticity. Nine patients on the upper extremities with hypertrophic burn scars were evaluated with Cutometer MPA 580 to determine the recovery of the biomechanical properties respect a counterpart without burn injury. The analysis of the different biomechanical parameter was performed with a 2 mm aperture probe and a negative pressure of 450 mbar with 2 seconds of suction and 2 seconds to relaxation in a series 10 suction/relaxation, by triplicate. Also were evaluated *stratum corneum* hydration values by Corneometer, the presence of melanin and erythema by Mexameter and sebum production by Sebumeter probe. Nine patients with an age range between 26-37 years, a skin phototype III, IV and V, a mean value 30.6% of the Total Body Surface Area (TBSA), second and third degree burns were treated with autograft. For this study, approval from the Ethics Committee of the Instituto Nacional de Rehabilitación in Mexico City was obtained (26/15) and Informed consent was obtained from all patients. Results: The results are presented as a percentage (%). In the melanin Index of hypertrophic scars, there is an increase of 13.8 % respect a counterpart without injury or hyperpigmentation in autograft. The results of the erythema index rise with 29.5% of scars, the hydration value of *stratum corneum* decreased a 19 % and the sebum production decreased a 68 % on hypertrophic scar. The relative biomechanical parameters R0 (Maximal deformation), R5 (Net elasticity) and R6 (indicates a relative contribution of viscoelastic, viscous and elastic deformation ”viscoelasticity”). The maximal deformation (R0) in hypertrophic scar decreased by 49%, there is a reduction of 33% in net elasticity (R5) and was observed a increase of 5.6% in R6 “viscoelasticity”. The biomechanical properties (R0, R5 and R6) and hydration, sebum, melanin and erythema in hypertrophic burn scar was altered. Conclusion: This data can be useful for a better diagnosis and find new strategies suitable for the treatment of hypertrophic burn scars and contribute to outpatient burn care.

C. Kern, E. Hernandez, C. Gomber, S. Dumont, C. Garcia, **Effect of a newly developed skin protecting ingredient, acting on skin barrier function and microbiota equilibrium, thus favoring the balance and comfort of reactive skins,** IFSCC Congress, Munich, September 2018

Human skin is naturally covered with a population of microorganisms, specialized or opportunist, so called skin microbiota. Commensal microbiota contributes to skin defenses and is essential to maintain healthy skin. For example, *Staphylococcus epidermidis* is the most common bacteria of the cutaneous microbiota. Skin epidermis permits growth of *S. epidermidis,* which itself contributes to

protection against pathogens. But this symbiosis is continuously threatened by physical/chemical aggressions, and this imbalance could be beneficial to opportunistic bacteria. *Staphylococcus aureus* is a leading human pathogen which can cause diseases ranging from minor skin infections to invasive and life-threatening diseases. Generally, dysbiosis between microbiota and skin leads to activation of immune defenses, inflammation and dysfunction of the skin barrier function, and thus to the development of skin disorders, such as dryness, inflammation or reactivity to external stress. *ArL* is a skin protecting ingredient developed from culture and extraction of *Great Burdock* (*Arctium lappa*) young roots using PAT Plant Advanced Technologies. Our aim was to investigate the effect of *ArL* on microbiota balance and skin barrierdefense, and thus its effect on skin protection and comfort of reactive skins.

T. Alkazaz, M. Danaher, J. Goodman, E. Segura, D. Scholz, **Natural Antimicrobials and the Microbial Population of the Skin Microbiome,** IFSCC Congress, Munich, September 2018

Just as every individual has a distinct fingerprint, each and every person has their own unique microbiome. The skin microbiome is an accumulation of the microbial communities that inhabit the skin and are key players in host defense. Commensal microflora on our skin is responsible for maintaining skin health through restoring immunity and communication with the lymphatic system. The action of indiscriminate microbial destruction, employed by preservatives, often unintentionally alters the thriving ecosystem of the skin microbiome. The current innovative study investigates variations in the population of microbial species after the application of antimicrobial peptides. Novel research analyzing activity of the histone deacetylase (HDAC) enzyme has concluded that some naturally derived antimicrobials are able to destroy pathogenic bacteria while maintaining commensal microflora on the skin – supporting the balance of the microbiome and promoting overall skin health.HDAC expression was used as an indicator to compare the effects of the skin's microbiome with traditional biocides versus natural antimicrobials. The application of topical antimicrobials altered levels of HDAC expression and decreased the population of the microbiome. While this research suggested HDAC is channel of communication between microflora and the skin, the messenger of the microbial crosstalk has yet to be determined. In this study, a more conventional approach was taken to analyze the effects of the population of species in the skin microbiome. The effect of the microbial population present on the skin with the application of three antimicrobial peptides (Leuconostoc Radish Root Ferment Filtrate, Lactobacillus Ferment, and Lactobacillus & Cocos Nucifera (Coconut) Fruit Extract) was compared to a negative control (water) and a positive control (Triclosan). Microbiome population was determined by DANN extraction, 16S ribosomal RNA (rRNA) polymerase chain reaction (PCR) amplification and sequencing. A less conventional approach was taken in regards to panel size and evaluation during this study. Large subject panels allow for trend recognition between subjects. However, with the individuality of each person's microbiome in mind, it would be difficult to establish trends within a group of subjects. Examining the nasolabial folds of each subject isolates of the geographic location of the microbiome, however the person-to-person variation of microflora is uncontrollable. Patterns in microbial change on each test subject were evaluated individually.

V.H. Pacagnelli Infante, J. Migliati, P.M.B.G. Maia Campos, **Why should I use sunscreen? The impact of lifestyleon the hydrolipidic, structural and morphological charecteristics of young men skin**, IFSCC Congress, Munich, September 2018

The consumption of cosmetics among men has grown in the last years. However there is some resistance to the use of these products due to the culture, sensory, perception and access for this audience to consume cosmetic products. Considering that the use of sunscreens is a public health issue and directly affects the quality of life, the objective of this study is to show the skin differences between two groups, one that uses sunscreen regularly and one that does not use, using biophysics and skin imaging techniques. Sixty men between 18 and 28 years old, phototypes II, III and IV were randomly selected and questioned about their photoprotection habits. Hydration, integrity of the stratum corneum (TEWL, Corneometer and VisioScan), amount of sebum (Sebumeter) and activity of the sebaceous glands (Sebufix) were made. We analyzed the amount of pores (Visioface), formation of erythema (Mexameter), ultrasound of the dermis (DermaScan C) in the frontal and malar regions and we obtained reflectance confocal microscopy images (RCM) for analysis of the quality of the epidermis and papillary dermis at the cellular level in the frontal region. Of the 60 participants, 24 regularly uses sunscreens (group A) and 36 were not (group B). When questioned about the reasons for not using sunscreen, group B mentioned that did not obtain family incentive and /or sunscreens was sticky or oily. Changes in the integrity of the stratum corneum were observed, with thickening of this layer of the epidermis and impairment of the barrier function with increase of TEWL and decrease of the hydration for group B. The granular layer of the epidermis is also thicker for this group. There was an increase in microrelief roughness for the same group. Moreover, there is also a higher activity of the sebaceous glands, with

consequent greater number of pores for group B. Also, a decrease in the echogenicity ratio of the group B were observed, evidenced by the decrease of the dermoepidermal junction layer (related to the depth of the papillae), increase in pore diameter and worst collagen quality. We observed a disruption of the honeycomb pattern of the epidermis and the presence of polycyclic papillae for group B. This same group showed dilatation in the veins in the basal layer of the epidermis and a significant increase in erythema, evidencing signs of possible inflammation. The presented damages evidences the necessity of UVB photoprotection (more related to the damages in the integrity of the barrier) and UVA, too (damages in the region of the papillary dermis). The lifestyle influences the choices and their consequences, showing that sun exposure can cause damage even early, especially in groups that present a certain cultural resistance to the use of cosmetics such as the male. Furthermore, we have shown that the damages of unprotected sun exposure happen in different layers of the skin, which increases the need to develop suitable sunscreens with UVA and UVB protection and with a good sensorial improving the adhesion of photoprotection among men.

I.I. Shuvo, K. Chakma, D. Toutant, **Prospect of 3D Warp Knitted Spacer Fabric and its Effect on Pressure Relieve for Reducing the Prevalence of Pressure Ulcers for Immobile Patients**, Journal of Textile Science & Engineering, Volume 8, Issue 1, 2018

Many hospitals use paper thin bed sheets with high friction coeffcients which are not ideal for patients with pressure ulcers and who are at risk of developing. These patients suffer a great deal of pain, which could have been prevented. Lying on a weak bed sheet with no regards to regulating micro-climate is a clear promoter of pressure ulcers. Another key factor of a hospital bed sheet is they are to be easily washed or disposed of because of all the unknown fluids that could seep onto the sheet. Therefore, the sheet must not only be to comfort those with pressure ulcers but to be easily washable and reusable. Again, in a hospital setting being able to easily wash the sheet and for it to hold its form is signifcant for reducing the cost of throwing away sheets less often. Therefore a theory has been proposed to design a 3D knit spacer bed sheet that will allow patients with pressure ulcers to be comfortable by ensuring a low friction coeffcient between their skin and the material. The friction coeffcient will be reduced by not only the structure but by the 70 percent polyester, 22 percent polypropylene and eight percent spandex blend. The friction coeffcient will stay low due to a high wicking and evaporation capability to ensure the skin stays dry as well as the material. The 3D knit spacer bed sheet also has a higher compressibility which distributes pressure more evenly as well as enabling a care giver to easily rotate an immobile person into a new position. The proposed bed sheet will be easily washable to ensure all bodily fluids such as vomit, blood, and others have been removed. This blanket will be slightly more expensive but is expected to last longer than a typical hospital bed sheet.

L. Skedung, C. El Rawadi, M. Arvidsson, C. Farcet, G.S. Luengo, L. Breton, .M.W. Rutland, **Mechanisms of tactile sensory deterioration amongst the elderly**, Scientific Reports 8, Article number: 5303 (2018)

It is known that roughness-smoothness, hardness-softness, stickiness-slipperiness and warm-cold are predominant perceptual dimensions in macro-, micro- and nano- texture perception. However, it is not clear to what extent active tactile texture discrimination remains intact with age. The general decrease in tactile ability induces physical and emotional dysfunction in elderly, and has increasing significance for an aging population. We report a method to quantify tactile acuity based on blinded active exploration of systematically varying micro-textured surfaces and a same-different paradigm. It reveals that elderly participants show significantly reduced fine texture discrimination ability. The elderly group also displays statistically lower finger friction coefficient, moisture and elasticity, suggesting a link. However, a subpopulation of the elderly retains discrimination ability irrespective of cutaneous condition and this can be related to a higher density of somatosensory receptors on the finger pads. Skin tribology is thus not the primary reason for decline of tactile discrimination with age. The remediation of cutaneous properties through rehydration, however leads to a significantly improved tactile acuity. This indicates unambiguously that neurological tactile loss can be temporarily compensated by restoring the cutaneous contact mechanics. Such mechanical restoration of tactile ability has the potential to increase the quality of life in elderly.

P. Rouaud-Tinguely, R. Vyumvuhore, J. Corvo, D. Boudier, M. Le Guillou, B. Clos, **Quantifying Well Aging,** Cosmetics & Toiletries**,** Vol. 133, No. 8, September 2018

The age distribution of the world's population is dramatically shifting; longevity rises while fertility rates remain flat. According to demographic studies, 2020 will be a turning point, wherein individuals 60 years and older will outnumber children younger than five. Today, it is no longer a rarity to live 80 years or more in many parts of the world. This increasing longevity has led to new challenges in the medical field. Today's population expects to live longer and in good health — i.e., without facing the declines

previously associated with aging. This status is referred to as healthy aging, aging gracefully or aging well; it was defined by Rowe and Kahn as freedom from disease, high cognitive and physical functioning, and a rich social life. An added element of aging well is one's perceived age. In elderly individuals, a perceived age lower than their chronological age is associated with high survival.4 Among consumers 50 years and older, there are two main outlooks on the signs of aging. The first is negative, where individuals do not accept their age and seek to erase the signs of time; e.g., the use of anti-aging products, in attempt to look younger. The second is positive, where individuals assume aging as part of their personal identity.

H.J. Lee, S.E. Jeong, S. Lee, S. Kim, H. Han, C.O. Jeon, **Effects of cosmetics on the skin microbiome of facial cheeks with different hydration levels,** Microbiology Open. 2018; 7

Basic cosmetics was used by volunteers belonging to high (HHG) and low (LHG) hydration groups for 4 weeks, and bacterial communities and biophysical parameters in facial skin were analyzed. Hydration level increases and transepidermal water loss and roughness decreases were observed in both groups after cosmetic use. Bacterial diversity was greater in LHG than HHG, and increased after cosmetic use in both groups. Bray–Curtis dissimilarities that were higher in LHG than HHG increased in HHG after cosmetic use, whereas they decreased in LHG. The phyla *Actinobacteria*, *Proteobacteria*, *Firmicutes*, and *Bacteroidetes* and the genera *Propionibacterium*, *Ralstonia*, *Burkholderia*, *Staphylococcus*, *Corynebacterium*, *Cupriavidus*, and *Pelomonas* were identified as common groups and they were not significantly different between LHG and HHG except for *Propionibacterium* that was more abundant in HHG. After cosmetic use, *Propionibacterium*, *Staphylococcus*, and *Corynebacterium* decreased, whereas *Ralstonia*, not a core genus, increased, as did KEGG categories of lipid metabolism and xenobiotics biodegradation and metabolism, suggesting that *Ralstonia* in skin may have the ability to metabolize cosmetics components. Bacterial communities after cosmetic use were different from those in both LHG and HHG before the cosmetic use, indicating that bacterial communities in LHG were not shifted to resemble those in HHG by cosmetics use.

M. Yamamoto, Y. Hayashi, Y. Otsuyama, **Comparison of stratum corneum hydration with temperature and air humidity**, J Nurs Care 2018, Volume 7

The purpose of this study was to clarify the changes in the stratum corneum hydration compared to temperature and air humidity.Te subjects of this research were 58 older adults. Te research was conducted in March and May of 2017. A self-administered questionnaire consisted of demographic data, frequency of taking bath, nutritional status (MNA®-SF) and condition of xerosis cutis. Te stratum corneum hydration was measured on the center forearm by Mobile Moisture HP10-N®. Data was analyzed for gender, age, frequency of taking bath and nutritional status to examine di□erences in stratum corneum hydration. Later, di□erences of the stratum corneum hydration data obtained in March and May were examined. Te results of this research displayed 32 female subjects (55.2%), 35 subjects under 75 years old (60.3%), 28 subjects who took a bath every day or almost every day (48.3%), 12 subjects at risk of malnutrition (20.7%) and eight subjects with rough skin (13.8%). Tere was no signifcant di□erence recognized in the stratum corneum hydration with respect to gender, age, frequency of taking a bath or nutritional status. At the time of the study in March and May, the temperature was 24.9±0.4℃ and 24.4±0.4℃ ($p>0.001$), respectively, and the air humidity was 29.8±1.3% and 47.3±3.6% ($p>0.001$), respectively. Te stratum corneum hydration in March and May was 41.6±8.5 (minimum value, 22.0; maximum value, 59.7) and 50.3±9.0 (minimum value, 34.0; maximum value, 72.0) ($p>0.001$) respectively. Te stratum corneum hydration was found to be signifcantly low in low humid environments.

R. Darlenski, E. Hristakieva, U. Aydin, D. Gancheva, T. Gancheva, A. Zheleva, V. Gadjeva, J.W. Fluhr, **Epidermal barrier and oxidative stress parameters improve during in 311□nm narrow band UVB phototherapy of plaque type psoriasis,** J Dermatol Sci, 2018 Jul;91(1): p. 28-34

Background: Psoriasis is a multi-systemic inflammatory disease that results from dysregulation between epidermal keratinocyte homeostasis and both innate and acquired immunity. Epidermal barrier defect has been described in psoriatic lesions. Furthermore an imbalance between pro-oxidative stress and antioxidant defense mechanisms are known in psoriasis patients. Aim: The aim of this study was to address the link between disease activity, epidermal barrier and systemic oxidative stress in the course of 311 nm narrow band ultraviolet B (NB-UVB) therapy of psoriasis. The dynamic of systemic oxidative stress parameters as well as local transepidermal water loss (TEWL) and stratum corneum hydration (SCH) was characterized before and after 311 nm NB-UVB therapy on the plaques of psoriasis vulgaris in comparison to untreated non-affected volar forearm sites of the same patients. Material and Methods: 22 patients with plaque type psoriasis vulgaris and 25 gender- and age-matched healthy controls were enrolled. We assessed the psoriasis area and severity index (PASI) and the dermatology life quality index (DLQI) for monitoring disease activity, severity and self-perceived DLQI impact as patient related

outcome parameter. We measured non-invasively TEWL (Tewameter TM 300) and SCH (Corneometer CM 825) and the end product of lipid peroxidation - malondialdehyde (MDA), Reactive oxygen species (ROS), ascorbyl radicals (Asc) and detoxifying activity of catalase (CAT) were measured in the peripheral blood with spectrophotometric and EPR spectroscopy methods. Results: Disease activity improved in all patients compared to baseline witnessed by significant decrease in PASI; (from 14.1 to 10.4; $p < 0.0001$) and DLQI (from 11.7 to 8.1; $p < 0.0001$). At baseline TEWL-values were significantly ($p < 0.0001$) higher on psoriatic plaques (16.8 g/h/m^2) in comparison to uninvolved skin (5.3 g/h/m^2); with a decrease at both sites after NB-UVB phototherapy. SCH was significantly lower at psoriatic plaque s (4.7AU) compared to uninvolved sskin (42.4AU) and increased after treatment (8.6AU) ($p < 0.0001$). Interestingly, SCH decrease slightly during therapy at uninvolved skin (40.6AU). ROS and Asc declined during therapy in parallel to a decrease in MDA. A mild decrease in the antioxidative enzyme CAT activity which did not reach the significance was observed. Conclusion: The presented data is shows that a clinical improvement of psoriatic plaques under NB-UVB therapy, shown in with a decreased PASI and reflected by an increase in quality of life has beneficial effects on epidermal barrier function, SCH and improvement of systemic oxidative stress parameters (ROS, MDA and Asc). We assume that the general improvement in the oxidative stress parameters along with epidermal barrier parameters reflects mainly the improvement of disease activity which overwrites the possible negative pro-oxidative effects of the UV treatment.

K. Kimori, C. Konya, M. Matsumoto, **Venipuncture-Induced Hematomas Alter Skin Barrier Function in the Elderly Patients**, SAGE Open Nursing, June 2018

We aimed to compare the barrier function of the skin site with the color of hematoma induced by venipuncture and the area surrounding the skin site to help improve skin care for hospitalized elderly patients. There were 50 patients with a median age of 84 years who were included in the analysis. There was no significant difference between the hematoma site-induced venipuncture and the area surrounding the hematoma site in terms of transepidermal water loss and skin sebum level. The status of stratum corneum hydration and skin elasticity on the hematoma sites was significantly lower than that on nonhematoma sites. The median skin pH was significantly higher on hematoma sites than that on nonhematoma sites. The study variables did not reveal any significant correlation with the intensity of skin erythema. These findings showed that hematoma formation in the subcutaneous tissue affected the skin barrier function and that these sites need moisturizing skin care regardless of the intensity of skin erythema.

A. Ezerskaia, N.E. Uzunbajakva, G.J. Puppels, J. de Sterke, P.J. Caspers, H.P. Urbach, B. Varghese, **Potential of short-wave infrared spectroscopy for quantitative depth profiling of stratum corneum lipids and water in dermatology**, Biomedical Optics Express 2436, May 2018, Vol. 9, No. 5

We demonstrate the feasibility of short wave infrared (SWIR) spectroscopy combined with tape stripping for depth profiling of lipids and water in the stratum corneum of human skin. The proposed spectroscopic technique relies on differential detection at three wavelengths of 1720, 1750, and 1770 nm, with varying ratio of the lipid-to-water absorption coefficient and an 'isosbestic point'. Comparison of the data acquired using SWIR spectroscopy with that obtained by a gold standard for non-invasive quantitative molecularspecific skin measurements, namely confocal Raman spectroscopy (CRS), revealed specificity of the proposed modality for water and lipid quantification. At the same time, we provide evidence showing aberrant sensitivity of Corneometer hydration read-outs to the presence of skin surface lipids, and a lack of sensitivity of the Sebumeter when attempting to measure the lipids of the cornified lipid envelope and intracellular lipid layers. We conclude that a spectroscopic SWIR-based spectroscopic method combined with tape stripping has the potential for depth profiling of the stratum corneum water and lipids, due to superior measurement sensitivity and specificity compared to the Corneometer and Sebumeter.

E. Berardesca, S. Mortillo, N. Cameli, M. Ardigo, M. Mariano, **Efficacy of a shower cream and a lotion with skin-identical lipids in healthy subjects with atopic dry skin**, Journal of Cosmetic Dermatology, May 2018

Background: Atopic dermatitis is a chronic, pruritic inflammatory skin disease that adversely affects quality of life. Aims: The current study evaluates the efficacy of a shower cream and a lotion, each with skin-identical lipids and emollients, in the treatment of atopic dry skin of subjects with a history of atopic condition. Methods: In all, 40 healthy females with clinically dry skin on the lower legs were enrolled in the study and underwent 4 weeks of daily use of the shower cream and 2 additional weeks of both the shower cream and the body lotion. Subjects were evaluated at day 0, week 4, and week 6. Skin barrier function was assessed by Tewameter®, skin hydration by Corneometer®, smoothness and desquamation by Visioscan®, and stratum corneum architecture by reflectance confocal microscopy

(RCM). The investigator assessed the degree of dryness, roughness, redness, cracks, tingling and itch, and subjective self-assessment evaluated the perception of skin soothing, smoothness, and softness. Results: Skin barrier function and skin moisture maintenance were significantly improved using the shower cream. The lotion with physiological lipids, together with the shower cream, also improved skin barrier function and moisture. Both the shower cream and the body lotion reduced clinical dryness, roughness, redness, cracks, tingling and itch, according to the dermatologist, and increased soothing, smoothness, and softness, according to the subjects of the study. Conclusion: The combination of a shower cream and a lotion with physiological lipids efficiently restores skin barrier function and increases skin hydration, becoming an effective skin-care option for patients with atopic dry skin.

P. Mokrejš, J. Pavla□ková, D. Janá□ová, M. Hu□□a, **Hydration and Barrier Properties of Emulsions with the Addition of Keratin Hydrolysate**, Cosmetics 2018, 5, 64

Although keratin hydrolysates (KH) are added to skin care agents, detailed studies on the moisturising effects of KH are lacking. The aim of this study is to test whether adding KH into an ointment base (OB) heighten hydration of the skin and diminish transepidermal loss of water (TEWL). Formulations containing 2%, 4%, and 6% of KH (based on OB weight) were prepared. Hydration, TEWL and skin pH were measured; intervals of measurements were as follows: 1, 2, 3, 4, 24 and 48 h. Testing was carried out on 10 men. In terms of hydration, supplementing the OB with 2% KH is optimal, as an 11–19% increase occurs in hydration of stratum corneum (SC). All the formulations with added KH as tested caused TEWL to decline after application. Keratin hydrolysate makes for an excellent occlusive; adding it to OB results in a 30–50% reduction in TEWL after application. KH functions as a humectant as well, as it helps to bind water from the lower layers of the epidermis to the SC. Formulations with additions of 2–6% of KH were stable in structure and did not cause phase separation even after 6 months storage.

J.W. Fluhr, **Atopic Dermatitis and the Barrier**, ISBS Conference San Diego, May 2018

The epidermis is the interface of the human body to the potentially harmful environment with exogenous stressors like chemicals, UV radiation other physical impact. The epidermal barrier is recognized as a central key pathophysiologic element in inflammatory skin diseases such as atopic dermatitis (AD). Some bases of an impaired barrier have been elucidated on the molecular level e.g. mutation in genes encoding for filaggrin and lipid processing defects. Recently, alterations in the microbiome composition and its relation to altered barrier function were reported. Multiple non-invasive biophysical measurement instruments are used to assess skin physiology especially in inflammatory skin diseases associated with an altered epidermal barrier e.g. transepidermal water loss, stratum corneum hydration, surface pH, inflammatory signs and surface parameters. Clinical scores for AD disease activity are widely used but rely entirely on subjective criteria in assessing both the severity of lesions and the extent of involvement. Noninvasive biophysical instruments are available and introduced into clinical evaluation of chronic diseases and treatment effects. In AD objective scores including biophysical measurements have been published. Quantifying barrier function, stratum corneum hydration, erythema, scaling, and sub-epidermal edema as well as estimates of involved body surface areas are implemented in assessing the severity of AD. Sensitivity and reliability of these severity scores have been published involving computer assisted software and measurement devices. New models are now developed to use standardized approaches in AD in clinical studies. Recently, non- or minimalinvasive methods have been used in different AD research areas. These methods include multidimensional imaging, in vivo multiphoton spectroscopy, optical coherence tomography, atomic force microscopy, near-infrared spectroscopy (NIR), in vivo Raman micro-spectroscopy and in vivo reflectance Raman spectroscopy. The state of the art of established non-invasive novel methods and their value/limitations in in AD research will be discussed. The combintion of established approaches with cutting edge methods will allow to gain a deeper understanding of barrier related inflammatory skin diseases. Eventually biomarkers can be derived from these studies for diagnostic and preventive purposes as well as monitoring of disease activity during specific treatment regiments.

A. Rigal, R. Michael-Jubeli, A. Bigouret, A. Nkengne, A. Baillet-Guffroy1, A. Tfayli, **Lipides**: **Systèmes Analytiques et Biologiques**, ISBS Conference San Diego, May 2018

Introduction: Clinical manifestations of skin aging like xerosis, wrinkles and slackness are related to underlying complex molecular phenomena in the different layers of the skin. The combinations of classical biometric measurements with more complex and informative techniques like *in vivo* Raman spectroscopy can provide interesting information on the organization of lipids in the *Stratum Corneum (SC)*, their barrier function and on water content and mobility, in order to better characterize the skin aging. Methodology: Biometric information (TEWL, corneometry, sebumetry, skin pH, mechanical stress) and Raman spectra and in-depth profiles were collected from the forehead of twenty-two young

womens (18- 24 years old) and eighteen elderly womens (70-75 years old). Results and Conclusions: Important modifications on biometric skin parameters, structure of the SC and water mobility can be observed for elderly. Our results show a good association between biometric parameters and *in vivo* Raman descriptors. Interestingly, higher compacity of lipids, higher total water content and lower unbound water content are observed for elderly.

V. Hourblin, S. Nouveau Stéphanie, J. Faugère, C. Gomes, I. Tardy, L. Aguilar, **Characterization and Statistical Modeling of Facial Skin Radiance in Senior Women**, ISBS Conference San Diego, May 2018

Introduction: Dull skin is a major concern for senior women but even though some parameters such as optical parameters seem to be involved in the perception of skin radiance, there is a lack of objective assessments, and it remains difficult to assess. A typological study was conducted in order to characterize the drivers of lack of facial skin radiance in senior women using a holistic and cartographic approach. Knowing this, the change level required for each key driver was determined to improve overall skin radiance then confirmed through a validation study. Methodology: In a first step, a typological study was carried out on 150 French women, phototype II or III, aged over 55 years, and distributed in two groups according to their lack of radiance as scored by a dermatologist (severe versus light to moderate). A large number of parameters including skin type and texture, skin aging signs, wrinkles, pigmentary disorders and dark circles were assessed by a dermatologist and by self-assessments. Instrumental measurements were also performed, skin color using the L*a*b* system (Spectrophotometer® CM-700d), skin shininess (Lightcam®), backscattered light (Translucymeter® TLS850), current level of sebum (Sebumeter® SM815), skin conductance (Corneometer® CM810), and skin density by ultrasounds (DUB®SkinScanner 75). Qualitative andquantitative Bayesian Belief Networks were designed to characterize the lack of radiance and to set a predictive model of radiance improvement for both women and dermatologist. In a second step, a 10 validation study was carried out on 90 women with a similar profile, and presenting a lack of radiance according to the key features. The predictive model was used to define the expected change range of each feature; this prediction was validated with a combined cosmetic routine. Results and Conclusions: Bayesian statistical approach was effective for identifying and ranking the key drivers of facial skin radiance. The first striking result was that lack of radiance as assessed by the expert was driven by dark circles, skin shininess, pigmentary disorders, backscattered light and skin density, but usual aging signs such as wrinkles did not contribute to it. Interestingly, these key drivers were also perceived as such by the women enrolled in the study. According to the statistical model, improvement of facial skin radiance in senior women can be reached by decreasing dark circles and skin tone unevenness and by increasing the skin shininess. For each of the key features, we were able to define target values (clinical scores or instrumental measurements) in order to improve the overall radiance. These targets have been validated through the second study, by clinical and self-assessments of radiance after combined skin care and make up applications. These two clinical studies allow us to have now, a tool based on objective clinical targets, in order to get more radiant skin in senior population.

L. Li, K. Wei, S. Ching, K. Wehmeyer, Je. Christman, A. Altemeier, R. Spruell, G. Fadayel, R. Wickett, **Improving Stratum Corneum Barrier Function through High Lipid Deposition from Rinse-off Cleansers: Skin Biomarker Measures**, ISBS Conference San Diego, May 2018

Introduction: Dry skin is a common skin disorder that is reflected by reduced stratum corneum hydration, increased trans-epidermal water loss, and a loss of skin elasticity. The condition worsens during the dry winter season and upon repeated usage of regular non-emollient containing cleansing products. The purpose of this study is to develop a set of skin biomarkers as surrogate indicators of stratum corneum 15 barrier function and integrity, and to guide personal care formulation development to holistically improve skin conditions beyond conventional moisturization measures. Methodology: Standard Leg Controlled-Application Test (LCAT) methodology was used. Treatment was conducted over a 3-week period during the winter season; women with dry leg skin had their legs washed once daily with the randomly assigned body wash products and water alone treatment as control. Typical moisturization measures were taken, including expert dryness grading, corneometer and TEWL. Ten successive D-squame tapes were taken from virgin areas within each treatment site at baseline and at the end of each treatment week. The strips were then analyzed for biomarkers (IL-1α, IL-1ra, Keratin 1, 10, 11, involucrin, total proteins, and NMFs). Furthermore, the panelists returned during the summer season to determine baseline biomarker trends as skin conditions naturally improve. Results and Conclusions: Results indicate that the emollient-depositing body wash delivers significant improvements in standard moisturization measures (dryness grades, corneometer hydration, and TEWL). For the first time in the rinse-off context, the advanced body wash is shown to significantly improve related skin biomarkers that are good indicators of stratum cornenum barrier function and integrity. Importantly, the

observed biomarker trends are all consistent with the seasonal effect as dry skin naturally improves. Conversely, regular body wash causes significant damages vs. water control as shown in both biomarker and traditional measures. Taken together, a set of skin biomarkers are developed to provide objective, non-invasive, and consistent measures of stratum corneum barrier function and health for guiding the development of superior personal care formulations.

M.O. Melo, L. Kakuda, P.M.B.G Maia Campos, **Clinical Efficacy of a Multifunctional Cosmetic Formulation for Mature Oily Skin**, Poster Presentation at ISBS Conference San Diego, May 2018

Introduction: The skin may change due to factors as high temperatures, increasing sebum excretion and presenting oiliness and acne. These alterations can persist during the aging and provoke more changes that influence the use of cosmetics. The objective of this study was to evaluate the clinical efficacy of a cosmetic product developed for the mature oily skin. Methodology: The clinical efficacy was evaluated on 30 participants aged between 39 to 55 years old with oily skin. The analyzed parameters were: stratum corneum water content, TEWL, sebum content and percentage, microrelief and dermis echogenicity. The analyses were performed on different regions of the face. A placebo formulation was also tested. Results and Conclusions: The developed formulation improved the sebum content and percentage, skin microrelief in terms of skin roughness and desquamation and dermis echogenicity. The biophysical and skin imaging techniques utilized in this study were useful to test the clinical efficacy of an effective formulation for mature oily skin.

M. Mendes Fossa Shirata, P.M. Berardo Gonçalves Maia Campos, **Evaluation of Young Skin Photoaging Using Biophysical and Imaging Techniques**, Poster Presentation at ISBS Conference San Diego, May 2018

Introduction: Photoaging is associated to an intense solar exposure, thus the photoaging signs can be observed also in the young skin, mainly in countries with high UV incidence, like Brazil. The aim of this study was to evaluate the skin changes resulted from photoaging in Brazilian young skin in comparison to photoaged mature skin. Methodology: Thirty participants were divided in two groups: the first between 18 to 35 years old and the second, 40 to 60 years old. Analyzes were performed on the randomized facial malar region. TEWL, stratum corneum water content, sebum content, high resolution imaging, echogenicity and dermis thickness, skin color and elasticity parameters were analyzed. Results and Conclusions: The obtained results showed that sun exposure can cause changes even in the young skin, with the appearance of spots and the reduction of the echogenicity of the dermis, besides there were no significant differences between young skin and mature skin in most parameters. In conclusion, signs of photoaging may be frequent even in young skin.

P.M.B.G. Maia Campos, M.O. Melo, L.O. Guerra, **Application of Reflectance Confocal Microscopy in the Evaluation of Skin Hydration**, Poster Presentation at ISBS Conference San Diego, May 2018

Introduction: The Reflectance Confocal Microscopy (RCM) is an important tool to evaluate skin hydration. However, there is a lack of studies in the literature. This study evaluated the hydrating effects of different active ingredients using RCM. Methodology: A carbomer gel added or not (vehicle) with Hyaluronic Acid (F1), Glycerin (F2), Hydrolyzed Rice Protein (F3) or *Kappaphycus alvarezii*&*Caesalpinia spinosa* Extracts (F4) was used. The anterior leg of 20 participants was utilized and a control was kept. Measures of TEWL, stratum corneum water content and interkeratinocyte reflectance, furrows size, morphology and skin surface irregularity were done before and after 2, 4 and 8 hours. Results and Conclusions: Improvement of TEWL and stratum corneum water content was noted with F2 and F4. Furrows size, morphology and skin surface irregularity improved with F2 and F3. F1 and F2 showed an increase of interkeratinocyte reflectance. RCM is an efficient technique to evaluate morphological changes of skin hydration, showing the modifications of skin structures by alterations reflectance and morphology.

M. Gabarra Almeida Leite, P.M. Berardo Gonçalves Maia Campos, **Evaluation of Oily Hair and Skin: Comparison between Self Perception and Clinical Analysis Using Biophysical and Imaging Techniques**, Poster Presentation at ISBS Conference San Diego, May 2018

Introduction: Excess of oiliness can cause skin changes such as acne and compromise the cutaneous physiology, affecting of both skin and hair. Thus, the aim of this study was to evaluate skin and hair alterations due to excessive amount of sebum using biophysical and imaging techniques. Methodology: 100 participants (18 - 49 years), with oily skin and hair, were recruited. Skin was evaluated in terms of stratum corneum water content, TEWL, activity of the sebaceous glands, amount of porphyrins and pores. Scalp was evaluated in terms of sebum content. Results and Conclusions: Participants were divided 4 groups: 1- Oily skin and hair (45,23%), 2- Oily skin and normal hair (10,71%), 3- Normal skin and oily hair (34,52%) and 4- Normal skin and hair (9,52%). The participants with oily

skin presented activity of the sebaceous glands of 9.1 ± 1.1 surface (%), high amount of pores and presence of porphyrins, and scalp amount of sebum of 330,6 ± 9,8 µg/cm². Although all the panelists considered their hair and skin oily, they were classified differently, showing that the tropical weather can influence the self-perception and lead to a wrong treatment without the correct evaluation.

L. Salomão Calixto, C. Picard, G. Savary, P.M. Berardo Gonçalves Maia Campos, **Application of Topical Formulations Containing Natural Origin Actives and UV-Filters in the Prevention of Photoaging in French and Brazilian Skin**, Poster Presentation at ISBS Conference San Diego, May 2018

Introduction: The study of skin from different populations brings an essential knowledge to the development of skin treatments. The aim of this study was to evaluate the immediate effects of topical formulations using biophysical techniques and to compare the skin biology of the participants. Methodology: 36 subjects, 18 French and 18 Brazilians, were enrolled. Transepidermal water loss, stratum corneum water content, skin viscoelasticity and skin brightness were evaluated before and 60 minutes after formulations application. Results and Conclusions: Brazilian skin had a lower TEWL and less gloss on the skin surface when compared with French skin. There was no difference in hydration and viscoelastic profile. After 60 minutes, there was a significant increase in stratum corneum water content and skin brightness, a significant decrease in TEWL and no difference in skin viscoelasticity in both groups. In conclusion, biophysical differences were found on the groups and the formulations were effective in both populations.

M. Übner, V.-R. Tuulik, S. Saarik, V. Tuulik, T. Vare, E. Makienko, **The Effect of Local Thermoneutral Mud and Peat Application on the Skin Hydration Measured in the Forearms region Corneometer**, Balneo Research Journal, Vol.9, No.2, May 2018

Introduction: Mud and peat differ from each other in their chemical composition. The use of warm peloids as the treatment of different skin diseases has been studied previously. The moisturizing effect of mud and peat is mainly related to humic substances. The aim of the current study was to analyze the effect of thermosneutral mud and peat applications on the skin hydration (SH). Materials and methods: An experimental study was performed with 50 persons in two groups. The SH measurement is based on capacitive method, and Multi Skin Test Center MC-1000 was used. Thermo-neutral natural sea mud and peat were applied on the left volar arm for 30 minutes on 10 following days and the SH level was measured before and after the last peloid application. The control data were measured on the right hand. Also, the content of humic substances was measured in both peloids. There was 2% of humic substances in mud dry matter, and 55% in peat dry matter.Results: There were subjects in both groups whose forearm SH increased or decreased after the local peloid application. There was positive dynamics in SH level in 11 subjects ($p<0.05$) in the mud group and in 7 subjects ($p<0.05$) in the peat group. The positive dynamics in SH was 9.5% higher in the peat group. The negative dynamics in SH level was in 15 subjects ($p<0.05$) in the mud group and in 17 subjects ($p<0.05$) in the peat group. The difference with control hand was the same in both groups. Conclusion: Mud and peat have very different content of humic substances but the differences in SH changes between the groups were not so big. Peat contains more humic substances and, therefore, the subjects in the peat group revealed higher positive dynamics in SH level.

C. Boutot, E. Ranouille, E. Bony, J.-Y. Berthon, E. Filaire, C. Leduc, P. Bedos, ***Schisandrachinensis*** **combats pollution-induced stress,** PERSONAL CARE ASIA, May 2018, p. 59-62

The human skin, and mainly the upper layer of the epidermis, plays the role of a barrier, but is also one of the first and major targets of air pollutants, pollutants contributing to wrinkle and dark sports occurrence through the redox imbalance. A possible approach to attack ROS-mediated disorders for both preventive and treatment means is based on the use of substances, which can be found in plants as secondary metabolites, lignans being a promise candidate. The present study was aimed to better understand the cellular mechanisms beyond the oxidative changes induced by urban pollution (Urban dust 1649b, NIST) and the effect of *Schisandra chinensis (S. chinensis)* extract in reconstructed human epidermis, by a transcriptomic approach and secondly through the evaluation of Nrf2, AhR, NF-kB, and DJ-1pathways using an *in vitro* model. Finally, we evaluated the effect of S. *chinensis* on skin hydration, homogeneity, radiance and luminosity in Chengdu (China). Urban dust (SOpg.mL 1) was able to activate the cytoplasmic expression of NF-kB and AhR when compared to control. *S.chinensis* extract attenuated the urban dust-induced oxidative stress, the protective mechanism being associated, at least in part, with the modulation of the Nrf2 and AhR pathways and the activation of DJ-1. S. *chinensis* extract, named Urbalys® protects from prolonged pollution aggression since it improves hydration, protects skin homogeneity, increases skin radiance and attenuates skin spot intensity after 21 days of pollution exposition.

A.K. Dabrowska, F. Spano, S. Derler, C. Adlhart, N.D. Spencer, R.M. Rossi, **The relationship between skin function, barrier properties, and body-dependent factors,** Skin Research & Technology 2018; 24: 165-174

Background: Skin is a multilayer interface between the body and the environment, responsible for many important functions, such as temperature regulation, watertransport, sensation, and protection from external triggers.Objectives: This paper provides an overview of principal factors that influence human skin and describes the diversity of skin characteristics, its causes and possible consequences. It also discusses limitations in the barrier function of the skin, describingmechanisms of absorption. Methods: There are a number of in vivo investigations focusing on the diversity of human skin characteristics with reference to barrier properties and body-dependent factors. Results: Skin properties vary among individuals of different age, gender, ethnicity, and skin types. In addition, skin characteristics differ depending on the body site and can be influenced by the body-mass index and lifestyle. Although one of the main functions of the skin is to act as a barrier, absorption of some substances remains possible. Conclusions: Various factors can alter human skin properties, which can be reflected in skin function and the quality of everyday life. Skin properties and function are strongly interlinked.

S. Iizaka, **Frailty and body mass index are associated with biophysical properties of the skin in community-dwelling older adults**, Journal of Tissue Viability (2018)

Aim of the study: This study aimed to investigate the association of frailty and body mass index (BMI) with biophysical properties of the skin in community-dwelling older people. Materials and methods: A cross-sectional study was conducted in a suburban Japanese city. Older adults aged >65 years and participating in a health checkup program were recruited (n = 128). Stratum corneum hydration, clinical manifestations of dry skin, skin elasticity and condition of the dermis (as measured by ultrasonography) were evaluated on the volar forearm. Frailty phenotype and BMI were also evaluated. Results: The mean age of participants was 74.5 years, and 96.1% were women. Skin thickness was significantly decreased in frail participants compared with non-frail participants in an age-adjusted multivariate model (p = 0.009). Frail participants showed significantly lower skin elasticity values than non-frail participants in a univariate analysis (p = 0.024), but this was not significant in the multivariate model. In participants with BMI >25kg/m2, clinical manifestations of dry skin were significantly decreased compared with BMI <21.5kg/ m2 (p = 0.002). Participants with BMI >25kg/m2 and with 21.5 kg/m2 < BMI <25kg/in2 showed significantly higher skin elasticity values than participants with BMI < 21.5kg/m2 (p = 0.014 and p = 0.042, respectively). Conclusion: Frailty was associated with decreased skin thickness and decreased skin elasticity partially via the influence of chronological aging. Low body mass was associated with increased xerosis manifestations and decreased skin elasticity in community-dwelling older adults.

A. Markiewicz, M. Zasada, A. Erkiert-Polguj, M. Wieckowska-Szakiel, E . Budzisz, **An evaluation of the antiaging properties of strawberry hydrolysate treatment enriched with L-ascorbic acid applied with microneedle mesotherapy**, Journal of Cosmetic Dermatology, April 2018

Background: Mature skin is characterized by a loss of elasticity, hyperpigmentation, and dehydration. L-ascorbic acid stimulates the synthesis of collagen type I, inhibits melanogenesis, and helps to maintain correct skin hydration. Combining microneedle mesotherapy with the application of preparations rich in vitamin C results in better therapeutic effects due to the improved absorption of active substances. The study evaluates the effectiveness of the application of strawberry hydrolysate enriched with L-ascorbic acid using microneedle mesotherapy. Materials and Methods: Seventeen volunteers aged 45-70 years underwent a series of four microneedle mesotherapy treatments with vitamin C serum, performed every 10 days. The 20% L-ascorbic acid solution (pH = 3.5) was prepared immediately before application. After the treatment, the participants gave a subjective assessment of the effectiveness. Cutometer® was used to measure skin elasticity and firmness, Corneometer® to measure skin hydration, and Mexameter® skin tone. Results: The results of the survey showed improvements in skin hydration and elasticity. In vivo studies confirmed the effectiveness of serum and the impact of the active substance on skin firmness and elasticity, the degree of hydration and skin tone. Conclusion: Microneedling with vitamin C improves skin tone, hydratation and firmness, and decreases the visibility of hyperpigmentation.

G. Kang, T.N.T. Tu, S. Kim, H. Yang, M. Jang, D. Jo, J. Ryu, J. Baek, H. Jung, **Adenosine-loaded dissolving microneedle patches to improve skin wrinkles, dermal density, elasticity and hydration**, Int J Cosmet Sci. 2018 Apr; 40(2): p. 199-206

Objective: Although dissolving microneedle patches have been widely studied in the cosmetics field, no comparisons have been drawn with the topical applications available for routine use. In this study, two wrinkleimproving products, adenosine-loaded dissolving microneedle patches and an

adenosine cream, were evaluated for efficacy, with respect to skin wrinkling, dermal density, elasticity, and hydration, and safety in a clinical test on the crow's feet area. Methods: Clinical efficacy and safety tests were performed for 10 weeks on 22 female subjects with wrinkles around their eyes. The adenosine-loaded dissolving microneedle patch was applied once every 3 days, in the evening, for 8 weeks to the designated crow's feet area. The adenosine cream was applied two times per day, in the morning and evening, for 8 weeks to the other crow's feet area. Skin wrinkling, dermal density, elasticity, and hydration were measured by using PRIMOS premium, Dermascan C, Cutometer MPA580, and Corneometer CM 825, respectively. In addition, subjective skin irritation was evaluated by self-observation, and objective skin irritation was assessed through expert interviews. Results: The adenosine-loaded dissolving microneedle patches had a similar or better efficacy than the adenosine cream. Both groups showed statistically significant efficacy for almost all parameters ($P < 0.05$). The dissolving microneedle patches had a long-lasting effect on the average wrinkle depth ($P < 0.05$), only showed efficacy in dermal density ($P < 0.05$), had an early improving effect on elasticity ($P < 0.05$), and demonstrated better hydration efficacy ($P < 0.001$). No adverse effects were observed in either group during the test period. In the clinical efficacy test of four skin-improvement parameters, adenosine-loaded dissolving microneedle patches showed the same or better effect than the adenosine cream, although the weekly adenosinedose was 140 times lower. Conclusion: The dissolving microneedle patches caused no adverse reactions. These adenosine-loaded dissolving microneedle patches are expected to be safe, effective, and novel cosmetics for skin improvement.

K. Yonezawa, M. Haruna, M. Matsuzaki, M. Shiraishi, R. Kojima, **Effects of moisturizing skincare on skin barrier function and the prevention of skin problems in 3-month-old infants: A randomized controlled trial,** Journal of Dermatology 2018; 45: p. 24–30

An effective newborn skincare protocol has not been established. We aimed to evaluate the effects of moisturizing skincare, including using lotion and reducing routine bathing. Our hypothesis was that moisturizing skincare would improve skin barrier function. This randomized controlled trial included 227 healthy Asian newborns between 1 week and 3 months old. We compared moisturizing skincare (bathing every 2 days and using lotion daily; intervention, n = 113) to daily bathing without lotion (control, n = 114). We assessed the skin barrier function (transepidermal water loss [TEWL], stratum corneum hydration [SCH], skin pH and sebum secretion) as a primary outcome at 3 months old. We also assessed the incidence of skin problems according to parents' diary reports. Compared with the control, the intervention group had a lower face TEWL (mean standard deviation, 14.69 7.38 vs 17.08 8.26 g/m2 per h, P = 0.033), higher face SCH (60.38 13.66 vs 53.52 14.55, P = 0.001) and higher body SCH (58.89 12.96 vs 53.02 10.08, P < 0.001). Compared with the control, newborns in the intervention group had significantly lower rates of diaper dermatitis between birth and 1 month old (6.3% vs 15.9%, P = 0.022), and tended to have lower rates of body skin problems between 1 and 3 months (42.1% vs 55.2%, P = 0.064). Moisturizing skincare was effective for improving skin barrier function and preventing newborns' diaper dermatitis. The results of our study may help parents make informed decisions about newborn skincare.

J. Kitsongsermthon, J. Kreepoke, K. Duangweang, A. Tansirikongkol, **In vivo exfoliating efficacy of biodegradable beads and the correlation with user's satisfaction,** Skin Research & Technology, 2018, 24: p. 26-30

Background/purpose: By the end of 2017, non-biodegradable microbeads will be prohibited in USA, UK and Europe, due to their environmental issue. There are biodegradable beads available, but their effect on skin desquamation has not been evaluated yet. This study aimed to understand the skin renewal time, moisturizing effect and user's satisfaction of gel scrubs containing different exfoliating beads. Methods: Gel scrubs, containing polyethylene, mannan or wax beads, were used in this study. The stratum corneum turnover time (SCTT) and skin hydration were evaluated by dansyl chloride staining technique and Corneometer, respectively. The selfassessment was also performed after a 3-week home use trial. Results: The SCTTs of three different gel scrubs were not significantly different. A numerical increase in the skin hydration level was found in all groups. Satisfaction scores for the appearance and usability attributes were similar, but scores for improvement in the skin hydration and skin smoothness were higher in the gel scrubs with mannan or wax beads. Conclusion: All three gel scrubs provided a similar effect on the SCTT and skin hydration, but gel scrubs with mannan or wax beads were more favorable. Thus, these two biodegradable exfoliating beads may be good substitutes in scrubbing products.

I. Dolechova, J. Bystronova, M. Maresova, V. Hrobaf, P. Sedova, M. Cepa, 0. Zideh, Z. Dushova, M. Pravda, R.Buffa, **Crosslinked Hyaluronic Acid for Topical Cosmetic Applications,** sofw journal 1144, 04/18, p. 52-57

Crosslinked hyaluronic acid-based hydrogels (crossHA) have been widely used in the cosmetic industry as injectable dermalfillers. However, HA hydrogels also emerge as interesting raw materials for cosmetic topical products with various other potential benefits. In this work, we developed and characterized a new type of crossHA (crossHA-3; INCI Sodium Hyaluronate Crosspolymer-3) in a powder form dedicated for the topical cosmetic application and tested its properties *in vitro* and *in vivo* on human volunteers. CrossHA-3 powder is fully soluble in water creating a soft hydrogel microparticle suspension macroscopically resembling true solution. Large amount of water absorbed in the porous structure of crossHA-3 effectively moisturizes the skin *in vivo.* CrossHA-3 also creates a protective film on the skin surface and immediately and visibly reduces even deep mimic wrinkles. Because crossHA-3 is less susceptible to enzymatic degradation than HA, it stays longer on the skin surface and so its anti-wrinkle effect is prolonged. Beside water, crossHA-3 can absorb various cosmetic active ingredients in its pores and ensures their continuous, long-term delivery into the skin leading to their more effective utilization by the skin cells as we showed in another *in vivo* study using niacinamide (vitamin B3) as a model cosmetic active ingredient.

F. Wandrey, D. Schmid, B. Henes, F. Zulli, **Improved cell nucleus healthwith moss cell technology,** PERSONAL CARE EUROPE, April 2018, p. 131-133

Mosses were among the first plants that conquered the land and they used their extraordinary adaptation abilities to survive from the prehistoric age until the present day. To harvest the resilient properties of moss, an innovative moss cell technology was used to grow moss cells as a culture in the lab. Latest research has shown that the moss active contributes to 'cell nucleus health', a novel anti-ageing concept. The cell nucleus does not only contain the cell's DNA but is also involved in regulating important cellular processes. Efficient transport of molecules into and out of the cell nucleus is crucial for adapting to the ever-changing environment. *In vitro* studies have shown that the moss extract improves expression of cell nucleus health markers in aged cells and helps skin adapt to climatic changes. In a placebo controlled clinical study with women that are exposed to daily temperature changes in the summer, the moss active significantly improved skin hydration, barrier and homogeneity after just two weeks for a more resilient skin.

B. Walzel, B. Senti, S. Banziger, U. Batz, **The natural solution to pollution,** PERSONAL CARE EUROPE, April 2018, p. 83-88

Exposure to air pollutants is one of the major threats to skin health. Contaminants attack the skin on several levels: they induce oxidative stress, they stimulate inflammatory pathways, and they accelerate the ageing process of skin. As a consequence, consumers demand functional cosmetics that prevent and repair pollution-induced skin damage. In this respect, the most promising approach is using the body's endogenous detoxification machinery, which is composed of a multitude of cell-protective and detoxifying mechanisms. These powerful systems are capable of neutralising thousands of toxic molecules per second, whereas the mere application of antioxidants is much less efficient, as one antioxidant molecule is capable of neutralising only one free radical. HerbaShield URB addresses these concerns. The COSMOS-approved multicomponent active ingredient targets three mechanisms to naturally reduce pollutioninduced skin damage: (1) It strengthens the skin's barrier through hydrogenated lecithin; (2) it protects from radical oxygen species through natural antioxidants; and (3) it enhances the endogenous detoxification machinery through natural activators of detoxifying enzymes. The presented anti-pollution ingredient is a perfect fit for anti-ageing cosmetics and to be formulated in skin care applications, such as face care, body care, and cleansing products.

A. Manière, A. Trunet, C. Olive, C. Bezivin, E. Loing, **Biomimetic emulsifier with cashmere touch**, PERSONAL CARE EUROPE, April 2018, p. 54-58

Most personal care products are emulsions which can be defined as stabilised fluid systems of liquids that do not normally like to mix, like oil and water. The peacekeeper in such systems is called an emulsifier. Emulsifiers combine a water-loving head holding to the water phase and a fat-loving tail that clings to the oil phase. Oil-in-water (o/w) emulsifiers keep oil drops packed in water, while water-in-oil (w/o) emulsifiers rather retain water drops in oils. Classic emulsifiers are typically synthetic petroleum and hydrocarbon derivatives such as PEG compounds, alkoxylated amides, silicone derivatives, and ethoxylated fatty alcohol.

P.E.J. van Erp, M. Peppelman, D. Falcone, **Noninvasive analysis and minimally invasive in vivo experimental challenges of the skin barrier**, Experimental Dermatology, 2018;27: p. 867–875

In this review, we aim to give a concise and selective overview of noninvasive biophysical analysis techniques for skin barrier analysis (transepidermal water loss, electrical methods, confocal Raman microspectroscopy, sebumeter, reflectance spectrophotometry, tristimulus colorimetry, diffuse

reflectance spectroscopy and reflectance confocal microscopy), including advantages and limitations. Rather than giving an exhaustive description of the many techniques currently available, we show the usefulness of a representative selection of techniques in the functional and morphological evaluation of the skin barrier. Furthermore, we introduce human minimally invasive skin challenging models as a means to study the mechanisms regulating skin homoeostasis and disease and subsequently show how biophysical analysis techniques can be combined with these in vivo skin challenging models in the functional and morphological evaluation of the skin barrier in healthy human skin. We are convinced that the widespread application of biophysical analysis techniques in dermatological practice and in cosmetic sciences will prove invaluable in offering personalized and noninvasive skin treatment solutions. Furthermore, combining the human in vivo challenging models with these novel noninvasive techniques will provide valuable methodology and tools for detailed characterization of the skin barrier in health and disease.

J.M. Sumita, H.A. Miot, J.L.M. Soares, A.C.P. Raminelli, S.M. Pereira, M.M. Ogawa, F.R. Picosse, L.R.S. Guadanhim, M.M.S.S. Enokihara, G.R. Leonard, E. Bagatin, **Tretinoin (0.05% cream vs. 5% peel) for photoaging and field cancerization of the forearms: randomized, evaluator-blinded, clinical trial,** J Eur Acad Dermatol Venereol, 2018 April

Background: Topical tretinoin cream is the gold standard treatment for skin ageing, particularly photoaging. The purpose of tretinoin peel was to obtain similar results, but in a shorter time, however, there have been few controlled trials on its effectiveness. Objective: To compare efficacy and safety of tretinoin 0.05% cream and 5% as a peeling agent on photoaging and field cancerization of the forearms. Methods: Clinical trial with therapeutic intervention, prospective, randomized (computer-generated randomization list), parallel, comparative (intrasubject) and evaluator-blinded (except for histology and immunohistochemistry), including 24 women (48 forearms) aged over 60 years who have not undergone hormone replacement and categorized as Fitzpatrick skin phototype II or III. The forearms of the participants were randomized for treatment with 0.05% tretinoin cream three nights a week, or 5% tretinoin peel every 2 weeks. The opinion of the participant, severity of photoaging, corneometry, profilometry, high-frequency ultrasound, histology (haematoxylin-eosin and Verhoeff stainings) and immunohistochemistry (p53, bcl-2, Ki67 and collagen I) were assessed. Results: One participant dropped out. The mean photoaging score reduced 20% and the mean actinic keratosis (AK) count reduced 60% with no difference between treatments. Three efficacy parameters showed opposite effects between the tretinoin treatments ($P < 0.05\%$): (i) thickness of the corneal layer decreased with 0.05% tretinoin and increased by 5%; (ii) dermis echogenicity increased by 0.05% and decreased by 5% and (iii) Ki67 expression increased by 0.05% and decreased by 5%. There was good tolerability for both regimens. Conclusion: Tretinoin as a cream 0.05% or peeling (5%) is safe and effective for the treatment of moderate photoaging and forearm field cancerization. The cream was superior in improving ultrasonographic parameters of ageing. Peeling was shown a superior performance in the stabilization of field cancerization.

L. Rocha Mota, L. Jansiski Motta, I. da Silva Duarte, A.C. Ratto Tempestini Horliana, D. de Fátima Teixeira da Silva, C. Pavani, **Effcacy of phototherapy to treat facial ageing when using a red versus an amber LED: a protocol for a randomized controlled trial**, BMJ Open 2018; 8

Introduction: The skin undergoes morphological and physiological changes with the advancing age of an individual. These changes may be caused by intrinsic and extrinsic factors that contribute to cellular ageing and consequent skin ageing. The term photoageing is used to characterise the ageing of the skin caused by solar radiation. Clinically, the skin becomes more flaccid, thicker and hyperpigmented, while there is an early appearance of wrinkles and other skin changes, such as skin cancer. Nowadays, there are numerous treatments for ageing skin, and one of them is with the use of phototherapy, which uses light-emitting diodes (LEDs). The objective of this study will be to evaluate the percentages of reduction in the volume of periocular wrinkles when treated with red and amber LEDs. Methods and analysis: All of the participants will receive photobiomodulation to treat their periocular wrinkles. They will be using red and amber LEDs, with one colour being used on each hemiface. The facial side to be treated with each colour will be randomised. After an interval of 180 days, the participants will receive a cross-treatment. The primary variable of the study is the volume of periocular wrinkles (crow's feet), which will be measured by a VisioFace equipment. The secondary variables are elasticity (measured by Cutometer) and hydration (measured by Corneometer). Quality of life and self-assessment of the participants will be measured using the adapted Melasma Quality of Life scale – Brazilian Portuguese adaption (MelasQoL-BP) and Skindex-29 questionnaires. All of the variables will be measured before and after a group of 10 sessions.

O. Pelikh, P.-L. Stahra, J. Huanga, M. Gerstc, P. Scholzc, H. Dietrichl, N. Geiset, C.M. Keck,

Nanocrystals for improved dermal drug delivery, European Journal of Pharmaceutics and Biopharmaceutics 128 (2018), p. 170-178

Nanocrystals are composed of 100% active and possess an increased aqueous solubility and dissolution velocity when compared to larger sized materials. Nanocrystals can be used to improve the bioavailability of poorly soluble actives not only for oral, but also for topical application. In this study nanocrystals of different sizes were produced and the influence of size on dermal penetration was investigated. The influence of different excipients and vehicles on the penetration efficacy upon dermal application was also investigated. Results confirm that dermal penetration of poorly soluble actives increases with decreasing size of the nanocrystals. Unexpectedly, it was observed that many classical penetration enhancers failed to promote the penetration of actives from nanocrystals. Also hydrogels were found to be non-suitable vehicles for the formulation of nanocrystals. As most suitable vehicles for nanocrystals oleogels and creams were identified.

E. Berardesca, M. Loden, J. Serup, P. Masson, L. Monteiro Rodrigues, **The revised EEMCO guidance for the in vivo measurement of water in the skin**, Skin Res Technol. 2018; 24: p. 351-358

Background: Noninvasive quantification of stratum corneum water content is widely used in skin research and topical product development.n Methods: The original EEMCO guidelines on measurements of skin hydration by electrical methods and transepidermal water loss (TEWL) by evaporimeter published in 1997 and 2001have been revisited and updated with the incorporation of recently available technologies. Results: Electrical methods and open-chamber evaporimeters for measurement of TEWL are still the preferred techniques to measure the water balance in the stratum corneum. The background technology and biophysics of these instruments remain relevant and valid. However, new methods that can image surface hydration and measure depth profiles of dermal water content now available. Open-chamber measurement of TEWL has been supplemented with semiopen and closed chamber probes, which are more robust to environmental influence and therefore convenient to use and more applicable to field studies. However, closed chamber methods interfere with the evaporation of water, and the methods cannot be used for continuous monitoring. Validation of methods with respect to intra- and inter-instrument variation remains challenging. No validation standard or test phantom is available. Results and Conclusions: The established methods for measurement of epidermal water content and TEWL have been supplemented with important new technologies including methods that allow imaging of epidermal water distribution and water depth profiles. A much more complete and sophisticated characterization of the various aspects of the dermal water barrier has been accomplished by means of today's noninvasive techniques; however, instrument standardization and validation remain a challenge.

M.O. deMelo, P.M.B.G. Maia Campos, **Characterization of oily mature skin by biophysical and skin imaging techniques,** Skin Res Technol. 2018; 24: p. 386-395

Background: The skin is a complex biological system and may suffer change according to the environmental factors, as higher temperatures can increase sebum excretion, presenting oiliness and acne. These alterations can persist during the aging and provoke more changes in aged skin. In this study we evaluated the mature oily skin characteristics using biophysical and skin imaging techniques. Material and methods: Sixty healthy female subjects, aged between 39 and 55 years old were recruited and separated into 2 groups according to their skin type: normal/ dry and oily skin. The skin was evaluated in terms of stratum corneum water content, transepidermal water loss (TEWL) sebum content, dermis thickness and echogenicity, skin microrelief, and pores content. Results: The mature oily skin presented no significant differences when compared to the normal/dry skin on the stratum corneum water content and TEWL parameters. The sebum content was significantly higher on the oily skin group. The microrelief analysis showed an increase of skin roughness values in the oily skin and increase of scaliness in the normal/dry skin. The oily skin showed lower dermis echogenicity mainly in the frontal region and higher dermis thickness when compared to normal/ dry skin. Conclusion: The mature oily skin showed different characteristics from normal/dry skin in terms of sebum content, microrelief parameters, and dermis thickness. This way, the characterization of mature oily skin in an objective way is very important to development of dermocosmetic products for more effective treatments focused specially on this type of skin.

E. Tamura, J. Ishikawa, K. Sugata, K. Tsukahara, H. Yasumori, T. Yamamoto, **Age-related differences in the functional properties of lips compared with skin**, Skin Res Technol. 2018; 24: p. 472-478

Background/aims: Lips can easily become dry and rough and their biggest problems are drying and chapping. The cause of those problems is considered to be that the stratum corneum (SC) moisture is small and its barrier function is low.However, those problems decrease in subjects as they approach 40 years of age, after which problems due to their shape and color increase. The purpose of this study

was to investigate relationships between SC properties of the lips during aging and to clarify the cause(s) of lip problems. Methods: One hundred and 38 Japanese female subjects with normal skin ranging in age from 16 to 78 years were enrolled in the study. The capacitance and transepidermal water loss (TEWL) values, viscoelasticity, and color of their lips were measured and compared with their cheeks. Results: The capacitance values for the lip and the cheek increased and TEWL values for both areas decreased with age. TEWL values for the lip decreased until ~30 years of age and this is considered to be related to the problem of drying. Although the maximum amplitude Uf of the lip increased with age, the Ur/Uf had no correlation with age. As for color, the *L** and *a** values decreased with age. Conclusion: Age-related changes with regard to SC functions, viscoelasticity and color of the lips have been clarified for the first time, and it is clear that these changes are related to problems of the lips. Compared with the cheeks, differences with the lips are more apparent.

H.-J. Kim, H. Kim, J.J. Kim, N.R. Myeong, T. Kim, T. Park, E. Kim, J.-Y. Choi, J. Lee, S. An, W.J. Sul, **Fragile skin microbiomes in megacities are assembled by a predominantly niche-based process**, Science Advanced 2018; 4

Given the higher incidence of skin diseases in more urbanized populations and its association with the skin microbiome, we questioned how the skin microbiome differed depending on the degree of urbanization. Skin microbiomes of 231 healthy subjects in five large cities in China varied mainly with environment and socioeconomic status of the cities in question. The differences among microbiomes could be explained by the predominantly niche-based assembly of microbial communities, which was supported by a dominance test, b-null deviation, and edge-length abundance distribution. Networks among microbes in larger cities were more fragile, which may contribute to the higher incidence of skin diseases in more urbanized environments. These results suggest that microbial ecological theory can provide a framework for understanding crucial health-associated features of the human microbiome.

J. Schleusener, C.K. Nowbary, M.E. Darvin, S.B. Lohan, J. Lademann, M.C. Meinke, **Influencing the Cutaneous Carotenoid Status and Skin-physiological Parameters by Ingesting Antioxidants in the Form of Curly-hale Containing Food Supplements**, söfw journal 1144 109/18

Antioxidants are important radical scavengers protecting the body from the consequences of oxidative stress. They have to be ingested by food rich in fruits and vegetables or by food supplements. The effects of the intake of curly-kale containing food supplements on the skin are described in this paper. For this purpose, verum and placebo groups had been investigated for several months noninvasively *in vivo* by determining their cutaneous antioxidative status, their collagen-to-elastin index of the dermis, and various age-related skin parameters. While in the verum groups the cutaneous antioxidative status and the skin moisture increased significantly, only small changes were found in the placebo groups. The collagen content in the skin of the verum group showed a tendency towards increasing. Besides a healthy nutrition, a selected supplementation consisting of low-dosed natural carotenoids at a physiological concentration can improve the antioxidative capacity of the skin, thus counteracting an age-related degradation of collagen I in the dermis.

A. Esplugas, E. Ferreira, J. A. Boras, S. Pastor, **Deep Arctic Marine Extract for Deep Extracellular Matrix Engineering and Digital Anti-Aging Efficacy**, söfw journal 1144 109/18

Little of the ocean and its intertwined ecosystems have been explored, although it is the most untapped potential source for the discovery of novel cosmetic active ingredients. From an Arctic scientific expedition, a novel active ingredient was discovered (Arctalis: Pseudoalteromonas Ferment Extract) aimed at restructuring ECM key components with an excellent wrinkle smoothing and firming effect. Arctalis restores skin hydration and natural glow while also protecting skin from digital pollution or blue light.

L. Yi-na, Y. Ya-di, X. Zhi-yong, T. Jun, **Promoting Effect of a Gene Expression Related Moisturizer on Shin Hydration and Barrier Function**, söfw journal 1144 109/18

The moisturizing performance of Gmoist® Sea-Gel was evaluated based-upon 14 healthy volunteers. It was found that skin moisture content markedly increased and TEWL effectively decreased after Gmoist® Sea-Gel applied for 7d. Then using real-time fluorescence quantitative PCR technology, HaCaT cells were cultured with Gmoist® Sea-Gel to study six genes expression level related to skin hydration and barrier function. Results showed Gmoist® Sea-Gel significantly promoted the INV, TG-1, FLG and CASP-14 mRNA's expression after 24 hour's treatment. Gmoist® Sea-Gel can upregulate cornified cell envelope related genes expression, promote the degradation of filaggrin into natural moisturizing factors to strengthen skin hydration and barrier function.

A. Erlach, G. Springmann, M. Renner, K.-P. Wilhelm, **Compatibility Testing of Cosmetics and**

Toiletries for Babies and Children, söfw journal 1144 109/18

AII cosmetic products must be safe, especially those intended for babies and small children. Besides national guidelines and regulations, cosmetic products in the European Union are regulated by the EU Cosmetic Products Regulation. It pays particular attention to protecting the health of vulnerable population groups and recommends a specific assessment for cosmetic products intended for use on children under the age of three years. Nevertheless, standard procedures for the evaluation of the local tolerance are not given. Due to practical and ethical reasons clinical studies on adults should be a first step of compatibility testing. To consider physiological differences notably a not yet fully developed barrier function during the first years of life, barrier function of adult skin can be intentionally compromised by gentle experimental standardized procedures prior product application. As an alternative and depending on the objective target, only pre-screened sensitive subjects are included in the investigation. After extensive pre-examination and testing in adults, tolerance and performance of the final product can also be confirmed with non-incriminating observational studies under normal in-use conditions in children under physician control.

J.Y. Choi, E.J. Kim, S.I. Jang, A.R. Kim, T.J. Lee, H.K. Lee, **A new technique for evaluating heel xerosis grade and the effects of moisturizer on heel skin dryness,** Skin Res Technol. 2018; 24, p. 557-551

Background: Dryness-related heel skin problems are common; however, there are very few studies about heel skin dryness. The objective of this study was to develop new assessment methods for evaluating heel skin dryness, to clarify the characteristics associated with heal skin dryness, and assess the effectiveness of moisturizer use according to dryness severity. Materials and methods: We investigated the heel skin of 150 Korean women (aged 20-78 years). Heel skin images were taken using a D5LR camera and the distribution or severity of flakes, scaling, cracking, and fissures were visually assessed. Skin properties such as hydration, transepidermal water loss (TEWL), amount of dead skin cells, and efficacy of moisturizer were evaluated according to heel xerosis grade. Furthermore, as conventional evaluation methods for desquamation are not appropriate for heel skin, we developed new techniques using binarization of magnified images. Results: Skin hydration tended to decrease and TEWL tended to increase as heel dryness grade increased. The amount of dead skin cells increased with increasing dryness grade using the new technique. Subjects in the severe dryness group achieved similar hydration levels as normal subjects at baseline after 3 hours of moisturizer application. Conclusion: Our new methods of visually classifying heel dryness and quantifying dead skin cells using magnified images effectively evaluated heel skin properties. As heel skin is prone to dryness, daily repetitive application of moisturizer might be helpful for hydrating dry heel skin, and ultimately preventing complications

M. Fak, H. Rotsztejn, A. Erkiert-Polguj, **The early effect of microdermabrasion on hydration and sebum level,** Skin Res Technol. 2018; 24, p. 650-655

Background: Microdermabrasion is a popular form of mechanical peel, used for many aesthetic purposes. Because it removes the superficial epidermal layer, it has an impact on hydrolipid skin coat. Objective: The aim of the study was to examine the changes taking place in the hydrolipid coat of the skin after microdermabrasion measured by skin hydration and sebum level. Methods: Sixteen healthy women were included in the study, and the aluminium oxide crystal microdermabrasion device was used over the entire face of each patient. Measurements of stratum corneum hydration and sebum level were taken at baseline, just after the treatment, and 30 and 60 minutes later. Results: A statistically significant difference in stratum corneum hydration was found on the cheeks 30 minutes after treatment and in the T-zone immediately after the procedure. Sebum reduction was observed immediately after the procedure irrespective of skin type and face area. In addition, sebum value was found to return to baseline1hour after the procedure. Conclusions: The observed changes in epidermal barrier function may be responsible for the clinical improvement following microdermabrasion.

U. Cizauskaite, J. Bernatoniene, **Innovative Natural Ingredients-Based Multiple Emulsions: The Effect on Human Skin Moisture, Sebum Content, Pore Size and Pigmentation,** Molecules 2018, 23, 1428

The increased interest in natural cosmetics has resulted in a higher market demand for preservative-free products based on herbal ingredients. An innovative W/O/W type emulsions containing herbal extracts were prepared directly; its cation form was induced by an ethanolic rosemary extract and stabilized using weak herbal gels. Due to the wide phytochemical composition of herbal extracts and the presence of alcohol in the emulsion system, which can cause skin irritation, sensitization or dryness when applied topically, the safety of the investigated drug delivery system is necessary. The aim of our study was to estimate the potential of W/O/W emulsions based on natural ingredients for skin irritation

and phototoxicity using reconstructed 3D epidermis models in vitro and to evaluate in vivo its effect on human skin moisture, sebum content and pigmentation by biomedical examination using a dermatoscopic camera and corneometer. According to the results obtained after in vitro cell viability test the investigated emulsion was neither irritant nor phototoxic to human skin keratinocytes. W/O/W emulsion did not cause skin dryness in vivo, despite the fact that it contained ethanol. We can conclude that the emulsion is safe for use as a leave-on product due to the positive effect on human skin characteristics or as a semisolid pharmaceutical base where active compounds could be encapsulated.

L.-C. Borcan, Z. Dudas, A. Len, J. Fuzi, F. Borcan, M.C. Tomescu, **Synthesis and characterization of a polyurethane carrier used for a prolonged transmembrane transfer of a chili pepper extract**, International Journal of Nanomedicine 2018:13, p. 7155–7166

Purpose: Red chili peppers have been highly valued in gastronomy and traditional medicine since ancient times; it seems that it is not just an ingredient for food but also a good remedy for various medical conditions such as increased blood pressure and high levels of serum triglycerides and cholesterol, myocardial infarction, arthritis, and migraines. The objective of this study is the characterization of a new carrier used for encapsulated extract. Methods: Chili pepper extract was obtained and was physically entrapped inside polyurethane microparticles in order to diminish the irritative potential of this extract. The particles were evaluated by Zetasizer measurements, small-angle neutron scattering and thermal analysis, scanning electron microscopy (SEM), and Fourier transform infrared spectroscopy; the encapsulation effcacy and the drug release profle were assessed by UV-Vis spectroscopy. Bioevaluations on mice skin were performed to predict the irritative potential of the samples. Results: Two different types of samples were compared: hollow polyurethane microparticles vs polyurethane particles containing the natural extract. The sizes of the particles were very similar, butthe sample containing the extract presents three particle populations (the polydispersity index increases from 0.3 to 0.6 from one sample to another). The zeta-potential measurements and SEM images indicate a medium tendency to form clusters, while the UV-Vis study revealed an almost 70% encapsulation effcacy. Conclusion: The results suggest that encapsulation of a chili pepper extract inside polyurethane microparticles leads to a non-irritative product with a prolonged release: ~30% of encapsulated extract is released within the frst 8 days and a maximum 45% is reached in 2 weeks.

N. Braun, M. Herling, C. Theek, H. Tronnier, U. Heinrich, **Wirksamkeit und Verträglichkeit einer Fußcreme bei Typ-2-Diabetikern** (Article in German), Akt Dermatol 2018; 44: p. 144–151

In der vorliegenden Studie wurde eine Fußcreme hinsichtlich ihrer Eignung zur Fußpflege von Typ-2-Diabetikern untersucht. An der Wirksamkeitsstudie nahmen 23 Probanden über einen Zeitraum von 6 Wochen teil, welche die Fußcreme 2-mal täglich applizierten. Die Fußcreme zeichnete sich durch gute feuchtigkeitsspendende Eigenschaften aus und trug zu einer signifikanten Verbesserung der Hautbarriere bei. Gleichzeitig konnte die Durchblutung der Haut und damit die Versorgung der Haut mit Feuchtigkeit deutlich verbessert werden. Messungen der Hauttemperatur zeigten keine Temperaturerhöhung. Es wurde über ein angenehmes Hautgefühl berichtet. Die Keimbesiedlung wurde konstant gehalten. Zusätzlich wurden subjektive Bewertungen in Bezug auf Hautbild, Wirksamkeit und Verträglichkeit mittels Fragebogen erfasst. Hier spiegelte sich die gute Wirksamkeit und Verträglichkeit der Fußcreme durch hohe Akzeptanz bei den Probanden wider.

The present study examined a foot cream regarding its suitability as a foot care product for type 2 diabetes. 23 test subjects participated in the study. The duration of the study was 6 weeks and the foot cream was applied twice daily by the test subjects. The foot cream was characterized by good moisturizing properties and contributed to a significantly improved skin barrier function. At the same time, the blood circulation of the skin and thus the supply of the skin with moisture was significantly improved. Measurements of the skin temperature did not show any increase in temperature. The preparation was described as pleasant for the skin. The colonization of germs on the skin was kept constant. In addition, the skin appearance, the efficacy and skin compatibility was evaluated by the test subjects by means of a questionnaire. Here, the good efficacy and skin compatibility were mirrored in the high acceptance by the test subjects.

H. Hill, **Welcome to the MASKerade**, SPC February 2018

Consumers are increasingly socially and highenvironmentally expectations. Whether savvy, with it's the *M* food they consume or the cosmetics they use, they are looking to reduce and refine their use of declining resources. The need for sustainable and traceable natural ingredients is imperative, as they make a stand for the social issues that are important to them. By using new technologies and clever formulations it is possible to move with the trends and create products that offer both functionality and green credentials, and which do not impact the environment.

M. Bimonte, A. Carola, A. Tito, A. Barbulova, A. De Lucia, F. Del Piaz, F. Apone, G. Colucci, **Cold Stress, Banished,** Cosmetics & Toiletries, January 2018

The human skin, as a physical barrier between the body and outside environment, is subjected to seasonal climate changes that significantly affect its protective functions. The hydrolipidic film that coats the epidermis has key roles in the maintenance of the skin barrier integrity - it lubricates and waterproofs the skin surface, thus preserving an appropriate level of hydration, and protects the inner skin layers from micro-lesions due to both dehydration and mechanical insults.

S. Nisbet, H. Mahalingam, C.F. Gfeller, E. Biggs, S. Lucas, M. Thompson, M.R. Cargill, D. Moore, S. Bielfeldt, **Cosmetic benefit of a biomimetic lamellar cream formulation on barrier function or the appearance of fine lines and wrinkles in randomized proof of concept clinical studies,** International Journal of Cosmetic Science / Volume 41, Issue 1, 2018

Objective: Two studies were designed to evaluate the potential cosmetic benefit of a biomimetic, niacinamide containing moisturizing cream for the first time in humans. Methods: In both studies, healthy women were randomized to use two treatments, one for the left side of the body and one for the right, from three options: the test cream, a positive control or no treatment (use of standard cleanser only). Treatments were applied twice daily for 4 weeks to the face and forearms (Study 1) or the face only (Study 2). Instrumental and clinical skin assessments were performed by trained technicians. Study 1 involved tape stripping and a 5 day no treatment ('regression') period at the end of the 4 weeks. Independent lay graders were asked to grade the skin texture of subjects in Study 2 from high resolution photographs. Results: In Study 1 *(n* = 66), the test cream significantly decreased the transepidermal water loss (TEWL) values on the forearm, and in the cheek area of the face, relative to baseline and compared to no treatment, and increased skin Corneometer values. The improvements were partially retained during a subsequent 5 day period of no treatment. Increases in TEWL values on skin subjected to tape stripping were significantly lower after 4 weeks of using the test cream compared to no treatment. In Study *2 (n = 72* subjects with visible signs of ageing), there was a favourable trend in the change from baseline of a skin roughness parameter, Ra, for the test cream compared to no treatment. There were statistically significant improvements in the Fitzpatrick wrinkle score compared to no treatment, decreases in TEWL and increased Corneometer values and Cutometer values (R5 elasticity parameter). Grading of high resolution images failed to detect the improvements in skin texture (defined as pores, smoothness and unevenness) for the test cream vs. no treatment. No treatment related serious or severe adverse events were reported. Conclusion: Twice daily application of the test cream over 4 weeks had beneficial effects on skin barrier function, ppp moisturization, wrinkle dimensions and elasticity compared to no treatment. These studies provide prc concept evidence and highlight the cosmetic benefit of the biomimetic lamellar cream formulation.

T.D. Dobbs, T.H. Jovic, Z.M. Jessop, A. Kyle, H.A. Hutchings, I.S. Whitaker, **Objective and Patient-reported Assessments of Skin Grafts and Keystone Flaps—A Pilot Retrospective Cohort Study**, Plast Reconstr Surg Glob Open 2018

Background: The keystone perforator island flap provides a versatile form of reconstruction. Perceived benefits include better donor-recipient color match, less contour defect, and fewer complications. To date, there has been no high-quality evidence comparing keystone flaps to split-thickness skin grafts (SSG) from both a qualitative and quantitative point of view. Methods: The Objective and Patient Reported Assessments of Skin grafts versus Keystone flap cohort study compares keystone flaps with SSGs for the reconstruction of skin cancer defects. Patient-reported outcome measures were collected using the EuroQol 5 dimension scale and Patient and Observer Scar Assessment Scale (POSAS) questionnaires. Objective assessments of skin quality were assessed with the Courage and Khazaka system. Cost analysis was also performed. Results: Thirty-eight patients were studied: 20 keystone flaps and 18 SSGs. The keystone group had higher EuroQol 5 dimension scale scores (keystone median = 1.0; SSG median = 0.832; P = 0.641) indicating better general quality of life and lower POSAS scores indicating better disease/condition specifc quality of life (keystone mean = 27.7; SSG mean = 35.7; P = 0.323). Observer POSAS scores were signifcantly lower in the keystone group compared with the SSG group (keystone mean = 10.889; SSG mean = 17.313; P < 0.001). Preservation of sensation was signifcantly better in keystone flaps (P = 0.006). There was an average £158/$207 (15%) saving when performing a keystone flap. Conclusion: This pilot study demonstrates a number of possible benefts of keystone flaps over SSGs. The results demonstrate the need for further research comparing these reconstructive options. We propose a prospective, controlled study using the methods developed in this pilot study.

B. Algiert-Zielińska, P. Mucha, H. Rotsztejn, **Comparative evaluation of skin moisture after topical application of 10% and 30% lactobionic acid**, J Cosmet Dermatol, 2018 Jan

Dry skin is characterized by symptoms such as itching, redness, excessive exfoliation. These symptoms cause discomfort and contribute to secondary bacterial infections. Dry skin treatments are based on topical applications of various formulations. Among many of them are polyhydroxy acids, which recently gained more attention. AIMS: The aim of this study was a comparative assessment of hydration level (corneometric) after application of lactobionic acid (LA) in the form of peel at concentrations of 10% and 30%. Material and Methods: The study involved 10 Caucasian individuals aged 26-73 years. Eight treatments were performed at weekly intervals. The peels were applied using the "Split face" method- on the left side of the face 10% LA, and the right side 30% LA which consisted of specified concentration of LA, deionized water, xanthan gum, ethoxydiglycol. The test subjects received a 5% LA cream for overnight use. The cream consisted of deionized water, LA, isopropyl palmitate, ascorbyl palmitate, methylparaben. The products for this study were provided by Grehen Ltd. Celestynów, Poland. Prior to each procedure, the skin hydration level was measured using Corneometer CM 825 from Courage + Khazaka electronic GmbH. Results: There was a statistically significant improvement in hydration level after 8 treatments for all measuring points and both concentrations. The difference of the skin hydration level between 10% LA and 30% LA could not be determined. Conclusion: Lactobionic acid is a highly moisturizing agent. There was no significant difference in moisturizing effect between 10% LA concentration and 30% LA concentration.

P. Likhitthummaguna, P. Koonngamb, A. Seeremaspun, **Anti-aging effect of oral very high proline complex collagen (DERMOFIX®) on skin properties: a randomized, double-blind, placebo-controlled clinical study**

Taking collagen supplement to rejuvenate skin is now finding public favor due to antiaging trend. Synthesizing collagen, the body needs a specific amino acid group –Proline, Hydroxyproline and Glycine called “Proline complex” to make a core structure of every type of collagen fiber in human body. DERMOFIX®, which is a new very high proline complex containing-collagen supplement, helps promoting collagen synthesis naturally leading to antiaging effects on skin properties as well as other collagen-containing organs. The objective is to study the anti-aging effects of the oral very high proline complex collagen (VHPCC) primarily on skin properties compared to placebo and commercially available collagen (CAV) in Thailand, and secondarily on knee joint. In this randomized, double blind, placebo-controlled clinical trial, 50 women aged 30-45 years old were randomized to receive the VHPCC 10 g, CAV 10 g or placebo 10 g once daily for 8 weeks. Six aging related skin properties, which are skin elasticity, hydration, melanin index, transepidermal water loss, smoothness and wrinkle were objectively measured at 0, 1, 2, 4, 8 weeks. Knee joint assessments, photo-shooting, blood tests for CBC, creatinine and *sirt1* gene expression level were evaluated before and after the study. Results: The VHPCC showed statistically significant improvement and gave faster effects than the CAV and placebo, in skin elasticity, hydration, melanin index, transepidermal water loss, smoothness and wrinkles. Most effects by VHPCC showed significant improvement since the first week while CAV showed improvement mostly at fourth or eighth week. Safety blood tests are normal in all groups. However, the Sirt1 gene expression did not increase in any groups. No adverse effect was reported throughout the study. Conclusion: The study demonstrated that the VHPCC (DERMOFIX®) supplement wasproved safe, gave much faster and more effective effects than CAV in anti-aging of skin properties, knee joints and collagen-containing organs.

M. Cao, Y. Li, Y.-P. Guo, L. Yao, Z. Pan, **Bodymapping - Le mappe del corpo umano ci garantiscono una temperatura ottimale,** Sport Design for All, n° 0, dicembre 2017

L'ergonomia é una scienza che attinge dall fisiolgia, dell’ingegneria e da studi di psicologia, oltre che dall’anatomia.

S. P. Cannavo, F. Guarneri, R. Giuffrida, E. Aragona, C. Guarneri, **Evaluation of cutaneous surface parameters in psoriatic patients,** Skin Research and Technology 2017; 23: 41-47

Purpose: The purpose of this study was to compare cutaneous surface parameters in lesional and non-lesional skin of psoriaticpatients and in corresponding areas of control subjects.

T. Fujimura, Y. Shimotoyodome, T. Nishijima, K. Sugata, H. Taguchi, S. Moriwaki, **Changes in hydration of the stratum corneum are the most suitable indicator to evaluate the irritation of surfactants on the skin,** Skin Research and Technology 2017; 23: 97-103

Background/Purpose: Irritancy levels of surfactants on human skin have not been clarified completely. The relationships between skin damage and changes of skin properties caused by various surfactants were investigated using noninvasive measurements.

V. Moner, E. Fernandez, A. del Pozo, G. Rodriguez, M. Cocera, A. de la Maza, O. Lopez, **Sorption-desorption test for functional assessment of skin treated with a lipid system that mimics**

epidermal lamellar bodies, Contact Dermatitis, 2017

Background. Many skin diseases are associated with either increases or decreases in lamellar body secretion, or dysfunctional lamellar bodies. Consequently, diseased skin is characterized by reduced barrier function and altered lipid composition and organization. Human skin is commonly evaluated *in vivo* with non-invasive biophysical techniques. The dynamic functions of the skin are evaluated with repeat measurements such as the sorption-desorption test (SDT).

C.J. Borzdynski, W. McGuiness & C. Miller, **Comparing visual and objective skin assessment with pressure injury risk,** International Wound Journal ISSN 1742-4801

Contemporary approaches to pressure injury (PI) risk identifcation rely on the use of risk assessment tools and visual skin assessment. Objective biophysical measures that assess skin hydration, melanin, erythema and lipids have not been traditionally used in PI risk; however, these may prove useful as a risk assessment tool. The relationship between subjective visual assessments of skin condition, biophysical measures and PI risk warrants investigation. This study used a descriptive correlational design to examine the relationship between measures of skin hydration, colour (melanin and erythema) and lipids at PI-prone areas amongst geriatric persons (*n* = 38), obtained using biophysical skin measures and visual skin assessment.

D.G. Mercurio, **Clinical scoring and instrumental analysis to evaluate skin types,** Clinical and Experimental Dermatology, 38, 302–309

Background. The biology of the skin is very complex, and there are a number of methods used to classify the different skin types. It is possible to measure or quantify the characteristics of the specific skin types, using a variety of techniques that can objectively evaluate the properties of the skin in a noninvasive manner.

S. Iizaka, **Skin hydration and lifestyle-related factors in community-dwelling older people,** Gerontology and Geriatrics 72, p. (2017) 121–126

Objective: This study aimed to investigate skin hydration status of the lower legs by comparing several methods and examining lifestyle-related factors in community-dwelling older people. Methods: A cross-sectional study was conducted in three community settings in Japan from autumn to winter. Participants were older people aged ≥65 years (n = 118). Skin hydration status of the lower legs was evaluated by stratum corneum hydration using an electrical device, clinical symptoms by an expert's observation and the visual analogue scale. Lifestyle factors of skin care were evaluated by a self-administered questionnaire. Results: The mean age of participants was 74.4 years and 83.9% were women. Stratum corneum hydration was significantly correlated with clinical scores by an expert's observation (rho = -0.46, P < 0.001), but it was not correlated with the visual analogue scale (rho = -0.08, P = 0.435). Among participants who did not perceive dry skin, 57.5% showed low stratum corneum hydration. Hospitalization in the past year (b = -9.4, P = 0.008), excessive bathing habits (b = -4.6, P = 0.014), and having an outdoor hobby (b = -5.7, P = 0.007) were negatively associated, and diuretics (b = 11.5, P = 0.002) and lotion-type moisturizer use (b = 4.6, P = 0.022) were positively associated with stratum corneum hydration. Conclusion: Stratum corneum hydration measurements show an adequate association with observation-based evaluation by an expert, but poor agreement with subjective evaluation in community-dwelling older people. Hospitalization experience and lifestyle factors are associated with skin hydration.

Y. Xu, R. Ma, J. Juliandri, X. Wang, B. Xu, D. Wang, Y. Lu, B. Zhou, D. Luo, **Efficacy of functional microarray of microneedles combined with topical tranexamic acid for melisma - A randomized, self-controlled, split-face study**, Medicine 2017

To evaluate the efficacy of a functional microarray of microneedles (MNs) plus topical tranexamic acid (TA) for melasma in middleaged women in China. Thirty female subjects with melasma were enrolled in this study. The left or right side of the face was chosen randomly to be pretreated with a functional microarray of MNs, followed by topical 0.5% TA solution once per week for 12 weeks. The other half-face was the control, treated with a sham device plus topical 0.5% TA solution. At baseline and at weeks 4, 8, and 12 of treatment, clinical (photographic) evaluations and parameters determined by Visia were recorded. At baseline and week 12, patient satisfaction scores and the biophysical parameters measured by Mexameter were also recorded. Side effects were evaluated at baseline and at the end of the 12 weeks. In total, 28 women (93.3%) completed the study. The brown spots' scores measured by Visia were significantly lower on the combined therapy side than on the control side at 12 weeks after starting treatment; there was no significant difference between sides at 4 or 8 weeks. After 12 weeks, melanin index (MI) decreased significantly in both 2 groups, and the MI was significantly less on the combined side at week 12. Transepidermal water loss, roughness, skin hydration, skin elasticity,

and erythema index showed no significant differences between 2 sides at baseline, 4, 8, and 12 weeks after treatment. Physicians' evaluations of photographs showed better results at week 12with combined therapy: >25% improvement was observed in the MNs plus TA side in 25 patients, and in the TA side in only 10 patients. Subjective satisfaction scores on both sides increased significantly. The participants were more satisfied with the results of the combined therapy side than the control side. No obvious adverse reactions were observed throughout the study. Combined therapy with a functional microarray of MNs and topical TA solution is a promising treatment for melasma.

A. Rajabi-Estarabadi, H. Hasanzadeh, A. Taheri, S.R. Feldman, A. Firooz, **The efficacy of short-term clobetasol lotion in the treatment of scalp psoriasis**, Journal of Dermatological Treatment, 2017

Background: Scalp psoriasis can have a considerable impact on patients' quality of life and is considered difficult to treat. Treatment failure may, however, be due to poor adherence, as application of topical treatments to hair bearing areas is difficult and time consuming and also poor communication between physician and patient. Objective: To assess the efficacy of short-term treatment of scalp psoriasis with topical clobetasol lotion. Materials and methods: Twelve patients with mild to severe scalp psoriasis were recruited for this study. Patients applied clobetasol 0.05% lotion twice daily for seven days. They were followed up with phone calls three days after starting the treatment. Skin hydration, transepidermal water loss (TEWL) and skin erythema were assessed noninvasively at baseline and end of study. Results: One week after treatment, median PSI score decreased significantly (p ¼ .002). There was also a significant decrease in median TEWL (p ¼ .012) and increase in skin hydration one week after treatment (p ¼ .010). Eighty three percent of patients were satisfied with treatment result and felt convenient with applying clobetasol lotion. Limitations: Lack of a long-term follow-up. Conclusions: Psoriasis is a long-term disease, and improving adherence in the short time could improve patient's adherence to treatment in long time.

K. Ogai, M. Matsumoto, M. Aoki, R. Ota, K. Hashimoto, R. Wada, M. Kobayashi, J. Sugama, **Wash or wipe? A comparative study of skin physiological changes between water washing and wiping after skin cleaning,** Skin Research and Technology 2017; 23: p. 519-524

Background/purpose: Presently, skin-cleaning agents that claim to be removed by water or wiping alone are commercially available and have been used for the purpose of bed baths. However, there is a lack of knowledge on how water washing and wiping differently affect skin physiological functions or ceramide content. The aim of this study was to compare the effects of water washing and wiping on skin physiological functions and ceramide content. Methods: Three kinds of the cleaning agents with different removal techniques (ie, water washing and wiping) were used in this study. Skin physiological functions (ie, transepidermal water loss, skin hydration, and skin pH) and skin ceramide content were measured before and after seven consecutive days of the application of each cleaning agent. Results: No significant differences in skin physiological functions or ceramide content were observed between water washing and wiping. Conclusion: Cleaning agents that claim to be removed by water washing or wiping do not affect skin physiological functions or ceramide content by either removal method.

*E. Jacquet, J. Chambert, J. Pauchot, P. Sandoz***, Intra- and inter-individual variability in the mechanical properties of the human skin from in vivo measurements on 20 volunteers**, Skin Research and Technology 2017; 23: p. 491-499

Background/purpose: The mechanical properties and behavior of the human skin in vivo are of medical importance, particularly to surgeons who have to consider the skin extension capabilities in the preparation of surgical acts. Variable data can be found in literature that result from diverse kinds of tests (in vivo, ex vivo, and postmortem) performed with different instruments. Methods: This paper presents the results of in vivo measurements performed on a cohort of 20 healthy volunteers with an ultralight homemade uniaxial extensometer. Different anatomical zones were explored under different directions of solicitation in order to document inter- and intra-individual variability as well as skin anisotropy. Results: The experimental data obtained are fitted with a phenomenological exponential model allowing the identification of three parameters characteristic of the tested skin behavior. These parameters can be related to the concept of skin extensibility used by surgeons. Conclusion: The inter- and intra-variability observed on that cohort confirms the need for a patient-specific approach based on the in vivo measurement of the mechanical behavior of the human skin of interest. Even the direction of higher skin stiffness is found to be individual-dependent. The capability of the extensometer used in this study to fulfill such measurement needs is also demonstrated.

K. Bazela, R. Debowska, B. Tyszczuk, K. Rogiewicz, I. Eris, **Noninvasive Techniques for Anti-cellulite Product Efficacy Evaluation,** www.cosmeticsandtoiletries.com, December 2017

Cellulite is considered an endocrine metabolic microcirculatory disorder that causes interstitial matrix alterations and structural changes in subcutaneous adipose tissue. It is localized mainly on the thighs, buttocks and occasionally the abdomen, and it is characterized by an orange peel or cottage cheese appearance. Approximately 85% of women worldwide are concerned by cellulite. Although the cellulite pathogenesis is not fully understood, a variety of circulatory and structural changes have been identified that contribute to the orange peel appearance of the skin. First, the capillary networks of the dermis are impaired from the breakdown in blood vessel integrity, which causes fluid retention and clumping of engorged fat cells in the subcutaneous tissue. The aggregation of adipose cells and the growth of collagen fibrils further hamper microcirculation, leading to dermal metabolism reduction. Moreover, dermal thinning occurs in response to minimized protein synthesis and reduced degradation. Adipose cells isolated from nutrition and toxins removal swell to micronodules that finally agglomerate to macronodules. Cellulite is a concern for many women. Therefore, appropriate research to investigate treatment options and objective methods measuring its efficacy are warranted. The present study aims to evaluate the efficacy of an anti-cellulite product using noninvasive investigation techniques. The key skin condition parameters measured include moisturization, roughness and the thickness of subcutaneous tissue.

E. Hahnel, U. Blume-Peytavi, C. Trojahn, J. Kottner, **Associations between skin barrier characteristics, skin conditions and health of aged nursing home residents: a multicenter prevalence and correlational study,** BMC Geriatrics (2017) 17:263

Background: Geriatric patients are affected by a range of skin conditions and dermatological diseases, functional limitations and chronic diseases. Skin problems are highly prevalent in elderly populations. Aim of this study was to investigate possible associations between health, functional and cutaneous variables in aged long-term care residents. Methods: This observational, cross-sectional, descriptive prevalence study was conducted in a random sample of 10 institutional long-term care facilities in Berlin. In total, n = 223 residents were included. Demographic and functional characteristics, xerosis cutis, incontinence associated dermatitis, pressure ulcers and skin tears were assessed. Stratum corneum hydration, transepidermal water loss, skin surface pH and skin temperature were measured. Data analysis was descriptive and explorative. To explore possible bivariate associations, a correlation matrix was created. The correlation matrix was also used to detect possible collinearity in the subsequent regression analyses. Results: Mean age (n = 223) was 83.6 years, 67.7% were female. Most residents were affected by xerosis cutis (99.1%; 95% CI: 97.7% - 100.0%). The prevalence of pressure ulcers was 9.0% (95% CI: 5.0% - 13.0%), of incontinence associated dermatitis 35.4% (95% CI: 29.9% - 42.2%) and of skin tears 6.3% (95% CI: 3.2% - 9.5%). Biophysical skin parameters were not associated with overall care dependency, but with age and skin dryness. In general, skin dryness and measured skin barrier parameters were associated between arms and legs indicating similar overall skin characteristics of the residents. Conclusion: Prevalence of xerosis cutis, pressure ulcers and skin tears were high, indicating the load of these adverse skin conditions in this population. Only few associations of demographic characteristics, skin barrier impairments and the occurrence of dry skin, pressure ulcers, skin tears and incontinence-associated dermatitis have been detected, that might limit the diagnostic value of skin barrier parameters in this population. Overall, the measured skin barrier parameters seem to have limited diagnostic value for the reported skin conditions except xerosis cutis.

E. Hahnel, U. Blume-Peytavi, C. Trojahn, G. Dobos, A. Stroux, N. Garcia Bartels, I. Jahnke, A. Lichterfeld-Kottner, H. Neels-Herzmann, A. Klasen, J. Kottner, **The effectiveness of standardized skin care regimens on skin dryness in nursing home residents: A randomized controlled parallel-group pragmatic trial,** International Journal of Nursing Studies 70 (2017) p. 1–10

Background: Aged residents of institutional long-term care facilities are at high risk for developing skin and tissue diseases. Besides various common skin problems, dry skin (xerosis cutis) is one of the most frequent skin conditions in this setting. Objectives: To investigate the effectiveness of two structured skin care regimens in comparison to routine skin care on xerosis cutis in nursing home residents. Design: A multi-center, pragmatic, randomized, controlled, investigator blinded study with three parallel groups. Settings: The study was conducted in a random sample of ten out of 291 institutional long-term care facilities of the federal state of Berlin, Germany. Participants: Long-term care residents being 65+ years affected by dry skin were included. Methods: The residents were allocated into one of three study groups. Two interventional groups used standardized skin care regimens, consisting of a body wash and twice daily applications of leave-on products for eight weeks. The third control group performed skin care as usual. All participating residents were examined at baseline and after 4 and 8 weeks. Xerosis cutis was measured with the Overall Dry Skin score. Instrumental skin barrier measurements were performed at baseline and after 8 weeks. Diaries were used to document washing and skin care frequencies. Results: In total, 133 residents were included and allocated to one

of the three groups. Mean age was 83.8 (SD 8.3) years, 65.4% were female and most residents had care levels I (42.9%) or II (42.9%) according to the German Social Code Book XI. Mean Barthel score was 46.8 (SD 24.2) and mean Braden score was 17.6 (SD 3.7). Leg skin areas were drier compared to arms and trunk areas. At the end of the study the Overall Dry Skin scores in the intervention groups were lower compared to the control group. There were statistically significant improvements of skin dryness in both intervention groups compared to the control group over time. Conclusions: The results of this pragmatic trial indicate that structured skin care regimens are effective in reducing skin dryness in aged nursing home residents within eight weeks.

T. Tomova-Simitchieva, A. Lichterfeld-Kottner, U. Blume-Peytavi, J. Kottner, **Comparing the effects of 3 different pressure ulcer prevention support surfaces on the structure and function of heel and sacral skin: An exploratory cross-over trial,** International Wound Journal, 2017; p. 1–9

Special support surfaces are key in pressure ulcer prevention. The aim of this study was to measure the effects of 3 different types of mattresses (reactive gel, active alternating air, basic foam) on skin properties of the sacral and heel skin after 2 hours loading. Fifteen healthy females (median age 66 years) were included. Transepidermal water loss, skin surface temperature, erythema, stratum corneum hydration, epidermal hydration, skin extensibility, elastic function, and recovery as well as skin roughness parameters were measured under controlled room conditions before loading, immediately after loading, and 20 minutes postloading in the supine position on the different mattresses. The highest increases in transepidermal water loss, skin temperature, and erythema were observed for the foam mattress after loading, indicating higher deformation and occlusion. Cutaneous stiffness decreased in all 3 groups, indicating structural changes during loading. There was a substantial decrease of mean roughness at the heel skin in the foam group, leading to a flattening of the skin surface. Study results indicate that the type of support surface influences skin structure and function during loading. The gel and air mattress appeared to be more protective compared with the foam mattress, but the differences between the gel and air were minor.

M. Schario, T. Tomova-Simitchieva, A. Lichterfeld, H. Herfert, G. Dobos, N. Lahmann, U. Blume-Peytavi, J. Kottner, **Effects of two different fabrics on skin barrier function under real pressure conditions**, Journal of Tissue Viability 26 (2017), p. 150 -155

Background: Pressure Ulcers (PUs) are a severe form of skin and soft tissue lesions, caused by sustained deformation. PU development is complex and depends on different factors. Skin structure and function change during prolonged loading on PU predilection sites and surfaces being in direct contact with skin are likely to have an impact as well. Little is known about the influence of fabrics on skin function under pressure conditions. Objectives: To investigate skin responses to sustained loading in a sitting position and possible differences between two fabrics. Methods: Under controlled conditions 6 healthy females (median age 65.0 (61.0e67.8) years) followed a standardized immobilization protocol of a sitting position for 45 min on a spacer and on a cotton fabric. Before and after the loading period skin surface temperature, stratum corneum hydration, transepidermal water loss (TEWL), erythema, skin elasticity and 'relative elastic recovery' were measured at the gluteal areas. Results: A 45 min sitting period caused increases of skin surface temperature and erythema independent of the fabric. Loading on spacer fabric showed a two times higher increase of TEWL compared to cotton. Stratum corneum hydration showed slight changes after loading, skin elasticity and 'relative elastic recovery' remained stable. Conclusions: Sitting on a hard surface causes skin barrier changes at the gluteal skin in terms of stratum corneum hydration and TEWL. These changes are influenced by the fabric which is in direct contact to the skin. There seems to be a dynamic interaction between skin and fabric properties especially in terms of temperature and humidity accumulation and transport.

U. Schlossberger, T. Jansen, **Wirksamkeit eines neuartigen transdermalen Applikationssystems in der Therapie von gealterter und chronisch lichtgeschädigter Haut**, Dermatologie am Alter Markt, Köln, Germany

In einer offenen Pilotstudie wurde die Wirksamkeit eines neuartigen transdermalen Applikationssystems (Dermadrop®, Omega Diagnostics GmbH, Reinbek), bei dem mit Hilfe von hochkonzentriertem Sauerstoff definierte Wirkstoffe wie Hyaluronsäure in die Dermis eingebracht werden, bei Frauen mit gealterter und chronisch lichtgeschädigter Haut untersucht. Die Applikation erfolgte nach einem standardisierten Protokoll konsekutiv in 3 Sitzungen im Abstand von 1 Woche in der Periorbital- und der Oberlippenregion. Die Evaluierung fand vor Therapiebeginn, dann wöchentlich jeweils vor der Applikation sowie 1 Woche nach der letzten Applikation statt. An festgelegten Meßpunkten kamen biophysikalische Methoden zur Bestimmung verschiedener Hautfunktionsparameter wie SELS-Verfahren (Visioscan®), Cutometrie und Corneometrie (Courage u. Khazaka, Köln) zur Anwendung. Die klinischen Befunde wurden im Verlauf mit Hilfe von digitaler

Photographie dokumentiert und miteinander verglichen. Die objektiven Befunde wurden mit der subjektiven Probandenzufriedenheit, die anhand von standardisierten Fragebögen ermittelt wurde, korreliert. Die Ergebnisse der Studie geben erste Hinweise auf die Wirksamkeit des Dermadrop®-Verfahrens in der Therapie von gealterter und chronisch lichtgeschädigter Haut. Es handelt sich um ein neuartiges dermatologisch-ästhetisches Therapiesystem, das eine Penetration von unterschiedlichen Wirkstoffen nicht-invasiv und schmerzfrei in die Dermis ermöglicht. Weitere Untersuchungen zur Evaluierung der Wirksamkeit des transdermalen Applikationssystems bei verschiedenen Indikationen sind vorgesehen.

K.C. Bernhöft, M. Streker, M. Kerscher, **Evaluation einer kosmetischen Maske bestehend aus einem Puder (27% Vitamin C, 4% Emblica Extrakt) und einer Lösung (40% Glykolsäure, 10% Zitronensäure) in Kombination mit einem Produkte-Set zur Reduktion fazialer Hyperpigmentierung**

Fragestellung: Wie effektiv ist die Anwendung einer kosmetischen Peelingmaske in Kombination mit einem Produkte Set für zuhause bei der Reduzierung von Hyperpigmentierung bei Frauen? Methodik: In dieser Pilotstudie wurden 2×12 Probandinnen, insgesamt 24, zwischen 25 und 60Jahren in je einem Zeitraum von 12Wochen untersucht. Die Peelingmaske wurde 6x mit je einem Abstand von 10–14Tagen auf dem gesamten Gesicht nach einem speziellen Behandlungsablauf angewendet. Während des gesamten Studienzeitraums wurden die Probandinnen dazu angehalten das ausgegebene Produkte Set zuhause anzuwenden. Zur Evaluation der direkten Hautreaktion wurde eine Probanden Befragung, als auch eine Experten Einschätzung, zu jeder Visite eingeholt. Zusätzlich wurde zur Effekt Feststellung die standardisierte Fotographie (Visia, complexing analysis), Mexametrie und Probanden Befragungen vor Beginn der Studie, an Tag 42 und an Tag 84 angewendet. Die Verträglichkeit der Behandlung, die Corneometrie, der transepidermale Wasserverlust, als auch der pH Wert wurden mittels biophysikalischer Messungen festgehalten. Ergebnis: Die Probanden stellten in den Befragungen eine Verbesserung der Hauttextur, Ebenmäßigkeit und des gesamt Erscheinungsbildes der Haut fest. Größtenteils sind die Hyperpigmentierungen nach Anwendung der Peelingmaske und des Produkte Sets zurückgegangen. Die Hautfarbe, gemessen an Melanin und Hämoglobin (Erytheme) ist schwächer geworden, verglichen zu den Vorab-Messungen. Die Hautverträglichkeit gemessen an den biophysikalischen Werten ist gegeben gewesen. Schlussfolgerung: Die Anwendung der Peelingmaske, wie auch der Heimpflege-Produkte war verträglich und konnte eine Verbesserung der Haut erreichen. Dies lässt darauf schließen, dass ein oberflächliches, kosmetisches Fruchtsäurepeeling, in diesem Fall in Form einer Peelingmaske, mit einem ergänzendem Produkte Set für zuhause, eine zufriedenstellende und verträgliche Alternative zu aufhellenden Produkten auf dem Markt darstellt.

E. Merinville, C. Messaraa, C. O'Connor, G. Grennan, A. Mavon, **What Makes Indian Women Look Older—An Exploratory Study on Facial Skin Features,** cosmetics, December 2017

It remains important to investigate skin ageing signs across different skin types for targeted solutions. Limited data is available on Indian skin changes throughout ageing, hence three fields were investigated: skin features during the ageing process, their relationship with perceived age and self-declared skin ageing concerns. Photographs, skin topography, colour and biophysical measurements of 202 Indian female volunteers, 30–65 years old, were collected. Another panel of 693 naïve graders, 20–65 years old, estimated the age of photographs previously collected. Associations between 28 skin features and real/perceived age were assessed using linear correlation coefficients. Skin feature scores of an older perceived group were compared versus the scores of a younger perceived group, to establish skin features that lead to an older appearance. Additionally, the naïve graders were asked to rank 12 skin ageing concerns by importance. Twenty-four features correlated with real and perceived age. The ages of the volunteers were overestimated, especially those in their 30s. Skin features related to skin brightness suggested an older look for volunteers in their 30s. From the 40s onwards, wrinkles around the eye area, glabellar and corner of the mouth were also drivers for looking older. In the 50s, features such as upper lip wrinkles, hydration and roughness on the crow's feet were worse in the older perceived group, while nasolabial folds suggested an older appearance in the 60s. By having identified skin features that worsen with age and contribute to an older perceived face, this research will facilitate the creation of tailored products and communication for Indian women to look after their skin concerns throughout the ageing process.

C. Korponya, E. Szél, Z. Behány, E. Varga, G. Mohos, Á. Dura, S. Dikstein, L. Kemény, G. Erös, **Effects of Locally Applied Glycerol and Xylitol on the Hydration, Barrier Function and Morphological Parameters of the Skin**, Acta Derm Venereol. 2017

Glycerol and xylitol hydrate the skin and improve its barrier function over a short period. We

studied the effects of glycerol and xylitol on the physiological properties and morphology of the skin after longer-term application. Twelve volunteers with dry skin were examined. Three areas on the arms were determined. Area 1 served as untreated control. The vehicle was applied to area 2, while area 3 was treated twice daily with a formulation containing glycerol (5%) and xylitol (5%) for 14 days. Transepidermal water loss (TEWL), hydration and biomechanical properties of the skin were monitored. Biopsies were taken for routine histology and immunohistochemistry for flaggrin and matrix metalloproteinase-1 (MMP-1). The polyols increased the skin hydration and protein quantity of flaggrin, elevated the interdigitation index, decreased the TEWL and improved the biomechanical properties of the skin, but did not change the protein expression of MMP-1. A combination of glycerol and xylitol can be useful additional therapy for dry skin.

R. Janiš, V. Pata, P. Egner, J. Pavla□ková, A. Zapletalová, K. Kejlová, **Comparison of metrological techniques for evaluation of the impact of a cosmetic product containing hyaluronic acid on the properties of skin surface**, Biointerphases 12, 021006 (2017)

The aim of this research was to evaluate mutual interchangeability of four principally different biometric instrumental techniques designed for objective measurement of changes in the physical, mechanical, and topographical properties of the skin surface treated with commercial antiaging cosmetic products with hyaluronic acid. The following instrumental devices were used: Visioscope PC 35, Corneometer Multiprobe Adapter MPA 6, Reviscometer RVM 600, and 3D scanner Talysurf CLI 500. The comparison of the individual methods was performed using cluster analysis. The study involved 25 female volunteers aged 40–65. Measurements were taken before and after 30 daily in vivo applications of an antiaging preparation to the skin surface in the periorbital area. A slight reduction in skin surface roughness was recorded in 55% of the volunteers. On the contrary, a worsening from their initial states was detected in 25% of the subjects, while for 20%, no significant change was reported. Cluster analysis confirmed that the mentioned methodologies can be divided into two basic clusters, namely, a cluster of methods recording the changes in skin relief by means of optical techniques, and a cluster of methods investigating changes in hydration and anisotropy. In practice, the techniques in different clusters are not interchangeable and should be assessed separately.

L. von Oppen-Bezalel, **Detoxification and protection against pollution and UV**, PERSONAL CARE ASIA PACIFIC, November 2017, p. 59-61

Air pollution, caused mainly by industry, vehicle fumes,cigarette smoke together with high energy sunlight (UV), are known to have a detrimental effect on our skin and body, starting from our appearance, such as early signs of ageing including wrinkles, pigmentation spots, disrupted skin barrier, overall dryness and skin imperfections. Pollution and smog are not a single substance, but are rather a highly complex mixture of molecules and particles that are breathed in and absorbed through the skin. A major unmet need of the industry is for effective, natural and safe means to protect the body and the skin specifically as our outer protective layer against pollution to which it is exposed daily.

A. Aguirre, E. Gil-Quintana, M. Fenaux, S. Erdozain, I. Sarria, **Beneficial Effects of Oral Supplementation with Ovoderm on Human Skin Physiology: Two Pilot Studies**, J Diet Suppl. 2017 Nov 2; 14(6): p. 706-714

Collagens and hyaluronic acid have long been used in pharmaceuticals and food supplements for the improvement of skin elasticity and hydration. These compounds provide the building blocks of the skin. Ovoderm is an oral supplement obtained from eggshells that contains naturally occurring collagen and glycosaminoglycans, such as hyaluronic acid. We evaluated the efficacy of Ovoderm on skin biophysical parameters related to cutaneous aging such as elasticity, hydration, and pigmentation. Two pilot studies were run to assess the effect of daily oral supplementation with 300 mg Ovoderm on skin parameters. The first consisted of a self-assessment questionnaire intended to perform an assessment on skin, hair, and nail health after 50 days of treatment. The second measured the effect of 5-week treatment on hydration by corneometry, on elasticity with the cutometer, and on pigmentation with the mexameter. In the pilot study 1, participants were predominantly satisfied with the effects obtained on general face (100% volunteers satisfied) and body (94% volunteers satisfied) skin condition and skin properties (100% volunteers satisfied with facial skin softness, 94% with facial skin hydration, and 89% with body skin hydration) and partly with effects on hair (67% volunteers satisfied) and nail (50% volunteers satisfied) condition. The study 2 revealed a statistically significant improvement in skin elasticity (12% increase, p =.0136), a tendency to reduce skin pigmentation (5% decrease), and no significant change in skin hydration. Our study reflects that oral supplementation with Ovoderm is efficacious to reduce the gradual loss of skin elasticity characteristic of aged skin, which helps to improve the appearance of the skin.

M.P. Wakeman, **An open-label forearm-controlled pilot study to assess the effect of a proprietary emollient formulation on objective parameters of skin function of eczema-prone individuals over 14 days,** Clinical, Cosmetic and Investigational Dermatology 2017:10, p. 275–283

Background: This study examines the effcacy of a new plant-based emollient and assesses product acceptability. Methods: Primary effcacy endpoints were improvement in transepidermal water loss, hydration, skin elasticity and frmness, erythema, and skin roughness and smoothness as measured using the versions of Tewameter, Corneometer, Cutometer, Mexameter, and Visioscan VC98, respectively. The cream was applied twice daily by 32 participants to an area of one forearm unaffected by eczema, while the same area of the other forearm was used as a control. Measurements were taken at day 0 and day 14. Secondary endpoints assessed the acceptability of the product. Results: At the end of 2 weeks, transepidermal water loss, hydration, skin elasticity and frmness, erythema, and skin roughness and smoothness improved. All changes were statistically signifcant (p<0.01). The rate of satisfaction with the emollient properties was 82%, and the rate of absorption into the skin was 88%. Results show that the emollient hydrates and repairs eczema-prone skin with high levels of acceptability.

K. Huimin, A.M. Rowledge, C.J. Borzdynski, C. Miller, N. Frescos, G. McKenzie, E. Perry, W. McGuiness, **Reliability of a Skin Diagnostic Device in Assessing Hydration and Erythema**, Adv Skin Wound Care, 2017 Oct;30(10): p. 452-459

Objective: To examine the reliability of a skin diagnostic device, the SD202 (Courage+Khazaka GmBH, Cologne, Germany), in assessing hydration and erythema of periwound skin and pressure injury-prone areas. Design: Intrarater reliabilities from 3 cross-sectional and prospective studies are reported. Setting and Participants: Patients attending an outpatient, nurse-led wound dressing clinic (n = 16), a podiatrist-led high-risk foot clinic (n = 17), and residents (n = 38) at a single residential aged-care facility. Main Outcome Measures: Skin hydration and erythema levels assessed using the SD202. Main Results: High internal consistency was maintained for consecutive skin hydration and erythema measures at a single point on the venous leg ulcer periwound ($\alpha > .996$ and $\alpha > .970$ for hydration and erythema, respectively) and for the pressure-prone areas of the sacrum ($\alpha > .916$), right ($\alpha > .994$) and left ($\alpha > .967$) ischium, right ($\alpha > .989$) and left ($\alpha > .916$) trochanter, right ($\alpha > .985$) and left ($\alpha > .992$) calcaneus, and right ($\alpha > .991$) and left ($\alpha > .990$) lateral malleolus. High consistency was also found for the measures obtained at 4 different locations around the periwound for the venous leg ulcer ($\alpha > .935$ and $\alpha > .870$ for hydration and erythema, respectively). In diabetic foot ulcer assessment, acceptable internal consistency of hydration measures around the periwound was observed ($\alpha > .634$). Internal consistency of erythema measures was variable, ranging from low to high reliability, particularly among predebridement measures. Conclusions: Using the protocols outlined in this study, the SD202 demonstrates high reliability for assessing skin hydration and erythema levels. It is possible that the SD202 can be used in clinical practice as an appropriate tool for skin hydration and erythema assessment.

M. Milani, A. Sparavigna, **The 24-hour skin hydration and barrier function effects of a hyaluronic 1%, glycerin 5%, and *Centella asiatica* stem cells extract moisturizing fluid: an intra-subject, randomized, assessor-blinded study,** Clinical, Cosmetic and Investigational Dermatology 2017:10, p. 311–315

Introduction: Moisturizing products are commonly used to improve hydration in skin dryness conditions. However, some topical hydrating products could have negative effects on skin barrier function. In addition, hydrating effects of moisturizers are not commonly evaluated up to 24 hours after a single application. Hyaluronic acid (HA) and glycerin are very well-known substances able to improve skin hydration. *Centella asiatica* extract (CAE) could exert lenitive, anti-inflammatory and reepithelialization actions. Furthermore, CAE could inhibit hyaluronidase enzyme activity, therefore prolonging the effect of HA. A fluid containing HA 1%, glycerin 5% and stem cells CAE has been recently developed (Jaluronius CS [JCS] fluid). Study aim: To evaluate and compare the 24-hour effects of JCS fluid on skin hydration and on transepidermal water loss (TEWL) in healthy subjects in comparison with the control site. Subjects and methods: Twenty healthy women, mean age 40 years, were enrolled in an intra-subject (right vs left), randomized, assessor-blinded, controlled, 1-day trial. The primary end points were the skin hydration and TEWL, evaluated at the volar surface of the forearm and in standardized conditions (temperature- and humidity-controlled room: 23°C and 30% of humidity) using a corneometer and a vapometer device at baseline, 1, 8 and 24 hours after JCS fluid application. Measurements were performed by an operator blinded for the treatments. Results: Skin hydration after 24 hours was signifcantly higher (P=0.001; Mann–Whitney U test) in the JCS-treated area in comparison with the control site. JCS induced a signifcant (P=0.0001) increase in skin hydration at each evaluation time (+59% after 1 hour, +48% after 8 hours and +29% after 24 hours) in comparison with both baseline (P=0.0001) and non-treated control site (P=0.001). TEWL after 24 hours was signifcantly lower

(*P*=0.049; Mann–Whitney *U* test) in the JCS-treated area in comparison with the control site (13±4 arbitrary units [AU] vs 16±6 AU). JCS fluid signifcantly reduced post-stripping TEWL in comparison with baseline after 1, 8 and 24 hours (–52%, –32% and –48%, respectively). In the control site, TEWL was not reduced in comparison with baseline values at each time point's evaluation. Conclusion: A single application of JCS signifcantly improves skin hydration for up to 24 hours at the same time as improving skin barrier function.

C. Uhl, D. Khazaka, **Test equipment supports anti-pollution claims,** PERSONAL CARE ASIA PACIFIC, May 2017, p. 27-29 and PERSONAL CARE EUROPE, September 2017, p. 74-76

Pollution and its impact on the skin have recently become the main topic at all important cosmetic events, and products claiming to protect the skin from pollution effects are a major trend in the cosmetic and personal care industry.

N. Cameli, M. Mariano, M. Ardigò, C. Corato, G. De Paoli, E. Berardesca, **Comparative instrumental evaluation of efficacy and safety between a binary and a ternary system in chemexfoliation**, J Cosmet Dermatol, 2017 Sep

Objective: To instrumentally evaluate the efficacy and the safety of a new ternary system chemo exfoliating formulation (water-dimethyl isosorbide-acid) vs traditional binary systems (water and acid) where the acid is maintained in both the systems at the same concentration. Methods: Different peelings (binary system pyruvic acid and trichloroacetic acid-TCA, and ternary system pyruvic acid and TCA) were tested on the volar forearm of 20 volunteers of both sexes between 28 and 50 years old. The outcomes were evaluated at the baseline, 10 minutes, 24 hours, and 1 week after the peeling by means of noninvasive skin diagnosis techniques. In vivo reflectance confocal microscopy was used for stratum corneum evaluation, transepidermal waterloss, and Corneometry for skin barrier and hydration, Laser Doppler velocimetry in association with colorimetry for irritation and erythema analysis. Results: The instrumental data obtained showed that the efficacy and safety of the new ternary system peel compounds were significantly higher compared with the binary system formulations tested. The new formulation peels improved chemexfoliation and reduced complications such as irritation, redness, and postinflammatory pigmentation compared to the traditional aqueous solutions. Conclusion: The study showed that ternary system chemexfoliation, using a controlled delivery technology, was able to provide the same clinical effects in term of stratum corneum reduction with a significantly reduced barrier alteration, water loss, and irritation/erythema compared to traditional binary system peels.

M.P. Szczepanik , P.M. Wilko ek, .R. Adamek, M. Zajazc†, M. Go ynski, W. Sitkowski, I. Taszkun*, **Evaluation of the correlation between Scoring Feline Allergic Dermatitis and Feline Extent and Severity Index and skin hydration in atopic cats**, Veterinary Dermatology September 2017

Background: Evaluation of the severity of clinical signs of cats with allergic skin diseases has used two scoring systems: Scoring Feline Allergic Dermatitis (SCORFAD) and the Feline Extent and Severity Index (FeDESI). The integrity of the cutaneous barrier can also be evaluated by measuring skin hydration. A correlation between the clinical score and skin hydration has been observed in humans and dogs with atopic dermatitis (AD). Hypothesis: To demonstrate a correlation between the clinical score and skin hydration of cats affected with presumed AD. Animals: European short hair cats (n = 18): 11 females and seven males with a confirmed diagnosis of AD. Methods: SCORFAD and FeDESI scores were calculated and the measurements of skin hydration were assessed from seven body sites using corneometry. The correlation between the SCORFAD and FeDESI systems and skin hydration of each site, and the average skin hydration was calculated. Results: There was a positive correlation between the SCORFAD score and skin hydration for the axilla, thorax and forelimb; for FeDESI and axilla and lumbar sites. There was a negative correlation between the FeDESI and skin hydration for the pinna (r = 0.47). Conclusions and clinical importance: Measurements of skin hydration could be a useful tool for the evaluation of allergic cats. There is limited evidence of any useful correlation between clinical scoring systems and measurements of hydration. The pinna may be a suitable region for the assessment of skin barrier function in normal and allergic cats.

H.S. Scheer, **Untersuchung zur Hautbarriere bei Atopischem Ekzem und Filaggrinmutation,** Dissertation, Klinik und Poliklinik für Dermatologie und Allergologie am Biederstein, TU München, Germany, August 2017

Der Begriff Atopie leitet sich von dem griechischen Wort *atopos* ab und bedeutet „nicht am richtigen Platz" oder „seltsam". Er wurde 1923 eigens für die Beobachtungen von Coca und Cooke kreiert, die damit eine abnorme Hypersensitivitätsreaktion gegen ursprünglich harmlose Umweltsubstanzen beschreiben wollten. Wichtig war ihnen dabei die Abgrenzung zur Anaphylaxie und Allergie im Sinne einer Serumkrankheit (Coca & Cooke, 1923). Seitdem variierte die Begriffsdefiniton

stark und ist Gegenstand andauernder Kontroversen.

J. Djokic-Gallagher, P. Rosher, G. Oliveira, J. Walker, **A Double-Blind, Randomised Study Comparing the Skin Hydration and Acceptability of Two Emollient Products in Atopic Eczema Patients with Dry Skin**, Dermatol Ther (Heidelb) (2017) 7: p. 397–406

Introduction: Healthcare professionals tend to recommend emollients based primarily on patient/consumer preference and cost, with cheaper options assumed to be therapeutically equivalent. The aim of this study was therefore to compare the effects on skin hydration of two emollients prescribed in the UK, Doublebase DayleveTM gel (DELP) and a cheaper alternative, Zerobase EmollientTM cream (ZBC). Methods: This was a single-centre, randomised, double-blind, concurrent bi-lateral (within-patient) comparison in 18 females with atopic eczema and dry skin on their lower legs. DELPgel and ZBC cream were each applied to one lower leg twice daily for 4 days and on the morning only on day 5. The efficacy of both products was assessed by hydration measurements using a Corneometer CM825 probe (Courage-Khazaka Electronic). The measurements were made three times daily on days 1 to 5. The primary efficacy variable was the area under the curve (AUC) of the change from baseline corneometer readings over the 5 days. Results: Skin hydration using DELP gel was significantly higher than using ZBC cream (p \0.0001). The cumulative increase in skinm hydration observed for DELP gel was substantial and long lasting. In contrast, for ZBC cream, there was no significant improvement of the cumulative skin hydration as measured by the AUC (p = 0.22). Conclusion: DELP gel achieved substantial, long-lasting and cumulative skin hydration, whilst ZBC cream achieved no measurable improvement in skin hydration compared to before treatment. Healthcare professionals should be aware that different emollients can perform differently

J. M. Jackson. G.L. Grove. K. Allenby. T. Houser, **DFD-01 Reduces Transepidermal Water Loss and Improves Skin Hydration and Flexibility**, Dermatol Ther (Heidelb) (2017) 7: p. 507–514

Introduction: In plaque psoriasis, the benefit of topical steroids is well established. The vehicle formulation of topical steroids may also provide benefit in addition to the effects of the steroid itself. DFD-01 (betamethasone dipropionate spray, 0.05%) is a formulation composed of a topical steroid in an emollient-like vehicle that enhances penetration to the target site of inflammation in the skin. The aim of this study was to assess the effect of DFD-01 and its vehicle on skin hydration and barrier function in compromised skin and to evaluate its effect on flexibility in healthy skin. Methods: Eighteen healthy white volunteers were enrolled in each of two studies. In Study 1, dry shaving of volar forearms created a compromised skin barrier, through which transepidermal water loss (TEWL) was measured using an evaporimeter. Capacitance, a measure of epidermal hydration, was also measured at baseline and at 1, 2 and 4 h after application of DFD-01 or its vehicle formulation. In Study 2, intact skin flexibility was tested with a cutometer before and at 1, 2 and 4 h after application of DFD-01 or vehicle. Results: In Study 1, both DFD-01 and its vehicle were effective at reducing TEWL through the compromised stratum corneum. Capacitance measurements confirmed this finding; razor-chafed skin treated with either DFD-01 or vehicle exhibited levels of skin hydration similar to unshaved control skin. Study 2 found softening and greater flexibility of normal skin treated with either DFD-01 or vehicle compared with nontreated control skin samples. Conclusions: These tests suggest that the DFD-01 formulation and its vehicle are each effective at retaining moisture within a damaged skin barrier and for softening and increasing the flexibility of intact skin.

Xi Li, C. Yuan, L. Xing, P. Humbert, **Topographical diversity of common skin microflora and its association with skin environment type: An observational study in Chinese women**, Scientific Reports, (2017) 7:18046

This study evaluated cutaneous microbial distribution, and microbial co-occurrence at different body sites and skin environments in Chinese women (39.6 ± 11.9 years, N= 100) during the winter season. Microbial distribution (*Propionibacterium acnes*, *Staphylococcus aureus*, *Staphylococcus epidermidis*, *Lactobacillus*, Pseudomonadaceae, and *Malassezia furfur*), association with biomarkers (antimicrobial peptides: LL-37, ¤-defiensins [HBD-2, HBD-3]), and claudin-1) and skin biophysical parameters (transepidermal water loss, pH, skin scaliness and roughness, sebum and hydration levels) were also determined. Skin sites (glabella [GL], hand-back [HB], interdigital web-space [IS], antecubital fossa [AF], volar forearm [VF], back [BA]) were classified as normal, oily or dry based on two-step cluster analysis and exposed or unexposed (uncovered or covered by clothes, respectively) based on seasonal apparel. Pseudomonadaceae and *Staphylococcus aureus* had the highest and lowest detection rate respectively at all sites. Cluster analysis identified skin sites as ‘normal’ (HB, BA, AF, VF), ‘dry’ (IS) and ‘oily’ (GL). Bacterial alpha diversity was higher in exposed (HB, IS, and GL) compared with unexposed sites (BA, AF and VF). Co-occurrence of *Staphylococcus aureus* with any of the other five microorganisms was lower in dry and oily skin versus normal skin. Skin exposure, biophysical/barrier

profile and biomarkers were found to be associated with bacterial distribution and co-occurrence.

W. Chaiyana, P. Leelapornpisid, R. Phongpradist, K. Kiattisin, **Enhancement of antioxidant and skin moisturizing effects of olive oil by incorporation into microemulsions**, Nanomaterials and Nanotechnology, Volume 6: p. 1–8

The aims of the present study were to develop olive oil microemulsions and characterize their antioxidant and skin moisturizing properties. The acid, iodine, and saponification values of olive oil were 0.38 + 0.01 mg potassium hydroxide/g, 88.2 + 5.9 mg iodine/g, and 192.2 + 1.4 mg potassium hydroxide/g, respectively. Pseudoternary phase diagrams, constructed using the water titration method, produced suitable microemulsions: microemulsion 1 (10% olive oil, 64% Tween 85, 16% propylene glycol, and 10% water) and microemulsion 2 (10% olive oil, 64% Tween 85, 16% ethanol, and 10% water). Microemulsions 1 and 2 exhibited Newtonian flow behavior with internal droplet sizes of 443.60 + 27.66 nm and 139.37 + 12.15 nm, respectively. Their in vitro antioxidant and skin moisturizing properties were investigated in comparison with native olive oil. Microemulsion 2 possessed the highest significant antioxidant effect ($p < 0.05$) giving half maximal inhibitory concentration values in radical-scavenging activity against 1,1-diphenyl-2-picrylhydrazyl and 2,20-azino-bis(3- ethylbenzothiazoline-6-sulphonic acid) of 4.78 + 1.25 mg/mL and 14.85 + 11.18 mg/mL, respectively. The lipid peroxidation inhibition of microemulsion 2 was comparable to native olive oil, whereas the skin moisturizing effect of microemulsion 1 was comparable to the well-known skin moisturizer, hyaluronic acid. In conclusion, microemulsions enhanced both antioxidant and skin moisturizing effects and were attractive formulations for using as a cosmetic or drug delivery system.

N. Cameli, M. Mariano, I. Cordone, E. Abril, S. Masi, M.L. Foddai, **Autologous Pure Platelet-Rich Plasma Dermal Injections for Facial Skin Rejuvenation: Clinical, Instrumental, and Flow Cytometry Assessment**, Dermatol Surg. 2017 Jun;43(6): p. 826-835

Background: Platelet-rich plasma (PRP) is an emerging treatment in dermatology recently proposed for skin rejuvenation. Objective: To evaluate the efficacy and safety of autologous pure PRP dermal injections on facial skin rejuvenation, investigating the cellularity of PRP samples. Material and Methods: Twelve patients underwent 3 sessions of PRP injection at 1-month intervals. The clinical and instrumental outcomes were evaluated before (T0) and 1 month (T1) after the end of treatment by means of transepidermal water loss, corneometry, Cutometer, Visioscan, and Visioface. A flow cytometry characterization on PRP and peripheral blood (PB) samples was performed. Results: Clinical and patient evaluation showed improvement of skin texture. Skin gross elasticity, skin smoothness parameters, skin barrier function, and capacitance were significantly improved. No difference between PRP and PB lymphocyte immunological asset was observed. A leukocyte population (mainly CD3) and neutrophils depletion were documented in all the PRP samples. Conclusion: This instrumental study demonstrated that PRP poor in leukocytes can provide objective improvements in skin biostimulation. Flow cytometry showed no variability among the PRP samples using a reproducible separation system and a low content in proinflammatory cells. Although a pilot study, it may be helpful for future investigations on PRP cellularity.

S. Mac-Mary, J.-M. Sainthillier, P. Humbert, **Mesure instrumentale de l'hydratation cutanée**, EMC - Cosmétologie et Dermatologie esthétique, June 2017

L'eau joue un rôle fondamental dans les propriétés physiques de la peau en permettant d'assurer sa solidité, sa flexibilité et une perméabilité minimale pour que l'eau endogène puisse jusqu'à la surface cutanée activer les enzymes responsables de la desquamation. Dans la couche cornée, elle est fixée sur des substances hydrosolubles et hygroscopiques intracellulaires appelées *natural moisturizing factors*. Cette eau représente l'aspect statique de l'hydratation cutanée.

N. Cameli, **Platelet-rich plasma injections show efficacy in facial skin biostimulation**, Dermatologic Surgery, June 2017, Volume 43, Issue 6, p. 826–835

Background: Platelet-rich plasma (PRP) is an emerging treatment in dermatology recently proposed for skin rejuvenation. Objective: To evaluate the efficacy and safety of autologous pure PRP dermal injections on facial skin rejuvenation, investigating the cellularity of PRP samples. Materials and Methods: Twelve patients underwent 3 sessions of PRP injection at 1-month intervals. The clinical and instrumental outcomes were evaluated before (T0) and 1 month (T1) after the end of treatment by means of transepidermal water loss, corneometry, Cutometer, Visioscan, and Visioface. A flow cytometry characterization on PRP and peripheral blood (PB) samples was performed. Results: Clinical and patient evaluation showed improvement of skin texture. Skin gross elasticity, skin smoothness parameters, skin barrier function, and capacitance were significantly improved. No difference between PRP and PB lymphocyte immunological asset was observed. A leukocyte population (mainly $CD3^+$) and neutrophils

depletion were documented in all the PRP samples. Conclusion: This instrumental study demonstrated that PRP poor in leukocytes can provide objective improvements in skin biostimulation. Flow cytometry showed no variability among the PRP samples using a reproducible separation system and a low content in proinflammatory cells. Although a pilot study, it may be helpful for future investigations on PRP cellularity.

G. Nicoletti, P. Perugini, S. Bellino, P. Capra, A. Malovini, O. Jaber, M. Tresoldi, A. Faga, **Scar Remodeling with the Association of Monopolar Capacitive Radiofrequency, Electric Stimulation, and Negative Pressure,** Photomedicine and Laser Surgery, Volume 35, Number 5, 2017

Objective: A study was established to objectively assess the effects of low-intensity electromagnetic and electric stimulation plus negative pressure on mature scars. Background: Radiofrequency plus negative pressure therapy demonstrated a favorable reorganization and regeneration of the collagen and elastic fibers and was proposed for the treatment of cellulitis and skin stretch marks. Methods: Twenty-six mature scars in 20 Caucasian patients (15 females and 5 males) were enrolled in the study. The treatments were carried out with a Class I, BF-type electromedical device equipped with a radiofrequency generator, an electric pulse generator, and a vacuum pump twice a week for 3 months. Corneometry, transepidermal water loss, elastometry, colorimetry, and three-dimensional skin surface pattern were objectively assessed with Multi Probe Adapter System MPA and PRIMOS pico. A subjective assessment was carried out with the VAS and PSAS scales. Each scar was compared before and after the treatment and with the skin in the corresponding healthy contralateral anatomical area at the same times. Results: Reduction of the scar surface wrinkling and overall scar flattening were demonstrated after the treatment. The scar slightly tended to approach the color and elasticity of healthy skin too. Conclusions: The combined local treatment of mature scars with low-intensity electromagnetic and electric stimulation in association with negative pressure might suggest a favorable synergic effect on the scar collagen and elastic fiber remodeling.

Y.H. Hong, U.J. Chang, Y.S. Kim, E.Y. Jung, H.J. Suh, **Dietary galacto-oligosaccharides improve skin health: a randomized double blind clinical trial,** Asia Pac J Clin Nutr 2017;26(4): p. 613-618

Background and Objectives: To study the effects of galacto-oligosaccharides (GOS) on the skin, we investigated skin-related parameters in healthy adults who received GOS for 12 weeks. Methods and Study Design: This double-blind, randomized, placebo-controlled study included subjects divided into two groups (control and GOS) by stratified block randomization. The GOS group received 1.0 g of GOS twice a day, whereas the control group received only vehicle. Results: The results showed that the increase in corneometer values from baseline to week 12 was significantly greater in the GOS group than in the control group (6.91 vs 2.88 arbitrary units, $p<0.05$). The transepidermal water loss (TEWL) in the GOS group was reduced significantly after 12 weeks of GOS treatment (20.1 g/h/m2 at baseline vs 17.5 g/h/m2 at week 12, $p<0.05$). The differences in total and percentage of wrinkle areas between the two groups were statistically significant after 12 weeks of GOS treatment ($p<0.05$). Conclusion: Our findings support that oral treatment with GOS is beneficial to the skin and present the possibility of new nutritional strategies for skin care.

S.A. Nasrollahi, H. Hassanzade, A. Moradi, M. Sabouri, A. Samadi, M.N. Kashani, A. Firooz, **Safety Assessment of Tretinoin Loaded Nano Emulsion and Nanostructured Lipid Carriers: A Non-invasive Trial on Human Volunteers,** Curr Drug Deliv. 2017; 14(4): p. 575-580

Background and Aim: Topical application of tretinoin (TRE) is followed by a high incidence of side effects. One method to overcome the problem is loading TRE into lipid nanoparticles. The potential safety of the nanoparticle materials has been always considered as a major concern. In this in vivo study, changes in human skin biophysical parameters including hydration, TEWL, erythema, and pH have been used to determine the safety of tretinoin loaded nano emulsion (NE) and nanostructured lipid carriers (NLC). Method: TRE loaded NE and NLC were prepared using a high pressure homogenizer. Skin biophysical parameters were measured on the volar forearms of twenty healthy volunteers, before and after applying TRE-NE and TRE-NLC lotions. All the measurements were done using respective probes of MPA 580 Cutometer®. Results: We obtained particles of nanometric size (<130 nm) with narrow distribution and optimal physical stability. None of the formulations made any statistically significant change in any of the measured skin properties. P-values were 0.646, 0.139, 0.386, 0.169 after applying TRE-NE and 0.508, 0.051, 0.139, 0.333 after applying TRE-NLC, respectively. Conclusion: Both formulations are reasonably safe to apply on human skin and topicalapplication of TRE-NE and TRE-NLC had almost similar effects on skin biophysical parameters.

K. Takehara, S. Iizaka, M. Oe, H. Sanada, **Reliability and validity of a portable device for measuring stratum corneum hydration,** Journal of Japanese Society Wound, Ostomy, and Continence

Management Vol. 21, No 4, pp 296 - 303, 2017
Objective: Deterioration of the skin's barrier function increases the risk of skin problems. Accurate and quanliLaLive measurement of skin hydration is necessary for the assessment of skin. Here, we aimed to evaluate the reliability and validity of a portable device for measuring stratum corneum hydration. Methods: This was a quasi-experimental sLudy. Participants included 37 healthy volunteers and 3 raters. For the assessment of intra-rater, inter-rater, and inter-device reliability, the volar forearm was measured three times consecutively by a rater using two portable devices. The same procedure was then performed by two other raters. For concurrent and known-groups validity testing, measurements were taken of the forehead, volar forearm, and heel using the portable device and a standard device. The study protocol was approved by an ethics committee. Results: The intra-class correlation coefficients (ICCs) were 0.97-0.99 for intra-rater reliability, 0.88-0.96 for inter-rater reliability, and 0.89-0.94 for intcr-dcvicc reliability. Spearman's rank correlation coefficients between measurements obtained using the portable device and the standard device demonstrated concurrent validity: 0.92 ($p < 0.001$) for the volar forearm, 0.82 ($p < 0.001$) for the forehead, and 0.80 ($p < 0.001$) for the heel. The stratum corneum hydration of the heel was significantly lower than that of the forearm when measured using the portable device or the standard device ($p < 0.001$ for both devices), supporting the known-groups validity of portable device. Conclusion: The portable device demonstrated sufficient reliability and validity for use in clinical and research settings.

M. Khurram Waqas, B.A. Khan, N. Akhtar, F. Chowdhry, H. Khan, S. Bakhsh, S. Khan, A. Rasul, **Fabrication of *Tamarindus indica* seeds extract loaded-cream for photo-aged skin: Visioscan® studies,** Adv Dermatol Allergol 2017, XXXIV (4): p. 339–345

Introduction: Intracellular and extracellular oxidative stress triggered by free radicals promotes skin aging, which is designated by atypical pigmentation and wrinkles. The consumption of antioxidants is an efcacious measure to avert symptoms involved in skin aging. Aim: The current research was commenced to explore the anti-aging potential of antioxidants present in *Tamarindus indica* seeds extract. Material and methods: *Tamarindus indica* seeds extract was obtained by concentrating the ethanolic extract of seeds. The antioxidant activities of the extract were measured by nitric oxide radical scavenging assay, 2,2-diphenyl-1-picrylhydrazyl (DPPH) radical scavenging assay, hydroxyl radical scavenging assay and superoxide radical scavenging assay. Formulation comprising 4% of the concentrated extract of seeds was formulated by loading it in the internal aqueous phase of water-in-oil (W/O) cosmetic emulsion. The base, used as control, consisted of the same emulsion but without loading *Tamarindus indica* seeds extract. The cosmetic emulsions were applied to the cheeks of 11 healthy male volunteers for duration of 12 weeks. Both base and formulation were assessed for their antioxidant e□ects on di□erent skin parameters i.e. skin moisture contents, elasticity and surface evaluation of living skin (SELS). Results: The formulation showed statistically signifcant (p □ 0.05) and the base showed insignifcant ($p > 0.05$) effects on skin elasticity and skin moisture contents. There is a signifcant decline in SELS, skin scaliness (SEsc), skin wrinkles (SEw), skin smoothness (SEsm), and skin roughness (SEr) parameters after application of the formulation. Conclusions: Topical application of the cosmetic emulsion entrapped with *Tamarindus indica* seeds extract containing various antioxidants exerts potential skin antiaging e□ects.

J. Daybell, C. Maunsell, **Comprehensive skin barrier protection: colloidal oatmeal,** PERSONAL CARE EUROPE, April 2017, p. 85 - 90

Oatmeal has been used for many centuries as a soothing agent to relieve itch and irritation associated with various dry skin conditions. In 1945, a ready to use colloidal oatmeal, produced by finely grinding the oat and boiling it to extract the colloidal material, became commercially available.1 Today, colloidal oatmeal is available in various dosage forms from powders for bathing to shampoos, shaving gels, and moisturising creams. The clinical properties of colloidal oatmeal derive from its chemical composition diversity. The high concentration in starches and (3-glucan is responsible for the protective and water-holding functions of oat. The presence of different types of polyphenols confers antioxidant and anti-inflammatory activity. The cleansing activity of oat is mostly due to saponins. Its many functional properties make colloidal oatmeal a cleanser, moisturiser, buffer, as well as a soothing and protective anti-inflammatory agent. This present article profiles the key attributes of colloidal oatmeal and presents data on a new advanced colloidal oatmeal (Oat COM). Oat COM colloidal oatmeal is an advanced colloidal oatmeal due to its structural and chemical composition with marked improvements in oil and water binding capacities.

H.-J. Rösch, **Proving Efficacy**, C0SSMA 4 2017, p. 48-49

Cosmetic products are subl ject to Cosmetic Regulation 1223/2009/EC in the European Union. This regulation defines fundamental safety standards and protects consumers from misleading

information. Article 20 states that " in the labelling, making available on the market and advertising of cosmetic products, text, names (and) pictures shall not be used to imply that these products have characteristics or functions which they do not have."

E. Bochietto, S.Todeschi, **Skin moisturizing: How to choose the best assay,** Household and Personal Care Today , vol. 12(2) March/April 2017, p. 52-53

To keep skin healthier and younger, the very first thing we need to do is maintain a good level of hydration. It may seem obvious, but the importance of this simple fact is often underestimated.

Interview with G. Mildau, **The Challenge of Proving Claims,** COSSMA 3 I 2017, p. 48-51

Regulations: Cosmetic claims are a complex topic. Which ones are legal and when do they go too far? This is part II of our interview with the organiser of the Cosmetic Days in Karlsruhe where 140 experts discussed all the ins and outs of the topic.

V. Hubiche, P. Lennon, J.-D. Rodier, **Flexible wax derivatives via polyglycerolysis**, PERSONAL CARE ASIA, March 2017, p. 37-4

Natural waxes are sustainable materials that remain under-exploited today in cosmetics while they represent a unique starting block for many green chemistry reactions. Moisturisation is one of the main objectives in skin care cosmetics

S. Shin, J.U. Shin, Y. Lee, W.Y. Chung, K.-H. Nam, T.G. Kwon, J.H. Lee, **The Effects of Multi-Growth Factors-Containing Cream on Post-Thyroidectomy Scars: A Preliminary Study,** Ann Dermatol Vol. 29, No. 3, 2017

Background: Growth factors play important roles in wound healing. However, the evidence for the effects of growth factors on post-thyroidectomy scars is limited. Objective: We performed a prospective study to assess the preventive and therapeutic effect of a multi-growth factor (MGF)-containing cream on post-thyroidectomy scars. Methods: Twenty-one patients with thyroidectomy scars applied MGF cream twice a day. We assessed the changes in erythema, pigmentation, skin elasticity, and skin hydration status using the erythema index, melanin index, cutometer, and corneometer, respectively. In addition, Vancouver scar scale (VSS) and patient satisfaction were assessed at 10 days after surgery (baseline), 2 weeks, 6 weeks, and 12 weeks after baseline. Results: The mean total VSS scores were significantly lower at 6 weeks (3.24±1.51 vs. 1.91±1.38) and 12 weeks (3.24±1.51 vs. 1.71±1.59) compared to the baseline. The degree of pigmentation was significantly lower at 12 weeks compared to the baseline, and the skin elasticity, and the skin hydration status were significantly higher at 12 weeks compared to the baseline. Over 85% of the patients were satisfied with the use of MGF cream without any adverse effect. Conclusion: MGF cream might have additive or supportive effect for scar formation after thyroidectomy.

P. Mokrejš, M. Hu□□a, J. Pavla□ková, P. Egner, **Preparation of Keratin Hydrolysate from Chicken Feathers and Its Application in Cosmetics**, Cosmetics, J. Vis. Exp. (129), 2017

Keratin hydrolysates (KHs) are established standard components in hair cosmetics. Understanding the moisturizing effects of KH is advantageous for skin-care cosmetics. The goals of the protocol are: (1) to process chicken feathers into KH by alkaline-enzymatic hydrolysis and purify it by dialysis, and (2) to test if adding KH into an ointment base (OB) increases hydration of the skin and improves skin barrier function by diminishing transepidermal water loss (TEWL). During alkaline-enzymatic hydrolysis feathers are first incubated at a higher temperature in an alkaline environment and then, under mild conditions, hydrolyzed with proteolytic enzyme. The solution of KH is dialyzed, vacuum dried, and milled to a fine powder. Cosmetic formulations comprising from oil in water emulsion (O/W) containing 2, 4, and 6 weight% of KH (based on the weight of the OB) are prepared. Testing the moisturizing properties of KH is carried out on 10 men and 10 women at time intervals of 1, 2, 3, 4, 24, and 48 h. Tested formulations are spread at degreased volar forearm sites. The skin hydration of stratum corneum (SC) is assessed by measuring capacitance of the skin, which is one of the most world-wide used and simple methods. TEWL is based on measuring the quantity of water transported per a defined area and period of time from the skin. Both methods are fully non-invasive. KH makes for an excellent occlusive; depending on the addition of KH into OB, it brings about a 30% reduction in TEWL after application. KH also functions as a humectant, as it binds water from the lower layers of the epidermis to the SC; at the optimum KH addition in the OB, up to 19% rise in hydration in men and 22% rise in women occurs.

J. Fabrowska, A.Kapucinska, B. £eska, K. Feliksik-Skrobich, I. Nowak, ***In Vivo*** **Studies and Stability Study of *Cladophora Glomerata* Extract as a Cosmetic Activ Ingredient,** Acta Poloniae

Pharmaceutica ñ Drug Research, Vol. 74 No. 2, p. 633-641, 2017

Abstract: Marine algae are widely used as cosmetics raw materials. Likewise, freshwater alga *Cladophora glomerata* may be a good source of fatty acids and others bioactive agents. The aims of this study was to find out if the addition of the extract from the freshwater *C. glomerata* affects the stability of prepared cosmetic emulsions and to investigate *in vivo* effects of the extract in cosmetic formulations on hydration and elasticity of human skin. Extract from the freshwater *C. glomerata* was obtained using supercritical fluid extraction (SFE). Two forms of O/W emulsions were prepared: placebo and emulsion containing 0.5% of *Cladophora* SFE extract. The stability of obtained emulsions was investigated by using Turbiscan Lab Expert. Emulsions were applied by volunteers daily. Corneometer was used to evaluate skin hydration and cutometer to examine skin elasticity. Measurements were conducted at reference point (week 0) and after 1st, 2nd, 3rd and 4th week of application. The addition of *Cladophora* extract insignificantly affected stability of the emulsion. The extract from *C. glomerata* in the emulsion influenced the improvement of both skin hydration and its elasticity. Thus, freshwater *C. glomerata* extract prepared *via* SFE method may be considered as an effective cosmetic raw material used as a moisturizing and firming agent.

C.J. Borzdynski, W. McGuiness, C. Miller, **Emerging Technology for Enhanced Assessment of Skin Status,** *J Wound Ostomy Continence Nurs.* 2017; 44(1): p.48-54

Pressure injury (PI) prevention has become a key nursing priority that requires clear identifcation of visual cues representative of PI risk. There is generalized agreement that erythema and skin wetness and/or maceration should be routinely examined by the clinician as part of PI risk assessment. Such an assessment is largely qualitative, deeply reliant on the perception and interpretation of the clinician. Consequently, skin parameters may be misinterpreted, underestimated, or even missed completely. Objective techniques are needed to augment accurate assessment of erythema and skin wetness and/or maceration. Biophysical skin analysis devices have been widely used in the cosmetic industry and clinical research to measure certain skin parameters for the purpose of skin health evaluation. This article describes 3 devices that enable noninvasive digital measurements of epidermal hydration, erythema, and epidermal lipids, respectively. The clinical application of biophysical skin analysis instruments in the assessment PI-related skin parameters could provide a feasible alternative to subjective assessment.

C.L. Burnett, B. Heldreth, W.F. Bergfeld, D.V. Belsito, R.A. Hill, C.D. Klaassen, D.C. Liebler, J.G. Marks Jr., R.C. Shank, T.J. Slaga, P.W. Snyder, F.A. Andersen, **Amended Safety Assessment of Isethionate Salts as Used in Cosmetics**, International Journal of Toxicology, 2017, Vol. 36 (Supplement 1), p. 5S-16S

The Cosmetic Ingredient Review (CIR) Expert Panel (Panel) rereviewed the safety of 12 isethionate salts as used in cosmetics and concluded that these ingredients are safe in the present practices of use and concentration, when formulated to be nonirritating. These isethionate salts are reported to function mostly as surfactants and cleansing agents in cosmetic products. The Panel reviewed the available animal and clinical data as well as information from previous CIR reports. Although there are data gaps, the shared chemical core structure, expected similarities in physicochemical properties, and similar functions and concentrations in cosmetics enabled grouping these ingredients and reading across the available toxicological data to support the safety assessment of each ingredient.

I. Göllner, W. Voss, U. von Hehn, S. Kammerer, **Ingestion of an Oral Hyaluronan Solution Improves Skin Hydration, Wrinkle Reduction, Elasticity, and Skin Roughness: Results of a Clinical Study**, Journal of Evidence-Based Integrative Medicine, 2017

Intake of oral supplements with the aim of a cutaneous antiaging effect are increasingly common. Hyaluronic acid (HA) is a promising candidate, as it is the key factor for preserving tissue hydration. In our practice study, we evaluated the effect of an oral HA preparation diluted in a cascadefermented organic whole food concentrate supplemented with biotin, vitamin C, copper, and zinc (Regulatpro Hyaluron) on skin moisture content, elasticity, skin roughness, and wrinkle depths. Twenty female subjects with healthy skin in the age group of 45 to 60 years took the product once daily for 40 days. Different skin parameters were objectively assessed before the first intake, after 20 and after 40 days. Intake of the HA solution led to a significant increase in skin elasticity, skin hydration, and to a significant decrease in skin roughness and wrinkle depths. The supplement was well tolerated; no side effects were noted throughout the study.

M. Inamoto, W. Nishida, N. Okahata, **Control and Evaluation of Glass Tactile-feeling,** Res. Reports Asahi Glass Co., Ltd., 67 (2017) (article in Japanese)

By imparting visually imperceptible structure to the glass surface, it is possible to control the touch feeling of the glass while keeping its exterior appearance. In addition to sensory methods such as questionnaires, quantitative evaluation methods were examined. In the present study, based on the hypothesis that the main factor of touch feeling is finger slipperiness, we succeeded in quantitative evaluation by measuring the dynamic friction coefficient when actually touching the glass. Furthermore, we found that there is a correlation between surface texture and finger slipperiness.

T. Oliphant, R. A. Harper, **Benefits of naturally-derivedingredients in sunscreens,** PERSONAL CARE ASIA PACIFIC, January 2017, p. 41-43

Naturally-derived ingredients that are as multifunctional as their synthetic counterparts are not easy to find. This article will discuss both a jojoba-derived ingredient and a macadamia-derived ingredient that provide aesthetic benefits and functionality to sunscreen formulations and improve the dispersion of organic and inorganic sunscreens within said formulations.

Z.D. Draelos, J. Karnik, G. Naughton, **The Anti-Aging Effects of Low Oxygen Tension Generated Multipotent Growth Factor Containing Serum**, J Drugs Dermatol. 2017; 16(1): p. 30-34

Growth factors are a new category of ingredient found in modern cosmeceutical formulations. One novel method of obtaining cosmeceutical growth factors is the use of a bioreactor to culture neonatal broblasts on dextran microcarrier beads for 8 weeks under low oxygen tension (1-5%) mimicking embryonic conditions and eliminating the need for fetal bovine serum constituents in the final cosmetic material. This research evaluated the ingredient in a moisturizing vehicle on 40 females to determine its efficacy in improving overall facial skin appearance, as well as skin brightness, evenness, firmness, pore size, radiance, fine lines, coarse wrinkles, and blotchiness/ dispigmentation. Statistically significant improvement was seen in 90 days in skin hydration through corneometry, as well in global investigator and subject assessments.

J. Seok, J.Y. Hona, S.Y.Choi, K.Y. Park, B.J. Kim, **A potential relationship between skin hydration and stamp-type microneedle intradermal hyaluronic acid injection in middle-aged male face**, J Cosmet Dermatol. 2016 Dec; 15(4): p. 578-582

There is an increasing interest in skin rejuvenation using hyaluronic acid (HA) fillers beyond the improvement of deep wrinkles and volume deficiencies, which have been primary research foci in the past. We conducted a pilot study using a sample of six middle-aged male subjects. Using an automatic intradermal injector with 0.020 ml_ of material contained in each injection point with a total of 100 points, 2 ml_ of non-cross-HA filler was injected into the entire face at every treatment session. We administered injections of HA for a total of three sessions per subject at 2-week intervals and evaluated the results using a corneometer, TEWL, cutometer, measures of patient satisfaction, and the global aesthetic improvement scale (GAIS). Corneometer values increased steadily at each measurement, while the average value of TEWL increased in comparison with baseline after each application of the procedure. However, values returned to readings similar to those at 4 weeks after complete termination of the procedures. Cutometer values differed between the baseline and after procedures. All patients were assessed as "very much improved" or "much improved" according to GAIS, and all were pleased with the outcomes of treatment in terms of the enhancement of moisture, elasticity, and brightness.

M. Zasada, R. Debowska, M. Pasikowska, E. Budzisz, **The assessment of the effect of a cosmetic product brightening the skin of people with discolorations of different etiology,** J Cosmet Dermatol. 2016 Dec; 15(4): p. 493~502

Background: Hyperpigmentations are disorders displayed with a change in the color of the skin, its strange shape, the lack of symmetry, and irregular placement. They appear no matter on the age, gender, and often as a congenital defect. Disorder connected with overproduction of melanin by pigmentary cells. The change of color is due to endogenous and exogenous cause. Objectives: The aim of this thesis was to conduct a research in vivo. This will allow to judge the effectiveness of the cosmetic product which brightens the skin with hyperpigmentation problems. The characteristics of dermocosmetics were tested on people with various etiology of hyperpigmentation. The aim of the research was to assess the effect of the active substances used daily on skin hyperpigmentation. Methods: The tests were carried out on groups of patients with hyperpigmentations. The application of the pharmaceutical and the use of specific apparatus measurements were taken on every medical checkup. A survey was conducted to assess the changes in the face, neck, and neckline skin. The research was based on the apparatus analysis of the skin condition (MPA®, VISIA®). Results: Regular application of the pharmaceutical caused brightening of hyperpigmentations ($P < 0.05$). General improvement in skin condition was also observed - the increase in skin elasticity, smoothness, and the enhancement of hydration levels. Conclusions: Dermocosmetics for people with hyperpigmentation are

an essential part of their medical treatment. In case of epidermal hyperpigmentation, the recipe of individually chosen and tested combination of ingredients enables us to reach satisfactory results.

A. Firooz, H. Zartab, B. Sadr, L. Naraghi Bagherpour, A. Masoudi, F. Fanian, Y. Dowlati, A. Hooshang Ehsani, A. Samadi, **Daytime Changes of Skin Biophysical Characteristics: A Study of Hydration, Transepidermal Water Loss, pH, Sebum, Elasticity, Erythema, and Color Index on Middle Eastern Skin,** Iranian Journal of Dermatology, Dec. 2016

Background: The exposure of skin to ultraviolet radiation and temperature differs signifcantly during the day. It is reasonable that biophysical parameters of human skin have periodic daily fluctuation. The objective of this study was to study the fluctuations of various biophysical characteristics of Middle Eastern skin in standardized experimental conditions. Materials and Methods: Seven biophysical parameters of skin including stratum corneum hydration, transepidermal water loss, pH, sebum, elasticity, skin color, and erythema index were measured at three time points (8 a.m., 12 p.m. and 4 p.m.) on the forearm of 12 healthy participants (mean age of 28.4 years) without any ongoing skin disease using the CK MPA 580 device in standard temperature and humidity conditions. Results: A significant difference was observed between means of skin color index at 8 a.m. (175.42 ± 13.92) and 4 p.m. (164.44 ± 13.72, $P = 0.025$), between the pH at 8 a.m. (5.72 ± 0.48) and 4 p.m. (5.33 ± 0.55, $P = 0.001$) and pH at 12 p.m. (5.60 ± 0.48) and 4 p.m. (5.33 ± 0.55, $P = 0.001$). Other comparisons between the means of these parameters at different time points resulted in nonsignifcant *P* values. Conclusion: There are daytime changes in skin color index and pH. Skin color index might be higher and cutaneous pH more basic in the early morning compared to later of the day.

A. Nkenane, C. Bertin, **Aging and Facial Changes-Documenting Clinical Signs, Part 2: Methods of Documentation of Facial Changes,** Skinmed. 2016 Dec 1;14(6): p. 429-435

Skin metrology has emerged as a multidisciplinary approach for objectively documenting skin anatophysiologic aspects and transformations. Methods have been proposed to describe age-related changes of facial skin. Some of them capture information describing visible clinical signs of aging such as wrinkles, sagging, and pigmentation. These methods include but are not limited to digital imaging, 3-dimensional imaging, and colorimetry. Other methods focus more on structural or physiologic changes of underlying tissues, among these are reflectance confocal imaging, magnetic resonance imaging, and ultrasound imaging. Finally, a group of methods including corneometry and reviscometry are used to describe changes in skin properties. This contribution describes available methods for documenting age-related changes affecting the shape, texture and color of the face.

M. Kanlayavattanakul, N. Lourith, P. Chaikul, **Jasmine rice panicle: A safe and efficient natural ingredient for skin aging treatments**, Journal of Ethnopharmacology, Volume 193, 4 December 2016, p. 607-616

Ethnopharmacological relevance: While rice is one of the most important global staple food sources its extracts have found many uses as the bases of herbal remedies. Rice extracts contain high levels of phenolic compounds which are known to be bioactive, some of which show cutaneous benefits and activity towards skin disorders. This study highlights an assessment of the cellular activity and clinical efficacy of rice panicle extract, providing necessary information relevant to the development of new cosmetic products. Materials and methods: Jasmine rice panicle extract was standardized, and the level of phenolics present was determined. *In vitro* anti-aging, and extract activity towards melanogenesis wasconducted in B16F10 melanoma cells, and antioxidant activity was assessed in human skin fibroblast cell cultures. Topical product creams containing the extract were developed, and skin irritation testing using a single application closed patch test method was done using 20 Thai volunteers. Randomized double-blind, placebo-controlled efficacy evaluation was undertaken in 24 volunteers over an 84 d period, with the results monitored by Corneometer® CM 825, Cutometer® MPA 580, Mexameter® MX 18 and Visioscan® VC 98. Results: Jasmine rice panicle extract was shown to have a high content ofp-coumaric, ferulic and caffeic acids, and was not cytotoxic to the cell lines used in this study. Cells treated with extract suppressed melanogenesis *via* tyrosinase and TRP-2 inhibitory effects, which protect the cell from oxidative stress at doses of 0.1 mg/ml or lower. The jasmine rice panicle preparations (0.1-0.2%) were safe (MII=0), and significantly ($p<0.05$) increased skin hydration levels relative to baseline. Skin lightening, and anti-wrinkle effects related to skin firmness and smoothness were observed, in addition to a reduction in skin wrinkling. Improvements in skin biophysics of both 0.1% and 0.2% extracts were showed to be comparable ($p>0.05$). Conclusions: Jasmine rice panicle extract having high levels of phenolics shows cutaneous benefits as the basis for skin aging treatments, as indicated through *in vitro* cytotoxicity assessments and skin testing in human subjects.

N.N. Konate, M. Nahrwold, **From pharma to skin care products Hexamidine diisethionate as**

preservative, HPC today, Vol. 11 (6) November/December 2016

Safe and efficient preservation have become key words inthe cosmetic business, and this topic has never beendiscussed so intensively since the turn of the 21st century.Following these discussions, several highly efficient classicalpreservatives, used without issues over decades, became discredited and their usage further restricted. Ingredient suppliers are more and more striving to supply secure andefficient alternatives. Some suppliers also try to fulfill the strong demand for "green" preservatives. However, whether molecules stem from Mother Nature or are made by mankind, in both cases some are safe and others less. This article describes the safety and performance profile of a man-made substance. It acts as an efficient preservative and is safe and gentle to human skin.

J. Lademann, T. Veraou. M.E. Darvin, A. Patzelt, M.C. Meinke, C. Voit, D. Papakostas, L. Zastrow, W. Sterry, O. Doucet, **Influence of Topical, Systemic and Combined Application of Antioxidants on the Barrier Properties of the Human Skin**, Skin Pharmacol Physiol. 2016: 29, 11: p. 41-6

Background: The formation of free radicals in human skin by solar ultraviolet radiation is considered to be the main reason for extrinsic skin aging. The antioxidants in human tissue represent an efficient protection system against the destructive action of these reactive free radicals. In this study, the parameters of the skin, epidermal thickness, stratum corneum moisture, elasticity and wrinkle volume, were determined before and after the treatment with antioxidant- or placebo-containing tablets and creams. Methods: The study included 5 groups of 15 volunteers each, who were treated for 2 months with antioxidantcontaining or placebo tablets, creams or a combination of antioxidant-containing tablets and cream. The skin parameters were measured at time point 0 and at week 8 utilizing ultrasound for the determination of epidermal thickness, a corneometer for stratum corneum moisture measurements, skin profilometry for quantifying the wrinkle volume and a cutometer for determining the elasticity. Results: The verum cream had a positive influence on epidermal thickness, elasticity and skin moisture, but the verum tablets improved the epidermal thickness only. The combined application of verum tablets and creams led to a significant improvement of all investigated skin parameters, whereas the application of placebo tablets or cream did not influence any parameters. Conclusion: The topical and oral supplementation of antioxidants can be an instrument to improve several skin parameters and potentially counteract or decelerate the process of extrinsic skin aging.

N. Cameli, M. Mariano, M. Serio, E. Berardesca, **Clinical and instrumental evaluation of a cross-linked hyaluronic acid filler dermal injection: effects on nasolabial folds skin biophysical parameters and augmentation from a single-dose, monocentric, openlabel trial**, G Ital Dermatol Venereol. 2016 Oct; 151(5): p 507-14

Background: When a hyaluronic acid dermal device to fill soft tissues is chosen, efficacy, safety and durability are key concerns. This is an open-label prospective study to instrumentally evaluate the effects of HA filler dermal injection on nasolabial folds skin biophysical parameters and augmentation. Methods: A single Italian site treated female subjects aged 40-55, for nasolabial folds, with a single standardized injection. The outcome was evaluated with objective quantitative measurements after 90 (T1) and 180 days (T2) from the injection comparing to baseline (TO) by means of Corneometer (skin hydration measurement), Cutometer (skin elasticity measurement), and Visioface devices for digital and UV computerized image analysis. Secondary endpoints were safety assessment, subject investigator satisfaction with the intervention. Assessment of aesthetic results included photographic documentation. Results: The computerized image analysis confirmed the clinical assessment showing statistically significant reduction in nasolabial folds both at T1 and T2. Visioface® indexes showed a marked and statistical significant response. An excellent profile of satisfaction of the product at T2 from investigators and patients was recorded. Skin hydration and elasticity did not show significant changes. Conclusions: In our study, a standardized HA filler dermal injection on nasolabial folds did not influence skin biophysical parameters such as skin hydration and elasticity. Nasolabial folds showed a persistent and significative response at T2 confirmed by instrumental evaluation. The tolerability and safety profile of the product was excellent.

M. Tanaka, Y. Yamamoto, E. Misawa, K. Nabeshima, M. Saito, K. Yamauchi, F. Abe, F. Furukawa, **Aloe sterol supplementation improves skin elasticity in Japanese men with sunlight-exposed skin: a 12-week double-blind, randomized controlled trial,** Clinical, Cosmetic and Investigational Dermatology 2016:9, p. 435–442

Background/objective: Recently, it was confrmed that the daily oral intake of plant sterols of *Aloe vera* gel (*Aloe* sterol) signifcantly increases the skin barrier function, moisture, and elasticity in photoprotected skin. This study aimed to investigate whether *Aloe* sterol intake affected skin conditions following sunlight exposure in Japanese men. Methods: We performed a 12-week, randomized, double-blind, placebo-controlled study to evaluate the effects of oral *Aloe* sterol supplementation on skin

conditions in 48 apparently healthy men (age range: 30–59 years; average: 45 years). The subjects were instructed to expose the measurement position of the arms to the sunlight outdoors every day for 12 weeks. The skin parameters were measured at 0 (baseline), 4, 8, and 12 weeks. Results: Depending on the time for the revelation of the sunlight, the *b** value and melanin index increased and the skin moisture decreased. After taking an *Aloe* sterol tablet daily for 12 weeks, the skin elasticity index (R2, R5, and R7) levels were signifcantly higher than the baseline value. There were no differences between the groups in these skin elasticity values. In the subgroup analysis of subjects aged <46 years, the change in the R5 and R7 was signifcantly higher in the *Aloe* group than in the placebo group at 8 weeks (*P*=0.0412 and *P*=0.0410, respectively). There was a difference in the quantity of sun exposure between each subject, and an additional clinical study that standardizes the amount of ultraviolet rays is warranted. No *Aloe* sterol intake-dependent harmful phenomenon was observed during the intake period. Conclusion: *Aloe* sterol ingestion increased skin elasticity in the photodamaged skin of men aged <46 years.

M. Lee, Y. Jung, E. Kim, H.K. Lee, **Comparison of skin properties in individuals living in cities at two different altitudes: an investigation of the environmental effect on skin**, J Cosmet Dermatol. 2016 Sep 11

Background: Skin properties vary depending on exogenous factors. Various studies have been used for comparing skin properties between cities for studying environment influence on skin properties. However, for comparison of skin properties between cities, various environmental factors have to be considered. Objectives: The purpose of this study therefore was to compare skin properties in individuals of the same ethnicity and sex (Indonesian women) between different altitudes and to interpret the environmental effect on skin. Methods: In this study, we reanalyzed the data obtained from previous study. The data were for healthy Sundanese Indonesian females [(n = 136) at Jakarta (n = 49) and Bandung (n = 87)], and the data consisted of published data (skin hydration, sebum level, pH, elasticity, and transepidermal water loss) and unpublished data [skin color (L*, a*, and b*)]. The skin parameters were measured on Indonesian females aged 20-34 using C+K devices (corneometer, sebumeter, pH meter, and cutometer), Delfin vapometer, and Minolta spectrophotometer, respectively. Results: Sundanese Jakarta (low-altitude) females had higher sebum level and greater redness (a*) value in the forehead than Sundanese Bandung (high-altitude) females. In contrast, Bandung females had higher skin pH, brighter skin color, and greater forehead skin elasticity than Jakarta females. Conclusions: The skin properties can be influenced by changing altitude because different altitudes have different environments such as air temperature, humidity, UV radiation, and so on, and it is also necessary to investigate the factors which can influence with perceived skin condition such as skin type and skin concerning.

M. Morales Hurtado, E.G. de Vries, X. Zeno, E. van der Heide, **A tribo-mechanical analysis of PVA-based building-blocks for implementation in a 2-layered skin model,** J Mech Behav Biomed Mater. 2016 Sep; 62: p. 319-32

Poly(vinyl) alcohol hydrogel (PVA) is a well-known polymer widely used in the medical field due to its biocompatibility properties and easy manufacturing. In this work, the tribo-mechanical properties of PVA-based blocks are studied to evaluate their suitability as a part of a structure simulating the length scale dependence of human skin. Thus, blocks of pure PVA and PVA mixed with Cellulose (PVA-Cel) were synthesised via freezing/thawing cycles and their mechanical properties were determined by Dynamic Mechanical Analysis (DMA) and creep tests. The dynamic tests addressed to elastic moduli between 38 and 50kPa for the PVA and PVA-Cel, respectively. The fitting of the creep compliance tests in the SLS model confirmed the viscoelastic behaviour of the samples with retardation times of 23 and 16 seconds for the PVA and PVA-Cel, respectively. Micro indentation tests were also achieved and the results indicated elastic moduli in the same range of the dynamic tests. Specifically, values between 45-55 and 56-81kPa were obtained for the PVA and PVA-Cel samples, respectively. The tribological results indicated values of 0.55 at low forces for the PVA decreasing to 0.13 at higher forces. The PVA-Cel blocks showed lower friction even at low forces with values between 0.2 and 0.07. The implementation of these building blocks in the design of a 2-layered skin model (2LSM) is also presented in this work. The 2LSM was stamped with four different textures and their surface properties were evaluated. The hydration of the 2LSM was also evaluated with a corneometer and the results indicated a gradient of hydration comparable to the human skin.

C. Hartung, B. Klann-Metz, P. Winter, U. Westerholt, U. Kortemeier, U. Linke, B. Yang, W. Berkels, D. Schuch, P. Schwab, **PEG-free solubilisation via naturally-derived esters,** PERSONAL CARE EUROPE, September 2016, p. 46-50

A novel set of three completely naturally-derived, PEG-free products based on polyglycerol

ester chemistry covers the efficient solubilisation of a broad variety of different oils in water-based formulations. Polyglyceryl-3 Caprate/Caprylate/Succinate (and) Propylene Glycol (trade name: Tego® Solve 55) is especially suitable for solubilising perfume and essential oils. In addition, Polyglyceryl-6 Caprylate (and) Polyglyceryl-3 Cocoate (and) Polyglyceryl-4 Caprate (and) Polyglyceryl-6 Ricinoleate (trade name: Tego® Solve 61) is more effective for the solubilisation of very hydrophobic ingredients like natural oils (e.g. sunflower oil). Finally, light emollient esters like isopropyl myristate are effectively solubilised with Polyglyceryl-4 Caprate (trade name: Tegosoft® PC 41). In addition to their excellent solubilising properties, the three products are cold processable as well as electrolyte-resistant. They exhibit ultramild cleansing properties and deliver moisturisation benefits. Formulations for various applications such as hair & body cleansers, AP/Deo roll-ons, wet wipe liquids, perfumes and micellar water/makeup remover can be prepared with these environmentally benign materials.

K. Mazurek, E. Pierzchał a, **Comparison of efficacy of products containing azelaic acid in melasma treatment,** J Cosmet Dermatol, 2016 Sep;15(3): p. 269-2 82

Melasma is one of the most frequently diagnosed hyperpigmentation changes on the skin of women's faces. Nearly 30% of women using oral estrogen therapy struggle with this problem. A common way of reducing melasma is the application of azelaic acid products. Aim:
Comparison of efficacy of three dermocosmetic products, containing azelaic acid, in the reduction in melasma for women aged 35-55. Material and Methods: A group of 60 women diagnosed with melasma were divided into three even, twenty-person subgroups. Each subgroup was assigned one dermocosmetic product containing azelaic acid. For 24 weeks, the patients applied the assigned product twice a day. The level of the colorant within the hyperpigmentation was marked before the treatment, after 1 month, after 3 months, and after 6 months of therapy. The pigmentation was measured using Mexameter(®) (Courage + Khazaka electronic, Germany). In addition, during each inspection, the patients' level of hydration, elasticity, and intensity of erythema was checked using Corneometer(®) , Reviscometer(®) .Results: All dermocosmetics containing azelaic acid that were applied significantly contributed to the reduction in pigment in the pigmentary lesion. The largest decrease in the amount of pigment was observed in the first 3 months of use of the products. A combination containing 20% azelaic acid and mandelic acid, phytic acid, 4N-butyl resorcinol, and ferulic acid proved to be the most effective dermocosmetic III (Sesderma, Valencia, Spain). Conclusions: Dermocosmetics containing azelaic acid significantly contribute to the clearing of melasma. The effect depends on the treatment time, the acid concentration, and addition of other components.

M. Mendes Fossa Shirata, P.M. Berardo Gonçalves Maia Campos, **Importance of texture and sensorial profle in cosmetic formulations development,** Surg Cosmet Dermatol 2016;8(3): p. 223-30

Introduction: The evaluation of the clinical effcacy of cosmetic formulations in real conditions of use is indispensable and the correlation of these results with texture and sensory profle analyses is necessary because impacts directly in the continuity of cosmetic treatment. Objective: The evaluation and correlation of the texture and sensorial profle, and clinical effcacy of cosmetic formulations containing alfafa oligosaccharides, cassava polysaccharides and sunscreens. Methods: It was evaluated the texture and sensorial profle, and clinical effcacy of formulations through biophysical and imaging analysis techniques. Results: The methods presented a good correlation, because formulation added with suncreens and active ingredients provided better spreadability and sensorial properties. The assessment of clinical effcacy was coherent with the sensory analysis once the "skin smoothness" parameter could be proven with the increase of hydration and improvement of skin microrelief. Conclusions: The application and correlation of the used techniques enabled the defnition and obtainment of a formulation with sensory acceptance and proven clinical effcacy in the improvement of texture and skin hydration. Thus, this study provides contribution in dermatological area, once an appropriate sensory favors the adhesion to the use of the product and the consequent treatment success.

F. Hashmi, S. Kirkham, C. Nester, S. Lam, **The effect of topical anti blister products on the risk of friction blister formation on the foot,** J Tissue Viability, 2016 Aug;25(3): p. 167-74

Introduction: Foot blisters are a common injury, which can impact on activity and lead to infection. Increased skin surface hydration has been identified as a risk factor for blister formation, indicating that a reduction in hydration could reduce the risk of blister. Method: Thirty healthy adults were randomised into 3 groups, each receiving a preventative foot blister treatment (2Toms(®) Blister Shield(®); Flexitol(®) Blistop and Boots Anti-Perspirant Foot Spray). Cycles of compression and shear loads where applied to heel skin using a mechanism driven by compressed air. Temperature changes were measured during load application using a thermal imaging camera (FLIR Systems Inc. and Therm

CAM Quick Report). Near surface hydration of the skin was measured using a Corneometer(®) (C & K, Germany). Result: There was no significant difference in the rate of temperature change of the skin between the three groups compared to not using products (p = 0.767, p = 0.767, p = 0.515) or when comparing each product (p = 0.551). There was a significant decrease in near surface skin hydration, compared to baseline, after the application of powder (-8.53 AU, p = 0.01). There was no significant difference in hydration after the application of film former and antiperspirant (-1.47 AU, p = 0.26; -1.00 AU, p = 0.80, respectively). Conclusion: With the application of external load we found no significant difference in the effect of the three products on temperature change. The powder product demonstrated an effect on reducing the risk of blister. It is postulated that powder may have a barrier effect.

J.M. Crowther, **Understanding effects of topical ingredients on electrical measurement of skin hydration,** Intern. Journ. Of Cosm. Sc., 2016, p. 1-10

OBJECTIVE: Methods that assess skin hydration based on changes in its electrical properties are widely used in both cosmetic and medical research. However, the devices themselves often give results which are significantly different to each other. Although some work has previously been carried out to try and understand what these devices are actually reading, it was based on a technique for measuring the devices' responses to filter discs impregnated with different liquids, which could in itself be influencing the measurements. Presented here is a new method for measuring the devices' direct responses to different materials and solutions whichremoves any other confounding effects, thereby providing a clearer inside to their operation.

J. Eo, Y.-K. Seo, J.-H. Baek, A.-R. Choi, M.-K. Shin, J.-S. Koh, **Facial skin physiology recovery kinetics during 180 min post-washing with a cleanser**, Skin Research and Technology 2016; 22: p. 148-151

Background/Purpose: Facial cleansing is important to clean and exfoliate the skin while maintaining optimal physiologicfunction. However, there is insufficient data on the very early stage of skin change after applying soap or cleansing foam. We investigated the recovery kinetics of facial skin physiologyduring 180 min after exposure to the cleanser.

M.Q. Man, R. Sun, G. Man, D. Lee, Z. Hill, P.M. Elias, **Commonly Employed African Neonatal Skin Care Products Compromise Epidermal Function in Mice,** Pediatr Dermatol., 2016 Jul 11

Background: Neonatal mortality is much higher in the developing world than in developed countries. Infections are a major cause of neonatal death, particularly in preterm infants, in whom defective epidermal permeability barrier function facilitates transcutaneous pathogen invasion. The objective was to determine whether neonatal skin care products commonly used in Africa benefit or compromise epidermal functions in murine skin. Methods: After twice-daily treatment of 6- to 8-week-old hairless mice with each skin care product for 3 days, epidermal permeability barrier function, skin surface pH, stratum corneum hydration, and barrier recovery were measured using a multiprobe adapter system physiology monitor. For products showing some benefits in these initial tests, the epidermal permeability barrier homeostasis was assessed 1 and 5 hours after a single application to acutely disrupted skin. Results: All of the skin care products compromised basal permeability barrier function and barrier repair kinetics. Moreover, after 3 days of treatment, most of the products also reduced stratum corneum hydration while elevating skin surface pH to abnormal levels. Conclusion: Some neonatal skin care products that are widely used in Africa perturb important epidermal functions, including permeability barrier homeostasis in mice. Should these products have similar effects on newborn human skin, they could cause a defective epidermal permeability barrier, which can increase body fluid loss, impair thermoregulation, and contribute to the high rates of neonatal morbidity and mortality seen in Africa. Accordingly, alternative products that enhance permeability barrier function should be identified, particularly for use in preterm infants.

M. Saito, M. Tanaka, E. Misawa, R. Yao, K. Nabeshima, K. Yamauchi, F. Abe, Y. Yamamoto, F. Furukawa, **Oral administration of Aloe vera gel powder prevents UVB-induced decrease in skin elasticity via suppression of overexpression of MMPs in hairless mice**, Bioscience, Biotechnology and Biochemistry, 2016 Vol. 80 No. 7, p. 1416-1424

This study reports the effects of oral Aloe vera gel powder (AVGP) containing Aloe sterols on skin elasticity and the extracellular matrix in ultraviolet B (UVB)-irradiated hairless mice. Ten-week-old hairless mice were fed diets containing 0.3% AVGP for 8 weeks and irradiated UVB for 6 weeks. Mice treated with AVGP showed significant prevention of the UVB-induced decrease in skin elasticity. To investigate the mechanism underlying this suppression of skin elasticity loss, we measured the expression of matrix metalloproteinase (MMP)-2, -9, and -13. AVGP prevented both the UVB-induced increases in MMPs expressions. Moreover, we investigated hyaluronic acid (HA) content of mice dorsal

skin and gene expression of HA synthase-2 (Has2). In the results, AVGP oral administration prevented UVB-induced decreasing in skin HA content and Has2 expression and attenuates the UVB-induced decrease in serum adiponectin, which promotes Has2 expression. These results suggested that AVGP has the ability to prevent the skin photoaging.

T. de Farias Pires, A.P. Azambuja, A.R. Vançan, R. Horimoto, M.S. Nakamura, R. de Oliveira Alvim, J.E. Krieger, A.C. Pereira, **A population-based study of the stratum corneum moisture,** Clinical, cosmetic and investigational Dermatology 2016:9, p. 79–87

Background: The stratum corneum (SC) has important functions as a bound-water modulator and a primary barrier of the human skin from the external environment. However, no large epidemiological study has quantifed the relative importance of different exposures with regard to these functional properties. In this study, we have studied a large sample of individuals from the Brazilian population in order to understand the different relationships between the properties of SC and a number of demographic and self-perceived variables. Methods: One thousand three hundred and thirty-nine individuals from a rural Brazilian population, who were participants of a family-based study, were submitted to a cross-sectional examination of the SC moisture by capacitance using the Corneometer® CM820 and investigated regarding environmental exposures, cosmetic use, and other physiological and epidemiological measurements. Self-perception-scaled questions about skin conditions were also applied. Results: We found signifcant associations between SC moisture and sex, age, high sun exposure, and sunscreen use frequency (*P*,0.025). In specifc studied sites, self-reported race and obesity were also found to show signifcant effects. Dry skin self-perception was also found to be highly correlated with the objective measurement of the skin. Other environmental effects on SC moisture are also reported.

J. Pardeike, R. Müller, **Bestimmung der Hautfeuchtigkeit, Hautelastizität und des Transepidermalen Wasserverlusts (TEWL),** pharmazie-lehrbuch.de

Hintergrund: Zur Bestimmung der Effektivität und Wirksamkeit von dermal zu applizierenden Arzneizubereitungen, kosmetischen Produkten und Rohstoffen sind die Bestimmung der Hautfeuchtigkeit, Hautelastizität und des transepidermalen Wasserverlusts (TEWL) weit verbreitete Methoden.

R.M. Robati, B. Einollahi, H. Einollahi, S. Younespour, S. Fadaifard, **Skin Biophysical Characteristics in Patients with Keratoconus: A Controlled Study,** Scientifica Volume 2016

Background**.** Keratoconus is a relatively common corneal disease causing signifcant visual disability. Individuals with connective tissue disorders that affect the skin such as Marfan's syndrome and Ehlers-Danlos syndrome or patients with atopic dermatitis show an increased prevalence of keratoconus. It seems that there are some concurrent alterations of skin and cornea in patients with keratoconus. Objective**.** We plan to compare skin biophysical characteristics in patients with keratoconus and healthy controls. Methods. Forty patients with keratoconus (18 females and 22 males) with mean (SD) age of 33.32 (9.55) years (range 19–56) and 40 healthy controls were recruited to this study. Skin biophysical characteristics including cutaneous resonance running time (CRRT), stratum corneum hydration, and melanin values were measured in patients and controls. Results**.** Te median CRRT, stratum corneum hydration, and melanin measurements were signifcantly lower in patients with keratoconus in comparison with healthy controls. Conclusion**.** Tere are some alterations of skin biophysical properties in patients with keratoconus. Terefore, the assessment of these skin parameters could provide us some clues to the possible common biophysical variations of cornea and skin tissue in diseases such as keratoconus.

J. Kim, J. W. Ahn, S. Ha, S. H. Kwon, O. Lee, C. Oh, **Clinical assessment of rosacea severity: oriental score vs. quantitative assessment method with imaging and biomedical tools,** Skin Research and Technology 2016; 23: p. 186-193

Rosacea is a common chronic inflammatory disorder affecting facial skin. Currently, no accurate and objectivemethod is available for assessing the severity of rosacea. Most studies use the National Rosacea Society Standard (NRSS) grading method, which lacks objectivity and yields varying results.

H*. Jeon, D.H. Kim, Y.-H. Nho, J.-E. Park, S.-N. Kim, E.H. Choi,* **A Mixture of Extracts of Kochia scoparia and Rosa multiflora with PPAR ¤/¤ Dual Agonistic Effects Prevents Photoaging in Hairless Mice**, Int. J. Mol. Sci. 2016, 17

Activation of peroxisome proliferator-activated receptors (PPAR) ¤/¤ is known to inhibit the increases in matrix metalloproteinase (MMP) and reactive oxygen species (ROS) induced by ultraviolet light (UV). Extracts of natural herbs, such as *Kochia scoparia* and *Rosa multiflora*, have a PPAR ¤/¤

dual agonistic effect. Therefore, we investigated whether and how they have an antiaging effect on photoaging skin. Eighteen-week-old hairless mice were irradiated with UVA 14 J/cm2 and UVB 40 mJ/cm2 three times a week for 8 weeks. A mixture of extracts of *Kochia scoparia* and *Rosa multiflora* (KR) was topically applied on the dorsal skin of photoaging mice twice a day for 8 weeks. Tesaglitazar, a known PPAR □/□ agonist, and vehicle (propylene glycol:ethanol = 7:3, *v*/*v*) were applied as positive and negative controls, respectively. Dermal effects (including dermal thickness, collagen density, dermal expression of procollagen 1 and collagenase 13) and epidermal effects (including skin barrier function, epidermal proliferation, epidermal differentiation, and epidermal cytokines) were measured and compared. In photoaging murine skin, KR resulted in a significant recovery of dermal thickness as well as dermal fibroblasts, although it did not change dermal collagen density. KR increased the expression of dermal transforming growth factor (TGF)-□. The dermal effects of KR were explained by an increase in procollagen 1 expression, induced by TGF-□, and a decrease in MMP-13 expression. KR did not affect basal transepidermal water loss (TEWL) or stratum corneum (SC) integrity, but diddecrease SC hydration. It also did not affect epidermal proliferation or epidermal differentiation. KR decreased the expression of epidermal interleukin (IL)-1□. Collectively, KR showed possible utility as a therapeutic agent for photoaging skin, with few epidermal side effects such as epidermal hyperplasia or poor differentiation.

N.R. Lee, H.-J. Lee, N.Y. Yoon, D. Kim, M. Jung, E.H. Choi, **Application of Topical Acids Improves Atopic Dermatitis in Murine Model by Enhancement of Skin Barrier Functions Regardless of the Origin of Acids,** Ann Dermatol Vol. 28, No. 6, 2016, p. 690-696

Background: The acidic pH of the stratum corneum (SC) is important for epidermal permeability barrier homeostasis. Acidification of the skin surface has been suggested as a therapeutic strategy for skin disorders such as atopic dermatitis (AD). Objective: We performed an animal study to evaluate the usefulness of acidification of SC for inhibition of AD lesions and to find out if the therapeutic effect of vinegar is attributable to its herbal contents, rather than its acidity. Methods: Five groups of six oxazolone-treated (Ox)-AD mice were treated for three weeks with creams of different acidity: vehicle cream alone (pH 5.5), neutralized vinegar cream (pH 7.4), pH 5.0 vinegar cream, pH 3.5 vinegar cream, and pH 3.5 hydrogen chloride (HCl) cream. Also, we have compared two groups of Ox-AD mice treated with pH 5.5 vehicle cream or pH 5.5 vinegar cream. Results: Ox-AD mice treated with acidic creams exhibited fewer AD-like lesions, had significantly lower eczema scores, decreased basal by transepidermal water loss (TEWL), and increased SC hydration compared to the groups given only vehicle and neutral cream. There was no significant difference between the acidic vinegar and HCl groups. Between the groups treated with vehicle and pH 5.5 vinegar cream, there was no difference in eczema score, basal TEWL and SC hydration. Conclusion: Application of topical acids, regardless of their source materials, inhibits the development of AD lesions by maintenance of skin surface pH and skin barrier function in murine model.

S. Xin, L. Ye, G. Man, C.Lv, P.M. Elias, M.-Q. Man, **Heavy Cigarette Smokers in a Chinese Population Display a Compromised Permeability Barrier,** BioMed Research International, Volume 2016

Cigarette smoking is associated with various cutaneous disorders with defective permeability. Yet, whether cigarette smoking influences epidermal permeability barrier function is largely unknown. Here, we measured skin biophysical properties, including permeability barrier homeostasis, stratum corneum (SC) integrity, SC hydration, skin surface pH, and skin melanin/erythema index, in cigarette smokers. A total of 99 male volunteers were enrolled in this study. Smokers were categorized as light-tomoderate (<20 cigarettes/day) or heavy smokers (□20 cigarettes/day). An MPA5 was used to measure SC hydration and skin melanin/erythema index on the dorsal hand, forehead, and cheek. Basal transepidermal water loss (TEWL) and barrier recovery rates were assessed on the forearm. A Skin-pH-Meter pH900 was used to measure skin surface pH. Our results showed that heavy cigarette smokers exhibited delayed barrier recovery afer acute abrogation (1.02% ± 13.06 versus 16.48% ± 6.07), and barrier recovery rates correlated negatively with the number of daily cigarettes consumption ($p = 0.0087$). Changes in biophysical parameters in cigarette smokers varied with body sites. In conclusion, heavy cigarette smokers display compromised permeability barrier homeostasis, which could contribute, in part, to the increased prevalence of certain cutaneous disorders characterized by defective permeability. Thus, improving epidermal permeability barrier should be considered for heavy cigarette smokers.

C.W. Bradley, D.O. Morris, S.C. Rankin, C.L. Cain, A.M. Misic, T. Houser, E.A. Mauldin, E.A. Grice, **Longitudinal evaluation of the skin microbiome and association with microenvironment and treatment in canine atopic dermatitis,** J Invest Dermatol, 2016 June ; 136(6): p. 1182–1190

Host-microbe interactions may play a fundamental role in the pathogenesis of atopic dermatitis (AD), a chronic relapsing inflammatory skin disorder characterized by universal colonization with Staphylococcus. To examine the relationship between epidermal barrier function and the cutaneous microbiota in AD, this study employed a spontaneous model of canine AD (cAD). In a cohort of 14 dogs with cAD, the skin microbiota was longitudinally evaluated with parallel assessment of skin barrier function at disease flare, during antimicrobial therapy and posttherapy. Sequencing of the bacterial 16S ribosomal RNA gene revealed decreased bacterial diversity and increased proportions of Staphylococcus (S. pseudintermedius in particular) and Corynebacterium in comparison to a cohort of healthy control dogs (n=16). Treatment restored bacterial diversity with decreased Staphylococcus proportions, concurrent with decreased cAD severity. Skin barrier function, as measured by corneometry, pH, and transepidermal water loss (TEWL) also normalized with treatment. Bacterial diversity correlated with TEWL and pH, but not corneometry. These findings provide insights into the relationship between the cutaneous microbiome and skin barrier function in AD, the impact of antimicrobial therapy on the skin microbiome, and highlight the utility of cAD as a spontaneous non-rodent model of AD.

A. Ezerskaia, F. Pereira, H.P. Urbach, R. Verhagen, B. Varghese, **Quantitative and simultaneous non-invasive measurement of skin hydration and sebum levels**, Biomedical Optics Express 2311, June 2016, Vol. 7, No. 6

We report a method on quantitative and simultaneous noncontact in-vivo hydration and sebum measurements of the skin using an infrared optical spectroscopic set-up. The method utilizes differential detection with three wavelengths 1720, 1750, and 1770 nm, corresponding to the lipid vibrational bands that lay “in between” the prominent water absorption bands. We have used an emulsifier containing hydro- and lipophilic components to mix water and sebum in various volume fractions which was applied to the skin to mimic different oily-dry skin conditions. We also measured the skin sebum and hydration values on the forehead under natural conditions and its variations to external stimuli. Good agreement was found between our experimental results and reference values measured using conventional biophysical methods such as Corneometer and Sebumeter.

M. Zhou, H. Xie, L. Cheng, J. Li, **Clinical characteristics and epidermal barrier function of papulopustular rosacea: A comparison study with acne vulgaris,** Pak J Med Sci 2016 Vol. 32 No. 6

Objective: To evaluate the clinical characteristics and epidermal barrier function of papulopustular rosacea by comparing with acne vulgaris. Methods: Four hundred and sixty-three papulopustular rosacea patients and four hundred and twelve acne vulgaris patients were selected for the study in Xiangya Hospital of Central South University from March 2015 to May 2016. They were analyzed for major facial lesions, self-conscious symptoms and epidermal barrier function. Results: Erythema**,** burning, dryness and itching presented in papulopustular rosacea patients were signifcantly higher than that in acne vulgaris patients (P<0.001). The clinical scores of erythema, burning, dryness and itching in papulopustular rosacea patients were signifcantly higher than those in acne vulgaris patients (P<0.001). The water content of the stratum cornuem and skin surface lipid level were both signifcantly lower in papulopustular rosacea patients than that of the acne vulgaris patients (P<0.001) and healthy subjects (P<0.001); Water content of the stratum cornuem and skin surface lipid level were higher in acne vulgaris patients in comparison with that of healthy subjects (P>0.05, P<0.001; respectively). Transepidermal water loss was signifcantly higher in papulopustular rosacea patients than that of acne vulgaris patients and healthy subjects (P<0.001); transepidermal water loss was lower in skin of acne vulgaris patients than that of healthy subjects (P<0.001). Conclusion: Erythema, burning, dryness and itching are the characteristics of papulopustular rosacea, which makes it different from acne vulgaris. The epidermal barrier function was damaged in papulopustular rosacea patients while not impaired in that of acne vulgaris patients.

Z.D. Draelos, **A pilot study investigating the efficacy of botanical anti-inflammatory agents in an OTC eczema therapy**, J Cosmet Dermatol, 2016 Jun; 15(2): p. 117-119

Background: Eczema is a frequently encountered dermatologic condition characterized by inflammation resulting in erythema, scaling, induration, and lichenification. Aims: The objective of this research was to examine the roll of botanical anti-inflammatories in alleviating the signs and symptoms of mild-to-moderate eczema. Method: A total of 25 subjects 18+ years of age with mild-to-moderate eczema were asked to leave all oral medications and cleansers unchanged substituting the botanical study moisturizer for all topical treatment three times daily for 2 weeks. Investigator, subject, and noninvasive assessments were obtained at baseline and week 2. Results: There was a highly statistically significant (P < 0.001) improvement in investigator-assessed irritation, erythema,

desquamation, roughness, dryness, lichenification, itching, and overall skin appearance after 2 weeks of botanical anti-inflammatory moisturizer use. Overall, a 79% reduction in itching was noted. Skin hydration as measured by corneometry increased 44% increase ($P < 0.001$). Conclusion: The study moisturizer containing the occlusive ingredients of dimethicone and shea butter oil; the humectant ingredients of glycerin, vitamin B, sodium PCA, and sodium hyaluronate; the barrier repair ingredients of ceramide 3, cholesterol, phytosphingosine, ceramide 6 II, and ceramide 1; and the botanical anti-inflammatories allantoin and bisabolol were helpful in reducing the signs and symptoms of mild-to-moderate eczema.

J. Djokic-Gallagher, P. Rosher, J. Walker, K. Sykes, V. Hart, **Emollient efficacy and acceptability in the treatment of eczematous dry skin: A double-blind, randomised comparison of two UK-marketed products**, J Dermatolog Treat, 2016; 27(5): p. 461–466

Objective**:** The aim of this study was to compare the moisturising efficacy and acceptability of physical characteristics of two commonly prescribed emollients licenced in the UK, Doublebase Dayleve gel (DELP) and Diprobase cream (DIPC). Methods: The study was a double-blind, concurrent bi-lateral comparison in female eczema subjects with dry skin. Results**:** In Part 1, comparing the area under the curve (AUC) change from baseline corneometer readings over 24 h following single applications of the emollients to the volar forearms of 34 subjects, the AUC for DELP was more than three times that seen for DIPC (p*5*0.0001). In Part 2, comparing the same outcome measured over 5 days of twice daily applications to the lower legs in 36 subjects, the AUC for DELP was approximately five times that for DIPC (p*5*0.0001). 69% of subjects ''Like Slightly'' or ''Like Strongly'' DELP compared to 33% for DIPC (p ¼ 0.025). 72% indicated they would use DELP again compared to 33% for DIPC (p ¼ 0.033). 75% of subjectspreferred DELP, 17% preferred DIPC and 8% expressed no preference (p ¼ 0.0004).

W. Weistenhöfer, W. Uter, H. Drexler, **Has dry/cold weather an impact on the skin condition of cleanroom workers?** J Toxicol Environ Health A. 2016; 79 (22-23): p. 1118-1124

In previous epidemiological studies irritant skin changes were reported significantly more frequently under dry/cold ambient air conditions. The aim of this study was to assess whether a similar effect might be observed in cleanroom workers, occupationally exposed to strictly controlled ambient conditions. This investigation examined 690 employees of a semiconductor production company in Germany, one half in winter (n = 358) and the other half in spring (n = 332). In both waves, both cleanroom workers, who used occlusive gloves predominantly during the entire shift, and employees in the administration, serving as the control group, were included. Ambient outdoor temperature and relative humidity (RH) were measured and absolute humidity (AH) was calculated. Hands were dermatologically examined with quantitative clinical skin score HEROS, supplemented by transepidermal water loss (TEWL) and stratum corneum hydration measurements. Temperature ranged from -5.41 to 6.51°C in winter (RH 71.04-92.38%; AH 2.85-6.7 g/m^3) and from 6.35 to 10.26°C in spring (RH 76.17-82.79%; AH 5.66-7.92 g/m^3). Regarding HEROS, TEWL, and corneometry, no marked consistent pattern regarding an enhanced or decreased risk of irritant skin changes was found. Work in a strictly controlled environment with prolonged wearing of occlusive gloves, with clean hands and without exposure to additional hazardous substances, did not seem to negatively affect the skin. In this particular setting, meteorological conditions also did not appear to adversely affect the skin. It is conceivable that wearing of gloves and air conditioning in the plant protect skin of the hands from adverse effects due to dry and cold air encountered when not working.

V. Mengeaud, **Évaluation de l'effet hydratant, in: A.-M. Pénse-Lhéritier (Editor): Évaluation des produits cosmétiques**, Lavoisier Paris, Tec & Doc, chapter 3, p. 32-57, 2016

La peau constitute Einterface principale entre l'environnement extérieur et notre organisme, qui est équipe à son extrême surface d'une très fine couche tissulaire appelée *stratum corneum* (SC) dont la fonction spécifique de «barrière» est indispensable à notre survie terrestre, Elle est non seulement protectrice vis-à-vis des agressions extérieures qu'elles soient physiques, chimiques ou microbiologiques, mais aussi capable de limiter les pertes hydriques corporelles. Ainsi, Tune des fonctions majeures de la peau est d'assurer son rôle de barrière entre l'organisme et le milieu extérieur tout en préservant des échanges avec celui-ci. La fonctionnalité de cette barrière depend donc d'un équilibre dynamique. En effet, au niveau de cette interface, sont mis en jeu des mécanismes régulés de manière dynamique et réactive, qui concourent au maintien d'un milieu interne stable alors que l'environnement extérieur subit des variations: ces mécanismes garantissent l'homéostasie cutanée.

A.C. da Silva Marques, **Biometrologic Evaluation of Cosmetic Products**, Dissertation in pharmaceutical sciences at the University of Coimbra, 2016, Portugal

Given the growing importance that cosmetic products have on human's health and in our daily

life, it is important to increase the control of these products, both in terms of safety and effectiveness. Taking into account that conducting animal tests for the production and validation of cosmetic products is prohibited by law, producers of these products have to resort to alternative methods. Biophysical methods have gained an important highlight in the scientific community, in particular the non-invasive methods. They allow a safe and faster evaluation of cosmetics. The purpose of this work is to describe some methods and equipments used at national and European level to test the effectiveness of cosmetic products and correlate the parameters evaluated with the alleged properties in the products. The methods include evaluation tests of the following skin properties: hydration, elasticity, coloring, sebum production and perspiration.

A. Formann, **Eine Interventionsstudie mit dem Nahrungsergänzungsmittel Pycnogenol® und dessen physiologische und molekular-genetischen Auswirkungen auf postmenopausale Frauen,** Dissertation an der medizinischen Faltät der Heinrich-Heine-Universität, Düsseldorf, 2016

Die Haut ist mit einer Fläche von circa 1,5 bis 2 m² das größte Organ des menschlischen Körpers.

M. Nachman, S.E. Franklin, **Artificial Skin Model simulating dry and moist in vivo human skin friction and deformation behavior**, Tribology International, 97, 2016, p. 431-439

In vivo friction and indentation deformation experiments were carried out using the human volar forearm of a healthy 29 year old Caucasian woman and compared with various synthetic materials in order to select materials and develop a new moisture-sensitive artificial skin model (ASM). Analogous to human skin the final ASM comprised two different layers a relatively stiff hydrophilic moisture-absorbing top layer representing the epidermis and a very soft underlayer representing the dermis and hypodermis. The friction and deformation behaviour of the new ASM was comparable to human skin when tested under dry and moist skin conditions. This development has potential for use as a test-bed in the development of devices that interact with the skin in a mechanical way.

D. Tasron, R. Maiti, M Hemming, R Lewis, M. Carré, **Frictional interaction between running sock fabrics and plantar aspect of first metatarsal head in different moisture conditions**, Procedia Engineering 147 (2016), p. 753–758

In a pursuit to further improve the understanding of the factors influencing friction blister formation, friction between running sock textiles and the skin at the first metatarsal head (1MTH) region was investigated in three different moisture conditions (dry, low moisture and wet). Twenty-six participants were recruited and two running sock types were selected based on the variations of their fibre composition and knit structure: 1) a predominantly nylon anti-blister sock and 2) a cotton-rich sock. All friction tests were conducted in controlled room conditions with a temperature of between 20 to 22°C and a relative humidity of 40 to 60% using a bespoke rig developed at the University of Sheffield for foot friction studies. Water was applied to the inside of the plantar region of the sock textiles to different levels using a moisture control protocol. The moisture level of both the 1MTH region and the sock fabrics were monitored throughout testing using a Corneometer® device. Increasing sock moisture above the dry condition was found to increase foot-sock sliding friction for both sock materials tested. No significant correlation was found at the level $p < 0.05$ between foot hydration level and sliding friction over the hydration range tested. In dry conditions, the cotton-rich sock exhibited lower levels of friction compared with the anti-blister sock. However, in both low moisture and wet conditions, the anti-blister sock showed comparatively lower levels of friction than the cotton-rich sock. This suggests that for intensive athletic events where significant perspiration is likely to occur, the anti-blister sock would provide lower friction. This study offers a new approach to friction testing of sock materials and it is hoped that its outcomes will provide new insights on the preventative measures for friction blisters.

B. Kamczycka, **Corneometry Assessment of Epidermal Hydration after Application of the Creams with the Addition of Herb Ashwagandha**

In this research work has been done hydro-alcoholic extracts, and develop and execute recipes of cosmetic herb creams with Ashwagandha. In this work it was performed corneometrical measurements of the degree of epidermis moisturizing after application of tested creams. It was found that all cosmetic creams created in our laboratory exhibit bad moisturizing properties. Results of study using the surface corneometer indicate that face creams showed that after 45 minutes after administration on skin creams, skin moisturizing decreased. It should be noted, however, the lowest moisturizing effect of skin was reached 75 minutes after application of the cream. The results show that the herb Ashwagandha dried skin. It follows that a component of Ashwagandha herb that has been used in these studies should not be used in cosmetics moisturizing.

A. Ezerskaia, S.F. Pereira, **Infrared spectroscopic measurement of skin hydration and sebum levels and comparison to corneometer and sebumeter**, in J. Popp et al. (Editor): Biophotonics: Photonic Solutions for Better Health Care V

Skin health characterized by a system of water and lipids in Stratum Corneum provide protection from harmful external elements and prevent trans-epidermal water loss. Skin hydration (moisture) and sebum (skin surface lipids) are considered to be important factors in skin health; a right balance between these components is an indication of skin health and plays a central role in protecting and preserving skin integrity. In this manuscript we present an infrared spectroscopic method for simultaneous and quantitative measurement of skin hydration and sebum levels utilizing differential detection with three wavelengths 1720, 1750, and 1770 nm, corresponding to the lipid vibrational bands that lie "in between" the prominent water absorption bands. The skin sebum and hydration values on the forehead under natural conditions and its variations to external stimuli were measured using our experimental set-up. The experimental results obtained with the optical set-up show good correlation with the results obtained with the commercially available instruments Corneometer and Sebumeter.

T. Venter, L.T. Fox, M. Gerber, J.L. du Preez, S. van Zyl, B. Boneschans, J. du Plessis, **Physical stability and clinical efficacy of Crocodylus niloticus oil lotion**, Revista Brasileira de Farmacognosia 26 (2016), p. 521–529

The stability and the anti-ageing, skin hydrating and anti-erythema effects of a commercialized Crocodylus niloticus Laurenti, 1768, Crocodylidae, oil lotion was determined. The lotion was stored at controlled conditions over six months during which several stability tests were performed. For the clinical efficacy studies lotion was applied on volar forearm skin (female volunteers) and compared to a liquid paraffin-containing reference product. Skin hydrating and anti-ageing effects were determined with a Corneometer®, Cutometer® and Visioscan®, following single (3 h) and multiple applications (12 weeks). The Vapometer® and Mexameter® were utilized to determine this lotion's anti-erythema effects on sodium lauryl sulfate irritated skin. The lotion demonstrated good stability over 6 months. The reference product increased skin hydration and decreased skin wrinkles to a larger extent than the C. niloticus lotion after a single application, whereas the C. niloticus lotion decreased skin scaliness better than the reference product. During the long-term study, the reference product overall increased skin hydration more than the C. niloticus lotion, whereas C. niloticus lotion increased skin elasticity to a larger extent than the reference product. C. niloticus lotion increased skin wrinkles and decreased skin scaliness over 12 weeks. Compared to non-treated, irritated skin, C. niloticus lotion demonstrated some potential anti-inflammatory characteristics.

M.O. de Melo, **Técnicas para Avaliar a Hidratação e a Oleosidade da Pele,** Cosmetics & Toiletries (Brasil) Vol. 28, mar-avr 2016

Clinical research for cosmetic products uses several methods developed and or improved over the last 30 years. In this article, the authors describe the main methods used for quantitative and qualitative assessment or the aqueous and lipid content of the skin. *(Article in Portuguese)*

A.I. Arshad, S.H. Khan, N. Akhtar, **Formulation Development of Topical Cream loaded withAnanas Comomus Extract: in vivo Evaluation for Changes in Skin barrier Function using Biophysical Techniques**, Acta Pol Pharm. 2016 Mar-Apr;73(2): p. 485-94

The prime objective of current investigation was to develop a topical skin care cream (w/o) loaded with Ananas comosus extract versus placebo control, and evaluated non-invasively for changes in skin barrier function i.e., epidermal hydration levels and transepidermal water loss (TEWL), on healthy human volunteers. Active cream carrying 2% extract of Ananas comosus in the internal phase of w/o emulsion was prepared while placebo contained no extract. Stability assessment of both creams was performed at various storage conditions 8, 25, 40 degrees C, 40 degrees C + 75% RH (relative humidity) and 50 degrees C. Effects on epidermal hydration and TEWL were observed by applying active cream at one side and placebo on the other side of face by 11 healthy human volunteers during 12 weeks period using Corneometer MPA5 and Tewameter MPA5. Results indicated that both creams (active and placebo) remained stable at all storage conditions. All samples manifested non-Newtonian, shear thinning behavior with increasing shear rate, whereas statistical interpretation indicated that effects of active cream were superior than placebo, as it significantly ($p = 0.05$) improves the epidermal hydration levels up to 56.74% and reduces TEWL up to -73.19% at the end of study period compared to baseline value. The surface evaluation of living skin (SELS) parameters SEr, SEsc, SEsm, SEw were also assessed and indicated a significant ($p = 0.05$) reduction. Conclusively, creams loaded with Ananas comosus extract exhibit better physicochemical stability and represent a propitious improvement in skinbarrier function, used as a functional moisturizing and anti-aging ingredient in topical skincare products.

N.K. Roh, M.J. Kim, Y.W. Lee, Y.B. Choe, K.J. Ahn, **A Split-Face Study of the Effects of a Stabilized Hyaluronic Acid-Based Gel of Nonanimal Origin for Facial Skin Rejuvenation Using a StampType Multineedle Injector: A Randomized Clinical Trial**, Plast Reconstr Sura. 2016 Mar; 137(3): p. 809-16

Background: The mid-dermal injection of stabilized hyaluronic acid-based gel of nonanimal origin has been shown to be an effective method for skin rejuvenation. The previous manual technique, using a prefilled syringe, made it difficult to precisely control the injection into the mid-dermal layers and to achieve an even distribution of gel across the area. This single-center, evaluator-blinded, prospective, split-face, randomized controlled trial investigated the efficacy and safety of nonanimal stabilized hyaluronic acid using a stamp-type electronic multineedle injector. Methods: Twenty-five patients (aged 27 to 59 years) were recruited into this study. Each participant submitted to a single treatment with a nonanimal stabilized hyaluronic acid injection to one side of the lower cheek. The skin hydration, melanin content, erythema, and elasticity of both cheeks were evaluated at each follow-up visit, at 1, 2, 4, 8, and 12 weeks after treatment. Results: Stratum corneum hydration was significantly improved after injection. Although no significant improvement was observed at 1 week after treatment, the Corneometer readings for the treated side were significantly higher than those for the untreated the side after the 2-, 4-, 8-, and 12-week treatment visits. Skin elasticity was also significantly improved during the study. The injection had no significant effect on the melanin and erythema indices throughout the follow-up period. The treatment was well tolerated, and no serious adverse events were reported. Conclusions: Nonanimal stabilized hyaluronic acid treatment resulted in improved hydration and elasticity of the facial skin. The specialized stamp-type electronic multineedle injector enables the hyaluronic acid filler to rejuvenate the skin effectively and safely.

J.-C. Kattenstroh, **Einfluss oral zugeführter Kollagen-Peptide auf Hautfeuchtigkeit, Hautelastizitat, Faltenvolumen und Cellulite,** Aesthetische Dermatologie 2/2016

Mit zunehmendem Alter sowie durch aufiere Einfliisse wie UV-Exposition oder Nikotinabusus kommt es zu einer Beeintrachtigung der dermalen extrazellularen Matrix und des Kollagengeriists. Die Folge ist eine Abnahme der Dicke, Elastizitat und Feuchtigkeit der Haut, die mit einer verstarkten Faltenbildung einhergeht. Welchen Einfluss kurzkettige Kollagen-Peptide auf diese Parameter haben, zeigen aktuelle Studien.

H. Haeusler, **The key to effective skincare: customized hyaluronic acid gels,** NutraCos Cosmetics; January/April 2016

A multi-faceted ingredient: Hyaluronic acid (HA) is a well-established ingredient in various cosmetic products and offers numerous benefits. It controls the proliferation of skin cells via the CD44 receptor and has anti-inflammatory effects of the skin (1). In addition, HA infuences the growth of keratinocytes, which protect the epidermis from aging, and, thanks to the double bond structure of its D-glucuronic acid moiety (2), HA also has antioxidant properties. The molecular weight of HA is a key aspect of product formulation: the smaller molecule, the deeper the penetration (3).

A. Ratz-Łyko, J. Arct, K. Pvtkowska, **Moisturizing and Antiinflammatory Properties of Cosmetic Formulations Containing *Centella asiatica* Extract**, Indian J Pharm Sci. 2016 Jan-Feb, 78(1): p. 27-33

Centella asiatica extract is a rich source of natural bioactive substances, triterpenoid saponins, flavonoids, phenolic acids, triterpenic steroids, amino acids and sugars. Thus, many scavenging free radicals, exhibit antiinflammatory activity and affect on the *stratum corneum* hydration and epidermal barrier function. The aim of the present study was to evaluate the *in vivo* moisturizing and antiinflammatory properties of cosmetic formulations (oil-in-water emulsion cream and hydrogel) containing different concentrations of *Centella asiatica* extract. The study was conducted over four weeks on a group of 25 volunteers after twice a day application of cosmetic formulations with *Centella asiatica* extract (2.5 and 5%, w/w) on their forearms. The measurement of basic skin parameters *{stratum corneum* hydration and epidermal barrier function) was performed once a week. The *in vivo* antiinflammatory activity based on the methyl nicotinate model of microinflammation in human skin was evaluated after four weeks application of tested formulations. *In vivo* tests formulations containing 5% of *Centella asiatica* extract showed the best efficacy in improving skin moisture by increase of skin surface hydration state and decrease in transepidermal water loss as well as exhibited antiinflammatory properties based on the methyl nicotinate model of microinflammation in human skin. Comparative tests conducted by comeometer, tewameter and chromameter showed that cosmetic formulations containing *Centella asiatica* extract have the moisturizing and antiinflammatory properties.

H. Haeusler, **Combinations for better results,** Cossma 12/2015

Hyaluronic acid (HA) is widely used in health and beauty applications. New research indicates some promising new findings for HA gels in topical anti-ageing cosmetics. HA is a well-established ingredient in various cosmetic products and offers numerous benefits. It controls the proliferation of skin cells via the CD44 receptor and has some anti-imflammatory effects on the skin. In addition, it influences the growth of keratinocytes, which protect the epidermis from ageing and, thanks to the double bond structure of its D-glucuronic acid moiety, it also has antioxidant properties.

V. Sedini, **The natural way to skin firmness,** SPC December 2015

Valentina Sedini presents a novel ingredient, comprising two natural extracts and a naturally-derived skin permeation enhancer, which prevents oxidative stress and boosts skin firmness and smoothness. Skin ageing is caused by a number of different factors that trigger biochemical and structural changes, finally leading to loss of skin firmness and elasticity. The primary player in these degenerative processes is oxidative stress. It is causedby a huge increase in reactive oxygen species (ROS) which exceeds the capacity of physiological antioxidant systems.

Z.D. Draelos, **Triamcinolone spray: no-rub application as effective as rub application**, JCD, Volume 14, Issue 4, December 2015, p. 286-290

Background: Adherence to therapy is important to achieve successful treatment outcomes. Although effective, topical treatments in dermatology may result in sticky skin or may be too time-consuming to apply, thereby creating adherence issues. Spray formulations have excellent products aesthetics, but may require a 2-step application process. Aims: This study was conducted to determine whether the spray formulation of triamcinolone acetonide (TAC) 0.2% works equally well in a no-rub and rub application process. Methods: Fifty patients 18 years of age and older with mild symmetrical arm or leg eczema or atopic dermatitis were enrolled in a 2-week investigator-blinded study. One limb was randomized to be treated with TAC spray and no rubbing, and the other was to be treated with TAC spray and rubbing. Patients applied the spray three times daily for 2 weeks. The use of moisturizers was not permitted. Results: After 2 weeks, there was a highly clinical and statistical (P<0.001) improvement in all investigator and patient parameters evaluated with both the no-rub and rub techniques. There was no difference in final assessment scores between the no-rub and rub applications (P>0.7), and no study product tolerability issues were identified. Transepidermal water loss and corneometry measures revealed no issues in skin barrier impairment even though patients were not permitted to use moisturizers. Conclusion: This study demonstrates the application parity between a no-rub and rub application of TAC spray in the absence of a moisturizer. Both techniques resulted in clinical and significant improvement in eczema and atopic dermatitis and neither resulted in skin barrier issues.

J. Asserin, E. Lati, T. Shioya, J. Prawitt, **The effect of oral collagen peptide supplementation on skin moisture and the dermal collagen network: evidence from an ex vivo model and randomized, placebo-controlled clinical trials,** J Cosmet Dermatol, 2015 Dec;14(4): p. 291-301

Background: Skin dryness and an accelerated fragmentation of the collagen network in the dermis are hallmarks of skin aging. Nutrition is a key factor influencing skin health and consequently its appearance. A wide range of dietary supplements is offered to improve skin health. Collagen peptides are used as a bioactive ingredient in nutricosmetic products and have been shown in preclinical studies to improve skin barrier function, to induce the synthesis of collagen and hyaluronic acid, and to promote fibroblast growth and migration. Our aim was to investigate the effect of oral supplementation with specific collagen peptides on skin hydration and the dermal collagen network in a clinical setting. Methods: Two placebo-controlled clinical trials were run to assess the effect of a daily oral supplementation with collagen peptides on skin hydration by corneometry, on collagen density by high-resolution ultrasound and on collagen fragmentation by reflectance confocal microscopy. Human skin explants were used to study extracellular matrix components in the presence of collagen peptides ex vivo. Results: Oral collagen peptide supplementation significantly increased skin hydration after 8 weeks of intake. The collagen density in the dermis significantly increased and the fragmentation of the dermal collagen network significantly decreased already after 4 weeks of supplementation. Both effects persisted after 12 weeks. Ex vivo experiments demonstrated that collagen peptides induce collagen as well as glycosaminoglycan production, offering a mechanistic explanation for the observed clinical effects. Conclusion: The oral supplementation with collagen peptides is efficacious to improve hallmarks of skin aging.

K. von Oppen-Bezalel, **Shielding against pollution for pristine clear skin,** Personal Care November 2015

A major unmet need the cosmetic industry is the effective, natural and safe means to protect and detoxify the skin against environmental pollution to which it is exposed daily. Pollution in general

and air pollution specifically have detrimental effects on skin health and apprearance. Constant exposure to environmental toxins leads to accumulated damage in two main ways: DNA damage and chronic imflammation, which over time produces premature signs of ageing.

J. Polaskova, J. Pavlackova, P. Egner, **Effect of vehicle on the performance of active moisturizing substances**, Skin Res Technol, 2015 Nov; 21(4): p. 403-412

Purpose: The work is aimed at the description and study of the hydration effect of different active substances (hyaluronic acid, sericin, glycerol, and urea) incorporated in two different vehicles commonly used for compounding pharmaceutical ingredients, gel, and emulsion. Methods: The effects of the formulations were investigated by instrumental methods in vivo after their administration to the skin of volar forearms in a group of 20 healthy volunteers (women, mean age of 28 years). Hydration effect was observed by corneometry and barrier properties (TEWL) by tewameter at regular time intervals (1-26 h) after application of the prepared samples. Results: The results indicate that the active substances incorporated in the emulsion moisturize the skin better compared to the same substances contained in the gel. Furthermore, it was found that these ingredients, whether they are present in the emulsion or in the gel, prevent TEWL in a similar manner. Conclusion: The study showed that differences exist among the tested active ingredients in their ability to moisturize the skin. These differences are dependent not only on the type and concentration of the active substance used but also on the type of vehicle in which they are applied. It was also found that the active substances influence the viscosity of the prepared formulations.

K. Azevedo Tadini, D. Garcia Mercurio, P.M.B.G. Maia Campos, **Acetyl hexapeptide-3 in a cosmetic formulation acts on skin mechanical properties - clinical study,** Brazilian Journal of Pharmaceutical Sciences, Vol. 51, N. 4, Oct./Dec., 2015

Acetyl hexapeptide-3 has been used in anti-aging topical formulations aimed at improving skin appearance. However, few basic studies address its e□ects on epidermis and dermis, when vehiculated in topical formulations. Thus, the objective of this study was to determine the clinical efcacy of acetyl hexapeptide-3 using biophysical techniques. For this purpose, formulations with and without acetyl hexapeptide-3 were applied to the ventral forearm and the face area of forty female volunteers. Skin conditions were evaluated after 2 and 4-week long daily applications, by analyzing the stratum corneum water content and the skin mechanical properties, using three instruments, the Corneometer® CM 825, Cutometer® SEM 575 and Reviscometer® RV600. All formulations tested increased the stratum corneum water content in the face region, which remained constant until the end of the study. In contrast, only formulations containing acetyl hexapeptide-3 exhibit a signifcant e□ect on mechanical properties, by decreasing the anisotropy of the face skin. No signifcant e□ects were observed in viscoelasticity parameters. In conclusion, the e□ects of acetyl hexapeptide-3 on the anisotropy of face skin characterize the compound as an e□ective ingredient for improving conditions of the cutaneous tissue, when used in anti-aging cosmetic formulations.

K.L. Hon, Y.C. Tsang, N.H. Pong, V.W.Y Lee, N.M. Luk, C.M. Chow, T.F. Leung, **Patient acceptability, efficacy, and skin biophysiology of a cream and cleanser containing lipid complex with shea butter extract versus a ceramide product for eczema**, Hong Kong Med J, Volume 21 Number 5, October 2015

Objectives: To investigate patient acceptability, efcacy, and skin biophysiological e□ects of a cream/cleanser combination for childhood atopic dermatitis. Design: Case series. Setting: Paediatric dermatology clinic at a university teaching hospital in Hong Kong. Patients: Consecutive paediatric patients with atopic dermatitis who were interested in trying a new moisturiser were recruited between 1 April 2013 and 31 March 2014. Swabs and cultures from the right antecubital fossa and the worst eczematous area, disease severity (SCORing Atopic Dermatitis index), skin hydration, and transepidermal water loss were obtained prior to and following 4-week usage of a cream/cleanser containing lipid complex with shea butter extract (Ezerra cream; Hoe Pharma, Petaling Jaya, Malaysia). Global or general acceptability of treatment was documented as 'very good', 'good', 'fair', or 'poor'. Results: A total of 34 patients with atopic dermatitis were recruited; 74% reported 'very good' or 'good', whereas 26% reported 'fair' or 'poor' general acceptability of treatment of the Ezerra cream; and 76% reported 'very good' or 'good', whereas 24% reported 'fair' or 'poor' general acceptability of treatment of the Ezerra cleanser. Tere were no intergroup di□erences in pre-usage clinical parameters of age, objective SCORing Atopic Dermatitis index, pruritus, sleep loss, skin hydration, transepidermal water loss, topical corticosteroid usage, oral antihistamine usage, or general acceptability of treatment of the prior emollient. Following use of the Ezerra cream, mean pruritus score decreased from 6.7 to 6.0 (P=0.036) and mean Children's Dermatology Life Quality Index improved from 10.0 to 8.0 (P=0.021) in the 'very good'/'good' group. Tere were no statistically significant di□erences in the acceptability of wash

(P=0.526) and emollients (P=0.537) with pre-trial products. When compared with the data of another ceramideprecursor moisturiser in a previous study, there was no statistical di□erence in efcacy and acceptability between the two products. Conclusions: Te trial cream was acceptable in three quarters of patients with atopic dermatitis. Patients who accepted the cream had less pruritus and improved quality of life than the non-accepting patients following its usage. Te cream containing shea butter extract did not di□er in acceptability or efcacy from a ceramide-precursor product. Patient acceptability is an important factor for treatment efcacy. Tere is a general lack of published clinical trials to document the efcacy and skin biophysiological e□ects of many of the proprietary moisturisers.

R. Voegeli, P. Seroul, L.A. Raaff, M. Lategan, A.V. Rawlings, B. Summers, **Examination of the effects of a moisturizer on facial barrier and hydration of three skin ethnicities using a novel mapping approach,** IFSCC 2015 Zurich

Objectives: Research tells us that we are not completely meeting consumers' needs for skin moisturization. As much as 70% of women can be affected with dryness on their faces which can vary with season and also facial location [1] [2] [3]. Recent work indicates that the use of single point measures on the face is not enough to describe the complexity of the moisturization needs of the face. Mapping procedures have been undertaken with a limited number of sites [4] [5] [6] but we recently demonstrated the immense complexity of the barrier and hydration properties of facial skin using 30 predefined sites on one side of the face of subjects of four different skin ethnicities [7]. The aim of this study was to evaluate the effect of a moisturizer on continuous facial color maps of transepidermal water loss (TEWL) and skin hydration. Materials and Methods: *Study population and study set up* The study was a cross-sectional study and was approved from the School of Health Care Sciences Research and Ethics committee (SREC) together with the Medunsa Campus Research and Ethics Committee (MREC) and was conducted in accordance with the Declaration of Helsinki Principles. Written, informed consent was obtained from all participants before enrollment.

R. Voegeli, M. Cherel, L.-A. Raaff, P. Kollias, P. Seroul, B. Summers, A.V. Rawlings, **Facial color mapping of stratum corneum hydration of different ethnic groups and the effect of a moisturizer,** IFSCC Conference, 2015, Zurich

Introduction: As much as 70% of women can be affected with dryness on their faces, which can vary with season and facial location. It has recently become obvious that the use of single point measurements of skin hydration is not enough to describe the facial moisturization needs of consumers. We recently demonstrated the immense complexity of facial skin hydration on subjects from four ethnic groups using a novel continuous facial color mapping technology. The aim of this study was now to evaluate the effect of a moisturizer using this approach.

C.S.C. Pereira, A. R. Baby, MV R. Velasco, M.T. Scotti, **Correlação Instrumental e Sensorial de Composição Aromática no Ciclo Menstrual,** Cosmetics & Tolietries (Brasil) Vol 27, set-out 2015

In order to know the variables that may influence the fragrance-substarte interface and consumer perception in the menstrual cycle, and contribute to the development of fragrances, there was a study correlating the sensory analysis and instrumental (biochemical and chromatographic measurements) as a function of the cycle menstrual. *(Article in Portuguese)*

M. Schultz, **Charakterisierung der Hautbarrierefunktion von Früh- und Reifgeborenen innerhalb der ersten Lebensjahre unter Berücksichtigung angewandter Pflegekonzepte in der Neonatalperiode,** Dissertation Charité - Universitätsmedizin Berlin, Germany, September 2015

Die Reifungsprozesse der Hautbarriere dauern vermutlich bis ins Kleinkindalter hinein an und führen zu einer erhöhten Vulnerabilität der Hautbarriere gegenüber externen Einflüssen. Deshalb ist es wichtig, den Einfluss von Hautpflege auf die kindliche Hautbarriere wissenschaftlich zu untersuchen. Ziel dieser Studie war die Charakterisierung der kindlichen Hautbarriere in ihrer postnatalen Entwicklung unter Berücksichtigung standardisierter postnataler Pflegekonzepte und weiterer Faktoren.

H. Haeusler, **Wirksamkeit eines Hyaluronsäure Gels zur Verbesserung des Hautbildes**, SOFW-Journal 141 - 09/2015

Zusammenfassung: Hyaloronsäure wird schon seit langer Zeit in diversen Anti-Aging-Produkten eingesetzt. Hierbei unterscheidet man die Hyaloronsäuren nach ihren Molekulargewichten. Es ist bekannt, dass Hyaloronsäuren mit molekularen Massen <200 kDa aktiv an der zellulären Signalübertragung mitwirken und dabei auch die extrazelluläre Matrix gestalten. Letztlich beeinflusst Hyaloronsäure das Wachstum von Keratinozyten, Zellen, die die Oberhaut vor Alterung schützen.

G.W. Nam, J.H. Baek, J.S. Koh, J.K. Hwang, **The seasonal variation in skin hydration, sebum,**

scaliness, brightness and elasticity in Korean females, Skin Research and Technology 2015; 21: p. 1-8

Background/purpose: Age, gender, regional, and ethnic differences influence skin conditions. The purpose of this study was to obverse the effects of enviroments, especially the air temperature, relative humidity, air pressure, duration of sunshine, and percipitation on skin and the seasonal variation in skin hydration, sebum, scales, brightness, and elasticity in Korean females.

R.C. Killaars, T.R. Penha, E.M. Heuts, R.R. van der Hulst, A.A. Piatkowski, **Biomechanical Properties of the Skin in Patients with Breast Cancer Related Lymphedema Compared to Healthy Individuals**, Lvmphat Res Biol. 2015 Sep;13(3): p. 215-21

Background: Biomechanical skin changes in breast cancer-related lymphedema (BRCL) have barely been described and objectively tested. This study aims to compare the skin of upper limb lymphedema with skin of the healthy contralateral arm, in order to demonstrate changes of elasticity, viscoelasticity, and level of hydration of the skin in BCRL. The secondary aim is to investigate the correlation between biomechanical skin changes and measurements that are currently used in clinical practice, such as volume measurement and lymph-ICF score. Methods and Results**:** Eighteen patients with BCRL and 18 healthy individuals were included in the study. A Cutometer® was used for measurements for skin elasticity and viscoelasticity on both arms of each subject. A Corneometer® was used for measurements of skin hydration. Measurements of both test groups were compared. In BCRL patients, there was a significant difference (p=<0.028) between the elasticity of the skin of the lymphedema arm compared to the healthy contralateral arm. There were no significant differences for level of skin hydration or viscoelasticity in lymphedema patients between the measurements on the skin of the lymphedematous and healthy arm. In healthy individuals, there were no significant differences for all measurements between skin of both arms. Spearman's correlation was significant (p=<0.01) for difference in volume and difference in elasticity in BCRL patients. Conclusion: This study shows an impaired elasticity for the skin of the lower arm in patients with lymphedema compared to the contralateral healthy arm. Promising evidence is suggested for the use of the Cutometer device in the diagnostic evaluation of BCRL.

A. Kleiner, E. Doridot, F. Debaene, C. Ringenbach, O. Peschard, P. Mondon, **Das Phänomen der empfindlichen Haut,** SOFW-Journal 141 - 09/2015

Viele Konsumenten haben nach eigener Einschätzung eine empfindliche Haut. Dabei gibt es keine allgemein anerkannte Definition für empfindliche Haut. Bislang gab es ebenso wenig gesicherte Erkenntnisse zu konstitutionellen Faktoren für diesen Hautzustand. Neuere Untersuchungen deuten dagegen auf Unterschiede im Aufbau normaler und empfindlicher Haut hin. Zusätzlich unterliegt die Haut im Laufe des Lebens auch Veränderungen bedingt durch intrinsche und extrinsische Faktoren. Dies bestätigen ebenfalls die Wahrnehmungen der Konsumenten. Mit zunehmendem Alter steigt der Anteil derjenigen, die angeben, eine empfindliche Haut zu haben.

R.D. Albert, S. Hurff, **Sensory perceptions improve via biobased propanediol,** Personal Care September 2015

New comsumer moisturisation and sensory testing has shown that by using a blend of Zemea and glycerin in a lotion formulation it is possible to improve the consumer perceived aesthetics without compromising hydration performance. The objective of this study was to determine if Zemea Propanediol could improve consumer sensory perceptions of a typical high moisturizing lotion based on glycerin while maintaining satisfactory humectancy performance. The generic lotion containing 20 wt.% glycerin was compared to both a lotion with 20 wt.% Zemea, and a lotion using a blend of Zemea/glycerin (10 wt.% each).

Klinische Studie bezüglich der Wirksamkeit und Verträglichkeit (Auszug), Institut Dermatologie an der Universität Hamburg (2013), Ästhetische Dermatologie 8, 2015

Fragestellungen: Eruiert warden sollten der Vitalisierungseffekt für die Wimpern, die Patientenzufriedenheit sowie biophysikalische Messergebnisse. Untersuchungskriterien und Methoden: Ausschlusskriterien waren gefärbte Wimpern und künstliche Wimpernverlängerungen. Entsprechend einer 5-Punkte-Skala wurden die Effekte untersucht. Die Bewertung geschah sowohl durch die Probanden als auch durch neutral externe Auswertung basierend auf standardisierten klinischen Photographien (Fotofinder Systems/Deutschland). Zusätzlich wurde die Patientenzufriedenheit ausgewertet. Zur Bestimmung der Hauttoleranz wurden eingesetzt: pH-Wert-Messung, Corneometrie und die Messung des Lipidgehaltes in der Tränenflüssigkeit (alles durchgeführt mit Geräten von Courage & Khazaka, Köln).

M. Tanaka, E. Misawa, K. Yamauchi, F. Abe, C. Ishizaki, **Effects of plant sterols derived from *Aloe vera* gel on human dermal fibroblasts in vitro and on skin condition in Japanese women,** Clinical, Cosmetic and Investigational Dermatology 2015:8, p. 95–104

Background: Aloe is known for its topical use for treating wounds and burns. Many previous studies reported the healing effects of Aloe vera. However, there are few clinical studies on the effect of orally administered A. vera gel on the skin. Aloe sterols are a type of plant sterols that have the capability to regulate the metabolism of glucose and lipids. In a recent study, we confirmed that ingested Aloe sterols reached the peripheral tissues through the bloodstream. However, their influence on dermal fibroblasts has not been investigated.

M. Mehrbani, R. Choopani, A. Fekri, M. Mehrabani, M. Mosaddegh, M. Mehrabani, **The efficacy of whey associated with dodder seed extract on moderate-to-severe atopic dermatitis in adults: A randomized, double-blind, placebo-controlled clinical trial**, J Ethnopharmacol, 2015 Aug 22;172: p. 325-32

Ethnopharmacological Relevance: Atopic dermatitis is a common chronic inflammatory skin condition that is on the rise and adversely affects quality of life of the affected individual. Dry skin and pruritus, major characteristics of this disease, are associated with the dysfunction of the skin barrier. Though mild cases of the disease can be controlled with antihistamines and topical corticosteroids, moderate-to-severe cases often require treatment with immunomodulatory drugs, which have many side effects. It is now more common to use complementary and alternative medicines in the treatment of atopic dermatitis. In traditional Iranian medicine, the use of whey with the aqueous extract of field dodder (Cuscuta campestris Yunck.) seeds in severe and refractory cases of atopic dermatitis is common and has no side effects. The aim of this study was to assess the efficacy and safety of whey associated with dodder seed extract in the treatment of moderate-to-severe atopic dermatitis in adults. Materials and Methods: The study was a randomized, double-blind placebo control trial that was conducted on 52 patients with moderate-to-severe atopic dermatitis for 30 days. In this study patients received freeze dried whey powder with spray dried water extract of field dodder or the placebo for 15 days. At baseline (week zero), after the end of the 15 day treatment period (week three) and 15 days after stopping the drug or placebo (follow-up/week five), patients were evaluated in terms of skin moisture, elasticity, pigmentation, surface pH and sebum content on the forearm with Multi Skin Test Center® MC1000 (Courage & Khazaka, Germany) and the degree of pruritus and sleep disturbance in patients were also recorded. Results: 42 patients completed 30 days of treatment with the medicine and the follow-up period. At the end of the follow-up period a significant increase in skin moisture and elasticity in the group receiving whey with dodder was observed compared with the placebo group ($p<0.001$). There was a significant difference between the two groups regarding the pruritus after 15 days of receiving treatment or the placebo ($p<0.05$), and at the end of the 30-day study period the difference was clearly significant ($p<0.001$). Sleep disturbance showed significant changes at the end of follow-up period ($p<0.05$). There was no significant difference between the two groups concerning changes in skin pigmentation, however, a significant decrease was observed in the group receiving whey associated with dodder seed extract over time ($p<0.001$). There were no significant alterations in skin surface pH and the amount of sebum between the two groups. Temporary side effects were reported including anorexia and mild gastrointestinal problems in drug use. It is noteworthy that in this study despite the fact that patients received whey with dodder for just 15 days, moisture and elasticity of the skin continued to increase in the second half of the study (follow-up period). This shows that the effect of whey with dodder is not transient and this drug really helped skin barrier reconstruction and accelerated the healing process of skin. This positively influenced the skin parameters and consequently the improvement of pruritus and sleep disturbance. Conclusions: The results indicate that whey associated with dodder seed extract can serve as a promising alternative for the treatment of moderate-to-severe atopic dermatitis.

F. Hashmi, C. Wright, C. Nester, S. Lam, **The reliability of non-invasive biophysical outcome measures for evaluating normal and hyperkeratotic foot skin**, Journal of Foot and Ankle Research (2015) 8:28

Background: Hyperkeratosis of foot skin is a common skin problem affecting people of different ages. The clinical presentation of this condition can range from dry flaky skin, which can lead to fissures, to hard callused skin which is often painful and debilitating. The purpose of this study was to test the reliability of certain non-invasive skin measurement devices on foot skin in normal and hyperkeratotic states, with a view to confirming their use as quantitative outcome measures in future clinical trials. Methods: Twelve healthy adult participants with a range of foot skin conditions (xerotic skin, heel fissures and plantar calluses) were recruited to the study. Measurements of normal and hyperkeratotic skin sites were taken using the following devices: Corneometer® CM 825, Cutometer® 580 MPA, Reviscometer® RVM 600, Visioline® VL 650 Quantiride® and Visioscan® VC 98, by two investigators on two consecutive

days. The intra and inter rater reliability and standard error of measurement for each device was calculated. Results: The data revealed the majority of the devices to be reliable measurement tools for normal and hyperkeratotic foot skin (ICC values > 0.6). The surface evaluation parameters for skin: SEsc and SEsm have greater reliability compared to the SEr measure. The Cutometer® is sensitive to soft tissue movement within the probe, therefore measurement of plantar soft tissue areas should be approached with caution. Reviscometer® measures on callused skin demonstrated an unusually high degree of error. Conclusions: These results confirm the intra and inter rater reliability of the Corneometer®, Cutometer®, Visioline® and Visioscan® in quantifying specific foot skin biophysical properties.

I. Waller, B. Suter, S. Hettwer, B. Obermayer, S. Bänziger, **In-Vitro Corneometry and Tewametry – Setting up skin substitute modelst o evaluate cosmetic moisturising materials,** H&PC, Vol. 10 (4) – July/August 2015

Abstract: Moisturisers improve skin hydration by using humectants and/or occlusive agents. Their efficacy is investigated by monitoring skin hydration or transepidermal water loss. In-vivo measurements, however, are costly and we therefore aimed to provide equivalent skin substitute in-vitro models. Two major models were established: collagen or synthetic membranes placed on agar-agar 'subsurface' gels. Their suitability for in-vitro hydration testing was evaluated by assessing their ability to accurately differentiate well-established moisturising ingredients. Second, the models were used for proof-of-concept investigations, e.g. assessing a novel active ingredient's moisturising efficacy. Indeed, the models successfully discriminated between occlusive and emollient, as well as between formulations with different moisturising characteristics. Taken together, each model had its strengths and weaknesses. In combination, however, such models may facilitate preliminary efficacy testing and thereby prove supportive for product development.

D. Tasron, R. Maiti, M Hemming, R. Lewis, M. Carré, **Investigating a methodology to measure moisture in skin–textile friction experiments,** Footwear Science, 7. S15 - S16, 2015

During running, foot skin is subjected to continuous pressure and repeated shearing, along with high levels of humidity due to perspiration and heat (Baussan et al. 2010). Moisture content in the stratum corneum skin layer and presence of moisture in the skinfabrics interface can strongly influence the available friction (Tomlinson et al. 2011, Kenins 1994).

J.Y. Kim, O.S. Lee, S. Ha, J.H. Kim, G. Park, J.K. Kim, C.H. Oh, **In vivo assessment of the effect of taxifolin glycoside on atopic dermatitis-like skin lesions using biomedical tools in NC/Nga mice**, Clin Exp Dermatol, 2015 Jul;40(5): p. 547-555

Background: Noninvasive methods of assessment are widely used in clinical trials. However, such methods have not been established in atopic dermatitis (AD), which is a chronic inflammatory skin disease. Aim: To demonstrate, using biomedical tools, the benefits of a new substance, taxifolin glycoside (TAX), in an AD model, the NC/Nga mouse. Methods: We evaluated the efficacy of topical TAX for AD by measuring clinical skin severity score, cytokine expression and serum IgE level, and by using biomedical measures (vapometry and corneometry). Topical TAX was applied to AD-induced NC/Nga mice for 3 weeks. The anti-inflammatory effects of this compound were demonstrated noninvasively using biomedical tools and immunological assays. Results: Our method of AD assessment using biomedical tools is more objective and accurate than visual inspection. The results obtained using the biomedical tools were identical to those obtained using immunological assays. Conclusions: In vivo biomedical tools are useful for diagnosing and monitoring treatment effects in AD.

L. Pouran, M. Masoud, R.M. Seyed, Y. Hadis, M. Akram, S. Golmohammadzadeh, M. Balali-Mood, **Epidermal hydration and skin surface lipids in patients with long-term complications of sulfur mustard poisoning**, J Res Med Sci. 2015 Jul; 20(7): p. 640-645

Background: Despite almost the three decades passed since the chemical attacks of Iraqi's army against the Iranian troops, some veterans are still suffering from long-term complications of sulfur mustard (SM) poisoning, including certain skin complaints specially dryness, burning, and pruritus. We thus aimed to evaluate the skin's water and lipid content in patients with a disability of >25% due to complications of SM poisoning and compare them with a matched control group. Materials and Methods: Sixty-nine male participants were included in this study; 43 SM-exposed patients, and 26 normal controls from their close relatives. The water and lipid content was measured in four different locations: Extensor and flexor sides of forearms and lateral and medial sides of legs by the Comeometer CM 820/Sebumeter SM 810. Collected data was analyzed and $P < 0.05$ was considered as statistically significant. Results: The mean age of the patients and controls was 49.53 ± 11.34 (ranges: 40-71) and 29.08 ± 8.836 (ranges: 15- 49 years), respectively. In the veterans group, the main cutaneous complaint was itching

and skin dryness. Cherry angioma, dry skin, and pruritus were significantly more common in the SM-exposed cases than in the controls. *(P* = 0.01, 0.05, and 0.04, respectively). The moisture and lipid content of all areas were lower in the SM-exposed group, but it was only significant in skin sebum of lateral sides of legs *(P* = 0.02). Conclusion: Exposure to SM could decrease the function of stratum comeum and lipid production as a barrier, even after several years of its exposure.

H.J. Kim, J.H. Baek, J.E. Eo, K.M. Choi, M.K. Shin, J.S. Koh, **Dermal matrix affects translucency of incident light on the skin,** Skin Research and Technology 2015; 21:41-46

Background/aims: The age-dependent changes in the optical reflection characteristics have been studied about skin hydration, melanin index, or skin color. However, the age-dependent changes in the optical reflection have little attention on inner skin structures. To control the factors affecting the optical reflection except for dermal matrix, subjects were selected as our guideline and we evaluated the optical reflection of subsurface on skin layers of two age groups.

N. Aghazadeh, A. Firooz, A. Rajabi Estarabadi, P. Hejazi, **The effects of water exposure on biophysical properties of normal skin,** Skin Research and Technology 2015; 21: 131-136

Background: Water exposure is an influential factor in some common dermatoses. It has also been shown that water has an effect on barrier function and biophysical properties of skin. The aim of this study was to evaluate the effect of water immersion on biophysical properties of normal skin.

G.N. Stamatas, A. Lopes-DaCunha, A. Nkengne, C. Bertin, **Biophysical properties of striae distensae evaluated in vivo using non-invasive assays,** Skin Research and Technology 2015; 21:254-258

Background: Striae Distensae (SD) or stretch marks are manifestations of epidermal atrophy that occurs after tissure tearing due to rapid growth or over-stretching and are characterized by distinct microstructural features. The objective of this in vivo studay was to investigate the biophysical properties of SD lesions, including skin barrier function, skin surface hydration, mechanical properties, and chromophore concentrations, compared to normal adjacent skin.

M. Anthonissen, D. Daly, R. Peeters, M. Van Brussel, S. Fieuws, P. Moortgat, M. Flour, E. van den Kerckhove, **Reliability of repeated measurements on post-burn scars with Corneometer CM825,** Skin Research and Technology 2015; 21: p. 302-312

Background/purpose: The water content in burn scars, the parameter of stratum corneum water holding capacity, is an important feature in evaluation of biophysical properties of scars. Nevertheless, quantifiying this parameter is a challenge. In this study, the reliability of repeated water content measurements with Corneometer CM825 on (burn) scars was investigated.

K. Krull, **Untersuchung von Hautrötung und Helligkeit mittels verschiedener Farbmessverfahren *in vitro* und *in vivo***, Dissertation an der Medizinische Fakultät der Universität zu Jena, 2015

Zusammenfassung: Die Haut ist das größte Organ unseres Körpers und bildet aufgrund ihres spezifischen Aufbaus eine wichtige Barriere des Organismus gegenüber der Umwelt. Diese Barriere kann jedoch durch verschiedene Reize geschädigt werden, was zu Veränderungen im Aufbau, z. B. durch Abtragung oberster Zellschichten, sowie Änderungen von hautphysiologischen Parametern führt. Diese Parameter sind unter anderem der transepidermale Wasserverlust (TEWL), der Wassergehalt im Stratum Corneum, die Hautdurchblutung und die Pigmentierung der Haut. In der vorliegenden Dissertation wurden die Veränderungen der eben genannten Parameter nach Einfluss exogener Reize mit Hilfe verschiedener Messgeräte untersucht. Ziel war es, die Haut mechanisch mittels Tapestripping, sowie chemisch durch Einwirkung von Natriumlaurylsulfat (engl. Sodium Lauryl Sulfate, SLS) und Wasser unter Okklusion zu reizen, um anschließend herauszufinden, ob eine erfolgte milde Irritation in einer Veränderung der Hautrötung und – pigmentierung resultiert und mit welcher Sensitivität diese Farbveränderungen durch die einzelnen Farbmessgeräte erfasst wurden. Zum Einsatz kamen das Mexameter MX18 (Fa. Courage & Khazaka), die Chromameter 200 und 300 (Fa. Minolta), der DermaSpectropen (Fa. Lange GmbH) und das Colorimeter (Fa. Courage & Khazaka).

A.Tuzuner, S. Akdagli, T. Sen, et al., **An objective analysis of sebum, pH and moisture levels of the external ear canal skin**, American Journal of Otolaryngology (2015) 424-428

Objective: To determine sebum, pH and moisture levels of external ear canal skin, and compare the patients who complain of ear itching and the normal population for these parameters. And evaluate the improvement subjectively in the ones given dexamethasone sodium phosphate (DSP) cream or placebo-water in oil emulsion type cream, and to determine the changes in sebum, pH and moisture levels after the treatment. Methods: 32 females with the complaint of isolated external ear canal itching

and 42 healthy women were included in this randomized prospective controlled study. The sebum, pH and moisture levels of ear skin of the patients and the controls were determined from baseline and following treatment. Patients used DSP in their right and the placebo in their left ears for 15 days. Subjective analysis of itching level was measured at baseline, and on 15th and 30th days using visual analog scale (VAS).

G. Schlippe, L. Bolke, W. Voss, **Einfluss oraler Einnahme von Kollagen-Peptiden auf relevante Parameter der Hautalterung: Hautfeuchtigkeit, Hautelastizität und Hautrauigkeit,** Aktuelle Dermatologie 2015; 41: 529-534

Zusammenfassung: Mit zunehmendem Alter und unter Einfluss weiterer Noxen, wie UV-Exposition und Nikotinabusus, kommt es zu einer Abnahme der dermalen extrazellulären Matrix und des Kollagengerüsts. Dies führt zu einer Abnahme der Hautdicke, Elastizität und Feuchtigkeit und damit einhergehend zu einer verstärkten Faltenbildung. Studien haben gezeigt, dass die orale Aufnahme von speziellen Kollagen-Peptiden über einen längeren Zeitraum die Hautphysiologie positiv beeinflusst. In der vorliegenden klinisch-dermatologischen Prüfung zeigte die Einnahme von kurzkettigen Kollagen-Peptiden (Prüfpräparat: ELASTEN®) über einen Zeitraum von 3 Monaten signifikant positive und nachhaltige Effekte auf die Hautparameter Elastizität, Feuchtigkeit und Hautrauigkeit.

Abstract: With increasing age, the dermal matrix and collagen content decreases which results in a loss of skin hydration, elasticity and increased wrinkling. In addition to the normal ageing process, several other factors like UV radiation or smoking negatively influence skin physiology. Prior studies demonstrated that the oral intake of bioactive collagen peptides induces beneficial effects on human skin structure and functioning. In this study the oral intake of special collagen peptides (investigational product: ELASTEN®) for 3 months results in significant and sustainable improvements in skin parameters including skin hydration, elasticity and roughness.

J. Kottner, G. Dobos, A. Andruck, C. Trojahn, J. Apelt, H. Wehrmeyer, C. Richter, U. Blume-Peytavi, **Skin response to sustained loading: A clinical explorative study,** Journal of Tissue Viability (2015) 24, 114 – 122

Background: Severe illness, disability and immobility increase the risk of pressure ulcer development. Pressure ulcers are localized injuries to the skin and/or underlying tissue as a result of long enduring pressure and shear. Little is known about the role of the stratum corneum and the upper skin layers in superficial pressure ulcer development. Objectives: To investigate possible effects of long enduring loading on the skin barrier function under clinical conditions at two pressure ulcer predilection sites. Methods: Under controlled conditions 20 healthy females (mean age 69.9 (3.4) years) followed a standardized immobilization protocol of 90 and 150 min in supine position wearing hospital nightshirts on a standard hospital mattress. Before and immediately after the loading periods skin surface temperature, stratum corneum hydration, transepidermal water loss and erythema were measured at the sacral and heel skin. Results: Prolonged loading caused increases of skin surface temperature and erythema at the sacral and heel skin. Stratum corneum hydration remained stable. Transepidermal water loss increased substantially after loading at the heel but not at the sacral skin. Conclusions: Skin functions change during prolonged loading at the sacral and heel skin in aged individuals. Accumulation of heat and hyperaemia seem to be primarily responsible for increasing skin temperature and erythema which are associated with pressure ulcer development. Increased transepidermal water loss at the heels indicate subclinical damages of the stratum corneum at the heel but not at the sacral skin during loading indicating distinct pathways of pressure ulcer development at both skin areas.

B. Khameneh, V. Halimi, M.R. Jaafari, S. Golmohammadzadeh, **Safranal-loaded solid lipid nanoparticles: evaluation of sunscreen and moisturizing potential for topical applications**, Iran J Basic Med Sci 2015; 18: p. 58-63

Objective(s): In the current study, sunscreen and moisturizing properties of solid lipid nanoparticle (SLN)-safranal formulations were evaluated. Materials and Methods: Series of SLN were prepared using glyceryl monostearate, Tween 80 and different amounts of safranal by high shear homogenization, and ultrasound and high-pressure homogenization (HPH) methods. SLN formulations were characterized for size, zeta potential, morphology, thermal properties, and encapsulation efficacy. The Sun Protection Factor (SPF) of the products was determined *in vitro* using transpore tape. The moisturizing activity of the products was also evaluated by corneometer. Results: The SPF of SLN-safranal formulations was increased when the amount of safranal increased. Mean particle size for all formulas was approximately 106 nm by probe sonication and 233 nm using HPH method. The encapsulation efficiency of safranal was around 70% for all SLN safranal formulations. Conclusion: The results conclude that SLN-safranal formulations were found to be effective for topical delivery of safranal and succeeded in providing appropriate sunscreen properties.

R. Voegeli, A.V. Rawlings, P. Seroul, B. Summers, **A novel continuous colour mapping approach for visualization of facial skin hydration and transepidermal water loss for four ethnic groups**, International Journal of Cosmetic Science, 2015, 37 **,** p. 595-605

Objectives: The aim of this exploratory study was to develop a novel colour mapping approach to visualize and interpret the complexity of facial skin hydration and barrier properties of four ethnic groups (Caucasians, Indians, Chinese and Black Africans) living in Pretoria, South Africa. Methods: We measured transepidermal water loss (TEWL) and skin capacitance on 30 pre-delined sites on the forehead , cheek, jaw and eye areas of sixteen women (four per ethnic group) and took digital images of their faces. Continuous colour maps were generated by interpolating between each measured value and superimposing the values on the digital images. Results: The complexity of facial skin hydration and skin barrier properties is revealed by these measurements and visualized by the continuous colour maps of the digital images. Overall, the Caucasian subjects had the better barrier properties followed by the Black African subjects, Chinese subjects and Indian subjects. Nevertheless, the two more darkly pigmented ethnic groups had superior skin hydration properties. Subtle differences were seen when examining the different facial sites. Conclusions: There exists remarkable skin capacitance and TEWL gradients within short distances on selected areas of the face. These gradients are distinctive in the different ethnic groups. In contrast to other reports, we found that darkly pigmented skin does not always have a superior barrier function and differences in skin hydration values are complex on the different parts of the face among the different ethnic groups

A randomized home use study in two parallel groups, consisting of 30 healthy subjects aged 35-70, to assess the efficacy of one anti-wrinkle regimen compared to a placebo regimen, Princeton Consumer Research Report 2015

The objective of this study was to determine the efficacy of an anti-wrinkle regimen when compared to a placebo regimen, and to demonstrate the overall improvement/deterioration in skin condition following two, four, and eight weeks of test article use.

Shields against pollution for pristine clear skin, IBRPristinizer® Product Information

Pollution in general and air pollution specifically affect skin health and appearance. Constant exposure to environmental toxins leads to accumulated damage to DNA and to chronic inflammation. Both leading to premature signs of aging. Preventing damage from pollutant, detoxifying them and enhancing skin ability to defend itself against pollution, is a major unmet need of the cosmetic industry we are trying to answer with the IBR-Pristinizer®.

L. Phetcharat, K. Wongsuphasawat, K. Winther, **The effectiveness of a standardized rose hip powder, containing seeds and shells of *Rosa canina*, on cell longevity, skin wrinkles, moisture, and elasticity,** Clinical Interventions in Aging 2015:10, p. 1849–1856

Objective: To evaluate the effects of a rose hip powder (Hyben Vital®) made from seeds and shells on cell senescence, skin wrinkling, and aging. Methods: A total of 34 healthy subjects, aged 35–65 years, with wrinkles on the face (crow'sfeet) were subjected to a randomized and double-blinded clinical study of the effects of the rose hip powder, as compared to astaxanthin, a well-known remedy against wrinkles. During the 8-week study, half of the participants ingested the standardized rose hip product, while the other half ingested astaxanthin. Objective measurements of facial wrinkles, skin moisture, and elasticity were made by using Visioscan, Corneometer, and Cutometer at the beginning of the study, after 4 weeks, and after 8 weeks. Evaluation of participant satisfaction of both supplements was assessed using questionnaires. In addition, the effect of the rose hip preparation on cell longevity was measured in terms of leakage of hemoglobin through red cell membranes (hemolytic index) in blood samples kept in a blood bank for 5 weeks. Signifcance of all values was attained with *P*#0.05. Results: In the double-blinded study, the rose hip group showed statistically signifcant improvements in crow's-feet wrinkles (*P*,0.05), skin moisture (*P*,0.05), and elasticity (*P*,0.05) after 8 weeks of treatment. A similar improvement was observed for astaxanthin, with *P*-values 0.05, 0.001, and 0.05. Likewise, both groups expressed equal satisfaction with the results obtained in their self-assessment. The rose hip powder further resulted in increased cell longevity of erythrocyte cells during storage for 5 weeks in a blood bank. Conclusion: Results suggest that intake of the standardized rose hip powder (Hyben Vital®) improves aging-induced skin conditions. The apparent stabilizing effects of the rose hip product on cell membranes of stored erythrocyte cells observed in this study may contribute to improve the cell longevity and obstructing skin aging.

T. Jaeger, M. Rothmaier, H. Zander, J. Ring, J. Gutermuth, M.D. Anliker, **Acid-coated Textiles (pH 5.5–6.5) – a New Therapeutic Strategy for Atopic Eczema?**, Acta Derm Venereol 2015; 95: p. 659–663

Increased transepidermal water loss (TEWL) and decreased skin capacitance are characteristic features of the disturbed epidermal barrier in atopic eczema (AE). The “acid mantle”, which is a slightly acidic flm on the surface of the skin has led to the development of acidic emollients for skin care. In this context, the effect of citric acid-coated textiles on atopic skin has not been examined to date. A textile carrier composed of cellulose fbres was coated with a citric acid surface layer by esterifcation, ensuring a constant pH of 5.5–6.5. Twenty patients with AE or atopic diathesis were enrolled in the study. In a double-blind, half-side experiment, patients had to wear these textiles for 12 h a day for 14 days. On day 0 (baseline), 7 and 14, tolerability (erythema, pruritus, eczema, wearing comfort) and effcacy on skin barrier were assessed by TEWL skin hydration (corneometry/ capacitance), pH and clinical scoring of eczema (SCORAD). Citric acid-coated textiles were well tolerated and improved eczema and objective parameters of skin physiology, including barrier function and a reduced skin surface pH, with potential lower pathogenic microbial colonisation.

G. Nicoletti, F. Brenta, M. Bleve, T. Pellegatta, A. Malovini, A. Faga, P. Perugini, **Long-term in vivo assessment of bioengineered skin substitutes: a clinical study,** J Tissue Eng Regen Med, 2015 Apr;9(4): p. 460-468

The aim of the study was an objective in vivo assessment of skin properties after reconstruction with two artificial dermal substitutes, Integra® and Hyalomatrix®. Twenty-seven patients underwent reconstruction of 36 skin-loss sites with full-thickness skin graft, split-thickness skin graft, Hyalomatrix® bioengineered skin substitute and sequential split-thickness skin graft and Integra® bioengineered skin substitute and sequential split-thickness skin graft. Objective assessments were carried out using three instrumental devices: Multi Probe Adapter System MPA; 22¤MHz ultrasound skin scan; and Primos Pico for a three-dimensional (3D) skin scan. The skin parameters under study in our sample were: corneometry, transepidermal water loss, elastometry, colorimetry, skin thickness and 3D skin surface pattern. A skin reconstruction with Hyalomatrix seemed to most closely approach the hydration, transepidermal water loss and skin surface 3D pattern of normal skin. A skin reconstruction with Integra seemed to demonstrate the best skin colour feature and elastic properties. Although no statistically significant differences were observed, the descriptive analysis of the outcomes might suggest a better cell regulation, regenerated extracellular matrix and neoangiogenesis with the use of Hyalomatrix, and the formation of a more elastic regenerated dermis, with overall better physical, mechanical and optical properties, with the use of Integral.

A. Ratz-Łyko, J. Arct, K. Pytkowska, S. Majewski, **In vivo and ex vivo evaluation of cosmetic properties of seedcakes,** J Cosmet Laser Ther. 2015 Apr; 17(2): p. 109-15

The seedcakes are a potential source of natural bioactive substances: antioxidants, protein, and carbohydrates. Thus, they may scavenge free radicals and have an effect on the stratum corneum hydration and epidermal barrier function. The aim of the study was to evaluate the in vivo and ex vivo properties of emulsions with the seedcake extracts using the pH meter, corneometer, tewameter, methyl nicotinate model of micro-inflammation in human skin, and tape stripping of the stratum corneum. The in vivo and ex vivo studies showed that the emulsions with Oenothera biennis, Borago officinalis, and Nigella sativa seedcake extracts have anti-inflammatory and antioxidant activity. The 6-week topical application of the emulsions with the B. officinalis and N. sativa seedcakes significantly reduced skin irritation and influenced the improvement of the skin hydration and epidermal barrier function compared with placebo. The seedcakes due to their antioxidant and anti-inflammatory activities have potential application in anti-aging, moisturizing, mitigating, and protective cosmetics.

Y. Fukushima, Y. Takahashi, Y. Hori, Y. Kishimoto, K. Shiga, Y. Tanaka, E. Masunaga, M.Tani, M. Yokoyama, K. Kondo, **Skin photoprotection and consumption of coffee and polyphenols in healthy middle-aged Japanese females**, Int J Dermatol. 2015 Apr; 54(4): p. 410-8

Background: Reactive oxygen species are known to mediate skin photoaging, which results in the formation of pigmented spots and wrinkles. Coffee is the largest source of polyphenols, which supplies a large number of antioxidants in one's daily life. However, little is known about how much coffee and polyphenol consumption influences skin health. Materials and Methods: In this study, a cross-sectional survey of the diet, environmental factors, and skin conditions was conducted in healthy Japanese females to explore the influence of coffee and polyphenol consumption on skin conditions. Non-smoking, healthy female subjects with moderate sun exposure in their daily lives were recruited for this study (n = 131, age range: 30-60 years old) and recorded their food and beverage intake and life circumstances using questionnaires. The skin water content, transepidermal water loss, and elasticity

were measured on the cheek of each subject using noninvasive methods: Corneometer, a Tewameter, and a Cutometer, respectively. Wrinkles and pigmented spots were evaluated using digital photograph images. Results: Consumption of coffee and total polyphenols from all sources and from coffee showed a statistically significant correlation towards a decrease in pigmented spot scores ($P < 0.05$). Subjects with high total polyphenol consumption from coffee or chlorogenic acids (the third tertile group) showed the lowest score of ultraviolet pigmented spots ($P < 0.05$). Conclusion: Coffee and polyphenol consumption was associated with low facial pigmented spots in Japanese middle-aged females. We speculated that coffee helps protect human skin from photoaging, and polyphenols, including chlorogenic acids, may contribute to the decreased hyperpigmentation of pigmented spots.

P. Todorova, P. Grant-Ross, S. Tamburic, **Biomimetic vs. Traditional Skin Moisturization: An In vivo Comparison,** www.cosmeticsandtoiletries.com, April 2015

The stratum corneum's (SC's) functional status depends on it being in a plasticized state, which relies on adequate water-holding and waterproofing abilities. These abilities will depend on the state of the skin barrier, which is crucial to human survival. Daily life presents a number of challenges for this protective layer of the body. These include the use of simple cleansers, UV damage, environmental conditions, aging and skin diseases. Of these, the effects of aging and the environment were the main focus for the present study, which was conducted over winter months in a Nordic country and employed elderly female volunteers.

C. Lim, H. Nomura, A. Takeoka, **Skin care vaccine indues self-maintenance system,** Personal Care April 2015

Abstract: Skin care is the major topic for the personal care market. People demand to remain young, with better looks as they age, such as smaller pores, fewer wrinkles, and less sagging, and to moderate skin disorders, such as irritation, dryness, redness, dandruff etc. The former target is mainly known as anti-ageing. The main target is to remodel and rescue our skin from intrinsic and extrinsic damage. People want to keep their youth or even to turn back time in order to look younger.

A. Thibodeau, **Global skin action of a luminaria extract,** Personal Care April 2015

Skin is a large and complex tissue where the orchestrated actions of resident cells are necessary to support its structural and metabolic integrity. Cells of the epidermis (mainly keratinocytes) play a role in protecting from environmental stress such as UV exposure, mechanical damage and pro-oxidative attacks. Perhaps more importantly, top layers of the epidermis along with a lipid-rich intercellular matrix from the skin barrier. It is no secret that the skin barrier is fundamental in preventing excessive water evaporation thereby supporting normal skin hydration levels.

W. Weistenhöfer, M. Wacker, F. Bernet, W. Uter, H. Drexler, **Occlusive gloves and skin conditions: is there a problem? Results of a cross-sectional study in a semiconductor company**, Br J Dermatol, 2015 Apr; 172(4): p. 1058-1065

Background: Although there is poor scientific evidence that working with occlusive gloves is as damaging as wet work, prolonged glove occlusion is considered to be a risk factor for developing hand eczema similar to wet work. Objective: To assess the effects of wearing occlusive gloves during the whole working day, without exposure to any additional hazardous substances, on skin condition and skin barrier function. Methods: We investigated 323 employees of a semiconductor production company in Germany: 177 clean-room workers wearing occlusive gloves during the whole shift (exposed group) and 146 employees working in administration (control group). A standardized interview was performed, the skin condition of both hands was studied using the quantitative skin score HEROS, and transepidermal water loss (TEWL) and stratum corneum hydration were measured. Results: There was no significant difference in skin condition between the two subgroups. Values for TEWL and corneometry were significantly higher in exposed participants ($P<0{\cdot}05$). However, the TEWL values were similar to control values if participants took off the occlusive gloves at least 30 min before the measurement. Hence, the effect of occlusion on skin barrier function seems to be transient. Conclusion: Prolonged wearing of occlusive gloves with clean hands and without exposure to additional hazardous substances does not seem to affect the skin negatively.

E.D. Son, Y. Kim, K.M. Joo, H.J. Kim, E. Lee, G.W. Nam, E.G. Cho, M. Noh, J.H. Chung, S.Y. Byun, T.R. Lee, **Skin dryness in apparently healthy human skin is associated with decreased expression of bleomycin hydrolase in the stratum corneum**, Clin Exp Dermatol. 2015 Apr; 40(3): p. 247-53

Background: Maintenance of water balance in the stratum corneum (SC) is determined by the content of intercellular lipids and natural moisturizing factors (NMFs) in corneocytes. Aim: To investigate

the association between the NMFs and (pro)filaggrin and the proteases responsible for the processing of (pro)filaggrin to NMFs in the SC of hydrated and dry skin areas of healthy human subjects. Methods: The SC hydration state and the transepidermal water loss (TEWL) were measured using a Corneometer and a Tewameter, respectively. Proteases, (pro)filaggrin and NMFs were extracted from SC samples obtained by tape-stripping of the tested skin. Expression levels of (pro)filaggrin were determined by dot blotting and western blotting, and total NMFs by ultra-high performance liquid chromatography. Expression of the proteases caspase-14, calpain-1 and bleomycin hydrolase was measured by western blotting. Results: The levels of (pro)filaggrin were not significantly different between hydrated and dry skin, whereas the level of total NMFs was significantly reduced in dry skin. A negative correlation between (pro)filaggrin and NMFs was found in dry skin (Pearson correlation coefficient r = - 0.57, *P < 0.05). Bleomycin hydrolase expression was significantly decreased in the SC of dry skin. Conclusions: These results suggest that the low hydration state of dry skin may be due to the reduction in (pro)filaggrin degradation caused by decreased bleomycin hydrolase expression.

D. Mahrhauser, C. Nagelreiter, A. Baierl, J. Skipiol, C. Valenta, **Influence of a multiple emulsion, liposomes and a microemulsion gel on sebum, skin hydration and TEWL,** Int J Cosmet Sci. 2015 Apr;37(2): p. 181-6

Objective: In this study, the influence of three cosmetically relevant, priorly characterized vehicles on skin hydration, sebum content and transepidermal water loss was investigated. Methods; The chosen vehicles included a liposomal pre-formulation, a multiple W/O/W emulsion and a microemulsion gel. The in vivo effects of these vehicles were demonstrated and compared among them. The stability of the prepared vehicles was determined visually, microscopically, rheologically by pH measurements and particle size. Interactions with skin were assessed by non-invasive biophysical techniques using the Corneometer(®), Aqua Flux(®) and Sebumeter, measuring skin hydration, TEWL and skin sebum content, respectively. Results: All vehicles remained stable over an observation period of 6 weeks. The multiple emulsion increased sebum content and skin hydration. In case of the liposomes, each monitored parameter remained almost constant. In contrast, the microemulsion gel lowered skin hydration and increased TEWL values, but even 1 week after termination of the treatment TEWL decreased almost close to control levels. Conclusion: All produced vehicles were proven to remain physically stable over the duration of this study. The used multiple emulsion showed very skin-friendly properties by increasing sebum and skin hydration. Likewise, the liposomal pre-formulation exhibited no negative effects. On the contrary, the investigated microemulsion gel seemed to have skin dehydrating and TEWL increasing features. However, the multiple emulsion as well as liposomes was identified to be well-tolerated vehicles for skin which might qualify them for the use in cosmetic formulations.

M. Zaj□c, M.P. Szczepanik, P.M. Wilkoł ek, Ł.R. Adamek, Z.J.H. Pomorski, W. Sitkowski, M. Goł y□ski, **Assessment of a correlation between Canine Atopic Dermatitis Extent and Severity Index (CADESI-03) and selected biophysical skin measures (skin hydration, pH, and erythema intensity) in dogs with naturally occurring atopic dermatitis**, The Canadian Journal of Veterinary Research, 2015

Atopic dermatitis is a common allergic skin disease in dogs. The aim of this study was to examine the possibility of a correlation between biophysical skin variables: skin hydration (SH), skin pH, and erythema intensity measured in 10 different body regions and both total Canine Atopic Dermatitis Extent and Severity Index (CADESI-03) and CADESI measured in a given region (CADESI L). The study was conducted using 33 dogs with atopic dermatitis. The assessment of the biophysical variables was done in 10 body regions: the lumbar region, right axillary fossa, right inguinal region, ventral abdominal region, right lateral thorax region, internal surface of the auricle, interdigital region of right forelimb, cheek, bridge of nose, and lateral site of antebrachum. Positive correlations were found between SH and CADESI L for the following regions: the inguinal region (r = 0.73) and the interdigital region (r = 0.82), as well as between total CADESI and SH on digital region (r = 0.52). Also, positive correlations were reported for skin pH and CADESI L in the lumbar region (r = 0.57), the right lateral thorax region (r = 0.40), and the lateral antebrachum (r = 0.35). Positive correlations were found in the interdigital region between erythema intensity and the total CADESI-03 (r = 0.60) as well as the CADESI L (r = 0.7). The results obtained suggest that it may be possible to use skin hydration, pH, and erythema intensity to assess the severity of skin lesion but positive correlation was only found in < 13.3% of possible correlations and usage of these measures in dogs is limited.

N. Srivastava, S. Gehlot, S. Singh, B.M. Singh, **Application of different parameters for selecting normal and abnormal skin characteristics in determination of Prakriti in infants,** Int. J. Res. Ayurveda Pharm. 6(2), Mar - Apr 2015

Prakriti (Basic physical constitution) of an individual is decided at the time of conception and subsequently during intra-uterine life, as a result of overall effect of dominant Dosha of Shukra (Sperm), Shonit (Ovum), Ahara (diet) and Vihara (regimen) of Garbhini (pregnant women), Kaalgarbhashaya (in-utero duration and condition of uterus) and Mahabhautic components. Assessment of Prakriti and Vikriti in children is essential and enables the pediatrician to evaluate metabolic imprinting, individual physiology and susceptibility to specific disease, its diagnosis, prevention, treatment as well as the prognosis after illness. There are many subjective criteria to determine the Prakriti in adults, but as far as infants are concerned, no detail description is available in Ayurvedic classics. Individual Prakriti can be determined as per the characteristics specified in Brihattrayi and Laghutrayi, which include the examination of skin, hair, nails, eyes, palm, sole and other physical and psychological features, and may be used in children for Prakriti determination. However, it can be better understood and differentiated each other by considering various methods and modern technology. Out of various characteristics of body parts, skin characteristics such as texture (roughness or smoothness, elasticity and thickness), color and temperature of skin significantly contribute in Prakriti determination. Use of objective parameters such as RGB and HSV method, Fitzpatrick Scale method and derma spectrometer for the skin color differentiation; skin-pH, stratum corneum hydration, TEWL, sebum content, cutometer and ultrasonography for skin texture as well as thermometer, thermister via pulse oxymeter for skin temperature may be very useful tools to differentiate individual Prakriti under controlled conditions. The aim of this conceptual study was to explore importance of various methodologies for differentiating Prakritaskin characteristics from the Vaikrita skin characteristics more precisely and scientifically in infants.

F. Sugihara, N. Inoue, X. Wang, **Clinical Effects of Ingesting Collagen Hydrolysate on Facial Skin Properties**, Jpn Pharmacol Ther 2015; 43: p. 67-70

Objectives: The objective of this research was to investigate the effectiveness of daily ingestion of a specific collagen hydrolysate (CH), which contains prolylhydroxyproline (Pro-Hyp) and hydroxy-prolylglycine (Hyp-Gly), on facial skin properties. Methods: In this randomized, placebo-controlled, double-blind trial, 56 women aged 30-55 years were randomized to receive 2.5 g of CH or 5 g of placebo once daily for 8 weeks, with 28 subjects assigned to each group. The hydration, elasticity and roughness properties of facial skin were measured at week O (baseline), week 4 and week 8. Results: Levels of skin hydration, elasticity and roughness in subjects who received CH significantly improved between baseline and weeks 4 and 8, while there was no significant improvement in subjects who received placebo. Moreover, the levels of skin elasticity, roughness and the net change of skin hydration improved significantly in the CH group compared to the placebo group by both weeks 4 and 8. Conclusion: The present results suggest that daily ingestion of 2.5 g of CH improves facial skin hydration, elasticity and roughness.

Y. Takagi, N. Tanaka, M. Miyaki, K. Takeuchi, K. Matsuo, **An effective novel facial cleanser for mild acne: Cleanser formulated with Sodium Laureth Sulfate and Alkyl Ether Carboxylates,** H&PC Vol. 10 (2) March/April 2015

Many people suffer from acne. Washing the face with cleansers is generally recommended for acne care and cleansers containing salicylic acid are frequently used in the United States. However, salicylic acid has many side effects such as inducing dryness and irritation. Here we demonstrate that a facial cleanser based on alkyl ether carboxylates (AEC) and sodium laureth sulfate (SLES), which does not contain and anti-acne ingredients including salicylic acid, improved the acne more quickly than general cleansers containing salicylic acid (≈ 1.5%). No side effects were observed and a favorability rating was obtained from the subjects in a questionnaire. These results suggest that the skin cleanser formulated with AEC and SLES is an effective cleanser for the care of mild acne.

S. Manzoni, S. Ferrigato, D. Calamiello, **Moisturizers: what they are and how improve formulation with a novel emulsifier,** H&PC Vol. 10 (2) March/April 2015

Moisturizers are widely used products that are important in several dermatologic and cosmetic skin therapies. They contain varyious combinations of emollients, occlusive, and humectants to achieve their beneficial effects, and there is an overwhelming number of formulations available. To develop a rational approach in chosing moisturizers, they should be categorized on the basis of application site.

A. Scheel-Sailer, A. Frotzler, G. Mueller, S. Annaheim, R.M. Rossi, S. Derler, **Challenges to measure hydration, redness, elasticity and perfusion in the unloaded sacral region of healthy persons after supine position**, J Tissue Viability, 2015 Mar 13

Aim of the study: To combine measurement methods of biophysical skin properties in a clinical setting and to measure baseline values in the unloaded sacral region of healthy persons after lying 30

min in supine position. Methods: Hydration (Corneometer® CM 825), redness (Mexameter® MX 18), elasticity (Cutometer® MPA 580) and perfusion (PeriFlux System 5000) of the skin in the sacral region of 10 healthy participants (median age: 26.9 years) were measured consecutively in the laying position by two trained examiners. Results: The assessment duration for all four parameters lasted about 15 min. Intra-class correlation coefficients were overall moderate to strong (hydration r = 0.594, redness r = 0.817, elasticity r = 0.719, perfusion r = 0.591). Hydration (median 27.7 arbitrary units (AU)) mainly indicated dry skin conditions. Redness (median 158.5 AU) was low. Elasticity (median 0.880 AU) showed similar values as in the neck region. Perfusion (median 17.1 AU) showed values in the range of results reported in the literature. Biophysical skin properties in the sacral region after supine position can be measured within periods of 15 min. Conclusion: The results provide baseline data for the skin of healthy persons as well as insights into skin-physiological variations. But it remains challenging to optimize measurement procedures and test protocols when transferring preclinical tests in a clinical application.

M. Nassiri Kashani, A. Rajabi Estarabadi, H. Zartab, P. Khoshpouri, P. Khoshpouri, H. Hosseini, A.H. Tavakoli, A. Firooz, **Evaluation of human allogeneic collagen gel for correction of nasolabial folds using non-invasive measurement techniques,** Iranian Journal of Dermatology, Vol 18, No 3, Autumn 2015

Background: With aging, the facial folds, grooves, and sagging tissue become more prominent. It is characterized by loss of the collagen mass in the dermis and an increased array of elastin whirls in the deeper dermis. The aim of this study was to determine whether correction of nasolabial folds could be achieved using an allogeneic collagen product. Methods: Nine healthy volunteers participated in this beforeafter, pilot clinical trial. Human allogeneic collagen (Collagel, Kimia Teb Rahavard Co., Tehran, Iran) was injected in both nasolabial folds of the volunteers. Skin hydration was measured using the Corneometer® 580 device (CK GmbH, Cologne, Germany). Ultrasonic dermal changes were measured using an ultrasonography device (22 MHz, TPM, Germany) before and 24 weeks after the injection. One independent investigator assessed the efficacy using standardized photographs before and 24 weeks after injections. The patients' satisfaction rate was also evaluated. Results: All patients showed improvement in wrinkles and the mean satisfaction rate on a 0-10 VAS was 7.4±0.5. The hydration of the stratum corneum increased from 32.32±13.54 to 52.61±12.55 and the echo-density of the dermis increased from 8.05±3.18 to 9.55±3.36 µm 24 weeks after the injection (*P*□0.05). No treatmentrelated adverse events were reported. Conclusion: Collagel is an effective filler that can provide a safe and effective correction of the nasolabial folds. This correction lasts for at least 24 weeks on ultrasound evaluations. Further larger blind-randomized controlled clinical trials are required to pave the way for suggesting it as a possible therapeutic option.

T.N. Oliphant, R.A. Harper, **Sunless tanners aided by jojoba-derived emollient,** Personal Care March 2015

Floraesters K-20W Jojoba [INCI Name: Hydrolyzed Jojoba Esters (and) Water] has been shown to enhance the efficacy and sensory properties of multiple finished cosmetic and personal care formulations, and has been explored in various categories such as creams/lotions, hand sanitisers, nonwoven wipes, sunscreens, mascara/eyeliner, shampoos/conditioners, toners/astringents, face washes, and oil-free formulations. Its film-forming properties make it ideal for rinse-off products and products that require water resistance or an extended period of residence time on the skin.

L. Agren, E. Nilsson, **Effect of blackcurrant seed oil on atopic eczema,** Personal Care March 2015

There are many reasons why eczema develops, both hereditary and from environmental exposure. Biochemists have found that atopic eczema can develop a result of a deficiency, imbalance or an inability to covert essential fatty acids. These fatty acids are necessary for the body to be able to make use of other fatty acids and play a vital role in regulating inflammation and the immune system. The aim of the study was to investigate the following questions: What is the effect of Q for Skin's concept based on blackcurrant seed oil on atopic eczema? Is there a link between the occurrence of atopic eczema and diet? Is it possible for people diagnosed with atopic eczema to reduce the usage to topical corticosteroids?

R.C. Webb, R.M. Pielak, P. Bastien, J. Ayers, J. Niittynen, J. Kurniawan, M. Manco, A. Lin, N. Heon Cho, V. Malyrchuk, G. Balooch, J.A. Rogers, **Thermal Transport Characteristics of Human Skin Measured In Vivo Using Ultrathin Conformal Arrays of Thermal Sensors and Actuators**, PLOS ONE, February 6, 2015

Measurements of the thermal transport properties of the skin can reveal changes in physical and chemical states of relevance to dermatological health, skin structure and activity, thermoregulation

and other aspects of human physiology. Existing methods for in vivo evaluations demand complex systems for laser heating and infrared thermography, or they require rigid, invasive probes; neither can apply to arbitrary regions of the body, offers modes for rapid spatial mapping, or enables continuous monitoring outside of laboratory settings. Here we describe human clinical studies using mechanically soft arrays of thermal actuators and sensors that laminate onto the skin to provide rapid, quantitative in vivo determination of both the thermal conductivity and thermal diffusivity, in a completely non-invasive manner. Comprehensive analysis of measurements on six different body locations of each of twenty-five human subjects reveal systematic variations and directional anisotropies in the characteristics, with correlations to the thicknesses of the epidermis (EP) and stratum corneum (SC) determined by optical coherence tomography, and to the water content assessed by electrical impedance based measurements. Multivariate statistical analysis establishes four distinct locations across the body that exhibit different physical properties: heel, cheek, palm, and wrist/volar forearm/dorsal forearm. The data also demonstrate that thermal transport correlates negatively with SC and EP thickness and positively with water content, with a strength of correlation that varies from region to region, e.g., stronger in the palmar than in the follicular regions.

O. Fantini, C. Zemiriline, M. Belliard, E. Lati, L. Peno-Mazzarino, E. Gontier, E. Ollivier, D. Pin, **Restructuring effect of phytosphingosine-containing shampoo and mousse on the cutaneous barrier in five atopic dogs: preliminary results of a field study**, 2015 ESVD and ACVD, Veterinary Dermatology, 26, p. 297–313

Previous studies have shown alterations in the skin lipid organization and composition in atopic dogs. The aim of this study was to evaluate the effect of a phytosphingosine-containing shampoo and mousse (Douxo Calm, Ceva Sante Animale) on the defective skin lipid barrier in such dogs. Five dogs from different breeds clinically diagnosed with atopic dermatitis according to Favrot's criteria, with a maximum Canine Atopic Dermatitis Extent and Severity Index (CADESI)-04 score of 40 on Day 0(D0) and stabilization of skin condition for at least 3 months, were included after rigorous flea control. Dogs were shampooed on D0, D8 and D15 and treated with the mousse on D3, D6, D10, D13, D17 and D20. Measurement of the skin hydration rate by a corneometer (Corneometer CM825, Courage & Khazaka; Cologne, Germany), tapestripping for chemical analysis and skin biopsies all from the lateral aspect of the thorax for structural analysis of the stratum corneum (SC) lipids by electron microscopy were performed on D0 and D21. Skin hydration rate [11.2 (5.6) to 39.4 (41.7)], total cholesterol (cholesterol and cholesterol esters) [1737 (1010) to 3957 (2074) lg/lg protein], as well as total ceramides (especially hydroxylated ceramides) [52 (15) to 75 (30) lg/lg protein] increased (no significant differences). Blind analysis of electron microscopy images revealed a slight to marked increase in SC lipid bilayer thickness together with improved ultrastructural arrangement. The results indicate the potential effect of this combination treatment with phytosphingosine-containing shampoo and mousse on the barrier function of the epidermis in canine atopic dermatitis

W. Wigger-Alberti, R. Williams, T. Neubourg, E. Hanisch, J. Schulte-Walter, **Fußpflege bei Diabetes: Adäquate Pflege trockener und empfindlicher Haut am diabetischen Fuß,** Kosmetische Medizin 1.15

Zusammenfassung: Bei gutter hydratisierender Wirkung dreier Fußschaum-Cremes (mit Mikrosilber, mit Polyhexanid oder ohne weiteren Zusatz) in der Anwendung an Diabetikern mit Xerosis wurde keine Änderung in der Bakterienbesiedlung mit gram-positiven und keine Besiedlung mit gram-negativen Bakterien in den Zehenzwischenräumen während einer 4-wöchigen Anwendungszeit festgestellt.

T. Sakai, Y. Hatano, W.i Zhang, S. Fujiwara, **Defective maintenance of pH of stratum corneum is correlated with preferential emergence and exacerbation of atopic-dermatitis-like dermatitis in flaky-tail mice**, Journal of Dermatological Science 74 (2014), p. 222–228

Background: Neutralization of stratum corneum (SC) pH, which is induced by a variety of stimuli, such as scratching, use of soap and inflammation, can stimulate activity of serine protease (SPase). Activation ofSPase induces production of thymic stromal lymphopoietin (TSLP) through protease-activated receptor- 2. Both reduced expression of natural moisturizing factors, which are required for maintenance of SC pH, and the preferential development of atopic dermatitis (AD)-like dermatitis are found in flaky-tail mice (FTM) with a loss-of-function mutation in filaggrin. Objective: We examined possible correlations between disturbance of responses to an exogenous stimulus of SC neutralization and the preferential emergence of AD-like dermatitis in FTM. Methods: FTM and wild-type mice (C57BL/6) were subjected to an SC-neutralization stimulus via application of 1,1,3,3-tetramethylguanidine (TMG). TMG was applied to young mice at a time when FTM had not yet developed significant dermatitis, and we examined their ability to maintain SC acidity and several

parameters associated with AD-like dermatitis. Results: The recovery of SC pH after the application of TMG was delayed in FTM, presumably because of unchanged expression of Na+/H+ antiporter 1, which is involved in maintenance of SC acidity. Cutaneous inflammation with elevated SPase activity and serum levels of TSLP, thymus and activation-regulated chemokine and IgE were induced only in TMG-treated FTM. Conclusion: Our results suggest that defective maintenance of pH of SC is correlated with emergence and exacerbation of AD-like dermatitis in FTM.

J.L. Garaud, A. Sieg, M. Le Meur, H. Baillet, I. Van Reeth, S. Massé, **Silikone als ungefährliche Stoffe und zum Erhalt des natürlichen Feuchtehaushalts und zum Schutz der Haut gegen Belastung durch Partikel,** SOFW-Journal, 140/12-2014

Abstract: In diesem Artikel warden die nicht-okklusiven Eigenschaften typischer Silikone auf der Haut sowie das Potential einiger Hybridtechnologien zum Schutz der Haut vor Belastung durch Partikel unter dem Gesichtspunkt deren positiver Wirkungen auf hyperreaktive, empflindliche Haut besprochen. Ihre Permeabilität wird mit Hilfe von auf ASTM-Standards basierenden In-vitro-Verfahren, In-vivo-Corneometrie und Untersuchungen des transepidermalen Wasserverlustes bewertet. Ihr Schutzpotential gegenüber Verunreinigungen wurde unter Anwendung eines neuen, selbstentwickelten In-vitro-Verfahrens bewertet, bei dem das Anhaften des Schmutzpartikeläquivalents an kosmetische Beschichtungen und mit Hilfe von durch Raster-Elektronenmikroskopie gewonnenen Bildern ausgewertet wird, um die Mikrorauheitsgrade der Oberfläche einzuschätzen. In den Analysen wurden die nicht-okklusiven Eigenschaften von drei häufig verwendeten Silikonen nachgewiesen, und ein gewisses Potential spezifischer Copolymere beim Schutz gegen Verschmutzung wurde aufgezeigt. Diese Ergebnisse unterstreichen die Bedeutung von Silikonen in Anwendung für empflindliche Haut.

R. Nachat-Kappes, A. Gardarin, L- Rios, E. Ranouille, M. Favre-Mercuret, V. Jay-Debaut, J.Y. Berthon, **Probiotische Fraktionen – eine neue Lösung, die Hautgesundheit durch Stärkung der Barrierefunktion zu verbessern, indem die Hauthydrataion erhöht und Entzündungen vorgebeugt wird,** SOFW-Journal, 140/12-2014

Abstract: Unsere Haut sorgt für eine lebenswichtige Barriere zwischen Körper und Umwelt. Sie verhindert Austrocknung, begrenzt das Eindringen von körperfremden Stoffen und schützt vor mechanischer Belastung. Es ist dargelegt worden, dass Probiotika, hauptsächlich Laktobazillen und Bifidobakterien, die Barrierefunktion des Darms wiederherstellen und Entzündungen lindern. Daher haben wir einen neuen Wirkstoff aus Lactobacillus pentosus (LPCE) entwickelt, der durch Fermentation erzeugt wird. Die Wirkungen von LPCE auf Expression und Sekretion von Interleukin-8 (IL-8) wurden in rekonstruierter Epidermis, die mit Phorbol-12-myristat-13-acetat (PMA) aktiviert wurde, untersucht.

S.Y. Choi, W.G. Kim, E.J. Ko, Y.H. Lee, B.G. Kim, H.J. Shin, Y.S. Choi, J.Y. Ahn, B.J. Kim, H.J. Lee, **Effect of high advanced-collagen tripeptide on wound healing and skin recovery after fractional photothermolysis treatment**, Clin Exp Dermatol. 2014 Dec; 39(8): p. 874-80

Background: Collagens have long been used in pharmaceuticals and food supplements for the improvement of skin. Aim: We evaluated the efficacy of high advanced-collagen tripeptide (HACP) on wound healing and skin recovery. Methods: Using an in vitro model, we performed HaCaT cell migration assays and collagen gel contraction assays using HACP concentrations of 1, 10 and 100 □g/mL. In this pilot study, eight healthy volunteers were randomly divided into two groups. Both the control and experimental groups received fractional photothermolysis treatment, but in the experimental group, four subjects received 3 g/day of oral collagen peptide (CP) for 4 weeks. To assess transepidermal water loss in each patient before and after the treatment, we used a Corneometer and a Cutometer, and we also assessed the patient's Erythema Index. Results: The cell migration assay showed that HACP enhanced wound closure, but not in a dosedependent manner. The collagen gel contraction assay showed increased contractility when patients were treated with 100 □g/mL HACP, but the results were not significantly different from those of controls. We found that post-laser erythema resolved faster in the experimental group than in the control group ($P < 0.05$). In addition, the recovery of skin hydration after fractional laser treatment was greater in the experimental group than in the control group by day 3 ($P < 0.05$), and the experimental group showed significantly improved post-treatment skin elasticity compared with the controls by day 14 ($P < 0.05$). Conclusions: Collagen tripeptide treatment appears to be an effective and conservative therapy for cutaneous wound healing and skin recovery after fractional photothermolysis treatment.

K.Y. Park, E.J. Ko, I.S. Kim, K. Li, B.J. Kim, S.J. Seo, M.N. Kim, C.K. Hong, **The effect of evening primrose oil for the prevention of xerotic cheilitis in acne patients being treated with isotretinoin: a pilot study**, Ann Dermatol, 2014 Dec;26(6): p. 706-712

Background: The most common adverse effects of oral isotretinoin are cheilitis, skin dryness, dry eyes, and conjunctivitis, whereas evening primrose oil (EPO) is known to improve skin moisture and transepidermal water loss (TEWL) in healthy adults and atopic patients. Objective: To evaluate the clinical efficacy and safety of EPO in preventing xerotic cheilitis in acne patients being treated with oral isotretinoin. Methods: Forty Korean volunteers of Fitzpatrick skin types III and IV, having moderate acne, were enrolled and randomized to receive either isotretinoin with or without EPO for 8 weeks. The efficacy of treatment was evaluated on the basis of global acne grading system scores, number of inflammatory and noninflammatory lesions, TEWL, corneometry, physician's global assessment, and patient satisfaction. Results: The results after 8 weeks of treatment showed that the TEWL of the lip increased significantly during isotretinoin treatment, whereas the TEWL of the hand dorsum showed no significant change. The increase of the TEWL of the lip was more definite in the control group than in the experimental group. The number of acne lesions decreased significantly in both groups, and there were no differences between them. Conclusion: Our study suggests that the addition of EPO improved xerotic cheilitis in acne patients being treated with oral isotretinoin. However, besides TEWL and corneometry assessments, additional studies are required for a complete understanding of the role of EPO in xerotic cheilitis in acne patients being treated with oral isotretinoin.

J. Smits, M. Weibel, N. Herbst, **Plant-derived system boosts hydration and lipid barrier,** Personal Care November 2014

Abstract: In the field of corneobiology, the skin barrier has been pointed out to play a crucial role in skin homeostasis. In the treatment of dry skin, it is important to repair and augment the skin barrier in order to achieve positive and long-lasting results. To adequately describe the hydration state of the human skin, a number of complementary measuring techniques are often employed. Therefore, besides the classic methods of corneometry and determination of the transepidermal water loss, we tested our moisturizing active Hydro-Gain and the two industry standards, glycerol and hyaluronic acid, in a PCR-array and in a study using confocal Raman spectroscopy. In the comparison to glycerol and hyaluronic acid, Hydro-Gain gave the best results regarding skin moisturisation and we also found evidence that Hydro-Gain stimulates strengthening of the skin barrier.

L.T. Fox, J. du Plessis, M. Gerber, S. van Zyl, B. Boneschans, J.H. Hamman, **In Vivo skin hydration and anti-erythema effects of Aloe vera, Aloe ferox and Aloe marlothii gel materials after single and multiple applications**, Phcog Mag 2014;10: p. 392-403

Objective: To investigate the skin hydrating and anti-erythema activity of gel materials from Aloe marlothii A. Berger and A. ferox Mill. in comparison to that of Aloe barbadensis Miller (Aloe vera) in healthy human volunteers. Materials and Methods: Aqueous solutions of the polisaccharidic fractions of the selected aloe leaf gel materials were applied to the volar forearm skin of female subjects. The hydration effect of the aloe gel materials were measured with a Corneometer® CM 825, Visioscan® VC 98 and Cutometer® dual MPA 580 after single and multiple applications. The Mexameter ® MX 18 was used to determine the anti-erythema effects of the aloe aterial solutions on irritated skin areas. Results: The A. vera and A. marlothii gel materials hydrated the skin after a single application, whereas the A. ferox gel material showed dehydration effects compared to the placebo. After multiple applications all the aloe materials exhibited dehydration effects on the skin. Mexameter ® readings showed that A. vera and A. ferox have anti-erythema activity similar to that of the positive control group (i.e. hydrocortisone gel) after 6 days of treatment. Conclusion: The polysaccharide component of the gel materials from selected aloe species has a dehydrating effect on the skin after multiple applications. Both A. vera and A. ferox gel materials showed potential to reduce erythema on the skin similar to that of hydrocortisone gel.

H. Takahashi, H. Tsuji, M. MinamiI-Hori, Y. Miyauchi, H. Iizuka, **Defective barrier function accompanied by structural changes of psoriatic stratum corneum,** Journal of Dermatology 2014; 41: p. 144–148

Although barrier function of psoriatic skin is shown to be decreased by measuring transepidermal water loss (TEWL), few reports exist examining other physical skin properties and components including stratum corneum hydration, natural moisturizing factor (NMF), free fatty acids (FFA), b-sheet and a-helix ratio of structural protein(s), and sebum content. We compared the skin properties and components of normal, involved and uninvolved skin of psoriasis. Using a corneometer and attenuated total reflection-infrared spectrometer, we measured TEWL, stratum corneum hydration, NMF, FFA, b/a ratio and sebum in psoriasis vulgaris patients and healthy controls. TEWL and b/ a ratio of involved psoriatic skin were significantly increased compared with uninvolved skin and normal control skin. In contrast, stratum corneum hydration, NMF and FFA, but not sebum, are significantly decreased in the involved skin compared with uninvolved skin and normal skin. TEWL and stratum corneum

hydration returned to the normal levels following clinical improvement of the lesion. Barrier function and hydration of psoriatic skin are defective and secondary structure in stratum corneum protein is altered in the involved psoriatic skin.

S.G. Lee, S. Rae Kim, H.I. Cho, M.H. Kang, D.W, Yeom, S.H. Lee, S.K. Lee, Y.W. Choi, **Hydrogel-Based Ultra-moisturizing Cream Formulation for Skin Hydration and Enhanced Dermal Drug Delivery**, Biol. Pharm. Bull., 37(10), p. 1674–1682 (2014)

To develop an external vehicle for skin hydration and enhanced dermal drug delivery, a hydrogel-based ultra-moisturizing cream (HUMC) was successfully formulated with carbopol 934P, urea, Tinocare GL, grape seed oil, and other excipients. The HUMC showed plastic flow behavior due to a gel structure with a cream base. Different types of drug-free vehicles such as a hydrogel, conventional cream (CC), and three HUMCs were prepared and subjected to an in vivo skin hydration test on a hairless mouse using a corneometer. Hydration effect (ΔAU) was in the order of HUMC2**>**HUMC1 **≥** CC**>**HUMC3**>**hydrogel. Using nile red (NR) and 5-carboxyfluorescein (5-CF) as lipophilic and hydrophilic fluorescent probes, respectively, in vitro skin permeation and accumulation studies were conducted using Franz diffusion cells. The values of steady-state flux (**J**ss, ng/h/cm2) were obtained: 74.8 (CC), 145.6 (HUMC1), and 161.9 (HUMC2) for NR delivery; 6.8 (CC), 8.3 (HUMC1), and 10.9 (HUMC2) for 5-CF delivery. The amounts retained in the skin at 12 h (Q**r,** ng/cm2) were determined: 86.4 (CC) and 102.0 (HUMC2) for NR; and 70.1 (CC) and 195.6 (HUMC2) for 5-CF. Confocal microscopy was used to visualize the distribution of the fluorescent probes. NR tended to be localized into the deeper part of the skin with adipose tissue whereas 5-CF localized in the upper layer of the skin. Thus we propose that HUMC2 is an efficacious vehicle for skin hydration and enhances dermal delivery of lipophilic and hydrophilic drugs.

C. Albèr, I. Buraczewska-Norin, V. Kocherbitov, S. Saleem, M. Lodén, J. Engblom, **Effects of water activity and low molecular weight humectants on skin permeability and hydration dynamics - a double-blind, randomized and controlled study**, Int J Cosmet Sci, 2014 Oct;36(5): p. 412-418

Objectives: The mammalian skin is a barrier that effectively separates the water-rich interior of the body from the normally dryer exterior. Changes in the external conditions, for example ambient humidity, have been shown to affect the skin barrier properties. The prime objective of this study was to evaluate the effect of water activity of a topical formulation on skin hydration and permeability. A second objective was to gain more understanding on how two commonly used humectants, urea and glycerol, affect skin barrier function in vivo. Methods: Simple aqueous formulations were applied under occlusion to the volar forearm of healthy volunteers. Following 4-h exposure, skin water loss (by transepidermal water loss measurements), skin hydration (by Corneometry) and skin permeability (by time to vasodilation due to benzyl nicotinate exposure) were monitored. Results: The results demonstrate that a relatively small change in the water activity of a topical formulation is sufficient to induce considerable effects on stratum corneum hydration and permeability to exogenous substances. Exposing the skin to high water activity leads to increased skin hydration and also increased permeability. Furthermore, urea and glycerol promote skin hydration and permeability even at reduced water activity of the applied formulation. Conclusion: These results highlight the importance of considering the water activity in topically applied formulations and the potential benefit of using humectants. The results may impact formulation optimization in how to facilitate skin hydration and to modify skin permeability by temporarily open and close the skin barrier.

J.R. Moyano-Mendez, G. Fabbrocini, D. de Stefano, C. Mazzella, L. Mayol, I. Scognamiglio, R. Carnuccio, F. Ayala, M.I. la Rotonda, G. de Rosa, **Enhanced antioxidant effect of trans-resveratrol: potential of binary systems with polyethylene glycol and cyclodextrin,** Drug Dev Ind Pharm, 2014 Oct;40(10): p. 1300-1307

Trans-resveratrol, a polyphenol extracted from Vitis vinifera, has different beneficial effects following its administration on the skin. Here the potential use of binary systems to enhance in vitro and in vivo activity of trans-resveratrol was investigated. Thus the aqueous solubility of trans-resveratrol was investigated in the presence of growing concentrations of polyethylene glycol (PEG) or ◘-cyclodextrin (◘CD) as solubilizing excipients. Then, the solid dispersion of trans-resveratrol with PEG or inclusion complexes trans-resveratrol/◘CD were prepared and characterised by different methods. Cytotoxicity and inhibition of reactive oxygen species (ROS) following H2O2 challenge in the presence of trans-resveratrol, alone or associated to the excipients, was evaluated on human keratinocyte HaCaT cell line. Both the trans-resveratrol-containing binary systems induced significant reduction of H2O2-induced ROS production, especially in the case of ◘CD that was selected for the following phase of the study. Thus, the effect of a cream containing trans-resveratrol, alone or associated to ◘CD, on different skin parameters such as corneometry, colorimetry and elastometry, was evaluated on human volunteers. All

patients showed a visible improvement of clinical conditions with a remarkable decrease of aging signs, but this effect was higher of the hemi face treated with the ▫CD-containing formulation versus formulation containing trans-resveratrol alone.

W. Henschel, **Prospektive Pilotstudie zum dermatologischen Nutzen der Einführung von Hautschutz- und Hautpflegecreme in ein chirurgisches Team**, Dissertation der Universitätsmedizin der Ernst-Moritz-Arndt Universität Greifswald, Germany, Oktober 2014

Das Wort Chirurgie setzt sich aus dem altgriechischen Wort ▫▫▫▫ (kheir) für „Hand“ und ▫▫▫▫▫ (ergon) für „Arbeit“, „Werk“, „Tat“ zusammen. Das bedeutet, dass ein Chirurg im wörtlichen Sinn ein Handarbeiter ist. Diese Übersetzung aus dem Altgriechischen rückt die Tatsache in den Mittelpunkt, dass der Chirurg täglich mit seinen Händen arbeitet. Ein altes Sprichwort - „Der Mann, der zu beschäftigt ist, sich um seine Gesundheit zu kümmern, ist wie ein Handwerker, der keine Zeit hat, seine Werkzeuge zu pflegen.“ - nimmt Bezug darauf, dass man sowohl für seine Gesundheit als auch für sein Werkzeug Sorge tragen sollte. Dieses Sprichwort ist für Chirurgen von besonderer Bedeutung, da ihre Hände einerseits im Rahmen ihrer allgemeinen Gesundheit gepflegt werden müssen und ihnen ihre Hände andererseits als Werkzeug dienen. Die besondere Gewichtung, die dem Hautschutz und der Hautpflege zukommen sollte, spiegelt sich jedoch nicht nur in Volksweisheiten wider.

M.-M. Constantin, E. Poenaru, C. Poenaru, T. Constantin, **Skin Hydration Assessment through Modern Non-Invasive Bioengineering Technologies,** MAEDICA, Journal of Clinical Medicine, 2014; 9(1): p. 33-38

Non-invasive bioengineering technologies continuously discovered and developed in recent decades provide a significant input to research development and remarkably contribute to the improvement of medical education and care to our patients. Aim: Assessing skin hydration by using the capacitance method for a group of patients with allergic contact dermatitis versus healthy subjects, before and after applying a moisturiser (assessing the immediate and long-term effectiveness of hydration). Materials and methods: An experimental prospective controlled study was performed over a period of 3 years (March 2010–March 2013). 88 subjects were analysed, divided into two equal groups: patients with allergic contact dermatitis and healthy volunteers. The degree of skin hydration was determined in all the subjects with the help of a corneometer, by using the capacitance method, through the dynamic assessment of the parameter before and after applying a well-known moisturising cream. Results: For both groups, but especially for the patients with dry skin, there was a clear improvement of hydration, statistically significant after applying the moisturiser. In the case of the patients with allergic contact dermatitis, hydration was at a maximum immediately after the first application, and then maintained an increased level after 7 and 28 days, respectively. In the healthy subjects, the increase in hydration was lower, but progressive. The moisturiser determined an increase in hydration for all age groups, but those who showed the most obvious effect were the young adults (18-29 years old) with an increase of 19.9%. The maintenance effect of hydration lasted for 28 days, while the improvement was important for allergic skin (17.1%) and significant for healthy skin (10.9%). Conclusion: The assessment of epidermal hydration performed by using the corneometer showed very good hydration of the stratum corneum for both groups studied, with immediate and long-term effects. This study also showed that the degree of skin hydration was inversely proportional with age. The corneometer is easy to use, efficient and widely utilised in international studies for measurements in healthy or pathological conditions, for quantitative assessment of the effectiveness of various preparations intended for application to the skin surface, under well-controlled and standardised conditions.

M. Qassem, P.A. Kyriacou, **Effectiveness of the DreamSkin® garment on relieving symptoms of eczema/dermatitis using electrical and spectroscopic methods: A case study**, 36th Annual International Conference of the IEEE, Engineering in Medicine and Biology Society (EMBC), 2014

Eczema, is a common skin inflammatory disorder particularly among children. The treatment of which usually consists of the application of emollients and moisturisers to maintain skin moisture and to reduce the risk of inflammation, infection and exacerbative factors. Recently, DreamSkin® Health Limited has developed a unique polymer treatment for eczema. The polymer has been applied to medical grade silk clothing as a means of delivering the therapeutic benefits to the sufferers' skin. They claim that the polymer reduces the loss of moisture caused by evaporation from damaged skin; acts as a barrier against external irritants and helps to restore the skin's natural temperature management process. The aim of this study was to assess the products effectiveness at providing symptomatic relief for a volunteer with confirmed Eczema and Atopic Dermatitis over a period of 14 days. Both skin capacitance and NIR spectra were collected during the course of the study, using the Corneometer® CM 825 and a spectrophotometer equipped with a customized reflectance probe for measurements in the Near Infrared region. The treated area showed visibly improved skin and overall results from both techniques showed

a noticeable increase in skin water content after 14 days, peaking on the 7 day. However, slight differences were observed in the 7 magnitude of increase between the two instruments. Future work will focus on expanding this study to include more cases as well as performing statistical analysis to build upon our previous work in the area of skin hydration determinations using Near Infrared Spectroscopy.

M. Qassem, P.A. Kyriacou, **Investigating skin barrier function utilizing reflectance NIR Spectroscopy**, 36th Annual International Conference of the IEEE, Engineering in Medicine and Biology Society (EMBC), 2014

Near Infrared Spectroscopy is seen as a potentially valuable technique for skin analysis, and has been employed by many previous studies to measure skin hydration, since it is competent ofproviding information regarding various functional groups including OH, CH and NH bands. The aimof this study was to investigate the capability of further utilizing this method by attempting to analyzeskin barrier function as well as water content, through the evaluation of skin water uptake on two test sites, one untreated, and another treated with a high lipid moisturizer for a period of 7 days. Reflectance NIRS measurements were supported by capacitance readings obtained using the Corneometer® CM 825. Baseline recordings taken on the first day following treatment showed that more differences were observed between the treated and untreated sites in the regions belonging to, or are influenced by CH and NH groups rather than purely on the water bands. On the hand, moisture levels measured after placing a wet patch on the skin remained nearly equal for both sites but second derivative spectra showed that a clear contrast existed between absorbance heights at the water bands of the treated and untreated, suggesting that moisturizer use could have limited water uptake to a more superficial layer of the skin, whereas for the untreated site, the opposite would have been true and water was able to penetrate deeper. Overall, results here suggest that NIR spectroscopy can possibly provide valuable information not only on skin water contents but perhaps on other skin parameters such as barrier function.

D. McCamile, **Infant skin conditions-treatments and products,** Personal Care September 2014

An infant's skin varies greatly from adult skin, the barrier it provides from the outside world continues to develop over the early years, during which time it is much more prone to developing conditions rarer in adults. Young skin is typically around 30% thinner, with a far greater tendency to irritation and dryness. Moisturisation measurements using a Corneometer instrument show a far higher absorption rates of water in babies and toddlers compared to adults but also a faster return to baseline values. Tewameter assessments also show higher values in infants, dempnstrating that the skin barrier functionality is not fully developed in infants, trans-epidermal water loss being a key indicator of barrier functionality.

N. Belhaj, M. Borel, C. Bezivin, **Phospholipid-based emulsifiers give much more,** Personal Care September 2014

The base formula of a cosmetic product contributes greatly to its success, not only in terms of the pleasure it provides upon application but also in terms of efficacy. The base must not be considered only as the sensorial part of a formula but as a key element to improve the clinical results. Used first in the cosmetic industry for their emulsifying properties and sophisticated skin feel, phospholipid-based emulsifiers offer much more than that. Thanks to the different chemical and biological properties of phospholipids, phospholipid-based formulas can also be considered to provide active properties due to their moisturising action, and act as bioavailability enhancer due to their ability to improve the skin penetration of the active ingredients they contain.

R. Voegeli, R. Seoul, L.-A. Raaff, M. Lategan, A.V. Rawlings, B. Summers, **Facial mapping of stratum corneum capacitance of different ethnic groups,** Stratum Corneum VIII Meeting, 2014 Cardiff

Objective: Large differences in hydration of the stratum corneum (SC) have been observed on different body sites, especially on different regions of the face. The purpose of this study was to perform a detailed capacitance mapping of the face subjects of different ethnicities.

J. Polásková, J. Pavlacková, V. Tlasková, **Moisturizing effect of cosmetic emulsions with sericin,** Stratum Corneum VIII Meeting, 2014 Cardiff

Aim of study: The aim of the work was to measure and compare the hydration effect of both traditional (glycerol) and non-traditional (sericin) moisturizing agents contained in topically applied cosmetic emulsions.

B. Tyszczuk, B. Szczepanik, R.K. Mlosek, S. Malinowska, R. Debowska, K. Rogiewicz, I. Eris, **The high frequency ultrasound as a tool for the assessment of anti-cellulite treatments efficacy,** IFSCC

2014 Paris

Cellulite is nowadays a common aesthetical defect, wich affects most of women worldwide. Taking into consideration the size of this phenomenon cosmetic industry is searching a new ways of fighting against it and new diagnostic tools and methods to measure anti-cellulite therpy's efficacy. Unfortunatelly reliable monitoring of anti-cellulite treatment still remains a problem. However, new diagnostic techniques such as high frequency ultrasound (HFultrasound) imaging can be usefull tool for the assesment of cellulite-reducing efficacy of cosmetics therapy.

J. Wada, L. Paula, M. Spina, T. Takeda, **Elixir of oils from the Amazonian biodiversity for application in cosmetics for hands and nails,** IFSCC 2014 Paris

Summary: The Amazon region has numerous oleaginous vegetable species which features promising potential in Cosmetic Industry as Murumuru butter, Ucuuba butter and Brazil nut oil. The fatty acid composition of these ingredients is really unique: murumuru butter, Astroc ryum murumuru, has lauric acid as the main fatty acid; ucuuba butter, Virola surinamensis, is composed predominantly by myristic acid; and Brazil nut oil, Bertholletia excelsa seed oil, is rich in acids as oleic and linoleic. The combination of these 3 renewable resources (Elixir) demonstrated benefits of treatment for skin and nails as skin film formation, fortification of cutaneous barrier, skin moisturization and strengthening for nails. It was possible to add technological resources which were quite valuable for these renewable raw materials through the Elixir by its effectiveness in cosmetics and environment preservation.

G. Fabbrocini, N. Cameli, S. Lorenzi, M.P. De Padova, C. Marasca, R. Izzo, G. Monfrecola, **A dietary supplement to reduce side effects of oral isotretinoin therapy in acne patients,** G Ital Dermatol Venereol. 2014 Aug, 149(4): p. 441-5

Aim: The purpose of the study was to analyze the potential capacity of a dietary supplement, based on gamma linolenic acid, vitamin E, vitamin C, beta-carotene, coenzyme Q10 and Vitis Vitifera, to reduce side effects, in particular the dry skin, erythema and desquamation, due to treatment with oral isotretinoin, and evaluate the ability of the product to increase adherence to therapy in patients with acne. Methods: Forty-eight patients with nodular acne (32 females and 16 males) were randomly divided into 2 groups: 24 received isotretinoin therapy (20-30 mg/day) for 6 months associated to dietary supplement (twice a day), while the other 24 patients received only isotretinoin (20-30 mg/day) for 6 months. For all patients the degree of acne severity, through GAGS (Global Acne Grading System), the sebum production by Sebutape, the hydration by Corneometer and the erythema by Mexameter, were measured. We have also evaluated the adherence to treatment, asking to patients how many days a week they follow the therapy. Results: Patients treated with dietary supplement had lower side effects, with a less degree of erythema and dryness, and greater degree of hydration; a greater adherence to therapy was also reported. Conclusion: Thanks to antioxidant and moisturizing properties, the dietary supplement containing gamma linolenic acid, vitamin E, vitamin C, betacarotene, coenzyme Q10 and Vitis Vitifera, can be considered a useful supplement in the treatment and prevention of dry skin associated with the use of oral isotretinoin.

M.V. Velasco, R.P. Vieira, A.R. Fernandes, M.F. Dario, C.A. Pinto, C.A. Pedriali, T.M. Kaneko, A.R. Baby, **Short-term clinical of peel-off facial mask moisturizers**, Int J Cosmet Sci. 2014 Aug;36(4): p. 355-60

Objective: This study aimed to compare the efficacy of a peel-off facial mask based on polyvinyl alcohol (PVA) with an oil-in-water (o/w) emulsion and the effect of a soybean extract fermented by Bifidobacterium animale incorporated in those formulations (5% w/w). Methods: The formulations were submitted to randomized clinical studies in volunteers to evaluate the measurement effects as (a) tensor by Cutometer®, (b) moisturizing by Corneometer® and transepidermal water loss (TEWL) by Tewameter®. These effects were determined in a short-term study (3 h) in a controlled-temperature room. Results: The tensor effect and TEWL values indicated no significant difference between the use of facial mask and emulsion. On the other hand, the moisturizing effect of the facial mask on the stratum corneum was more significant than that of the emulsion according to Corneometer® measurements. P. Conclusions: Biometric cutaneous evaluation of peel-off facial masks (short-term study) showed that the masks promoted moisturizing effect of the stratum corneum more effectively than the oil-in-water emulsions. Thus, the facial masks were more efficient than emulsions in relation to moisturizing effects, but this efficiency is not related to the presence of fermented soybean extract. The results indicated that peel-off facial masks increase skin hydration in a process related to the occlusive effect.

S. Rösler, **Hautphysiologie im Säuglingsalter: Einfluss von Babyschwimmen mit und ohne anschließender Anwendung einer Pflegelotion auf die Hautbarriere von Säuglingen im Alter von**

3 bis 6 Lebensmonaten, Dissertation zur Erlangung der Doktorwürde der Charité Universitätsklinik Berlin, 2014

J. Kottner, L. Ludriksone, N.G. Bartels, U. Blume-Peytavi, **Do Repeated Skin Barrier Measurements Influece Each Other's Results? An Explorative Study,** Skin Pharmacology and Physiology 2014; 27:90-96

Abstract: Background: Biophysical skin measurement techniques are widely used to quantify the skin barrier function. In clinical research usually several parameters are subsequently measured in the same skin areas. In this study, possible interfering effects of subsequent measurement procedures on transepidermal water loss (TEWL), stratum corneum hydration (SCH) and skin surface pH were investigated. Methods: An exploratory study was conducted. Twelve young (mean age 32.9 ± 7.2 years) and 12 elderly (mean age 68.3 ± 2.5 years) subjects without any skin diseases were enrolled. The parameters TEWL, skin surface pH, SCH, sebum content, and surface evaluation of living skin were obtained successively in pairs from 4 contralateral volar forearm skin areas.

C. Soica, C. Oprean, F. Borcan, C. Danciu, C. Trandafirescu, D. Coricovac, Z. Cr□iniceanu, C. A. Dehelean, M. Munteanu, **The Synergistic Biologic Activity of Oleanolic and Ursolic Acids in Complex with Hydroxypropyl-□-Cyclodextrin,** Molecules 2014, 19, 4924-4940

Abstract: Oleanolic and ursolic acids are natural triterpenic compounds with pentacyclic cholesterol-like structures which gives them very low water solubility, a significant disadvantage in terms of bioavailability. We previously reported the synthesis of inclusion complexes between these acids and cyclodextrins, as well as their in vivo evaluation on chemically induced skin cancer experimental models. In this study the synergistic activity of the acid mixture included inside hydroxypropyl-gamma-cyclodextrin (HPGCD) was monitored using in vitro tests and in vivo skin cancer models. The coefficient of drug interaction (CDI) was used to characterize the interactions as synergism, additivity or antagonism. Our results revealed an increased antitumor activity for the mixture of the two triterpenic acids, both single and in complex with cyclodextrin, thus proving their complementary biologic activities.

A.O. Barel, P. Clarys, **Skin Capacitance,** Non Invasive Diagnostic Techniques in Clinical Dermatology; Springer Berlin Heidelberg 2014; ISBN 978-3-642-32108-5

General Introduction: The presence of an adequate amount of water in the stratum corneum is important for the following properties of the skin: general appearance of a soft, smooth, well-moisturized skin in contrast to a rough and dry skin and a flexible skin in contrast to a brittle and scaly skin and of an intacr barrier fundtion [1-27]. There is no universally accepted theory for explaining the situation of dry skin. Some consider dry skin related to disorders of corneocyte adhesion and desquamation (rough and scaly surface), modifications in the composition of certain epidermal lipids, or disorders of the water-retaining properties of the horny layer.

K. Heinrich, U. Heinrich, H. Tronnier, **Influence of Different Cosmetic - Formulations on the Human Skin Barrier,** Skin Pharmacology and Physiology 2014; 27: p. 141-147

Abstract: The human skin barrier is an important part of the skin's intactness and its functionality is a precondition for healthy skin. Ingredients in cosmetic formulations, especially penetration enhancers, can influence this barrier function as they transport active agents into deeper skin layers. In this study different cosmetic formulations were tested by 60 healthy female volunteers over a period of 4 weeks. The skin hydration and barrier function before and during the application were measured. Significant changes in both parameters were determined. A negative influence on the barrier function by penetration enhancers could be observed, but it was also found that lamellar lipid structures (Derma-MembranSysteme®, DMS®) are able to enhance the skin barrier. Both penetration enhancers as well as DMS can increase skin hydration.

X. Li, C. Galzote, X. Yan, L. Li, X. Wang, **Characterization of Chinese body skin through in vivo instrument assessments, visual evaluations, and questionnaire: influences of body area, inter-generation, season, sex, and skin care habits,** Skin Research and Technology 2014; 20: p. 14-22

Background/Purpose: The varying influence of mutiple factors (e.g., aging, sex, season, skin care habits) on skin structure and function necessitates study within ethnic groups to fully characterize their skin. Methods: Men and women aged 40-50 years (n=43) and their consanguineous same sex-children, aged 18-25 years (n=43), living in Chengdu, China were enrolled in this single center, non-interventional study. Volunteers attended two study visits (summer, 2010 and winter, 2011) at which dermatologists measured transepidermal water loss (TEWL), skin hydration, sebum secretion, fine lines/roughness, melanin/erythema, termperature, and color, and clinically graded participants' skin.

M. Schario, L. Lünnemann; A. Stroux, A. Reisshauer, T. Zuberbier, U. Blume-Peytavi, N. G. Bartels, **Children with dry skin and atopic predisposition: daily use of emollients in a participant-blinded randomized, prospective trial**, Skin Pharmacology and Physiology 2014; 27; 208-216

Abstract: Background: Dry skin reflects a skin barrier defect which can lead to atopic dermatitis. Little is known about the distinct effects of emollient use in children with dry skin and atopic predisposition. Objectives: We investigated the effects of daily application of pressed ice plant juice (PIPJ)- based emollients and petrolatum-based emollients. Methods: Children aged 2-6 years with dry skin and atopic predisposition were randomized into 2 groups: group 1 received emollients containing PIPJ and natural lipids, while group 2 received petrolatum-based emollients. Skin condition and biophysical properties of the skin barrier were assessed at inclusion and weeks 4, 12 and 16.

S. Kirkham, S. Lam, C. Nester, F. Hashmi, **The effect of hydration on the risk of friction blister formation on the heel of the foot,** Skin Research and Technology 2014; 20: p. 246-253

Background: Friction blister research has focused on prevention and treatment approaches rather than exploring the pathophysiology of the friction blister. Increased skin hydration has been purported to be a key risk factor in friction blister development. This studay aimed to test the effect of increased skin surface hydration on the risk of friction blister creation. Methods: The skin on one foot was hydrated by soaking the foot in water. Intermittent loading was carried out until an observable change of 3°C was evident using infrared thermography. The contra latreal foot acted as a control. Skin hydration and elasticity was measured using electrical capacitance and negative pressure respectively.

S. Luebberding, N. Krueger, M. Kerscher, **Age-Related Changes in Male Skin: Quantitative Evaluation of One Hundred and Fifty Male Subjects,** Skin Pharmacol Physiol 2014; 27: p. 9–17

Background/Purpose: Modern men have changed their beauty and grooming habits, which has resulted in an increasing demand for cosmetics for men. However, very little information is available about the dermatological needs of male skin. Therefore, the aim of this present clinical study was to conduct the first systematic assessment of the skin physiology of men with special attention to lifetime changes. *Methods:* A total of 150 healthy male subjects (aged 20– 70 years) were selected following strict criteria, including age, sun behavior and smoking habits. Transepidermal water loss (TEWL), hydration level, sebum production and pH values were measured with worldwide-acknowledged biophysical measuring methods at the forehead, cheek, neck, volar forearm and dorsum of hand. *Results:* TEWL and sebum production vary by localization, but generally not with increasing age, whereas stratum corneum (SC) hydration decreases significantly at the face and neck. The greatest decrease was assessed at the f rehead. Skin surface pH significantly increases with aging in the face.

M. Streker, L. Kleine-Börger, M. Kerscher, **Efficacy of a novel formulation for eyelashes revitalization – results of a pilot study,** University of Hamburg

Background: Long lashes are associated with attractiviness. Lash grow has been reported following an accumulation of prostaglandin after application of eye drops. The aim of this single-center, randomized trial was to determine the revitalizing effect of a new lash serum by using a clinical score, a patients‘ satisfaction questionnaire and biophysical measurementsover a study period of 12 weeks (figure 1). Material and methods: 30 adult healthy volunteers (26 woman, 4 men) wishing longer and fuller lashes were enrolled. Study specific exclusion criteria were lash extensions and colored lashes. Primary endpoint was to evaluate the effects of the lashes serum by using a five-point rating scale (figure 2). Both patients and blinded evaluator were asked to rate the effect according to standardized clinical photographs (Fotofinder Systems, Teachscreen Software GmbH, Bad Birnbach, Germany).To evaluate skin tolerance, pH-value, corneometry and lacrimal fluid’s lipid content were measured (all Courage+Khazaka,Cologne, Germany).

E. Rubio, B. Martinez-Teipel, R. Armengol, **Von einer in silico Prognose zum realen kosmetischen Wirkstoff zur Verbesserung der Hautbarriere Funktion,** SOFW Journal 8-2014

Unsere Idee war es, einen neuartigen natürlichen PPAR ◘ Agonisten zu entwickeln, der die Hautdurchfeuchtung sowie die Funktion der Hautbarriere verbessern sollte. Mittels einer in silico Energiebindungsstudie konnten wir die Fähigkeit von Rhaponticin, als Vollagonist für PPAR ◘ zu fungieren, vorhersagen und die Hypothese später mit verschiedenen in vitro Tests bestätigen. Zuerst zeigte der Wirkstoff seine Bindungsaffinität zu PPAR ◘. In Zellkulturen demonstrierte Rhaponticin seine Fähigkeit, die Keratinozyten Differenzierungs zu verbessern, indem er die Produktion von Involucrin, Filaggrin und Stratum corneum Barrierelipiden förderte.

E. Rubio, B. Martinez-Teipel, R. Armengol, **From in silico PredIction to a Real Cosmetic Active for an Improved Skin Barrier Function,** SOFW Journal 8-2014

We were interested in developing a novel natural PPAR ◘ agonist intended to improve epidermal moisturization and skin barrier function. By means of an in silico energetic binding study, we predicted the capacity of rhaponticin to acta s a PPAR ◘ full agonist, and we later confirmed this by several in vitro tests. First, the active showed ist binding affinity to PPAR ◘. In cell cultures, rhaponticin demonstrated its capacity to enhance keratinocyte differentiation, increasing the production of involucrin, filaggrin and stratum corneum barrier lipids. In agreement with this activity profile, rhaponticin also improved cell cohesion.

E.J. Kim, J.Y. Han, H.K. Lee, Q.Q. He, J.C. Cho, L. Wei, X. Wang, L. Li, L. Wei, H. Liang, X. Gao, B.J. Kim, G.W. Nam, **Effect of the regional environment on the skin properties and the early wrinkles in young Chinese women,** Skin Research and Technology 2014; 20: 498-502

Background: There are ethnic differences in the skin characteristics, also the skin is susceptible to be influenced by the external environment such as UV radiation and the climates. It can be shown that the skin in same race or twins varies by the enviroment. Objectives: This study was designed to investigate the skin characteristics and the early wrinkles of young Chinese women from four different regions, and to identify the correlation among the wrinkles, the other skin characteristics, and environmental conditions. Methods: A total of 441 healthy Chinese women aged between 20 and 35 years participated in the study: 110 from Beijing, 110 from Shanghai, 111 from Wuhan, and 110 from Guangzhou. The skin hydration, sebum contents, TEWL, pH, elasticity, and wrinkles were measured on the cow's feet area.

R.A. Harper, M. Rencenberger, **Benefits of hydrolysed jojoba esters in face masks,** Personal Care July 2014

In a series of double-blind, vehicle-controlled, randomised clinical studies, Floraesters K-20W Jojoba [INCI: Hydrolyzed Jojoba Esters (and) Water (aqua)] was shown to increase skin elasticity, firmness, and hydration; decrease the number of enlarged pores and fine lines; and increase consumer preference when incorporated into nonwoven facemask solution. These data support previous findings, demonstrating the effictiveness of Floraesters K-20W Jojoba in non-woven wipe applications for skin hydration, redness reduction, and enhanced consumer preference.

E. Proksch, D. Segger, J. Degwert, M. Schunck, V. Zague, S. Oesser, **Oral supplementation of specific collagen peptides has beneficial effects on human skin physiology: a double-blind, placebo-controlled study**, Skin Pharmacol Physiol 2014; 27; 47-55

Abstract: Various dietary supplements are claimed to have cutaneous anti-aging properties; however, there are a limited number of research studies supporting these claims. The objective of this research was to study the effectiveness of collagen hydrolysate (CH) composed of specific collagen peptides on skin biophysical parameters related to cutaneous aging. In this double-blind, placebo-controlled trial, 69 women aged 35-55 years were randomized to receive 2.5 g or 5.0 g of CH or placebo once daily for 8 weeks, with 23 subjects being allocated to each treatment group. Skin elasticity, skin moisture, transepidermal water loss and skin roughness were objectively measured before the first oral product application (t0) and after 4 (t1) and 8 weeks (t2) of regular intake. Skin elasticity (primary interest) was also assessed at follow-up 4 weeks after the last intake of CH (t3, 4-week regression phase). At the end of the study, skin elasticity in both CH dosage groups showed a statistically significant improvement in comparison to placebo. After 4 weeks of follow-up treatment, a statistically significantly higher skin elasticity level was determined in elderly women. With regard to skin moisture and skin evaporation, a positive influence of CH treatment could be observed in a subgroup analysis, but data failed to reach a level of statistical significance. No side effects were noted throughout the study.

S.M. Jegasothy, V. Zablotniaia, S. Bielfeldt, **Efficacy of a New Topical Nano-hyaluronic Acid in Humans, The Journal of Clinical and Aestical Dermatology,** 2014;7(3): p. 27–29

Background: The aim of this study was to evaluate the efficacy of a new topical low molecular nano-hyaluronic acid preparation in treating wrinkles, skin hydration, and skin elasticity in humans. Methods: Thirty-three women with an average age of 45.2 were studied for a period of eight weeks to measure the anti-wrinkle efficacy of a new nanohyaluronic acid. The measurements were performed in the periorbital regions by investigating the three-dimensional structure using a DermaTOP for wrinkles, Corneometer for skin hydration, Cutometer for skin elasticity, and a Chroma Meter for erythema. Thereafter, standardized images were taken and evaluated by six selected and trained raters at the end of the study for reduction of visible wrinkles as well as skin color uniformity and pigmentation. Results: The results of the study showed a statistically significant moisturizing effect of the product range (lotion, serum, and cream, after 2,4, and 8 weeks of treatment. Measurement of skin roughness showed a significantly finer skin structure after two weeks of treatment, and skin elasticity showed a significant

improvement after 2 and 8 weeks of treatment. Conclusion: The new nano-hyaluronic acid clearly demonstrated a significant benefit in decreasing the depth of wrinkles (up to 40%), and skin hydration (up to 96%) and skin firmness and elasticity were significantly enhanced (up to 55%) at the end of eight weeks.

P. Blanchemaison, E. Presse, R. Clement, A. Lethi, **Un nouveau traitement pour améliorer l'esthétique de la peau: les infrarouges longs,** GENESIS, N° 179, Juin 2014

Au Japon, les bains chauds dans une eau volcanique (« onsen-thérapie ») sont réputés rajeunir la peau. Un appareil à infrarouge longs utilisé dans les Spas ou en milieu médical peut-il prétendre à des résultats similaires ou supérieurs? Le vieillissement cutané du visage est un processus naturel inéluctable qui se traduit par l'apparition de rides et de ridules, de taches pigmentaires, d'une perte de fermeté et d'élasticité de la peau et d'une diminution de l'éclat du teint. Les facteurs de vieillissement peuvent être intrinsèques (génétiques, hormonaux,…) et extrinsèques (stress, agressions climatiques, pollution, tabac…). En dehors de la cosmétique, il existe aujourd'hui d'autres méthodes non invasives pour lutter contre les méfaits du temps sur la peau.

J.H. Min, I.S. Yun, D.H. Lew, T.S. Roh, W.J. Lee, **The Use of Matriderm and Autologous Skin Graft in the Treatment of Full Thickness Skin Defects**, Arch Plast Surg 2014;41: p. 330-336

Background: For patients with full thickness skin defects, autologous Split-thickness skin grafts (STSG) are generally regarded as the mainstay of treatment. However, skin grafts have some limitations, including undesirable outcomes resulting from scars, poor elasticity, and limitations in joint movement due to contractures. In this study, we present outcomes of Matriderm grafts used for various skin tissue defects whether it improves on these drawbacks. Methods: From January 2010 to March 2012, a retrospective review of patients who had undergone autologous STSG with Matriderm was performed. We assessed graft survival to evaluate the effectiveness of Matriderm. We also evaluated skin quality using a Cutometer, Corneometer, Tewameter, or Mexameter, approximately 12 months after surgery. Results: A total of 31 patients underwent STSG with Matriderm during the study period. The success rate of skin grafting was 96.7%. The elasticity value of the portion on which Matriderm was applied was 0.765 (range, 0.635–0.800), the value of the trans-epidermal water loss (TEWL) was 10.0 (range, 8.15–11.00) g/hr/m2, and the humidification value was 24.0 (range, 15.5– 30.0). The levels of erythema and melanin were 352.0 arbitrary unit (AU) (range, 299.25– 402.75 AU) and 211.0 AU (range, 158.25–297.00 AU), respectively. When comparing the values of elasticity and TEWL of the skin treated with Matriderm to the values of the surrounding skin, there was no statistically significant difference between the groups. Conclusions: The results of this study demonstrate that a dermal substitute (Matriderm) with STSG was adopted stably and with minimal complications. Furthermore, comparing Matriderm grafted skin to normal skin using Cutometer, Matriderm proved valuable in restoring skin elasticity and the skin barrier.

C. Raaka, F. Molsberger, U. Heinrich, M. Bertram,T. Ostermann, **Mesembryanthemum crystallinum L. als dermatologisch wirksame Heilpflanze – erste Ergebnisse aus 3 Pilotstudien,** Forsch Komplementmed 2014; 21: p. 366–373

Hintergrund: Neben vielen bekannten Heilpflanzen der rationalen Phytotherapie gibt es eine Vielzahl von Pflanzen, deren Wirkung nur unzureichend erforscht oder deren Wirkpotential in Vergessenheit geraten ist. Zu diesen Pflanzen gehört die Kristall-Mittagsblume (*Mesembryanthemum crystallinum* L.). In der vorliegenden Arbeit werden 3 Pilotstudien vorgestellt, die die dermatologische Wirkung des Mittagsblumenextrakts (Mesem-Creme) näher untersuchen. Material und Methoden: In 2 Anwendungsbeobachtungen wurde zunächst das Wirkprofil der Mesem-Creme näher untersucht. Neben einer retrospektiven Anwenderbefragung wurde außerdem bei 6 Rollstuhlfahrern eine prospektive Befragung zur Veränderung des Hautstatus im Prä-post-Design durchgeführt. In einer dritten placebokontrollierten Pilotstudie wurde die Hautfeuchtigkeitsveränderung mittels Corneometermessung an 6 Probanden mit trockener Haut analysiert. Ergebnisse: Im Vergleich zur unbehandelten Haut konnte in der Corneometer-Studie eine signifikante Steigerung der Hautfeuchtigkeit mit der Mesem-Creme erzielt werden (25,8 ± 5,8 vorher zu 46,6 ± 9,2 nachher vs. 26,3 ± 6,0 vorher zu 33,8 ± 6,0 nachher) sowie ein statistischer Trend (p = 0,11; t-Test) im Vergleich zur Basiscreme ohne Mesem-Zusatz (25,1 ± 4,7 vorher zu 41,9 ± 7,3 nachher). Dieser Effekt der Steigerung der Hautfeuchtigkeit wurde auch in den Anwendungsbeobachtungen verifiziert. Die Hauttrockenheit hatte sich bei 17 von 29 Probanden «sehr verbessert» oder «verbessert». Auch die Anwendungsbeobachtung bei einer Kohorte von 6 Rollstuhlfahrern ergab signifikante Verbesserungen des Hautzustands in Bezug auf die Weichheit und Trockenheit der Haut im Vorher-nachher-Vergleich. Schlussfolgerung: In dieser Arbeit wurde die Mesem-Creme durch 2 Anwendungsbeobachtungen im Hinblick auf Wirkung, Produkteigenschaften und Verträglichkeit und durch den etablierten

Corneometertest auch in Hinblick auf objektivierbare Hautfeuchtigkeitsveränderungen evaluiert. Aufgrund der geringen Fallzahlen gibt es trotz der ermutigenden Ergebnisse Limitationen in der Ergebnisinterpretation. Zudem sollte das Design künftiger Studien klarer sein und den hautfeuchtigkeitsverbessernden Effekt der Mesem-Creme besser fokussieren.

A. McDougall, **Skin barrier function study highlights oatmeal efficacy,** Cosmetics Design Europe, Juni 2014

Newly published results of an in-vivo clinical trial for Oat Cosmetics' multifunctional ingredient Oat COM have highlighted its skin repair properties are 'significant'. The ingredient is extruded colloidal oatmeal, and the independent investigation carried out aimed to assess the skin barrier damage repair properties of Oat COM with an occlusive skin patch. As such, the study showed that the UK firm's ingredient supported the increased repair rate of the skin.

W. Almeida Ciancaglio Garbossa, D. Garcia Mercurio, P.M.B.G. Maia Campos, **Shikimic acid: a potential active principle for skin exfoliation**, Surg Cosmet Dermatol 2014; 6(3): p. 239-47

Introduction: Organic acids are widely used in cosmeceutic-based skincare due to their exfoliation and cell renewal related effects. A star anise derivative known as shikimic acid is an example. Objectives: To evaluate the antioxidant activity of shikimic acid and the clinical efficacy of dermocosmetic preparations containing 3% of this active principle. Methods: The antioxidant activity was assessed through an in vitro method. Formulations of gel, gel cream, and a 3% solution of the acid were sequentially dispensed and preliminarily subjected to stability and sensory analysis. The clinical study was performed through non-invasive biophysical and skin imaging techniques. Results: The shikimic acid showed antioxidant potential. All formulations were found to be stable and the addition of shikimic acid improved the sensory analysis of the gel and gel cream. In the clinical assessment, the gel and the solution showed significant alterations in microrelief and in the parameters linked to skin exfoliation. However, the gel cream formulation did not show such an effect, suggesting the importance of the vehicle for the effectiveness of the cosmeceutics. Conclusions: Shikimic acid can be considered an active principle with good potential for application in dermocosmetic formulations aimed at exfoliation and improvement of the skin's microrelief.

S.Y. Choi, E.J. Ko, Y.H. Lee, B.G. Kim, H.J. Shin, D.B. Seo, S.J. Lee, B.J. Kim, M.N. Kim, **Effects of collagen tripeptide supplement on skin properties: a prospective, randomized, controlled study**, J Cosmet Laser Ther. 2014 Jun; 16(3): p. 132-7

Background: Experimental and clinical trials have indicated that dietary supplements can have beneficial effects on skin health. Objective: We investigated to evaluate the effect of daily collagen peptide (CP) supplement on skin properties. Methods: Thirty-two healthy volunteers were randomized to receive either no supplement (Group A), CP 3 g (Group B), CP 3 g, and vitamin C 500 mg (Group C), or vitamin C 500 mg (Group D) daily for 12 weeks. Skin properties evaluated included hydration, transepidermal water loss (TEWL), and elasticity using a corneometer, tewameter, and cutometer, respectively. Results: Changes from baseline in the corneometer were statistically significant between Groups A and B ($p = 0.011$) and Groups A and C ($p = 0.004$). There were statistically significant differences in cutometer from baseline between Groups A and B ($p = 0.005$) and Groups A and C ($p = 0.015$). Conclusions: There was no significant difference from baseline in the corneometer and cutometer between Groups B and C. The greatest changes in TEWL from baseline were seen in Group B, and the second greatest changes were seen in Group C. Daily CP supplementation may improve skin hydration and elasticity, but concomitant intake of low-dose vitamin C did not enhance the effect of CP on skin properties.

R. Kuswahyuning, M.S. Roberts, **Concentration dependency in nicotine skin penetration flux from aqueous solutions reflects vehicle induced changes in nicotine stratum corneum retention**, Pharm Res. 2014 Jun;31(6): p. 1501-11

Purpose: This study sought to understand the mechanism by which the steady state flux of nicotine across the human skin from aqueous solutions is markedly decreased at higher nicotine concentrations. Methods: Nicotine's steady state flux through human epidermis and its amount in the stratum corneum for a range of aqueous nicotine solutions was determined using Franz diffusion cells, with the nicotine analysed by high performance liquid chromatography (HPLC). Nicotine's thermodynamic activity in the various solutions was estimated from its partial vapour pressure and stratum corneum hydration was determined using a corneometer. The amount of nicotine retained in the stratum corneum was estimated from the nicotine amount found in individual stratum corneum tape strips and a D-Squame determined weight for each strip. Results: The observed steady state flux of nicotine across human epidermis was found to show a parabolic dependence on nicotine concentration,

with the flux proportional to its thermodynamic activity up to a concentration of 48% w/w. The nicotine retention in the stratum corneum showed a similar dependency on concentration whereas the diffusivity of nicotine in the stratum corneum appeared to be concentration independent. This retention, in turn, could be estimated from the extent of stratum corneum hydration and the nicotine concentration in the applied solution and volume of water in the skin. Conclusions: Nonlinear dependency of nicotine skin flux on its concentration results from a dehydration induced decrease in its stratum corneum retention at higher concentration and not dehydration induced changes nicotine diffusivity in the stratum corneum.

M. Kie□-□wicrczy□ska, D. Chomiczewska-Skóra, D. □wierczy□ska-Machura, B. Kr□cisz, **Impact of wet work on epidermal barrier (tewl and stratum corneum hydration) and skin viscoelasticity in nurses** (Abstract – Full article in Polish), Med Pr. 2014; 65(5): p. 609-19

Background: Nurses are prone to develop hand eczema due to occupational exposure to irritants, including wet work. The aim of the study was to evaluate the impact of wet work on selected skin properties, reflecting epidermal barrier function--transepidermal water loss (TEWL) and stratum corneum hydration--and additionally skin viscoelasticity, in nurses. Materials and Methods: Study subjects included 90 nurses employed in hospital wards. Measurements were carried out within the dorsal aspect of the dominant hand, using a Cutometer MPA 580 equipped with Tewameter TM 300 and Corneometer CM 825 (Courage & Khazaka, Germany) probes. Examinations took place on hospital premises. Similar measurements were performed in the control group of females non-exposed to irritants. Results: In the examined group of nurses, mean TEWL was 15.5 g/h/m2 and was higher than in the control group (12.99 g/h/m2). After rejecting the extreme results, the difference between the groups proved to be statistically significant ($p < 0.05$). The mean value of stratum corneum hydration was lower in the examined group (37.915) compared with the control group (40.05), but the difference was not sta tistically significant. Also results of viscoelasticity assessment showed no significant differences between studied groups. Conclusions: The results of the assessment of skin biophysical properties show that wet work exerts a moderately adverse impact on skin condition. A higher TEWL value and a lower stratum corneum hydration in workers exposed to irritants reflect an adverse impact of these factors on the epidermal barrier function.

G.W. Nam, E.J. Kim, Y.C. Jung, C.B. Jeong, K.H. Shin, H. K. Lee, **Differences in Skin Properties of Korean Women at the Initial Aging Phase,** Journal of Cosmetics, Dermatological Sciences and Applications, 2014, 4, p. 44-52

Many studies on aging have focused on evaluating differences between older and younger people, but only a few have focused on differences in skin properties among subjects from the same age group according to their skin aging status. In this study, we evaluated the facial skin condition and life style factors in 110 Korean women aged 25 to 35 in an attempt to evaluate factors which may affect the skin aging status in the initial aging phase. The facial skin condition of 110 healthy Korean women was assessed over two successive 6-month periods, summer and winter. Using clinical assessments including aging, wrinkles and skin's elasticity values, the subjects were divided into 7 groups. Then, various facial skin conditions and life style factors were examined between a severe aging group and mild aging group. In the severe aging group, the mean value pH was lower and the mean value of water content was slightly lower than that of women in the mild aging group. Also, the seasonal site variation in water content and sebum secretion level were significantly higher in the severe aging group than in the mild aging group. Topical sunscreen using percentage was not significantly different between the two groups. However, the number of cosmetic subject use was slightly higher in the mild aging group than in the severe aging group. The study suggested that there were several differences in skin characteristics between women in the severe aging group and in the mild aging group at the initial aging phase. Seasonal site variation between cheek and forehead was the most dominant differences. We also considered that life style factors such as cosmetic use could affect skin aging status.

U. Amon, R. Yaguboglu, **Kosmetische Akzeptanz und klinische Effektivität einer Pflegelotion mit Filaggrin-Spaltprodukten und Hydroxypalmitoyl-Sphinganin bei Patienten mit atopischer Dermatitis,** Kosmetische Medizin 4.14

Zusammenfassung: Ein aktueller Forschungsschwerpunkt bei der Aufklärung der Pathophysiologie der atopischen Dermatitis (AD) ist die Untersuchung möglicher genetischer Ursachen. Neben einer Senkung der epidermalen Ceramid-Fraktionen 1 und 3 ist mittlerweile ein Zusammenhang zwischen einer Filaggrin-Synthesestörung und der Schädigung der Haut vielfach beschrieben worden. Vor diesem Hintergrund wurde eine innovative Pflegelotion (Cetaphil® Restoraderm Pflegelotion) mit Filaggrin-Spaltprodukten (Natrium-Pyrrolidon-Carboxylsäure und Arginin) sowie Hydroxypalmitoyl-Sphinganin (Pseudoceramid 5 [N-(2-Hydroxyhexadecanoyl)-Sphinganin]), einer synthetischen Ceramid-Vorstufe, bei 107 ambulanten Patienten mit AD (darunter 27 Kinder bis zum 6. Lebensjahr)

untersucht. Die anonymisierte Befragung nach 14-tägiger Anwendung erzielte sowohl bei verschiedenen pflegenden als auch hautkosmetischen Eigenschaften sehr gute Ergebnisse.

S. Bänziger, B. Suter, B. Obermayer, **Bring me to life,** SPC April 2014

The demand for natural products is steadily increasing and plants with unusual metabolic capabilities are particularly noteworthy because they have the ability to produce potentially sensational chemical compounds. The desiccation tolerant resurrection plants are included amongst those with exceptional characteristics. They can be almost completely dried out and then continue their lives after re-watering. This property allows them to survive long periods of drought undamaged. In contrast, most other plants die if they lose 20% - 30% of their water.

D. Schmid, E. Belser, F. Zülli, **Rejuvenating effect of snow algae analysed,** Personal Care April 2014

Abstract: Snow algae powder is a novel anti-ageing ingredient based on an extract of biotechnologically produced snow algae. In cell culture assays, the snow algae extract was found to induce a calorie restriction-mimetic effect by stimulating the expression of the Klotho gene and the activity of the AMPK protein. The extract reduced the loss in collagen expression in aged fibroblasts and counteracted the increase in matrix metalloproteinases in senescent fibroblasts. In clinical studies, the snow algae powder was shown to improve the papillary structure of the dermal epidermal junction, significantly enhanced skin hdydration and smoothed crow's feet.

M. Rull, C. Davi, E. Canadas, A. Soley, R. Delgado, **Searching for youth in marine environments,** Personal Care April 2014

A healthy and young appearance is nowadays a commom wish, as is protecting and respecting nature while achieving it. Marine biotechnology offers the possibility to accomplish both objectives by using aquatic sources to develop effective and specific active ingredients for skin care concerns.

A. Mitarotonda, L. Koch, F. Johnson, F. Courbès, **Collaboration delivers novel green emulsifier,** Personal Care April 2014

The natural and organic cosmetic market has been steadily growing in the past few years and according to market research this trend will continue for many years to come. This is a major driving force for both the raw material industry and for cosmetic manufacturers: this article shows that joining forces resulted in the creation of a novel palm-free emulsifier that has the prerequisites to be organic certified.

A.M. Motta, R. Variati, M. Langenauer, **Intense moisturising power restores skin balance.** Personal Care April 2014

The transport of water and solutes in a highly organised structure such as the skin plays an essential role in maintaining its homeostasis and a healthy appearance. Skin moisturisation involves the entire skin structure through active and passive mechanisms. The horny layer acts as a defensive barrier, limiting an excessive evaporation of water (TEWL), while the presence of specific channels and the natural moisturising factor (NMF) retains the water and transports it through the multilayered skin structure.

M.P. Szczepanik, P.M. Wilkoł ek, M. Pluta, Ł.R. Adamek1, M. Goł y□ski, Z.J.H. Pomorski, W. Sitkowski, **The examination of biophysical skin parameters (transepidermal water loss, skin hydration and pH value) in different body regions in Polish ponies**, Polish Journal of Veterinary Sciences Vol. 16, No. 4 (2013), p. 741–747

The purpose of this study was to evaluate transepidermal water loss, skin hydration and skin pH in normal polish ponies. Twelve ponies of both sexes were examined in the study. Measurements were taken from seven different sites: the neck region, the shoulder, thorax, lumbar, inguinal, lip region and the pinna. In each of the regions transepidermal water loss (TEWL), skin hydration and skin pH were measured. For transepidermal water loss, the lowest values were observed in the pinna (10.54 g/hm2), while the highest values were observed in the lip region (30.98 g/hm2). In the case of skin hydration the lowest values were observed for the thorax region (1.96 CU), and the highest for the lip region (48.28 CU). For skin pH, the lowest results were obtained in the pinna (7.03), and the highest in the lumbar region (8.05).

D.L. Young, D. Chakravarthy, **A controlled laboratory comparison of 4 topical skin creams moisturizing capability on human subjects**, J Wound Ostomy Continence Nurs., 2014 Mar-Apr; 41(2): p. 168-74

Purpose: This study compares human skin capacitance (moisture) readings after the application

of 4 different, commercially available, topical skin creams. Sunjects and Settings: Twenty-one subjects (15 women and 6 men) aged 49.38 ± 11.02) years (mean ± SD) participated. This study was conducted in a climate-controlled laboratory on healthy human subjects. Design: Randomized experimental study comparing 4 topical skin creams for their effect on humanskin capacitance (moisture). Methods: Subject forearm skin was conditioned for 7 days prior to testing by washing with a standardsoap and application of no other products. Each subject was marked with 5 test sites on the forearms. Sites on the volar surface of each subject's forearms were randomly assigned for application of 1 of 4 product pairs, consisting of a cleanser and a topical skin cream or a control site. A Corneometer was used to measure skin capacitance. Each site on the arms was cleaned and dried, tested again for moisture content, subjected to topical skin cream application, and finally tested again for moisture content. Changes were measured by subtracting the capacitance readings at baseline from values measured following topical skin cream application for each test site. The mean change in capacitance was 13.9 for product 1, 10.3 for product 3, 8.7 for product 2, 1.6 for product 4, and 0.8 for the control site. Results: The mean capacitance change in sites treated with product 1 (13.9 ± 8.0, mean ± SD) was significantly greater than all others. There was no difference between the change in capacitance of product 2 (mean = 8.7, SD = 4.9) and product 3 (10.3 ± 7.1) t(20) = 1.081, P = .293, nor between product 4 (1.6 ± 3.9) and the control site (0.3, ± 2.2) t(20) = 0.779, P = .445. The capacitance change of products 2 and 3 was greater than that of product 4 and the control site. Conclusion: Commercially available topical skin creams vary in their impact on human skin capacitance. In this study, sites tested with product 1 had a greater skin capacitance reading than the other tested products; products 2 and 3 had similar capacitance readings. The results of this study provide an initial evaluation of topical skin creams that have varying impacts on skin capacitance.

P. Elsner, F. Seyfarth, D. Antonov, S.M. John, T. Diepgen, S. Schliemann, **Development of a standardized testing procedure for assessing the irritation potential of occupational skin cleansers**, Contact Dermatitis. 2014 Mar; 70(3): p. 151-157

Background: Frequent skin cleaning fulfils the definition of occupational 'wet work'. Standardized methods are required to assess the irritation potential of workplace cleansers. Objectives: To develop a standardized procedure for testing the irritation potential of occupational skin cleansers. Methods: In this single-blind, single-centre trial in 25 healthy volunteers, the irritation potential of five generic reference cleansers was tested by three-times-daily washing with an automated skin cleaning device for 4 days, and quantification of cumulative skin barrier damage was performed by visual scoring, chromametry, transepidermal water loss TEWL, and corneometry. For two cleansers, reproducibility of the irritancy assessment was assessed. Furthermore, the irritation induced by four commercial workplace skin cleansers was studied. Results: Whereas no significant changes were observed for any of the tested cleansers by either visual scoring or chromametry, significant increases in TEWL and significant decreases in stratum corneum hydration were found for all cleansers. Cleansers differed significantly in their irritation potential. On retesting of two cleansers, the first results were confirmed. Among the four commercial cleansers, one that was claimed to be mild was found to be disproportionally irritant. Conclusions: The presented model for testing cleansing preparations allows a highly controlled, practically relevant and reproducible irritancy assessment of occupational skin cleansers.

A. M. Motta, R. Variati, M. Langenauer, **Hydroveg® – A moisturizing Synergetic Power Blend**, Euro Cosmetics 3-2014

The skin plays a fundamental role both as a reservoir and as a barrier to balance the water regulation of the body. The water content in the horny layer of the skin may range from a maximum of 20% in the inner and more compact area, to a minimum of 7-10% in the external part. Values superior to 20% can lead to an excessive proliferation of cutaneous microorganisms and cause weakness of the keratin substrates; values inferior to 7% can cause excessive flaking and hyperkeratosis, an abnormal stratification of the epidermis with a consequent increase of skin roughness.

K. Sugimoto; K. Nomura, H. Sambe, T. Kurki, **Phosphoryl Oligosaccharides of Calcium: Its effect on skin barrier function,** SOFW-Journal 140, 3-2014

Introduction: Phosphoryl oligosaccharides of calcium (POs-Ca) is a complex with Ca and phosphoryl oligosaccharides (Fig. 1) prepared from potato starch by hydrolysis of amylolytic enzymes (1,2). POs-Ca contains calcium approximately 5% and can be a useful calcium supplement because of its high solubility in water. Effects of phosphoryl oligosaccharides (POs) on the formation of calcium phosphate precipitate (1), calcium absorption from intestine (3) and remineralization of tooth enamel lesions (4) have been examined in detail. Particularly, POs-Ca has already been put to practical use in chewing gum for prevention of dental caries for years. Further application of POs-Ca as a superior calcium carrier substance was expected.

R. Burgo, Y. He, L. Lampe, E. Mustafa, **Natural polymer for modern colour applications,** Personal Care February 2014

Abstract: Colour cosmetic formulations continue to seek new, novel ingredients that can allow brands to create differentiated products that meet the requirements of that latest trends in the marketplace. Inolex has created and introduces LipFeel Natural, a new, patented polymer suitable for many colour cosmetic applications, particularly lip products. LipFeel Natural is completely derived from renewable and sustainable plant sources, and is produced using green chemistry principles. In this article, Inolex shows the results of various testing to demonstrate how LipFeel Natural can confer many of the benefits sought in modern colour cosmetic applications.

K. Shirai, Y. Yamamoto, **Changes in the Water Content of the Corneal Layer of Newborn Infants Using a Corneometer**, Proceedings of the 15th International Conference on Biomedical Engineering, Vietnam 2014, p. 821-824

This study measured serial changes in the water content of newborn infants to investigate the characteristics of newborn skin and obtain basic information to provide effective cleansing care and create the perfect environment to promote the formation of the corneal layer of newborn infants. The subjects were 73 term infants who had an appropriatefor- date (AFD) birth weight (□ 2,500 g) consisting of 39 infants born between October and December 2007 (fall) and 34 infants born between April and March 2011 (spring). The water content of the corneal layer of the epidermis was measured using a corneometer (CM825). Using this corneometer, the water content of the skin from the skin surface to areas 30- 40mm below is measured by the electrostatic capacity method, and measurement values are expressed as values from 0 to 120 that are proportional to the skin water content. Before bathing from the 1st to 5th day after birth in the following 6 areas of the body: (1) between the eyebrows, (2) left corner of the mouth, (3) the middle of the left forearm, (4) left area of the abdomen (between the anterior superior iliac spine and navel), (5) infrascapular area (at the nipple level), and (6) the lateral side of the thigh. The water content of newborn skin was the lowest on the 1st day after birth, and increased with days. The water content of the skin differed among the areas of the body, being highest in the corner of the mouth and lowest on the forearms. The temperature and humidity of the neonatal intensive care unit was higher in the spring than fall, and the water content on the 1st day after birth was higher in infants born in the spring than those born in the fall.

M. Goł y□ski, M. Szczepanik, K. Lutnicki, Ł. Adamek, M. Goł y□ska, P. Wilkoł ek, W. Sitkowski, Ł. Kurek, P. D□biak, **Biophysical parameters of rats' skin after the administration of methimazole**, Bull Vet Inst Pulawy 58, p. 315-319, 2014

The paper describes the influence of oral administration of methimazole on biophysical skin parameters. Wistar rats of different sex (220–260 g) were used in the experiment. Biophysical skin parameters, such as transepidermal water loss (TEWL), corneometry, and pH were examined at seven-day intervals. Significant changes in the parameters were observed on the 7th d of methimazole administration. The changes were observed in both sex but males appeared to be less sensitive in that respect. Changes in the parameters in the females showed rapid mechanisms, which normalised transepidermal water loss and skin hydration, as well as restored skin barrier functions. TEWL, skin hydration, and skin pH measurements allow an early assessment of skin barrier dysfunction after administration of this drug.

S. Schliemann, M. Petri, P. Elsner, **Preventing irritant contact dermatitis with protective creams: influence of the application dose,** Contact Dermatitis. 2014 Jan; 70(1): p. 19-26

Background: Skin protection creams (PC)s are used in the occupational setting to help prevent irritant hand dermatitis. The actual amounts of PC applied and the resulting dose per unit area on hands at work are lower than recommended. Objectives: To assess the influence of the applied dose on the efficacy of PCs in the prevention of irritant contact dermatitis. Methods: Experimental cumulative irritant contact dermatitis was induced by twice daily application of 0.5% NaOH or sodium lauryl sulfate (SLS) for 4 days on the backs of 20 healthy volunteers. Test areas were left unprotected or were pretreated with three different PCs applied at a low dose (2 mg/cm(2)) or a high dose (20 mg/cm(2)) before irritation. Irritant responses were assessed by visual scoring and measurement of transepidermal water loss, chromametry, and corneometry. Results: Although cumulative irritant dermatitis developed in all unprotected test sites, irritation was significantly reduced in a dose-dependent manner on PC-protected sites. The higher doses of all PCs provided significant protection against irritation. However, the lower dose of one product did not significantly protect against SLS-induced irritation. Conclusions: The protective efficacy of PCs depends on the amount of product applied per unit skin surface area. Some products may show no protective efficacy when used at doses close to those practically applied at

workplaces. Future efficacy studies of PCs should be performed with doses not higher than 2 mg/cm(2), to avoid overestimation of their protective efficacy.

J.Y. Park, T.G. Lee, J.Y. Kim, M.C. Lee, Y.K. Chung, W.J. Lee, **Acellular Dermal Matrix to Treat Full Thickness Skin Defects: Follow-Up Subjective and Objective Skin Quality Assessments**, Arch Craniofac Surg Vol.15 No.1, 2014, p. 14-21

Background: There are several options for replacement of the dermal layer in fullthickness skin defects. In this study, we present the surgical outcomes of reconstruction using acellular dermal substitutes by means of objective and subjective scar assessment tools. Methods: We retrospectively reviewed the medical records of 78 patients who had undergone autologous split-thickness skin graft with or without concomitant acellular dermal matrix (CGDerm or AlloDerm) graft. We examined graft survival rate and evaluated postoperative functional skin values. Individual comparisons were performed between the area of skin graft and the surrounding normal skin. Nine months after surgery, we compared the skin qualities of CGDerm graft group (n=25), AlloDerm graft group (n=8) with skin graft only group (n=23) each other using the objective and subjective measurements. Results: The average of graft survival rate was 93% for CGDerm group, 92% for AlloDerm group and 86% for skin graft only group. Comparing CGDerm grafted skin to the surrounding normal skin, mean elasticity, hydration, and skin barrier values were 87%, 86%, and 82%, respectively. AlloDerm grafted skin values were 84%, 85%, and 84%, respectively. There were no statistical differences between the CGDerm and AlloDerm groups with regard to graft survival rate and skin functional analysis values. However, both groups showed more improvement of skin quality than skin graft only group. Conclusion: The new dermal substitute (CGDerm) demonstrated comparable results with regard to elasticity, humidification, and skin barrier effect when compared with conventional dermal substitute (AlloDerm).

Hand- und Hautschutz, Publikation der Berufsgenossenschaft Rohstoffe und Chemische Industrie, Januar 2014

E.J. Ko, S.K. Mun, I.Y. Oh T.R. Kwon, B.J. Kim, M.N. Kim, **Comparison of efficacy and diffusion of three formulations of botulinum toxin type A in two patients with forehead hyperhidrosis,** Clinical and Experimental Dermatology (2014) 39, p. 673–675

A number of studies have shown botulinum toxin type A (BoNTA) to be a very effective treatment for focal hyperhidrosis. However, the different formulations of BoNTA are not identical. They may differ in terms of both their electrophysiological and clinical behaviour, and results obtained with one formulation cannot therefore be extrapolated to another. As a result, different formulations may have different efficacy and tolerability profiles. The literature contains few reports of direct comparisons of different formulations of BoNTA.1–3 Some studies have suggested that the diffusion of BoNTA2 (Dysport; Ipsen Ltd., Slough, UK) is greater than that of BoNTA1 (BOTOX; Allergan, Inc., Irvine, CA, USA).3,4 In this study, we directly compared the efficacy and diffusion characteristics of three different formulations in two patients with forehead hyperhidrosis, including the new BoNTA3 (NABOTA, Daewoong, Co. Ltd., Seoul, Korea). We also investigated the diffusion area of the products to assess the area of effective action at the target site and to allow minimization of adverse effects.

G. Moro, P.-Y. Morvan, R. Vallée, **Epidermal hyaluronic acid: a new look at hydration,** Personal Care November 2013 and January 2014

Even though it is famous for its hydrating and skin-filling properties, hyaluronic acid is not as well known as it may appear. Although present to a higher degree in the extracellular matrix of the dermis, it is also found in the epidermis where its function presents an unused potential for hydration and overall skin restructuring strategies. By developing Hydranov, a high technological furcellaran concentrate, Codif Recherche et Nature is targeting epidermal hyaluronic acid to generate an overall hydra-restructuring effect and a greatly enhanced hyaluronic-like result.

A. Elkhyat, **Skin Wettability and Friction**, Handbook of Cosmetic Science and Technology (p. 337-344), 4th Edition, Chapter 40, Editors: A.O. Barel, M. Paye, and H.I. Maibach, 2013

Wetting refers to the contact between a solid surface and a liquid; it depends on intermolecular interactions. The degree of surface wetting is evaluated through the measurement of the contact angle. The smaller the contact angle manifests, the better the wetting of the surface. When the contact angle $\theta = 0°$, the surface wets completely; the opposite corresponds to $\theta = 180°$ (dewetting), and partial wetting refers to θ ranging from 0° to 180

M. Rull, C. Davi, E. Canadas, J. Cebrián, R. Delgado, **Drink up,** SPC Asia November 2013

It is a fact that if we want a youthful and attractive appearance, the skin needs to be flexible, soft, smooth, and free of wrinkles; all features directly related to hydration. Constant external environmental aggressors such as cold temperatures, wind, air conditioning and habits including using harsh soaps, can leave the skin suffering a lack of water or insufficient levels to function properly. The skin changes from being supple, flexible, soft and smooth – a healthy look – to looking dry, flaky and scaly, which is clearly undesired.

C. Perez, C. Stoltz, S. Dumont, L. Cattuzzato, **Cosmetogenomics decodes hydrating action in cells,** Personal Care, November 2013

Abstract: Hydration is composed of two distinct but complementary domains. On one side we have the regulation of hydric reserves and their circulation within different layers of the skin, and on the other the synthesis of lipidic substances and essential proteins, as well as their organisation to avoid excessive water loss. Polyvalent hydrating active ingredients are rare. Most often, active ingredients are combined to provide this dual functionality. Aquaxyl (three Seppic patents) is able to meet both these needs, by supplying both humectant and a restructuring effect. Furthermore, through cosmetogenomics, we have been able to demonstrate at molecular level, its intimate mechanism of action in the epidermis.

A. Mitarotonda, F. Johnson, L. Koch, **Clinically proven benefits of organic certified products,** Personal Care, November 2013

Abstract: There is a general belief that natural and organic cosmetic products cannot deliver strong benefits and only basic clamis can be achieved. This is due to the limited number of ingredients available to those who are formulating certified products. When transposed to skin care claims, it usually means hydration and moisturisation derived benefits. When it comes to makeup, the absence of truly performing colour cosmetics can lead „green consumers“ to look at more standard brands in order to get their favourite look. With this article the authors would like to demonstrate that it is possible to develop organic certified products that are clinically proven to be effective.

C.S. Quintana Seguil, **Delivering High Moisturization from Lipstick**, Cosmetics & Toiletries Vol. 128, No. 10/October 2013

Lips are perhaps the most sensual part of the face and play a major role in perceived beauty.1, 2 They are also in constant motion and exposed to physical and chemical changes that alter and impact their normal form, as evidenced by wrinkles and dryness.The histology of the lips is well-described, and the vermilion area where the lips end and facial skin begins is covered by a thin stratum corneum made up of orthokeratotic cells that have a shorter turnover rate than the normal stratum corneum.3 Unlike other skin, the lips lack epidermis, and with a thickness of just three to five cellular layers, they are very thin compared with typical facial skin, which has up to 16 layers.4 Lighter colored lip skin also contains fewer melanocytes, which protect lips and impart color—as do blood vessels, as they appear through the thin lip skin.

J. Polaskova, J. Pavlackova, P. Vltavska, P. Mokrejs, J. Rahula, **Moisturizing effect of topical cosmetic products applied to dry skin**, J. Cosmet. Sci., 64, p. 1–12 (September/October 2013)

One of the complications of “diabetes mellitus” is termed diabetic foot syndrome, the fi rst symptoms of which include changes in the skin’s condition and properties. The skin becomes dehydrated, dry, and prone to excessive formation of the horny layer, its barrier function becoming weakened. This function can be restored by applying suitable cosmetic excipients containing active substances. The aim of this study was to evaluate and compare the effects of commercially available cosmetic products (CPs) designed for the care of diabetic foot, through a group of selected volunteers using noninvasive bioengineering methods. Statistical surveys ($p < 0.05$) evaluated these CPs as regards to their hydration effect and barrier properties. Special attention was devoted to CPs with the declared content of 10% urea, and that the infl uence of this preparation’s ability to hydrate and maintain epidermal water in the epidermis was confirmed.

R. di Franco, E. Sammarco, Maria G. Calvanese, F. de Natale, S. Falivene, A. di Lecce, F.M. Giugliano, P. Murino, R. Manzo, S. Cappabianca, P. Muto, V. Ravo, **Preventing the acute skin side effects in patients treated with radiotherapy for breast cancer: the use of corneometry in order to evaluate the protective effect of moisturizing creams**, Radiation Oncology 2013, 8:57

Background and purpose: The purpose of this study was to add, to the objective evaluation, an instrumental assessment of the skin damage induced by radiation therapy. Materials and methods: A group of 100 patients affected by breast cancer was recruited in the study over one year. Patients were divided into five groups of 20 patients. For each group it was prescribed a different topical treatment. The following products were used: Betaglucan, sodium hyaluronate (NeovidermW), Vitis vinifera A. s-I-

M.tO.dij (IxodermW), Alga Atlantica plus Ethylbisiminomethylguaicolo and Manganese Cloruro (Radioskin1W) and Metal Esculetina plus Ginko Biloba and Aloe vera (Radioskin 2W); Natural triglycerides-fitosterols (XderitW); Selectiose plus thermal water of Avene (Trixera+W). All hydrating creams were applied twice a day starting 15 days before and one month after treatment with radiations. Before and during treatment patients underwent weekly skin assessments and corneometry to evaluate the symptoms related to skin toxicity and state of hydration. Evaluation of acute cutaneous toxicity was defined according to the RTOG scale. Results: All patients completed radiotherapy; 72% of patients presented a G1 cutaneous toxicity, 18% developed a G2 cutaneous toxicity, 10% developed a G3 toxicity, no one presented G4 toxicity. The corneometry study confirmed the protective role of effective creams used in radiation therapy of breast cancer and showed its usefulness to identify radiation-induced dermatitis in a very early stage. Conclusions: The preventive use of topic products reduces the incidence of skin side effects in patients treated with radiotherapy for breast cancer. An instrumental evaluation of skin hydration can help the radiation oncologist to use strategies that prevent the onset of toxicity of high degree. All moisturizing creams used in this study wereequally valid in the treatment of skin damage induced by radiotherapy.

K. Miyamoto, H. Kudoh, **Quantification and visualization of cellular NAD(P)H in young and aged female facial skin with in vivo two-photon tomography**, Br J Dermatol. 2013 July; 169 Suppl 2: p. 25-31

Background: In vivo two-photon tomography is a novel noninvasive three-dimensional optical skin imaging technology with subcellular resolution which enables the sensitive detection of endogenousfluorophores. One of these fluorophores, NAD(P)H (a coenzyme which plays an important role in the release of free energy during glycolysis, and influences filaggrin and lipid synthesis), can be selectively detected in keratinocytes (granular cells) with two-photon tomography. Objectives: To quantify NAD(P)H levels in subsurface human facial skin in vivo as a measure to determine if there are changes with age. Methods: A total of 80 healthy Asian females were enrolled in this study, aged 21-68 years. Measurements were performed on facial skin using in vivo two-photon tomography (DermaInspect/MPTflex™, JenLab GmbH, Jena, Germany). The laser beam scans a skin field of interest in pulses, focused at a depth to reach the granular layer. The near-infrared laser pulses excite the endogenous fluorophores NAD(P)H. Image processing was performed to obtain high-resolution autofluorescence images (optical biopsies) and to quantify the fluorescent grey scale to determine NAD (P)H levels. Additional skin surface measures taken were hydration (corneometer), elasticity (cutometer) and wrinkles (image capture and analysis). Results: Statistically significant changes in all measured parameters as a function of age were observed. Most importantly, the mean fluorescent grey scale values for NAD(P)H in the youngest group studied (women in their 20s) was 38.8 (SD ± 12.39), while that of the oldest group studied (women in their 60s) was 32.7 (SD ± 12.47). These NAD(P)H levels are statistically significantly different (P = 0.0078). Conclusions: The level of NAD(P)H in the epidermis is significantly greater in younger vs. older skin in vivo. This likely reflects decreased production and/or increased degradation of NAD(P)H in older skin, possibly as a result of chronological ageing and environmental damage (e.g. photodamage). NAD(P)H levels in epidermal skin may be a useful biomarker of skin ageing in vivo. It is also likely that maintaining NAD(P)H production is a useful approach to maintaining good skin condition and caring for ageing skin.

C.B. Jeong, J.Y. Han, J.C. Cho, K.D. Suh, G.W. Nam, **Analysis of electrical property changes of skin by oil-in-water emulsion components,** International Journal of Cosmetic Science, 2013, 35, p. 402–410

Objectives: As the ‘Dry Skin Cycle’ produces continuous deterioration, cosmetic xerosis (flaky, dry skin) is one of the major concerns to most consumers. The purpose of this study was to investigate the moisturizing effect of oil-in-water (O/W) emulsion components. There are numerous types of oils, waxes, polyols and surfactants used as ingredients in skincare products. However, the moisturizing effect of each ingredient and understanding each use to make an effective moisturizing products are still not well understood. Methods: To provide answers to these questions, we investigated the moisturizing effect of widely used 41 components (four different classes) in a simple O/W emulsion using capacitance methods. 106 different single oils, and combinations of oil with oil, wax, humectants, and surfactant were formulated and tested. Results: In this study, we found that most of the O/W emulsion components had hydration effects on the skin. (i) The average relative water content increase (RWCI) rate of a single oil-based emulsion was 11.8 5.2% (SE) and 7.9 6.0% (SE) at 3 and 6 h, respectively. (ii) An oil combination emulsion showed an average RWCI rate similar to that of a single oil-based emulsion, 12.6 6.0% (SE) and 12.1 6.4% (SE) at 3 and 6 h, respectively (iii) A combination of waxes with oil showed an average RWCI rate of 16 5.6% (SE) and 12.4 4.5% (SE) at 3 and 6 h, respectively. (iv) Humectant combinations showed the highest average RWCI rate 28 7.3% (SE) and 22.2 7.5% (SE) at

3 and 6 h, respectively (v) Surfactant combinations had an average RWCI of 10.8 4.5% (SE) and 6.0 4.0% (SE) at 3 and 6 h, respectively. Conclusion: Interestingly, it was difficult to find moisturizing power differences among samples in the same group. Only the humectants group showed significant differences among samples. Glycerine and urea showed significant skin hydration effects compared with other humectants. We also found a significant moisturizing effect by analysing the chemical functional groups; amide class had a higher hydration effect than betaines and disaccharides in humectants combination.

J. Bhat on behalf of S. Lanigan, C. Whitehurst, J. Birch, **A Single -Blinded Randomised Controlled Study to Determine the Efficacy of Omnilux Revive Facial Treatment in Skin Rejuvenation**, Lasercare clinics, Birmingham, UK

The use of light technology in dermatology has grown rapidly in the last decade. There have been many developments in the use of light for the treatment of a wide variety of skin conditions from nonmelanoma skin cancers1, 2,3,4 to facial resurfacing for crows feet and photo damaged skin.5, 6,7 Historically the use of CO2 lasers has been the mainstay for facial resurfacing and skin rejuvenation since the mid 1990s. It is accepted that photoageing and the subsequent visible effects is in part due to the breakdown of collagen by metalloprotinases and oxidative damage induced by exposure to UV light.8 Subsequent treatment with CO2 lasers improves these visible signs through tissue remodelling after cutaneous injury. However the effectiveness of this technique is limited by prolonged healing times, discomfort during the procedure (requiring local anaesthesia) and the risk of complications such as pigmentary disorders.8 The popularity of laser resurfacing has therefore decreased, while the demand for new procedures that provide optimum results with minimal side effects has continued regardless. Light Emitting Diode (LED) technology has been at the forefront of new light source development in recent years. LED technology offers a new vehicle for the delivery of non-coherent light in arrays of varying shape, suitable for the treatment of large surface areas. Whelan H et al have repeatedly proven the effectiveness of LED technology in delivering an optimum light dose consistently demonstrating the efficacy of LED therapy in tissue regeneration.9, 10.

A.B. Stefaniak, J. du Plessis, S.M. John, F. Eloff, T. Agner, T.-C. Chou, R. Nixon, M.F.C. Steiner, I. Kudla, D.L. Holness, **International guidelines for the in vivo assessment of skin properties in non-clinical settings: part 1. pH,** Skin Research and Technology 2013, 19: 59-68

Background: Skin surface pH is known to influence the dissolution and partitioning of chemicals and may influence exposures that lead to skin diseases. Non-clinical environments (e.g. workplaces) are highly variable, thereby presenting unique measurements challenges that are not typically encountered in clinical settings. Hence, guidelines are needed for consistent measurement of skin surface pH in environments that are difficult to control. Methods: An expert workshop was convened at the 5th International Conference on Occupational and Environmental Exposure of Skin to Chemicals to review available data on factors that could influence the determination of skin surface pH in non-clinical settings with emphasis on the workplace as a worst case scenario.

R.K. Mlosek, S. Malinowksa, M. Sikora, R. Debowska, A. Stepien, K. Czekaj, A. Dabrowska, **The use of high frequency ultrasound imaging in skin moisturization measurement,** Skin Research and Technology 2013; 19: 169-175

Introduction: The appropriate skin hydration level enables its normal function and healthy apperarance. Purpose: The purpose of present research was to assess the applicability of high frequency ultrasound (HFU) to the monitoring of skin moisturization treatments. Material and Methods: The study sample encompassed 27 women, aged 20-67 y.o. (mean age of 45.48 y.o.) with dry skin. All women applied a strong moisturizing cream on their facial skin for 14 days. The course of treatment was monitored using the HFU. The following parameters were subjected to the ultrasound evaluation: epidermal echo thickness, dermis thickness, and separately the thickness of the superior and inferior layer of dermis. The measurements were taken on the participants‘ chins and cheeks. In addition, skin hydration and transepidermal water loss (TEWL) were determined.

H. Hoeksema, M. de Vos, J. Verbelen, A. Pirayesh, S. Monstrey, **Scar management by means of occlusion and hydration: A comparative study of silicones versus a hydrating gel-cream,** Burns 2013

Abstract: Despite the worldwide use of silicones in scar management, its exact working mechanism based on a balanced occlusion and hydration, is still not completely elucidated. Moreover, it seems peculiar that silicones with completely different occlusive and hydrating properties still could provide a similar therapeutic effect. The objective of the first part of this study was to compare the occlusive and hydrating properties of three fluid silicone gels and a hydrating gel-cream. In a second

part of the study these results were compared with those of silicone gel sheets. Tape stripped skin was used as a standardized scar like model on both forearms of 40 healthy volunteers. At specific times, transepidermal water loss (TEWL) and the hydration state of the stratum corneum were measured and compared with intact skin and a scar-like control over a 3–4 h period. Our study clearly demonstrated that fluid silicone gels and a hydrating gel-cream have comparable occlusive and hydrating properties while silicone gel sheets are much more occlusive, reducing TEWL values far below those of normal skin. A well-balanced, hydrating gel-cream can provide the same occlusive and hydrating properties as fluid silicone gels, suggesting that it could eventually replace silicones in scar treatment.

M. Brock, P. Padtorelli, **Cosmacol ELI – A Multifunctional Additive for Rinse-off Products**, Cosmetic Science Technology 2013

This article illustarates the multi functionality of the latic acid carrier named Cosmacol ELI (INCI-name: C12-13 Alkyl Lactate) in rinse-off products. This material is mild to the skin, exhibits superior skin re-fatting action and thickens Sodium Alkylethersulphate based formulations. Furthermore, if affects neither foaming ability nor foam stability and enables the creation of transparent rinse-off products with very low clear melting points.

R.H. Müller, P.Sinambela, C.M. Keck, **NLC – the invisible dermal patch for moisturizing & skin protection**, Euro Cosmetics, 6-2013

Skin is the natural barrier that protects the body from hazardous materials surrounding it and keeps the water balance inside. Straum corneum (SC), the outermost layer of skin, plays an important role for this barrier function. Being totally renewed every approximately 14 days, the SC has about 15 layers of flat corneocytes, the proteinriched cells, embedded in the continuous lipid-riched layers. Corneocytes allow the transportation of water and water soluble materials through skin. However, the continuous lipig layers work adversely. Combination of these cells with lipid in a condensed structure not only enables water excretion through skin, but also prevents excessive water loss.

E. Kim, G. Cho, N.G. Won, J. Cho, **Age-related changes in skin bio-mechanical properties: the neck skin compared with the cheek and forearm skin in Korean females**, Skin Research and Technology 2013; 19; 236-241

Background: There are many reports on regional variations in skin bio-mechanical properties, but few studies have been performed on the neck. The neck is sun-exposed and continues to move so the neck skin can be more apt to aging. Methods: The skin porperties oft he neck, cheek, and ventral forearm of 58 Korean female volunteers in good health (25-64 years old, 42.3 ± 11.7) were assessed non-invasively with skin measuring devices, and the correlation with age and wrinkles was analyzed. Results: Neck skin was more extensible, elastic and viscoelastic than the cheek. The dermal layer fort he neck skin was thinner and more intense than the cheek, but the results were opposite when compared with the skin oft he forearm. We could observe that the subcutaneous layer was divided by the fascia with regard tot he neck skin, and this thickness increased BMI-dependently.

J. du Plessis, A. Stefaniak, F. Eloff; S. John, T. Agner, T.-C. Chou, R. Nixon, M. Steiner, A. Franken, I. Kudla, L. Holmes, **International guidelines for the in vivo assessment of skin properties in non-clinical settings: Part 2. Transepidermal water loss and skin hydration,** Skin Research and Technology 2013; 19; 265-278

Background: There is an emerging perspective that is not sufficient to just assess skin exposure to physical and chemical stressors in workplaces, but that it is also important to assess the condition, i.e. skin barrier function of the exposed skin at the time of exposure. The workplace environment, representing a non-clinical enviroment, can be highly variable and difficult to control, thereby presenting unique measurement challenges not typically encountered in clinical settings. Methods: An expert working group convened a workshop a spart of the 5th International Conference on Occupational and Environmental Exposure of Skin Chemicals (OEESC) to develop basic guidelines and best practices (based on existing clinical guidelines, published data, an down experiences) for the in-vivo measurement of transepidermal water loss (TEWL) and skin hydration in non-clinical settings with specific reference to the workplace as a worst-case scenario.

M. Manfredini, G. Mazzaglia, S. Ciardo, S. Simonazzi, F. Farnetani, C. Longo, G. Pellacani, **Does skin hydration influence keratinocyte biology? In vivo evaluation of microscopic skin changes induced by moisturizers by means of Reflectance Confocal Microscopy,** Skin Research and Technology 2013; 19; 299-307

Background: Skin hydration is defined as the water content oft he epidermis and the dermis. In vivo reflectance confocal microscopy offers the oppurtunity to determine in vivo the kinetics of the skin

after the application of topical products. Objective: To define confocal features associated with dry skin and assess the microscopic effects of different moisturizers. Methods: Ten healthy volunteers were enrolled for the study. Two different formulations were tested: petrolatumand commercially available emulsion. Measurements were performed from baseline to 3 h after removal of the occlusion at regular time points. Nine confocal features were assessed: furrows‘ size, overall interkeratinocyte reflectance, furrows‘ morphology, scales, skin surface irregularity, non-rimmed dermal papillae, exocytosis, dermal inlammation and collagen type. Furrows‘ size and interkeratinocyte reflectance were also quantitated using a digital analysis. Stratum corneum capacitance was recorded.

J.W. Jung, Y.W. Lee, Y.B. Choe, K.J. Ahn, **An 8-week face-split study to evaluate the efficacy of cosmeceuticals using non-invasive bioengineering devices**, Skin Research and Technology 2013; 19; 324-329

Background/aims: Even with the increasing demand for functional cosmeceuticals in the recent years, objective standard criteria for assessing their efficacy are currently incomplete at best. In this 8-week face-split study, in which we topically applied high-priced cosmeceuticals on one side and more affordable cosmeceuticals on the other side of face, we compared the efficacy of these two products using non-invasive bioengineering technology. Methods: We assessed the efficacy of a skin-whitening and an anti-wrinkle cosmeceutical product on 25 and 19 healthy female volunteers, respectively. In a single blind split setting, each participant received an 8-week topical application of high-priced cosmeceuticals to the left side of face, and cheaper cosmeceuticals to the right side. Then, the subjects‘ biophysical parameters were measured for an objective evaluation of the results. This was followed by a questionnaire to obtain a subjective assessment.

Y. Hara, Y. Masuda, T. Hirao, N. Yoshikawa, **The relationship between the Young’s moduls of the stratum corneum and age: a pilot study,** Skin Research and Technology 2013; 19; 339-345

Background/purpose: The mechanical porperties of the strum corneum play an important role in protecting the body from external physical stimuli and excessive sensitivity. However, it is difficult to analyze these mechanical properties in vivo. To resolve this problem, we carried out a numerical analysis to calculate the Young’s modulus of the stratum corneum. We then investigated the relationship between the Young’s modulus of the stratum corneum and age. Methods: We used a Cutometer and a Dermal Torque Meter for measuring skin mechanical parameters, and optical coherence tomography and an ultrasonic imaging system for measuring skin thickness. Based on these non-invasive results, liner elastic analysis was performed by the finite element method, and the Young’s moduli of the stratum corneum and the dermis were calculated by solving an inverse problem. Using these techniques, we analyzed the correlation between the Young’s modulus of the stratum corneum for the cheeks of seventy-eight Japanese aged from 20 to 68 years.

K.Q. Boucetta, Z. Charrouf, H. Aguenaou, A. Derouiche, Y. Bensouda, **Does Argan oil have a moisturizing effect on the skin of postmenopausal women?,** Skin Research and Technology 2013; 19; 356-357

During menopause, the decrease in endogenous estrogen level affects negatively the homeostasis of the estrogen target organs including the skin, which becomes more predisposed to develop the skin dryness (1), characterized by increase in the transepidermal water loss (TEWL) and a decrease in the water content of the epidermis (WCE).

M. Bayer, G. Schlippe, W. Voss, **Tests on Cosmetics: Requirements and Successful Implementations**, Cosmetic Science Technology 2013

Abstract: Dermatological tests in accordance with scientific criteria are of decisive value for the safety and efficacy of cosmetics. The latest alterations to European legislation emphasise this fact. Whether a cosmetic product is well tolerated or causes irritations or allergic reactions must be proven by dermatological tests. The range of test methods starts with simple questionnaires and ends with complex physiological measurements. The quality of dermatological reports directly depends on the seriousness of the commissioned dermatologists. Pitfalls occur whenever non qualified scientific results are generously used for advertising campaigns such as ‘dermatologically tested’, ‘allergy tested’, ‘hypo-allergenic’ etc. Additionally many reports on cosmetics therefore must be valid in scientific methods and practical execution.

M. Schweitzer, *K. Stang,* **A Physiological Experiment for Skin Research on ISS,** Kayser-Threde GmbH 2013 & DLR

SKIN-B is an experiment set for non-invasive investigation of changes of skin hydration, skin barrier function and skin surface structure of astronauts before, after, and during space flight. Professor

Dr. Heinrich and Dr. Nicole Gerlach from Derma Tronnier, Institute for Experimental Dermatology at Witten-Herdecke University, hope to derive conclusions from the data on the effects of weightlessness on the astronaut's skin, inner organs, and on physiological changes to the skin to be expected during long-term missions. In comparison to the precursor experiment SkinCare (2006) the experiment set has been substantially improved by Kayser-Threde: An enhanced ultra-violet camera was chosen to obtain sharper images. Operation was made easier since the experiment can now be operated from a space station laptop via USB ports and with a software adapted for this specific purpose. Use of the ISS board laptop also allows experiment data to be transferred to Earth directly.

R.S. Teixeira, L.A. Araújo, D.G. Mercúrio, P.M.B.G. Maia Campos, **Application of biophysical techniques to evaluate the efficacy of a gel with zinc pca,** University of Sao Paulo, 2013

The biophysical and skin imaging techniques are effective tools to help characterize the skin type and to evaluate the'clinical efficacy of products cosmetics because they are non-invasive methods and enable to evaluate die products directly in human skin.

F. Pouradier, C. Cornillon, M.F. D'arras, F. Flament, S. Panhard, S. Diridollou, G. Loussouarn, **Functional and structural age-related changes in the scalp skin of Caucasian women,** Skin Research and Technology 2013;19;384-393

Background: Ageing of the skin, being chronological or sun induced is highly documented. Scalp, as a specific skin site, has, however, received little attention. This work attempted to describe functional and structural alterations that occur in scalp skin with ageing. Methods: Two different age groups (N=15 each; 30 ± 3 and 62 ± 2 y.o. respectively) of Caucasian women perticipated in the study. Some functional parameters (TEWL, Sebum level, Hydration, T°) were recorded on the vertex part of the scalp, after having cut the hair flat on the scalp surface. Imaging of some structural criteria was carried out using high-frequency ultrasound technique and optical coherence tomography on the same scalp site and on the mid-forehead, as a close control skin site.

M.L. Kmie□, A. Pajor, G. Broniarczyk-Dył a, **Evaluation of biophysical skin parameters and assessment of hair growth in patients with acne treated with isotretinoin,** Postep Derm Alergol 2013; XXX, 6: p. 343–349

Introduction: Treatment of the severe forms of acne vulgaris remains a challenge. Isotretinoin is a drug often used in these cases. Retinoids a□ect the mechanisms that play a role in the pathogenesis of acne, reduce the production of sebum and sizes of the sebaceous glands. However, isotretinoin appears to have undesirable side e□ects in the skin, mucous membranes and hair. Aim: The aim of this study was to assess the e□ect of acne vulgaris treatment with isotretinoin on biophysical skin parameters: skin sebum and stratum corneum hydration levels, transepidermal water loss values, pH, erythema and hair growth parameters: total number, density and proportion of anagen hair. Material and methods: The study included thirty patients with acne types: papulopustular, conglobata and phlegmonosa. Patients were treated with isotretinoin at a dose of 0.5–1.0 mg/kg/day for a period of 4–7 months. The measurements of skin biophysical parameters were performed before and after the treatment using Sebumeter SM815, Corneometer CM825, Tewameter TM300, MX Mexameter MX18 and Skin-pH-Meter PH908. Hair growth parameters were evaluated with FotoFinder Dermoscope using the TrichoScan Professional V3.0.8.76 software. Results: The results of biophysical skin parameter measurements after the treatment showed a reduction in the severity of seborrhea. However, the skin was dry, which confrmed a lowered degree of stratum corneum hydration and an increase in transepidermal water loss values. Moreover, severity of erythema, an increase in pH value, and variations in selected hair growth parameters: decrease in total count, density and proportion of anagen hair were demonstrated. Conclusions: The reduction in the skin sebum levels was observed after the treatment. There was dryness of the skin, which was confrmed by biophysical skin parameter measurements. Changes in the hair growth parameters showed telogen efuvium hair loss.

J.S. Choi, W.S. Moon, J.N. Choi, K.H. Do, S.H. Moon, K.K. Cho, C.J. Han, I.S. Choi, **Effects of seaweed Laminaria japonica extracts on skin moisturizing activity in vivo**, Journal Cosmetic Sciences, 2013 May-Jun, 64(3): p. 193-205

Twelve species of edible seaweed from the coast of Korea were screened for skin moisturizing activity. We placed the lead of a Corneometer on an approximately 6-cm2 test area of the forearm and measured both untreated skin (control) and skin treated with test moisturizing creams either containing or not containing 5% water:propylene glycol (50:50) extracts of seaweeds. Over the 8-h observation period, the strongest activity of the Laminaria japonica extracts occurred at the 2-h period. For the 10% extract, hydration with the L. japonica extract increased by 14.44% compared with a placebo. Transepidermal water loss (TEWL) was also measured using a test cream with 10% L. japonica extract.

For up to 8 h after applying the creams, TEWL was decreased to 4.01 g/cm2, which was approximately 20% of that seen with the control. We suggest that the L. japonica extract hydrates skin via the humectants and hydrocolloids that it contains. To confirm the safety of L. japonica extracts, we performed a patch test on human skin. The results suggested that at moderate doses humans can safely use the extracts. For commercial applications, we evaluated the physicochemical characteristics of the test cream products, including Hunter L, a, and b values; pH; refractive index; and coefficient of viscosity. L. japonica extract did not affect overall formulations of the test cream product in any of the tested aspects. These results suggest that L. japonica extract is a promising ingredient in moisturizing formulations.

C. McLeod, **Testing Moisturizing Claims for Skin**, Cosmetics & Toiletries online, May 2013

Consumer product testing, along with procedures for implementing claims substantiation protocols, is increasingly becoming one of the most talked about topics in the product development process. Whether a company produces cosmetic products for small, independent boutique brands or for large multinational corporations, the race to enhance (or at the very least, match) a product's onpackage claims to its competitors' is of paramount importance to gain a crucial foothold in the relevant market and target demographic. One of the main claim substantiation areas in modern cosmetics—although one of the least verbosely exhilarating for marketing departments—is moisturization in skin. As with the majority of cosmetic products and claims in the 21st century, marketing, research, development and formulation departments within companies aim to differentiate their product from competitors in one way or another, to create a successful brand and generate profit.

Wirksamkeit und Verträglichkeit von Nasenbalsam bei Hautirritationen, Birken AG, Ästhetische Dermatologie 5, 2013

In einer im April und Mai 2012 vom proDerm Institut für Angewandte Dermatologische Forschung durchgeführten Anwendungsstudie verwendeten 52 freiwillige Probanden über einen Zeitraum von 4 Wochen den Nasenbalsam (Imlan Nasenbalsam Plus, Birken AG) mindestens einmal täglich. Alle Probanden hatten laut eigenen Angaben eine Pollenallergie auf Frühblüher und im Testzeitraum daher Symptome von Heuschnupfen mit Begleiterscheinungen wie trockener und geröteter Haut im Nasenumfeld. Vor und nach der Anwendungsphase wurde der Status der Haut im relevanten Areal durch einen Dermatologen sowie durch die Probanden selbst beurteilt.

S. Nefkens, **Clinical study proves exeptional performance of PURASAL NH/COS on extremely dry skin**, Euro Cosmetics 5-2013

Purac today announced that a clinical study with PURSAL NH/COS for extremely dry skin concluded with positive outcome. The study demonstrated that a lotion with PURSAL NH/COS, significantly reduced visible skin dryness, roughness and desquamation or flaking.

S. Luebberding, N. Krueger, M. Kerscher, **Skin physiology in men and women: in vivo evaluation of 300 people including TEWL, SC hydration, sebum content and skin surface pH,** IFSCC Magazine Volume 16, Number 4 2013

Objectives: Evidence is given that differences in skin physiological properties exist between men and women. However, despite an assessable number of available publications, the results are still inconsistent. Therefore, the aim of this clinical study is the first systematic assessment of gender-related differences in skin physiology in men and women, with a special focus on changed over lifetime.

H. Aksamitova, S. Holcova, M. Hladicova, **Anti-Aging Effekt und Hautverträglichkeit einer multivalenten Wirkstoffkombination in einer W/O Emulsion**, Kosmetische Medizin 4.13

In zwei klinischen Modellen wurde der Effekt der zweimal täglichen Anweundung einer Hautcreme mit antioxidativen und biologisch hautaktiven kosmetischen Inhaltsstoffen dokumentiert. In beiden Teilstudien betrug die Anwendungsdauer 25-35 Tage, mit einer Zwischenauswertung nach 12-16 Tagen. Im ersten Teil der Studie wurden die Effekte der Creme auf Hauttrockenheit und Hautrötung an 50 Patienten (88% weiblich) mit allergischer Diathese klinisch dokumentiert. Beide Parameter verbesserten sich hochsignifikant, bei gleichzeitig ausgezeichneter Verträglichkeit und dem Fehlen unerwünschter Effekte. Im zweiten Teil Studie wurde an 20 Probandinnen mittels physikalischer Messverfahren der Effekt auf die Hauthydratation und Hautelastizität objektiviert. Beide Parameter verbesserten sich hochsignifikant und bestätigten damit eindrucksvoll die ärztliche Beobachtung.

C. Uhl, D. Khazaka, **Techniques for globally approved skin testing,** Personal Care April 2013

In efficacy testing and claim support for cosmetic products, objective measurement systems became indispensable long ago, especially since subjective clinical assessments are often prone to bias

and inter-observer variation. Without suitable instrumentation it is close to impossible to determine what a product is really doing for the skin. Those objective measurement methods and subjective evaluations are mutually dependent. No measurement can be performed without the subjective evaluation of the results by the user of such instrumentation. However, a pure subjective evaluation of the skin without appropriate measurement techniques is not able to achieve accurate results either. This relationship becomes clearer when looking for example at skin colour measurements. Subjectively, the human brain cannot process slight changes in colour, especially when the colours are not viewed side by side, but at different points in time. Instrumental measurement however will clearly detect such slight changes. The achieved result must then be interpreted in context with the expected outcome or the hypothesis. For this, you will always need a knowledgeable and experienced person because 'a fool with a tool is still a fool', as the late Albert Kligman used to say. This relationship between objective measurement and subjective evaluation is not only true for the determination of differences in skin colour, but also for all other skin measurement parameters important for the cosmetic industry.

C. Montastier, S. Mac-Mary, L. Atallah, M. Pfulg, J.M. Sainthillier, N. Bizouard, E. Sandager, P. Humbert, **Complementarity of replasty pro filler and hyaluronic acid injections,** Anti-aging congress Monaco 04/2013

Few data are available to compare the cutaneous effects of aesthetic dermatology treatments on the face with those resulting from repeated application of "cosmeceutic" products highly concentrated in active molecules. The aim of this study was to demonstrate the benefit of repeated application of a serum versus an injection of hyaluronic acid as well as to compare the benefit of the association of this injection with repeated application of a serum versus injection with a reference cream.

P. Larmo, V.-P.D.Tech, A. Bonfigli, **Lingonberry boosts hydration with anti-ageing benefits**, Personal Care, April 2013

Lingonberry (Vaccinium vitis-idaea) is a nutritious berry that is widely abundant and harvested in wild form in the Nordic countries. In recent years, it has gained a reputation as a health-promoting superfruit. Lingonberries are used in several ways in Scandinavian cuisine: as a side dish, garnish or components of desserts. Lingonberries are rich in vitamin C and E in polyphenols including anthocyanins, proanthocyanidins and flavonols. Seeds containing ¤30% oil by dry weight, represent about 1.5% of lingonberries' fresh weight.

A. Mondelli, G.F. Secchi, **Plant's native proteins for hair conditioning and skin protection**, Poster In-cosmetics, Paris 2013

Corneometer CM skin hydration was evaluated before and after application of test items twice a day on 6 female volunteers; the study was continued over a period of one week and test items were applied undiluted with standardized procedure and then rinsed.

Increased Skin Hydration with Floraesters K-20W Jojoba / **Hand Sanitizer**, Poster Floratech, In-Cosmetics, Paris 2013

Skin hydration was determined by measuring capacitance with a Corneometer CM 825. The data from the study are illustrated in the graph below. Ten minutes following application of the test articles, the sites treated with the test article containing 1% K-20W increased skin hydration 39% while the marketed product, Purell Instant Hand Sanitizer, did not increase skin hydration ($p<0.05$). All formulations contained 62% ethanol.

Increased skin hydration with Floraesters K-20W & Floraesters K-100/Hydro-Alcoholic Nonwoven Wipes, Poster Floratech, In-Cosmetics, Paris 2013

Skin hydration was determined by Corneometer CM825 measurements. The data from the study are illustrated in the graph on the left. All formulations contained 65% ethanol, 1% glycerin, and water. Nonwoven wipes (45g/m² spunlace) were soaked in the 2.5g of test formulation for 72 hours.

T. Mahmood, N. Akhtar, **Short term study of human skin irritation by single application closed patch test: assessment of four multiple emulsion formulations loaded with botanical extracts,** Cutan Ocul Toxicol, 2013 Mar;32(1): p. 35-40

Background: Assessment of skin irritation potential is a major concern in safety assessment of cosmetics, when long-term use of these products are expected. Non-invasive bioengineering probes have been used previously to measure skin irritation potential of cosmetic ingredients. Objectives: Experimentation carried out to weigh up the skin irritation potential of four multiple emulsion formulations via visual and non-invasive measurements. Immediate effects of formulations and comparison of two assessment techniques were also tried to establish. Methods: Four multiple emulsion formulations one

control (without botanical active) and three containing the functional botanical actives plus additives were tested in this study using the following techniques: transepidermal water loss (TEWL), COLIPA visual scoring method (CVSM), Mexameter MPA 5 (Courage + Khazaka, Germany) and capacitance [Corneometer MPA 5 (Courage + Khazaka, Germany)]. Visual examination and non-invasive measurements were performed at baseline and after 24 h. The formulations were applied on the forearm of 12 healthy volunteers of same sexes aged 20-25 years. Results: We found that none of the formulation produced irritation both on visual and instrumental evaluation. However, formulations MeB and MeC have comparable immediate effects on dryness, erythema, melanin and TEWL. Formulation MeC produced more effective results on different parameters, may be due to synergistic effect of two extracts, while MeA failed to produce any immediate effects on skin parameters. Moreover results of both assessment methods are parallel to each other. Conclusion: None of the formulation produce irritant effects, barrier impairment effects or immediate effects except for the formulation MeC which produced appreciable results than other formulations but statistically these results were insignificant ($p > 0.05$). Based on these results, it could be concluded that formulations may be implied safely as skin rejuvenating candidates.

L. Rigano, G. Baratto, A. Portolan, A. Semenzato, M. Meloni, A. Bonfigli, M. Sironi, S. Pieraccini, N. Lionetti, **Development of a Powerful Tool for Investigation of the Structure and Functionality of the Aqueous Phase of Cosmetics**, IFSCC Magazine 3, 2013

Introduction: Among other problems, skin aging is associated with a loss of the capability of skin cells to answer and react to internal and environmental changes. Osmotic pressure and its equilibrium, involving the extracellular matrix and the cell inside, are key factors in maintenance of the homeostasis of living cells. Moreover, osmotic pressure differences between cells and their enviroment lead to the production/release of molecules (osmoprotectants) aimed at keeping the functional equilibrium of cells. Indeed, nature uses mainly such molecular structures for protecting cells, both vegetal and animal, from uncontrolled development of pressure differences between the inside and outside of cell membranes [1, 2]. This economy in the creativity of nature is due to the fact that such protection is exerted on the hydrophilic peptide bonds while different substituents which are lipophilic are not easily exposed to the hydrolytic action of water.

M. Mateu, C. Davi, E. Canadas, N. Alminana, R. Delgado, **360° hydration approach for moisturising treatment,** Personal Care März 2013

Dry skin is a common problem that influences the ability to cope with the constant external environmental aggessions of the modern world. Hydrated skin is supple, flexible, soft and smooth, and appears young and healthy. Water is essential for the normal functioning of the skin, especially for the stratum corneum (SC), which is a selectively permeable, heterogeneous, composite outer layer of the skin. The SC provides a highly efficient barrier against water loss. Everyday conditions like cold, wind, airconditioning, the use of soap, and other factors are the main cause of hydration disruption in the SC resulting in noticeable scaling, itching, damaged skin, and a general unhealthy look.

G. Neudahl, **Rating of butters on TEWL, moisturisation and elasticity,** Personal Care February 2013

Butyrospermum Parkii (Shea) Butter (shea butter) is widely used in personal care and cosmetics as a moisturiser and emollient. While shea butter has grown in importance within the industry, there is little in the way of clinical studies showing its efficacy in skin care. Much of the information is based upon its composition or anecdotal in nature. Nonetheless, most cosmetic chemists are convinced that shea butter works, and works very well, as a moisturiser, improving the lipid barrier function. We believe that many other naturally occurring butters, such as Garcinia Indica Seed Butter (kokum butter), Mangifera Indica (Mango) Seed Butter (mango butter) and Theobroma Cacao (Cocoa) Seed Butter (cocoa butter), may be equal to, or better than, shea butter for reduction in transepidermal water loss (TEWL). A study was therefore undertaken to explore the effects of these butters for cosmetic use on transepidermal water loss, skin moisturisation and skin elasticity. The primary objective of the study was to determine the efficacy of these butters in skin care applications when incorporated in a standard formulation.

S. Luebberding, N. Krueger, M. Kerscher, **Age-related changes in skin barrier function – Quantitative evaluation of 150 female subjects,** International Journal of Cosmetic Science, 2013, 35, 183–190

Synopsis: The protection against water loss and the prevention of substances and bacteria penetrating into the body rank as the most important functions of the skin. This so-called ‘skin barrier function’ is the natural frontier between the inner organism and the environment, and is primarily formed by the epidermis. An impairment of the skin barrier function is often found in diseased and damaged skin. An influence of ageing on skin barrier function is widely accepted, but has not been conclusively

evaluated yet. Therefore, the aim of this clinical study was to assess the potential influence of ageing on skin barrier function, including transepidermal water loss (TEWL), stratum corneum hydration, sebum content and pH value. One hundred and fifty healthy women aged 18–80, divided into five age groups with 30 subjects each, were evaluated in this study. TEWL, hydration level, sebum secretion and pH value of hydro-lipid acid film were measured with worldwide acknowledged biophysical measuring methods at cheek, neck, d_ecollet_e, volar forearm and dorsum of hand. Whereas TEWL and stratum corneum hydration showed only very low correlation with subject's age, the sebum production decreased significantly with age, resulting in the lowest skin surface lipids levels measured in subjects older than 70 years. The highest skin surface pH was measured in subjects between 50 and 60 years, whereas the eldest age group had the lowest mean pH. The dorsum of the hand was the location with the highest TEWL and lowest stratum corneum hydration in all age groups. The results show that only some parameters related to skin barrier function are influenced by ageing. Whereas sebum production decreases significantly over lifetime and skin surface pH is significantly increased in menopausal woman, TEWL and stratum corneum hydration show only minor variations with ageing.

C. Adomat, W. Gehring, **Protektiver Effekt von Betulin-Emulsionen/Protective Effect of Betulin-Emulsions,** Aktuelle Dermatologie 2013; 39; 499-503

Zusammenfassung: In zwei voneinander unabhängigen Studien wurde die protektive Wirkung von Betulin-Emulsionen allein (Imlan®-Creme Pur und Imlan®-Creme Plus, Birken AG, Niefern-Öschelbronn, Deutschland) und im Vergleich zu dem Hautschutz-Produkt Excipial Protect® (Spirig Pharma AG, Egerkingen, Schweiz) im repetitiven Waschtest mit Natriumlaurylsulfat (SLS) untersucht. Dabei konnte für alle Präparate eine vergleichbare Schutzwirkung gegenüber SLS nachgewiesen werden.

Abstract: In two independent studies the protective effect of two betulin-emulsions (Imlan® Creme Pur und Imlan® Creme Plus, Birken AG, Niefern-Öschelbronn, Germany) and of a betulin-emulsion in comparison to the skin protection creme Excipial Protect® was tested in a repetitive washing test with sodium dodecylsulfate (SLS). The effect concerning protection against SLS was found to be comparable for all three products.

A.L. Vazquez Villa, M.R. Senrra Aragão, E. Pereira dos Santos, A.M. Mazotto, R.B. Zingali, E. Paraguai de Souza, A.B. Vermelho, **Feather keratin hydrolysates obtained from microbial keratinases: effect on hair fiber,** BMC Biotechnology 2013, 13:15

Background: Hair is composed mainly of keratin protein and a small amount of lipid. Protein hydrolysates, in particular those with low molecular weight distribution have been known to protect hair against chemical and environmental damage. Many types of protein hydrolysates from plants and animals have been used in hair and personal care such as keratin hydrolysates obtained from nails, horns and wool. Most of these hydrolysates are obtained by chemical hydrolysis and hydrothermal methods, but recently hydrolyzed hair keratin, feather keratin peptides, and feather meal peptides have been obtained by enzymatic hydrolysis using *Bacillus* spp in submerged fermentation. Results: Keratin peptides were obtained by enzymatic hydrolysis of keratinases using *Bacillus subtilis* AMR. The microorganism was grown on a feather medium, pH 8.0 (1% feathers) and supplemented with 0.01% of yeast extract, for 5 days, at 28°C with agitation. The supernatant containing the hydrolysates was colleted by centrifugation and ultra filtered in an AMICON system using nano–membranes (Millipore – YC05). The Proteins and peptides were analyzed using HPTLC and MALDI-TOF-MS. Commercial preparations of keratin hydrolysates were used as a comparative standard. After five days the feather had been degraded (90-95%) by the peptidases and keratinases of the microorganism. MALDI-TOF mass spectrometry showed multiple peaks that correspond to peptides in the range of 800 to 1079 Daltons and the commercial hydrolysate was in the range of 900 to 1400 Da. HPTLC showed lower molecular mass peptides and amino acids in the enzymatic hydrolysate when compared with the commercial hydrolysate. A mild shampoo and a rinse off conditioner were formulated with the enzymatic hydrolysate and applied to hair fibers to evaluate the hydration, with and without heat, using a CorneometerW CM 825. The hydration was more efficient with heat, suggesting a more complete incorporation of hydrolysates into the fibers. Scanning Electron Microscopy showed deposits of organic matter in the junction of the cuticles that probably collaborates to the sealing of the cuticles, increasing the brightness and softness. Conclusions: These results show that the enzymatic method to produce keratin peptides for hair care products is an attractive and eco- friendly method with a great potential in the cosmetic industry.

J.-Y. Jung, E.-H. Nam, S.-H. Park, S.-H. Han, C.-Y. Hwang, **Clinical use of a ceramide-based moisturizer for treating dogs with atopic dermatitis**, J. Vet. Sci. (2013), 14(2), p. 199-205

In humans, skin barrier dysfunction is thought to be responsible for enhanced penetration of allergens. Similar to conditions seen in humans, canine atopic dermatitis (CAD) is characterized by derangement of corneocytes and disorganization of intercellular lipids in the stratum corenum (SC) with decreased ceramide levels. This study was designed to evaluate the effects of a moisturizer containing ceramide on dogs with CAD. Dogs (n = 20, 3~8 years old) with mild to moderate clinical signs were recruited and applied a moisturizer containing ceramide for 4 weeks. Transepidermal water loss (TEWL), skin hydration, pruritus index for canine atopic dermatitis (PICAD) scores, and canine atopic dermatitis extent and severity index (CADESI) scores of all dogs were evaluated. Skin samples from five dogs were also examined with transmission electron microscopy (TEM) using ruthenium tetroxide. TEWL, PICAD, and CADESI values decreased ($p < 0.05$) and skin hydration increased dramatically over time ($p < 0.05$). Electron micrographs showed that the skin barrier of all five dogs was partially restored ($p < 0.05$). In conclusion, these results demonstrated that moisturizer containing ceramide was effective for treating skin barrier dysfunction and CAD symptoms.

J.W. Choi, S.H. Kwon, C.H. Huh, K.C. Park, S.W. Youn, **The influences of skin visco-elasticity, hydration level and aging on the formation of wrinkles: a comprehensive and objective approach,** Skin Research & Technologie, 2013 Feb;19(1): p. 349-55

Background: Various skin parameters including skin visco-elasticity and hydration level affect the formation of wrinkles. Objective: The aim of this study was to investigate the comprehensive and objective relationship between age, skin visco-elasticity, hydration level, and the occurrence of wrinkles using bioengineering equipments for the first time. Methods: A total number of 97 healthy women were included in this study. Age, Fitzpatrick skin type, skin mechanical parameters obtained with Cutometer(R0~R9), hydration level measured with Corneometer, as well as wrinkle parameters (SEsm, SEr, SEsc, and SEw) assessed with Visioscan, were analyzed with the Pearson's correlation test. Results: The skin fluidity (R6) increased while the elastic recovery ratio (R7) decreased with the age. The wrinkle parameter (SEw) also increased with the age. The higher skin hysteresis values (R4 and R9) coincided with the higher SEw values. Skin hydration significantly lowered the hysteresis (R9), the wrinkles (SEw), and the depth of wrinkle furrows (R3mr). Conclusion: The elderly have less elastic skin and more wrinkles. Skin hysteresis most closely related with the degree of wrinkles. Drier skin showed more wrinkles and deeper furrows, with wider intervals. On the basis of these objective findings, we propose several skin parameters associated with wrinkles, and hypothesize the mechanism of wrinkle generation.

J. du Plessis, A. Stefaniak, F. Eloff, S. John, T. Agner, T.-C. Chou, R. Nixon, M. Steiner, A. Franken, I. Kudla, L. Holness, **International guidelines for the in vivo assessment of skin properties in non-clinical settings: Part 2. transepidermal water loss and skin hydration**, Skin Research and Technology 2013; 0:1-10

Background: There is an emerging perspective that it is not sufficient to just assess skin exposure to physical and chemical stressors in workplaces, but that it is also important to assess the condition, i.e. skin barrier function of the exposed skin at the time of exposure. The workplace environment, representing a non-clinical environment, can be highly variable and difficult to control, thereby presenting unique measurement challenges not typically encountered in clinical settings. Methods: An expert working group convened a workshop as part of the 5th International Conference on Occupational and Environmental Exposure of Skin to Chemicals (OEESC) to develop basic guidelines and best practices (based on existing clinical guidelines, published data, and own experiences) for the in vivo measurement of transepidermal water loss (TEWL) and skin hydration in non-clinical settings with specific reference to the workplace as a worst-case scenario.

M. Riedel, **Einfluss des Silikongels DERMATIX™ auf standarddiesierte, operative Narbenbildung am Thorax,** Disseration der Klinik für Hals-, Nasen- und Ohrenheilkunde und Plastische Operationen der Universität zu Lübeck, Januar 2013

Jeder invasive Eingriff, bei dem ein Hautschnitt durchgeführt wird, ist mit einer anschließenden Wundheilung und Narbenbildung verbunden. Nach wie vor stellt die minimalste Ausbildung und Ausprägung von Narben nach Eingriffen in der plastischrekonstruktiven Chirurgie eines der entscheidenden Erfolgskriterien, sowohl für den Patienten, als auch für den behandelnden Arzt dar. In diesem Teilbereich der Chirurgie steht für Patienten in vielen Fällen eine kosmetische Korrektur der als störend empfundenen Narbe im Vordergrund. Die Prävention und Therapie hypertropher, keloider oder kosmetisch unbefriedigender Narben ist eine aufwendige, langwierige und nicht selten unbefriedigende Prozedur.

G. Moro, P.-Y. Morvan, R. Vallée, **Perfecting properties of a marine exopolysaccharide**, Personal

Care January 2013

Perfect skin – new skin – skin as fresh and radiant as a baby's is achieved through a multi-faceted approach. Skin colour, shine, surface condition and texture are all factors which play a role. To respond effectively, a comprehensive strategy is needed; the three major skin functions must be rebooted: physical barrier function, chemical barrier function, and hydra memory function. This reboot involves readjustment of the four parameters of "good" skin health as innate immunity, skin renewal, chronic inflammation and rehydration.

M. Farwick, S. Klee-Laquai, **Skin-identical ceramide for enhanced skin care,** Personal Care January 2013

Skin is a highly complex tissue acting as a protector against physical, chemical and biological attack. It plays a crucial role in the protection against dehydration and the control of body temperature. This barricade is provided by the „horny layer" (stratum corneum [SC]), representing the outermost layer of epidermis. The horny layer is a thin inert, water-retaining barrier which both regulates the moisture content of the skin and protects it aganist external influences. Due to ist structure it is often compared to a brick wall in which the non-viable corneocytes are embedded like bricks in a matrix of lipids („mortar").

H.-B. Pyun, M. Kim, J. Park, Y. Sakai, N. Numata, J.-Y. Shin, H.-J. Shin, D.-U. Kim, J.-K. Hwang, **Effects of Collagen Tripeptide Supplement on Photoaging and Epidermal Skin Barrier in UVB-exposed Hairless Mice**, Prev Nutr Food Sci, Vol 17, p. 245–253 (2012)

Collagen tripeptide (CTP) is a functional food material with several biological effects such as improving dry skin and wound and bone fracture healing. This study focused on the anti-photoaging effects of CTP on a hairless mouse model. To evaluate the effects of CTP on UVB-induced skin wrinkle formation *in vivo*, the hairless mice were exposed to UVB radiation with oral administration of CTP for 14 weeks. Compared with the untreated UVB control group, mice treated with CTP showed significantly reduced wrinkle formation, skin thickening, and transepidermal water loss (TEWL). Skin hydration and hydroxyproline were increased in the CTP-treated group. Moreover, oral administration of CTP prevented UVB-induced MMP-3 and -13 activities as well as MMP-2 and -9 expressions. Oral administration of CTP increased skin elasticity and decreased abnormal elastic fiber formation. Erythema was also decreased in the CTP-treated group. Taken together, these results strongly suggest that CTP has potential as an anti-photoaging agent.

Jojoba Emollient Base, Floratech Product News, Cosmetics & Toiletries Vol. 127, No. 12/ December 2012

Floratech has introduced a botanically derived emollient base that delivers the human skin lipid profile of a healthy 22-year-old. L22 (INCI: Jojoba Oil/Macadamia Seed Oil Esters (and) Squalene (and) Phytosterols (and) Phytosteryl Macadamiate (and) Tocopherol) was shown to hydrate the skin. The company conducted a doubleblind, randomized clinical study of the emollient at 3% compared to olive oil and caprylic/capric triglyeride, all incorporated into different test lotions and applied on a panel of 12 healthy women ranging from 36 to 59 with dry lower legs.

Increased Skin Hydration with FLORAESTERS® 30 and FLORAESTERS K-100® Jojoba in a Shaving Cream, Poster Floratech 2012

Floraesters 30 and Floraesters K-100 Jojoba, alone and in combination, increased skin hydration over the vehicle which only included 1% aloe vera.

M. Estanqueiro, G. Bossolani, M.H. Amaral, J. Conceicao, D. Santos, J.M. Sousa Lobo, J.B. Silva, C.S.F. Gomes, **Characterizing and Evaluating the Effectiveness of Volcanic Pumice Exfoliants,** Cosmetics & Toiletries magazine Vol. 127, No. 11 November 2012

Human skin, more specifically facial skin, periodically needs a deep cleansing to remove not only the oily particles resulting from secretions, but also dead skin caused by desquamation of the epidermis. Cleansers are designed to remove dirt, sewat, sebum and oils from the skin, which helps to promote normal exfoliation and thereby rejuvenates the skin. However, the use of cleansers can lead to a reduction in the level of the natural moisturizing factor (NMF) of skin. Factors that reduce the water content can lead to changes in skin's viscoelasticity. Further, harsh cleansers such as soaps can induce dryness, leading to scaly and rough skin. These effects may be much more severe during winter months when the air is cold and dry.

L. Granato, **Modulator from fractions of vegetable unsaponifiables**, Personal Care, November 2012

Filagrinol is a clear Liposoluble active ingredient, composed of fractions of vegetable unsaponifiables, modulating filaggrin production, and carrying out a specific epidermal moisturizing action. Chemically, it is a combination predominantly existing of polyions from vegetable oil unsaponifiables (wheat germ, olives and soybean) and the lipid fraction of entomophilous pollen. Filagrinol is a clear yellow-amber liquid (T=20°C), with characteristic odour, soluble in lipid systems. It does not contain any preservative. Its INCI Name is: Pollen Extract, Glycine Soja (Soybean) Oil Unsaponifiables, Olea Europaea (Olive) Oil Unsaponifiable, Triticum Vulgare (Wheat) Germ Oil Unsaponifiables. In particular, referring to pollen, the one used in Filagrinol is not anemophilous but exclusively entomophilous; entomophilous Acacia Farnesiana (Real Acacia) Pollen Extract. Therefore, it has no allergy risk.

N. Waranuch, S. Maphanta, W. Wisuitiprot, **Effect of microparticles containing green tea extract on facial skin improvement,** ISBS Copenhagen 2012

To clinically evaluate an effectiveness of skin cream containing green tea extract loaded chitosan microparticles for facial wrikle treatment. Method: Tewnty-nine volunteers were randomly assigned to aplly skin cream containing 1% green tea extract loaded chitosan microparticles (GT-Cs) and a placebo cream on each of their half faces for 8 weeks. Skin elasticity was evaluated by using Cutometer and the photographs of each half faces were also compared. Skin moisture and skin irritation were determined by Corneometer and transepidermal water loss (TEWL) respectively.

L. Palma, L. Tavares, C. Monteiro, M.J. Bujan, L.M .Rodrigues, **Diet water seems to influence skin hydration and biomechanics,** ISBS Copenhagen 2012

The feeding habits of a given population were studied, specially regarding its daily regular water intake (dient and beverages) and tried to relate with those skin biometrical variables. This transversal study involved forty healthy volunteers, female, (mean 26,45 ◘ 7,95 y.o.), after informed written consent. All procedures respected Helsinky principles and respective amendments. A Feeding Frequency Questionnaire (FFQ) previously validated for the Portuguese population was applied. Transepidermal water loss (TEWL, Tewameter TM300), epidermal hydration (Corneometer CM825) and skin's biomechanics (Cutometer SEM575) were the cutaneous variables chosen.

L. Tavares, L. Palma, O. Santos, M.A. Almeida, M.J. Bujan, L.M. Rodrigues, **Looking for a global indicator of obese skin function,** ISBS Copenhagen 2012

The impairment of water balance and biomechanical behaviour of the skin seems to be consistently present in obesity, and probably related with most frequent signs and symptoms. The present work aimed to search for a global body mass index (BMI) related indicator for this functions. 51 female patients, aged between 20 and 46 (mean 29 ±7) years old, with no relevant pathologies except the overweight or obesity were involved. All procedures respected Helsinky principles and respective amendments. The Quetelet index (BMI) was calculated for each volunteer. Measurements took place under controlled conditions, in different anatomical areas (face; breast; and abdomen) and included skin hydration (Corneometer CM825), barrier function (Tewameter TM300) and biomechanical descriptors (Cutometer MPA580 and Reviscometer).

S. Mac-Mary, A. Elkhyat, J.M. Sainthillier, A. Jeudy, K. Perrot, S. Lafond, O. Predine, P. Mermet, C. Tarrit, P. Humbert, **Specific cosmetic for children: an in vivo randomized single-blind study of efficacy in 7- to 12-year-old children**, IFSCC 2012, 15-18 Oct. 2012, Sandton, South Africa

Few cosmetics are dedicated to the skin of children: most of them have been developed for babies or the acneic skin of adolescents. However, literature seems to indicate that the children's sebum levels are very low. The aim of this study was to assess the acceptability and efficacy of a cosmetic specifically formulated for the skin of prepubertal children.

D. Tamburic, I. Macijauskaite, R. Parton, S. Williams, **Assessing the efficacy of high-flavanol cocoa extract: does higher concentration work better?**, IFSCC 2012, 15-18 Oct. 2012, Sandton, South Africa

It is well documented that antioxidants have a range of positive effects on human skin. However, there is a problem with their delivery to the site of action, an issue shared with most topical actives. Due to their chemical nature, antioxidants are also inherently unstable ingredients.

P. Msika, W. Fluhr, N. Lachmann, C. Baudouin, C. de Belilovsky, **What are the differences in skin physiology in neonates and children of different age groups compared to adults? A randomized in vivo study**, IFSCC 2012, 15-18 Oct. 2012, Sandton, South Africa

The skin of neonates and children has anatomical and physiological differences to adults with respect to water content, and perspiration, light sensibility, percutaneous permeability, susceptibility to infections and irritants and topical treatments. The aim of the present study was to investigate non-invasivley physiologic skin paramenters (transepidermal water loss (TEWL), stratum corneum (SC) hydration, surface pH and the biochemical skin composition (water profile and bulk NMF) to characterize neonatal skin in comparison to different children age groups and adults.

C. Barba, L. Coderch, E. Fernandez, A. Semenzato, G. Baratto, J.L. Parra, **Protection and repairing skin effects of ceramide containing formulations,** IFSCC 2012, 15-18 Oct. 2012, Sandton, South Africa

Intercellular lipids of stratum corneum (SC) play a crucial role in keeping an optimal skin barrier function, regulating the water-holding capacity. Recent studies suggest that supplementing intercellular lipids of SC can stimulate the functioning of the skin. This work lends support to the reinforcement capacity and the repairing effect of different formulations, with the presence in all of them of the three main lipid families present in the SC, free fatty acids (FFA) cholesterol and ceramides. In particular, we compared the protection and repairing effects of the lipid mixture (creamide: cholesterol: FFA) solubilised in the oily phase of oil in water emulsions, dispersed as solid microparticles in a gel formulation, and as liposome solution.

M.V. Velasco, R. Vieira, F. Fialho-Pereira, A. Ferandes, I. Salgado-Santos, C. Pinto, C. Moraes, T. Kaneko, A. Baby, **Short-term clinical of peel-off facial mask moisturizers**, IFSCC 2012, 15-18 Oct. 2012, Sandton, South Africa

Facial masks have been used as cosmetic prepartations since antiquity. Today, their popular use is related their multifunctional characteristics. Peel-off facial masks, based on polyvinyl alcohol (PVA), are formulations that, after the application and drying, form an occlusive film over the face. Their effects may include cleaning and moisturizing of the skin; providing tautness; and removing dead cells, residues and other materials that was deposited on the stratum corneum. The soybean extract fermented by Bifidobacterium animalis has sugars, amino acids, peptides, proteins and free isoflavonoids in high concentrations, when compared to the unfermented extract, and it may provide benefits to the cosmetic formulations including anti-aging, moisturizing and tensor effects. Therefore, the aims of this study is: compare the efficacy of a peel-off facial mask, after its application and removal from the skin, with an oil-in-water (O/A) emulsion. The study was designed as a one-sided blind and randomized trial using three sites for application on each arm of the volunteers.

B. Martínez-Teipel, R. Armengol, E. Rubio, **Natural ppar$_\gamma$ agonist: from silico prediction to a real cosmetic active,** IFSCC 2012, 15-18 Oct. 2012, Sandton, South Africa

Peroxisome proliferator-activated receptors (PPARs) are ligand activated transcription factors that belong to the nuclear hormone superfamily. Three isoforms have been identified, PPAR □, - □/ □ and – □. PPAR □ is mainly expressed in adipose tissue and is a mediator of adipocyte differentiation and lipid metabolism. More recently, PPARs have been shown to regulate cell proliferation, differentiation and inflammatory responses in skin. In keratinocytes, PPAR □/ □ is the predominant subtype, whereas PPAR □ is induced during epidermal differentation. PPAR □ activators show promise for the treatment of inflammatory skin disease, such as atopic dermatits and psoriasis and have also been shown to increment involucrin and trans-glutaminase 1 levels in human keratinocyte cultures and loricrin, involucrin and filaggrin in vivo.

W. Voss, I. Bunge, **Dermatological Reports on Cosmetics: Intensions and Possibilities**, IFSCC 2012, 15-18 Oct. 2012, Sandton, South Africa

Dermatological reports and claims in accordance with scientific criteria are of decisive value for the safety and efficacy of cosmetics. Whether a cosmetic product is well tolerated or causes irritations or allergic reactions must be proven by dermatological tests. The value of dermatological reports directly depends on the respectability of the commissioned dermatologists. Pitfalls occur, whenever non qualified scientific results are generously used for advertising campains like “dermatologically tested”, “allergy tested”, “hypo-allergen” etc. Additionally a lot of reports are scientifically insufficient. Dermatological reports on cosmetics therefore must be valid in methodology and practical execution. With Dermatest you benefit from more than 30 years of testing experience and dermatological expertise.

O. Schlappack, **Einmal wohlfühlen, bitte!,** Beauty Forum 10/2012

Bei Frauen tritt ein bösartiger Tumor am häufigsten in der Brust auf. Etwa 50.000 erkranken jedes Jahr in Deutschland neu daran. Bei der Behandlung werden u.a. Chriurgie, Chemo-, Hormon- und

Strahlentherapie eingesetzt. Sie als Hautpflegeexpertin können durch bedürfnisgerechte Behandlungen und hilfreiche Beratung dazu beitragen, die Nebenwirkungen der Krebstherapie abzumildern.

C. Try, R. Messikh, A. Elkhyat, F. Aubin, P. Humbert, **Utilisation de oxybutynine a la posologie de 7,5 mg par jours dans le traitement des hyperhidroses primitives**, Rev Med Liège 2012; 67: 10: p. 520-526

Oxybutynin is being increasingly being prescribed in the treatment of hyperhidrosis but currently, there is no precise dosage for this treatment. Nine patients were treated for primary hyperhidrosis resistant to conventional therapies with oxybutynin between January to May 2010. The treatment was progressively increased at 7.5 mg per day. Oxybutynin efficacy was evaluated by iodine starch test and biometrological measurements at 2 and 4 weeks of treatment. Hyperhidrosis Disease Severity Scale (HDSS) and Dermatology Life Quality Index (DLQI) were obtained for each patient. The means of HDSS and DLQI were respectively 3.2 ± 0.7 and 17.0 ± 5.1 before treatment and were 1.8 ± 0.4 and 4.6 ± 4.4 at 4 weeks of treatment. Oxybutynin at 7.5 mg per day significantly decreased intensity and area of sweat for palms but not for soles. Trans Epidermal Water Loss, conductance, pH and Skin temperature were modified with treatment. Oxybutynin at 7.5 mg per day has improved patient's quality of life. Efficiency of oxybutynin in primary palmar hyperhidrosis was proved by biometrological measurements and iodine starch test. *(Article in French)*

Y.S. Shin, H.J. Kim, N.K. Moon, Y.H. Ahn, K.O. Kim, **The effects of uncoated paper on skin moisture and transepidermal water loss in bedridden patients**, J Clin Nurs. 2012 Sep; 21 (17-18): p. 2469-76

Aims and Objectives: The aims of this study were to measure skin moisture and transepidermal water loss after application of uncoated paper and to compare skin moisture and transepidermal water loss after use of uncoated paper and disposable underpads. Study Design: The study was a cross-over, prospective, open-labeled, randomized trial. Sample and Settings: Bedridden patients aged□18 years at a medical center in Korea were included. Treatment order was randomly assigned using block randomization, with a block size of 4 and an assignment rate of one-by-one. Methods: Skin moisture was measured using a Corneometer 825 and transepidermal water loss was measured using a Tewameter 300. Results: Skin moisture after application of an uncoated paper was significantly lower than observed after application of a disposable underpad (mean 40.6 and SD 13.1 vs. mean 64.6 and SD 23.7, $p<0.001$). Transepidermal water loss also showed greater health scores after using uncoated paper (mean 11.1 and SD 5.7 g/m2/hour) than after applying a disposable underpad (mean 23.2 and SD 11.1 g/m2 /hour, $p<0.001$). There were no statistical between-group differences in room temperature, relative humidity, and body temperature. Conclusion: We found that uncoated paper was helpful in avoiding excessive moisture without adverse effects. Relevance to Clinical Practice: As indicated by the results of this study, uncoated paper can be applied to bed-ridden patients who required incontinence care. Nurses may consider using uncoated paper as one of nursing methods in the routine care of bed-ridden patients for moisture control.

C. Schrammek-Drusio, **Fachfrau in Sachen Haut – die Kosmetikerin als Hautpflegetherapeutin,** natur & kosmetik, service, S. 39

Die Kosmetikerin von heute muss sich in Theorie und Praxis rund um das Thema Haut auskennen. Dafür spielt die fundierte und theorie- sowie fachorientierte Ausbildung und eine stetige Weiterbildung die größte Rolle. Ohne berufliche Fortbildung ist es auf Dauer unmöglich, zeitgerecht und marktorientiert zu arbeiten. Um die Haut der Kundinnen und Kunden für die kosmetische Kabinenbehandlung spezifisch zu bestimmen, liegt ein Schwerpunkt im richtigen erkennen der Hautgrundbilder und Hautzustände – die so genannte Profi-Hautanalyse. Noch immer werden Hauttypen und Hautgrundbilder häufig verwechselt.

C. Schrammek-Drusio, **Haut- und Gesichtsdiagnosen – eine Kernkompetenz jeder Kosmetikerin,** dermatologie, S. 32-33

Neben dem Dermatologen ist eine kompetente Kosmetikerin die Expertin in Sachen Hautpflege. Doch wodurch zeichnet sie sich aus? Selbstverständlich ist ein umfassendes theoretisches und praktisches Fachwissen erforderlich, komplettiert durch stetige Weiterbildung. Doch wenn Kunden ins Institut kommen, möchten sie auch schnelle Analyseergebnisse und Behandlungspläne erfahren. Grundlage hierfür ist die professionelle Hautdiagnose. Denn alle sich anschliessenden Fragen, etwa welche Produkte und Behandlungen in der Kabine angewendet werden, wie das individuelle Pflegekonzept aussehen soll und welche Präparate sich für die Heimpflege empfehlen, hängen von dem Ergebnis der Hautanalyse ab. Für die kosmetische Praxis bedeutet dies das Erkennen und Einordnen des Hautgrundbildes, des Hautzustandes und der Anomalien bzw. unerwünschten Hautveränderungen.

P. Kleesz, R. Darlenski, J.W. Fluhr, **Full-Body Skin Mapping for Six Biophysical Parameters: Baseline Values at 16 Anatomical Sites in 125 Human Subjects,** Skin Pharmacol Physiol 2012; 25; p. 25-33

The skin, as the outermost organ, protects against exogenous hazards (outside-in barrier) and prevents the loss of essential parts of the body (inside-out barrier). The epidermal barrier exerts several functions with specific morphological elements. Regional differences in skin functions are well known. The aim of the present study was to assess and compare skin physiological parameters in vivo at 16 anatomical sites: Barrier function in terms of transepidermal water loss (TEWL), stratum corneum (SC) hydration (assessed by capacitace), skin surface pH, skin surface temperature, erythema index and skin pigmentation were quantified at 16 anatomical sites under basal conditions.

S. de Spirt, H. Sies, H. Tronnier, U. Heinrich, **An Encapsulated Fruit and Vegetable Juice Concentrate Increases Skin Microcirculation in Healthy Women,** Skin Pharmacol Physiol 2012; 25: p. 2-8

Background/Aim: Microcirculation in the dermis of the skin is important for nutrient delivery to this tissue. In this study, the effects of a micronutrient concentrate (Juice Plus+; 'active group'), composed primarily of fruit and vegetable juice powder, on skin microcirculation and structure were compared to placebo. Study Design/Methods: This 12-week study had a monocentric, double-blind placebo and randomized controlled design with two treatment groups consisting of 26 healthy middle-aged women each. The 'oxygen to see' device was used to evaluate microcirculation. Skin density and thickness were measured using ultrasound. Measurements for skin hydration (Corneometer), transepidermal water loss and serum analysis for carotenoids and ¤-tocopherol were also performed. Results: By 12 weeks, microcirculation of the superficial plexus increased by 39%. Furthermore, skin hydration increased by 9% while skin thickness increased by 6% and skin density by 16% in the active group. In the placebo group, microcirculation decreased, and a slight increase in skin density was observed. Conclusion: Ingestion of a fruit- and vegetable-based concentrate increases microcirculation of the skin at 12 weeks of intervention and positively affects skin hydration, density and thickness.

A. Matsubara, **Differences in the surface and subsurface reflection characteristics of facial skin by age group,** Skin Research and Technology 2012, 18; p. 29-35

The Appearance of facial skin changes with age in various ways, and in most cases, it deteriorates as more imperfections, such as hyperpigmented spots, wrinkles, enlarged pores, or skin with a roughened texture, appear on the face. Changes in these skin attributes are obvisous and have been measured technically using objective methods, particularly those involving two- or three-dimensional imaging techniques. In Comparison with such obvious skin features, optical attributes of the skin such as radiance, glow, and shine are less tangible. The definitions of these consumer terminologies are not as clear as those for typical skin imperfections, and their connection to physical parameters is not fully established.

T.H. Sakuma, H.I. Maibach, **Oily Skin: An overview,** Skin Pharmacology and Physiology 2012, 25: p. 227-235

Abstract: Oily skin (seborrhea) is a common cosmetic problem that occurs when oversized sebaceous glands produce excessive amounts of sebum giving the appearance shiny and greasy skin. This paper overviews the main concepts of sebaceous gland anatomy and physiology, including the biosynthesis, storage and release of sebum, as well as its relationship to skin hydration and water barrier function. We also address how skin oiliness may vary according to diet, age, gender, ethnicity and hot humid climates. The deeper understanding of this skin type provides the opportunity to better guide patients regaring skin care and also assist in the development of sebosuppressive agents.

Z. Liu, S. Song, W. Luo, P.M. Elias, M.-Q. Man, **Sun-induced changes of stratum corneum hydration vary with age and gender in a normal Chinese population,** Skin Research and Technology 2012, 18: p. 22-28

Both Age and gender are determinants of cutaneous function. Besides the gender difference in the prevalence of some dermatoses cutaneous biophysical properties also vary with gender. Previsous studies have shown that stratum corneum hydration on the forehead is higher in males aged 13-35 than in age matched females. Regarding the gender difference in skin surface pH, the results are controversial. It have been reported that skin surface pH on the forearm and axilla is lower in females than in males while a higher skin surface pH is also observed in females. Nevertheless, these results suggest that skin surface pH varies with gender.

Hydromanil to improve skin moisture and anti-aging effect – clinical information, Créme de Vie

Product Information, www.cremedevie.com/hydromanil-clinical.htm

Hydromanil is composed of galactomannan hydrating molecules arranged in a three-dimensional matrix that retains galacto-manno-oligosaccharides. Galactomannans: They are large, high molecular weight polysaccharides selected on the basis of their natural hydrating function in the seed. They prevent the embryo from dehydration due to their high capacity to incorporate and retain water. Actually, they can incorporate up to 60% of the total water absorbed by the seed during the germination process. This is an adaptive response to its natural semi-arid environment. Their structure is composed of lineal mannose chains connected by glycosidic bonds with randomly distributed side chains consisting of galactose residues.

S. Ingeburg, A. Grieshaber, **Vergleichender Barrierefunktionstest mit Natrium-Laurylsulfat zur Einschätzung des Ekzemrisikos am Arbeitsplatz**, Klinik für Dermatologie, Venerologie und Allergologie

Berufskrankheiten im Bereich der Haut haben jährlich Kosten in Millionen Höhe zur Folge. Als Hauptrisiko für das Auftreten einer Hauterkrankung am Arbeitsplatz gilt eine anlagebedingte Bereitschaft gegen von außen einwirkende Substanzen eine Überempfindlichkeitsreaktion zu entwickeln. Ziel dieser Untersuchung war es, bei Atopikern und Nichtatopikern an klinisch gesunder Haut zwei unterschiedliche Testmethoden zur Einschätzung des individuellen Ekzemrisikos im Feuchtberuf zu vergleichen. Zur Barrierefunktionstestung wurden zum einen der repetitive Waschtest und zum anderen der Okklusivtest herangezogen. Bei beiden Testverfahren wurde Natrium-Laurylsulfat als Waschlösung verwendet. Der repetitive Waschtest, welcher derzeit das Standardverfahren zur Testung des individuellen Ekzemrisikos darstellt, erfolgte mehrfach täglich am Unterarm unter definierten Bedingungen über vierzehn Tage. Für den Okklusivtest wurde Natrium-Laurylsulfat am Oberarm in fünf verschiedenen Konzentrationen sowie destilliertes Wasser als Kontrollfeld über achtundvierzig Stunden aufgetragen.

K. Fritz, **Skin physiologic changes before and after laser treatment**, IMCAS, Congress of Plastic Surgery and Dermatoloy, Lecture number: 5462

The aim of the study was to compare the changes of the biophysical properties and to objectify the effects of treatments with various lasers on skin phsiology. Few studies have been reported to compare the effects of various lasers on the skin physiology wich could result in a customized skin care post treatment recommendation. The recent development of various biophysical devices has made it possible to have more accurate and objective assessment methods. The functional properties of the skin are measured by utilizing non invasive techniques, including the assessments for, skin color, trans-epidermal water loss (TEWL) and skin hydration and ph (Courage and Khazaka).

A. Firooz, B. Sadr, S. Babakoohi, M. Sarraf-Yazdy, F. Fanian, A. Kazerouni-Timsar, M. Nassiri-Kashani, M.M. Naghizadeh, Y. Dowlati, **Variation of Biophysical Parameters of the Skin with Age, Gender, and Body Region,** The Scientific World Journal, Volume 2012

Background: Understanding the physiological, chemical, and biophysical characteristics of the skin helps us to arrange a proper approach to the management of skin diseases. Objective: The aim of this study was to measure 6 biophysical characteristics of normal skin (sebum content, hydration, transepidermal water loss (TEWL), erythema index, melanin index, and elasticity) in a normal population and assess the effect of sex, age, and body location on them. Methods: Fifty healthy volunteers in 5 age groups (5 males and females in each) were enrolled in this study. A multifunctional skin physiology monitor (Courage & Khazaka electronic GmbH, Germany) was used to measure skin sebum content, hydration, TEWL, erythema index, melanin index, and elasticity in 8 different locations of the body. Results: There were significant differences between the hydration, melanin index, and elasticity of different age groups. Regarding the locations, forehead had the highest melanin index, where as palm had the lowest value. The mean values of erythema index and melanin index and TEWL were significantly higher in males and anatomic location was a significant independent factor for all of 6 measured parameters. Conclusion: Several biophysical properties of the skin vary among different gender, age groups, and body locations.

I. Ibrahiin, W.S. Khan, S. Dheerendra, P. Smitham, N. Goddard, **A Novel Method of Diagnosing Autonomic Dysfunction in Carpal Tunnel Syndrome: Measuring Skin Capacitance**, TraumMologia Rehabilltacja, 2012. 5(6); Vol. 14, p. 429-433

Background: Carpal Tunnel Syndrome (CTS) is normally diagnosed via its sensory' and motor manifestations. The associated autonomic dysfunction has not been exploited to its Full potential as a diagnostic tool due to the difficulties in quantifying it. We aim to demonstrate that autonomic dysfunction of CTS can be quantified by measuring skin capacitance. Material and methods: Fifty-one patients with

clinical signs and elcctrophysiological evidence of C I S in 89 hands were recruited. Skin capacitance was measured using Comeometer CM 825 (C&K Electronic, GmbH) from the palmar aspect of the distal phalanx of the index and little linger of the affected hand. Healthy genderand age-matched individuals were recruited as controls. Results. The mean ratio of hydration of the index to the little linger was 0.82. The mean difference was 10.98 arbitrary units. The control group consisted of 151 subjects (80 Male & 71 Fctnalc) and 302 hands with an average age of 40.1 years (18-81 years). The mean ratio of hydration of the index to the little linger was 0 87. The mean difference was 8.67 arbitrary units. The measurement ratios (index to little linger skin hydration) between the two groups was compared directly and gave a significant mean difference of 0.05 arbitrary units. Conclusions: 1. Statistically significant differences in skin capacitance between CTS patients and controls have been demonstrated and quantified using a rapid and simple method. 2. This can be used in clinic to reduce the reliance on Nerve Conduction Studies for diagnosing CTS.

C. Lv, S. Song, W. Luo, P.M. Elias, M.Q. Man, **Cutaneous resonance running time is decreased in psoriatic lesions,** Skin Research & Technology, 2012 May;18(2): p. 232-7

Background: Psoriasis is characterized by lower stratum corneum (SC) hydration and dermal inflammation. Both SC hydration and cutaneous inflammation influence cutaneous resonance running time (CRRT). However, the characteristics of CRRT in psoriatic lesions are largely unknown. Methods: In the present study, we assessed whether changes in CRRT occur in psoriatic lesions in Chinese. A Reviscometer RVM600 and Corneometer CM 825 were used to measure CRRTs and SC hydration, respectively, in psoriatic lesions (psoriasis vulgaris) on the extensor of forearm in 111 subjects (58 men, 53 women), aged 23-80 years (50.42 ± 1.23 years). The contralateral uninvolved sites served as control. Results: In comparison with contralateral uninvolved sites, CRRTs in psoriatic lesions were reduced significantly in all directions. There was neither gender nor age difference in the extent of reduction in CRRTs. However, the reduction of CRRTs varied with measurement directions. Positive correlations of SC hydration with CRRTs were found at some directions in uninvolved and involved sites in young men whereas CRRTs in psoriatic lesions were not correlated with SC hydration in either aged or young women. Moreover, CRRT at 0-6 o'clock direction was positively correlated with SC hydration in involved sites of aged men. Conclusion: Cutaneous resonance running times are decreased in psoriatic lesions. Reduction of CRRTs varies with measurement directions, but not gender or age. Measurement of CRRTs could be another valuable approach to assess the severity of psoriasis and the efficacy of its treatment.

J. Djokic-Gallagher, P. Rosher, J. Walker, V. Hart, **Objective and subjective in vivo comparison of two emollient products,** Clinical, Cosmetic and Investigational Dermatology 2012:5 p. 85–91

Background: Few studies have directly compared the effectiveness of different emollients in vivo, and the important matter of patient preference is generally overlooked. Methods: We report the results of an assessor-blinded, bilateral, concurrent comparison of two emollient pharmaceutical presentations, ie, Doublebase gel (DB) and Aqueous cream BP (AC), applied by 20 participants three times daily for 7 consecutive days. The primaryeffcacy endpoint was cumulative improvement in skin hydration measured by corneometry on days 1, 3, and 5 immediately before the frst application and approximately 2 hours after the third application of the day. Secondary endpoints were investigator assessment of skin condition at these time points and participant assessment of product acceptability at the end of the study. Results: Both products increased skin hydration, but the effect of AC was relatively modest, with morning values readily returning to pretreatment levels. Hydration levels were higher for DB gel, maintained at all time points, and showed stepwise, cumulative increases over the 7 days of use. Overall patient satisfaction scores were higher for DB gel, and especially for “consistency,” “ease of use,” and “ease of absorption into the skin.” Eighty-fve percent of participants expressed a desire to use DB gel again as compared with 40% for AC.

SARISE BIO – Eine 100% natürliche Anti-Aging-Innovation, impag Produkt Information**,** COSSMA 4/2012

SARISE BIO ist ein innovativer, 100% natürlicher Anti-Aging-Wirkstoff, ECOCERT-zertifiziert und frei von Konservierungsmitteln. Der Phytokomplex wird aus den Stielen der Sauerkirsche und den Blättern des Sommerbohnenkrautes gewonnen. Reduzierter Zellmetabolismus und oxidativer Stress sind die beiden Hauptursachen der Zellalterung. SARISE BIO ist in der Lage, gegen diese beiden Auslöser anzukämpfen. Die Wirkung wurde in klinischen Studien bestätigt. Durch eine spezielle Produktionsmethode enthält SARISE BIO einen hohen Gehalt an aktiven Molekülen wie Triterpenoide (Ursolsäure), Rosmarinsäure und Flavonoide (Quercetin). SARISE BIO neutralisiert direkt reaktive Sauerstoffspezies (ROS). Durch die Stimulation der mitochondrialen Aktivität und die dadurch bedingte

Reduktion von intrazellulärem oxidativem Strss, besitzt der Wirkstoff einen zusätzlichen positivien Effekt.

M. Borlu, Z. Karaca, H. Yildiz, F. Tanriverdi, B. Demirel, G. Elbuken, I. Cakir, H.S. Dokmetas, R. Colak, K. Unluhizarci, F. Kelestimur, **Acromegaly is associated with decreased skin transepidermal water loss and temperature, and increased skin pH and sebum secretion partially reversible after treatment,** Growth Horm IGF Res. 2012 Apr;22(2): p. 82-6

Background: Acromegaly is characterized by an acquired progressive somatic disfigurement, mainly involving the face and extremities, besides many other organ involvement. Wet and oily skin was described in acromegaly patients and it was attributed to hyperhidrosis and increased sebum production but this suggestion has not been evaluated with reliable methods. Objective: The aim of this study was to examine the skin parameters of patients with acromegaly using measurements of skin hydration, sebum content, transepidermal water loss, pH and temperature and particularly the effects of 12 months of treatment on these parameters. Methods: 52 patients with acromegaly and 24 healthy control subjects were included in this two blinded prospective study. Skin properties were measured on forehead and forearm by Corneometer CM825, Sebumeter SM810, Tewameter TM210 and Phmeter PH900 as non-invasive reliable measuring methods. Serum GH, IGF-1 and all measurements of skin properties on forehead and forearm were repeated at the end of the 3, and 6 months of therapy in 20 cases. Patients were treated with appropriate replacement therapy for deficient pituitary hormones. Results: The sebum content and pH of the skin of acromegalic patients were significantly higher and transepidermal water loss and skin temperature were found to be significantly lower in acromegalic patients when compared to the control group both on forehead and forearm. GH and IGF-1 levels were positively correlated with sebum levels and negatively correlated with skin temperature on both forehead and forearm. The sebum levels of the patients were significantly decreased both on forehead and forearm at 3rd and 6th months of treatment. Conclusion: The present study demonstrated increased sebum secretion, decreased transepidermal water loss, alkali and hypothermic skin surface in patients with acromegaly by reliable methods for the first time. These data suggest that GH and/or IGF-I may have a modulatory role on several skin characteristics which can be at least partially reversible with treatment.

S.H. Kim, S.H. Hwang, S.K. Hong, J.K. Seo, H.S. Sung, S.W. Park, J.H. Shin, **The Clinical Efficacy, Safety and Functionality of Anion Textile in the Treatment of Atopic Dermatitis,** Ann Dermatol, Vol. 24, No. 4, 2012 p. 438**-**443

Background: Several previous studies have suggested the improvement of atopic dermatitis (AD) in response to special fabrics. In particular, beneficial effects have been reported, following the use of anion textiles. Objective: The purpose of this study is to evaluate the effectiveness and safety of an anion textile in patients suffering from AD. Methods: We compared an anion textile with a pure cotton textile. Fifty-two atopic patients (n=52) were enrolled and divided into two groups. The patients in the test (n=25) and control (n=19) groups wore undergarments made of an anion textile or pure cotton over a period of 4 weeks. The overall severity of disease was evaluated using the SCORing atopic dermatitis (SCORAD) index, whereas, the treatment efficacy was measured using a Tewameter® (Courage & Khazaka, Cologne, Germany), Mexameter® (Courage & Khazaka) and Corneometer® (Courage & Khazaka). Results: At the end of the study, a significant decrease in the SCORAD index was observed among the patients with AD in the test group (mean SCORAD decreased from 47.2 to 36.1). Similarly, improvements in the mean transepidermal water loss, skin erythema and stratum corneum hydration were significantly greater among the patients with AD in the test group than in the control group. Conclusion: Anion textiles may be used to significantly improve the objective and subjective symptoms of AD, and are similar in terms of comfort to cotton textiles. The use of anion textiles may be beneficial in the management of patients with AD.

H.J. Park, Y.W. Lee, Y.B. Choe, K.J. Ahn, **Skin Characteristics in Patients with Pityriasis Versicolor Using Non-Invasive Method, MPA5**, Ann Dermatol Vol. 24, No. 4, 2012

Background: Skin pigmentary changes of pityriasis versicolor may occur as either hyperpigmented or hypopigmented lesions, depending on the outcome of interactions between *Malassezia* yeasts and the skin, such as lipoperoxidation process, stimulus of inflammatory cell to melanocytes, and increased thickness of keratin layer. Objective: To investigate skin characteristic factors that enhance the susceptibility to *Malassezia* yeasts and provoke different color changes of pityriasis versicolor patients. Methods: To clarify these factors, we investigated the skin characteristics of pityriasis versicolor patients, using a non-invasive method known as MPA 5® (Courage and Khazaka, Germany). A total of 90 normal healthy subjects and 30 pityriasis versicolor patients were included in this study. Results: Both hyperpigmented and hypopigmented pityriasis versicolor skin lesions showed higher humidity, increased sebum excretion rate and increased transepidermal water loss (TEWL)

values than normal healthy subjects. But no significant difference of specific *Malassezia* yeasts species between hyperpigmented and hypopigmented skin lesions was evident. Conclusion: These results indicate that higher humidity and increased sebum level provide a better growing environment of *Malassezia* yeasts in the skin, leading to the assumption that interaction between *Malassezia* yeasts and skin barrier materials makes disruption of skin barrier causing increased TEWL.

J. Gallagher, J. Walker, P. Rosher, V. Hart, **An in vivo comparison of two commercially available topical emollients in the UK, DELP gel and DIPC cream**, JAAD, April 2012, Volume 66, Issue 4, Supplement 1, p. AB68

Prevailing expert medical advice is that dermatology patients should apply their emmolients frequently.

Marine ingredients focus: a look at marine products, Personal Care, April 2012

The sea holds a huge amount of power and influence in the minds of humans. At once mysterious, alluring and terrifying, Earth's oceans also represent the birthplace of all life, both plant and animal, and are increasingly becoming a rich source of medical and personal care ingredients. In personal care, the popularity of marine-derived cosmetic ingredients is not only due to their efficacy, but also the connotations they come with. Consumers associate the sea with purity and freshness, two extremely important characteristics for personal care products, and skin care in particular. This is a deeply-ingrained association that has lead people to use sea flora as a skin care ingredient for many centuries as well as in soap, cleansers, and more recently shaving foams and shampoos.

C.P. Bogerd, R. Niedermann, P.A. Brühwiler, R.M. Rossi, **The Effect of Two Sock Fabrics on Perception and Physiological Parameters Associated with Blister Incidence: A Field Study,** Ann. Occup. Hyg., Vol. 56, No. 4, p. 481–488, 2012

The goal of the present study was to investigate differences in perception and skin hydration at the foot of two sock fabrics with distinct moisture properties in a realistic military setting. Thirty-seven military recruits wore two different socks (PP: 99.6% polypropylene and 0.4% elastane, and BLEND: 50% Merino-wool, 33% polypropylene, and 17% polyamide), one on each foot. Measurements were carried out after a daily 6.5-km march on 4 days. Each participant rated temperature, dampness, friction, and comfort for each foot. On a daily selection of participants, skin hydration was measured on three sites of both feet using a corneometer, and moisture content of the socks was determined. BLEND was rated to be cooler, less damp, and more comfortable ($P < 0.05$). Two out of three skin sites were drier for BLEND than PP ($P < 0.05$). Moreover, BLEND stored 2.9 *6* 0.3 times more moisture compared to PP. Thus, under the present conditions, socks such as BLEND are to be preferred over polypropylene socks.

M. Mateu, C. Davi, E. Canadas, A. Soley, R. Delgado, **Effective ingredients from marine biotechnology,** Personal Care, April 2012, p. 53-57

Cosmetic scientists are developing new ways to identify new natural sources, which enable innovative compounds with excellent cosmetic properties such as firming, restructuring, moisturising or anti-wrinkles. Biotechnology encompasses the use of microoranisms to come up with novel active ingredients that fulfil two of the demands that are leading trends in the cosmetic industry: natural and sustainable. Besides, complex molecules can be obtained, which otherwise would be impossible due to technical or economic limitations. Our approach is to take advantage of biotechnology to develop cosmetic ingredients which are naturally occurring in non-genetically modified organisms, through sustainable production while preserving the invironment, since there is no harvesting nor extracting from nature.

N. Gerlach, M. Herling, U. Heinrich, H. Tronnier, **Kosmetisch-dermatologische Wirksamkeit und Verträglichkeit einer Dexpanthenol-haltigen Fußcreme,** Kosmetische Medizin 3.12

Mit der Dexpanthenol-haltigen Fußcreme steht eine Fußpflege zur Verfügung, die zur Pflege der trockenen und empfindlichen Haut entwickelt worden ist. Sie zeichnet sich durch eine sehr gute feuchtigkeitsanreichernde Wirkung aus und trägt gleichzeitig zu einer Stabilisierung der Hautbarriere bei. Durch die pflegenden Eigenschaften konnten die Hautrauigkeit und Hautschuppigkeit deutlich gemildert werden und eine übermäßige Hornhaut wurde reduziert. Die pflegenden Eigenschaften, die gute Wirksamkeit und sehr gute Verträglichekeit der Dexpanthenol-haltigen Fußcreme spiegelten sich in der hohen Zufriedenheit und Akzeptanz der Probanden wieder.

J. Viladot, A. Fernández-Botello, S. Méndez, N. Alminana, J. Cebrián, **New delivery system for fast release of cosmetic actives from fabrics to the skin,** IFSCC Magazine, No. 3, 2012

We live in a period of increasing consumer demand for textile products with improved performance and new properties, both in the “traditional” clothing and home textile areas. Accordingly, research on functional textiles has experienced a significant increase [2-4], for example, in the medical [4], personal protection [5] and anti-microbial activity areas [6]. The result of this research has been the appearance of a “cosmetotextile” concept that entails imparting cosmetic properties to textile materials [7] by anchoring actives to fabric. Typically, actives are not anchored as such but vectorized by microcapsules obtained by different techniques such as in situ polymerization reactions. However, reaction conditions for polymerization may eventually modify the chemical structure of the active, causing a loss efficacy.

T. Oliphant, R.A. Harper, **Advantages of jojoba esters in nonwovens,** Personal Care, February 2012, p. 94–96

Jojoba (Simmondsia chinensis) is a perennial shrub most commonly found in Arizona, California, and Northwestern Mexico. Jojoba seed oil, the oil produced by this plant, is a wax ester that has been used in the past as a folk remedy for renal colic, sunburn, chaffed skin, hair loss, headache, wounds, sore throats, prosiasis, and acne (e.g., sulfurised jojoba) The ester is composed of long-chain linear fatty alcohols, 20 to 24 carbons in length and long-chain linear fatty acids, 18 to 22 carbons in length. Nearly all of the acid and alcohol moieties are 9-mono-unsaturated. Hydrolysis of this wax ester produces a very unique ingredient that can be used in various commercial cosmetic and personal care formulations such as creams, body washes, hand sanitisers, and multiple nonwoven wipe applications.

Y. Matsunaga, S. Fujiwara, Y. Mori, A. Miyake, H. Yamanishi, M. Kage, Y. Tokudome, F. Hashimoto, T. Hariya, **Development of Self-dissolving Microneedles Consisting of Hyaluronic Acid as an Anti-Wrinkle Treatment,** IFSCC Magazine 2, 2012

Microneedle technology has recently attracted considerable attention in the medical field as a means of facilitating effective transdermal delivery of vaccines and other pharmaceutical compounds with minimal invasiveness, little pain and a high degree of safety. Generally, microneedles typically consist of multiple micro-projections made of silicon, metal or polymeric materials through which a drug can diffuse in to the skin. Delivery using solid or hollow microneedles can be accomplished by piercing the skin and then applying active agents to the permeabilized skin, coating or encapsulating agents on microneedles for rapid dissolution and release in the skin.

Y. Lee, Y.-J. Je, S.-S. Lee, Z.J. Li, D.-K. Choi, Y.-B. Kwon, K.-C. Sohn, M. Im, Y.J. Seo, J.H. Lee, **Changes in Transepidermal Water Loss and Skin Hydration according to Expression of Aquaporin-3 in Psoriasis,** Ann. Dermatol. Vol. 24, No. 2, 2012, p. 168-174

Background: Aquaporins (AQPs) are a family of water transporting proteins present in many mammalian epithelial and endothelial cell types. Among the AQPs, AQP3 is known to be a water/glycerol transporter expressed in human skin. Objective: The relationship between the expression level of AQP3 and transpidermal water loss (TEWL) in the lesional and peri-lesional skin of psoriasis-affected patients, and skin hydration in the lesional and peri-lesional skin of psoriasis patients, was investigated. Methods: The expression of AQP3 in psoriasis-affected and healthy control skin was determined using immunohistochemical and immunofluroscence staining. TEWL and skin hydration were measured using a Tewameter® TM210 (Courage & Khazaka, Cologne, Germany) and a Corneometer® CM 820 (Courage & Khazaka), respectively. Results: AQP3 was mainly expressed in the plasma membrane of stratum corneum and the stratum spinosum in normal epidermis. Unlike the normal epidermis, AQP3 showed decreased expression in the lesional and peri-lesional epidermis of psoriasis. TEWL was increased, and skin hydration was decreased, in the lesional and peri-lesional skin of psoriasis patients, compared with the healthy control sample. Conclusion: Although various fac tors contribute to reduced skin hydration in the lesional and peri-lesional skin of psoriasis, AQP3 appears to be a key factor in the skin dehydration of psoriasis-affected skin.

L.H. Kircik, **Transepidermal water loss (TEWL) and corneometry with hydrogel vehicle in the treatment of atopic dermatitis: a randomized, investigator-blind pilot study,** J Drugs Dermatol, 2012 Feb;11(2): p. 180-184

Disruption of the epidermal barrier, as indicated by a reduction in skin hydration and an increase in transepidermal water loss (TEWL) is a feature of atopic dermatitis (AD). Novel formulations of dermatologic therapies may enhance patient satisfaction and adherence and may possibly preserve and enhance epidermal barrier function. A single-center, investigator-blinded, randomized, split-body exploratory study was undertaken to assess the hydrating and barrier preserving effects of a water-based hydrogel vehicle. Subjects (n=20) with mild to moderate disease at baseline applied hydrogel vehicle or a moisturizing lotion (Eucerin Lotion®, Beiersdorf, Inc.) in a split-body fashion for two weeks.

Corneometry and TEWL measurements were taken at baseline and week 2. Hydrogel vehicle produced a statistically significant improvement in skin hydration from baseline, as compared to a moisturizing lotion control. Hydrogel produced no statistically significant change in TEWL, while comparator lotion increased TEWL. Data from this pilot study indicate that the water-based hydrogel vehicle improves skin hydration and does not further impair epidermal barrier function, suggesting that it is an appropriate vehicle choice for patients with mild-to-moderate atopic dermatitis.

A.M. Hug, T Schmidts, J. Kuhlmann, D. Segger, G. Fotopoulos, J. Heinzerling, **Skin hydration and cooling effect produced by the Voltaren® vehicle gel**, Skin Research and Technology 2012; 18: p. 199–206

Background: Voltaren vehicle gel is the carrier substance of the topical Voltaren products. This vehicle gel is especially formulated to be easily applied on the skin, while providing some sensory benefits. The present study aims to substantiate the widely perceived hydrating and cooling effect of Voltaren vehicle gel. Methods: Volar forearm skin hydration and transepidermal water loss (TEWL) were measured and user satisfaction was evaluated by questionnaires, after application in 31 healthy, female volunteers. The cooling effect was investigated for 40 min with thermal imaging on 12 forearm sites of six healthy subjects. Results: Voltaren vehicle gel application increased skin hydration by 13.1% (P = 0.0002) when compared with the untreated site, 8 h after the final treatment after 2 weeks. TEWL decreased on both treated (0.37 g/m2/h) and untreated (0.74 g/m2/h) forearm sites after 2 weeks (8 h after last treatment), demonstrating a relative increase of 6.5% in water loss. Voltaren vehicle gel application resulted in a rapid reduction of skin surface temperature by 5.1°C after only 3 min with an average maximum reduction of 5.8°C after 10 min. The cooling effect was experienced by 94% subjects, while 74% felt that their skin became softer. No adverse events, including skin irritation, were reported during the study and by the 37 participants. Conclusion: This study showed a statistically significant increase in skin hydration as well as a rapid cooling effect lasting approximately 30 min, after application of Voltaren vehicle gel. The small relative increase in water loss may be attributed to an additional skin surface water loss secondary to the increased water content brought into the skin by the Voltaren vehicle gel. The use did not induce any skin irritation and was found acceptable to use by the majority of participants.

A. Manosroi, R. Chutoprapat, M. Abe, W. Manosroi, J. Manosroi, **Anti-aging efficacy of topical formulations containing niosomes entrapped with rice bran bioactive compounds**, Pharm Biol. 2012 Feb;50(2): p. 208-224

Context: Rice [Oryza sativa L. (Gramineae)] bran is a rich source of phytochemicals. Its oil also contains several bioactive components that exhibit antioxidative properties such as ferulic acid (F), γ-oryzanol (O), and phytic acid (P) which can be a new source of cosmetic raw materials. Objective: To evaluate the anti-aging effects of the gel and cream containing niosomes entrapped with the rice bran bioactive compounds. Materials and Methods: The semi-purified rice bran extracts containing F, O, and P which indicated the growth stimulation of human fibroblasts and the inhibition of MMP-2 by sulforhodamine B and gelatin zymography, respectively, were entrapped in niosomes by supercritical carbon dioxide fluid (scCO(2)) and incorporated in gel and cream formulations. The skin hydration, elasticity, thickness and roughness, and pigmentation in human volunteers after treated with these gel and creams were investigated by corneometer, cutometer, visiometer, and mexameter, respectively. Results: Gel and cream containing the semi-purified rice bran extracts entrapped in niosomes gave no sign of erythema and edema detected within 72 h on the shaved rabbit skin by the closed patch test investigated by mexameter and visual observation, respectively. These formulations also demonstrated higher hydration enhancement and improvement of skin lightening, thickness, roughness, and elasticity on the skin of 30 human volunteers within the 28-day treatment not more than 9, 27, 7, 3, and 3 times, respectively. Discussion and Conclusions: The formulations containing niosomes entrapped with the rice bran bioactive compounds gave superior clinical anti-aging activity which can be applied as a novel skin product.

J.W. Fluhr, S. Sassning, O. Lademann, M.E. Darvin, S. Schanzer, A. Kramer, H. Richter, W. Sterry, J. Lademann, **In vivo skin treatment with tissue-tolerable plasma influences skin physiology and antioxidant profile in human stratum corneum**, Exp Dermatol. 2012 Feb; 21(2): p. 130-4

The antimicrobial treatment of wounds is still a major problem. Tissue-tolerable electrical plasma (TTP) is a new approach for topical microbial disinfection of the skin surface. The aim of the present study was to investigate the influence of TTP on a carotenoid profile in relation to skin physiology parameters (epidermal barrier function, stratum corneum (SC) hydration, surface temperature and irritation parameters). We were interested in the interaction of TTP and the antioxidative network, as well as the consequences for skin physiology parameters. These parameters are also indicative of TTP

safety in vivo. For plasma application, 'Kinpen 09' was used (surface exposure 30-43°C) for 3 s. Beta-carotene and water profiles were assessed by in vivo Raman microspectroscopy (skin composition analyzer 3510). Skin physiology parameters were measured with Tewameter TM 300, Corneometer CM 825, skin thermometer and Chromameter CR 300. All parameters were assessed non-invasively on seven healthy volunteers before and after plasma application in vivo. We could show that TTP application leads to a decrease in beta-carotene especially in the superficial SC. Skin-surface temperature increased by 1.74°C, while the transepidermal water loss (TEWL) increase indicated an impaired barrier function. SC hydration decreased as seen in water profile especially in the superficial layers and capacitance values. A slight increase in skin redness was measurable. The induction of reactive oxygen species is probably the major contributor of TTP efficacy in skin disinfection. Skin physiology parameters were influenced without damaging the skin or skin functions, indicating the safety of TTP under in vivo conditions.

Y. Haruta-Ono, H. Ueno, N. Ueda, K. Kato, T. Yoshioka, **Investigation into the dosage of dietary sphingomyelin concentrate in relation to the improvement of epidermal function in hairless mice**, Anim Sci J. 2012 Feb;83(2): p. 178-83

We previously found that dietary sphingomyelin (SPM) concentrate from bovine milk improved epidermalfunction. In this study, we investigated the dosage of dietary SPM concentrate from bovine milk in relation to the improvement of epidermal function. Thirteen-week-old hairless male mice were separated into four experimental groups, each fed one of four types of experimental diet: the control group, the low SPM group, the medium SPM group and the high SPM group. The mice were each fed the experimental diet for 6 weeks. The stratum corneum hydration and the transepidermal water loss (TEWL) were measured using a Corneometer and a Tewameter at 3 weeks and 6 weeks. After the feeding period, ceramides in the stratum corneum were analyzed. We found that the stratum corneum hydration in all the SPM groups was significantly higher than that in the control group, whereas TEWL in all the SPM groups was significantly lower than that in the control group. Ceramides increased significantly in mice fed the medium SPM diet and statistically tended to increase in mice fed the high SPM diet. Our results indicate that a daily intake of 17 mg SPM concentrate is enough to improve epidermal function in hairless mice.

A.-E. Craciun, M. Moldovan, A. Rusu, C. Nita, C. Craciun, A. Tataru, **Predictors of changes in physical properties of skin in patients with diabetes mellitus,** Rom J Diabetes Nutr Metab Dis. 19(1):33-40; 2012

Introduction: The skin, the largest human organ, is often affected by diabetes mellitus (DM). We know that DM affects the hydration of stratum corneum (SC), the sebum content of the skin and to some extent, the barrier function of the epidermis and elasticity, but we do not know the factors leading to these changes. Objectives: The objectives of this study were to determine the factors associated with changes in physical properties of the skin (skin hydration degree, sebumetry, transepidermal water loss and skin elasticity) in patients with diabetes. Materials and methods: The physical properties of the skin were assessed using the Multi Probe Adapter Systems MPA (Courage-Khazaka, Germany) in 57 patients with diabetes and 46 non-diabetic.

M. Yamaguchi, H. Nishimiya, **Noninvasive Evaluation of the Chronic Influence of Local Air Velocity from an Air Conditioner Using Salivary Cortisol and Skin Caspase-14 as Biomarkers of Psychosomatic and Environmental Stress**, The Journal of International Medical Research, 2012; 40: p. 1429 – 1437

Objective: To demonstrate the possibility of evaluating the chronic influence oflocal air velocity from an air conditionerusing noninvasive biomarkers. Methods: Over a consecutive 5-day period, 16 healthy young male adults were exposed to air flow from a whole ceilingtype air conditioner (low local air velocity) and from a commercial concentrated exhaust air conditioner (high local air velocity). Salivary cortisol was used as an index of the psychological effects and caspase-14, collected from the stratum corneum, was used as a marker of environmental stress on the skin. Results: Local air velocity generated from the whole ceiling-type air conditioner where the subject's head was positioned was one-seventh that of the exhaust air conditioner. After exposure to the exhaust air conditioner for 5 days, salivary cortisol decreased significantly from morning to evening and skin caspase-14 gradually increased during the day. A significant increase in hydration index from the morning to the evening was found with the whole ceiling-type air conditioner. Conclusion: The effects of chronic exposure to air movement generated by an air conditioner may be quantified by measurement of salivary cortisol and skin caspase-14.

B.A. Khan, N. Akhtar, K. Waseem, T. Mahmood, A. Rasul, M. Iqbal, S.-U. Zaman, **Visio Scan® VC98,**

Corneometer MPA 5 and Tewameter MPA 5, African Journal of Pharmacie and Pharmatologie Vol. 6(3), p. 225-227, 22 January, 2012

Human skin is the largest exposed area of our body. There are number of physiological changes which may occur in response to internal or external sources. Biophysical techniques have been extensively employed to study any changes in human skin physiology. Usually these bioengineering techniques are equipped with non-invasive probes. Visioscan, Corneometer and Tewameter are the most widely used techniques in the characterization parameters of skin physiology, like skin hydration, transepidermal water loss and skin wrinkles. This research covers all aspects of these parameters, in skin analysis.

A. Costa, L. Lindmark, L.H. Fávaro Arruda, E. Cancio Assumpção, F. Sayuri Ota, M. de Oliveira Pereira, S.S. Barros Langen, **Clinical, biometric and ultrasound assessment of the effects of daily use of a nutraceutical composed of lycopene, acerola extract, grape seed extract and Biomarine Complex in photoaged human skin,** An Bras Dermatol. 2012; 87(1): p. 52-61

Background: The use of nutraceuticals has become frequent in the cutaneous approach to photoaging. Objectives: To assess the clinical efficacy of a nutraceutical product composed of lycopene, acerola extract, grape seed extract and Biomarine ComplexT in photoaged human skin. Methods: 50 women, from 35 to 60 years of age, phototypes I to III, were assessed. For 120 days, they associated the nutraceutical product with the use of a sunscreen FPS15. On days 0 (D0), 30 (D30), 60 (D60), 90 (D90) and 120 (D120) they were evaluated and underwent Medical Assessments and Self-Assessment and cutaneous biometric analyses (corneometry, sebumetry and pH-metry) in the skin of the left zygomatic region and the upper medial side region of the left arm; on days 0 (D0), 30 (D30) and 120 (D120) the skin of the same regions was analyzed by ultrasound. On days 0 (D0) and 120 (D120) skin biopsies were performed in the areas where instrumental evaluation was performed (to evaluate collagen and elastic fibers). Results: There was an improvement of the general status of the skin of all volunteers by the Medical and Volunteer Self- Assessments; increased parameters of cutaneous hydration, reduction of pH, increasing of ultrasound density and a histological increment of collagen and elastic fibers (both on the face and arm); there was a reduction of seborrhea (only on the face). Conclusions: The daily use of a nutraceutical product containing lycopene, acerola extract, grape seed extract and Biomarine ComplexT showed an important adjuvant effect to counteract skin photoaging.

R. Darlenski, J.W. Fluhr, **Moisturizers and Emollients,** J. Fluhr (ed.), Practical Aspects of Cosmetic Testing, Springer-Verlag Berlin Heidelberg 2011

The formation of skin hydration is a complex and multifactor process including the natural sources of skin moisturization and the effect of exogenously applied substances on the skin. An objective evidence for the claimed effect of a moisturizer/emollient is required. A variety of non-invasive methods for the evaluation of skin hydration exist, however none discloses the complete interactions between a moisturizer and the skin. A multiparametric approach is useful in the assessment of moisturizers efficacy. Evaluation of the cutaneous electrical properties (capacitance, resistance, impedance) is the most commonly used method in proving the efficacy of moisturizers.

M. Mateu, **Aknehaut – Ein Tripeptid für die Abwehrkräfte der Haut,** COSSMA 12/2011; S. 14-15

Die Haut ist ständig Verletzungsrisiken und Mikroorganismen der Umwelt ausgesetzt und das Stratum Corneum (SC) stellt die erste Schutzbarriere der Haut gegen externe Aggressionen dar. Normale Humanhaut ist von einer grossen Zahl von Mikroorganismen besiedelt, von denen die meisten harmlose Kommensalen sind, die keine Krankheiten verursachen. Physiologische, biochemische, mechanische, immunologische und Umweltvariablen tragen zu einer gesunden Balance zwischen der Haut und ihrer normalen Flora bei. Die Haut ist ständig pathogenen Keimen ausgesetzt. Die physikalische Barriere der Epidermis ist essenziell, aber viele Mikroben haben effektive Strategien entwickelt, die Epidermis zu überwinden. Dennoch wird gesunde Haut nur selten infiziert.

H. Riebe, **Einfluss medizinischer Kompressionsstrümpfe auf die Barrierefunktion der Haut bei Patienten mit Chronischer Venöser Insuffizienz (CVI)**, Dissertation aus der Klinik und Poliklinik für Hautkrankheiten der Universitätsmedizin der Ernst-Moritz-Arndt-Universität Greifswald, Dezember 2011

Bei steigender Prävalenz der Chronischen Venösen Insuffizienz (CVI) ist eine kontinuierliche Auseinandersetzung mit aktuellen Diagnostik- und Therapieoptionen für eine effektive und symptomorientierte Patentenversorgung notwendig. Unter Berücksichtigung der Variabilität von Studienpopulationen hinsichtlich Rasse, Alter und Geschlecht, sowie der Definition und Diagnostik der CVI werden in der Literatur Prävalenzen zwischen 15 – 50 % angegeben (28;38;105). In der Bonner Venenstudie aus den Jahren 2000 - 2002 konnten bei einer Fallzahl von 3072 Probanden im Alter von 18 – 79 Jahren bei 59 % der Probanden isolierte Teleangiektasien und retikuläre Varizen nachgewiesen

werden. Varikosen, allein im Stadium C2 der CEAP-Klassifikation, wurden bei 14,3 % der Probanden detektiert. Die Häufigkeit einer fortgeschrittenen CVI belief sich auf 3,3 %, die eines floriden oder abgeheilten Ulcus cruris venosum auf 0,7 % (100). Umfangreiche epidemiologische Studien machen gleichwohl auch die große sozioökonomische Bedeutung von Venenerkrankungen deutlich. So betrugen etwa Behandlungs- und Folgekosten durch Arbeitsunfähigkeit und Berentung entsprechend der Tübinger Studie im Jahr 1980 circa 1,3 Mrd. DM (38). Neben der medizinischen Interventionspflicht sind somit auch die Aspekte Lebensqualität, Arbeitsbelastung und finanzieller Ressourcenverbrauch Grundlage für die Notwendigkeit einer frühzeitigen sowie konsequenten Diagnostik und Therapie der CVI (23;104). Das Krankheitsbild beinhaltet eine Vielzahl klinischer Erscheinungsbilder. Neben asymptomatischen Verläufen beschreiben viele Patienten eine Reihe unspezifischer Symptome wie Schwellung und Schweregefühl der Beine, deren Ausprägung nicht immer mit dem Schweregrad einer Insuffizienz korrelieren muss. Hingegen bedingen spezifische Symptome wie trophische Hautveränderungen und Ulzerationen immer eine schwerwiegende hämodynamisch relevante venöse Insuffizienz und stellen somit den Endbefund einer Makro- und Mikrozirkulationsstörung dar.

K. Miyamoto, Y. Inoue, K. Hsueh, Z. Liang, X. Yan, T. Yoshii, M. Furue, **Characterization of comprehensive appearances of skin ageing: an 11-year longitudinal study on facial skin ageing in Japanese females at Akita,** J Dermatol Sci. 2011 Dec;64(3): p. 229-36

Background: Facial appearance is regarded as a typical index of ageing. However, people of the same age do not necessarily show the same degree of the facial appearance. The ageing of facial skin proceeds relatively slowly and therefore requires long-term follow-up to elucidate the mechanism of ageing changes. Objectives: The purpose of this study was to identify facial skin parameters contributing the subjective impression of the overall ageing and characterize the degree of skin ageing by a 11 year longitudinal skin monitoring. Methods: One-hundred-eight healthy Japanese females excluded outside workers aged 5-64 at 1999, and lived in Akita, Japan till 2010 were enrolled. Facial images were collected to quantify various skin optical parameters. Skin colour, hydration and barrier function were measured with Chromameter, Corneometer and TEWAmeter, respectively. Results: The visual evaluation of the overall facial skin ageing impression was also carried out. The skin parameters contributing visible impression of skin ageing were identified by variable importance in projection analysis, and the degree of facial skin ageing over 11 years was statistically classified by a cluster analysis. Facial skin parameters that comprehensively influenced visible skin ageing, including hyperpigmented spots, wrinkles and texture were studied. The Skin Ageing Score calculated from these three skin factors was used to classify the subjects into a mild, age-appropriate, and severe skin ageing group. Conclusions: The mild skin ageing group maintained significant better both skin optical and physical conditions. Variability and classification of the degree of facial skin ageing appearance were studied from this longitudinal research.

S. Golmohammadzadeh, F. Imani, H. Hosseinzadeh, M.R. Jaafari, **Preparation, Characterization and Evaluation of Sun Protective and Moisturizing Effects of Nanoliposomes Containing Safranal,** Iranian Journal of Basic Medical Sciences, Vol. 14, No. 6, Nov-Dec 2011, 521-533

Objective(s): The objective of this study was to prepare, characterize and evaluate the nanoliposomes containing safranal as a natural sunscreen and moisturizer factor. Materials and Methods: The experimental formulations included homosalate reference, nanoliposomes containing 0.25, 0.5, 1, 2, 4 and 8% safranal and empty liposomes. The liposomes were prepared using fusion method and homogenization. Homosalate reference was prepared according to FDA standard. Sun protection factors (SPF) of the formulations were determined by two *in vitro* methods; diluted solution transmittance method and transpore tape method. Studies of *in vitro* penetration of the formulations across mouse skin were carried out with diffusion cells. The percentage of safranal penetrated and retained in the skin was determined for the formulations up to 24 hr. The amount of the moisture contents of the skin before application and after 30- minute, 1, 3 and 5 hr post-application of the formulations were measured in human volunteers using Corneometer. Results**:** The results indicated that, the SPF of liposomes containing 8% safranal (Lip-Safranal 8%) was significantly higher than 8% homosalate reference. The proportion of Lip-Safranal 1% that penetrated the skin was low. There was no significant difference between the skin moisture contents after application of Lip-Safranal 1 and 4% and empty liposomes during the 7 hr post-application period. Conclusion: These results showed that in equal concentrations, Lip-Safranal could act as a better antisolar agent compared to homosalate and have no moisturizing effect in 1 and 4% concentrations.

G. Maramaldi, **A highly moisturising active from tamarind seed,** Personal Care November 2011, p. 101-103

Tamarind is considered as one of the most beautiful trees growing in the South-East of Asia,

and is also an edible plant; its young pods are used both for nutrition and to manufacture spices. Traditionally used in the Ayurvedic medicine even today, its use as a laxative dates back to the 1500s even in Western Coutnries. The seed of tamarind has a high content of polysaccharides among which the most abundant is a branched polysaccharide of a cellulose-type backbone carrying xylose and galactoxylose substituents. This polysaccharide has been extremely well characterised (the polydispersion index being very limited, i.e. the number of molecules largely differing from the fixed molecular weight), and its use in cosmetic formulations has been assessed in terms of skin hydration, elasticity, roughness and densitiy on healthy volunteers.

F. Herrmann, **Klinische Studie zur Validierung der barriere-protektiven Wirksamkeit bipolarer Lipide,** Dissertation am Universitätsklinikums Halle (Saale), Germany, November 2011

Das Stratum corneum stellt mit seinen drei Hauptkomponenten: dem Korneozyten, der interzellulären Lipidmatrix und dem „cornified envelope“ ein hochgeordnetes multilamellares System dar. Die Schicht ist durch ihre außergewöhnliche Lipidzusammensetzung charakterisiert und repräsentiert damit die Hauptpenetrationsbarriere der menschlichen Haut. Die vorliegende Arbeit befasst sich mit der Untersuchung der Wirksamkeit von bilayerbildenden Lipiden (DMS®) in Form des Physiogels® A.I. mit und ohne Lichtschutz nach topischer Applikation auf die Hydratation und Barrierefunktion des Stratum corneum.

N.S. Trookman, R.L. Rizer, **Randomized Controlled Trial of Desonide Hydrogel 0.05% versus Desonide Ointment 0.05% in the Treatment of Mild-to-moderate Atopic Dermatitis**, J Clin Aesthet Dermatol. 2011; 4(11):34–38

Objective: Desonide hydrogel 0.05%, an effective treatment for mild-to-moderate atopic dermatitis, is United States Food and Drug Administration approved as a treatment for patients as young as three months of age. Previous studies have also demonstrated that this hydrogel formulation of desonide 0.05% improved moisturization and reduced transepidermal water loss. Increased skin hydration has been correlated with improved and sustained integrity of the epidermal barrier in patients with atopic dermatitis. The objective of this clinical noninferiority study was to compare the efficacy of desonide hydrogel 0.05% with desonide ointment 0.05%, the clinical standard for the treatment of mild-to-moderate atopic dermatitis. Design and setting: Randomized, investigator-blinded, parallel-group, noninferiority study in an outpatient setting. Participants: Individuals 12 years of age and older with atopic dermatitis. Measurements: Outcome measures included disease severity, body surface area involvement, subjective assessments of symptoms, corneometry, transepidermal water loss, and the patient’s preference for vehicle attributes. Patients were assessed at Baseline, Week 2, and Week 4. Results: Desonide hydrogel 0.05% was shown, through visual grading assessments and noninvasive instrumentation measurements, to be as effective as generic desonide ointment 0.05% in reducing the signs and symptoms of mild-to-moderate atopic dermatitis in patients aged 12 to 65 years during a four-week period. In addition, patients rated desonide hydrogel significantly better than desonide ointment for absorbability and (lack of) greasiness. Conclusion: Desonide hydrogel, which uses a hydrogel vehicle, was preferred by patients and shown to restore the skin barrier, thus offering an efficacious alternative to desonide ointment.

E. Tanaka, H. Yamazaki, K. Yoshida, T. Takenaka, N. Masuda, T. Kotsuma, Y. Yoshioka, T. Inoue, **Objective and longitudinal assessment of dermatitis after postoperative accelerated partial breast irradiation using high-dose-rate interstitial brachytherapy in patients with breast cancer treated with breast conserving therapy: reduction of moisture deterioration by APBI**, Int J Radiat Oncol Biol Phys. 2011 Nov 15;81(4): p. 1098-104

Purpose: To objectively evaluate the radiation dermatitis caused by accelerated partial breast irradiation (APBI) using high-dose-rate interstitial brachytherapy. Patients and Methods: The skin color and moisture changes were examined using a newly installed spectrophotometer and corneometer in 22 patients who had undergone APBI using open cavity implant high-dose-rate interstitial brachytherapy (36 Gy in six fractions) and compared with the corresponding values for 44 patients in an external beam radiotherapy (EBRT) control group (50-60 Gy in 25-30 fractions within 5-6 weeks) after breast conserving surgery. Results: All values changed significantly as a result of APBI. The extent of elevation in a∗ (reddish) and reduction in L∗ (black) values caused by APBI were similar to those for EBRT, with slightly delayed recovery for 6-12 months after treatment owing to the surgical procedure. In contrast, only APBI caused a change in the b∗ values, and EBRT did not, demonstrating that the reduction in b∗ values (yellowish) depends largely on the surgical procedure. The changes in moisture were less severe after APBI than after EBRT, and the recovery was more rapid. The toxicity assessment using the Common Toxicity Criteria, version 3, showed that all dermatitis caused by APBI was Grade 2 or less. Conclusion: An objective analysis can quantify the effects of APBI procedures on color and moisture

cosmesis. The radiation dermatitis caused by APBI using the present schedule showed an equivalent effect on skin color and a less severe effect on moisture than the effects caused by standard EBRT.

T. André, V. Lévesque, V. Hayward, P. Lefèvre, J.L. Thonnard, **Effect of skin hydration on the dynamics of fingertip gripping contact**, J R Soc Interface. 2011 Nov 7; 8(64): p. 1574-1583

The dynamics of fingertip contact manifest themselves in the complex skin movements observed during the transition from a stuck state to a fully developed slip. While investigating this transition, we found that it depended on skin hydration. To quantify this dependency, we asked subjects to slide their index fingertip on a glass surface while keeping the normal component of the interaction force constant with the help of visual feedback. Skin deformation inside the contact region was imaged with an optical apparatus that allowed us to quantify the relative sizes of the slipping and sticking regions. The ratio of the stuck skin area to the total contact area decreased linearly from 1 to 0 when the tangential force component increased from 0 to a maximum. The slope of this relationship was inversely correlated to the normal force component. The skin hydration level dramatically affected the dynamics of the contact encapsulated in the course of evolution from sticking to slipping. The specific effect was to reduce the tendency of a contact to slip, regardless of the variations of the coefficient of friction. Since grips were more unstable under dry skin conditions, our results suggest that the nervous system responds to dry skin by exaggerated grip forces that cannot be simply explained by a change in the coefficient of friction.

L. Massoudy, **Klinische Untersuchung zu postnatalen Adaptionsprozessen der Hautphysiologie und zum Einfluss von Pflegeprodukten auf die Hautbarriere in der Windelregion bei reifen Neugeborenen**, Dissertation zur Erlangung der Doktorwürde der Charité Universitätsklinik Berlin, November 2011

Die Hautbarriere reifer Neugeborener: Die Haut eines reifen Neugeborenen mit einem Gestationsalter von mindestens 37 vollendeten Schwangerschaftswochen zeigt in anatomischer Hinsicht eine vollständige Entwicklung. Lediglich die epidermodermale Vernetzung, die Papillen und Reteleisten, die ein Ineinandergreifen der Dermis und Epidermis bewirkt, ist im Vergleich zum Erwachsenen vermindert.

Y.H. Zhu, S.P. Song, W. Lou, P.M. Elias, M.Q. Man, **Characterization of Skin Friction Coefficient, and Relationship to Stratum Corneum Hydration in a Normal Chinese Population,** Skin Pharmacol Physiol 2011; 24:81-86

Background and Objectives: Studies have demonstrated that some cutaneous biophysical properties vary with age, gender and body sites. However, the characteristics of the skin friction coefficient in different genders and age groups have not yet been well established. In the present study, we assess the skin friction coefficient in a larger Chinese population. Methods: A total of 633 subjects (300 males and 333 females) aged 0.15-79 years were enrolled. A Frictiometer FR770 and Corneometer CM825 (C&K MPA5) were used to measure the skin friction coefficient and stratum corneum hydration, respectively, on the dorsal surface of the hand, the forehead and the canthus.

I. Rossmann, **Hydrolisierte Jojobaestzer für verbesserte Hautfeuchtigkeit,** COSSMA 10/2011, p. 14-15

Für den Einsatz in verschiedenen Formulierungen für Kosmetik- und Körperpflegeprodukte hat Floratech Jojobasamenöl hydrolysiert. Bei gleichzeitiger Verwendung mit Glycerin erhöht und verlängert hydrolisiertes Jojobaöl nachweislich das feuchtigkeitsspendende Potenzial in Lotionen, Handdesinfektionsmitteln und Duschgelen. In kleinen kontrollierten klinischen Studien erwiesen sich die hydrolisierten Wachsester als sehr effektiv in Hautpflegeformulierungen. Natürliche Rohstoffe auf dem Vormarsch. Da viele Konsumenten Pflegeprodukte mit natürlichen Rohstoffen wählen, wenn der Preis nicht relevant ist, bieten Rohstoffhersteller vermehrt „grüne“ Alternativen für gängige Rohstoffe an, oder Rohstoffe, die sich in Verbindung mit akzeptierten synthetischen Rohstoffen verwenden lassen.

K.R. Kumthekar, J.M. Nagarkar, **Properties of Vegetal Oil-based Creams in Skin Care,** Cosmetics & Toiletries, Vol. 126, No. 10/October 2011

The bioactivity of a product can be quantitatively measured and analyzed by assessing its ability to protect, retain normal moisture and delay the aging process of skin. O/W emulsions are commonly used cosmetic delivery systems that supply moisture to skin and improve its condition by forming an occlusive barrier on the skin surface. In recent years, scientists have been looking and utilizing natural resources in cosmetic products, as natural vegetal oils are readily available at affordable costs and have excellent cosmetic and skin care application properties such as soothing, moisturizing and skin penetrating. Vegetal oils such as soybean oil, corn oil, safflower oil and linseed oil are used for

cosmeceutical purposes as w/o emulsions using single or mixed surfactants.

J. Herfs, **Sinn und Zweck der kosmetischen Hautanalyse; Manuell oder apparativ?,** Beauty Forum 09/2011 p. 68-70

Was ist Diagnose? Aus dem Griechischen übersetzt, bedeutet das Wort „Beurteilung". Der ebenfalls griechische Begriff Analyse bedeutet: Bestimmung, Untersuchung, Zergliederung und Auflösung – man möchte also den Dingen auf den Grund gehen. Der sich daraus ergebende Befund ist die Arbeitsgrundlage für die Kosmetikerin. Doch was ist für eine erfolgreiche und nutzbringende Hautanalyse wichtig? Sind es die vielen kostspieligen Geräte, die notwendig sind, um eine professionelle Beurteilung durchzuführen? Oder ist es das geschulte Auge oder gar die feinfühlige Hand der Kosmetikerin, die vieles über das Hautgeschehen wahrnimmt? Auf keinen Fall fehlen dürfen Erfahrung und kompetentes Wissen, um negative Hautveränderungen detektivisch aufzuspüren.

A. Mehling, U. Griesbach, V. Pian, **Sensible solutions for sensitive faces,** September 2011, Personal Care, p. 41-45

The term "sensitive skin" is commonly used to describe a number of unpleasant sensations of varying intensity and which are transient in nature. People have different sensitive skin types but typically complain about skin tightness, burning, prickling or itchy sensations. These complaints can be accompanied by transient redness or skin dryness. Although these symptoms usually do not involve visible or predictable signs of irritation or immunological reactions, they can cause significant discomfort. Due to the wide variety of possible causes and the subjective nature of the responses associated with sensitive skin, it is extremely difficult to quantify.

E. Lee, S. An, M.-W. Im, H.-K. Kim, T.-R. Lee, **An improved method for measurement of change in skin roughness caused by cleansing products under mild application conditions,** Skin Research and Technology 2011; 17; p. 320-325

Surfactants in detergents and various skin cleaning products can damage the skin and are considered an important risk factor for irritant contact dermatitis. Cleansing products will always remove fat from the skin, simply because the soil to be removed is embedded in the sebum of the skin. Therefore the repetitive use of cleaning products may lead to skin intolerance reactions, stratum corneum dehydration, and increased transepidermal water loss and roughness of the skin resulting from damage to skin barrier function. Skin irritation could be evaluated using visual scoring. SC dehydration could be reflected by the measurement of skin capacitance, and the integrity of the barrier function of the SC could be estimated by TEWL.

M. Spiegel, **Moderne Tenside, Mild + biologisch abbaubar zugleich,** COSSMA 7-8/2011

Es gibt zwar viele moderne Tenside, doch gerade bei sensibler Haut können Produkte wie Sodium Laureth Sulfate (SLS) zu Problemen führen. Aminosäurebasierte Tenside dagegen erweisen sich selbst bei täglicher Anwendung als hautfreundlich. Martina Spiegel präsentiert Hautirritations-, Wirksamkeits- sowie Anwendungsuntersuchungen für Sodium Cocoyl Glutamate und Sodium Lauroyl Sarcosinate von Schill & Seilacher. Die Tenside erzielten bei Galenik und Reinigungswirkung, aber auch bei vollständig aerober und bei anaerober biologischer Abbaubarkeit gute Ergebnisse.

E. Xhauflaire-Uhoda, G. Mayeux, P. Quatresooz, A. Scheen, G.E. Piérard, **Facing up to the imperceptible perspiration. Modulatory influences by diabetic neuropathy, physical exercise and antiperspirant,** Skin Research and Technology 2011; 17: p. 487-493

Eccrine Sweating is under the control of the cholinergic sympathetic innervation. It plays an essential role in regulating body temperature in physiologic and pathologic conditions. This function is altered by some systemic diseases including diabetic neuropathy, which commonly involves the distal sensorimotor innervation. The resulting peripheral sweating deficit is often responsible for unequivocal abnormalities of length-dependent thermoregulatory sweating. Hence, the legs affected by diagetic neuropathy most often present hypohidrosis that has been though to be compensated by hyperhidrosis on the upper body regions. Other sweating changes in diabetes include segmental hypohidrosis and more rarely isolated dermatome involvement.

P.M. Campos, D.G. Mercurio, M.D. Gianeti, A.T. Nobrega, **In vitro antioxidant activity and clinical efficacy of cosmetic formulation containing chamomile extract,** FAPESP

Botanical extracts have attracted great interest in the cosmetic area due to its rich composition and medicinal properties. Among these extracts, it can be mentioned the Matricaria chamomilla L. extract, which has been commonly used in cosmetics. Chamomile extract has being well studied once it presents therapeutic properties in terms of pharmacological applications. Various studies showed that

chamomile have soothing, antiallergic, antioxidant and antiinflamatory effects. All of these properties are given by chamomile richest composition of organic components. It es added to the cosmetic formulations to provide skin moisturizing and smoothness.

T. Oliphant, C. Dubbelde, R.A. Harper, **Moringa butter: ancient botanical in modern form,** Personal Care June 2011, p. 73-75

What was this mystery plant with over 100 different names in multiple languages around the world? Moringa Oleifera – "the miracle tree" whose leaves alone contain seven times the vitamin C of oranges, four times the vitamin A of carrots, four times the calcium of milk, more iron thatn spinach, three times the potassium of bananas, and twice the protein of yogurt. In addition, this vitamin –rich plant contains a variety of amino acids, as well as antioxidants and trace elements. The positive attributes of the moringa tree do not end with its nutritional benefits In fact, the seed oil from Moringa oleifera has the highest oxidative stability of any vegetable oil available.

N. Papanas, D. Papazoglou, K. Papatheodorou, E. Maltezos, **Evaluation of a new foam to increase skin hydration of the foot in type 2 diabetes: a pilot study,** Int Wound J. 2011 Jun;8(3): p. 297-300

The aim of the present study was to evaluate the efficacy of a new product (Neuropad repair foam(®)) in promoting skin hydration of the foot in type 2 diabetes. Included in this study were 20 type 2 diabetic patients (10 men, mean age 61·40 ± 2·44 years). Patients applied Neuropad repair foam(®) on the plantar aspect of the right foot twice daily. No agent was applied on the left foot. Patients were examined at baseline, after 7 treatment days and after 14 treatment days. Evaluation of skin dryness was performed by means of the Multi Skin test Corneometer MC 900. In the right foot, skin capacitance was 26·55 ± 4·14 arbitrary units (a.u.) at baseline, 28·90 ± 4·53 a.u. after 7 days of treatment and 32·05 ± 4·54 a.u. after 14 days of treatment. There was a significant increase in skin capacitance from baseline to 7 days of treatment ($P < 0·001$), from baseline to 14 treatment days ($P < 0·001$), as well as from 7 to 14 days of treatment ($P < 0·001$). The same significant ($P < 0·001$) increases were observed both in men and in women. No changes were noted in the left foot. At baseline, there was no difference in skin capacitance between right and left foot ($P = 0·186$). However, skin capacitance was significantly higher on the right versus left foot, both after 7 days ($P < 0·001$) and after 14 days of treatment ($P < 0·001$). In conclusion, results with the new foam appear encouraging in ameliorating skin dryness in the diabetic foot and further investigation is warranted.

U. Wehler, **Hautphysiologische Untersuchungen zu repetitiven Handschuhokklusionen**, Osnabrück, Mai 2011

EINLEITUNG: Berufsbedingte Hauterkrankungen nehmen in Deutschland die führende Position unter den gemeldeten berufsbedingten Krankheiten ein (DGUV 2009). Als ein Risikofaktor für chronische, irritative Kontaktdermatitiden werden repetitive Handschuhokklusionen mit hautphysiologischen Auswirkungen auf die Epidermale Barriere (z.B. Exsikkationseffekte, Barriereschädigungen und Verschiebungen des HautoberflächenpH- Wertes) angeführt (FLUHR et al. 2005; FROSCH/JOHN 2006; GRAVES et al. 1995; JUNGBAUER et al. 2004a, 2004b und 2004c; RAMSING/AGNER 1996b; TSAI/MAIBACH 1999; WULFHORST et al. 2010; ZHAI/MAIBACH 2002). In der einschlägigen Literatur wird der hautschädigende Einfluss von Langzeit-Okklusionen jedoch kritisch diskutiert, da widersprüchliche Studienergebnisse vorliegen (FLUHR et al. 1999b; RAMSING/AGNER 1996a und 1996b; WETZKY et al. 2009a). Hardening-Effekte werden als ein Erklärungsansatz für die Kompensation hautschädigender Okklusionseffekte angegeben, die auch im Kontext von Spontanremissionen irritativer Dermatitiden trotz konstanter äußerer Risikofaktoren diskutiert werden (ELIAS et al. 2001; LAMMINTAUSTA/MAIBACH 1990; WATKINS/MAIBACH 2009; WULFHORST 1996a, 1996b, 1996c und 2000).

E. Berardesca, M. Iorizzo, E. Abril, G. Guglielmini, M. Caserini, R. Palmieri, G.E. Piérard, **Clinical and instrumental assessment of the effects of a new product based on hydroxypropyl chitosan and potassium azeloyl diglycinate in the management of rosacea,** Journal of Cosmetic Dermatology, 2011, p. 37–41

Background Rosacea is a chronic inflammatory skin disease affecting mostly facial skin. Its origin is multifactorial. Important steps in its treatment are avoidance of any triggering factor and control of skin inflammation. Aim To assess the benefit of topical applications of a new product (P-3075). Patients / Methods A randomized, multicenter, double-blind, placebo-controlled, parallelgroup, pilot study was carried out to evaluate the efficacy and tolerability of a cream (P-3075) based on 5% potassium azeloyl diglycinate (PAD, Azeloglicina) and 1% hydroxypropyl chitosan (HPCH). Forty-two patients (rosacea stages I and II) were enrolled and randomized, 28 in the P-3075 group and 14 in the placebo group. They were asked to apply the cream twice daily for 4 weeks. The main assessments

were the objective quantification of erythema and skin hydration using the Mexameter and Corneometer devices, respectively. Clinical signs and symptoms were evaluated on a four-point scale. Results The P-3075 cream applied for 28 days was effective in skin protection by reducing erythema, evaluated both instrumentally and clinically. In addition, the clinical assessments of other symptoms such as flushing, stinging, and burning supported the beneficial effect of the P-3075 cream. Conclusions The anti-inflammatory and moisturizing effects of potassium azeloyl diglycinate combined with the protective properties of HPCH allow the new product to be a good candidate for controlling signs and symptoms of rosacea.

J.W. Shin, D.H. Lee, S.Y. Choi, J.I. Na, K.C. Park, S.W. Youn, C.H. Huh, **Objective and non-invasive evaluation of photorejuvenation effect with intense pulsed light treatment in Asian skin**, J Eur Acad Dermatol Venereol. 2011 May; 25(5): p. 516-22

Background: Intense pulsed light (IPL) has been widely used for photorejuvenation. Although previous literature has shown clinical effectiveness of IPL treatments on cutaneous photoaging, the associated changes in the biophysical properties of the skin following IPL treatments have not been fully elucidated. Objective: The aim of this study was to evaluate changes in skin biophysical properties in patients with photoaging after IPL treatments, using non-invasive, objective skin measuring devices. Patients and Methods: A total of 26 Korean women with facial dyschromias underwent three sessions of IPL treatment at 4-week intervals. Outcome assessments included standardized photography, global evaluation by blinded investigators, patients' self-assessment and objective measurements of colour (Mexameter MX18, Chromatometer), elasticity (Cutometer), roughness (Visiometer), sebum (Sebumeter) and skin hydration (Corneometer). Results Intense pulsed light treatments produced a 15% decrease in the size of representative pigmented lesions ($P < 0.05$). Conclusions: Patients' self-assessment revealed that 84% and 58% of subjects considered their pigmented lesions and wrinkles were improved respectively. Objective colorimetric measurement demonstrated significant improvements following IPL treatments that were most remarkable after one session of IPL. Moreover, skin elasticity showed significant improvements at the end of the study. Skin wrinkles as measured using Visiometer showed a mild improvement without statistical significance. Sebum secretion and water content of skin remained unchanged. Intense pulsed light provided significant improvement in the appearance of facial pigmented lesions in Korean patients. These effects appeared to be more remarkable in improving pigmentation, skin tone and elasticity.

A. Rasul, N. Akhtar, **Formulation and in vivo evaluation for anti-aging effects of an emulsion containing basil extract using non- invasive biophysical techniques**, DARU 2011 19 (5), p. 344-350

Background and the purpose of study: Skin aging is a complex process induced by constant exposure to ultraviolet (UV) irradiation and damages human skin. UV generates reactive oxygen species leading to collagen deficiency and eventually skin wrinkling. Basil contains a number of phenolics and favonoids which possess antioxidant properties. The aim of this study was to formulate and investigate the antiaging potential of a cream containing Basil extract. Methods: A single blinded study was conducted using non-invasive methods. Formulation containing 3% of the concentrated extract of Basil was developed by entrapping in the inner aqueous phase of w/o emulsion and base contained no extract. Both creams were stored at different storage conditions of 8°C, 25°C, 40°C and 40°C+ 75% relative humidity to predict their stabilities. The formulation and base were evaluated for their effects on various skin parameters i.e., moisture and transepidermal water loss (TEWL), volume, energy and surface evaluation of the living skin (SELS). Results: Significant effects (p□0.05) were observed for both creams in the case of TEWL. The base showed insignificant (p□0.05) while formulation showed significant effects on skin moisture. Volume, SELS SEr (skin roughness), SEsc (skin scaliness), SEsm (skin smoothness), SEw (skin wrinkles) parameter showed significant decline while texture parameter of ‘Energy’ showed significant increase. Conclusion: The results statistically indicated that the active formulation containing extract of Basil exert antiaging effects when applied topically.

Y.H. Zhu, S.P. Song, W. Luo, P.M. Elias, M.Q. Man, **Characterization of Skin Friction Coefficient, and Relationship to Stratum Corneum Hydration in a Normal Chinese Population**, Skin Pharmacol Physiol 2011;2 4: p. 81–86

Background and Objectives: Studies have demonstrated that some cutaneous biophysical properties vary with age, gender and body sites. However, the characteristics of the skin friction coefficient in different genders and age groups have not yet been well established. In the present study, we assess the skin friction coefficient in a larger Chinese population. Methods: A total of 633 subjects (300 males and 333 females) aged 0.15–79 years were enrolled. A Frictiometer FR 770 and Corneometer CM 825 (C&K MPA 5) were used to measure the skin friction coefficient and stratum

corneum hydration, respectively, on the dorsal surface of the hand, the forehead and the canthus. Results: In the females, the maximum skin friction coefficients on both the canthus and the dorsal hand skin were observed around the age of 40 years. In the males, the skin friction coefficient on the dorsal hand skin gradually increased from 0 to 40 years of age, and changed little afterward. Skin friction coefficients on some body sites were higher in females than in age-matched males in some age groups. On the canthus and the dorsal hand skin of females, a positive correlation was found between skin friction coefficient and stratum corneum hydration ($p < 0.001$ and $p < 0.0001$, respectively). In contrast, in males, the skin friction coefficient was positively correlated with stratum corneum hydration on the forehead and the dorsal hand skin ($p < 0.05$ and $p < 0.0001$, respectively). Conclusion: The skin friction coefficient varies with age, gender and body site, and positively correlates with stratum corneum hydration on some body sites.

T. Knor, A. Meholjić-Fetahović, A. Mehmedagić, **Stratum corneum hydration and skin surface pH in patients with atopic dermatitis,** Acta Dermatovenerol Croat. 2011;19(4): p. 242-247

Atopic dermatitis (AD) is a chronically relapsing skin disease with genetic predisposition, which occurs most frequently in preschool children. It is considered that dryness and pruritus, which are always present in AD, are in correlation with degradation of the skin barrier function. Measurement of hydration and pH value of the stratum corneum is one of the noninvasive methods for evaluation of skin barrier function. The aim of the study was to assess skin barrier function by measuring stratum corneum hydration and skin surface pH of the skin with lesions, perilesional skin and uninvolved skin in AD patients, and skin in a healthy control group. Forty-two patients were included in the study: 21 young and adult AD patients and 21 age-matched healthy controls. Capacitance, which is correlated with hydration of stratum corneum and skin surface pH were measured on the forearm in the above areas by SM810/CM820/pH900 combined units (Courage AND Khazaka, Germany). The mean value of water capacitance measured in AD patients was 44.1 ± 11.6 AU (arbitrary units) on the lesions, 60.2 ± 12.4 AU on perilesional skin and 67.2 ± 8.8 AU on uninvolved skin. In healthy controls, the mean value was 74.1 ± 9.2 AU. The mean pH value measured in AD patients was 6.13 ± 0.52 on the lesions, 5.80 ± 0.41 on perilesional skin, and 5.54 ± 0.49 on uninvolved skin. In control group, the mean pH of the skin surface was 5.24 ± 0.40. The values of both parameters measured on lesional skin were significantly different (capacitance decreased and pH increased) from the values recorded on perilesional skin and uninvolved skin. The same held for the relation between perilesional and uninvolved skin. According to study results, the uninvolved skin of AD patients had significantly worse values of the measured parameters as compared with control group. The results of this study suggested the skin barrier function to be degraded in AD patients, which is specifically expressed in lesional skin.

U. Heinrich, B. Garbe, M. Wiebusch, H. Tronnier, A. Boddie, **Supplementation with encapsulated vegetable and fruit juice concentrate improves microcirculation and ultrastructure in skin,** Annals of Nutrition and Metabolism 58(1): p. 55-56, April 2011

The objective of the study was to determine changes in skin parameters during the intake of an encapsulated vegetable and fruit juice concentrate. Skin hydratation properties, skin barrier function (TEWL), skin thickness and density as well as microcirculation (capillary blood flow) were determined during the study.

C. Deep Kaur, S. Sasraf, **Skin care assessment on the basis of skin hydration, melanin, erythema and sebum at various body sites**, Academic Science, International Journal of Pharmacy and Pharmaceutical Sciences, Vol 3, Suppl 4, 2011

The aim of this work was to study skin parameters like melanin, erythema, skin hydration, and sebum score of six body sites namely volar forearm, cheek, chin, forehead, neck and post auricular skin of Asian (Indian) population with different skin colour and types to depict the formulation to be used for taking care. Initially skin colour of various volunteers was assessed by the reference of colour chart numbers and three groups each of 80 human volunteers were made. Group I was named fair which corresponded with Colour chart number 19, 20, 21; group II (medium) (22, 23, 24); group III (dark) (25, 26, 27). The measurements were taken using Mexameter (erythema and melanin), Corneometer (skin hydration) and Sebumeter (sebum score). Results depicted that facial skin had more melanin content than volar forearm; the sebum score was highest in the forehead and lowest at volar forearm, skin hydration was more in periauricular space and forehead and lowest in cheek. The volunteers of group I had high sebum and skin hydration values than group II and III. In the face, cheeks need more care and are more prone to dryness. People with darker skin, require formulations having more humectants, while people with fairer skin need to protect more from tanning and redness. Hence these studies will be helpful for deciding the criteria for type of skin and selection of formulation to people of various skin types at various body sites.

A. Thibodeau, P. Jacobs, S. Amari, **Biomimetic ingredient offers formulation benefits,** Personal Care, March 2011, p. 115-118

The hydrolipidic film covers the surface of the skin and actively contributes to the skin surface smoothness and the skin barrier function. We have developed a biomimetic ingredient of the hydrolipidic film as per its fatty acid profile. Ethylhexyl olivate (INCI nomenclature) brings clinical benefits for numerous parameters and rheology advantages to the formulation. One single application of a formulation containing 3% ethylhexyl olivate was shown to significantly increase skin hydration (+12.2%, $p<0.05$), barrier function (+16.7%, $p<0.05$), visco-elastic properties (+6.7%, $p<0.05$) and skin surface profilometry (+11.2%, $p<0.05$) for up to eight hours. In another experiment, ethylhexyl olivate was compared to 10 different oil/emollients and ranked third for the viscosity enhancement and second for spreadability index on skin. Thanks to its molecular composition, ethylhexyl olivate creates a subtle veil naturally integrating itself within the hydrolipidic film and significantly improving skin sensorial properties. Ethylhexyl olivate stands as a key tool for formulation chemists while positively acting on skin physiological features as well as on sensorial properties.

A. Thibodeau, P. Jacobs, S. Amari, **Olive oil fatty acids: positive effects for the skin,** Personal Care, March 2011, p. 51-57

From the activity of B&T over the last 20 years we have collected vast knowledge of the effects of olive oil fatty acids on the skin showing positive benefits by reinforcing the effectiveness of the hydrolipidic film supporting the skin barrier function. In this paper we take three olive oil derivatives (Olivem 1000, Sensolene and Olivem 900) having different formulation functions and show how the olive oil fatty acids can provide positive effects on the skin in cosmetic applications.

N. Arnejo, O. Carballo, F. Svarc, A. Branca, **A renewable, biodegradable substitute for petrolatum,** Personal Care, March 2011, p. 120-122

The usage of petrolatum in cosmetics has been under scrutiny recently, particularly within the EC, due to the potential carcinogen and mutagenic effects attributed to traces of impurities generated during its manufacturing process. Even though these questions have been around for a while, its unsurpassable properties as an occlusive have made difficult its replacement in hydrating and moisturising products. But the enforcement of REACH in Europa has accelerated the process, which is the reason why we have focused on searching for (and finding) a viable substitute. The objective of this study was to test a possible substitute to solid Vaseline (petrolatum) to replace it advantageously in treatment creams with a natural, renewable non-toxic and ecologically sound product.

A. Thibodeau, **Anti-aging Skin Care Benefits of Saccharina longicruris Extract,** Cosmetics & Toiletries, Vol. 126, No. 3/March 2011

Skin appearance and functionality are affected by a complex combination of factors including both genetic, i.e. intrinsic, and actinic, i.e. extrinsic or environmental. Indeed, genetic and actinic factors act together to modulate the expression of key genes involved in skin homeostasis. Intrinsic aging is genetically regulated and follows a chronological clock inside of cells, while environmental factors such as UV exposure, humidity and air pollutants are responsible for actinic aging. Together, genetic and actinic aging target important metabolic pathways in skin cells that trigger the signs of aging such as skin roughness and wrinkling. At a molecular level, it has been demonstrated that collagen synthesis is reduced in aged skin cells and in cells damaged by UV radiation.

G.E. Piérard, L. Preudhomme, P. Quatresooz, **Predictive methods exploring sensory irritation to surfactant-based products,** Household and Personal Care TODAY, No. 2/2011, p. 23-26

The concept of sensitive skin is subject of rife controversies. Some authors consider sensitive skin as a sensory irritation without any visible clinical signs. Others extend this definition to some environmentally-induced dermatoses. This latter concept is at risk of introducing much confusion and overlapping with allergic and irritant contact dermatitis. The present review focuses on the restricted definition of invisible sensitive skin, and particularly on sensory irritation to surfactants. A series of biometrological assessments may reveal some aspects linked to sensory irritation.

L. Rigano, C. Andolfatto, L. Stucchi, M. Bosco, **Hyaluronic Acid Butyric Esters for the Improvement of Skin Functionality,** Cosmetic & Toiletries Vol. 126, No. 2/February 2011, p. 104-111

The word hyaluronic is derived from the Greek hyalos meaning “glass” or “transparent” and refers to the vitreous humor, the ocular tissue from which it was first isolated by Karl Meyer and colleagues in 1934. It was later located in many other animal tissues, i.e. synovial fluid, cartilage and the umbilical cord, where it has the same structure and biological activities, described in this article.

Hyaluronic acid (HA) is a linear polysaccharide of thigh molecular weight that belongs to the fmily of mucopolysaccharides or glycosaminoglycans (GAGs), the physiological constituents of the dermal connective tissue in the extracellular matrix. In adult humans, the total amount of HA is equal to approximately 15g, half of which is found in the skin.

T.N. Oliphant, D.W. Gilmore, R.A. Harper, **Hydrolyzed Jojoba Esters to Potentiate Glycerin Moisturization,** Cosmetics &Toiletries, Vol. 126, No. 2, February 2011, p. 96-103

Hydrolyzed jojoba esters are derived from jojobal oil, a unique natural oil expressed from the seed of the jojoba plant. Jojoba oil (INCI: Simmondsia Chinensis (Jojoba) Seed Oil) is unlike other "fixed", i.e. botanically derived, oils in that it is a true wax ester, in contrast to the triglyceride oils often founded in the seed of other botanical species. It is the only known botanical wax ester that remains liquid at room temperature. In addition its chemical structure is similar to the large wax ester component of human skin sebum, making jojoba oil well-suited to augment skin moisturization and barrier repair.

K.G. Lee, S.W. Son, **Efficacy of Korean Red Ginseng in the Treatment of Atopic Dermatitis,** J. Ginseng Res. Vol. 35, No. 2, p. 149-154 (2011)

In order to determine the effcacy of functional foods, objective measurement of the severity of atopic dermatitis (AD) after taking foods is important. The aim of this study was to conduct an objective evaluation of whether Korean red ginseng (KRG) might be helpful for improvement of skin condition and serum IgE in patients with AD. Thirty atopic patients (18 females and 12 males) participated in this study. Patients took KRG for 16 weeks. Bioengineering methods, including the corneometer and evaporimeter, were used at the start of the study and after 8 weeks and 16 weeks. In addition, we assessed serum IgE levels and the severity scoring of the atopic dermatitis (SCORAD) index. Transepidermal water loss and skin hydration showed signifcant improvement after 16 weeks. A signifcant decrease in the SCORAD index, as well as in serum IgE level, was observed after 16 weeks. Our results demonstrated that KRG may be helpful as a functional food for patients with AD.

Interview mit der Haut – Haut, was sagen Sie zu Ihrer Hautfeuchtigkeit?-, Jugend forscht Januar 2011

Die Haut ist das grösste Organ des Menschen und schützt ihn nicht nur vor Umwelteinflüssen, sondern dient auch der Energiespeicherung und Sinnesempfindungen wie Tasten und Schmerz. Um eine Vorstellung zu bekommen, wie sich die Hautfeuchtigkeit bei Jugendlichen verhält, wollten wir möglichst viele Daten zur Hautfeuchtigkeit von Schülern unserer Schule erhalten. Wir wollten diese Daten zu Hautfeuchtigkeitswerten von Schülern in Abhängigkeit vom Alter und Geschlecht bestimmen und zusätzlich untersuchen, ob der rechte Handrücken bei Rechtshändern und der linke Handrücken bei Linkshändern andere Hautfeuchtigketiswerte zeigt als der andere Handrücken. Diese Grundwerte zur Hautfeuchtigkeit haben wir ermittelt, um einen besseren Überblick über die Hautfeuchtigkeit in unterschiedlichen Ältersgruppen zu bekommen.

J. Blaak, R. Wohlfart, N.Y. Schürer, **Treatment of Aged Skin with a pH 4 Skin Care Product Normalizes Increased Skin Surface pH and Improves Barrier Function: Results of a Pilot Study,** Journal of Cosmetics, Dermatological Sciences and Applications, 2011,1, p. 50-58

Abstract: The physiological skin surface pH is just below 5. With age the skin surface pH increases up to 6. An increased pH correlates with reduced barrier integrity/cohesion. The present pilot study assesses possible normalization of an increased skin surface pH of the elderly and improvement of barrier function via application of pH 4.0 skin care products. Baseline skin surface pH was determined in elderly (80+ years old; n = 15) compared to middle aged adults (31 - 50 years old; n = 15). The effect of o/w emulsions at pH-values of 3.5, 4.0, 4.5 and 5.5 on the skin surface pH was determined in both groups. Further, the effect of a 4-week treatment with a pH 4.0 skin care product on the skin surface pH, skin hydration and barrier integrity was assessed. Thirteen elderly females were involved in this home-in-use test. Increased baseline skin surface pH of the elderly normalizes to the physiological pH of 4.5 - 5.0 over 7 hours after single application of o/w-emulsions with a given pH of 3.5 or 4.0. A 4 week treatment employing the pH 4.0 skin care product improves the epidermal barrier integrity of the elderly significantly ($p = 0.005$). Reduction of the increased baseline skin surface pH of the elderly is accompanied by improved epidermal barrier integrity. Skin care products for the elderly have to be adjusted in the pH range of 3.5 to 4.0.

Oestro Cream – Firmer and Beautiful Breast Cream, www.Oestrocream.com, 2010

Oestro cream is a natural breast enhancement cream scientifically engineered with Transdermal Technology to naturally enhance the size, shape and firmness of women's breats.

E.S. Abrutyn, **Skin Care Moisturizers,** Cosmetics & Toiletries Vol. 125, No. 12/December 2010, p. 18-25

Moisturizers are an important category of personal care products, and such formulas are designed to add moisture to the skin. Developing a good moisturizer requires carefully balancing the ingredients in a formula so that, upon application, the product maintains proper water content in the skin, i.e. 10-30%, to maintain its plasticity and barrier integrity. Insufficient water content can lead to the thickening or thinning of skin; fissure development, which produces chapped, rough and cracked skin; and the loss of pleasing skin aesthetics. Therefore, choosing the right moisturizer requires knowledge of its chemical, physical and performance properties and how to best utilize it against the targeted performance claims and consumer expectations. In addition, it requires knowledge of the skin to which it will be applied.

T. Ilknur, M.Ü. Biçak, P. Eker, H. Ellidokuz, S. Özkan, **Effects of the 810-nm diode laser on hair and on the biophysical properties of skin,** Journal of Cosmetic and Laser Therapy, 2010; 12: 269–275

Introduction: Laser therapy is clinically effective in hair removal; however, despite the development of various strategies, laser procedures still present a risk of adverse effects due to the overheating of the skin. *Objective* : To investigate the effects of 810-nm diode laser treatment on hair and on the biophysical properties of skin by using various non-invasive techniques on various parameters, including hair analysis, surface color changes, integrity of skin barrier, sebum production rate and pH level. Methods: In this randomized, right – left comparison study, 35 women with axillary hair received single-session diode laser therapy. Hair analysis and biophysical properties of the skin were assessed before treatment and at weeks 2, 4 and 6 after the therapy. Results: Hair density and thicknesses statistically signifi cantly decreased after the fi rst post-treatment evaluation. Regarding comparison of the biophysical properties of the skin, there was no statistically signifi cant difference in the assessments, except for the increase determined during the second week in the erythema index in the laser-treated areas. Conclusion: The fi ndings of this study showed that the diode laser can perform a signifi cant reduction in the hair amount without signifi cant epidermal damage, at least for a short period.

M. Trinh Luu, M. Mercier, **Sucrose Eser Multilamellar Emulsifiers for Skin Moisturization,** Cosmetics & Toiletries; Vol. 125, No. 10/October 2010, p. 48-52

Sucrose esters are well-known natural emulsifiers and while they are desired for their mildness and safety, they also are reltively expensive when compared with other emulsifiers. Accordingly, they have not been used as widely as they might at lower costs. In response, the authors have developed an emulsifier system comprising a mixture of ethylene oxide-free sucrose esters used at low levels to improve their cost-efficiency. This blend is shown to form multi-lamellar liquid crystalline networks that impart various benefits including skin moisturization, assessed here. Further, most cosmetic compositions prepared with the blend can be formulated with minimal regard to HLB due to the emulsion stabilization provided by multilamellar liquid crystals, which minimize emulsion coalescence

S. Buchwald-Werner, **Abgrenzung kosmetische und pharmazeutische kosmetische und pharmazeutische Zubereitungen,** Presentation at Interpharm, Frankfurt, October 2010

A.-M. Beguin, E. Malaquin-Pavan, C. Guihaire, A.-M. Hallet-Lezy, S. Souchon, V. Homann, P. Zöllner, M. Swerev, R. Kesselmeier, F. Hornung, H. Smola, **Improving diaper design to address incontinence associated dermatitis**, Geriatrics 2010, 10:86

Background: Incontinence associated dermatitis (IAD) is an inflammatory skin disease mainly triggered by prolonged skin contact with urine, feces but also liberal detergent use when cleansing the skin. To minimize the epidermal barrier challenge we optimized the design of adult incontinence briefs. In the fluid absorption area we interposed a special type of acidic, curled-type of cellulose between the top sheet in contact with the skin and the absorption core beneath containing the polyacrylate superabsorber. The intention was to minimize disturbance of the already weak acid mantle of aged skin. We also employed air-permeable side panels to minimize skin occlusion and swelling of the stratum corneum. Methods: The surface pH of diapers was measured after repeated wetting with a urine substitute fluid at the level of the top sheet. Occlusive effects and hydration of the stratum corneum were measured after a 4 hour application of different side panel materials by corneometry on human volunteers. Finally, we evaluated skin symptoms in 12 patients with preexisting IAD for 21 days following the institutional switch to the optimized diaper design. Local skin care protocols remained in place unchanged. Results: The improved design created a surface pH of 4.6 which was stable even after repeated wetting throughout a 5 hour period. The “standard design” briefs had values of 7.1, which is alkaline compared to the acidic surface of normal skin. Side panels made from non-woven material with

an air-permeability of more than 1200 l/m2/s avoided excessive hydration of the stratum corneum when compared to the commonly employed airimpermeable plastic films. Resolution of pre-existing IAD skin lesions was noted in 8 out of 12 patients after the switch to the optimized brief design. Conclusions: An improved design of adult-type briefs can create an acidic pH on the surface and breathable side panels avoid over-hydration of the stratum corneum and occlusion. This may support the epidermal barrier function and may help to reduce the occurrence of IAD.

R.F. Durham, R. Miller, J. W. DeSalvo, **Natural glycol replacement for hair and skin care,** Personal Care, September 2010, p.73-76

Global consumer demand for natural and organic cosmetics and personal care products continues to grow at double digit rates. Cosmetic chemists are challanged to find innovative, natural alternatives to synthetic and petroleum-based chemicals that have similar or better performance. Once they have identified a new ingredient, evaluation of its safety, efficacy and performance atrributes is critical prior to adoption in new formulations. Certification agencies such as ECOCERT, COSMOS, BDIH, Natrue and the Natural Products Assiciation (NPA) have been evaluating and approving ingredients as being safe and/or natural. Products that are on the “do not use” lists from these agencies as well as information on the internet are driving various “free from” marketing claims.

S. Golmohammadzadeh, M.R. Jaafari, H. Hosseinzadeh, **Does Saffron Have Antisolar and Moisturizing Effects?,** Iranian Journal of Pharmaceutical Research (2010), 9 (2): p. 133-140

The objective of this study was to investigate the effects of saffron as a natural sunscreen and moisturizer. The pollens of the saffron were dried and powdered in a grinder. The experimental formulations included a homosalate (8%) lotion reference, lotions with 2, 4 and 8% of grinded saffron, and the control lotion base without saffron. The lotions containing saffron were prepared like homosalate lotion reference according to FDA. The sun protection factors (SPFs) of the formulations were determined by an *in vitro* spectrophotometry method. The moisture contents of the skin before application and after 30 min and 3, 5 and 7 h post-application of the formulations were measured in human volunteers using Corneometer. The results indicated that, there was no signifcant difference between the SPF values of the 4% saffron lotion and the homosalate lotion reference. However, the SPF of 8% saffron lotion was signifcantly more than that of homosalate lotion reference. These results showed that in equal concentrations saffron lotion could act as a better antisolar agent compared to homosalate. Furthermore, there were no signifcant differences in skin moisture saffron lotions and the control lotion without saffron during the 7 h post-application period. Saffron can be used as a natural UV absorbing agent. The 4% saffron lotion showed an SPF value equivalent to the 8% homosalate lotion reference by an *in vitro* method. There were no signifcant differences of skin moisture contents after application of the saffron lotions and the control base lotion without saffron**.**

J. Woodruff, **Testing - backing up the claims,** Cosmetic Business, August 2010

Instrumental methods for efficacy testing of cosmetic producs have long been of interest. The first Journal of the Society of Cosmetic Chemists published in 1947 contained an article on cosmetic efficacy testing although the only instrumenal method quoted was the use of a spectrophotometer to measure UV absorbance of sunscreen agents. It is interesting to note that the need to determine if these were subject to photodegradation was mentioned. Papers on efficacy testing have appeared in almost every issue of the journal since that first edition but most methods are subjective. Instrumental methods other than those to measure physical parameters or analytical ones to measure ingredient concentrations of the cosmetic composition were sadly lacking until 1956 when a paper describing the measurements of percutaneous absorption using radioisotopes to measure absorption journal during 1956 was an in-vitro method using radioisotopes to measure absorption by hair.

M. Choi, J.-W. Choi, S.-Y. Lee, S.-Y. Choi, H.-J. Park, **Low-dose 1064-nm Q-switched Nd: YAG laser for the treatment of melisma,** Volume 21 (4) Informa Healthcare, Jul. 1, 2010

Background: Melasma is a common acquired pigmentary disorder which is sometimes hard to treat with conventional methods. Various kinds of modalities have been applied for the treatment of melasma but none shows constantly good results. Objectives: In this study, we would like to know the effect of low-dose 1064 -nm Q-switched Nd:YAG laser (QSNYL) on melasma and want to evaluate the changes of skin after laser treatment. Methods: Twenty melasma patients were enrolled. Two regions were evaluated from each patient; a total of 40 sites. The 1064-nm QSNYL at fluences of 2.0–3.5 J/cm 2 was used to treat the whole face, including the melasma lesions. The fluence was adjusted individually and increased until erythema was developed on the laser-treated area. The treatment was performed five times with a 1-week interval. Non-invasive measuring methods, including a chromatometer, mexameter, cutometer, visioscan and a corneometer, were used before and after treatment.

A. Mieczko, **Investigation of skin physiological parameters in term neonates and evaluation of the influence of bathing on skin barrier function in newborns during the first four weeks of life,** 2010 Universitäsbibliothek der Freien Universität Berlin

Ultrastructural studies have shown that the epidermis of full-term infants born after 40 weeks of gestation is morphologically indistinguishable from that of adults. It was therefore assumed that the biophysical properties are similar as well. The present study investigated skin physiology in neonates, especially the barrier function during the first 4 weeks of life and the influence of bathing and washing.

J.L. du Plessis, F.C. Elofff, C.J Badenhorst, J. Olivier, P.J. Laubscher, M.N. van Aarde, A. Franken, **Assessment of Dermal Exposure and Skin Condition of Workers Exposed to Nickel at a South African Base Metal Refinery**, Ann. Occup. Hyg. Vol. 54, 2010

The objectives of this study were to assess dermal exposure of cell workers to nickel at a South African base metal refinery and to characterize their skin conditions by measuring skin hydration and and trans epidermal water loss (TEWL) indices.

Hylactive, Scientific Dossier Laboratory F. Bouffard, Dermatological Division Barcelona, Spain, www.pro-medic.com

The skin covers our entire body, and through it we project our image to other people. It reflects our age and the state or our health. Healthy skin is the organism's first defence barrier, and as such it is subject to constant aggressions that can succeed in upsetting its structural balance.

Die neue frei® Bio+Pflegeserie: sanfte Hautpflege aus der Natur, Produktinformation, 2010

Seit 40 Jahren steht die Marke frei für wirksame und gut verträgliche Hautpflege – exklusivaus der Apotheke. Mit der frei® Bio+ Pflegeserie mit Heilpflanzen gibt es jetzt eine Hautpflege, die besonders natürlich und hautverträglich ist. Wie alle Produkte von frei® wurde auch die frei® Bio+ Pflegeserie in enger Zusammenarbeit mit Dermatologen entwickelt, klinisch getestet und zeichnet sich durch eine wissenschaftlich nachgewiesene Wirksamkeit aus. Das frei® Bio-Siegel garantiert wertvolle Wirkstoffe auf natürlicher Basis, u. a. Öle und ätherische Öle, Kräuter- und Blütenextrakte, die soweit möglich aus kontrolliert biologischem Anbau stammen. Die komplette frei® Bio+ Pflegeserie ist frei von synthetischen Duft- und Farbstoffen und enthält keine Paraffine. Sie wird nach dem frei® Bio-Reinheitsgebot hergestellt. Dies beinhaltet neben der sorgfältigen Auswahl natürlicher Rohstoffe auch umweltfreundliche und ressourcenschonende Herstellungsverfahren sowie den sparsamen Einsatz von recycelbaren Verpackungsmaterialien. Ebenso finden umweltmedizinische Aspekte bei der Produktentwicklung besondere Berücksichtigung. Dies beinhaltet selbstverständlich, dass die Produkte nicht an Tieren getestet werden. Die frei® Bio+ Pflegeserie trägt als kontrollierte Natur-Kosmetik das BDIH-Prüfzeichen. Sie enthält fünf gehaltvolle Pflegeprodukte, die für jeden Hauttyp geeignet sind.

Neu von Eucerin®: AQUAporin Active, www2.eucerin.com, Produktinformation 2010

Wie ein Nobelpreis die Feuchtigkeitspflege revolutioniert. Eucerin® hat den „magischen Schlüssel" gefunden – für eine strahlend- schöne Haut, die durch und durch mit Feuchtigkeit versorgt ist. Inspiriert von der mit dem Nobelpreis ausgezeichneten ntdeckung der Aquaporine hat Eucerin® jetzt eine hoch-innovative Feuchtigkeitspflege entwickelt: AQUAporin ACTIVE**.** Eucerin® AQUAporin ACTIVE aktiviert das hauteigene Feuchtigkeitsnetzwerk, indem es die Bildung neuer Aquaporine (Wasserkanäle) fördert, die die Feuchtigkeitsversorgung der Hautzellen regulieren. Das Ergebnis: Die Feuchtigkeit kann optimal in die Haut gelangen, sogar in die tieferen Schichten der Epidermis. Die innovative Feuchtigkeitspflege-Serie Eucerin® AQUAporin ACTIVE für feuchtigkeitsarme Haut besteht aus vier Produkten, die die Haut intensiv mit Feuchtigkeit ersorgen – und die optimal auf die individuellen Hautbedürfnisse abgestimmt sind. Eucerin® AQUAporin ACTIVE stimuliert die Bildung mikroskopisch kleiner Kanäle (sogenannter quaporine), die sich in den Zellmembranen befinden und den Transport von Wassermolekülen regulieren. Je besser dieses Netzwerk ausgebaut ist, desto mehr Feuchtigkeit kann an die Haut abgegeben und verteilt werden. Von Zelle zu Zelle – auch in den tieferen epidermalen Schichten. Eucerin®. AQUAporin ACTIVE wirkt wie ein magischer Schlüssel, der neue Türen in den Zellen „aufschließt" und so mehr Feuchtigkeit hineinlässt – für eine taufrische, optimal hydratisierte Haut.

Seba med Flüssig Wasch – Emulsion, **Erfahrungsbericht,** www.ciao.de

welche eine sanfte ph - hautneutrale Reinigung verspricht und für problematische und empfindliche Haut geeignet sein soll. Zudem soll eine biologische Desodorierung garantiert sein. Gekauft habe ich das Produkt im örtlichen DM - Drogeriemarkt zu einem Preis von 4,95. Man bekommt einen Beutel mit 400 ml Inhalt. Sebamed Produkte gibt es meines Wissens auch nur bei DM und in der Apotheke. Aussehen der Verpackung . Die Emulsion befindet sich in einem knapp 18 cm hohen Beutel

an dem links oben ein Drehverschluss angebracht ist. Der Hintergrund ist in einem schlichten weiss gehalten. Ganz oben rechts befinden sich Informationen zu der Verpackung, welche die Umwelt wohl nicht belastet und darunter befindet sich der Aufdruck über den ph - Wert und und noch weiter unten das Logo des Herstellers. Mittig findet man die Produktbezeichnung und darunter kann man nachlesen für welche Haut es geeignet ist. Ganz unten stehen noch etwas uninteressante Dinge und auf der Rückseite die Verpechen des Herstellers, die Inhaltsstoffe, der Inhalt, Anwendungsempfehlung und die Haltbarkeit sowie Kontakt - und Herstellerdaten. Das Design ist relativ unspektakulär und wirkt medizinisch. Hässlich finde ich es aber keinesfalls! Ein neuartiger Reinigungskomplex mit besonders milden Waschaktivsubstanzen reinigt die empfindliche Haut ohne Reizung und Austrocknung. Ein wertvoller Pflegekomplex mit Pentavitin®, Vitaminen, Aminosäuren, Glycerin und Panthenol spendet Feuchtigkeit und pflegt die Haut. Dadurch wird die Haut schon beim Waschen spürbar glatt und geschmeidig. Der pH Wert 5,5 stärkt den natürlichen Säureschutzmantel der Haut und schützt vor Austrocknung, schädlichen Umwelteinflüssen und Krankheitserregern. Hervorragende Eignung für empfindliche und problematische Haut dermatologisch-klinisch getestet. Bei Hauterkrankungen und Seifenverbot nach Rücksprache mit dem Arzt.

J. Jiménez, A.L. Valenzuela, P. Alfonso, L. Bonilla, **Estudio sobre el Potencial Sostenible en Cosmetica del Aceite de Seje, Caracterizacion y Desarollo de una Propuesta como nuevo Activo Antienvejecimiento,** Enfoque Cosmético, p. 5-12

El aceite de seje es un producto obtenido de forma artesanal por comunidades indigenas en el departamento del chocó en Colombia, su uso popular y sus propiedades representan un alto valor para la comunidad. En busca de ofrecer nuevas alternativas para el creciente mercado mundial de productos sostenibles se planteó una estrategia para la evaluación del aceite de seje como nuevo activo cosmético enfocada en cumplir los tres pilares de sostenibilidad. A nivel social se establecieron los antecendentes y su importancia para la comunidad. Posteriomente se realizaron la caracterización química, física y biológica lo cual unido al proceso de extracción. 100% física contribuye a la responsabilidad ambiental Estos resultados proponen su aplicación como nuevo activo cosmético antiedad sustentado a partir de evaluaciones de su eficacia in vivo.

T. Zioni, N. Perkas, Y. Wolfus, Y. Soroka, I. Popov, M. Oron, I. Perelshtein, Y. Bruckental, F.M. Brégégère, Z. Ma'or, A. Gedanken, Y. Yeshurum, R. Neuman, Y. Milner, **Strontium hexaferrite nanomagnets suspended in a cosmetic preparation: a convenient tool to evaluate the biological effects of surface magnetism on human skin,** Skin Research and Technology 2010, 16, p. 316-324

Magnetic therapy has been popular for ages, but its therapeutic abilities remain to be demonstrated.

S. Mac-Mary, J.-M. Sainthillier, A. Jeudy, C. Sladen, C. Williams, M. Bell, P. Humbert, **Study of Asymmetrical Facial Damage due to Cumulative UVA Exposure***,* ISBS 2010 Buenos Aires, Argentina

Published studies assessing whether asymmetrical facial UV exposure leads to any underlying differences in skin physiology and morphology are only observational. These studies demonstrate that visible signs of photot ageing are more evident on the window exposed side of the face suggesting a role for UVA in photo ageing. Aim: To assess the physiological skin changes associated with visible asymmetrical photo ageing. Methods: 10 subjects were enrolled in the study (age 64 ± 6, 8 women and 2 men), presenting with asymmetrical signs of photoageing due to overexposure of one side of their face to the sun through a window over a long period of time. Split-face biometrological assessments were performed (clinical scoring, hydration with Corneometer®, mechanical properties with Cutometer®, transepidermal water loss with Aquaflux®, skin relief with fringe projection, photography). Results: significant differences ($P<0.05$) were observed on clinical scores of wrinkles which were greater on the window exposed side, skin roughness assessed with fringe projection on the cheek and skin heterogeneity assessed with spectrocolorimetry on the cheekbone (the skin was less heterogeneous) and differences which tend to be significant ($p<0.1$) were observed on skin hydration (skin was dryer) as well as skin laxity (skin was laxer).

T. Lihoreau, C. Vidal, A. Jeudy, A. Elkhyat, S. Mac-Mary, J.M. Sainthillier, J. Iung, H. Bourdin, P. Humbert, **Skin Sebum Excretion and Sleep Apnea**, ISBS 2010 Buenos Aires, Argentina

The sleeping apnea syndrome is a common disorder that affects 5% of the population, but its diagnosis is underestimated because physicians forget to ask key questions, and the establishment of polysomnography is cumbersome. But given the relationship between excretion of sweat and some brain dysfunctions (eg Parkinson's disease ...), we wanted to evaluate sebaceous excretion in a population suffering from sleeping troubles, particularly sleep apnea, compared to a control group.

Methodology: A preliminary study was then carried out on 26 volunteers (11 women, 15 men, average age = 46.2 years +/-14.8, average Body Mass Index (BMI) = 26.4 kg/m^3+/-5.6); they were sorted in two different populations (apnea versus, n=14, and no apnea syndrom, n=12). Skin and apnea parameters were compared between both groups: a polysomnographic record was done during the night; concerning the skin parameters, the records -realized on the wakening of the patient- concerned sebum excretion (Sebumeter SM 810, Courage & Khazaka), hydration index (Corneometer CM820, Courage & Khazaka), pH (Skin-pH-meter pH900, Courage & Khazaka).

C. Try, R. Messikh, A. Elkhyat, J.M. Sainthillier, C. Vidal, T. Lihoreau, S. Mac-Mary, A. Jeudy, P. Humbert, **Biometrological Assessment of Sweat Secretion. Clinical Study of Oral Oxybutynin in Primary Hyperhidrosis**, ISBS 2010 Buenos Aires, Argentina

Primary hyperhidrosis may be a disabling condition causing emotional stress and negative impact on a patient's quality of life. Oral anticholinergics are some of the treatments available. There are few published data on the use of the anticholinergic drug oxybutynin given orally in the treatment of hyperhidrosis. To evaluate the efficacy and the safety of oral oxybutynin in the treatment of primary hyperhidrosis. From January to June 2010, patients with primary hyperhidrosis were treated with oral oxybutynin in the Department of Dermatology, Besançon, France, and attended follow-up. Treatment was started with oxybutynin 2.5 mg three times daily during 3 days. The 3 following days, the dose of oxybutynin was increased at 5 mg per day. Patients then took 7.5 mg of oxybutynin per day during 24 days. The study lasted 1 month from the first day of oxybutynin treatment. Patients were evaluated every two weeks by clinical and biometrologic methods. The following parameters were assessed on the palm and plant: degree of sweating was determined by measuring Trans Epidermal Water Loss (TEWL) using a double-probe Tewameter (TM 300; Courage+Khazaka), skin temperature (Thermometer® ST500), skin pH (pH-meter, PH 900) and skin hydration (Corneometer®, CM 825).

P.M.B.G. Maia Campos, M.D. Gianeti, D.G. Mercurio, L.R. Gaspar, **Assessment of Protective Effects of Cosmetics with UV-Filters, Vitamins, Ginkgo Biloba and Red Alga Extracts using Biophysical and Skin Image Techniques,** ISBS 2010 Bueno Aires, Argentina

The combination of UV filters with antioxidant substances and natural extracts with biological activity in terms of photoprotection can provide unique benefits to the skin, by increasing its protection against UV radiation and also by improving skin conditions. Thus, the aim of this study was the assessment of protective effects of cosmetic formulations containing UV-filters, vitamins, *Ginkgo biloba* and red alga *Porphyra umbilicalis* extracts by biophysical and skin image techniques. For this purpose, an emulsion was supplemented or not (F) with *Ginkgo biloba* extract (FG), or red alga *Porphyra umbilicalis* extract (FA), or the combination of these extracts and vitamins A, E and C (FGAV). These formulations were submitted to preliminary studies for the evaluation of Sun Protection Factor (SPF), which were carried out on a group of human volunteers according to the COLIPA methodology After that, the formulations were applied on 10 human volunteers' forearm skin, followed by the analysis of their effects using biophysical and skin image techniques. This evaluation was done in terms of transepidermal water loss (TEWL) (Tewameter® TM 210), water content of the stratum corneum (Corneometer® CM 825), viscoelastic properties (Cutometer® SEM575), skin microrelief (Visioscan® VC 98) and the dermal thickness (Dermascan C®). The measurements were done before and after a 30 day-period of daily applications.

A. Sirvent, L. Roussel, T. Thu Hang Ngo, P. Buche, S. Fontaine, M. Renner, F. Girard, **Skin Softness Evaluation – Description of skin suface state thanks to an innovative tribological device,** IFSCC 2010 Buenos Aires, Argentina

We describe a new measurement device that has been designed in order to approach skin softness thanks to the evaluation of skin surface state. This device uses an innovative approach: the analysis of the vibrating effect measured by extensometric gauges fixed on a vibrating slide that rubs on the skin. The energy of two specific peaks (mode 1 at 30Hz and mode 3 at 230Hz) was analyzed afterwards. The aim of this study was to check the repeatability of measurements and to correlate the results obtained on cosmetic products with both sensorial analysis and biometrological measurements (hydration, roughness and friction) to those obtained with this new device. In view of the results obtained, we can conclude that our measuring method seems to quantify: - on one hand, the smoothness and softness of the skin. A smooth surface, as observed on normal hydrated skin or after application of a cream penetrating rapidly, increases mode 1 whereas the presence of a sticky film on skin surface limits or decreases mode 1.

L.-A. Raaff, B. Summers, M. Lategan, **An Exploratory Study of Skin Dryness in South African Negroid Pre and Post-Menopausal Women,** IFSCC 2010 Buenos Aires, Argentina

The aim of the study was to assess differences in natural skin dry-down rates on selected body areas (face, arm, leg, heel) of pre- and post- menopausal South African Negroid women. The Photobiology Laboratory of Medunsa Campus has conducted skin clinical studies for over 20 years in various ethnic groups. Normally these studies involve induced dry-down via soap challenges or active re-moisturising. We have not studied the natural dry-down process. In addition, the natural process of skin drying on various body sites in ethnic negroid skin is not well reported in the literature (Rawlings, 2006. Int J Cos Sci). Hence we decided to investigate the process in negroid South African women. Twenty pre-menopausal (aged 20-40) and twenty post-menopausal (aged 40-55) negroid South African women were enrolled in the study. The areas of assessment were the face, volar forearms, outer calf and the back of the heel. Volunteers were briefed and completed consent forms. The study was conducted according to GCP guidelines. All volunteers stopped all facial creams for the first three days and all moisturisers and bath oils for the duration of the study (seven days).

E. Kim, G. Cho, S. Yu, H. Rho, D. Min, D. Kim, H. Kim, **The elasticity, depth of wrinkles, and skin color on the neck determine your neck age and shape,** IFSCC 2010 Buenos Aires, Argentina

There are many reports on regional variations in skin properties, but few physiological studies have been performed on the neck. The neck is sun-exposed and we stretch or shrink our neck constantly, so the neck skin can be more apt to be aged. The purpose of this study was to find out the biomechanical and physiological parameter on the neck to change age-dependently and make the photographic scale for the neck age or neck shape. The skin properties on the neck of 56 Korean female volunteers in good health (25-64 years old, 43.1±10.5yr) were assessed non-invasively with the skin measuring devices. And we analyzed the correlation of skin physiological parameters with age. The neck skin was changed age-dependently. The elasticity, skin lightness was reduced. The depth of wrinkles and TEWL were increased. Based on the correlation parameter to age, we chose the skin color, winkles and elasticity for the key parameters to determine the neck age or neck shape. As the elasticity was reduced, the sagging of the neck skin increased. The neck wrinkles increased age-dependently and changed to “U” shape because the neck skin was sagged.

M.D. Gianeti, P.M.B.G Maia Campos, **Effects in tactile sensitivity and in skin moisturizing of cosmetic formulations containing vitamins and botanical extracts,** IFSCC 2010 Buenos Aires, Argentina

Skin is a sense organ with sensory nerve endings and receptors, which behaves like a body wrap with its protection and regulation functions. Sensorial informations are originated at the sensory receptors and it makes possible body representation, mediating physical world exploration. Experimental studies have shown that many factors may affect tactile sensations. For this purpose it was measured the current perception threshold (CPT) sensory nerve fibers by using an electric current sine wave stimulator (NeurometerTM) in 20 healthy women volunteers, aged from 25 to 35 years, before and after 2 hours of a single application of a formulation containing an association of vitamins A, C, E, *Ginkgo biloba* and *Phorphyra umbilicalis* extracts. The CPT for 5Hz, 250Hz and 2000Hz frequency current are reported to enable a selective quantification of the sensory thresholds of C, Ad, and Ab fibers respectively. In parallel, the stratum corneum hydration, the sebum content and the TEWL were measured using Corneometer™ CM285, Sebumeter™ SM810 and Tewameter™ TM210, respectively. Skin water and sebum content were significantly increased after 2 hours of the formulation application. The test group showed significantly decreased in the TEWL and in the CPT of 2000Hz, while the control group did not demonstrate any change on those parameters.

S.M. Bertucci, L.S. Freitas, L.R. Gaspar, D.G. Mercurio, M.D. Gianeti, P.M. Maia Campos, **Efficacy of Cosmetic Formulations Containing Green Tea and Ginkgo Biloba Extracts-Pre-Clincal and Clinical Studies,** IFSCC 2010 Buenos Aires, Argentina

This research aims to evaluate the effects of cosmetic formulations containing green tea (*Camellia sinensis*) and/or *Ginkgo biloba* glycolic extracts by histopathological and histometric studies and also to evaluate the immediate and long-term effects on human skin using biophysical techniques and skin image analyses. The pre-clinical efficacy evaluation was performed by the application of the formulations on the dorsum of hairless mice once a day for 5 days. For the clinical studies, formulations under study were applied to the forearm skin of 48 volunteers, which was evaluated by biophysical techniques and skin image analyses according to the following parameters: stratum corneum water content, transepidermal water loss (TEWL), skin elasticity and viscoelastic-to-elastic ratio and skin micro-relief, before (basal values) and after 3 hours (immediate effects), 15 and 30 days (long term effects). The histological analysis showed the formulations containing green tea extract, alone or in combination with the *Ginkgo biloba* extract, provoked significant enhancement in viable epidermis thickness and in the number of cell layers, suggesting a moisturizing effect and an induction of cell

renewal. The clinical efficacy studies showed that the extracts under study had a moisturizing effect and also acted synergistically on skin viscoelastic-to-elastic ratio, related to hydration of deeper epidermal layers.

P. Clarys, R. Clijsen, A.O. Barel, **Influence of probe application pressure on in vitro and in vivo capacitance (Corneometer CM 825®) and conductance (Skicon 200 EX®) measurements**, IFSCC 2010, Buenos Aires, Argentina

The measuring probe of the electrical hydration instruments are equipped with a spring system aiming to assure a constant and reproducible pressure of probe application on the skin surface. However with the capacitance (Corneometer) and conductance (Skicon) instruments it is possible to trigger the measurement at respectively low and high force of probe application on the skin. This provokes a different contact of the electrodes with the skin surface, which may influence measurement values. For both methods, limited information is available concerning the systematic influence of probe application pressure on the obtained hydration values.

S.N. Park, J.E. Kim, M. J. Kim, M. K. Kang, **Antioxidative and Antimicrobial Activities of Onion (*Allium Cepa*) Peel Extracts and Antimicrobial Activity of the Extract-Containing Emulsion,** IFSCC 2010 Buenos Aires, Argentina

We investigated antioxidant activity and inhibitory effect on tyrosinase and elastase of the xtract/fractions of Onion (*Allium cepa*) Peel. Besides the cream containing the ethyl acetate fraction of Onion (*Allium cepa*) Peel extracts was formulated. The skin hydration and transepidermal waterloss were investigated after topically application of the cream on skin. These results indicate that Onion (*Allium cepa*) Peel extract/fractions could be applicable to new functional cosmetics for antiaging. the skin is sensitive to stress by various environment factor (UV, pollution or oxidants). The major factor of oxidative stress is exposure of UVA or UVB on skin, it is occurred when there is ROS (reactive oxygen species) more than antioxidants in skin[1-2]. ROS includes singlet oxygen (1O2), superoxide anion radical (O2 -), hydroxyl radical (·OH) and hydrogen peroxide (H2O2). These can be produced significantly in cells by a variety of processes including high energy irradiation, photosensitization, phagocytosis and several enzymatic reactions[3]. Excessive production of ROS may accelerate skin aging by inducing mutations, inflammation, degradation of collagen or elastin, carcinogenesis and protein denaturation[4-7]. Besides, the flavonoids widely used as therapeutic agents are known to act as strong scavengers of ROS, and react with peroxyl radicals involving termination of radical chain reactions during the autoxidation of polyunsaturated fatty acids[8].

H.-U. Jabs, **Aquaporation – ein neues Verfahren zur Verbesserung der Elastizität und Feuchtigkeit der Haut,** Ästhet. Dermatologie 5/2010; p. 6-12

Als Aquaporine (AQP) werden Proteine bezeichnet, die Kanäle in der Zellmembran – auch in der Haut – bilden, um den Durchtritt von Wasser und einigen weiteren Molekülen zu erleichtern (Membrantransport). Sie werden daher auch Wasserkanäle genannt. Bei der Aquaporation gelingt der Transport von dermato-kosmetischen Substanzen, z.B. Natürlicher Feuchtigkeitsfaktor (NMF) und Hyaluronsäure in liposomaler Formulierung (Koko GmbH & Co.KG, Leichlingen) durch die Barriere der Haut mit Hilfe von hochfrequenten Strömen (radioSURG 2200, Fa. Meyer-Haake GmbH), wodurch die Feuchtigkeit und Elastizität der Haut erhöht wird. Es wird angenommen, dass die Radiowellen die Transportkapazität der Aquaporine für Wasser durch Konformationsänderungen der Proteine im Kanal und durch Lockerung der Wasserstoffbrückenbindungen vergrössern.

Eine Akne-Pflege, multifaktorielle Wirksamkeit, Produkt Information La Roche Posay, Ästhetische Dermatologie 5/2010

Für Akne-Patienten ist die Wahl der Hautpflege von besonderer Bedeutung. Eine ungeeignete Galenik kann bei Akne zu einer Stimulation der Komedonenbildung und so zu einem erneuten Auftreten von Akne-Effloreszenzen führen, heisst es in der aktuellen Leitlinie der Deutschen Dermatologischen Gesellschaft. Weil die Haut durch medikamentöse Massnahmen häufig gereizt und empfindlich ist, muss in der Hautpflege auf jede physikalische und chemische Irritation verzichtet werden. Für eine zur Akne neigende Haut sind hydrophile, wasserhaltige Systeme, leichte Öl-in-Wasser (Ö/W)-Emulsionen und Hydrogele laut Leitlinie besonders geeignet.

J.-M. Sainthillier, S. Mac-Mary, D. Monnier, P. Mermet, C.T. Zarrit, M. Mudry, C. Mudry, P. Humbert, **Exploratory study of the typology of mature skin at different stages,** and Skin Research and Technology 2010; 16

Post-menopausal skin aging has intrinsic and extrinsic origins that induce considerable appearance and feeling disparition within a class of age. The aim of this study was to try and identify

different stages of maturity of skin of the face of menopausal women.

G. Fahrgruber, **Biophysical Characterization of Lesions of Acute and Subchronic Allergic Contact Dermatitis in Domestic Pigs**, Dissertation at the University of Veterinary Medicine of Vienna, Austria, May, 2010

Allergic contact dermatitis (ACD) or contact hypersensitivity is a common eczematous skin reaction in sensitized individuals (WEEDON and STRUTTON, 2002; BAKER(a),2006; NOSBAUM et al., 2009). Very familiar are contact allergic reactions to nickel sulfate containing jewelry or occupational diseases of hair dressers, health care persons or construction workers who experience cutaneous hypersensitivity reactions after repeated contact with particular ingredients of hair dyes or chemicals in latex gloves or in building materials (MOWARD and MARKS, 2003; GERAUT et al., 2009). Urushiol is a very potent allergen in leaves of genus Toxicodendron, a plant native in North America. Farmers, workers in forestry or hikers suffer from ACD after incidental repeated contacts with these plants (GLADMAN, 2006). They are, therefore, named poison ivy, poison oak or poison sumac.

S. Mac-Mary, J.M. Sainthillier, A. Jeudy, C. Sladen, C. Williams, M. Bell, P. Humbert, **Assessment of cumulative exposure to UVA through the study of asymmetrical facial skin aging**, Clinical Interventions in aging; Volume 5, 2010 open access

Background: Published studies assessing whether asymmetrical facial ultraviolet light exposure leads to underlying differences in skin physiology and morphology report only clinical observations. The aim of this study was to assess the visual impact oft he skin of repeated ultraviolet-A (UVA) exposure through a window. Methods: Eight women and two men presenting with asymmetrical signs of photoaging due to overexposure of one side of their face tot he sun through a window over a long period of time were enrolled in the study. Split-face biometrologic assessments were performed (clinical scoring, hydration whit Corneometer, mechanical properties with Cutometer, transepidermal water loss with AquaFlux, skin relief with fringe projection, photography, stripping, and then lipid peroxidation analysis).

P. López-Jornet, F. Camacho-Alonso, A. Rodríguez-Espin, **Study of lip hydration with application of photoprotective lipstick: Influence of skin phototype, size of lips, age, sex and smoking habits**, Med Oral Patol Oral Cir Bucal. 2010 May 1;15 (3):e p. 445-50

Objectives: To study lip hydration levels when applying a lipstick sunscreen for 3 months and to evaluate the influence of size of lips, age, sex, smoking and skin phototype. Study design: The study group was formed by 140 volunteer subjects, one group consisting of 70 patients applying a commercial lipstick sunscreen three times a day and the other group of 70 controls in which no product was applied. The age range was 20-86 years. The influence in lip hydration levels of age, sex, phototype, size of the lips and smoking habits was studied using a Corneometer 825® (Courage & Khazaka Electronic GmbH, Cologne, Germany). Results: An increase in lip hydration was found between the basal (53.49 ± 15.259) and fnal (59.34 ± 14.51) Corneometer 825® (Courage & Khazaka Electronic GmbH, Cologne, Germany) measurements over the three months of treatment, with statistically signifcant differences with respect to the control (p=0.002). However, no statistically signifcant differences in lip hydration were observed with regard to age, (p=0.48), gender (p=0.876), skin phototype (p=0.653), lip area (p=0.291) and smoking (p=0.178). Conclusions: Application of a lipstick sunscreen 3 times a day for 3 months increases lip hydration.

S. Hibino, U. Hamada, H. Takahashi, M. Watanabe, N. Nozato, Y. Yonei, **Effects of Dried Brewer's Yeast on Skin and QOL: A Single-Blind Placebo-Controlled Clinical Study of 8-Week Treatment**, Anti-Aging Medicine 2010

Objective: Brewer's yeast contains vitamins, minerals, amino acids and other nutrients, and has been reported to control intestinal function as well as to exert anti-ulceration, anti-tumor and anti-allergy effects. The present study evaluated the effects of oral treatment with dried brewer's yeast tablets (study product) on skin in a single-blind placebo-controlled design in humans. Methods: Thirty-two healthy volunteer women (37.0±4.8 years) were allocated as follows: Group E-30 (n=11) were treated with 30 tablets/day of the study product (containing 7,125mg/day of dried brewer's yeast), Group E-9 (n=10) were given 9 tablets/day of the study product, and the control group (n=11) were given 30 placebo tablets/day. The treatment period was 8 weeks. Two patients prematurely discontinued the study (discontinuation rate: 5.9%) and were excluded from the analyses. The study product (Ebios Tablet®) was provided by Asahi Food & Healthcare Co., Ltd. Before and at 4 and 8 weeks after the study, subjective symptoms were evaluated using the Anti-Aging QOL Common Questionnaire (AAQol) and checking skin symptoms, skin images were analyzed with SK Info (SKI, Integral Co.) and Aphrodite-III (PSI), and skin color (CM-700d, Konica Minolta Sensing, Inc.) and elasticity (Cutometer MPA580,

Courage & Khazaka electronic GmbH) were measured. Results: In Group E-30, the AAQol physical symptom “cold skin” score was significantly improved at 8 weeks (p<0.05). The skin symptoms “make-up runs easily” and “desiccated and gritty skin,” as well as the physical symptom “menstruation-related troubles” were improved in a significant and dose-dependent way from the control group (p<0.01). On skin analysis, SKI demonstrated an increase in moisture content (15.4%, p=0.010), decrease in erythema (– 18.3%, p<0.001) and increase in elasticity (13.3%, p=0.003), while PSI revealed an increase in hydration (Total: 14.5%, T zone: 13.7%, U zone: 18.2%, p<0.01) and decrease in pores (–32.7%, p=0.022). Cutometer analysis showed a dose-dependent increase in skin elasticity, while analysis of skin color showed a decrease in hemoglobin (–9.5%, p=0.016), improved lightness (–0.7%, p=0.045) and decrease in redness (–8.3%, p=0.013). During the study period, no serious adverse events were noted. Conclusion: These results suggest that treatment with dried brewer’s yeast is useful in improving skin condition, *e.g.* moisture content and elasticity, and also QOL.

A. Greco, **Trockenpflanze zur medizinischen Hautpflege,** Pharmazeutische Zeitung online 2010

Die Mittagsblume (Mesembryanthemum crystallinum L.), auch als Sodapflanze oder Eiskraut bekannt, stammt ursprünglich aus Südafrika. Heute kann man sie weltweit in vorwiegend trockenen und heißen Gegenden antreffen, so zum Beispiel auf den Kanarischen Inseln (Lanzarote), in Sizilien und Kalifornien. Ein Überleben ist unter den extremen Standortbedingungen nur durch einen hoch spezialisierten Stoffwechsel sowie die spezielle Morphologie der Mittagsblume möglich. Studiert man die Biologie der Pflanze und ihre charakteristischen Inhaltsstoffe, eröffnen sich Wege zu neuen Präparaten mit interessanten Indikationen.

T. Brennan Steele, **A Double blind comparative study to determine the efficacy of a 25% urea cream vs. a 10% urea cream, in treating anhydrosis,** Thesis of the Glasgow Caledonian University

The terms anhydrosis and xerosis are used interchangeably to describe a skin condition which presents as dry, rough and scaly with possible presence of reddening, cracking or itching (Flynn et al, 2001). For the purpose of this project, the term anhydrosis will be applied. Anhydrosis can affect all age groups and features regularly within the podiatrist’s clinical environment. The skin may also present as less flexible than normal, contributing to the irregular feel which is usually rough and uneven to touch (Flynn et al 2001, M.Loden, 2003).

J. Liu, W.Y. Man, C.Z. Lv, S.P. Song, Y.J. Shi, P.M. Elias, M.Q. Man, **Epidermal Permeability Barrier Recovery Is Delayed in Vitiligo-Involved Sites,** Skin Pharmacol Physiol, 2010; 23: p. 193–200

Background/Objectives: Prior studies have demonstrated that both the skin surface pH and epidermal permeability barrier function vary with skin pigmentation types. Although melanin deficiency is the main feature of vitiligo, alterations in cutaneous biophysical properties in vitiligo have not yet been well defined. In the present study, stratum corneum (SC) hydration, the skin surface pH and epidermal permeability barrier function in vitiligo were evaluated. Methods: A total of 30 volunteers with vitiligo comprising 19 males and 11 females aged 13–51 years (mean age: 27.91 8 2.06 years) were enrolled in this study. The skin surface pH, SC hydration, melanin/erythema index and transepidermal water loss (TEWL) were measured by respective probes connected to a Courage-Khazaka MPA5. SC integrity was determined by measuring the TEWL following each D-Squame application. The barrier recovery rate was assessed at 5 h following barrier disruption by repeated tape stripping. Results: In addition to SC hydration, both melanin and erythema index were significantly lower in vitiligo lesions than in contralateral, nonlesional sites, while no difference in skin surface pH between vitiligo-involved and uninvolved areas was observed. In addition, neither the basal TEWL nor SC integrity in the involved areas differed significantly from that in the unin volved areas. However, barrier recovery in vitiligo-involved sites was significantly delayed in comparison with uninvolved sites (40.83 8 5.39% vs. 58.30 8 4.71%; t = 2.441; p < 0.02). Conclusion: Barrier recovery following tape stripping of the SC is delayed in vitiligo. Therefore, improvement in epidermal permeability barrier function may be an important unrecognized factor to be considered in treating patients with vitiligo.

S. Zimmermann, **Entwicklung der Hautphysiologie in der postnatalen Periode und deren Beeinflussung durch die Anwendung einer sauren Pflegecreme - Eine prospektive randomisierte kontrollierte Doppelblind-Studie in vivo**, Dissertation an der Medizinischen Fakultät der Friedrich-Schiller-Universität Jena, 2010

Probanden in einem annähernd neutralen Bereich. Im Verlauf der vier Wochen kam es zu einem Abfall des pH-Wertes auf der Hautoberfläche. Klinisch erschien die Haut zu Studienbeginn bei den Probanden unterschiedlich gerötet und trocken (teilweise mit Fissuren). Im Studienverlauf verbesserte sich das klinische Hautbild, was wissenschaftlich durch eine Abnahme der Gesamtpunktwerte des klinischen Irritationsscores innerhalb der vier Wochen gestützt wird. Das saure Pflegeprodukt führte zu

einer verstärkten Zunahme der Stratum-corneum-Hydratation, einer Stabilisierung der epidermalen Barrierefunktion und zu keiner Erhöhung des klinischen Irritationsscores. Bei den Messungen mit dem Multiphotonen-Lasertomograph zeigte sich im Studienverlauf eine Zunahme des dermalen Kollagen- und Elastingehaltes. Basierend auf den Ergebnissen der Neugeborenenstudie lässt sich schlussfolgern, dass infolge der Anwendung eines sauren Pflegeproduktes die physiologische Entwicklung des Säureschutzmantels innerhalb der Neugeborenenperiode unterstützt wird. Die antimikrobielle Funktion des Säureschutzmantels und seine Bedeutung für das Gleichgewicht der Permeabilitätsbarriere für eine normale Stratum-corneum-Integrität kann durch ein derartiges Pflegeprodukt nicht negativ beeinflusst werden. Abweichungen oder Störungen pH-abhängiger epidermaler Funktionen können bei Neugeborenen pathologische Veränderungen hervorrufen. Die Zunahme der Stratumcorneum-Hydratation sowie die Tatsache, dass die Anwendung der Pflegeprodukte keine irritativen Hautveränderungen induzierte, lassen die Schlussfolgerung zu, dass esempfehlenswert ist, derartige Produkte in der postnatalen Periode zu verwenden. Es ist die erste Studie dieser Art, die bisher an Neugeborenen durchgeführt wurde. Die vorliegende Studie repräsentiert einen Ansatz in der Prävention und Therapie dermatologischer Erkrankungen von Neugeborenen. Die Messungen mit demMultiphotonen-Lasertomograph sollen im Rahmen dieser Studie lediglich als Pilotuntersuchungen für Folgestudien dienen, da eine zu geringe Probandenanzahl untersucht wurde.

S.W. Hwang, J.H. Kang, J.E. Seol J.K. Seo, D. Lee, H.S. Sung, **The Correlation between SCORAD Index and Instrumental Assessment in Evaluation of Atopic Dermatitis Severity**, Korean J Dermatol., 2010 Apr;48(4): p. 266-271

Background: Atopic dermatitis is a chronic relapsing inflammatory skin disease characterized by dry skin, pruritus, and typical distribution of the lesions. Because an objective tool for the assessment of disease severity of atopic dermatitis has yet to be agreed upon, many dermatologists are dependent on subjective history and clinical scoring. Recently, instrumental measurements have been used for the assessment of skin barrier function. Objective: The purpose of this study was to assess the correlation between SCORAD (scoring of atopic Dermatitis) index and the results of instrumental assessments of disease severity in atopic dermatitis. Additionally, we compared the values of instrumental measurements on normal and lesional skin. METHODS: From February to April 2007, 44 patients with atopic dermatitis were treated with topical steroids, topical calcineurine inhibitors, oral antihistamine agents and systemic steroids. At initial visit, and after 1, 2, 3, and 4 weeks of treatment, the SCORAD index was measured, and instrumental measurements of skin surface hydration (SSH), transepidermal water loss (TEWL), and pH were performed on the antecubital fossa (lesional skin) and flank (normal skin) of the patients by Corneometer(R), Tewameter(R), and skin-pH-meter(R). Results: Significant correlation was found between SCORAD index and SSH ($p<0.0001$), TEWL ($p<0.0001$), and pH ($p=0.1680$). SSH and TEWL improved within 1 week of treatment but pH improved after 2 weeks of treatment. Instrumental assessments showed lesional skin had lower SSH, higher TEWL, and more alkaline pH than normal skin. Conclusion: Instrumental measurements showed correlation with SCORAD index. Therefore, we can use instrumental assessments as well as SCORAD index in the assessment of disease severity of AD.

E. Dupont, J. Gomez, C. Léveillé, D. Bilodeau, **From Hydration to Cell Turnover: An Integral Approach to Antiaging,** Cosmetics & Toiletries magazine, Vol. 125, No. 3/March 2010

The speed at which information now travels has favored the advancement of science and technology like never before. This is true for all aspects of life, including personal care. The industry's understanding of skin physiological processes has progressed in recent years, and with deeper knowledge more sophisticated cosmetic products have emerged. Over the past 50 years, cosmetics have evolved from camouflage makeup to the combined health and beauty products that currently predominate the market. In addition, cosmetic products now contain actives that modulate defined physiological processes. The frontier between cosmetic avtives and drugs is is thinning. In fact, the industry has been flirting so much with pharmaceutical science that their union has been celebrated with a new word, cosmeceutical. What can be learned from this association?

Y. Gozu, M. Moriyama, K. Sakai, S.-I. Haze, **Elucidation of Menstrual Cycle-Related Discomfort in Everyday Life and Efficacy of a "Rescue Fragrance",** IFSCC Magaine 2/2010

The body maintains homeostasis in the face of environmental changes through its endocrine system and autonomic nervous system. The autonomic nervous system can operate at a subconscious level and controls many functions of the internal organs. The endocrine system includes eight major endocrine glands that secrete hormones. After delivery through the bloodstream, hormones reach different parts of the body and help to regulate cellular function. Therefore hormones are though to be a regulatory system that complements the nervous system. In women, the secretion of sex hormones

fluctuates dramatically over the course of the menstrual cycle, causing psychosomatic changes.

A.-L. Rodrigues, O. Freis, L. Danoux, C. Jeanmaire, P. Moussou, M. Sabadotto, A. Rathjens, **Functional moisturiser raises skin barrier function,** Personal Care, January 2010, p. 40-43

One of the skin's primary functions is to protect our body from external aggressions such as allergens, dirt, irritants, chemicals, as well as from water loss from the inside. Stressful environmental conditions, including weather (cold, wind, sun) and pollution in addition to daily-used products, such as soap and surfactants, may alter the skin's natural water balance and affect its protective functions. If the skin's protective barrier is compromised, skin becomes dry and flaky and more sensitive to external stress factors, such as pollution, air-conditioning and frequent cleansing.

P. Lennon, J.-D. Rodier, **Improving Skin Moisturization with Polyglycerol-derived Plant Waxes,** Cosmetics & Toiletries, Vol. 125, No. 1 / January 2010

Moisturization remains the main objective of skin care cosmetics, coupled with secondary functions such as antiwrinkle, firming or brightening benefits. The moisturizing ability of a formulation generally is imparted by the use of polyols, mainly glycerin. Glycerin can help attract water from the formulation or the atmosphere and retain it in the epidermis Added to an emulsion at levels between 3% and 10%, glycerin ensures a good level of hydration that is maintained for several hours; the duration of this effect depends on the other components in the formulation.

G. Boyer, L. Laquièze, A. Le Bot, S. Laquièze, H. Zahouani, **Dynamic indentation on human skin in vivo: ageing effects,** Skin Research and Technology 2009, 15, p. 55-67

Knowledge of the mechanical properties of the human skin is very important for cosmetic and clinical research. Objective and quantitative measurements are essential to compare studies performed by different experimenters in different centres. The aim of this paper is to present a method to measure the visco-elastic properties of human skin in vivo using dynamic indentation. A complete device to assess the stiffness and damping of skin has been developed.

S. Gong, C. Lv, K.R. Feingold, X. Zhang, S. Xin, C. Tu, L. Dui, P.M. Elias, M. Man, **Variation of skin surface pH, sebum content and stratum corneum hydration with age and gender in Chinese population,** Journal of Investigative Dermatology (2009), Volume 129

Evidence suggests the importance of skin biophysical properties in predicting diseases and in developing appropriate skin care. The results to date of studies on skin surface pH, stratum corneum (SC) hydration, and sebum content in various gender and ages have been inconclusive in part due to small sample size. Additionally, little is known about skin physical properties of Asian, especially Chinese, subjects.

M. Yamaguchi, Y. Tahare, T. Makino, T. Shimizu, A. Date, **Comparison of Cathepsin L activity in cheek and forearm stratum corneum in young female adults,** Skin Research and Technology 2009; 15; p. 370-375

Noninvasive determination of skin surface proteolytic anctivity may be useful for the diagnosis of human disease and the potential of skin. The cathepsin family is one of the metabolizing enzymes of the skin cell and it includes aspartic protease cathepsin D and cysteine proteases cathepsin B, H, and L. Cathepsin L is a lysosomal cysteine protease with a major role in intercellular protein catabolism.

K. de Paepe, E. Houben, R. Adam, J.-P. Hachem, D. Roseeuw, V. Rogiers, **Seasonal Effects on the Nasolabial Skin Condition,** Skin Pharmacol Physiol 2009; 22: p. 8-14

In the present work, nasolabial skin condition and the influence of seasonal changes during autumn and winter were studied in 16 healthy female volunteers. Apart from visual scoring of erythema and skin scaliness, transepidermal water loss (TEWL), skin hydration, apparent skin pH, skin colour and skin desquamation were biophysically measured. The study results showed that nasolabial TEWL was significantly higher during wintertime than in autumn.

S.M. Davoudi, S. Keshavarz, B. Sadr, M. Shohrati, M.M. Naghizadeh, K. Farsinejad, M. Rashighi-Firouzabadi, H. Zartab, A. Firooz, **Skin hydration and transepidermal water loss in patients with a history of sulphur mustard contact: a case-control study,** JEADV 2009, 23, p. 940-944

Sulfur mustard is a powerful vesicant (blistering agent) and a member of the heterogeneous group of chemicals that are referred to as chemical warfare agents. This agent reacts with skin proteins, degrading structure of both cells and underlying extracellular matrix. Sulfur mustard DNA adducts are believedto be the most critical lesions.

N.S. Trookman, R.L. Rizer, **Clinical Assessment of a Combination Lip Treatment to Restore Moisturization and Fullness**, JCAD Online Editor, December 14, 2009

Objective. To evaluate the efficacy and tolerance of a topical lip-care treatment. Step one of the two-step treatment is a lip-renewal formulation containing human growth factors, hyaluronic acid and marine filling spheres, emollients, and a tripeptide palmitoyl-glycyl-histidyl-lysine complex. Step two is a lip-plumper formulation containing niacin, emollients, and essential fatty acids. Design. Four-week, single-center, open-label, clinical study with clinical assessments at Baseline, Week 2, and Week 4. Treatment. Subjects wore the lip products at least eight hours every day with a minimum of three applications per day. Participants. Thirty-two women ages 22 to 40 years with mild-to-moderate lip dryness and average size lips completed the study. Measurements. Visual grading of the condition of the lips, rating of subjective irritation, corneometry, digital caliper measurements of lower lip, and digital photography. A self-assessment questionnaire was also employed to assess patient satisfaction. Results. Clinical assessments showed statistically significant improvements (P<0.001) in key lip condition parameters after both two and four weeks of use. Key parameters included lip scaling, cupping, cracking/fissuring, fine lines due to dryness, lip texture/visual roughness, lip color/rosiness, lip definition/contour, and overall lip condition. Significant increases (P<0.001) were observed in both corneometer measurements, which confirm the moisturizing benefits, and in digital caliper measurements, which confirm the lip-plumping benefits. Self-assessment questionnaires showed a 97-percent overall satisfaction rating. No adverse events were reported during the course of the study.

J. Alander, **Shea butter with improved moisturisatino properties,** Personal Care, September 2009, p. 31-33

Shea butter has recently become a very popular ingredient in cosmetics and personal care applications due to its good emoliency and moisturising properties. The high content of unsaponifiable lipids, especially triterpene cinnamates, contributes to skin healing and restoration by anti-inflammatory action. Shea butter in all its forms is also easy to formulate with, especially if one of the butters specifically developed for cosmetic applications is used. All in all, this indicates that shea butter is both a functional and marketable ingredient with a long history of safe use in cosmetics and explains well its popularity in modern skin care.

P. Clarys, P. Deriemaeker, R. Clijsen, J. Taeymans, A.O. Barel, **The influence of stratum corneum hydration on body fat determination by bioelectrical impedance analysis,** ISBS Besancon 2009

The use of bioelectrical impedance analysis (BIA) of the body (or parts of the body) is a modern method for the estimation of the amount of body fat. Depending on the used instrument contact between the instrument and the body is made at specific skin sites (e.g. hands or feet). It was the aim of the present study to evaluate the influence of the stratum corneum hydration at the contact points used for BIA on the body fat estimation.

H. Taylor, P. Xiao, **New techniques for occupational skin health surveillance,** ISBS Besancon 2009

Ill health due to skin exposure remains a considerable problem, particularly in the workplace. In our aim to reduce the incidence of occupational skin disease and ill health due to skin exposure we need to understand how exposure to substances and physical factors is affecting the skin and how best to identify early signs or pre-clinical signs of skin disease. This project investigated possible new techniques for occupational skin health surveillance. The project focused on techniques that would identify sub-clinical damage that could lead to irritant contact dermatitis.

N. Ismaili, Y. Afifi, B. Hassam, T. Lihoreau, A. Elkhyat, A. Jeudy, P. Humbert, **Typology of maghreb skins,** ISBS Besancon, 2009

To study the biometric characteristics of maghreb skin using common cutaneous exploration techniques and by comparing the results by age bracket and by sex. This prospective, randomised monocentre study was carried out on the forehead, the cheeks and the forearm of healthy volunteers giving informed written consent. Healthy volunteers were included of both sexes and of maghreb origin who agreed to apply nothing to the face and arms 24 hours before the study and not to participate in any other test during the study period.

W. Pratchyapruit, **Grading of improvement and relapse in melasma of Thai females after 8 weeks-treatment with a combined cream of hydroquinone, steoid and tretinoin,** ISBS Besancon, 2009

Melasma is a common skin problem in any races including Asians. It commonly occurs in Thai females, age 30-40 years and females outnumber males about 13:1. In addition to multiple etiologic factors, the environmental factor of Thailand as a tropical and sunny climate country constitutes a definite factor responsible for improvement and relapse of pigmentation after any treatments. At present,

the topical treatment consisting of hydroquinone (HQ), steroid and tretinoin together with sunlight protection is a standard treatment for melasma.

A. Bigouret, F. de Oliveira, C. Gehin, **Objectivation of the individual sensory state by the assessment of specific biophysical properties of the skin in different climatic conditions,** ISBS Besancon, 2009

The CSTB in Nantes is specialized in the study on the climate effects on buildings and on human comfort. To improve human comfort in different climatic conditions, the CSTB must understand the interactions between the environment, the human body and individual perception. As the skin is a sensory organ and the first barrier between the environment and the human interior, some CSTB researchers have choice to study the biophysical properties of the skin to objectify human perception.

M: Lanctin, A. Nkengne, G. Stamtas, F. Le Goff, A. Papillon, C. Bertin, **Changes on body skin as a function of age,** ISBS Besancon, 2009

Facial skin aging has been a great concern in cosmetodermatology and many publications have documented the age-related transformations of skin. However to our knowledge, few studies have been conducted to systematically investigate the changes of skin attributes in different body sites. This study was designed to assess the link between age and skin body attributes such as hydration, firmness, color, stretch marks and cellulite. The study involved 150 healthy women Caucasian volunteers aged between 18 and 70 years of age and with a Body Mass index (BMI) between 20 and 26 kg/m².

A. Elkhyat, Y. Afifi, B. Hassam, P. Humbert, **Human skin wettability cartography,** ISBS Besancon, 2009

For decades the surface hydrophobicity has been reported to play an important role in many biological processes, such as cellular adhesion, contact inhibition, elasticity, functionality of tissue membranes, functioning of intracellular structures, and adhesion of infectious microorganisms. The skin affinity with water is estimated by measuring of its water contact angle. To establish a cartography of skin's wettablility by Ow measuring at nine sites. The hydration and lipidic index (HI, LI) and the skin pH are measured.

I. Angelova-Fisher, D. Wuthe, D. Zillikens, B. Kahle, **Non-invasive bioengineering assessment of the skin barrier function in patients with chronic venous insufficiency,** ISBS Besancon, 2009

Chronic venous insufficiency (CVI) comprises all symptome caused by permanent venous and capillary hypertension. While the clinical manifestations of the disease have been well characterized, there is little knowledge on the skin barrier function in the affected individuals. The aim of the study was to assess non-invasively the epidermal barrier function in patients with CVI stage C2 and C4 according to the CEAP classification and compare the findings to a group of healthy controls (stage C0). 30 patients with CVI without concomitant diseases and 15 healthy, aged-matched volunteers were included in the study following photopletismography and duplex sonography examination of the lower extremities.

G. Stamatas, J. Nikolovski, **Non-invasive optical methods for the study of infant skin,** ISBS Besancon, 2009

Until recently, the study of infant skin in vivo has been limited to smple non-invasive techniques focusing on skin surface properties such as stratum corneum (SC) hydration, trans-epidermal water loss, and SC pH. With this work we demonstrate the development off non-invasive optical methods adapted for measurements on infant skin and the use of such methods to document skin maturation changes during the first years of life. Optical methods can be classified into methods relating to spectroscopy, microscopy, macroimaging, or a combination of the above. Skin spectroscopy can be achieved in vivo with the use of fiber optic probes that can come in contact with the skin site of interest.

F. Morizot, J. Latreille, S. Gardinier, L. Staner, C. Guinot, A. Porcheron, E. Tschachler, **Effects of partial sleep deprivation on face appearance and skin properties,** ISBS Besancon, 2009 and Skin Research and Technology 2010; 16; p. 473-474

A reduction of sleep time on a chronic basis is a hallmark of life in modern society ("modern 24h-society"). Sleep has important homeostatic functions and sleep deprivation has effects on brain plasticity, energy conservation, tissue restoration, immune response and thermoregulatory function.Our objective was to investigate the effect of partial sleep deprivation on facial appearance and on skin functions (skin barrier, skin hydration, skin temperature, sebaceous secretions and skin sensitivity).

K.A. Tadini, **Acetil hexapeptide-3 in a cosmetic formulation acts on skin anisotropy – clinical study,** ISBS Besancon, 2009 and Skin Research and Technology 2010; 16

Acetyl hexapeptide-3 has been used in anti-aging topical formulations since it has demonstrated effects in improving the skin appearance. However, there are few scientific studies about its effects on epidermis and dermis when vehiculated in topical formulations, mainly using objective measurements, which are an important tool in clinical efficacy studies. Thus the aim of this study was to determine the clinical efficacy of the acetyl hexapeptide-3 using biophysical techniques. Formulations with and without acetyl hexapeptide-3 were applied to the ventral forearm and the face area of human volunteers. Skin conditions were evaluated after 2 and 4-week period daily applications, by analyzing the stratum corneum water content (Corneometer SEM 575) and the skin mechanical properties, using two instruments, the cutometer SEM 575 and Reviscometer RV 600 to identify skin changes after the use of the formulations under study.

W. Siyu, L. Li, **Effect of sweating by exercise on stratum corneum hydration, skin surface sebum content and pH value,** ISBS Besancon, 2009 and Skin Research and Technology 2010, 16; p. 489

The physiological indexes of skin include stratum corneum hydration, skin surface sebum content and pH value, which could reflect physiological state of the local and systematic organism, and also could be affected by many factors from internal or external changes. Many studies have ben put on these physiological indexes, but there is no report of studying on effect of sweating by exercise on sebum, hydration and pH value of face skin. To observe the effect of sweating by exercise on stratum corneum hydration, skin surface sebum content and pH value of forehead and pars zygomatica of healthy individuals of different ages in order to collect the numerical data as the reference for exterior use drugs and before / after sports' cosmetics.

O.I. Voloschenko, O.V. Payetska, O.I. Yalovenko, T.G. Momot, **corneometry in assessing health safety of skin purification products,** ISBS Besancon, 2009 and Skin Research and Technology 2010, 16; p. 511-512

The research was done into the ability of skin to keep and restore moisture after using cosmetic products for skin purifying. The level of volunteers' skin hydratation was measured by the indicator Corneometer CM 825 made by "Courage+Khazaka electronic GmbH" under the constant values of moisture and temperature during the whole experiment. The care product subject to testing was: Shampoo and Shower gel 2 in 1, which contains aqua, sodium laureth sulphate, sodium chloride, cocamidopropil betaine, perfume etc.

J.W. Wiechers, **Orthorhombic Phase Stabilization for Internal Occlusion: a New Mechanism for Skin Moisturization,** Cosmetics & Toiletries, Vol. 124, No. 6/June 2009, p. 45–50

In 1997, Wiechers introduced the concept of relative performance measurement to compare the moisturization of several neat emollients. The capacitance of skin treated with test products was measured by a corneometer and compared with glycerine-treated skin (defined as 100%) and untreated skin (defined as 0%) at given intervals, normally 6 hr after application. As one might expect, this test showed that all emollients were not the same in their capacity to moisturize skin.

D. Boudier, N. Guichard, J. Breugnot, M. Le Guillou, B. Closs, **In vivo Quantification of Corneocyte Lipids by Image Analysis,** Cosmetics & Toiletries, Vol. 124, No. 5/May 2009, p. 84-92

The lipids of the stratum corneum (SC) are composed mainly of cholesterol, free fatty acids and ceramides that are derived from the secretion of lamellar body (LB) contents at the stratum granulosum/SC interface. This secretion process occurs immediately prior to loricrin cross-linking into the cornified envelope (CE). One of the most important events in the homeostasis of the epidermis is the acquisition of hydrophobicity by covalent attachment of these lipids of the extracellular surface of CE components.

S.E. Dal Belo, L.R. Gaspar, P.M. Maia Campos, J.P. Marty, **Skin Penetration of Epigallocatechin-3-Callate and Quercetin from Green Tea and Gingko biloba Extracts Vehiculated in Cosmetic Formulation,** NCBI 2009

Green tea (Camellia sinensis) and Ginkgo biloba extracts in cosmetic formulations have been suggested to protect the skin against UV-induced damage and skin ageing. Thus, it is very important to assess the human skin penetration of their major flavonoids to verify if they penetrage and remain in the skin to exert their proposed effects. The aim of this study was to evaluate the human skin penetration of epigallocatechin-3-gallate (EGCG) and quercetin from green tea and G. biloba extracts vehiculated in cosmetic formulations. This study was conducted with fresh dermatomed human Caucasian skin from abdominal surgery mounted on static Franz diffusion cells.

L.R. Gaspar, P.M. Campos, **Photostability and efficacy studies of topical formulations containing**

UV-filters combination and vitamins A, C and E, NCBI 2009,

It is already known that the photostability of a sunscreen is important for its performance on human skin. On the other hand, there are many formulations besides sunscreens containing combinations of UV-filters and daily use active substances with other claims like hydration and anti-aging effects. Vitamins A, C and E are frequently added in these kinds of products and it is not known if the UV-filters have some influence on the hydration and antiaging effects of these vitamins on the skin as well as on their stability mainly when photounstable UV-filters like avobenzone and octoyl methoxycinnamate are present in the formulation.

S.E. Dal'Belo, L.R. Gaspar, P.M. Maia Campos, **Moisturizing effect of cosmetic formulations containing Aloe vera extract in different concentrations assessed by skin bioengineering techniques,** NCBI 2009

The polysaccharide-rich composition of Aloe vera extracts (Aloe barbadensis Miller), often used in cosmetic formulations, may impart moisturizing properties to the product. The aim of this study was to evaluate the effect of cosmetic formulations containing different concentrations of freeze-dried Aloe vera extract on skin hydration, after a single and a 1- and 2-week period of application, by using skin bioengineering techniques. Stable formulations containing 5% (w/w) of a trilaureth-4 phosphate-based blend were supplemented with 0.10%, 0.25% or 0.50% (w/w) of freeze-dried Aloe vera extract and applied to the volar forearm of 20 female subjects.

K. Bazela, A. Dzwigalowska, E. Kazmierczak, R. Debowska, K. Rogiewicz, I. Eris, **Corrective make-up cosmetics – the study of efficacy and camouflage effect,** 18th EADV Congress, Berlin, 2009

Corrective make-up can be applied to hide the skin imperfections accompanying numerous skin diseases. The aim of this study was to evaluate the efficacy and camouflage effect of corrective make-up in patients with pigmentary disorders, acne and pre-rosacea. Corrective fluid foundation efficacy was tested on 20 subjects and applied once a day for 4 weeks. The skin moisturization, oil content and elasticity were measured using Multiprobe Adapter System MPA 5 probes.

K. Bazela, R. Debowska, B. Tyszczuk, E. Kazmierczak, K. Mlosek, A. Nowicki, I. Eris, **Evaluating the efficacy of anti-cellulite cosmetic products skin ultrasonography and skin condition analysis,** 18th EADV Congress, Berlin, 2009

Cellulite is currently considered to be an endocrinemetabolic microcirculafory disorder that causes interstitial matrix alterations and structural changes in subcutaneous tissue. It affects thousands of women of any age worldwide. Our study aimed to evaluate the efficacy of an anti-cellulite cream-gel.

J. Fluhr, **Objektive Messmethoden bei dermatologischen Erkrankungen,** 18th Congress of EADV Berlin, 2009

Der Kurs unter Leitung von Priv. Doz. Dr. Fluhr, Berlin, Prof. Jemec, Kopenhagen (Dänemark) und Prof. Berardesca, Rom (Italien) ist darauf ausgelegt, das Basisverständnis für biophysiklische Messungen der Haut zu vermitteln. Diese Messungen sollen dann für die quantitative Bewertung der Schwere und Verlaufs von spezifischen Hauterkrankungen herangezogen werden. Über die letzten drei Dekaden wurden multiple nicht-invasive Instrumente für die quantitative oder semi-quantitative Erfassung von hautphysiologischen Parametern entwickelt und validiert.

C. Catala-Pétavy, L. Machet, G. Georgescdo, F. Pétavy, A. Maruani, L. Vaillant, **Contribution of skin biometrology to the diagnosis of the Ehlers-Danlos syndrome in a prospective series of 41 patients,** Skin Research and Technology 2009; 15, p. 412-417

The diagnosis of the Ehlers-Danlos syndrome (EDS) is primarly clinical. Clinical signs result from modifications of the rheological properties of the skin: thickness, extensibility and hydration. Our main objective was to demonstrate what skin biometry can contribute to the diagnosis and evaluation of the different types of EDS. Forty-one patients clinically diagnosed with EDS were paired by age and sex to 41 healthy subjects with no known dermatologic disease, in particular connective tissue diseases.

S. Gardinier, S. Guéhenneux, J. Latreille, C. Guinot, E. Tschachler, **Variations of skin biophysical properties after recreational swimming,** Skin Research and Technology 2009; 15; pp. 427-432

Sensations of itching and skin tightness are frequently reported after recreational swimming in pool water. Our objective was to measure the potential changes occurring at the skin surface under such conditions. Nine women participated in this study, which consisted of two periods. During a 4-day control period, basal biophysical skin parameters were assessed every morning. On the first day, measurements were also performed in the afternoon. The second study period followed the same study design as for the control period, except that, on the first day, women swam for 1 h in a public pool,

between the measurements performed in the morning and the afternoon.

N.M. Kienle, **Botulinumtoxin versus thorakoskopische Sympathektomie bei Patienten mit palmarer Hyperhidrose**, Dissertation, 2009 Universitätsklinik für Thorax-, Herz- und Gefäßchirurgie Tübingen

Einleitung: Die ekkrinen Schweißdrüsen werden vom sympathischen Teil des vegetativen Nervensystems versorgt [33, 75, 88]. Der Sympathikus hat eine ergotrope Wirkung auf den Körper. Er vermittelt eine allgemeine Aktivierung mit Erhöhung der Leistungsbereitschaft und passt somit den Körper an Kampf-, Angst- und Fluchtsituationen („fight, fright and flight") an. Die in diesen Situationen gesteigerte sympathische Aktivität führt zu Pupillenerweiterung, Erhöhung der Herzfrequenz, Vasokonstriktion mit konsekutivem Blutdruckanstieg und Hautblässe und zu feuchten, kalten Handflächen. Diese Reaktion wird auch als Abwehrreaktion („Defence Reaction") bezeichnet [38, 82]. Im zentralen Nervensystem ist der Sympathikus sehr ausgedehnt repräsentiert: es gibt mehrere für die Schweißauslösung zuständige Zentren wie Teile des Großhirns, des limbischen Systems, des Zwischenhirns mit Thalamus, Hypothalamus und Basalganglien und des Hirnstammes [7, 88].

L.-C. Gerhardt, A. Lenz, N.D. Spencer, T. Münzer, S. Derler, **Skin-textile friction and skin elasticity in young and aged persons,** Skin Research and Technology 2009; 15, p. 288-298

The mechanical properties of human skin are known to change with ageing, rendering skin less resistant to friction and shear forces, as well as more vulnerable to wounds. Until now, only few and contradictory results on the age-dependent friction properties of skin have been reported. This study has investigated in detail the influence of age on the friction of human skin against textiles. In vivo skin-friction measurements on a force plate were combined with skin analyses concerning elasticity, hydration, pH valule and sebum content.

M. Tilaar, W.L. Who, A.S. Ranti, S.M. Wasiaatmadja, M. Suryaningsih, **Hibiscus rosasinensis extract – Its whitening and moisturizing properties;** Household and Personal Care TODAY, No. 4/2009

The demands on whitening skin care products have shown tremendous growth in recent years, along with the expectation of its safety and efficacy. With the influence of back to nature trend, people prefer the products containing natural ingredients as they have perception that those kinds of products tend to be safe and compatible with their skin. As an answer for customer needs, Martha Tilaar Innovation Centre has conducted so many researches on potential plant extracts, which can deliver the whitening effect. Several aspects should be considered when utilizing botanical materials in cosmetic, such as, the quality of the plant materials, process, biological activity, and safety consideration.

G. Guglielmini, **Disaccharide plus vegetable origin fraction boosts skin,** Personal Care, March 2009, p. 79-80

Applying on the skin a functional substance containing a relevant amount of polysaccharide, vegetable origin hydrolysed proteins and amino acids, creates better protection and hydration of the skin. This is because it can allow the restoration of normal skin hydration, particularly where a physiological lack of cutaneous factors is present – in, for example, dry reddened and stressed skin with a tendency to ageing. The novel compound's capability to recreate a natural state of hydration of the skin means it can be considered as an innovative moisturising and lenitive cosmetic ingredient, particularly suitable for delicate skin and hair.

M. Lanctin, C. Bertin, F. Le Goff, P. Emilie, R. Roure, **A double-blind, placebo-controlled study to assess the efficacy of a body cream containing a combination of tetrahydroxypropyl ehtylenediamine, caffeine, carnitine and retinal,** JAAD, March 2009, San Francisco

With aging, several changes occur in the skin. Skin firmness, hydration and uniformity are some of the parameters that are modified. Moreover, cellulite is a common condition of womens's skin. Therefore, it is useful to design a formulation which can moisturize the skin and increase its firmness while reducing the brown spots and cellulite aspect.

J. Theunis, A.M. Schmitt, C. Beylot, M. Baspeyras, W. Zacaria, **Comparative evaluation of the efficacy of two treatment schedules of glycolic acid peels in facial photoaging,** JAAD, March 2009, San Francisco

Alpha-hydroxy carboxylic acids (AHAs) are widely used in cosmetics industry. At high concentrations, they reduce intercorneocyte cohesion, exfoliate the superficial layers of epidermis, and are though to exert indirect action on dermis.They are proposed for the treatment of skin aging. The aim of the study was to evaluate the efficacy of two schedules of glycolic acid peels on photoaging.

R. Wanitphakdeedecha, S. Eimpunth, W. Manuskiatti, **The effects of tetrahydrocurcumin in curmin cream on the hydration, elasticity, and color of human skin,** JAAD, March 2009, San Francisco

An antioxidant used in cosmetic applications should have the capability to efficiently quench free radicals on the surfact of the skin. Tetrahydrocurcumin (THC) plays an important role in the antioxidant mechanism resulting in the significant neutralization of free radicals in a dose-dependent manner. Recent studies revealed the superior free radical scavenging ability of THC.

M. Suero, D. Miller, M. Azriel, W. Wallo, **Evaluating the effects of a body moisturizer with glycolic acid on epidermal proliferation via flourescence excitation spectroscopy,** JAAD, March 2009

In a clinical setting, patients with dry skin often present with flakiness as a result of a disrupted desquamation process. The application of an exfoliating agent such as alfa-hydroxy acid (AHA) helps promote desquamation by breaking the bonds between dead skin cells, thereby facilitating the removal of flakes and allowing newer cells to emerge. Flourescence excitation spectroscopy allows for a noninvasive means of determining the increase in the rate of cellular turnover via monitoring the excitation band assigned to tryptophan, an established marker of epidermal proliferation.

D. Schmid, E. Belser, F. Zülli, **An Herbal Blend for Antiaging Effects: TCM in Personal Care,** Cosmetics and Toiletries, Vol. 124, No. 1/January 2009

Traditional Chinese medicine (TCM) is a holistic approach to healing that developed in China about 3,000 years ago and that typically includes therapies such as acupuncture, qigong exercises and herbal medicine. It is highly respected as a means to treat skin disorders and is especially well – perceived by European and Eastern cultures. Believing in the efficacy of TCM, the authors collaborated with expert Severin Bühlmann, PhD, to incorporate this approach into an herbal blend to treat dry, sensitive skin that is prone to psoriasis.

D. Khazaka, C. Uhl, **More than 2 decades of bioengineering for efficacy testing and product recommendation,** Household and Personal Care TODAY, No. 1/2009

Due to high competition in the cosmetic and growing customer expectations, in the past two decades there has been a continuousdevelopment of new cosmetic products with more efficient ingredients covering new effects on the skin. Simultaneously to this, there was an increasing demand for new measuring techniques to substantiate the new product claims. The field of skin bioengineering has consequently been immensely enriched in the last years by inventing new physical and optical measurement methods for all kind of skin parameters.

S. Kinderdine, T.W. Coffindaffer, M. Schnicker, J. Li, Y. Boissy, **The Evolution of Facial Cleansing: Substrate Cleansers Provide Mildness Benefits Over Leading Soap and Syndet Bars,** The Procter & Gamble Company

Over the years, facial cleansers have evolved from traditional bar soaps, to milder synthetic detergents (syndets), to more recently, substrate based cleansers that combine mild detergents with conditioning ingredients.

S. Kinderdine, T.W. Coffindaffer, M. Schnicker, J. Li, C. Rader, **The Relative Skin Irritation and Skin Improvement Potential of Several Leading Cleansers,** The Procter & Gamble Company

Facial cleansing plays an important role in the lives of many consumers; not only as a means to remove dirt and cosmetics, but also as a first step in their overall skin care routine.

Y. Cheng, Y.-Y. Dong, M.-X. Dong, C. Wang, N. Su, Y.-T. Sun, J. Liu, H.-Y. Zheng, A. Schrader, M. Rohr, W. Liu, **Protection effect of cosmetics on human skin under simulated rigorous environment,** Skin Research and Technology 2008, 14, p. 45-52

The efficacy of cosmetics on human skin measured under normal mild laboratory environment might be discounted by exterior environment factors such as wind, UV exposure, etc. Few studies have focused on the "genuine" efficacy of cosmetics on human skin during exposure to external rigorous environment.

J. Ivosevic-Zaper, **KiOsmetine-CG 125 – natürliche Biopolymere zur Pflege der anspruchsvollen Haut,** Euro Cosmetics 11/12, 2008

Die belgische Firma Kitozyme, ein Spin-off der Universität Liège, stellt nach 8-jähriger Entwicklungszeit ein Biopolymer mit außergewöhnlichen kosmetischen Eigenschaften der Kosmetikindustrie zur Verfügung. Das Verfahren zur Produktion dieses Polymers nicht tierischen Ursprungs wurde mit dem wallonischen Innovationspreis ausgezeichnet. Der Wirkstof KiOsmetine-CG 125 ist ein natürliches Biopolymer, zusammengesetzt aus zwei kovalent gebundenen

Polysaccharidketten, dem Chitin und dem Beta-Glucan.

S.H. Lim, S.M. Kim, Y.W. Lee, K.J. Ahn, Y.B. Choe, **Change of biophysical properties of the skin caused by ultraviolet radiation-induced photodamage in Koreans,** Skin Research and Technology 2008; 14, p. 93-102

Ultraviolet (UV) irradiation affects the function and complecion of the skin by inducing changes in physical properties through formation of erythema, proliferation of epithelial cells, DNA damage, activation or inactivation of various enzymes and proteins, and free radical formation. In this study, the authors intended to observe the overall course of changes in barrier function and reflectance of the skin induced by photodamage, and healing reaction in the course of time, and alteration of skin complexion

C. Oresajo, M. Yatskayer, A. Galdi, N.S. Trookman, R.L. Rizer, Z. Draelos, I. Hansenne, **Multi-Center, Clinical Evaluation of a Broad Spectrum Sunscreen Moisturizer Containing a new Photostable UVA/UVB Complex for Treatment of Photodamaged Facial Skin**, www.lorealusa.com; Poster

Photoaging is the result of chronic cumulative exposure to UV radiation. UVB radiation changes throughout the year and according to location, whreas UVA radiation is less variable. UVA rays are lower in energy than UVB, however they are twenty times more abundant. Efficient and stable broad spectrum protection is therefore needed year round for adequate protection against photoaging.

M. Jünger, **VenoTrain® micro balance - Klinische Studie,** Universität Greifswald für Bauerfeind

Die Ergebnisse einer klinischen Studie* bestätigen den positiven Einfluss und die hervorragende Verträglichkeit der aktiven Pflegesubstanzen auf wichtige Eigenschaften der Haut. Signifikante Hautverbesserung innerhalb einer Woche Abnahme der Rauigkeit der Haut bei gleichzeitiger Erhaltung der notwendigen Hautfeuchtigkeit Deutliche Reduzierung des Juckreizes Nachfolgend finden Sie eine Zusammenfassung der wichtigsten Punkte.

*B. Sommer***, Regenerationsergebnisse nach Nervenverletzungen an der oberen Extremität – Einflussfaktoren und die Optimierung klinischer Untersuchungsmethoden**, Dissertation aus der Klinik für Plastische Chirurgieder Universität zu Lübeck, Lübeck 2008

Klinik der Nervenverletzungen: In der Handchirurgie nimmt die Verletzung peripherer Nerven der oberen Extremität mit 10% aller zu versorgenden Fälle einen wesentlichen Stellenwert ein. Durch motorische und sensible Ausfälle im entsprechenden Versorgungsgebiet des Nerven kommt es zum Verlust von sensomotorischen Fertigkeiten, die zu Bewältigung von Situationen im Berufsleben als auch im häuslichen Lebensumfeld von zentraler Bedeutung sind. Der hohe Anteil der postoperativen Arbeitslosigkeit [51] hat in den letzten Jahren den wirtschaftlichen Einfluss auf das Gesundheitssystem nach Verletzungen der oberen Extremität immer mehr in den Fokus neuer Studien gerückt [34,94]. Insbesondere Nervenverletzungen haben einen nachhaltigen Einfluss auf den sozioökologischen Status des Patienten und können zu erhöhten Behandlungskosten vor allem im Bereich Rehabilitation und sekundärer Rekonstruktion führen [34]. Trotz der hohen klinischen Relevanz können Nervenverletzungen im Rahmen vermeintlicher Bagatellverletzungen leicht übersehen werden (Abb. 1).

I. Burg, **Evaluation der Corneometrie als Messmethode zur Erfassung der Hyperhidrose in Diagnostik und Therapie,** Dissertation 19.11.2008, Klinik und Poliklinik für Dermatologie und Allergologie am Biederstein des Klinikum rechts der Isar der Technischen Universität München

Definition der primären Hyperhidrose nach Leitlinien der AWMF: Der Begriff Hyperhidrose, bezeichnet ein Ubermas an Schwitzen, welches uber die Erfordernisse der Warmeregulation hinausgeht. Hyperhidrosis wird daher nicht anhand der Schweismenge, sondern aufgrund der Fehlfunktion des Schwitzens definiert. (65) Epidemiologie und Erscheinungsformen der primären Hyperhidrosis: Die Thermoregulation des menschlichen Korpers erfolgt durch das Schwitzen und die nachfolgende Kuhlung durch Verdunstung der Feuchtigkeit. (67) Ubermasiges Schwitzen (Hyperhidrose), ist eine Erkrankung, die zu korperlichen, psychischen und sozialen Problemen fuhren kann. Schon bei einem alltaglichen Handschlag sind die Patienten durch die nass-kalten Hande stigmatisiert. Patienten mit axillarer Hyperhidrose wechseln haufig mehrmals taglich ihre Kleidung und gelten als unsicher. (86)

*A. Delalleau, G.Josse, J.-M. Lagarde, H. Zahouani, J.-M. Bergheau***, A nonlinear elastic behavior to identify the mechanical Parameters of Human skin *in vivo,*** Skin Research and Technology 2008, 14

Background/purpose: Various nalyses have been performed to identify the mechanical properties of the human skin tissue *in vivo* . They generally usse different approaches and hypotheses

(behavior laws as well as mechanical testes)and the obtained results are consequently difficult to analyze and compare.
In this paper , an inverse methods that can be adapted to any kind of mechanical testes and behavior laws is presented.

Y.-H. Kim, Y.-S. Kim, J.-H. Kim, **Cosmeceutical Properties of Polysaccharides from the Root Bark of *Ulmus davidiana* var. *japonica*,** Bioland Ltd., Korea

In Korea and China, *Ulmus davidiana* var. *japonica* has been used as traditional oriental medicine for the treatment of difficulty in urination, skin inflammation, etc. In order to investigate the potential of a polysaccharide extract from *Ulmus davidiana* var. *japonica* as a cosmetic ingredient, we measured its moisturizing effect, photo-induced cytotoxicity, and anti-inflammatory effect. After hydrolysis, HPLC experiments showed that the composition of polysaccharide was mainly rhamnose, galactose, and glucose.

D. Klase, H. Tronnier, **SCS (spinal cord stimulation) and the modulation of the sudomotoric output in CRPS patients: measurement of sympathetic activity by identification of skin hydration,** Poster University of Lübeck, Germany Disorders of the autonomic nervous system (ANS) are not uncommon and often result in chronic diseases refractory to usual therapeutic strategies. For example CRPS type I and II, palmar or axillary hyperhidrosis and Raynaud's syndrome are significantly caused by affected or misdirected sympathetic nerve fibres. Often the degree of impairment of the sympathetic nervous system decides on the response to medication or interventional methods. On this account, besides the clinical examination an early detection of sympathetic malfunction with a less invasive and manageable diagnostic technique would be helpful to document neuropathic disturbances and start the therapy as soon as possible. In the past some neurophysiological diagnostic tools were developed to measure sympathetic activity

S. Savi□, S. Tamburi□, S. Vesi□, G. Vuleta, C. Müller-Goymann, **Effect of Vehicle Composition on In vitro / In vivo Hydrocortisone Penetration**

Diffusion/penetration properties of locally applied drugs are affected by both the status of the stratum corneum (SC) and by the composition and colloidal structure of the vehicle. Novel sugarbased surfactants declared as mild alternatives to polyethoxy emulsifiers, can form both, the thermotropic and the lyotropic liquid crystalline phases [1]. The liquid crystalline structure of the vehicle and mode of solvent/water distribution within the system could govern both, the drug diffusion rate [2] and the moisturizing potential of formulation; the latter presumably contributes to the penetration enhancing effect of the vehicle. Hence, the state of hydration of the SC is one of the most important factors in determining of some solute penetration profile [3].

R. Debowska, K. Rogiewicz, T. Iwanenko, M. Kruszewski, I. Eris, **Folsäure (Folacin) – Neue Neue Anwendungsm□glichkeiten eines kosmetischen Wirkstoffes / Folic Acid (Folacin) – New Application of a Cosmetic Ingredient**

Viele Jahre der Versuche und Forschungstests haben bewiesen, dass zahlreiche, wohlbekannte Vitamine in der Kosmetologie erfolgreich verwendet werden konnen. Die verfugbaren Daten deuten darauf hin, dass eines von denen – Folsaure – eine wichtige Rolle im Lebensprozess der mitotisch aktiven Gewebe spielt und dessen Mangel das Hintergrundniveau der DNA-Beschadigung steigert. Folsaure scheint
uber Hautregenerationseigenschaften zu verfugen und kann die DNA-Reparatur in der UV-geschadigten Haut modulieren. In der vorliegenden Studie haben wir die Moglichkeit uberpruft, Folsaure in Korperpflegeprodukten und Kosmetika als einen Anti-Photoalterungsbestandteil zu verwenden.

R. Wanitphakdeedecha, W. Manuskiatti, S. Eimpunth, S. Hunnangkul, **The effects of Mucopolysaccharide Polysulphate (MPS) on hydration and elasticity of human skin,** Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok

Objective: To study the efficacy of 0.1% Mucopolysaccharide Polysulphate (MPS) on hydration and elasticity of human skin
Method: This was a randomized double blind placebo controlled study which included 60 female volunteers aged 30-45 years with dry skin, defined by corneometer CM 825. The volunteers were treated with either 0.1% MPS or vehicle-control. All subjects were asked to apply 1 g of cream to their face twice daily for a total period of 4 weeks. Skin hydration and elasticity were measured at baseline and week 4 with corneometer CM 825 and cutometer MPA 580 respectively, at forehead and both cheeks.

J.W. Fluhr, M. Breternitz, P. Elsner, **Glycerol-based emollient enhances stratum corneum (SC) barrier homeostasis, SC hydration and *in vivo* corneocyte morphology after acute barrier disruption in a controlled, double-blinded study,** Skin Physiology Laboratory, Department of

Dermatology, Friedrich-Schiller-University, Jena, GermanyBackground and Purpose: Glycerol is known to exert barrier repairing and moisturizing properties. The underlying mechanism for the barrier repair after an acute insult is still under discussion. Furthermore, most of the studies on glycerol-based emollients are not placebo controlled. The aim of the study was to test effect of a glycerol-based emollient (V00034CR) vs. placebo on barrier homeostasis and SC hydration after acute disruption of the skin barrier. Furthermore, we investigated the effect of glycerol on corneocyte morphology assessed by *in vivo* confocal microscopy.

J. Fluhr, C. Uhl, **Autphysiologische Messungen in der täglichen Praxis: Corneometrie und Sebumetrie bei physiologischen und krankhaften hautveränderungen**

Bezeichnung der Methode: Coneometrie und Sebumetrie zur Heutanalyse (z.B. als Basis für die Hautpflegeberatung)

K. Ertel, D. Watson, Rob Bacon, K. Siereveld, **Impact of Personal Cleansing Products on Aged Skin,** The Procter & Gamble Company

IntroductionThe elderly segment of the population is growing rapidly in the United States and other parts of the world. Skin undergoes many changes as we grow older, but a common finding is that the skin becomes drier and more susceptible to drying with age. Personal cleansing products are frequently identified as a potential source of skin drying and good skin compatibility is an important consideration when recommending a cleansing product to individuals whose skin is susceptible to drying. Bars remain a popular personal cleanser form and many cleansing bars based on synthetic detergents (syndet bars) offer good skin compatibility. The more recently introduced body wash cleanser form has the potential to provide additional skin advantages since body washes provide good skincompatibility and some can deposit benefit agents such as petrolatum on the skin's surface during use.

G. Kutz, C. Bruns, S. Hennig, M. Enga, **Current ingredients in semi-solid formulations and their effects on skin hydration, transepidermal water loss and water resistance,** Pharmaceutical Engineering, FH Lippe und Höxter, University of Applied Sciences, Detmold, Germany

A series of factors like excessive treatment with detergents or organic solvents, UV irradiation as well as low humidity are known to damage skin. Frequent barrier malfunction is due to a reduced amount of lipids.Therefore pharmaceutical skin care products are often developed to enhance skin moisturization or to restore barrier function. In some cases it is useful to additionally protect skin against hydrophilic noxes because of their possible irritation potential. All abovementioned deficits can be overcome by the use of lipids in skin care formulations. In this study some current lipids are tested for their capability to increase skin hydration, to restore skin barrier function as well as for their property to remain on the skin.

C.W.L. Luk, W. Zhu, D.L. Trigg, K. Miyamoto, B. Chatterjee, L. Chen, J. Tang, **Improved Delivery of Skin Care Ingredients via Mask Treatments,** The Procter & Gamble Company

Skin fairness is the top consumer need for Asian consumers with 80 % of consumers wanting to have fair skin, more than 60 & usingwhitening products and 30 % believing more products in a regimen are better.

H. Tronnier, M. Wiebusch, U. Heinrich; **Change in Skin Physiological Parameters in Space - Report on and Results of the First Study on Man,** Skin Pharmacol Physiol 2008;21: p. 283-292

Astronauts often show skin reactions in space. Systematic tests, e.g. with noninvasive skin physiological test methods, have not yet been done. In an interdisciplinary cooperation, a test series with skin physiological measurements was carried out before, during and after a long-term mission in the International Space Station. The hydration of the stratum corneum (Corneometer), transepidermal water loss (Tewameter), and the surface structure of the skin (SkinVisiometer) were measured. In order to record cutaneous states, the suction elasticity was measured (Cutometer), and an ultrasound measurement with 20 MHz (DermaScan) was also made. In addition, one measuring field of the two inner forearms was treated with a skin care emulsion. There were indications of a delayed epidermal proliferation of the cells, which would correspond to the clinical symptoms. Hydration and TEWL values are improved by respective skin care. On the cutaneous level, the elasticity measurements and the ultrasound picture showed results which correspond to a significant loss of elasticity of the skin. Further examinations are necessary to validate these preliminary results.

J. Lademann, J. Fluhr, **This Issue at a Glance: Skin Reactions of Astronauts in Space and Microstructures of Topically Applied Formulations,** Skin Pharmacology and Physiology 2008;

21:245

The analysis and characterization of the properties of human skin under natural conditions and under topical treatment on Earth is a topic of comprehensive investigation. In the present issue, it is demonstrated that there is also a skin physiology outside the Earth in the universe. Tronnier et al. Investigated the changes in skin physiological parameters in space. Astronauts often show skin reactions. In an interdisciplinary cooperation, a test series with skin physiological measurements was carried out before, during and after a long-term mission at the International Space station.

T. André, M. de Wan, P. Lefèvre, J.-L. Thonnard, **Moisture Evaluator: a direct measure of fingertip skin hydration during object manipulation,** Skin Research and Technology, 2008, 14 p. 385-389

The mechanical properties of the fingertip skin are very important when studying dexterous manipulation. These properties are strongly influenced by the level of skin hydration. Currently, there is no device capable of measuring skin moisture during object manipulation. Methods: Skin moisture levels during object manipulation were measured using the Moisture Evaluator, a probe consisting of gold-covered electrodes connected to a resistor-capacitor circuit. *In vivo* calibration was performed by comparison with measurements obtained using a Corneometer® at two normal force levels (0.2 and 2¤N). Results: Measurements from the Moisture Evaluator were well correlated with those from the Corneometer®. Conclusion: A new device for evaluating skin moisture at the fingertip has been designed and validated.

K. de Paepe, E. de Rop, E. Houben, R. Adam, V. Rogiers, **Effects of lotioned disposable handkerchiefs on skin barrier recovery after tape stripping,** Skin Research and Technology 2008; 14, p. 440-447

Background/purpose: In the present work, it was studied whether repeated use of lotioned disposable handkerchiefs on tape-stripped forearm skin was able to improve skin barrier recovery. Methods: Skin assessments included scoring of visual erythema and dryness/scaliness; and measuring of skin redness (Chromameter® CR300), skin hydration (Corneometer® CM825), and transepidermal water loss (Tewameter® TM300). Four different lotioned paper handkerchiefs – randomly assigned to one of two subject groups (n=20) – were tested vs. the non-lotioned control handkerchief. The results were also compared with those obtained using a topically applied oil-in-water barrier cream (Dermalex®). Results: The three-day lasting protocol revealed that handkerchief wiping itself delayed skin recovery, but a significantly better performance was seen for the lotioned handkerchiefs containing fatty alcohols and mineral oils. This shows that the use of lotioned tissues helps to prevent skin damage inevitably caused by the wiping process. Conclusion: The controlled pre-damaged forearm method with tape stripping appears to be a suitable model to study the effects of repetitive wiping on irritated skin with disposable handkerchiefs of different quality. More specifically, the model seems applicable to mimic the nasolabial skin damage observed during a common cold associated with frequent use of disposable handkerchiefs.

F. Gafner, K. Schweikert, G. Dell'Acqua, **Oat-Based Complex Stimulates Skin Barrier Protein Synthesis and Reduces Skin Aging,** IFSCC Magazine, Vol. 11, No. 3, 2008

Epidermal differentiation is crucial to guarantee a physiological confication process. The cornified envelope is the final skin barrier which protects against external aggressions such as UV light and reduces water loss. Skin aging is associated with decreased functionality of this barrier and reduced epidermal differentiation. We present a new bioactive complex for the stimulation of protein synthesis associated with cornified envelope and markers of epidermal differentiation. Composed of a hydrolysed oat protein extract and particularly rich in glutamine and glutamic acid combined with ATP and niacinamide, 1% of this complex increases significantly the synthesis of proteins such as filagrin, late envelope protein and small proline-rich proteins, all markers of epidermal differentiation, in a reconstituted human skin model as measured by DNA array chip analysis, reverse transcription-polymerase chain reaction and immunohistochemistry.

J. Staton, **Tools for anti-ageing claim support,** Personal Care, Nov. 2008; S.19-22

Anti-ageing covers a substantially broad area of claims associated with both the prevention and the treatment of chronological and environmental effects on the condition of human skin. A large number of instrumentally based clinical methods are available for the substantiation of claims related to anti-ageing. This article describes the most common of these and considers only those which are essentially non-invasive.

P.-Y. Morvan, R. Vallée, **New focus on natural moisturisation,** Personal Care, Nov. 2008; p. 29-32

The fundamental role of urea in maintaining the skin's moisturisation is well known.

Concentrated in the stratum corneum, where it represents 7% of the natural moisturising factor (or NMF), it is naturally present in normal skin, but its concentration falls rapidly by 50% in dry skin and 85% in skin suffering from dermatosis. This drop in urea content is irremediably accompanied by a depletion of NMF and therefore loss of moisturisation. The skin becomes wrinkled and loses its suppleness and radiance.

M. Tilaar, W.L. Wih, A.S. Ranti, M. Suryaningsih, **Indonesian plants yield useful agents,** Personal Care, Nov. 2008; p. 25-27

The demand for naturally-derived active ingredients for cosmetics continues to increase. Our objective was to look for moisturising and antioxidative agents from Indonesian botanical resources which contain flavonoid and polyphenol. The article describes natural ingredients extracted with ethanol from Indonesian plants namly Orthosiphon aristatus (Blume) miq = OE (patent pending) and Phyllantus niuri L = PE (patent pending). The study was carried out using DPPH scavenging activity for antioxidant agent in vitro; and Corneometer and Tewameter for moisturising effect.

N. Gerlach, H. Grosch-Rafalski, M. Wiebusch, U. Heinrich, H. Tronnier, **Skin physiological experiments in space,** Poster Dermatronnier Experimental Dermaltology

Over the duration of a long-term microgravity space flight, human bodies undergo dramatic changes. Impairments due to circulatory and vestibular disturbances of the equilibrium are the prevalent medical side effects astronauts suffer from. These are followed by dermatological problems. The effects of microgravity on skin reported by crewmembers are slow healing of contusions and lacerations, dryness and cracking as wells as rashes and itchiness.

M. Tilaar, W.L. Wih, A.S. Ranti, S.M. Wasitaatmadja, **Punica granatum properties examined,** Personal Care, September 2008, p. 27 – 29

Natural cosmetic ingredients have shown tremendous growth in recent years, and studies have been conducted on botanical extracts for cosmetic use. Several aspects should be considered when utilising botanical materials in cosmetics – such as the quality of the plant materials, processes, biological activity and safety. Looked for in a study was a natural ingredient potentially having multifunctional properties for cosmetic use. Used were Punica granatum L. fruit obtained from a community plantation on a Javanese island. A taxonomical study was conducted by literature.

H. van der Hoeven, S. John, P.A. Schmidt, **Verbesserung des Hydrationsniveaus der Haut durch natürlichen Moisturizer,** Euro Cosmetics 9-2008, S.16-18

Ein ausreichendes Hydrationsniveau ist unabdingbar für die Funktionalität des Stratum Corneum (SC). Die Natural Moisturizing Factors (NMF) sind für die Aufrechterhaltung eines entsprechenden Hydrationsniveaus im SC von größter Wichtigkeit. Die Entwicklung von kosmetischen Wirkstoffen, die sowohl für eine ausreichende, als auch lang anhaltende Konzentration von NMF in der Haut sorgen, stellt heute eine große Herausforderung dar.
Ein neuentwickelter natürlicher Moisturizer – DayMoist CLR – erhöht aufgrund der enthaltenen hygroskopischen Moleküle, welche den natürlichen Feuchtigkeitsfaktoren der Haut ähneln, die Hydration der Haut; ein Effekt, der sich sowohl durch die Konfokale Raman-Mikrospektroskopie, als auch durch die konventionelle Methodik der Corneometer-Messung bestätigen lässt.

H. van der Hoeven, S. John, **Elevating NMF concentration with a natural moisturiser,** Personal Care, Sep. 2008, p. 81-83

For any living organism, presence of water at the sites where it is essential for normal functioning is crucial for survival. The outer layer of the skin provides a typical example of the human body preserving water at an essential site (in close proximity to a dry environment). It is therefore understandable that control of the presence of water is one of the fundamental properties of the skin.

K.-H. Schrader, **Cremes auf dem Prüfstand**, Beauty Forum 09/2008, S. 100-102

Ob Anti-Aging oder UV-Schutz: Kosmetische Mittel sollten „gut" verträglich sein und eine Wikung haben. Beides sollte am Bestimmungsort der Kosmetika – auf Haut, Haaren etc. – auch nachweisbar sein. In modernen Speziallabors wird daher geprüft, was Cremes und Co tatsächlich leisten. Die fertigen Produkte werden In-vivo-Tests unterzogen, also am lebendigen Organismus auf ihre Wirksamkeit geprüft. Generell unterscheidet man dabei subjektive und objektive Prüfungen. Wird beispielsweise die Wirkung einer Anti-Aging-Creme untersucht, dienen subjektive Anwendungstests dazu, die sensorische Beurteilung und die Hautverträglichkeit zu prüfen. Mit objektiven Messungen werden dagegen z.B. die Wasserretention und das Hautoberflächenprofil bestimmt, der Sonnenschutzfaktor geprüft und das antioxidative Potenzial des Produkts ermittelt.

Z.D. Draelos, E. Baltas, **Skin barrier and desquamation in patients with mild plaque psoriasis is improved with the use of a gentle moisturizing cream,** Abstract, EADV Paris 09/2008;

Psoriasis is a disorder characterized by faster than normal skin growth and replacement. The result of this rapid skin growth and replacement is a build-up of red, thickened areas with a scaly appearance. The most commonly affected areas are the scalp, elbows, knees and back. These plaques are often dry and non-pliable areas on the skin that can be a source of pain and/or discomfort to affected individuals. Moisturization of these areas may provide some relief by increasing hydration.

S. Louth, **Physiogel Intensive - A new effective moisturizing agent,** Abstract, EADV Paris 09/2008;

Background: Studies showing an increase in transepidermal water loss (TEWL) and a decrease in water-binding properties in atopic dry skin suggest that the skin barrier function is compromised in patients with atopic dermatitis. These studies also suggest that the judicious use of effective moisturisers can improve the epidermal barrier function. Objectives: As part of an assessment program for a new and innovative moisturiser (Physiogel Intensive), the efficacy of Physiogel Intensive as a skin barrier and moisturizer was evaluated.

A. Firooz, S. Davoudi, B. Sadr, S. Keshavarz, M. Naghizadeh, **Comparative study of skin hydration and transepidermal water loss in patients with sulfur mustard-induced dermatititis and normal controls,** Abstract, EADV Paris 09/2008

Background: Skin lesions are among the most common chronic side effects of sulfur mustard intoxication. Objectives: We conducted this comparative study to evaluate skin hydration and trans-epidermal water loss (TEWL) in patients with sulfur mustard-induced dermatitis.

C. Huh, M. Choi, S. Lee, S. Kim, Y. Park, B. Kim, H. Park, S. Choi, S. Youn,K. Park, **Low dose 1064nm Q-switched Nd:YAG laser for the treatment of melisma,** Abstract; EADV Paris 09/2008

Background: Melasma is a common acquired pigmentary disorder that is known for its recalcitrance to the conventional treatment. Although Q-switched Nd: YAG laser (QSNYL) is widely used for the treatmemt of melasma, little has been published regarding its effect. Objectives: In this study, we would like to know the effect of low dose 1064nm QSNYL (MedLite C6, HOYA Conbio, CA) on the treatment of melasma objectively.

H. Tronnier, M. Wiebusch, U. Heinrich, **Skin physiological parmeters in space – results of the European long-term mission in the ISS (ASTROLAB),** Abstract, EADV Paris 09/2008

Background: Since in weightlessness many astronauts report skin problems like dryness, itching, tendency to get injured, impaired wound healing etc., a “Skin Care” program was initiated for the ASTROLAB Mission of ESA (European Space Agency). It was carried out by a consortium with different tasks.

A. Fourtanier, B. Ladan, C. Camus, N. Dami, V. Delvigne, R. Bazin, M. Hughes, A. Green, **Comparison of facial skin parameters in Caucasian Australian and European women,** Abstract, EADV Paris 09/2008

The aim of this study was to compare two Caucasian female populations aged 40 to 69 years with very different lifestyles and cosmetic habits: one (n= 67) living in a temperate climate in Europe (Paris 55° N); the other (n= 80), living in subtropical Australia (Nambour, 26° S). Using a patented proprietary skin evaluation tool (Diagnôs Expert®) in each location, we compared the skin properties of women classified into three age groups: 40 to 49, 50 to 59, 60 to 69. This tool combines several techniques including a capacitance method (Corneometer®) for hydration and a suction method (Cutometer®) for assessment of mechanical properties. The greatest wrinkle-depth, the intensity of the darkest pigmented spot (selected clinically) and sebaceous activity were measured on images acquired by camera with an adapted magnification (x10 and x60) and analyzed by a specific software.

C. Camus, M. Isono, G. Yang, M. Daveno, D. Amar, B. Lavaud, C. Hoang Van Chu, V. Delvigne, R. Bazin, **Comparison of skin properties in various populations using a new multi-criteria measuring device,** Abstract, EADV Paris 09/2008

Purpose of the study: To assess a new testing battery device for evaluating skin condition in relation to age and skin ethnicity and skin type. Methods: Facial skin data have been recorded in female volunteers by the same operator in 5 different countries from December 2003 to April 2004. Study volunteers included various ethnic skin types i.e. Caucasian (Paris, France), Hispanic (Mexico City, Mexico), Asian (Tokyo, Japan and Hong-Kong, China) and African American (Chicago, USA). At least one hundred women per city were involved and split into 4 natures of skin (normal, dry , oily and

combined) and 5 age groups (20- 29 years, 30 - 39 years, 40 -49 years, 50 -59 years and over 60 years).

U. Heinrich, B. Garbe, H. Tronnier, W. Stahl, C. Moore, M.J. Arnaud, **Supplementation with green tea extract improves skin physiological parameters,** Abstract, EADV Paris 09/2008

Background: The objective of the study was to determine changes in skin parameters during the intake of a beverage rich in green tea extract. The detection of hydration properties, transepidermal water loss (TEWL), changes of skin surface (SELS), skin elasticity, skin thickness and density as well as serum analyses were determined during the study. Methods: Hydration measurements were carried out with the Corneometer CM 825 prior to and during the study. Transepidermal water loss (barrier function of the skin) was measured with the Tewameter, skin surface (SELS) with the Visioscan and skin elasticity with the Cutometer (Courage & Khazaka Electronics, Cologne, Germany).

R.M. Debowska, A. Dzwigalowska, M. Szubert, K. Rogiewicz, I. Eris, B. Pander, **Efficacy evaluation of re-modelling face care product,** Abstract, EADV Paris 09/2008

Background: Skin ageing is an important and interesting topic of study. It results from the combination of intrinsic ageing and photoageing, which is due to the environmental influence. The cosmetic industry creates and develops for the ageing population constantly improving products. Objectives: The aim of this study was to evaluate the in vivo efficacy and beneficial effects of application of the re-modelling face cream containing an anti-wrinkle peptide, vitamin E, proteins from sweet almonds and peach oil.

B. Renault, C. Tricaud, D. Moyal, L.Q. Nguyen, B. Boussouira, M.D. Pham, A. Potter, C. Baltenneck, A. Minondo, **Effects of daily UVR on stratum corneum: Biophysical properties, morphological and biochemical markers,** Abstract, EADV Paris 09/2008

Background: Exposure to UV light induces damages in the skin and accounts for most of ageassociated changes in appearance. Most of the studies involve the UV SSR (Solar Simulated Radiation) corresponding to short term Zenithal exposure conditions. But most of the time, the skin is exposed to UV corresponding to non zenithal conditions. Objective: To evaluate the damage to the living epidermal layers induced, in a rather short term, by an exposure regimen mimicking non zenithal daily exposure, by measuring the changes in biophysical properties, morphological and biochemical markers of the stratum corneum.

A. Reich, J. Kopyra, K. Korfanty, E. Pióro, K. Postrzech, **Influence of soap on epidermis barrier,** Abstract, EADV Paris 09/2008

Background: Washing the body is the human's basic need. However, soaps, one of the most often used washing products, can damage epidermic barrier and disturb the protective function of the skin. Objective: The purpose of this study was to compare the influence of three different soaps on epidermis moisture and transepidermal water loss (TEWL).

L.E. Colón, L.A. Johnson, T.J. Stephens, R.L. Rizer, E. Baltas, **Hydration and irritation potential of a new moisrizer for use in patients with very dry skin,** Abstract, EADV Paris 09/2008

Many dermatologists maintain that good skin care is an important part of any treatment regimen and also important in maintaining good dermatological health. The gentleness of a family of products (Galderma Laboratories, L.P., Fort Worth, TX) has been a hallmark over several decades and is the primary reason why many physicians trust these products for their patients with compromised skin.

R.M. Debowska, B. Tyszczuk, J. Zielinska, K. Rogiewicz, I. Eris, B. Pander, **The effect of an anti-ageing body care product containing anti-wrinkle peptide, repairing enzymes and palnt waxes,** Abstract, EADV Paris 09/2008

Background: Aging is an inevitable process which concerns every organ of our body, including the skin. Every day our skin is exposed to external factors. They influence the skin’s condition and its appearance. Many women concern themselves mainly with the skin on the face and neck. However, they forget about the rest of their body skin, which undergoes aging as well and thus also needs suitable care. Objectives: The aim of this study was to evaluate the in vivo efficacy and beneficial effects of application of the body cream containing an anti-wrinkle peptide, repair enzymes, and olive, bee, cocoa and mango wax.

F. Rippke, A. Filbry, S. Hiddemann, U. Koop, S. Jaspers, A. Knot, C. Mummert, U. Scherdin, M. Moers-Carpi, A. Buerger, **A multi-pronged topical anti-ageing approach using palnt-derives articin and oliopeptides improves signs of advanced skin ageing,** Abstract, EADV Paris 09/2008

Background: Ageing of the skin gives rise to a number of characteristic modifications of its

structures and functions. Namely after menopause, atrophic alterations are accelerating due to marked hormonal changes, resulting in skin conditions affected by wrinkles, impaired skin regeneration, and loss of elasticity and density. Only recently, specific extracts from burdock seeds and anise fruits have been identified as potent active ingredients for topical anti-ageing preparations. In our studies we set out to investigate the effects of two emulsions containing these actives on parameters of skin aging employing biophysical in vivo and ex vivo techniques.

S. Gardinier, J. Latreille, C. Guinot, E. Tschachler, **The skin hydration state as determined by a score based on biophysical parameters and Raman spectrometry data,** Abstract, EADV Paris 09/2008

The skin hydration state can be assessed by various instrumental methods, including conventional measurements, e.g. capacitance, transepidermal water loss (TEWL), and more sophisticated methods like Raman spectroscopy. These techniques are considered complementary, as they investigate different aspects of skin hydration. The objective of this study was to summarize and quantify in a synthetic way the skin hydration state by a score based on biophysical parameters, as well as the content of some skin components assessed by confocal Raman spectroscopy.

G. Lembo, S. Lembo, S. La Bella, V. Lo Conte, D. Martellotta, F. Ayala, **In vivo evaluation method of barrier creams' protective effect,** Abstract, EADV Paris 09/2008

Theoretically, skin barrier creams reduce or even prevent the penetration into the skin by building up a physical barrier, like a thin film, between the skin and the toxic substance. Practically, controversial experiences concerning the effectiveness of barrier creams exist. For this, we propose an in vivo method to evaluate the efficacy of barrier creams trough clinical and instrumental analysis.

A.M. Matta, L. Lefeuvre, A. Gougerot, **Clinical benefit of an algae polyuronides rich emulsion in the management of dry to very dry sensitive skin,** Abstract, EADV Paris 09/2008

Background: Patients with sensitive skin experience a disturbance of the protective skin barrier function and develop exaggerated reactions than normal skin. The use of specific skincare products designed to restore skin barrier and to prevent neurogenic inflammation are useful to manage skin over-reactivity. Objectives: The aim of this study was to assess the efficacy, tolerance and acceptability of a O/W rich emulsion containing algae polyuronides associated with Uriage thermal water in comparison with a reference skincare product (O/W rich emulsion with low mineral water content) in subjects with sensitive skin.

A. Porcheron, R. Jdid, O. Nageotte, C. Guinot, E. Tschachler, F. Morizot, **Daily use of a skin moisturizer improves tactile sensations mediated by Abeta fibres,** Abstract, EADV Paris 09/2008

Introduction: The diminution of skin perception and skin innervation with age has been largely described. All kind of qualities are concerned: thermal sensations as well as tactile sensations. A diminution of sensory innervation also occurs with age. Our objective was to investigate whether a daily topical application of a moisturizer could modulate Abeta,, Adelta and C fibers involved in skin sensations. For the present study, we investigated the current perception thresholds (CPT) of the three types of cutaneous nerve fibers with a method commonly used in the detection of early steps of neuropathic disorders.

H. van der Hoeven, S. John, **Elevating NMF Concentration with a natural moisturiser,** Personal Care, September 2008

For any living organism, presence of water at the sites where it is essential for normal functioning is crucial for survival. The outer layer of the scin provides a typical example of the human body preserving water at an essential site (in close proximity to a dry environment). It is therefore understandable that control of the presence of water is one of the fundamental properties of the skin.

H. Hariry, **Untersuchung zum postpartalen Verlauf des Hautoberflächen-pH-Wertes von Säuglingen atopischer und nicht atopischer Familien zur Beurteilung des pH-Wertes als Prädiktor und pathogenetischen Faktors bei der atopischen Dermatitis**, Gütersloh 2008

1. Einleitung: 1.1 Defintion und Epidemiologie der atopischen Dermatitis: Der Begriff Atopie bezeichnet eine genetisch determinierte Disposition gegen harmlose exogene und auch vermutlich endogene Substanzen ohne klar ersichtlichen Grund sensibilisiert zu werden. In dessen Folge entwickeln sich die als atopische Trias bekannten Krankheitsbilder: die allergische Rhinokonjunktivitis, das allergische Asthma bronchiale und die atopische Dermatitis. Atopische Erkrankungen haben in den letzten Jahrzehnten signifikant zugenommen und betreffen gegenwärtig weltweit etwa 20% der Bevölkerung in den Industrienationen (114). Zwillingsstudien und Familienstudien haben gezeigt, dass die Disposition zu atopischen Erkrankungen erblich ist (269). Die atopische Dermatitis ist eine der

wichtigsten Erkrankungen im Fachgebiet der Dermatologie und Berufsdermatologie und gilt als ein wesentlicher Kofaktor berufsbedingter Handekzeme (58,276). Die Erkrankung erfasst 15% bis 20% der Kinder in Industrieländern und stellt eine enorme Belastung für die Betroffenen und das Gesundheitssystem dar. Die atopische Dermatitis ist durch ihren besonderen Verlauf, typische klinische Merkmale wie extremen Juckreiz und weitere assoziierte Zeichen von übrigen Ekzemen unterscheidbar (276).

G. Guglielmi, **Increasing Skin Protection By A Combination Of A Disaccharide With A Vegetable Origin Fraction,** IFSCC Barcelona 2008

Applying on the skin a functional substance containing a relevant amount of polysaccharide, vegetable origin hydrolyzed proteins and amino acids, takes to a better protection and hydration of the skin, because it could permit to restore a normal skin hydration, in particular where a physiological lack of cutaneous factors is present, such as dry, reddened and stressed skin with tendency to aging.
The novel compound is so able to recreate its natural state of hydration of the skin, so to be considered an innovative moisturizing and lenitive cosmetic ingredient, particularly suitable for delicate skin and hair.

D.B.L. Terci, D. Terci, D. Terci, A. Pinheiro, **Use of Cutometer to Asses Skin Water Content,** IFSCC Barcelona 2008

Assessing the skin water content (skin hydration) is one of the first and most important measurements to test the efficacy of cosmetics on the skin surface. The quantity of literature worldwide dealing with this subject indicates the significance of this measurement.

*M.O. Ferreira, M.H. Amaral, P.C. Costa, M.F. Bahia***, Assessment of Age-Related Differences in Skin Surface, Hydration, Sebum and pH,** IFSCC Barcelona 2008

Skin is the body's largest organ and constitutes a formidable physical barrier that protects us from the environment [1]. It is composed of two main layers: the epidermis and the dermis. The stratum corneum is the outermost layer of the epidermis and is the most important in terms of protection against damage and aesthetic appearance of the skin. The hydrolipidic film of the stratum corneum, which consists mainly of sebum excreted by the sebaceous glands and moisture components excreted with sweat, protects the skin from drying out, keeps it supple and due to the natural acid protection barrier it prevents the penetration of harmful external substances.

R. Ramírez, M. Martí, C. Barba, S. Méndez, J. Luis Parra, **Internal Wool Lipids Rich in Ceramides for Skin Care,** IFSCC Barcelona 2008

Wool is a natural fibre that is mainly made up of protein. It contains external lipids (lanolin) and a small amount of internal lipids (1.5%). Internal wool lipids (IWL) are rich in cholesterol, free fatty acids, cholesteryl sulphate and ceramides, and resemble those from membranes of other keratinic tissues such as human hair or stratum corneum from skin. Intercellular lipids of skin stratum corneum, mainly ceramides, play an important role in the barrier function of the skin by preventing penetration of external agents and controlling the transepidermal water loss to maintain the physiological skin water content. Recent studies have shown that formulations containing lipids that resemble the natural components of the skin, especially ceramide supplementation, can improve disturbed skin conditions.

*A. Porcheron, R. Jdid, O. Nageotte, C. Guinot, E. Tschachler, F. Morizot***, Daily Use of a Skin Moisturizer Increases Tactile Perception Mediated by A Fibres,** IFSCC Barcelona 2008

" Je sens donc je suis" (*I feel so I am*) [1]. The touch is one of the five senses which we perceive through our whole body. Tactile sensations are perceived via the skin by tactile receptors and transmitted via both fast-conducting myelinated A fibres and unmyelinated C fibres to the central nervous system [2]. *In vivo*, tactile sensations have been essentially investigated using psychophysical methods allowing a qualitative evaluation of touch sensitivity.

S. Long, M. Godfrey, A. Desnos, D. Whitby, S. Barton, V. Agarwal, **Variability in The Physical Properties Of The Stratum Corneum – Influences Of Chronological Age And Season,** IFSCC Barcelona

It is well known that the skin exhibits changes with chronological age. Advances in bioengineering have now allowed us to study these changes objectively and precisely [1]. In addition, the introduction of reliable, commercially available skin biophysical measurement devices has led to an increase in studies dedicated to skin ageing, though often with conflicting results [2-9]. Seasonal variation in skin condition has also been studied [9-11]. Together, changes caused by age and season may well have an influence on the effect that a product can exert on the skin, but this is, as yet, unclear.

The objective of the current study was to determine the effects of age and season on skin condition and whether these factors also influence product efficacy. Here we report the results from the first summer/winter cycle of an ongoing longitudinal study.

S. Long, M. Godfrey, J. Wibawa, S, Barton, **Gender Differences in Skin Condition and Response To Product Use,** IFSCC Barcelona 2008

It is well known that the skin exhibits changes with chronological age and with season. Advances in bioengineering have now allowed us to objectively and precisely study these changes [1]. In addition, the introduction of reliable, commercially available devices has led to an increase in the number of studies assessing skin ageing and condition with season [2-11]. However, the data is often reported on female skin only. Whilst some research has been undertaken to study gender differences in certain skin biophysical properties [12–15], it is often limited to body sites other than the face. Although the market for men's skincare products is steadily expanding, there appears to be little published literature about differences between male and female facial skin and its response to product use in particular. The objective of the current study was to determine the differences in skin condition of male and female cheek and forehead skin, in terms of skin hydration, surface lipid levels, transepidermal water loss, skin stiffness and elasticity, and the response to product use, in order to better develop skincare formulations for the male skin.

T.-H. Jeong, K-Y. Jeong, S-K. Han, S.-J. Lee, S.-H. Kang, S.-G. Oh, **Development of Thermotropic Gel Patch technology improving skin moisture and resilience physiochemically: An innovative skin shielding and drug-delivering challenger,** IFSCC Barcelona 2008

Sol-Gel transition has been vigorously investigated in various chemical synthesis to manufacture powders, polymers, and encapsulating materials. Starting from pharmaceutical industries, Sol-Gel transition and its applications have been focused to enhance the time-releasing patterns of drugs such as insulin and to maintain their effective periods much longer than conventional methods. Therefore, many researchers in pharmaceutical fields have paid their attention to develop bio-compatible polymers which show Sol-Gel transitions to be transformed nearby human's body temperature, as well as bio-degradable ones.

S.-J. Kim, T.-H. Jeong, E.-A. Ko, S.-H. Kang, K.-Y. Jeong, S.-K. Han, S.- J. Lee, S.-G. Oh, **Development of a noble solid lipid emulsion technology using silicone-based waxes and its cosmetic applications improving instant skin resilience and skin protection,** IFSCC Barcelona 2008

Recently, women make more effort for their beauty. Because the entry of women in public affairs have been extended. And their appearances can affect to their social images. Moreover, many of skin problems are caused by the stress of social activities and the environmental problems. Especially, the problems with skin aging are appeared a lot by the increase in UV exposure. In these situations, many cosmetics for anti-aging are gaining popularity. The wax formulations of cosmetic are effective on skin protection and moisturization.

U. Heinrich, B. Garbe, H. Tronnier, **In Vivo Assessment Of Ectoin: A Randomized, Placebo-Controlled Clinical Trial,** IFSCC Barcelona 2008

The objective of this study was to determine the anti-aging properties of Ectoin with special regard to its compatibility and efficacy. For this purpose 104 voluntary female participants were included in a monocentric, randomized, double-blind application test. Moisturizing properties, skin surface structure and skin elasticity were tested, comparing Ectoin (2 %: Treatment B) to a reference emulsion (Treatment A) versus an untreated control. None of all treated participants showed side effects during the study.The gained results of this study display that the natural cell protection concept of Ectoin is transferable to skin care.

A. del Pozo, M. Solans, C. Fernandez, M. Dolz, Corrias, M. Herráez, O. Diez-Sales, **Efficacy evaluation and characterization of chitosan nano emulsions with Spirulina hydro-glycolic extract,** IFSCC Barcelona 2008 Presentation and Poster

Nanoemulsions represent an interesting prospect for use as vehicles in the development of formulations to deliver active ingredients to the human body. Particularly, nanoemulsion formulations have been shown to be superior for transdermal and dermal delivery of hydrophilic and lipophlic compounds, compared to conventional vehicles, such as hydrogels and emulsions. Lecithins (phosphatidylcholines) have been used in several studies as surfactants for topical nanoemulsion vehicles. These surfactants are able to form nanoemulsions without cosurfactants. In this context, less surfactant is associated with lesser irritation.

M.O. Ferreira, M.H. Amaral, P.C. Costa, M.F. Bahia, **Study of the Inter-Relations between Skin Surface Parameters, Hydration, Sebum and pH***,* IFSCC Barcelona 2008

Skin is the body's largest organ and constitutes a formidable physical barrier that protects us from the environment [1]. Several biophysical techniques are commonly used to study the skin properties and to measure the in vivo skin effects of cosmetics, topical medicaments and chemical irritants [2,3]. The Corneometer® (a capacitance method) measures skin hydration, the Sebumeter® (a photometric method) measures the sebum of the skin and the Skin-pH Meter® (a potenciometric method) measures the pH of the skin [4]. The Visioscan® VC98 connected to the software SELS (Surface Evaluation of the Living Skin) can measure several skin surface parameters [5]. This apparatus consists of a special b/w video sensor chip with very high resolution, an objective and an UVA-light source.

K.-Y. Jeong, J.-H. Choi, Y.-J. Lee, T.-H. Jeong, D.-K. Lee, **Development of the skin analogue liquid crystal in non-aqueous condition and its cosmetic application to improving atopic dermatitis: An innovative atopy care,** IFSCC Barcelona 2008

Atopic dermatitis (AD) has been issued as a serious disease and the prevalence of atopic dermatitis has been rising progressively in developed countries since the 1940's. However, the reason is not enough to explain the increasing prevalence of atopic dermatitis, and some researchers suggest that there must be crucial factors in the expression of the disease like environmentals and allergics.[5] According to recent studies, the damage of skin barrier has beeen reported as one of the main reasons which cause atopic dermatitis.

K.-F. Huang, E. Tsai, D. Chang-Chin Kwan, Y.-F. Chen, K.-C. Chen, M.-F. Wang, **Studies of Ceramide Lotion on Moisture of Skin**, IFSCC Barcelona 2008

Stratum corneum intercellular lipids such as ceramides play an important role in the regulation of skin water barrier homeostasis and water-holding capacity. The aim of the pöresent study was to evaluate the potential water retension capacity of an oil-in-water emulsion containing ceramide.

G. Lemos Anconi, P.M.B.G. Maia Campos, **Stability and Clinical Efficacy of Cosmetic Formulations Containing Different Peptides,** IFSCC Barcelona 2008

Wrinkles, as a sign of skin aging, have an important social impact, especially because of longer lifetimes and more frequent social relationships; consequently, they are an important factor influencing our way of communication. Wrinkles represent the more evident outcome of cutaneous ageing. Their onset is linked to a variety of events, resulting from both chrono- and photoageing. Both *intrinsic* (hormones, racial and genetic factors, oxidative stress, systemic disease) and *extrinsic* (temperature, air pollution, smoke, alcohol) factors worsen skin condition. However, wrinkles deriving from skin texture, or micro-relief, modification afflict women more than all other wrinkles as signs of ageing in the common mind.

A. Thibodeau, **Biomimetic Liquid Crystals as Skin Barrier Restructuring Agents,** IFSCC Barcelona

2008

The main roles of the skin are: protection from UV radiation (melanogenesis), immune defense and a barrier function preventing the penetration of foreign particles. Perhaps of greater importance, skin is dynamically involved in the management of internal water levels [1]. As an example of its interconnection with internal organs, it is interestingly to note that the skin is the site for the photoproduction of vitamin D that will be distributed through all the body, and also the site of cutaneous distribution of vitamin E (through sebum secretion) obtained from nutrition.

E. Kim, S. Kim, H. Lee, S. Moon, I. Chang, **The alkaline pH-adapted skin barrier is disrupted severely by SLS-induced irritation,** IFSCC Barcelona 2008

Human stratum corneum is a multilayer barrier composed of corneocytes and specialized intercellular lipids rendering the skin poorly permeable to water and other polar compounds. The horny layer assists in maintain a constant internal milieu with a pH of 7.4 in viable epidermis that contrasts with the pH of 4-6 found on most parts of human skin[1]. The 'acid mantle' of the stratum corneum first described by Schade & Marchionini in 1928[2], was originally thought of as a thin film composed of fatty acids, amino acids, and other organic acids deposited on the skin surface.

*P.M.B.G. Maia Campos, F. Bueno de Camargo Jr., S.M. Bertucci, E. Esteves de Oliveira, G. Lemos Anconi, L. Rigo Gaspar***, Clinical efficacy of cosmetic formulations containing *Myrtus communis* extract,** IFSCC Barcelona 2008

The Research & Development of cosmetic products that are able to act in skin ageing alterations has been a challenge in Cosmetic area. This way, a great number of botanical extracts have been proposed as active ingredients for anti-ageing cosmetic development. *Myrtus communis* is a plant rich in polysaccharides, essential oils, flavonoids, among other substances. Some studies showed that its different hydroalcoholic extracts have a potent antioxidant activity mainly due to the presence of polyphenols *Myrtus communis* leaves hydrolyzed extract has been proposed as cosmetic ingredient with anti-ageing properties because it is rich in galacturonic acid, ramnose, galactose, glucose, xylose and fructose.

*C. Heusèle, C Derome, D. Kanchankoti, R. Mohile, A. Bernois, S. Schnebert***, Clinical and Instrumental Evaluation of the Facial Photoageing on Indian Women,** IFSCC Barcelona 2008

Daily exposure to the sun leads to skin photodamage. Clinical signs of photoageing due to biological and structural alteration of the epidermis and dermis will be function of level of UV exposure and individual protection capacities. The influence of ethnic origin on skin structure and function is more and more investigated but few instrumental or clinical studies describe the characteristics of healthy skin and their evolution with age on Indian women living in India [1]. Previous clinical, instrumental or biological studies were carried on Indian subjects living in South Africa or England.

*L. Barbosa-Barros, C. Barba, L. Coderch, A. de la Maza, O. López***, Relevance of Lipid Self-Assembly in Nanostructures on the Skin Properties,** IFSCC Barcelona 2008

Phospholipid systems show high morphological diversity as a function of its structure and composition [1]. This fact plays an important role in the applications of aggregates such as micelles, bicelles and vesicles, which are extendedly used in skin research [2]. Thus, investigations that help clarifying the relation of structural parameters with the effect of the phospholipid aggregates in the skin are needed. Liposomes and micelles have often been used for skin treatment [3-4], although their application is debated due to some aspects. Liposomes seem to be too large to penetrate into the narrow interlamellar spaces of stratum corneum (SC) lipids [5]. Concerning to the micelles, the usual presence of surfactant in their composition supposes a problem due to the well known irritating effect of these solubilising agents on the skin [6]. In this line, the use of bicelles (discoidal micelles constituted by phospholipids) for skin treatment may report advantages comparing to the use of liposomes and micelles: the size of bicelles is small enough for passing through the SC lipid lamellae and their composition consists exclusively of lipids.

L.R. Gaspar, F.B. de Camargo Jr., M.D. Gianeti, P.M.B.G. Maia Campos, **Evaluation of the Safety and Efficacy of Cosmetic Formulations Containing *Saccharomyces cerevisae* Extract and Vitamins,** IFSCC Barcelona 2008

There are many substances frequently used in anti-aging products due to their moisturizing, photoprotective and skin barrier effects and among them we can point out vitamin A, C and E derivatives. Vitamin A palmitate acts on epithelization and on abnormal keratinization [1]. Vitamin E acetate is a free radical scavenger and can reduce DNA damage and keratinocytes death (sunburn cell formation) [2,3] and also can enhance stratum corneum hydration and reduce skin roughness [4]. Tetra-isopalmitoyl

ascorbic acid (VC-IP) releases vitamin C in physiological conditions and enhances cellular tolerance against UVB and reactive oxygen species as well as reduces the production of interleukin-1a and prostaglandin E2 [5].

D. Khazaka, **Useful and practical advice for measuring TEWL and skin moisture with Cornemeter® and Tewameter®,** Presentation, CHI 2008, Bitec Bangkok

The presentation gives an overview about the measurement of the barrier function and hydration of the skin with worldwide standard devices. The history of those techniques as well as the benefits and pitfalls are described. Multi centric studies which have been performed in this field to show accuracy of the instruments and between different instruments and new approaches, as the recent use of this technology in space or measurements of hydration in different depth of the skin and field devices for consumer tests for laboratories are presented. New methods to look at porphyrines on the skin surface, to measure skin color and skin gloss and methods to access the deep lines (e.g. "crow's feet") with a camera and oblique light are explained in the session.

D. Bürkle, **Die Haut der Astronauten- Erstes kommerzielles ISS-Experiment aus NRW,** http://www.wdr.de/themen/wissen/astronomie/blick_ins_all/raumfahrt/060701.jhtml

Auf der Raumstation ISS, zu der Thomas Reiter am 1. Juli startet, wird er viele Experimente durchführen. Mit seiner eigenen Haut wird er für den ersten Versuch herhalten, den Unternehmen aus NRW in Auftrag gegeben haben. Wie viele Falten während seines sechs Monate langen Aufenthalts auf der Internationalen Raumstation ISS dazugekommen sind, wird Thomas Reiter am Ende ganz genau wissen. Alle zwei Wochen holt der deutsche Astronaut einige Messgeräte aus den Regalen der Raumstation, testet damit den Wasserverlust seiner Haut und kontrolliert, ob neue Fältchen dazugekommen sind.

P. Humbert, **Klinische Anti-Aging-Studie mit Lubex anti-age® day und Lubex anti-age® night,** Permamed und University of Besancon 2008

In einer monozentrischen klinischen Studie wurde die Anti-Aging-Wirkung von Lubex anti-age über drei Monate bei Frauen im Alter zwischen 45 und 60 Jahren mit mittelstark lichtgealterter Haut im Gesicht und Décolleté geprüft und belegt. Als Grundlage wurden hautphysiologische Messungen durchgeführt, das Hautbild wurde fotografisch dokumentiert und durch Dermatologen im Doppelblindverfahren bewertet.

E. Proksch, **Despanthenol-haltige Externa zur Pflege trockener Haut bei Diabetikern,** Kosmetische Medizin 6/2008

Die meisten Diabetiker leiden unter einer trockenen Haut und haben daher ein erhötes Risiko für Hautinfektionen. Über Rhagaden und andere Miktrotraumen können besonders an den Füssen Bakterien in die Haut eindringen und zu einer tiefen Pyodermie und Ulzerationen führen. Eine konsequente Hautpflege hat nicht nur pflegenden Wert, sondern beugt auch ernst zu nehmenden Hautschädigungen vor.

C. Barba, S. Mendez, A.Roddick-Lanzilotta, R. Kelly, J.L. Parra, L. Coderch, **Cosmetic effectiveness of topically applied hydrolysed keratin peptides and lipidis derived from wool,** Skin and Research Technology Vol. 14, No. 2, May 2008

Wool is primarily (ca. 85%-95%) composed of keratin proteins that combine to give it desirable properties such as strength, insolubility and moisture regain. Different classes of keratin proteins are respresented in the complex macromolecular stucture, each of which has specific functions and characteristics. Protein hydrolysates from various sources have long been used in skin and hair personal care products and are known to confer improved campatitbility, feel moisturisation and help maintain the natural structure…

B. Cravello, A Ferri, **Relationships between skin properties and environmental parameters,** Skin and Research Technology Vol. 14, No. 2, May 2008

The skin represents the most superficial layer of the body, so it is constantly exposed to different environmental stimuli. Many authors have written about the influence of the environment on human skin. Egawa et al. (1) studied the effect of exposure of human skin to a dry environment: they found a decrease in the stratum corneum water content and related to this lack of water, a deterioration of the skin texture and the formation of fine wrinkles.

L. Rigano, M. Pleardo, E. Pini, R. Stradi, M. Meloni, A. Bertelli, A. Benedusi, G. Guiliani, **Novel Retinol-like Actives from Parrot Feathers,** IFSCC magazine, Vol. 11, No. 4 / 2008

Several classes of pigments are responsible for coloration in birds. Melanin pigments most

commonly appear in bird feathers and bare parts. They impart black, brown and chestnut hues. Carotenoids are a second group of coloring biochemicals in birds. These two types of pigment-based coloration are found in nearly every order of extant birds. In contrast, parrots harbor bright-colored pigments in their feathers, which have different structures.

P. Davari, F. Gorouhi, S. Jafarian, Y. Dowlati, A. Firooz, **A randomized investigator-blind trial of different passes of microdermabrasion therapy and their effects on skin biophysical characteristics,** International Journal of Dermatology 2008, 47, Number 5, May 2008, p. 508-513

Microdermabrasion (MDA) was developed in 1980s, and rapidly became a popular modality in superficial skin resurfacing. Its safety, simplicity, no need for anesthesia, prompt recovery and modest equipment costs hold a wide appeal for both physicians and patients. This non-invasive mechanical technique is used in management of fine rhytides, mottled pigmentation, clogged pores, acne, acne scars, and stretch marks.

H. Tronnier, M. Wiebusch, U. Heinrich, **Skin-Physiological Test in Weightlessness in the ISS Space Station,** IFSCC Magazine Vol. 11, No. 3/2008

A prolonged stay in weightlessness includes several medical alterations of the human body and also results in impairment of the skin. The stratum corneum, epidermal barrier as welle as other skin compartments are affected in terms of their susceptibility to dryness, desquamation and pruritus. This can lead, for example, to wound healing disorders. Skin physiological tests were performed on the skin of an astronaut during and after the the ASTROLAB-Mission within the Skin Care program initiated by the ESA.

H. van der Hoeven, S. John, **Elevating *stratum corneum's* level of hydration with a natural moisturizer,** Household and Personal Care Today No. 3/2008

The presence of sufficient amounts of water is crucial for normal functioning of the Stratum Corneum (SC). The Natural Moisturizing Factors play an enormously important role in maintaining a sufficient level of hydration in the SC. Keeping a sufficient concentration of NMF by applying cosmetic formulation onto the skin poses the cosmetic chemist to a great challenge. A new natural moisturizer containing molecules resembling the NMF wich are naturally present in human skin (BVHC Complex) has shown to be able to elevate the concentration of the NMF after 24 hours of application significantly with Confocal Raman Microspectroscopy, which showed interesting correlation with the results obtained with corneometry.

E. Esposito, M. Drechsler, R. Bozzini, L. Montesi, R. Cortesi, **Topical formulations for skin hydration,** Household and Personal Care Today No. 2/2008, p. 6-10

The design and comparison of innovative topical formulation for skin hydration are here reported. Different Nanoparticulate systems, namely cubosomes, nanovesicles, solid lipid nanoparticles and liposomes, have been produced and characterized by morphology and size distribution. Hydration power has been studied using a corneometer, measuring the skin electrical capacitance before and after the application of viscosized nanoparticulate systems. It has been demonstrated that nanovesicle gel displayed a pronounced hydration power with respect to the others nanostructured formulations, its hydration effecton skin was 3.5 fold higher after 5min from the application and 1.5 fold higher after 2 hours.

E. Houben, R. Adam, J.-P. Hachem, D. Roseeuw, V. Rogiers, K. de Paepe, **Clinical scoring and biophysical evaluation of nasolabial skin barrier damage caused by rhinorrhea,** Contact Dermatitis 2008, 59; 296-300

Suffering from an acute viral cold – caused by rhinoviruses or coronaviruses – probably is the most common illness known. A common cold usually is mild and self-limiting. Apart from an overall discomfort, cold symptoms are sneezing, serous nasal secretion, and obstruction of nasal breathing caused by the swelling and inflammation of the sinus membranes. These symptoms occur 2-3 days after the infection and usually last for 7-10 days. In acute viral rhinitis, only the symptoms can be treated and common over-the-counter medication for a cold may already be effective.

Viele Blender – Gesichtscremes mit UV-Schutz, test 1/2008, S. 28 - 31

Auf den Lichtschutz in Gesichtscremes kann man sich oft nicht verlassen. Sieben Produkte sind deshalb „mangelhaft" und nur drei insgesamt „gut". Eine gute Gesichtscreme soll die Haut in erster Linie mit zusätzlicher Feuchtigkeit versorgen, damit sie frisch, glatt und gesund bleibt. Der Trend geht allerdings dahin, diese Cremes mit Lichtschutzfiltern anzureichern, um die Haut vor vorzeitiger Alterung und Fältchenbildung zu schützen. Ein Ansatz, den viele Hautärzte unterstützen.

E. Xhauflaire-Uhoda, P. Paquet, G.E. Piérard, **Dew point effect of cooled hydrogel pads on human stratum corneum biosurface,** Dermatology. 2008;216(1): p. 37-9

Background: Cooled hydrogel pads are used to prevent overheating effects of laser therapy. They do not induce cold injuries to the skin, but their more subtle physiological effects have not been thoroughly studied. Purpose: To describe the changes in transepidermal water loss and electrometric properties of the skin surface following application of cooled hydrogel pads. Methods: Measurements were performed on normal forearm skin of 27 healthy volunteers and on freshly excised skin from abdominoplasty. LaserAid hydrogel pads cooled to 4 degrees C were placed for 15 min on the forearm skin. Measurements of transepidermal water loss (TEWL) and electrometric properties (Corneometer, Nova DPM 900) were performed before application and after removal of the cooled pads. Results: A consistent increase in corneometer units, dermal phase meter (DPM) values and TEWL were recorded at removal of the cooled hydrogel pads. Both the in vivo and in vitro assessments brought similar information. Discussion: The similar changes disclosed in vitro and in vivo suggest that a common physical process is operating in these conditions. The observed phenomenon is opposite to the predicted events given by the Arrhenius law probably because of the combination of cooling and occlusion by the pads. A dew point effect (air temperature at which relative humidity is maximal) is likely involved in the moisture content of the stratum corneum. Thus, the biological impact of using cooling hydrogel pads during laser therapy is different from the effect of a cryogenic spray cooling procedure. The better preservation of the water balance in the stratum corneum by the cooled hydrogel pads could have a beneficial esthetic effect on laser treated areas.

N. Akhtar, G. Ahmed, M. Ahmed, N. Ranjha, A. Mahmood, **Grapefruit Extract Cream: Effects on Melanin and Skin**, Cosmetics and Toiletries Magazine, Vol. 123, No. 1/January 2008, p. 55-68

Emulsions are thermodynmically unstable systems defined as microscopic dispersions of liquid droplets contained within another liquid, with a diameter ranging from 0.5 to 100 um. Emulsions usually consist of mixtures of an aqueous phase with various oils or waxes.

H. Tronnier, M. Wiebusch, U. Heinrich, **Project Skin Care of the European Long-Term Mission (Astrolab) on the ISS,** DermaTronnier Research, Poster

Impairments due to circulatory and vestibular disturbances of the equilibrium are the prevalent medical side effects astronauts suffer from. These are followed by the dermatological problems. In order to examine these skin problems and find ways to prevent them, skin-physiological measurements as a project “Skin Care” were carried out within the framework of the European long-term mission (ASTROLAB) 2005-2007.

H. Fujita, T. Hirao, M. Takahashi, **A Simple and non-invasive visualization for assessment of carbonylated protein in the stratum corneum,** Skin Research and Technology 2007, p. 84-90

Stratum corneum (SC) is the interface of body and environment and is continuously exposed to oxidative stress, resulting in oxidative modification of proteins. Consequent carbonylated proteins (CPs) have so far been labelled with 2,4-dinitrophenyl (DNP) hydrazine and subsequently detected with anti-DNP antibody.

A. Firooz, F. Gorouhi, P. Davari, M. Atarod, S. Hekmat, M. Rashighi-Firoozabadi, A. Solhpour, **Comparison of hydration, sebum and pH values in clinically normal skin of patients with atopic dermatitis and healthy controls,** 2007, Clincal and Experimental Dermatology 32, Journal compilation, p. 320-334

The water content of the stratum corneum and skin surface lipids forms a balance that is important for the appearance and function of the skin. An impaired balance may lead to the clinical manifestations known as “dry skin”, which is particularly seen in patients with atopic dermatitis (AD).

L. Ambroisine, K. Ezzedine, A. Elfakir, S. Gardinier, J. Latreille, E. Mauger, M. Tenenhaus, C. Guinot, **Relationships between visual and tactile features and biophysical parameters in human facial skin,** Skin Research and Technology 2007; 13: p. 176 – 183

Skin properties, such as colour, hydration and texture, can be studied on a qualitative basis by a clinical assessment or on a quantitative basis using techniques that measure biophysical properties of the skin. The aim of this study was to explore the links between facial skin features and a range of skin biophysical parameters using multivariate methods.

G. Betz, **In Vivo Comparison of Various Liposomal Formulations for Cosmetic Application**, IcoS, June 2007, Istanbul Türkiye, p. 14-16

Liposomal formulations have been used for skin moisturization, due to the occlusive effect of a phospholipid film deposited on the skin surface. Furthermore, interactions between liposoal lipids and Stratum corneum lipids may affect positively the structure of the Stratum corneum. Phospholipids themselves are hygroscopic and bind water.

S. Marrakchi, H.I. Maibach, **Biophysical parameters of skin: map of human face, regional, and age-related differences,** Contact Dermatitis 2007; 57, p. 28-34

The face showed anatomical variation on reaction to chemicals, which could be related to differences in biophysical parameters. 10 young human volunteers (24-34 years) and 10 old volunteers (66-83 years) were studied to prepare a map of the human face based on regional variations and age-related differences by measuring various biophysical parameters.

S.-H. Kim, M. Song, B.-S. Kim, H.-C. Ko, S.-J. Kim, M.-B. Kim, K.-S. Kwon, T.Y. Lee, Y.-N. Choi, C.-K. Oh, **Moisturizing and anti-pruritic effects of pyroligneous liquid and petrolatum cream in atopic dermatitis**, The Journal of Skin Barrier Research, p. 42-48

Atojoa cream used in this study contains active ingredients such as pyroligneous liquid and variety of minerals, in a newly-made emulsified petrolatum base. In general, petrolatum is known as an excellent moisturizer, but occlusive effect restricts ventilation. To preserve ventilation properties, we emulsified the petrolatum by an ultrasonic emulsification method without wax nor other oils.

Y.-M. Park, **Change of skin barrier function after cosmetic procedures; microdermabrasion, chemical peeling and LASER**, The Journal of Skin Barrier Research, p. 32-36

With the recent interest in aesthetics, cosmetic procedures for facial rejuvenation such as microdermabrasion, superficial chemical peeling, and LASER, are the preferred methods because they have a low morbidity and prompt recovery. These therapeutic methods offer the benefit of patient returning to a normal daily life immediately after the procedure, bnut do not have a satisfactory outcome after a single session, which means that repeated procedures are required at regular interval.

E. Kim, G.W. Nam, S. Kim, H. Lee, S. Moon, I. Chang, **Influence of polyol and oil concentration in cosmetic products on skin moisturization and skin surface roughness**, Skin Research and Technology 2007, 13; p. 417-424

Cosmetic products are used to improve the skin surface appearance. Especially, moisturizers increase the hydration of the stratum corneum and improve the physical and chemical properties of the skin surface, making it moist, smooth and soft. Smoothing of the surface can be observed immediately after application of a moisturizer as a result of the filling of spaces beween partially desquamated skin flakes.

G. Khazaka, **Useful and practical advice by measuring TEWL and skin moisture with Corneometer® CM 825 and Tewameter® TM 300**, The Journal of Skin Barrier Research

The Skin bioengineering measurement of skin hydration and transepidermal water loss is a useful tool to evaluate the physicochemical status of skin. As integrated skin barrier function is also derived from the interaction between subject and surrounding environment, the bioengineering measurement technique has been evolved to predict the dynamic aspect of skin biology.

S. An, E. Lee, S. Kim, G. Nam, H. Lee, S. Moon, I. Chang, **Comparison and correlation between stinging responses to lactic acid and bioengineering parameters**, Contact Dermatitis 2007; 57; p. 158-162

Sensitive skin has been described as a skin type showing higher reactivity than normal skin. By our consumer surveys, approximately 30% of the subjects believe that they have sensitive skin. However, consumer-perceived cutaneous reactions are usually scientifically unconfirmed.

U. Eich, **Thermische Verletzungen im Kindes- und Jugendalter,** Dissertation Universität zu Lübeck 06.06.2007

Einführung**:** Jedes Jahr verunglücken circa 7100 Kinder im Alter von 0 bis 20 Jahren durch thermische Unfälle, sodass sie stationär in einem der 44 Betten für Kinder in einem Schwerbrandverletztenzentrum in Deutschland behandelt werden müssen. Thermische Verletzungen entstehen im Kleinkind- und Vorschulalter vorwiegend (etwa 85%) in Form von Verbrühungen, d.h. bei Kontakt mit heißen Flüssigkeiten. Der Inhalt einer Tasse mit heißem Wasser genügt, um bis zu 30% der Körperoberfläche eines Säuglings- oder Kleinkindes zu verbrühen. Verbrennungen treten hingegen häufiger bei Schulkindern auf und werden vornehmlich durch Hausbrände, Grillunfälle und Experimentieren mit dem Feuer hervorgerufen. Bei circa 3000 Kindern verbleiben nach der Therapie

einschränkende Narben. Diese sind häufig hypertroph, verursachen Schmerzen und Juckreiz und können zu funktionellen Einschränkungen führen. Gut sichtbare Narben, insbesondere an Gesicht und Händen, können zudem auch psychosoziale Probleme im Leben der Kinder nach dem Unfall hervorrufen.

G. Maaß, **Anwendungsstudie der sebamed TROCKENE HAUT Produkte bei Kindern mit atopischem Ekzem**, Kosmetische Medizin 6/2007, S. 288-290

Es erfolgte in einer vierwöchigen Anwendungsuntersuchung eine klinische Überprüfung der sebamed TROCKENE HAUT Pflegeprodukte – Waschlotion, Pflegelotion, Tagescreme und Nachtcreme – bei Kindern mit atopischem Ekzem anhand von quantitativen Meßgrößen, von klinischen Befundurteilen sowie von qualitativen Beurteilungen der Pflegewirkungen.

H. Dobrev, **Evaluation of dry Skin: a comparison between visual score, corneometry and image analysis,** Poster presented at the 16th Congress of the EADV, 5/2007

The term “dry skin” describes a skin condition characterized by reduced quantity and/or quality of moisture and/or lipids. The visible symptoms of dry skin are roughness, scaling and reduced elasticity. In addition, patiens complain about tightness and itching.

G. Feller-Heppt, C. Wagner, S. Ugurel, **Wirksamkeit und Patientenzufriedenheit verschiedener Pflegecremes bei Atopikern und Neurodermitispatienten im erscheinungsfreien Intervall**, Kosmetische Medizin 5/2007, S. 28-34

Bei Neurodermitispatienten stehen vor allem die Symptome trockene Haut und ausgeprägter Juckreiz im Vordergrund. Hierdurch kommt es zu vermehrtem Kratzen und nachfolgend möglicherweise zum Eintritt infektiöser Erreger bei gestörter Hautbarrierefunktion und gestörter zellulärer Immunität. Ein neuer Ekzemschub kann entstehen und den Juckreiz noch verstärken.

Z.D. Draelos, **The Skin Barrier Function in Rosacea Patients is Preserved with the Use of a Gentle, Non-alkaline Skin Cleanser**, 21st World Congress of Dermatology, Buenos Aires, Argentina, 2007

Rosacea occurs most commonly in women with fair complexions between the age of 25 and 50 years, although it does occur in other patient populations as well. Rosacea appears as redness similar in appearance to sunburn and can be accompanied by papules and pustules.

M. Andreassi, R. Bilenchi, G. Mariotti, M. Centini, L. Andreassi, C. Anselmi **Phytic Acid: a Novel Topically Active Antioxidant Suitable for Cosmetic Preparations**, 21st World Congress of Dermatology, Buenos Aires, Argentina, 2007

Many substances with antioxidant activity are present in the human skin, and their concentrations are generally higher in the epidermis than in the dermis. Under the effect of an oxidative stress, such as that caused by ultraviolet (UV) rays, these substances are strongly depleted, especially in the external epidermal layer

B. Piot, J. De Rigal, C. Yarhi, D. Compan-Zaouati, M. Lefebvre, **The skin sebageous function: in Asian and Caucasian climate influences,** 21st World Congress of Dermatology, Buenos Aires, Argentina, 2007

Objective of the study: The first objective was to compare the sebaceous function in Asian and Caucasians, female, in real life conditions, using both intrumental measurement and visual evalutation by expert. A second objective was to investigate climate induced changes in the sebaceous function on a separate group of Japanese women, using the same methodology.

Z.D. Draelos, **Skin barrier and desquamation in Patiens with mild plaque Psoriasis is improved with the use of a gentle moisturizing cream**, 21st World Congress of Dermatology, Buenos Aires, Argentina, 2007

Psoriasis is a disorder characterized by faster than normal skin growth and replacement. The result of this rapid skin growth and replacement is a build-up of red, thickened areas with a scaly appearance. The most commonly affected areas are the scalp, elbows, knees and back. These plaques are often dry and non-pliable areas on the skin that can be a source of pain and/or discomfort to affected individuals.

C. Orlandi, R. Loubies, S. Baeza, C. Reyes, X. Worstman, **Clinical Experience of the Treatment with Pro-Xylane TM, Isobioline TM and Phytocomplex TM on Chilean Women with Hormonal Aging,** 21st World Congress of Dermatology, Buenos Aires, Argentina, 2007

An open and prospective study was performed in order to evaluate the action of a formulation with pro-xylane, isobioline and phyto-Complex in 59 patients with hormonal aging during a period of twelve weeks. An open and prospective study was peformed in 59 patients, between 50 and 65 years of age (average 55 years old), with hormonal aging in order to evaluate the action of a formulation with –xylane, isobioline and phyto-complex.

N. Garcia Bartels, A. Mieczko, H. Proquitté, R. Wauer, T. Schink, U. Blume-Peytavi, **Influence of Bathing in Newborns: A Prospective, Randomized Clinical Study on Skin Barrier During the First Four Weeks of Life,** 21st World Congress of Dermatology, Buenos Aires, Argentina, 2007

Background: The adapting process of skin barrier to extra-uterine life and the influence of bathing on term neonates's skin is not completely understood. Thus, we investigated the effect of bathing on skin barrier during the first four weeks of life. Methods: Monocenter, prospective, randomised study with 57 healthy full-term newborns (32 boys and 25 girls).

J.W. Fluhr, M. Miteva, G. Primavera, M. Ziemer, P. Elsner, E. Berardesca, **Functional Assessment of an Acidic Skin Care System in Patients under Chemotherapy,** 21st World Congress of Dermatology, Buenos Aires, Argentina, 2007

Background: Cancer patients undergoing chemotherapy frequently experience skin problems e.g. xerosis. The aim of this study was to verify whether a concomitant treatment with an acidic washing and emollient products (pH 5.5) can significantly improve the quality of the skin in such patients

L. Kapteine, R. Karls, **Benefit of Keratolytic and Barrier Repair Emollients in Treating Lamellar Ichtyosis Patient,** 21st World Congress of Dermatology, Buenos Aires, Argentina, 2007

Background: Lamellar Ichtiyosis (LI) is characterised by generalised scaling, decrease of skin barier function and resistance to ordinary emollients. Our case report include to assess and compare keratolytic agents 5%, lactic acid and 20% propylene glycol effect on LI patients skin, to find an optimal variant of skin care by combining keratolytic and skin restoring means.

P. Manissier, C. Fanchon, N. Piccardi, **Combination of Lycopene, Soy Isoflavones & Vitamin C: a Unique Efficient Oral Supplement to Prevent Skin Ageing,** 21st World Congress of Dermatology, Buenos Aires, Argentina, 2007

Aim: The purpose is to present a set of in vitro and in vivo studies showing the potential of the unique combination of lycopene, soy isoflavones and vitamin C to stimulate cell renewal and prevent skin ageing. Methods: in vitro studies involved two skin models, i.e. an in vitro reconstructed epidermis (EPISKIN) and skin explants in culture. Skin explants were obtained from plastic surgery in menopausal women. Each ingredient of the combination was introduced at plasmatic concentration level in the culture medium to mimic systemic administration.

C. Montastier, A. Piccirilli, P.H. Humbert, B. Dreno, N. Piccaqrdi, P. Manissier, **Efficacy of a Dietary Supplement Against Skin Dryness,** 21st World Congress of Dermatology, Buenos Aires, Argentina, 2007

A specific nutritional supplement (NS) containing blackcurrant seed and fish oils, rich in omega-3 and –6 fatty acids, vitamins E and C and lycopene was developed. These nutrients are known for their key role in the maintenance of skin homeostasis. In particular they have been shown, in vitro, to improve ceramides in the epidermis and skin barrier function. The purpose of this presentation is to summarize studies that support the efficacy of this nutritional supplement.

Y. Appa, S. Hornby, G. Grove, C. Zerweck, **Glycerin Mitigates Surfactant Induced Barrier Disruption,** 21st World Congress of Dermatology, Buenos Aires, Argentina, 2007

Background/Objective: The effect of sodium lauryl sulfate (SLS) on the skin barrier was explored in an epidermal skin model where skin barrier breaks could be visualized using two photon fluorescence (TPM) imaging. Other data from that study allowed us to calculate the dimensions of the damage. We found that glycerin was superior compared to urea and propylene glycol in mitigating the SLS induced barrier damage as evidenced by the lack of visual barrier breaks.

E. Gubanova, L. Caisey, C. Camus, D. Barras, J-L. Lévêque, **Influence of Age on Features and Functional Properties of Lips**, 21st World Congress of Dermatology, Buenos Aires, Argentina, 2007

There are very few reported works about ageing of lips and the perioral skin. This body area has however great functional and aesthetic importance. It is also a peculiar transitional tissue area between skin and mucosa. Purpose of the study: The present study was carried out to objectively describe the different changes occurring in the functional properties of the vermilion (hydration, trans-

epidermal water loss (TEWL), mechanical properties, colour and tactile sensivity) and to compare these changes with those occurring in the skin.

O.L. Jammayrac, B. Boussouira, T. Vuillet, C. Camus, P. Bastien, I. Tardy, Q.L. N'Guyen, O. de Lacharrière, **Fragile Lips-A Biochemical Insight,** 21st World Congress of Dermatology, Buenos Aires, Argentina, 2007

Background/Objectives: Fragile lips are characterized by feelings of discomfort, presence of scales, cracking and bleeding to different extents of severity. The most severe class "very fragile lip" is predominantly observed on younger women. In the present study, the young female population was targeted in order to further investigate the biochemical profile of fragile lips. 67 French women (age: 19-35 yrs) were investigated. A standardized clinical questionnaire targeting the vermilion, with items on the signs and symptoms, occurrence and conditions linked to these signs and symptoms was collected from the subjects.

R. Moyon, K. Golz, L. Zastrow, **The Formulation of a Distinctive Skin Care Product,** SOFW-Journal, 133 / 4-2007, p. 2 – 9

First of all, we drew up the requirements of our new skin care product. Our reasoning was to formulate a benchmark emulsion with all the properties previously identified. To do this we mainly used raw materials from silicone chemistry to obtain a stable finished product with the remarkable properties observed on the market.

M. Kerscher, T. Reuther, G. Schramm, **Chlormadinonacetat enthaltende Mikropille verbessert unreine Haut**, Frauenarzt 48 (2007), Nr. 4, S. 373-378

Moderne Mikropillen zeichnen sich besonders durch eine Reihe von Zusatznutzen aus. Den wichtigsten stellt die Verbesserung des Hautbildes dar. Für die Chlormadinonacetat-haltige Mikropille Belara wurde in klinischen, kontrollierten Studien bei leichter bis mittelschwerer Akne die Überlegenheit im Vergleich zu einer Levonorgestrel-haltigen Mikropille und zu Plazebo nachgewiesen.

R. Debowska, C. Vincent, K. Bazela, M. Kruszewski, B. Winkler-Spytkowska, A. Maciejczyk, K. Rogiewicz, I. Eris, **The repair effect of Folacin on skin damage due to radiotherapy,** Kosmetische Medizin 2/2007

Zusammenfassung: Obwohl medizinische und pharmakologische Fortschritte unübersehbar sind, ist die Behandlung bösartiger Tumore nach wie vor mit einem hohen Risiko unerwünschter Nebenwirkungen verbunden. Insbesondere bei der Strahlentherapie sind allgemeine Nebenwirkungen (Krankheitsgefühl und Unwohlsein) und lokale Nebenwirkungen wie kutane Strahlenschäden zu beobachten. Kutane Strahlenschäden bedürfen einer entsprechenden Behandlung und Pflege sowohl während der Radiatio als auch nach Beendigung der Strahlentherapie. Viele Patienten greifen dabei nach kosmetischen Produkten, die die vorher geschädigte wieder in eine eine gesunde Haut zurückführen sollen. Ziel dieser Studie war es, Wirksamkeit, Tolerabilität und kosmetische Qualität einer Folacin-haltigen Creme während und nach trahlentherapie zu untersuchen. In vitro wurden Experimente an primären Fibroblastenkulturen vorgenommen: Der Alkalincomet-Assay wurde verwendet, um die Reparaturwirkungen von Folacin auf Röntgenstrahlen- induzierte DNA-Schaden zu erfassen. Bei 41 Patienten mit Strahlentherapie führten wir in vivo Untersuchungen durch. Über nichtinvasive Verfahren wurden die Parameter Erythrem, Feuchtigkeit der Haut und Talgbildung an den bestrahlten Körperregionen (Wangen, Hals oder Brust) jeweils 2, 4 und 8 Wochen nach Behandlung mit der Creme erfasst. Die Repairrate von DNA-Schäden war nach 15–30 min post radiationem höher bei Folat-behandelten primären Fibroblastenkulturen als bei Kontrollen. Unsere Daten sprechen für eine Folsäure-modulierte Reparatur der DANN mit einer rascheren Verknüpfung der Strangbrüche. Wir stellten eine wirksame Verbesserung der Hautparameter durch Folin-haltige Creme unter Radiotherapie fest. Die Anwendung des Verums verminderte i. Vgl. zu Kontrollen Rötung und Couperose, verbesserte aber auch Hautfeuchte und Sebumgehalt. Die Creme wurde sehr gut durch die Patienten toleriert und ihre kosmetischen Eigenschaften waren überzeugend.

E. Esposito, M. Drechsler, P. Mariani, E. Sivieri, R. Bozzini, L. Montesi, E. Menegatti, R. Cortesi, **Nanosystems for skin hydration: a comparative study**, IFSCC Magazine, Vol. 10, No. 2/2007, p. 173-174

The present investigation describes a comparative study for the design of innovative topical formulation for skin hydration. In particular, different colloidal forms based on lipidic components have been produced and characterized. Morphology and dimensional distribution have been investigated by means of electron microscopy and photon correlation spectroscopy.

J. Fluhr, **What's Wrong with the Barrier,** Dermatologie in Beruf und Umwelt, Jahrgang 55, Nr. 2/2007, p. 67

Irritant contact dermatitis is frequently observed not only in occupational dermatology but also in the context of atopic dermatitis and under house-hold conditions. Functional analysis of epidermal barrier-related parameters are performed using non-invasive instruments, based on biophysical measurements

E. Berardesca, **Bioengineering as a Tool in Occupational Dermatology,** Dermatologie in Beruf und Umwelt, Jahrgang 55, Nr. 2/2007, p. 67

Bioengineering techniques have been proven to be helpful in monitoring changes in skin physiology and quantifying skin disease. Detection of subliminal or non visual changes is a challenge in order to predict potentially pathological conditions such as irritation or pre-clinical dermatitis.

W. Gehring, **New Concept of Skin Protection after Occlusion and Wet Work,** Dermatologie in Beruf und Umwelt, Jahrgang 55, Nr. 2/2007, p. 89

Occlusion and wet work induce barrier damage, increasing the risk for the development of contact dermatitis. The use of adstringent agents before exposure to the noxious conditions does not always provide sufficient protection.

R. Muggli, **Systemic Evening Primrose Oil for Irritated Skin Care,** Cosmetics & Toiletries magazine, Vol. 122, No. 2/February 2007

Dry skin is a common complaint from men and women alike and its incidence and severity increase with age. This condition is the result of an impaired barrier function, increased transepidermal water loss (TEWL) and a significantly lower level of ceramides in the horny layer that causes the skin to lose an excessive amount of water.

U. Gönu Llü, D. Sensoy, M. Üner, G. Yener, T. Altinkurt, **Comparing the moisturizing effects of ascorbic acid and calcium ascorbate against that of tocopherol in emulsions**, IFSCC Magazine, Vol. 10, No. 1/2007, pp. 91-92

Calcium ascorbate (CAAS), which is a hydrophilic and stable derivative of ascorbic acid (vitamin C) (AA), is commonly used on foods as an antioxidative agent. There are very limited reports on its dermatological use in the literature. In this paper, it is reported that CAAS could be used in place of ascorbic acid, which has chemical stability problems in topicals due to degradation by oxidation.

G. Nakahami, H. Sanada, C. Konya, A. Kitagawa, E. Tadaka, Y. Matsuyama, **Evaluation of a new pressure ulcer preventive dressing containing ceramide 2 with low frictional outer layer,** JAN Journal Compilation 2007

Aim. This paper is a report of an evaluation of the effectiveness of a newly developed dressing for preveting persistent erythema and pressure ulcer development and improving the water-holding capacity without increasing the skin pH in bedridden older patients. Background. Shear forces and skin dryness play important roles in persistent erythema and pressure ulcer development. To eliminate these risks, we developed a dressing to reduce shear forces and improve the water-holding capacity. However, the effects of this dressing in clinical settings remain unknown. Method. An experimental bilateral comparison study was conducted at a hospital in Japan 2004 with 37 bedridden older patients at risk of pressure ulcer development.

R. Bazin, C. Fanchon, **Equivalence of face and volar forearm for the testing of moisturizing and firming effect of cosmetics in hydration and biomechanical studies**, IFSCC Magazine, Vol. 10, No. 1/2007, p. 86

The objective of the study was to compare measurements of skin hydration and of biomechanical properties perfomed on different zones of face and volar forearm. Thwo short-term (1h) and two long-term (3 weeks) studies were conducted with a moisturizing and a firming product, respectively, on groups of female volunteers with dry skin.

K. Völkening, **Hautpflege für Diabetiker,** www.wohlundwehe.de

Täglich sieben Einstiche in die Hautoberfläche für Blutzuckermessungen und Injektionen sind bei insulinabhängigen Diabetikern für eine gute Zuckereinstellung mindestens notwenidig.

M. Paye, S. Mac-Mary, A. Elkhyat, C. Tarrit, P. Mermet, P.H. Humbert, **Use of the Reviscometer s for measuring cosmetics-induced skin surface effects,** Skin Research and Technology 2007; 13, p. 343-349

Background/purpose: The Reviscometer® RVM600 that measures resonance running time (RRT) has been shown to be inversely related to the skin stiffness. However, very few publications describe the use of this instrument for testing the effect of cosmetic products.

Beurteilung von frühkindlichen Verbrennungen – Objektivität optimiert Therapie; aesthetic Tribune, Ausgabe 8, Dezember 2006

Die Beurteilung von Narben erfolgt im Allgemeinen visuell und palpatorisch durch den Arzt. Darin liegt allerdings auch ein grosses Fehlerpotential begraben, da jeder Untersucher die Narbe subjektiv eurteilt. Was leistet die objektive Einschätzung mittels Apparaten? Zur Beurteilung von Narben hat sich die Vancouver Scar Scale (VSS) etabliert. Mit ihr werden Hautrötung, Pigmentierung, Erhabenheit und Elastizität beurteilt. Allerdings spielen hier zahlreiche subjektive Einflussfakoren durch den Untersucher mit, sodass diese Methode insbesondere den wissenschaftlichen Ansprüchen nicht genügt. Dr. Jörn Lohmeyer von der Plastischen, Hand- und Wiederherstellungschriurgie und Intensivstation für Schwerbrandverletzte in Lübeck stellte Methoden vor, Narben nach frühkindlichen Verbrennungsunfällen mit objektiven Kriterien zu beurteilen.

M. Kerscher, U. Amon, **Verhinderung des Feuchtigkeitsverlustes,** DERMAforum Nr. 11, November 2006

Die neuen Produkte Cetaphil Creme und Cetaphil Lotion sind nach Erkenntnis der vortragenden Hautexperten besonders für trockene, empfindliche und geschädigte Haut geeignet. In der von Frau Prof. Kerscher geleiteten Untersuchung an der Universität Hamburg wurden die Creme und die Lotion in einer 14-tätigen monozentrischen, randomisierten und kontrollierten Studie an 20 Probanden im Alter von 35 bis 64 Jahren getestet.

Y.J. Kim, M.Y. Kim, P.K. Lee, H.O. Kim, Y.M. Park, **Evaluation of natural change of skin function in split-thickness skin grafts by noninvasive bioengineering methods**, Dermatol Surg. 2006 Nov;32(11):1358-63

Background: Autologous split-thickness skin grafts (STSGs) are considered the mainstay for the treatment of large full-thickness wounds. There have been few studies reporting the natural change of the skin function in STSGs after procedure, however. Objective: The objective was to evaluate the natural change of the skin function in STSG usingnoninvasive bioengineering methods. Methods: Eighteen patients were eligible for the study. The skin functions of the graft and the controlsite were evaluated by an evaporimeter, corneometer, mexameter, and cutometer at Postoperation Days 0.5, 1, 2, 3, 6, 9, and 12 months. Results: Transepidermal water loss (TEWL) of the graft was maintained around that of the normal skin. The values of the skin hydration testing generally decreased during the follow-up period. Erythema was highly maintained for the whole period. For the pigmentation, the ratio tended to increase after 6 months. The skin pliability of the graft was abruptly decreased at 0.5 month, and it recovered from 3 to12 months. The value did not reach that of the normal skin, however. Conclusion: Our results showed that the STSGs had changed within the frame of the skin function, including the TEWL, epidermal hydration, color, and pliability, throughout 1 year after surgery. The authors have indicated no significant interest with commercial supporters.

L. Rigano, C. Andolfatto, F. Rastrelli, **Antiaging Effects of a Skin Repair Active Principle**, Cosmetics & Toiletries, Vol. 121, No. 11/Nov. 2006, p. 57-64

Sodium DNA is an ingredient with activity at the cellular level. This fact has led to its incorporation in numerous high-end antiaging skin care products. An explanation of that activity and results of several tests of one sodium DNA material are presented in this article.

D. Tamarkin, M. Eini, D. Friedman, **Foam: The Future of Effective Cosmeceuticals**, Cosmetics & Toiletries, Vol. 121, No. 11/Nov. 2006, p. 75-84

The paramount objective of cosmeceutical development is to create effective products based on state-of-the-art, active ingredients that are conveniently delivered. The vehicle used to deliver topical ingredients can influence the performance of such ingredients since it can affect the delivery of the active agent to the target site of action.

E. Houben, K. de Paepe, V. Rogiers, **Skin condition associated with intensive use of alcoholic gels for hand disinfection: a combination of biophysical and sensorial data**, Contact Dermatitis 2006: 54, p. 261-267

Hand hygiene of healthcare workers (HCWs) is of major concern to avoid nosocomial infections (1-4). Therefore, hospitalwide infection control programmes prescribe disinfection of the hands after each patient contact (5, 6).

E. Xhauflaire-Uhoda, G. Loussouarn, C. Haubrechts, G.E. Piérad, **Skin capacitance imaging and corneosurfametry. A comparative assessment of the impact of sufactants on stratum corneum**, Contact Dermatitis 2006: 54, p. 249-253

Surfactants present in hygiene and skin care products are in part adsorbed at the skin surface, and they can also permeate the stratum corneum (SC) where they interact with proteins and lipids. In vitro studies have revealed a number of physico-chemical interactions between corneocytes and surfactants.

G. Kutz, C. Bruns, S. Hennig, M. Enga, **Current ingredients in semi-solid formulations and their effects on skin hydration, transepidermal water loss and water resistance**, Life Science Technologies – Pharmaceutical Engineering, Fachhochschule Lippe und Höxter, Germany, 2006, Poster Presentation.

A series of factors like excessive treatment with detergents or organic solvents, UV irradiation as well as low humidity are known to damage skin. Frequent barrier malfunction is due to a reduced amount of lipids.

E. Berardesca, N. Cameli, G. Primavera, M. Carrera, **Clinical and Instrumental Evaluation of Skin Improvement after Treatment with a New 50% Pyruvic Acid Peel,** Dermatol Surg 2006

Pyruvic acid is an a-keto acid that presents keratolytic, antimicrobial, and sebostatic properties as well as the ability to stimulate new collagen production and elastic fibers formation. Because of its low *p*Ka and its small dimension, it penetrates rapidly and deeply through the skin, so far as to be considered a potent chemical peel agent. It has proven its efficacy for the treatment of many dermatological conditions such as acne, superficial scarring, photodamage, and pigmentary disorders. Pyruvic acid application usually induces intense burning, and the postpeeling period is characterized by erythema, desquamation, and, sometimes, crusting.

D. Khazaka, **Objective Measurement at all Stages of the treatment**, 5th Asia Pacific Conference on Antiaging Medicine, Bali, September 2006

The days are over when a dermatologist only looked at the skin to make a diagnosis and to decide about the following treatments and to recommend skin care products to use. For almost 20 years now there is scientific equipment available to measure different parameters on the skin, such as hydration and sebum level, pH, elasticity, pigmentation skin texture and wrinkles and many more.

C.M. Weimer, **Irritation durch Waschen und Desinfizieren,** Digitale Bibliothek der Universität Marburg, 2006

Ziel dieser Studie war die Irritaion der Haut, hervorgerufen durch alkoholische Desinfektionsmittel und das Detergens Natriumlaurylsulfat (0,5% NLS) in einem repetitiven Testdesign zu untersuchen. Mittels nicht invasiver Untersuchungsmethoden quantifizierten wir die irritativen Effekte von Sterillium, 2-Propanol 45% v/v, 1-Propanol 30% v/v, welches die alkoholische Grundlage von Sterillium darstellt sowie von Wasser und NLS 0,5%.

S. Mac-Mary, P. Creidi, D. Marsaut, C. Courderot-Masuyer, V. Cochet, *T. Gharbi, D. Guidicelli-Arranz, F. Tondu, P. Humbert,* **Assessment of effects of an additional dietary natural mineral water uptake on skin hydration in healthy subjects by dynamic function measurements and clinic scoring**, Skin Research and Technology August 2006, 12, p. 199-205

The skin acts as a barrier to the outside world, protecting the body's organs and tissues from damage and physical, chemical and bacteriological injuries. Moreover, it helps to keep the body temperature under control. It also prevents the transcutaneous loss of water.

U. Heinrich, K. Neukam, H. Sies, W. Stahl, **Long-Term Ingestion of High Flavanol Cocoa Provides Photoprotection against UV-Induced Erythema and Improves Skin Condition in Women**, Journal of Nutrition 136: p. 1565–1569, July 2006

Dietary antioxidants contribute to endogenous photoprotection and are important for the maintenance of skin health. In the present study, 2 groups of women consumed either a high flavanol (326 mg/d) or low flavanol (27 mg/d) cocoa powder dissolved in 100 mL water for 12 wk. Epicatechin (61 mg/d) and catechin (20 mg/d) were the major flavanol monomers in the high flavanol drink, whereas the low flavanol drink contained 6.6 mg epicatechin and 1.6 mg catechin as the daily dose. Photoprotection and indicators of skin condition were assayed before and during the intervention. Following exposure of selected skin areas to 1.25 3 minimal erythemal dose (MED) of radiation from a solar simulator, UV-induced erythema was significantly decreased in the high flavanol group, by 15 and

25%, after 6 and 12 wk of treatment, respectively, whereas no change occurred in the low flavanol group. The ingestion of high flavanol cocoa led to increases in blood flow of cutaneous and subcutaneous tissues, and to increases in skin density and skin hydration. Skin thickness was elevated from 1.11 6 0.11 mm at wk 0 to 1.24 6 0.13 mm at wk 12; transepidermal water loss was diminished from 8.7 6 3.7 to 6.3 6 2.2 g/(h m2) within the same time frame. Neither of these variables was affected in the low flavanol cocoa group. Evaluation of the skin surface showed a significant decrease of skin roughness and scaling in the high flavanol cocoa group compared with those at wk 12. Dietary flavanols from cocoa contribute to endogenous photoprotection, improve dermal blood circulation, and affect cosmetically relevant skin surface and hydration variables.

G. Kampf, J. Ennen, **Regular use of a hand cream can attenuate skin dryness and roughness caused by frequent hand washing**, BMC Dermatology 2006, 6:1

Background: Aim of the study was to determine the effect of the regular use of a hand cream after washing hands on skin hydration and skin roughness. Methods: Twenty-five subjects washed hands and forearms with a neutral soap four times per day, for 2 minutes each time, for a total of two weeks. One part of them used a hand cream after each hand wash, the others did not (cross over design after a wash out period of two weeks). Skin roughness and skin hydration were determined on the forearms on days 2, 7, 9 and 14. For skin roughness, twelve silicon imprint per subject and time point were taken from the stratum corneum and assessed with a 3D skin analyzer for depth of the skin relief. For skin hydration, five measurements per subject and time point were taken with a corneometer. Results: Washing hands lead to a gradual increase of skin roughness from 100 (baseline) to a maximum of 108.5 after 9 days. Use of a hand cream after each hand wash entailed a decrease of skin roughness which the lowest means after 2 (94.5) and 14 days (94.8). Skin hydration was gradually decreased after washing hands from 79 (baseline) to 65.5 after 14 days. The hand wash, followed by use of a hand cream, still decreased skin hydration after 2 days (76.1). Over the next 12 days, however, skin hydration did not change significantly (75.6 after 14 days). Conclusion: Repetitive and frequent hand washing increases skin dryness and roughness. Use of a hand cream immediately after each hand wash can confine both skin dryness and skin roughness. Regular use of skin care preparations should therefore help to prevent both dry and rough skin among healthcare workers in clinical practice.

U. Wollina, J. Kubicki, **Dexpanthenol supports healing of superficial wounds and injuries**, Kosmetische Medizin 5+6/2006, p. 240-249

Oberflächliche Hautverletzungen und Wunden sind häufig. Unter Einsatz eines Spektrums verschiedener In-vivo-Modelle der epidermalen Barrierestörung und der Wundsetzung untersuchten wir das Potential der topischen Dexpanthenol-Anwendung in der Förderung der epidermalen Regeneration und der Wundheilung.

*B.-I. Bettzüge-Pfaff, H. Prieur***, Nutzen einer adjuvanten Basiscreme bei trockener, atopischer Haut,** Kosmetische Medizin 5+6/2006, p. 261-263

Im Rahmen eines dermatologisch kontrollierten Anwendungstests und hautphysiologischer Messungen an Patienten mit atopischem Ekzem hat sich eine lipidreiche Basiscreme auch bei Kindern als effektive und gut verträgliche Formulierung erwiesen. Nach Anwendung der Creme wurde eine Steigerung der Hautfeuchtigkeit und Hautfettung sowie eine Verbesserung der Hautbarrierefunktionen erreicht.

N.O. Hübner, G. Kampf, H. Löffler, A. Kramer, **Effect of a 1 min hand wash on the bactericidal efficacy of consecutive surgical hand disinfection with standard alcohols and on skin hydration**, Int J Hyg Environ Health. 2006 May; 209(3): p. 285-91

Background: In most surgical theatres, a 1 min or even longer hand wash is routine as part of the pre-operative hand disinfection. But its benefit has recently been seen critically. Methods: We have therefore investigated the effect of a 1 min hand wash on skin hydration and on the efficacy of consecutive surgical hand rubbing with three standard alcohols (60% propan-1-ol, 60% propan-2-ol, 80% ethanol; all v/v) on the resident hand flora. Three types of treatment were performed: (i) a 1 min pre-wash before surgical hand disinfection, (ii) no pre-wash before surgical hand disinfection and (iii) no pre-wash but use of a brush for 1 min during disinfection procedure. The efficacy of the alcohols was determined according to prEN 12791 with the same 20 volunteers in paired groups. To assess the effect of the hand wash on skin hydration, 10 volunteers washed their hands with sapo kalinus for 1 min and dried hands with a paper towel. Skin hydration was measured with a Corneometer before the hand wash and subsequently up to 10 min thereafter both on the palm and dorsum of hands. We also tested the reduction of bacterial spores by a 15 s hand wash according to EN 1499 after artificial contamination of hands of 14 volunteers with spores of B. stearothermophilus. Results: Propan-1-ol (60%) was most

effective with a mean log10 reduction of 2.11, followed by ethanol (80%) with a mean log10 reduction of 1.76 and propan-2-ol (60%) with a mean log10 reduction of 0.57 (all immediate effect without hand wash). The efficacy of the alcohols was neither significantly improved nor impaired by a preceding 1 min hand wash, but there is a trend towards better efficacy on dry hands. Using a brush for 1 min during disinfection resulted in a better efficacy with all alcohols. An anaylsis of variance revealed that the immediate effect of ethanol ($p = 0.013$) and propan-2-ol ($p = 0.001$) is significantly influenced by the variation of treatments which is mainly explained by the effect of brushing during disinfection. But no significant difference between treatment variations was found in the sustained effect with any of the alcohols. Skin hydration increased significantly by a 1 min hand wash for up to 10 min despite drying hands with a paper towel. A 15 s hand wash reduced the number of bacterial spores significantly from log10 3.84 to log10 1.99 ($p = 0.001$). Conclusion: There is no benefit of a hand wash as part of surgical hand disinfection except that a short hand wash of 15 s can effectively reduce spores. The best time for this short hand wash is at the beginning of work in hospital, but at the latest in the sluice of the operating theatre about 10 min before applying an alcohol-based hand rub to give the skin enough time to dry.

S. Tamburic, *I. Arsic, G. Vuleta, S. Savic,* **In vivo skin performance of a cationic emulsion base in comparison with an anionic system**, Journal of Applied Cosmetology, Vol. 24, Number 2, April/June 2006, p. 63-74

Cationic emulsifiers are relatively recent addition to the vast range of emulsifiers for personal care products. There are very few data regarding their in vivo skin performance. This study presents a comparative assessment of skin hydration potential of two emulsion creams: a cationic emulsion, based on distearyldimonium chloride, and an anionic emulsion, based on hydrophobically modified acrylic acid polymer.

S. Tamburic, **Effects of Polymer Entrapment of Prunus Spinosa Fruit extract on its cosmetic efficacy**, Journal of Applied Cosmetology, Vol. 24, Number 2, April/June 2006, p. 1-14

The aim of this paper was to find out whether the entrapment of herbal extract into polymeric “reservoir” systems affects its skin efficacy.

R. Ismail, S. Ahmad, **Skin Care Formulation Incorporating Natural Moisturising Factor and its Efficacy on Asian Skin**, SOFW-Journal No. 132, 4-2006, p. 2-7

The skin has the property to retain water in order to maintain its proper barrier function. In situations of environmental stress, age or intrinsic physiological disturbances, this function is maintained only in part. The water storage capacity of the skin decreases with an increased water loss by evaporation (transepidermal water loss, TEWL), resulting in a dry, deep-wrinkled or even squamous skin.

H. Heinrich, B. Garbe, H. Tronnier, M. Béjot, J.M. Mauretta, **Supplementation with Nutritional Cartilage Extract Positively Influences Skin Hydration, Skin Barrier and Skin Structure: A Double-Blind, Randomized, Placebo-Controlled Study,** IFSCC Magazine, Vol. 9, No. 4/2006, p. 319-323

The aim of the study was to evaluate the efficacy of polysaccharides from fish cartilage with regard to their skin aging properties. An application test was carried out during the intake of cartilage tablets as a nutrinional supplement.

Experiment „SkinCare“ auf der Raumstation: Hautphysiologische Messungen in Schwerelosigkeit, Newsletter #1/2006, Raumstation: Fachinformationsdienst zur Nutzung der Internationalen Raumstation, April 2006, p. 10

Im Rahmen der geplanten europäischen ISS-Langzeitmission von Juli bis Dezember 2006 sollten erstmals systematisch physiologische Parameter der menschlichen Haut bei einem längeren Aufenthalt in Schwerelosigkeit erfasst werden. Dabei erlaubt der Einsatz moderner nicht-invasiver Messverfahren, durch die Bestimmung von Parametern wie Feuchtigkeit, Barrierefunktion und Mikrostruktur, den physiologischen Hautzustand exakt zu charakterisieren.

F. Guillaumie, B.M. Malle, K. Schwach-Abdellaoui, T.C. Beck, **A New Sodium Hyaluronte for Skin Moisturization and Antiaging**, Cosmetics & Toiletries Vol. 121, No. 4, April 2006, p. 51-58

In response to growing concerns about animal-derived sources for hyaluronic acid, some researchers have turned to biotech methods to produce this skin moisturizing agent.

R. Ismail, S. Ahmad, **Skin Care Formulation Incorporating Natural Moisturising Factor and its Efficacy on Asian Skin**, SOFW-Journal, International Journal for Applied Science, 4 2006, p. 2-7

The skin has the property to retain water in order to maintain its proper barrier function. In

situations of environmental stress, age or intrinsic physiological disturbances, this function is maintained only in part.

H. Matsuki, K. Kiyokane, T. Matsuki, S. Sato, G. Imokawa, **Recharacterization of the Nonlesional Dry Skin in Atopic Dermatitis through Disrupted Barrier Function**, Exogenous Dermatology, March 2006

The etiology of the nonlesional dry and barrier-disrupted skin of patients with atopic dermatitis (AD) is still unclear. Objective: To determine whether disrupted barrier function in the nonlesional skin is associated with inflammatory or postinflammatory events, which are relevant to the severity of AD or local dry skin properties, respectively.

H. Matsuki, K. Kiyokane, T. Matsuki, S. Sato, G. Imokawa, **Reevaluation of the Importance of Barrier Dysfunction in the Nonlesional Dry Skin of Atopic Dermatitis Patients through the Use of Two Barrier Creams,** Exogenous Dermatology, March 2006

Atopic dermatitis (AD) can be considered a barrier disease in which antigens and irritants that can easily penetrate clinically normal, nonlesional skin due to its defective barrier function trigger and worsen the dermatitis.

C.M. Lee, H.I. Maibach, **Bioengineering Analysis of Water Hydration**, Cosmetics & Toiletries, Vol. 121, No. 3, March 2006, p. 46-52

The water content of the stratum corneum (SC) influences almost every biophysical property measurable at the skin surface. Water hydration can be measured using the plastic occlusion stress test (POST) or the water sorption-desorption test (WSDT).

Reevaluation of the importance of Barrier Dysfunction in the Nonlesional Dry Skin of Atopic Dermatitis Patients through the use of two barrier creams.
Karger, 09.03.2006

Background: Atomic dermatitis (AD) can be considered a barrier disease in which antigens and irritations that can easily penetrate clinically normal, nonlesional skin due to its defective barrier function trigger and worsen the dermatitis. Thus, repleneshing the barrier function in clinically normal, nonlesional skin of patients with AD seems to be a key for preventing the refractory nature of the dermatitis.

A. Rougier, S. Seite, **Clinical efficacy of topically applied vitamin C associated with madecassoside on skin aging,** AB28 J. Am. Acad. Dermatol.

Cutaneous aging is a complex biological process that affects the different compartments of the skin. In sun-exposed areas, skin aging is caused by two distinct processes: chronological aging and sun-induced actinic damage, called photoaging. We have previously demonstrated in vivo, the beneficial effect of topically applied vitamin C in the treatment of skin aging.

W. Wallo, C. Bertin, T.Oddos, F. Costes, **Clinical improvement in the appearance of photoaging with a serum containing retinal,** AB30 J. Am. Acad. Dermatol.

Vitamin A has been proven to be an important ingredient for improving the appearance of photoaged skin. Products containing retinol are available in various forms, such as creams, gels and lotions, which are applied to the face as part of the daily skin care regimen. Serums represent a new patient preferred form with better aesthetics an an enhanced delivery profile, capable of providing retinol and aging benefits.

N. Trookman, R. Rizer, R. Ford, R. Trancik, **Atopic dermatitis: Advantages of a novel hydrogel vehicle,** AB75 J. Am. Acad. Dermatol.

Atopic dermatitis (AD) is a chronic condition requiring long-term use of medication where patient compliance is essential to treatment success. The vehicle used can substancially affect the active agent's clinical action, potency and acceptability to the patient. Desonide is a well-known synthetic, non-fluorinated corticosteroid with anti-inflammatory and anti-pruritic properties, currently available in only cream, ointment and lotion formulations.

M.-D. Thouvenin, V. Turlier, V. Mengeaud, P. Morinet, **Assessment of efficacy, tolerance and cosmetic acceptability of 0,1% delta-tocopheryl glucoside serum on skin aging,** AB84 J. Am. Acad. Dermatol.

A biometrological, open, monocenter study was conduced to assess efficacy, tolerance and cosmetic acceptability of 01,% delta-Tocopheryl glucoside serum in the skin aging treatment. Thirty women between the ages of 35 and 45, with a minimum score of 3 on a 9-point-scale of wrinkles, applied

the product twice a day for 8 weeks on the face an on one forearm. A sunscreen pruduct (SPF 50) was provided for sun exposure.

T. Weber, A.Kowcz, N. Trookman, R. Rizer **Evaluation of a moisturizer containing sodium acetate and urea to ameliorate senile xerosis,** AB33 J. Am. Acad. Dermatol.

Objective: to asses the ability of a commercially available moisturizing cream to ameliorate the dry skin condition of subjects 65 to 86 years of age. Methods: in this 7-week, single-blinded, controlled clinical study, 28 subjects with moderate to severe xerosis were treated twice daily for 6 weeks with a moisturizing cream containing 10% urea and 5% sodium lactate.

S. Hawkins, J. Alicera, S. Krishnan, R. Marriott, **Clinical improvement to photoaged skin with conjugated linoleic acid (CIA): A novel cosmetic PPAR lipid for anti-aging benefits,** AB15 J. Am. Acad. Dermatol.

Photoaged skin is the manifestation of accumulated skin damage from chronic sun exposure, superimposed upon the chronological aging process. Alpha hydroxy acids (AHAs) have been a mainstay ingredient in anti-aging products for many years. New products are introduced annually including ingredients such as retinol, retinol derivates, beta hydroxy acids, niacinamide, peptides and prescription retinoids.

R. Wanitphakdeedecha, W. Manuskiatti, S. Eimpunth, S. Hunnangkul, **The effects of single application of mucopolysaccharide polysulphate (MPS),** AB96 J. Am. Acad. Dermatol.

To study the efficacy on the skin hydration of mucopolysaccharide polysulphate (MPS) 0,1% after single application. Twenty female volunteers aged 30 to 45 years with dry skin, defined by the corneometer, were recruited to the study. All subjects were asked to apply 2 g of MPS cream on a selected forearm.

R. Wanitphakdeedecha, W. Manuskiatti, S. Eimpunth, Sadwalak Hunnangkul, **The effects of mucopolysaccharide polysulphate (MPS) on the hydration and elasticity of human skin,** AB95 J. Am. Acad. Dermatol.

To study the efficacy of mucopolysaccharide polysulphate (MPS) in hydration and elasticity of human skin. Methods: Sixty female volunteers aged 30 to 45 years with dry skin, defined by the corneometer, were recruited to the study. The volunteers were randomly treated with MPS and placebo.

T. Miller, S. Batra, J. Ramirez, **Evaluation of the effect of a Novel Bi-Mineral Complex on photoexposed periorbital skin**, AB32 J. Am. Acad. Dermatol.

The elasticity of the skin is attributable to elastic fibers that can stretch and then recoil. The elastic fibers contain elastin – a large protein synthesized by dermal fibroblasts that forms spiral filaments comparable to springs. The spiral filaments are crosslinked together and, when the skin is stretched, this crosslinking enables the spiral filaments to spring back to their original positions.

L. Colon, R. Rizer, L. Johnson, N. Trookman, **Corneometric assessment of skin hydration following the application of Metronidazole 1% Gel**, AB13 J. Am. Acad. Dermatol.

Rosacea is a skin condition characterized by unsightly redness on the face, sometimes accompanied by acne-like papules and pustules. Symtom flares are most often triggered by spicy foods, sun exposure or irritating skin products. Accordingly, the irritation potential of any topical treatment prescribed for rosacea patients should be considered.

H. Matsuki, K. Kiyokane, T. Matsuki, S. Sato, G. Imokawa, **Recharacteriasation of the nonlesional dry skin atopic dermatitis through disrupted barrier function,** Exogenous Dermatology, March 2006

Background: The etiology of the nonlesional dry and baris is till unclear. Objective: to determine whether disrubted barrier function in the nonlesional skin is associated with inflammatory or postinflammatory events, which are relevant to the severity of AD or local dry skin properties, respectively. Methods: we evaluated the barrier function and the water content of nonlesional forearmskin and compared.

C. Couteau, L.J. Coiffard, V. Sébille-Rivain, **Influence of excipients on moisturizing effect of urea,** Drug Dev Ind Pharm, 2006 Feb;32(2): p. 239-242

Water is the most important molecule contained in the skin and is bound to the intracellular hygroscopic substances called natural moisturizing factors (NMF). The clinical characteristic of xerosis is rough and/or coarse skin. This anaesthetic alteration necessitates cosmetic products application. In this study, we tested the efficiency of urea incorporated into six different emulsions (O/W) and 10

different gels. Skin of 10 healthy women (20 to 45 years) was treated using 50 mg of emulsion or gel containing 5% of urea. A skin surface of 16 cm(2) was chosen in the area of the forearm. The gain in moisturizing was performed measuring the skin electrical capacity using a corneometer (Courage & Khazaka, model CM 825), one hour after treatment. Sodium carboxymethyl cellulose gel has the least moisturizing effect. On the other hand, the mixture of polyacrylamide and C13-14 isoparaffin polysorbate 85 can be a good vehicle in the treatment of skin dehydration. Adding various oils (6%) or collagen in aqueous solution does not improve the efficiency of the tested products. Moisturizing effect of gels (polyacrylamine with C13-14 isoparaffin polysorbate 85) is higher than the one of emulsions (L/H).

M. Wahlen, N. Buhles, **Beruflich bedingtes allergisches Handekzem durch Euro-Münzen bei vorbestehender Hyperhidrosis manuum**, Akt Dermatol 2006; 32: p. 260-264

Nickel ist das meist verbreitete Allergen in Europa und weltweit, so auch in Euro-Münzen. Münzen werden allerdings nicht zu den Gebrauchsgegenständen, die direkten und langen Kontakt zur Haut haben, gerechnet. Die 1-Euro-Münzen und die 2-Euro-Münzen weisen eine Bimetallstruktur auf. In Kombination mit Schweiß entsteht aus diesem Grunde ein sog. ¹Galvanisches Element". Durch einen messbaren Stromfluss werden vermehrt Nickelionen freigesetzt. Wir berichten über den Fall eines 55-jährigen Bankkaufmannes in einer Sparkasse, der arbeitskongruent im September 2001 ein dyshidrotisches Handekzem entwickelte. Der Patient wies zudem eine Hyperhidrosis manuum auf. Zuvor hatte der Patient nie an Ekzemen gelitten. Ab Herbst 2001 kam der Patient im Rahmen der Einführung erstmals mit Euro-Münzen in Kontakt. Ein Epikutantest zeigte eine Typ-IV-Sensibilisierung gegenüber Nickel und den Inhaltsstoffen von 1-Euro- und 2-Euro-Münzen.

C. Vincent, M. Szubert, K. Rugiewicz, I. Eris, **The assessment of efficacy, tolerability and cosmetic features of Diosperin K 1% PROLONGATUM cream containing complex of diosmine, hesperidine and vitamin K**, Poster Presentation, Centre for Science and Research Dr. Irena Eris, 2005

Face redness and couperoses can cause very negative visual effect and influent on patients´quality of life. Such type of skin requires special regime. Application of very gentle cleaners, sun protective products and appropriate cosmetic creams can improve the skin condition and minimize the red face effect.

A.S.G. Ansel, **Schadstoffe und Allergene in der Innenraumluft: Untersuchung zur Beeinflussung von Hautfunktion und allergologischer Reaktivität bei Patienten mit atopischem Ekzem,** Dissertation 2005 an der Technischen Universität München

Da sich besonders in den modernen westlichen Ländern ein starker Anstieg allergischer Erkrankungen verzeichnen lässt, werden insbesondere Umweltfaktoren als eine mögliche Ursache für die Zunahme der Allergien diskutiert. Ring [96] und der Rat von Sachverständigen für Umweltfragen [10] nennen als mögliche Gründe die Wirkung von Umweltverunreinigungen, die Zunahme von Aeroallergenen in Außen undInnenluftbereich, das Auftreten neuer Allergene, die geringere Stimulation des kindlichen Immunsystems (weniger Infektionen, Parasiten, Impfungen) und einen westlichen Lebensstil. In dem Gutachten wird außerdem darauf hingewiesen, dass die luftgetragenen Allergenträger des Innenraumes und der Außenluft die häufigsten und wichtigsten natürlichen Umweltfaktoren für die Auslösung und Unterhaltung atopischer Erkrankungen sind.

I. Hütter, A. Behler, S. Cornelsen, **"Vitamin" of surfactants profiled,** Personal Care, Nov. 2005, p. 45-47

Natural alpha hydroxy acids (AHA) or so-called "fruit acids" such as citric, malic or glycolic acid, have been used for years in personal care applications. They are highly appreciated for their cosmetic benefits, such as anti-ageing and moisturising.

T.L. Grosick, V.L. Hollis, **Making Sensitive Skin Less Sensitive,** The Procter & Gamble Company

The often-elusive mechanism of sensitive skin remains a challenge to overcome as an estimated 40-50% of patients express, to varying degrees, perceived and symptomatic episodes of sensitivity. Dryness is a focal element of sensitivity and there are many benign moisturizers (devoid of fragrance, dyes and offensive agents) offering some momentary escape from this particular effect.

M. Gloor, B. Senger, M. Langenauer, J.W. Fluhr, **On the course of the irritant reaction after irritation with sodium lauryl sulphate,** Universirty of Karlsruhe, Germany and Spirig Pharma AG, Switzerland and Friedrich-Schiller-University Jena, Germany

Background: The sodium lauryl sulphate (SLS) irritation test is a well-established model for irritant contact dermatitis after the effects of surfactants.Aim of the study: The course of changes in corneometric measurements (stratum corneum hydration), in transepidermal water loss (TEWL), in laser

Doppler measurements (epidermal perfusion) and in colorimetric measurements (skin redness), aftera single SLS irritation, should be studied over time.

F. Rou, Y.-S. Park, **Comparison of determined skin types by different factors of facial skin hydration, sebum content and surface pH levels** (study in Korean), Korean Journal of Skin Beauty Education

Objective: We studied to find suitable spots to measure facial oil and water status for identifying the skin-type. This study was performed with 131 female students in juniors and seniors in collage at a city from 23th May to 3rd June 2003. Their age averaged 19.9±3.1 years. Design: We measured the sebum content and the hydration status of 4 facial spots as the brow, the chin, the eye rims, and the cheek, after 1 hour, 2 hours and 12 hours after washing their faces by Sebum-meter and Corneo-meter, and also measured the pH of their cheek by Skin-pH-meter after 12 hours after washing. We assumed the whole face skin, as the average of 4 facial spots. The questionnaires for skin type classification were also performed as well as a single question of self-perceived skin types. The statistical analysis were done by using SPSS11.0 for Win like average, t-test, ANOVA, X2, and Pearson's correlation coefficient. Results: We observed that the skin types based on the sebum content of whole face skin(4 spots) showed signigicant low correlations with the self-perceived skin types($r=0.287$, $p=0.016$) or the skin types based on the questionnaires($r=0.393$, $p=0.000$). The self-perceived skin types and questionnaires skin types were very highly related($r=0.709$, $p=0.000$). There were remarkably the positive correlations between skin types by the sebum contents of whole face skin and T-Zone($r=0.812$, $p=0.000$). Especially skin types by T-zone sebum showed significant low correlations with the self-perceived skin types($r=0.373$, $p=0.001$) or with the skin types based on the questionnaires($r=0.403$, $p=0.000$). Sebum creation rate is very important element for skin condition (type), so measuring sebum content of the whole face skin seemed to be very much resonable for identifying skin type. Especially only T-Zone measurement could be compatible. This results can be used for skin type identification before cosmetic material selections or facial makeups.

K. Schweikert, V. Kalhöfer, B. Gabard, **Improving the properties of Hyaluronic acid on dry skin,** Personal Care, Nov. 2005, p. 35-39

The effects of two cosmetic actives intended for the treatment of skin dryness (Hyaluronic acid and the new Tamarindus indica seed extract) were evaluated in five healthy volunteers by objective measurements after twice daily application on the skin of the volar forearm for two weeks.

S.W. Son, S.Y. Park, S.H. Ha, G.M. Park, M.G. Kim, J.S. Moon, D.S. Yoo, C.H. Oh, **Objective evaluation for severity of atopic dermatitis by morphologic study of skin surface contours**, Skin Research and Technology 11/05, p. 272-280

Wide variation in outcome methodology can make the interpretation of patient outcomes confusing and the comparison of the results of different studies almost impossible. It is important to objectively measure and record the severity of atopic dermatitis (AD) for routine clinical practice and research. The aim of this study was to evaluate whether morphologic study of skin surface contours might be helpful to objectively quantify the severity of AD.

Dermokosmetik, Beratung in der Apotheke, PTA Nr. 11, Oktober 2005

Eine gute Unterstützung bei Promotionaktionen zum Thema „Hautpflege“ sind Hautanalysegeräte. Sie erleichtern den Einstieg in die Beratung, individuell auf den Hauttyp und Hautzustand der Kundin oder des Kunden abegestimmt.

J. Nemes, M. Alberth, **Reliability and clinical usefulness of sudorometry in measuring dental fear of children**, University of Debrecen, Medical and Health Science Centre, Hungary, Oct. 2005

Dental fear is a common health care problem in the child population. To the effective management of this handicapping trait, it is important to determine the prevalence of the problem in the community so as to help in the planning of public health service.

D. Kowatzki, C. Machold, K. Krull, P. Elsner, J.W. Fluhr, **Regeneration kinetic of sweating, Stratum Corneum hydration, Surface pH, Sebum production and mechanical properties is not altered by regular sauna bathing,** Presentation on the ISBS Meeting 2005 in Philadelphia and Skin Research and Technology 2005, 11 (abstracts)

Wellness and especially sauna bathing are of growing interest in modern health care. The positive effect of sauna for general health is well documented. However, to our knowledge no controlled studies have been published on the effect of sauna on skin physiology.

M. Visscher, J. Smith, D. Said, P. Bondurant, R. Wickett, **Stratum Corneum integrity and function in health care workers following hand hygiene procedures,** Presentation on the ISBS Meeting 2005 in Philadelphia and Skin Research and Technology 2005, 11 (abstracts)

Compliance with the Centers for Disease Control´s hand hygiene guideline is low and health care workers (HCWs) cite skin irritation as highest reason for failure to comply.

J.W. Fluhr, M. Breternitz, M. Flach, P. Elsner, **Acute experimentally induced barrier disruption by tape stripping is influenced by pressure, time and anatomical location: Integrity and Cohesion assessed by sequential tape stripping,** Presentation on the ISBS Meeting 2005 in Philadelphia and Skin Research and Technology 2005, 11 (abstracts)

Tape stripping is a well-known procedure in stratum corneum physiology research. Adhesive films are pressed to the surface of SC and then removed. The superficial layers of SC adhere on the film and are accessible for further investigations. Although this method is widely used, only few information about standardization are known.

S. Son, S. Park, S. Ha, G. Park, G. Lee, C. Oh, **Analysis of the skin hydration states using high resolution magnetic resonance microscope,** Presentation on the ISBS Meeting 2005 in Philadelphia and Skin Research and Technology 2005, 11 (abstracts)

Magnetic Resonance (MR) technique have been rapidly developed, and Magnetic Resonance Image (MRI) is now the most versatile non-invasive diagnostic tool with a much higher resolution than other imaging modalities such as conventional X-ray, or Computed Tomography (CT).

A. Behler, S. Cornelsen, I. Huetter, **A new multifunctional mono alkyl ether citrate with unique properties,** Poster Presentation on the ISBS Meeting 2005 in Phildelphia, abstract

K. de Paepe, V. Rogiers, **Corneofix F20®, a new technology to define skin desquamation,** Presentation on the ISBS Meeting 2005 in Philadelphia and Skin Research and Technology 2005, 11 (abstracts)

The aim of the present study was the evaluation of a newly marketed methodology for the characterization of the skin desquamation index (DI) being an important parameter for the evaluation of overall skin condition.

R. Voegeli, J. Heiland, S. Doppler, T. Schreier, **Efficient and Simple Quantification of Stratum Corneum Proteins on Tape Strippings,** Presentation on the ISBS Meeting 2005 in Philadelphia and Skin Research and Technology 2005, 11 (abstracts)

Tape stripping is established as a common technique in dermatological research and is used in a broad range of applications. However, a concurrent colorimetrical determination of protein content and enzyme activity on the same tape is circumstantial.

M. Giuliani, G. Amicosante, L. Di Marzio, B. Cinque, M.G. Cifone, **Increase of skin-ceramide levels in aged subjects following a short-term topical application of bacterial sphingomyelinase from *Streptococcus thermophilus,*** Presentation at the IFSCC in Florence 2005

Several studies have demonstrated that ceramides play an essential role in both the barrier and water-holding functions of healthy stratum corneum, suggesting that the dysfunction of the stratum corneum associated with ageing as well that observed in patients with several skin diseases (i.e. atopic dermatitis, psoriasis) could result from a ceramide deficiency.

K. Lintner, C. Mas Chamberlin, P. Mondon, O. Peschard, **IgG fragments regulate IL6 production in keratinocytes: potential use in anti-age treatments,** Presentation at the IFSCC in Florence 2005. *

Cytokines play a fundamental role in inter-cellular communication. Their secretion rate and cellular concentrations are well regulated and in an equilibrium state (“homeostasis”) in healthy, young skin. Ageing leads to changes in these equilibriums. DHEA clearly controls IL6: the age-related decrease in DHEA (by a factor of >2 after age 50) is accompanied by increased IL6 levels. Cytokine IL6 is also known to be strongly induced in skin by UV rays.

P. Granata, R. Maffei Facino, A. Ghirardini, E. Berardesca, G. Primavera, M. Carrera, **Tyrosyl-Histidine Dipeptide: A new Approach against Premature Aging,** Presentation at the IFSCC in Florence 2005

Oxidative fragmentation of polyunsaturated fatty acids in the skin generates cytotoxic aldehydes, mainly 4-hydroxy-*trans*-2-nonenal (HNE), involved in premature skin aging and photo-aging, due to the formation of collagen and elastin cross-links, skin enzymes inactivation, accumulation of lipid peroxidation products. Since histidine-containing dipeptides have been recently shown to possess

carbonyl quenching activity, we developed a series of different dipeptides with the aid of combinatorial chemistry and each of them was subjected to antioxidant and anti-carbonyl assays, in a cell-free model using the ORAC assay (Oxygen Reactive Antioxidant Capacity) for anti-lipoperoxidant activity, HPLC analysis for the evaluation of the HNE quenching ability and LC-MS/MS for the characterization of the site and of the mechanism of adduction.

A. Barel, M. Calomme, A. Timchenko, K. de Paepe, N. Demeester, V. Rogiers, P. Clarys, D. Vanden Berghe, **Effect of Oral Intake of Choline-Stabilized Orthosilicic Acid On Skin, Nails And Hair In Women With Photodamaged Facial Skin**, Poster Presentation, AAD 2005, New Orleans and Presentation on the IFSCC in Florence 2005

Chronic exposure of the skin to sunlight or ultraviolet causes severe damage to the underlying connective tissue, with a loss of elasticity and a reduction in its protective function. Silicon (Si) was suggested to have an important function in the formation and maintenance of connective tissue.

P. Masson, F. Merot, M.-J. Albin, C. Simonet, S. Flauto, P. Pommez, **Psychoneuroimmonulogical Effects of a Cosmetic Product: Benefits of a Multifactorial Approach,** Presentation on the IFSCC in Florence 2005

Several publications have reported the existence of a relationship between individual mood and immunological response, basing the observations on the variation in the salivary IgA and Cortisol content [1,2]. Then, it seemed relevant to consider if such considerings could apply to demonstrate the ability of specific cosmetic formulations to influence the users' behaviour by providing them pleasure and well being in addition to the usual cosmetic effects. The first results obtained have demonstrated a lack of stability of the immunological responses and the obligation to correlate the results with complementary parameters.

A. Koyanagi, N. Goto, S. Daikai, S. Uchida, N. Hayashi, N. Ikeda, M. Yoshioka, **Evaluation of a multi-functional hybrid polymer based on a novel technology: as emulsifier, lastarizer, smoother, texture enhancer and moisturizer,** Presentation on the IFSCC in Florence 2005

The copolymer consisted of hydrolysed silk protein and alkylmethylsiloxane was recently developed by our technology. The copolymer enabled us to make stable Water in Silicone emulsion as well as Water in Oil emulsion by cold process. It was dispersible in various kinds of oil, in spite of its insolubility in water or solvents and this proved the important feature of this copolymer.

P.M.B.G. Maia Campos, M.D. Gianeti, G.M.S. Gonçalves, L.R. Gaspar, **Assessment of *in vitro* antioxidant and *in vivo* anti-ageing effects of cosmetic products containing vitamin C and its derivatives on human skin,** Presentation at the IFSCC in Florence 2005

The objective of this study was to determine the *in vitro* antioxidant activity of vitamin C (AA) and its derivatives, magnesium ascorbyl phosphate (MAP), ascorbyl tetra-isopalmitate (ATIP) as well as their *in vivo* anti-ageing effects by using Cutaneous Bioengineering Techniques on human skin. The study of antioxidant activity *in vitro* was made with an aqueous and a lipid system, the luminol-chemiluminescence, and malondialdehyde assay, respectively.

R. Ismail, S. Ahmad, **Skin Care Formulation Incorporating Sodium Lactates, Sodium PCA and Lauryl PCA: Comparative Moisturizing Efficacy on Asian Skin,** Presentation on the IFSCC in Florence 2005

Sodium lactates, sodium PCA and lauryl PCA are known Natural Moisturizing Factor (NMF) commonly used in skin care formulations. In this paper, moisturizing efficacy of oil-in-water (O/W) based emulsion containing 3% glycerin use as placebo and with additional NMF @1%, 3% and 5% active were conducted *in-vivo* on 36 Asian subjects consisting of a mixture of one Indian, two Chinese and the rest Malays including 21 females and 15 males, age between 23 to 45 years old (average 32 years).

Y.H. Kim, Y.-S. Kim, J.-H. Kim, **Cosmeceutical Properties of Polysaccharides from the Root Bark of *Ulmus davidiana* var. *japonica*,** Presentation on the IFSCC in Florence 2005

In Korea and China, *Ulmus davidiana* var. *japonica* has been used as traditional oriental medicine for the treatment of difficulty in urination, skin inflammation, etc. In order to investigate the potential of a polysaccharide extract from *Ulmus davidiana* var. *japonica* as a cosmetic ingredient, we measured its moisturizing effect, photo-induced cytotoxicity, and anti-inflammatory effect. After hydrolysis, HPLC experiments showed that the composition of polysaccharide was mainly rhamnose, galactose, and glucose.

F. Distante, V. Pagani, B. Green, A. Bonfigli, J. W. Fluhr, **Objective Evaluation of Placebo Effectin**

Cosmetic Treatment, Presentation on the IFSCC in Florence 2005 and IFSCC Magazine, Vol. 9, No. 3/2006

Product's packaging and efficacy claims may stimulate pleasant emotions during cosmetics' use thus enhancing their perceived benefits. Aim of the study: To objectively evaluate the influence of packaging and strongly claimed attributes on cosmetic efficacy both by non-invasive bioengineering techniques and by self-assessment. The selected cosmetic product was a marketed antiaging gluconolactone-based formulation. The packaging was either a fancy refined jar or an unbranded plain container.

J.J. Wille, **Cutaneous Delivery of Antioxidant Botanicals**, Presentation on the IFSCC in Florence 2005

A truly effective anti-irritant strategy seeks to modulate checkpoints in the irritant signal cascade. Earlier, we reviewed our work and the scientific and patent literature on anti-irritants (1-2) for prevention and treatment of contact irritant due to topical cosmetic, dermatological and transdermal drugs.

R. Ismail, S. Ahmad, **Sodium lactates in skin lightening formulations: its synergy with other skin lightening agents**, Presentation on the IFSCC in Florence 2005

In many Western countries, skin lighteners and related products sold in the market are aimed to prevent and treat melasma, freckles and age spots. However in Asia, skin-lightening products are primarily used to achieve the beauty ideal of a white and flawless skin, although they also treat problem areas.

T. Tsuchiya, S. Haze, T. Hirao, J. Hosoi, A. Kikuchi, K. Shoji, M. Tanida, T. Tsuda, **Odorant Inhalation Lowered Stress Levels Systemically, Subsequently Resulting in the Improvement of Cutaneous Functions: Linkage Between Olfactory Sensation and Skin,** Presentation at the IFSCC Florence 2005

Our research conducted over several years has demonstrated that odorant inhalation produces an effect on cutaneous functions by inducing changes in the neuroendocrinological system. For example, inhalation of the natural sedative component of the rose flower, DMMB (1,3-dimethoxy-5-methylbenzene), inhibited an increase in plasma cortisol levels and barrier recovery delay or an increase in forehead sebum, which was induced by stress. These findings were obtained using authentic experimental patterned stress and short-period odorant inhalation.

M. Alberth, J. Nemes, **Protective Glasses and Dental Fear,** Poster (PPT)

For the patients' own safety, certain dental treatments require them to use protective glasses. Until recently wearing of glasses during dental treatment was not a generally accepted and widely used method in Hungary. In our study we wanted to find out whether this unusual circumstance has any effect on the children's dental fear, and what effect – if any – the lens color of the protective glasses makes.

G. Khazaka, **Assessment of Stratum Corneum Hydration: Corneometer CM 825**, Bioengineering of the Skin: Water and the Stratum Corneum, Second Edition, CRC Press 2005, p. 249-261.

The assessment of skin moisture is one of the first and most important measurements for testing the efficacy of cosmetic products on the skin surface. The quantity of literature worldwide dealing with this topic indicates the significance of this measurement. Numerous studies about the advantages, disadvantages, and comparisons among the different commercially available devices have been published.

G. Primavera, J. W. Fluhr, E. Berardesca, **Electrical Assessment of Skin Hydration: Standardization of Measurements and Guidelines**, Bioengineering of the Skin: Water and the Stratum Corneum, Second Edition, CRC Press 2005, p. 287-295

The importance of water to the proper functioning of the stratum corneum (SC) is well recognized. The reliable quantification of water in the corneum and its interaction with topically applied products is, in fact, essential for understanding skin physiology and developing efficient skin care formulation.

C. Edwards, R. Marks, **Hydration and Atopic Dermatitis**, Bioengineering of the Skin: Water and the Stratum Corneum, Second Edition, CRC Press 2005, p. 323-333

Frequently, the skin on noneczematous areas of atopic dermatitis (AD) sufferers feels rough and appears "dry". This xerosis is associated with the itch that accompanies the disorder. Reports of the incidence of xerosis in AD patients vary from 48 to 98 %.

J.W. Fluhr, C. Uhl, **Hautphysiologische Messungen in der täglichen Praxis: Corneometrie und Sebumetrie bei physiologischen und krankhaften Hautveränderungen**, Diagnostische Verfahren, Kap. Nr. 37, 2005, p. 321-345

Grundlagen der Methoden: Bei der Corneometrie handelt es sich um eine nicht-invasive Messung der Hautoberfläche zur Bestimmung des Feuchtigkeitsgehalts im Stratum corneum. Die Messung erfolgt auf kapazitivem Weg und beruht auf der Tatsache, dass Wasser eine von anderen Stoffen sehr unterschiedliche Dielektrizitätskonstante besitzt.

N. Branco, I. Lee, H. Zhai, H.I. Maibach, **Long-term repetitive sodium lauryl sulfate-induced irritation of the skin: an in vivo study,** Contact Dermatitis 2005: 53: p. 278-284

Skin may adapt to topical irritants through accommodation. This study focuses on long-term exposure to irritants and attempts to demonstrate accommodation. Sodium lauryl sulfate (SLS) induced irritant contact dermatitis at 3 concentrations (0,025% to 0,075%).

K. Damer, **Epidermale Permeabilitätsbarriere - Irritabilität und Regeneration in Abhängigkeit von psychischen Faktoren - Regeneration unter impermeablen und semipermeablen Handschuhmaterialien - Psychologische und hautphysiologische Untersuchungen**, Dissertation der Oniversität Osnabrück, Oktober 2005

Die vorliegende Arbeit wurde im Rahmen des interdisziplinären DFGGraduiertenkollegs „Integrative Kompetenzen und Wohlbefinden“ durchgeführt. Unter besonderer Berücksichtigung des interdisziplinären Anspruchs des Graduiertenkollegs wurden sowohl psychodermatologische als auch hautphysiologische Zusammenhänge untersucht. Es galt, die Verknüpfung psychologischer und naturwissenschaftlicher Aspekte innerhalb einer Untersuchung anzustreben.

J. Molinero, R. Ojeda, J. Coll, A. Mirada, C. Trullas, **Clinical and bioengineering evaluation of the efficacy and safety of 30% urea cream in the treatment of hyperqueratotic skin disorders,** Presentation at the 14th EADV Congress, London, Oct. 2005

Topical products with high concentrations of urea have been recently incorporated to dermatological vademecum. Urea, an active ingredient with a long history in dermatology has been extensively used in several skin diseases due to their moisturizing, desquamating, antiproliferative and antipruritic effect.

S. Savic, S. Tamburic, S. Vesic, G. Vuleta, C. Müller-Goymann, **Effect of Vehicle Composition on In vitro/ in vivo Hydrocortisone Penetration,** Presentation at the 14th EADV Congress, London, Oct. 2005

Diffusion/penetration properties of locally applied drugs are affected by both the status of the stratum corneum (SC) and by the composition and colloidal structure of the vehicle.

A.G. Schepky, U. Holtzmann, K. Bohnsack, A. Filbry, H. Max, M. Rudolph, H. Wenck, F. Rippke, **Novel effects of an acidic humectant combination result in protection and activation of enzyme activity in human skin,** Presentation at the 14th EADV Congress, London, Oct. 2005

Sensitive skin conditions result from an imbalance between endogenous, protective factors and exogenous, aggressive stimuli like exposure o irritants, e.g. harsh surfactants. This imbalance goes along with an impairment of skin enzyme activity.

J. Molinero, R. Ojeda, J. Coll, A. Mirada, C. Trullas, **Clinical and bioengineering evaluation of the efficacy and safety of 30% urea cream in the treatment of hyperqueratotic skin disorders,** Presentation at the 14th EADV Congress, London, Oct. 2005

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G.-W. Nam, S.-H. Kim, E.-J. Kim, J.-H. Kim, B.-G. Chae, H.-K. Lee, S.-J. Moon, H.-H. Kang, I.-S. Chang, **How Skin Care Ingredient Concentrations Can Modulate the Effect of Polyols and Oils on Skin Moisturization and Skin Surface Roughness,** Presentation on the IFSCC in Florence 2005 and IFSCC Magazine, Vol. 9, No. 1 2006

The aim of this study was to evaluate the influence of different skin care ingredient concentrations on the effect of polyols and oils on the human skin moisturization and skin surface roughness. Polyols and oils were essential ingredients to make a skin care formulation. But these were still not understood how much concentrations display on human skin as efficacy and sensory. We studied to examine various concentrations of ingredient by cosmetic companies using noninvasive methods.

J.W. Wiechers, C. Kelly, T.G. Blease, J.C. Dederen, **Formulation for fast efficacy: inflence of liquid christalline emulsion structure on skin delivery and active ingedients,** Presentation at the IFSCC in Florence 2005 and IFSCC Magazine Vol. 9, No. 1 2006

Summary: In a previous publication, we described how the thermodynamic activity of an active ingredient could be optimized in a cosmetic formulation by the choice of a primary and secondary emollient. This paper describes our initial attempts to explain the influence of the emulsifier system on the dermal delivery of an active ingredient. The emulsifiers studied in this investigation induced liquid crystal formation in the formulations and interacted in two different ways. On the one hand, they prevented the evaporation of water from the formulation when applied on the skin and in doing so prolonged the delivery phase of water-soluble active ingredients as only solubilized molecules penetrate the skin at reasonable rates.

Y. Tomita, M. Akiyama, H. Shimizu, **Stratum corneum hydration and flexibility are useful parameters to indicate clinical severity of congenital ichthyosis**, Exp Dermatol. 2005 Aug; 14(8): p. 619-24

To determine any correlation between the stratum corneum barrier function and the phenotypic severity of congenital ichthyosis, we studied stratum corneum hydration, flexibility, thickness and transepidermal water loss (TEWL) in patients with congenital ichthyosis. Seven patients with congenital ichthyosis aged 2-46 years and age-matched controls were included in the present study. We divided seven patients into two groups; patients with non-bullous type (non-bullous congenital ichthyosiform erythroderma patients) and patients with the bullous type of congenital ichthyosis (bullous congenital ichthyosiform erythroderma and ichthyosis bullosa of Siemens). Stratum corneum hydration, thickness and flexibility were measured using a Corneometer ASA-M2. The stratum corneum thickness was also examined using a skin biopsy technique. TEWL was measured using Evaporimeter AS-TW1. The clinical severity of ichthyosis phenotype was evaluated using a visual analogue scale (VAS). Stratum corneum hydration and flexibility were significantly reduced in both congenital ichthyosis patient groups. Stratum corneum thickness was significantly increased in both groups. In the patient group with non-bullous congenital ichthyosis, significant negative correlations were confirmed between the VAS score and stratum corneum hydration and between the VAS score and flexibility. A significant, positive correlation was also observed between the VAS score and stratum corneum thickness. There was a positive correlation between the VAS score and TEWL on both the extensor and flexor sides of the forearm and back. We conclude that stratum corneum hydration, flexibility and thickness measured by the corneometer, and TEWL on the arm may be a useful indicator of the severity of ichthyosis phenotype.

C.L. Packham, H.E. Packham, H.M. Packham, A. Cherrington, **Investigations into different skin conditions in certain occupations**, The Journal of The Royal Society for the Promotion of Health, July 2005, Vol. 125, No. 4

The aim of this study was to establish whether those working in certain occupations had skin with a lower moisture content than would be considered normal. Skin moisture levels were measured as well as visual assessment. Results indicated that all occupational groups studied had skin that was less well hydrated than would be considered normal, although there were significant inter-individual variations within any one group.

*K. Ertel, H. Focht, J. Plante, R. Bacon, A. Newman***, Challenging The Personal Cleanser Paradigm: A Body Wash That Provides Skin Improvement Benefits,** The Procter & Gamble Company

Personal cleansing products are a useful adjuvant in dermatologic therapy, not only as an aid to removing dirt and other soils from the skin's surface but also by helping to maintain or increase patients' confidence and sense of wellbeing. Personal cleansers are generally viewed as agents that can dry or irritate skin and disrupt the stratum corneum barrier. To minimize such effects patients are recommended to use cleansers based on synthetic detergents (syndets).A leave-on lotion is frequently added to this recommendation to help relieve dry skin. Personal cleanser technology has advanced in recent years and evidence suggests that newer personal cleanser forms such as petrolat

C. Uhl, **Neue Wege in der Hautdiagnostik,** Kosmetische Praxis, Juni 2005

Der Einstieg in die professionelle Hautberatung ist stets das persönliche Gespräch mit dem Kunden. Dabei ist es entscheidend, neben der Beurteilung des optischen Eindrucks der Haut herauszufinden, welche individuellen Lebensgewohnheiten vorliegen. Genetische Disposition, Ernährung, Risikofaktoren wie Rauchen, Stress oder hoher Alkoholkonsum, sportliche Aktivitäten, Schlafverhalten und Alter beeinflussen entscheidend den Hautzustand und müssen daher in die Beratung mit einbezogen werden. Basis einer qualitativen und auf die Bedürfnisse des Kunden zugeschnittenen Körperkosmetik ist die Bestimmung des individuellen Hautzustands.
Diese Information ist unentbehrlich, um eine fundierte Hautberatung durchzuführen. Auf dieser Diagnose soll der gesamte Pflegeplan aufgebaut werden, der essentiell für den Erfolg der Behandlung und damit für die Zufriedenheit der Kunden ist. Lesen Sie, welche Methoden es gibt und wie man vorgeht.

H. Dobrev, **Evaluation of Dry Skin: a Cpmparioson between Visual Score, Corneometry and Image Analysis**, Medical University, Plovdiv, Bulgaria

The term "dry skin" describes a skin condition characterized by reduced quantity and/or quality of moisture and/or lipids. The visible symptoms of dry skin are roughness, scaling and reduced elasticity. In addition, patients complain about tightness and itching. Clinical evaluation of dry skin and is based upon visual and tactile evaluation of clinical signs using descriptive ordinal scales. involving the measurements of moisture content using electric skin properties (conductance, impedance and capacitance of the stratum corneum), skin roughness, transepidermal waterloss (TEWL), lipid content and desquamation.

A. Krebs, **Prüfung der irritativen Wirkung von hydrophilen und lipophilen Irritantien im repetitiven Irritationstest,** Dissertation der Medizinischen Fakultät der Friedrich-Schiller-Universität Jena

P. Humbert, P. Creidi, A. Richard, A. Rougier, **Efficacy of a 5% ascorbic acid cream on skin aging induced by UVA**, JAAD Case Reports, 2005

The aim of this study was to assess the tolerance and the effect of a cream combining ascorbic acid and sunscreen on women with facial heliodermatitis, after receiving UVA and repeated application of the cream for 3 months. A 3-month, open study (daily application of the active on the face) was conducted in 20 women with heliodermatitis (age range, 50-65 years). At each visit (day 0, day 30, day 61, day 94), volunteers had a clinical examination on several items, and biometric measurements were performed: corneometry (CM825; Courage et Khazaka), cutometry (SM810; Courage et Khazaka), and wrinkles evaluation analyzed with fringe projection (prototype). These volunteers were irradiated with UVA 3 times per week over 3 months, with increasing doses (10 J/cm2 the first week, 15 J/cm2 the second week, 20 J/cm2 until the end of the study). Clinical scoring showed a significant increase in hydration, slackness, softness, bright complexion and a significant decrease in roughness and wrinkles. Skin hydration (SH) as determined by corneometry as well as skin elasticity (Ur/Ue) of the face were significantly increased by the cream (SH = 54.3 ± 9.3 at day 0 and SH = 63.5 ± 7.9 at day 94; Ur/Ue = 0.454 ± 0.113 at day 0 and Ur/Ue = 0.549 ± 0.084 at day 94). The wrinkles were significantly decreased as shown by the volume (V) assessed by fringe projection *in vivo { P* = .0361) and the depth of the wrinkles *(P* = .0024). One of the main causes of skin aging induced by the environment is UV radiation from the sun. Previous studies have shown that UV radiation decreases basal ascorbic acid levels. This study has shown the benefit of using a cream combining ascorbic acid and sunscreen in terms of protection and efficacy against photoaging, by improving wrinkles, skin elasticity, and skin hydration, even after 3 months of repeated UVA irradiation.

H. Dobrev, **The Effects of topically applied Matrixyl, natural grape seed and avocado oils on skin surface, hydration and elasticity**, EADV, May 2005, Sofia, Bulgaria (abstract/poster)

Background: Matrixyl is a lipophilic pentapeptide that stimulates the collagen synthesis by fibroblasts in the skin. The grape seed extract is rich in flavonoids which are powerful antioxidants. Avocado oil consists predominantly of unsaturated fatty acid glycerides, vitamins and minerals, and has

good emollient properties.

A. Bornkessel, M. Flach, M. Arens-Corell, P. Elsner, J. W. Fluhr, **Functional assessment of a washing emulsion for sensitive skin: mild impairment of stratum corneum hydration, pH, barrier function, lipid content, integrity and cohesion in a controlled washing test,** Skin Research and Technology, 2005-11, May, p. 53-60

Sensitive skin has been described as a skin type with higher reactivity than normal skin and exaggerated reactions to external irritants. Washing with soaps is harmful for barrier-related parameters.

H. Arimoto, M. Egawa, Y. Yamada, **Depth profile of diffuse reflectance near-infrared spectroscopy for measurement of water content in skin**, Skin Research and Technology, 2005-11, May, p.27-35

The penetration depth of light in diffuse reflectance near-infrared spectroscopy for measuring water content in skin is assessed both from theoretical and experimental points of view.
Near-infrared (NIR) spectroscopy provides information on such aspects as constituents concentration.

K. O´goshi, J. Serup, **Inter-instrumental variation of skin capacitance measured with the Corneometer®,** Skin Research and Technology 2005-11, May, p. 107-109

Commercially available measuring devices that allow for the quantitative evaluation of the stratum corneum (SC) function and provide continuous data are an important advance in experimental dermatology. The measurement of skin surface hydration state has gained considerable interest in recent years because the water content of the SC influences various physical characteristics of the skin such as barrier function, drug penetration, and mechanical properties.

G. Korinth, Th. Göen, H. M. Koch, Th. Merz, W. Uter, **Visible and subclinical skin changes in male and female dispatch department workers of newspaper printing plants**, Skin Research and Technology 2005-11, May, p. 132-139

Irritant hand dermatitis is one of the major occupational diseases. Approximately 90% of all cases of hand eczema are caused by occupational exposure. It is a well-established fact that wet work and skin exposure to detergents or solvents often trigger irritant contact dermatitis. Even water can be a skin irritant itself.

V. Brazarelli, T. Barbagallo, F. Prestinari, C. Rona, A. de Silvestri, V. Trevisan, G. Borroni, **Non-Invasive Evaluation of Tacalcitol plus PUVA Versus Tacacitol plus UVB-NB in the Treatment of Psoriasis: "Right-Left Intra-Individual - Pre/Post Comparison Design",** International Journal of Immunopathology and Pharmacology Vol. 18, No. 4, p. 755·760 (2005)

Photochemotherapy with psoralen plus ultraviolet A (PUVA) and phototherapy with UVB narrow band (UVB-NB) are used in the treatment of psoriasis. Numerous studies have shown that the additional administration of either topical or systemic antipsoriatic agents may effectively increase the efficacy of these therapies. This study aimed to compare through objective data the efficacy of topical tacalcitol in combination with PUVA or UVB-NB versus PUVA and UVB-NB monotherapy in the treatment of mild to moderate chronic plaque psoriasis. Modified Psoriasis Area and Severity Index (PAS!) score, transepidermal water loss (TEWL) and stratum corneum hydration were used to monitor the restoration of skin barrier in the psoriatic plaques of 40 patients during photochemotherapy. The study was a right-left, intra-individual, pre/post comparison trial. PUVAand UVB-NB treatments were given three times a week. On those plaques localized on the right side ofthe body tacalcitol ointment was applied once a day, in the evening. Corneometry, TEWL and modified PASI score were used to evaluate the response to the treatment at baseline, one month and two months. Thirty-six ofthe forty enrolled subjects completed the study. The comparison between combination treatments and the PUVAlUVB-NB monotherapy showed no significant differences with regard to modified PASI index. However, significant differences were recorded with regard to TEWL and corneometry. The combination oftacalcitol plus PUVAor tacalcitol plus UVB-NB restored epidermal barrier functions as well as skin hydration faster than PUVA or UVB-NB monotherapy (TEWL: p=O.0050 and corneometry: p=O.003). The combination of tacalcitol plus UVB-NB allowed a better restoration of skin barrier functions than tacalcitol plus PUVA (p=0.013). In conclusion, the combination of tacalcitol plus PUVA or plus UVB-NB improves the therapeutic result. In addition, the data from TEWL and skin hydration suggest a means in which tacalcitol plus UVB-NB induces a better normalization of skin biophysical parameters.

R. Debowska, K. Rogiewicz, T. Iwanenko, M. Kruszewski, I. Eris, **Folic Acid (Folacin) – New Application of a Cosmetic Ingredient**, Kosmetische Medizin 3/2005, p. 16-22

Many years of trials and research tests proved that a lot of well-known vitamins could be successfully used in cosmetology. The available data indicate that one of them – folic acid plays an

important role in life process of mitotically active tissues and its deficiency increases background level of DNA damage.

I. Arsic, S. Tamburic, S. Bulatovic, I. Homsek, G. Vuleta, **Exploring moisturising potential of naturals: The cases of St. John´s wort, chamomile and blackthorn**, Euro Cosmetics 3, 2005, p. 14-21

The application of plant extracts in cosmetics and toiletries has been a distinct trend over the last decade and, given consumers´ interests in naturals, will probably continue. Both cosmetic and dermatological practices have benefited from the use of new and re-discovered plants, as well as plant biotechnology extracts.

K. Friebe, **Einfluß von Okklusionseffekten auf die Epikutantestung mit Natriumlaurylsulfat,** Dissertation an der Philipps-Universität Marburg, 24.02.2005

Zur Bestimmung der Hautempfindlichkeit werden Epikutantestungen mit dem Detergens Natriumlaurylsulfat (NLS) schon seit Jahren in der dermatologischen Diagnostik als Hautirritationstests eingesetzt. Eine klinische Relevanz besitzen diese Irritationstests für die chronisch-irritative Kontaktdermatitis, die zu den häufigsten Hauterkrankungen gehört. Bei der Bewertung der infolge der Testung auftretenden Hautreaktionen kommen neben der visuellen Beurteilung verschiedene nicht-invasive hautphysiologische Meßmethoden zum Einsatz, von denen die Messung des transepidermalen Wasserverlustes (TEWL) am aussagekräftigsten erscheint.

G. Guglielmini, M. Cucchiara, **Cosmetic treatment for heavy legs**, Poster Presentation, IFSCC Orlando USA, 2004

Heavy legs is a really widespread problem. It hits the 50% of the adults of more than 50 years old, with a prevalence for female sex, interested 4 times more than the male one. Subjects perceive some symptoms associated to a sense of tiredness and to a sensation of pain for lower limbs…

M. Gloor, B. Wasik, W. Gehring, R. Grieshaber, P. Kleesz, J.W. Fluhr, **Cleansing, dehydrating, barrier-damaging and irritating hyperaemising effect of four detergent brands: comparative studies using standardised washing models,** Skin Research and Technology 2004; 10: 1-9.

Background and problem: It is well known that the damaging effect of surfactants on the stratum corneum varies according to the surfactant used. The present investigations aim to compare four standard commercial cleansing solutions (Esemptan® Cleansing Lotion, Stephalen® Shower Gel, Manipur® Antimicrobial Cleansing Solution and Tork® Mevon55™ Liquid Soap) with respect to their cleansing and skin barrier-damaging effects.

K. Matsumoto, K. Mizukoshi, M. Oyobikawa, H. Ohshima, H. Tagami, **Establishment of an atopic dermatitis-like skin model in a hairless mouse by repeated elicitation of contact hypersensitivity that enables to conduct functional analyses of the stratum corneum with various non-invasive biophysical instruments**, Skin Research and Technology 2004, 10, p. 122-129

Pathogenesis of atopic dermatitis (AD) has been studied in animal models such as the NC/Nga mouse strain or Balb/C mice that are repeatedly treated with 2,4,6-trinitro-1-chrolobenzene (TNCB). These mice exhibit features of chronic contact dermatitis, including an intensified early type skin reaction, increased number of mast cells and elevated serum IgE levels with a shift of cutaneous cytokine expression from a type 1 to type 2 profile.

K.L. Gebhard, **Evaluation und Standardisierung von Hauttestungen zur Diagnostik der irritativen Kontaktdermatitis,** Digitale Bibliothek der Universität Marburg, 2004

Ziel der vorliegenden Arbeit ist es, durch Variation verschiedener Applikationszeiten, Konzentrationen und Vorbehandlungen (VB) der Teststellen zu evaluieren, ob der bisher übliche 24-stündige epikutane Irritationstest auf 4 Stunden verkürzt werden kann. Hierzu wude an 36 hautgesunden Probanden ein epikutaner Natriumlaurylsulfat-Test (NLS-Test) auf die oberen Rückenpartien appliziert. Folgende Variablen wuurden hierzu angewendet: a) Applikationszeiten: 4 und 24 Stunden b) Messzeitpunkte: 4, 24 und 72 Stunden c)Testkonzentrationen: 0,5%, 1%, 2%, 5% NLS-Lösung in aqua dest. d) Fünf versdschiedene VB der Teststellen.

*M. Gloor, B. Senger, M. Langenauer, J. W. Fluhr***, On the course of the irritant reaction after irritation with sodium lauryl sulphate**, Skin Reserach and Technology 2004, 10, p. 144-148

The sodium lauryl sulphate (SLS) irritation test is a well-established model for irritant contact dermatitis after the effects of surfactants. The course of changes in corneometric measurements (stratum corneum hydration), in transepidermal water loss (TEWL), in laser Doppler measurements (epidermal perfusion) and in colorimetric measurements (skin redness), after a single SLS irritation,

should be studied over time.

P. Gasser, L. Peno-Mazzarino, E. Lati, B. Djian, **Original semiologic standardized evaluation of stratum corneum hydration by Diagnoskin® stripping sample**, International Journal of Cosmetic Science, 2004, 26, p. 117-127

Synopsis: In a normal and healthy skin, the regular elimination of the superficial corneocytes, called desquamation, is a fundamental physiologic process intended to protect the barrier function of the skin. This invisible loss of corneocytes, individually or in small groups, is incessantly compensated by the divisions of the proliferative layer and the upward cellular maturation in order to maintain the harmonious renewal of the epidermis and the integrity of the stratum corneum.

J. W. Fluhr, J. Ennen, **Standardized washing models: facts and requirements**, Skin Research and Technology, 2004, 10, p. 141-143

Regular skin cleansing with washing substances has medical, cosmetic, hygienic and socio-cultural functions. In western cultures, the hygienic and cosmetic aspects prevail. The aim of a washing process is to remove or reduce dust particles, microorganisms and odorous substances. The resident skin flora in a washing process can be reduced significantly. The antiseptic effect of washing is gained independently from the function of tensides, through the removal of dust and dandruff material from the skin and hence through a reduction of growth medium for bacteria.

I. Nicander, S. Ollmar, **Clinically normal atopic skin vs. non-atopic skin as seen through electrical impedance,** Skin Reserach and Technology 2004, 10, p. 178-183

In an earlier study, we have shown that the electrical impedance (IMP) is dependent on the lipid content of the stratum corneum as studied by lipid extraction. Therefore, we now employ the IMP technique to compare the properties of clinically normal atopic skin with that of non-atopic skin.

J.-L. Lévêque, E. Goubanova, **Influence of Age on the Lips and Perioral Skin,** Dermatology, 2004, 208, p. 307-313

There are few objective descriptions of the age-related changes taking place on the lips and perioral skin. This zone, however, has great importance in relational functions. Objectives: To describe quantitatively the age-related changes in dimensions of the lips and the appearance of the perioral wrinkles, to revisit, thanks to a new method, the pattern of the lip furrows, to compare the hydration states of the upper and lower lips.

H. Ranc, A. Elkhyat, C. Servais, B. Launay, P. Humbert, **Coefficient de friction et mouillabilité de la muqueuse linguale : influence d'une couche de mucus salivaire**, Nestlé Research Center, Nestec Ltd., Lausanne, Suisse

Les aliments, une fois en bouche, sont cisaillés et comprimés entre la langue et des surfaces telles que les dents et le palais. La tribologie appliquée aux surfaces interagissant en bouche devrait permettre d`expliquer certains phénomènes physio-chimique qui régissent la perception orale de la structure des aliments.

C. Packham, **You need hands: protecting your hands from the working environment**, Health & Safety International, October 2004

In our daily life our hands will be exposed to many different hazards. Some of these will occur, or mainly, at work, some in the home or in our hobbies or free time activities. In principle we can divide these hazards into two main groups: physical and chemical.

P. Landa, F. Lam, I. Morosov, R. Rothman, D. Howard, A. Gestmann, **Glycerin and Hydroxyethyl Urea: Comparing Two Skin Moisturizers**, Cosmetic & Toiletries, Vol. 119, No. 10, Oct. 2004

Glycerin is widely considered to be the industry bench mark for skin moisturization. It has been demonstrated by numerous methods to be an effective moisturizer when used at levels above 3%, although the choice of vehicle can influence performance.

A. Elkhyat, C. Courderot-Masuyer, S. Mac-Mary, S. Courau, T. Gharbi, P. Humbert, **Assessment of spray application of Saint GERVAIS water effects on skin wettability by contact angle measurement comparison with bidistilled water**, Skin Research and Technology 10, p. 283-286, 2004

The skin is responsible for protecting the body from physical, chemical and microbial injuries. The stratum corneum is the top layer of the epidermis and it plays a key role in helping to contain moisture. When the skin becomes damaged, it's ability to perform these functions is compromised. Dry

skin is a common form of skin damage. Contact angle 0 between a surface and water is a good indicator of hydrophobic or hydrophilic tendency of surfaces.

I. Angelova-Fischer, I. Petrov, P. Elsner, J.W. Fluhr, T.L. Diepgen, **The objective severity assessment of atopic dermatitis (OSAAD) score: interobserver variability with reference to the SCORAD score**, Skin Research and Technology 10, Abstracts, 2004

The need for reliable and reproducible measures for assessment of atopic dermatitis severity has resulted in the development of numerous scores most of which have not been adequately tested in terms of validity, reliability, responsiveness to change and acceptability. The SCORAD index of the European Task Force on Atopic Dermatitis has been considered the standard outcome measure in clinical trials in the last decade.

H. Lambers, S. Piessens, A. Bloem, H. Pronk, P. Finkel, E. Voss, **Natural skin surface pH is on average below 5, which is beneficial for its resident flora,** Skin Research and Technology 10, Abstracts, 2004

The acidic surface pH as well as the pH gradient over the gradient over the stratum corneum (SC) are important for a good skin condition, supporting optimal structure and function of the lipid barrier and SC homeostasis.

M. Visscher, J. Smith, R. Wickett, S. Hoath, **Effect of hand hygiene regimens on stratum corneum integrity and function,** Skin Research and Technology 10, Abstracts, 2004

A national patient safety goal for 2004 is to reduce the risk of healthcare-acquired infections. To achieve this goal, the organizations have been directed to comply with the hand hygiene guideline issued in 2002 by the Centers for Disease Control (CDC). It developed to reduce the transmission of microorganisms to patients and health care workers (HCW).

J.J. Wille, **Corneotherapy: skin hydration and occlusivity of some commercial skin moisturizers and skin protectants**, Skin Research and Technology 10, Abstracts, 2004

Corneotherapy is defined here as a topical treatment that improves the condition of the stratum corneum. In this respect, cosmetic and dermatological vehicles play an important role independent of their capacity to deliver drugs or cosmetic actives, in formulating an optimal topical treatment for skin diseases such as atopic dermatitis.

*N. Barai, M. Visscher, A. LaRuffa, V. Narendan, S. Hoath***, Vernix caseosa treatment for epidermal barrier repair**, Skin Research and Technology 10, Abstracts, 2004

The very low birth weight (VLBW) preterm infant lacks vernix caseosa (VC), has an incompetent stratum corneum (SC) barrier, and is predisposed to high water loss. Treatment with non-physiologic creams (e.g., petrolatum, oils) have been associated with increased nosocomial infection and delayed barrier repair.

S. Savic, S. Tamburic, M. Savic, N. Cekic, J. Milic, G. Valuta, **Vehicle-controlled effect of urea on normal and SLS-irritated skin**, International Journal of Pharmaceutics, Oct. 2004

It is known that, depending on the concentration, treatment with urea could improve skin barrier function, despite its penetration-enhancing properties. This controversial skin effect of urea has been explored systematically in this study in terms of the effect of vehicle on the performance of urea. In the first part, a series of four semi-solid emulsions with 5% (w/w) urea, varying in the type of emulsion, nature of emulsifier and polarity of oil ingredients, have been evaluated with regard to their skin hydrating and transepidermal water loss (TEWL)-modifying properties.

S. L. Zhang, C. L. Meyers, K. Subramanyan, **Near-infrared imaging: a better approach to measure and visualize skin hydration and to assess the mildness of skin cleansers**, Poster Presentation, IFSCC Orlando USA, 2004

Optimal hydration is one of the key factors for effective functioning of the stratum corneum. The state of skin hydration has been typically assessed through instrumental methods that depend on the correlation of skin hydration with the electrical conductance and capacitance responses of the skin.

H. Shibayama, H. Indo, K. Ueda, K. Yoshio, Y. Kook Choi, Y. Ishigami, M.S. Yang, D.S. Lim, G.Y. Lee, S.S. Lee, **New Derivatives of Supiculisporic Acid as Biosurfactants and Application for Cosmetics,** IFSCC Orlando USA, 2004

It is well known that some microorganisms produce surface-active substances on cultural conditions.

G. Vielhaber, J. Ley, O. Koch, **N-Palmityl-4-Hydroxy-L-Proline Palmityl Ester: A Ceramide Analogue that provides efficient skin barrier repair,** IFSCC Orlando 2004, Podium Proceedings

The epidermal permeability barrier protects the skin against uncontrolled water loss and environmental damage. It is located in the horny layer and consists of a compact lipid matrix of ceramides, fatty acids and cholesterol embedded between the corneocytes.

H. Nishimura, Y. Takasuka, M. Yamamoto, **Optical Properties of Skin Gloss and Development of "Mizumizushii" – Looking Makeup Foundation***,* IFSCC Orlando 2004, Podium Proceedings

Modern makeup formulations are becoming ever more complex and diversified. Although sunscreens and moisturizers are often added for better skin protection, the primary function for foundation makeup remains making the skin appear beautiful.

B.M. Morrison, M. Paye, V. Charbonnier, H.I. Maibach, **The Effect Of Surfactants On Skin As Measured By Squamometry : A Sensitive Way To Observe Sub-Clinical Irritant Dermatitis**, IFSCC Orlando 2004, Podium Proceedings

In order to define the early parameters of surfactant induced skin dryness, an exaggerated hand washing model has been chosen to assess the effects of three surfactants, SLS, SLES, and AOS on stratum corneum function as measured visually, instrumentally, and through Squamometry. These three surfactant solutions were compared to their water controls.

A.L. Agero, V.M. Verallo-Rowell, **A randomized double-blind controlled trial comparing extra virgin coconut oil with mineral oil as a moisturizer for mild to moderate xerosis**, Dermatitis, 2004 Sep;15(3): p. 109-116

Background: Xerosis is a common skin condition (1) characterized by dry, rough, scaly, and itchy skin, (2) associated with a defect in skin barrier function, and (3) treated with moisturizers. People in the tropics have effectively used coconut oil as a traditional moisturizer for centuries. Recently, the oil also has been shown to have skin antiseptic effects. A moisturizer with antiseptic effects has value, but there are no clinical studies to document the efficacy and safety of coconut oil as a skin moisturizer. Objective: This study aimed to determine the effectivity and safety of virgin coconut oil compared with mineral oil as a therapeutic moisturizer for mild to moderate xerosis. Methods: A randomized double-blind controlled clinical trial was conducted on mild to moderate xerosis in 34 patients with negative patch-test reactions to the test products. These patients were randomized to apply either coconut oil or mineral oil on the legs twice a day for 2 weeks. Quantitative outcome parameters for effectivity were measured at baseline and on each visit with a Corneometer CM825 to measure skin hydration and a Sebumeter SM 810 to measure skin lipids. For safety, transepidermal water loss (TEWL) was measured with a Tewameter TM210, and skin surface hydrogen ion concentration (pH) was measured with a Skin pH Meter PH900. Patients and the investigator separately evaluated, at baseline and at each weekly visit, skin symptoms of dryness, scaling, roughness, and pruritus by using a visual analogue scale and grading of xerosis. Results: Coconut oil and mineral oil have comparable effects. Both oils showed effectivity through significant improvement in skin hydration and increase in skin surface lipid levels. Safety was demonstrated through no significant difference in TEWL and skin pH. Subjective grading of xerosis by the investigators and visual analogue scales used by the patients showed a general trend toward better (though not statistically evident) improvement with coconut oil than with mineral oil. Safety for both was further demonstrated by negative patch-test results prior to the study and by the absence of adverse reactions during the study. Conclusion: Coconut oil is as effective and safe as mineral oil when used as a moisturizer.

M. Fröschle, R. Plüss, A. Peter, F. Etzweiler, **Phytosteroids for skin care**, Personal Care, Vol. Sept. 2004

Healthy skin is a largely self-regulating system. In order to keep metabolic processes functioning efficiently, the relevant biological precursors and activators must be available to the skin cells for metabolism. If, due to age-related changes, the body no longer provides a sufficient amount of certain substances, an additional external supplement can proactively support the biological processes and thus counteract the advance of the ageing process.

S.L. Hester, C.A. Rees, R.A. Kennis, D.L. Zoran, K.E. Bigley, A.S. Wright, N.A. Kirby, J.E. Bauer, **Evaluation of Corneometry (Skin Hydration) and Transepidermal Water-Loss Measurements in two Canine Breeds**, The American Society for Nutritional Sciences J. Nutr. 134:2110S, August 2004

Mammalian skin is a highly dynamic organ that is constantly adapting to changes in its environment. It provides structural, sensory, immunologic, and physiologic functions and contributes an

essential barrier function against potential environmental insults.

I. Van Reeth, M. Moré, R. Hickerson, **New Formulating Options with Silicone Emulsifiers**, Euro Cosmetics 6, Juni 2004, 12. Jahrgang, Vol. Nr. 12

In today´s highly competitive skin care and underarm markets, multifunctional, high performance products have the best chance of success. Consumers expect convenience and superior aesthetics. They want long-lasting, highly efficient moisturizers; effective antiaging and anti-wrinkle creams; durable, wash-off resistant, protective color cosmetics; and underarm products that go on smoothly, without tackiness or residue

R. Rudolph, E. Kownatzki, **Corneometric, sebumetric and TEWL measurements following the cleaning of atopic skin with a urea emulsion versus a detergent cleanser,** Contact Dermatitis, 2004 Jun;50(6): p. 354-358

A non-detergent urea emulsion cleanser and a detergent cleanser with added moisturizers were compared for their effects on stratum corneum moisture, surface lipids and transepidermal water loss (TEWL) of atopic skin. Following a single wash with either cleanser, low corneometry and sebumetry values increased and elevated TEWL values decreased. Over the course of more than 6 h, all induced changes gradually returned to their starting points. In all instances, the changes induced by the urea emulsion lasted significantly longer than those caused by the detergent cleanser. The sebumetry increase after a wash with the lipid-free detergent cleanser indicated that this method recognized not only true lipids but also the lipid-derived and skin lipid-depleting detergents. The transient TEWL normalization with either cleanser could not be attributed to a passing barrier restoration nor to an occlusion. It is speculated that the TEWL changes were related to stratum corneum water binding capacity.

H. Tronnier, U. Heinrich, **Beautytek-Studie: Gutachten über einen Wirksamkeitsnachweis einer kosmetischen Behandlung**, i. A. der Firma MediLab Research + Trading GmbH & Co., Würzburg, Mai 2004

Durch die Behandlung mit dem beautytek-Verfahren wurden bei **allen** Probanden gute Ergebnisse erzielt. Sowohl im Brust- wie im Oberschenkelbereich wurden positive Beeinflussungen **aller** Parameter festgestellt: 1. Messung der Elastizität...2. Messung der Hautdichte (Ultraschall) – Cellulitereduktion.*

K.L. Gebhard, **Evaluation und Standardisierung von Hauttestungen zur Diagnostik der irritativen Kontaktdermatitis**, Dissertation des Fachbereichs Humanmedizin der Philipps-Universität Marburg, April 2004

Die irritative Kontaktdermatitis (IKD) ist eine im klinischen Alltag häufig anzutreffende Erkrankung, deren Diagnostik jedoch, aufgrund ihres morphologisch sehr ähnlichen Erscheinungsbildes zur allergischen Kontaktdermatitis (AKD) (Björnberg, 1968) und anderen dermatologischen Krankheitsbildern, oft sehr schwierig ist. Zur Erleichterung der Diagnostik werden routinemäßig epikutane Irritationstests durchgeführt. Mit Hilfe solcher Tests kann die Diagnosestellung einer IKD vereinfacht, aber auch frühzeitig Hautrisikogruppen identifiziert werden. Ein Standardtest ist hier der Natriumlaurylsulfat (NLS)-Test. Dieser Test besteht klassischer Weise aus einer 24-stündigen Applikation okklusiver Testpflaster, die mit einer 0,5 %-igen NLS-Lösung in aqua destillata (aqua dest.) getränkt sind. Zur objektiven Messung der Testergebnisse stehen verschiedene nicht-invasiveb hautphysiologische Meßmethoden zur Verfügung, z.B. die Messung des transepidermalen Wasserverlustes (TEWL).

H. Dobrev, **Impact of Three Different Emulsions on Skin Hydration And Elasticity,** Department of Dermatology and Venereology, Med. Uni. Plovdiv, Bulgaria

The well-hydrated skin is smooth, soft and elastic. Therefore, the restoration and maintenance of skin water content is the main goal of skin care products. Currently, two kind of moisturizers are used Emollients (lipids), which reduce the loss of water from the skin by simple occlusion of its surface and by improvement of water-holding capacity of stratum corneum in result of restoration of the lipid layers around the corneocytes.
Humectants (urea, glycerin, lactic acid, pyrrolidone carboxylic acid, hyaluronic acid), which bind or attract water in or to the corneal layer.

M. Fröschle, R. Plüss, K. Bojarski, A. Peter, **Antiaging Effect with Cosmotropic Substances**, SOFW-Journal, 130, 4 2004, S. 36-43

Water is one of the most important and limiting factors for plants, animals and humans. The human being consists of 60-65% water and loses daily up to several liters through the skin. The regulation of water content is therefore very significant. Plants especially have developed fascinating physiological and structural strategies to minimize water loss and survive periods of dryness.

C. Packham, **Damage to health from dermal exposure**, Facilities Manager 2004 (Health and Safety), p. 1-2

Although there are no reliable statistics about the extent of damage to health from workplace dermal exposure, there is no doubt that such exposure is a major contributor to the high level of occupational ill health that still occurs in most industrial countries.

R. Plüss, M. Fröschle, K. Bojarski, A. Peter, P. Bottiglieri, **Resurrection in Cosmetics,** Conference Proceedings, Personal Care Ingredients Asia, Guangzhou, March 2004

Resurrection plants possess the fantastic ability to dry out and then reach their normal state again and continue growing a short time after being remoisturized. For this to be possible there has to be an ingenious protection system in place in than plant during the drying-out phase as well as an extraordinary ability to restructure the plant's cell structure during the remoisturization period. This potential of resurrection plants could be incorporated in the active complex S-61. As the test results showed, a short treatment of 1 – 2 weeks with a cream containing the active complex S-61 improves the skin's appearance, with the skin looking clearly revitalized. The skin is seen to have restructured itself, wrinkling is significantly reduced and the suppleness of the skin can be felt as being improved. The skin's ability to resist wear and tear from its external environment is seen to improve.

E. Camel, L. Arnaud-Boissel, L. Basset, S.K. Tan, J.-P. Guillot, **Do Skin Moisturization, pH Colour, Water Loss, Lipids or Age, Phototype and Racial Origin (Asian/Caucasian) Affect S.P.F.?**, Personal Care Ingredients Asia, Guangzhou, March 2004

The aim of these studies was first to investigate the possible reasons inducing S.P.F. variations during clinical testing, as regards specific cutaneous parameters (skin colour, hydration, barrier function, pH, surface lipids …), and secondly to assess the effect of racial origin (Asian/Caucasian) in a large range of sunscreen products (S.P.F. 4 to 30).

J. W. Arbogast, E. J. Fendler, B. S. Hammond, *T.J. Cartner, M.D. Dolan, Y. Ali, H.I. Maibach,* **Effectiveness of a Hand Care Regimen with Moisturizer in Manufacturing Facilities Where Workers Are Prone to Occupational Irritant Dermatitis**, Dermatitis, Vol. 15, No 1 (March), 2004: p. 10-17

Background: Limited information documents the prevention and treatment benefits of a hand care regimen using moisturizer in a controlled manner for employees in typical manufacturing situations. Objective: The objective was to assess the effectiveness of a comprehensive skin care program including skin conditioning lotion in multiple manufacturing environments where employees are at high risk for skin disease.

J.Y. Song, H.A. Kang, M.Y. Kim, Y.M. Park, H.O. Kim, **Damage and recovery of skin barrier function after glycolic acid chemical peeling and crystal microdermabrasion**, Dermatol Surg. 2004 Mar;30(3): p. 390-4

Background: Superficial chemical peeling and microdermabrasion have become increasingly popular methods for producing facial rejuvenation. However, there are few studies reporting the skin barrier function changes after these procedures. Objective: To evaluate objectively the degree of damage visually and the time needed for the skin barrier function to recover after glycolic acid peeling and aluminum oxide crystal microdermabrasion using noninvasive bioengineering methods. Methods: Superficial chemical peeling using 30%, 50%, and 70% glycolic acid and aluminum oxide crystal microdermabrasion were used on the volar forearm of 13 healthy women. The skin response was measured by a visual observation and using an evaporimeter, corneometer, and colorimeter before and after peeling at set time intervals. Results: Both glycolic acid peeling and aluminum oxide crystal microdermabrasion induced significant damage to the skin barrier function immediately after the procedure, and the degree of damage was less severe after the aluminum oxide crystal microdermabrasion compared with glycolic acid peeling. The damaged skin barrier function had recovered within 24 hours after both procedures. The degree of erythema induction was less severe after the aluminum oxide crystal microdermabrasion compared with the glycolic acid peeling procedure. The degree of erythema induced after the glycolic acid peeling procedure was not proportional to the peeling solution concentration used. The erythema subsided within 1 day after the aluminum oxide crystal microdermabrasion procedure and within 4 days after the glycolic acid peeling procedure.

Conclusions: These results suggest that the skin barrier function is damaged after the glycolic acid peeling and aluminum oxide crystal microdermabrasion procedure but recovers within 1 to 4 days. Therefore, repeating the superficial peeling procedure at 2-week intervals will allow sufficient time for the damaged skin to recover its barrier function.

L.J. Draaijers , Y.A.M. Botman, F.R.H. Tempelman, R.W. Kreis, E. Middelkoop, P.P.M. van Zuijlen, **Skin elasticity meter or subjective evaluation in scars: a reliability assessment,** Volume 30, Issue 2, p. 109-114 (March 2004)

Abstract**:** Various methods are available for evaluating the elasticity of scars. However, the reliability and validity of these methods have been sparsely examined. The aim of this study was to examine the reliability of the subjective evaluation of scar pliability, while at the same time testing the reliability of the measurements of a non-invasive suction device (Cutometer® Skin Elasticity Meter 575) on scars. Four observers assessed 49 scar areas of 20 patients with a subjective assessment of pliability. Subsequently, each observer measured the scar areas with the Cutometer. The intraclass correlation coefficients (ICC) of the elasticity (Ue) and extension (Uf) parameters of the Cutometer were acceptable (r=0.76 and 0.74, respectively) when a single observer carried out the measurements. The subjective assessment of pliability needs to be completed by two or more observers to make the evaluation reliable (r=0.79). The concurrent validities between the subjective pliability–assessment and each of the Cutometer parameters were statistically significant and ranged from r = 0.29–0.53. The correlations between each of the Cutometer parameters were high and statistically significant (r 0.71). *Conclusion:* A single observer can reliably use the Cutometer for the elasticity measurements of scars. Furthermore, either Ue or Uf, instead of all five elasticity values provided by the Cutometer, can be adequately used for the elasticity measurements of scars. The subjective assessment of pliability of scars can only be assessed reliably when completed by two or more observers. The concurrent validity showed that all Cutometer parameters, except for visco-elasticity (Uv), and the subjective assessment of pliability measured the same characteristic of a scar.

K. Subramanyan, A.W. Johnson, M. Bryk, S. Krein, **Developing an Ultra-Mild Cleanser for Sensitive Skin**, American Academy of Dermatology, Washington D.C., Feb. 6-11, 2004

Patients with atopic dermatitis, psoriasis, rosacea, and related skin disorders are known to have a defective stratum corneum (SC) barrier that makes them susceptible to penetration of irritant molecules into skin.

I. Arsic, S. Tamburic, S. Savic, I. Homcek, G. Vuleta, **The Effect of Chamomile Extract on Skin Hydration and Tewl: Is it more effective when encapsulated in Liposomes**?, Euro Cosmetics, Ausgabe 2-2004, S.12-17

The aim of this study was to investigate whether the extract of chamomile (Chamomilla recutita, (L) Rausch, Asteraceae) increases skin hydration level and its barrier properties when used in an O/W cream. In addition, it was of interest to find out whether the encapsulation of chamomile extract in liposomes affects its skin functionality.

S. Amari, C. Schubert, **From Olive Oil an Innovative O/W Peg-free emulsifier: OLIVEM 1000**, Euro Cosmetics, Ausgabe 2-2004, S. 18-22

Olive Oil is the one of the lipids showing the highest compatibility with our skin. Olive Oil in fact is a precious vegetable oil as it has got a high similarity to human skin lipids. The sebum secreted by the sebaceous glands works through an important activity: to protect the skin against the environment and to reduce the Trans-Epidermal-Water Loss.

R. von Pelchrzim, St. Soost, M. Worm, **Klinischer Hautzustand bei Beschäftigten im Gesundheitswesen und der Einfluß von Präventionsmaßnahmen**, Dermatologie in Beruf und Umwelt, Jahrgang 52, Nr. 1/2004, S. 26-32

Mitarbeiter des Gesundheitswesens sind aufgrund der häufig durchzuführenden Feucht- und Naßarbeiten besonders gefährdet, toxisch-irritative Handekzeme zu entwickeln. Durch geeignete Hautschutz- und pflegepräparate können die körpereigenen Reparaturmechanismen unterstützt werden. In einer prospektiven Untersuchung wurden der klinische Hautzustand und die hautphysiologischen Parameter bei Mitarbeitern des Pflegepersonals von Intensivstationen (IS) und Normalstationen (NS) überprüft.

A. Kramer, *V. Mersch-Sundermann***,** *H. Gerdes, E.-A. Pitten, H. Tronnier,* **Toxikologische Bewertung für die Händedesinfektion relevanter antimikrobieller Wirkstoffe**, in Günter Kampf (Ed.): Hände-Hygiene im Gesundheitswesen, Springer Verlag, 2003, Kapitel 5

In zahlreichen Ländern (z.B. Belgien, Dänemark, Deutschland, Finnland, Schweden, Schweiz und allen osteuropäischen Ländern) sind Hände-Desinfektionsmittel Arzneimitteln gleichgestellt und zulassungspflichtig.

G. Korinth, T. Goen, K.-H. Schaller, W. Uter, J. Angerer, H. Drexler, **Vergleichende Untersuchung zur Belastung und Beanspruchung am Arbeitsplatz durch Reinigunsmittel auf Mineralöl-und auf Pflanzenölbasis unter besonderer Berückstichtigung akuter und Chronischer Hauterkrankung,** Abschlussbreicht zur Feldstudie „Alternative Reinigungsmittel" der Universität zu Erlanden, Dezember 2003

J.L. Sugarman, J.W. Fluhr, A.J. Fowler, T. Bruckner, T.L. Diepgen, M.L. Williams, **The Objective Severity Assessment of Atopic Score – An Objective Measure Using Permeability Barrier Function and Stratum Corneum Hydration with Computer Assisted Estimates for Extent and Disease***,* Arch. Dernatol., Vol. 139, Nov. 2003

Clinical scores used to assess the severity of atopic dermatitis (AD) rely entirely on subjective criteria to the severity of lesions and the extent of involvement.

S. Schulz, C. Lautenschläger, I. Beyer, **Messung der Hydratation der Mundschleimhaut mit dem Corneometer CM 820**, Deutsche Zahnärtzliche Zeitung 58, 2003

Das Corneometer CM 820 ist ein Instrument zur kapazitativen Messung des Feuchtigkeitsgrades der Haut. Erstmalig wurde das Gerät introoral an der Mundschleimhaut bei 148 schleimhautgesunden Nichtrauchern, 27 Rauchern, 23 Totalprothesenträgern (Nichtraucher) und 15 Patienten der Radiotherapie erprobt.

A. Castro, **Evaluation of the moisturizing effectivity of different materials**, Colamiq Congress in Cartagena, 2003

La resequedad de la piel tiene diversos origenes: disminucion de lipidos, perdida de agua transepidermal, factores hormonales, geneticos, medicamentosos, ambientales. Durante muchos anos se han buscado medicamento o procedimientos que puedan revertir o detener los danos de la piel que se presntan a traves del curso de la vida, inducidos por factores externos o internos. La condicion de piel seca que afecta a un amplio universo de la poblacion, viendose mas marcada en la poblacion adulta, aunque tambien se presenta en la poblacion joven, juega un papel determinante en el proceso de envejecimiento de la piel (article is Spanish).

U. Heinrich, U. Koop, K. Osterrieder, S. Bielfeld, C. Chkarnat, J. Degwert, D. Häntschel, S. Jaspers, H-P. Nissen, M. Rohr, G. Schneider, H. Tronnier, **Multicentre comparison of skin hydration in terms of physical-, physiological- and product-dependent parameters by the capacitive method**, International Journal of Cosmetics Science, 2003, 25, 45-53 *

A multicentre study for measuring skin hydration with 349 volunteers was carried out in six different laboratories. The purpose of the study was to investigate physical-, physiological- and product-dependent parameters of three test emulsions (base, base+moisturizer and base+moisturizer+lipids) in a double-blind study. A comparison between analogous and digital sensor technology of the Corneometer CM 825 was examined.

E. Hernandez, **Bioengineering in Dermatology and Cosmetology: Methods, Studies and Prospects**, SOFW-Journal, 129. Jahrgang, 11-2003

One of the trends in modern dermatology and its perspectives for the near future are skin bioengineering and imaging. The 1st joint meeting of two scientific societies focusing on measurements and visualisation of skin function, structure and physiology – the International Society for Skin Imaging (ISSI) – took place in Hamburg, May 21-24, 2003. Before that, the meetings and conferences organised by these societies had been held separately.

P.-G. Sator, J.B. Schmidt, H. Hönigsmann, **Clinical Evidence of the Endocrinological Influence of a Triphasic Oral Contraceptive Containing norgestimate and Ethinyl Estradiol in Treating Women with Acne vulgaris,** Dermatology 2003;206: 241-248

Acne vulgaris is a multifactorial inflammatory follicular skin disorder occuring in pilosebaceus units, espacially on the face and the trunk. The major etiological factors are increased sebum production, hypercornification of the pilosebaaceous duct, abnormal microbial flora and inflammation. There are many different faces of acne. Acne and acneiform eruptions affect persons of all ages, beginning with neonatal acne and progressing to include rosacea in older persons. Acne vulgaris is the most common skin disorder, affecting close to 80% of people at least once between 11 and 30 years of age.

A.G. Shepky, A. Bürger, G. Rudolph, M. Max, U. Koop, J. Ennen, M. Kuhn, A. Schölermann, F. Rippke, **Mild keratolysis by topical application of proteolytic enzyme subtilisin**

The proteolytic enzyme subtilisin offers a novel, especially mild way of keratolysis, obtained already in low concentrations and within the normal pH-range of the skin. The highly purified protease subtilisin from Bacillus subtilis degrades the bonds between the corneocytes and promotes the release of peptides and amino acids as natural moisturizing factors.

A. del Pozo, M. Torello, C. Romero, A. Viscasillas, **Restitution of cutaneous barrier from o/w bigels emulsifier-free,** Association de Pharmacie Galenique Industrielle, Paris 22-23 Oct. 2003

To evaluate the capacity of modifying water retention at cutaneous level (WHC: water holding capacity) of formulation elaborated with Emulfree CBG (INCI: Isostearyl Alcohol and Butylene Glycol Cocoate and Ethylcellulose), a new stabilizer system o/w bigel type emulsifier-free preparations.

S. Guehenneux, I. Le Fur, E. Tschachler, **Influence of aircraft cabin environment on skin hydration in healthy women,** 12th EADV, 15-18. Oct. 2003, Barcelona

Airline passengers often complain about sensations of skin and mucous membrane dryness and discomfort due to the dry atmosphere in aircraft cabins. Moreover, low relative humidity in the aircraft cabin is an unavoidable consequence of pressurization at high altitudes. Despite the fact that very low humidity is routinely encountered, no study of its effects on the skin has been reported in the cabin environment. The aim of our study was to study the changes in skin hydration in healthy women during long distance flights.

P-A. Wendling, G. Dell'Acqua, **Skin biophysical properties of a population living in Valais, Switzerland,** Skin Research and Technology 2003, 9, 306-311

On average we observed low values of skin capacitance that identify subjects with dry skin. Measures of skin visco-elasticity ratios were also particulary low, while skin pH and sebum content were in the normal range. Age was correlated with a decrease of skin elasticity and sebum content, but there was no correlation with hydration or pH.

A.E. Sagiv, Y. Marcus, **The connection between in vitro water uptake and in vivo skin moisturization,** Skin Research and Technology 2003, 9, 306-311

Adding hydroxyl groups to a consecutive set of polyhydroxyalkanes increases the humectancy of the polyols in vitro. This elevation was found to be linear at low relative humidities (Relative humidity = 31,9 % and 37°C). In vivo, moisture was returned to normal within a week in all three groups. However, only glycerol managed to abolish the erythema within 7 days.

B. Hughes-Formella, **Teststrategien für Mittel gegen trockene Haut,** Skin Care Forum, Ausgabe 24, Sep. 2003

Trockene Haut stellt ein häufiges Problem in der Dermatologie dar und repräsentiert eine Dysfunktion der Epidermis, insbesondere des Stratum Corneum als morphologischem Äquivalent der Hautbarriere. Verschiedene Hauterkrankungen wie z.B. Atopische Dermatitis oder Ichthyose basieren auf einer genetischen Disposition für trockene Haut.

K. Biro, D. Thaçi, F.R. Ochsendorf, R. Kaufmann, W.H. Boehncke, **Efficacy of dexpanthenol in skin protection against irritation: a double-blind, placebo-controlled study**, Contact Dermatitis, 2003 Aug;49(2): p. 80-84

Dexpanthenol is popular in treating various dermatoses and in skin care, but few controlled clinical trials have been performed. We investigated the efficacy of dexpanthenol in skin protection against irritation in a randomized, prospective, double-blind, placebo-controlled study. 25 healthy volunteers (age 18-45 years) were treated for the inner aspect of both forearms with either Bepanthol Handbalsam containing 5% dexpanthenol or placebo x2 daily for 26 days. From day 15-22, sodium lauryl sulfate (SLS) 2% was applied to these areas x2 daily. Documentation comprised sebumetry, corneometry, pH value and clinical appearance (photographs). 21 volunteers completed the study, 3 were excluded because of non-compliance and 1 experienced a non-study-related, severe, adverse event. Only corneometry yielded a statistically significant difference, with decreased values following SLS challenge at the placebo sites ($P < 0.05$). Intraindividual comparisons showed superior results at the dexpanthenol-treated sites in 11 cases and in only 1 case at the placebo site. 6 volunteers experienced an irritant contact dermatitis, with more severe symptoms at the placebo site in 5 cases. In conclusion, dexpanthenol exhibits protective effects against skin irritation. The initiation of a study to

evaluate the efficacy of dexpanthenol in preventing irritant occupational contact dermatitis under real workplace conditions is validated.

M. I. Nogueira de Camargo Harris, **Propriedades biomecânicas da pele,** Pele: estrutura, propriedades e envelhecimento, Editora Senac, Sao Paulo, 2003

A biometrologia cutânea, ramo da ciência que avalia quantitativamente as propriedades biomecânicas da pele, tem encontrado na cosmetologia um importante aliado, pois o apelo mercadologico dos produtos destinados aos cuidados com a pele e com os cabelos tem-se baseado cada vez mais em evidências cientificas e tecnicas sensiveis, precisas e validadas, ao inves de serem fundamentadas em especulacoes.

S. Amari, A. Amari, C. Schubert, **Focus on the hydrating profile of two naturally derived emulsifiers,** Personal Care, July 2003

Olive oil is the one of the lipids showing the highest compatibility with our skin. The sebum secreted by the sebaceous glands is produced for an important reason: to protect the skin against the environment and to reduce the Trans-Epidermal-Water Loss (TEWL). When one examines and compares the percentage ranges of fatty acids, oleic acid, polyunsaturated fatty acid, waxy esters and squalene contained both in the skin and in wirgin olive oil, it is quickly evident that there is a remarkable similarity.

L.P.L. van de Vijver, E. Boelsma, R.A. Bausch-Goldbohm, L. Roza, **Subjective skin condition and its association with objective skin measurements**, Cosmetics & Toiletries, Vol. 118, No. 7, July 2003

From a group of 302 volunteers, the authors obtained both selfreported subjective evaluations of skin condition and objective measurements of skin conditions, and then looked for correlations between the subjective and objective kin measures.

M. Takahashi, M. Egawa, T. Hirao, **The frictional feel analyzer**, Skin Research and Technology, Vol. 9, No. 2, May 2003, Abstract No. 18

Sensory evaluation is important in the testing of cosmetic products. Several devices for the measurement of sensory properties have been developed in recent years. The objective here is to measure skin surface friction using these devices and to examine the correlation with other physiological parameters in order to evaluate the feasibility of using physical measurement to predict tactile sensation.

H.-C. Kim, S.-J. Hong, M.-H. Lee, J.-S. Moon, H.-S. Oh, M,-G. Kim, C.-H. Oh, S.-J. Park, **Objective evaluation of severity in SLS-induced irritant dermatitis: comparing the studies between new skin color analysis technique and other bioengineering tools,** Skin Research and Technology, Vol. 9, No. 2, May 2003

In evaluation for severity of SLS-induced irritant dermatitis, visual scoring system is wide being used as a subjective method. However, it is well known that variations exist even in the interpretations by experienced dermatologist. So it is required to develop the new objective and quantitative method for the assessment for severity of SLS induced irritant dermatitis.

S. Savic, N. Cekic, S. Tamburic, J. Milic, G. Vuleta, **The effect of urea from dermo-cosmetic emulsions on skin hydration and its barrier function: a vehicle-controlled study**, Skin Research and Technology, Vol. 9, No. 2, May 2003

A number of studies have shown that, depending on the concentration, treatment with urea could improve skin barrier function, despite of its penetration enhancing properties. This controversial skin effect has not been explored systematically in terms of the effectof vehicle on the performance of urea.

H.K. Lee, S.Y. Bae, S.J. Moon, I.S. Chang, **Comparisons of skin characteristics between men and women using non-invasive methods in young healthy Asians**, Skin Research and Technology, Vol. 9, No. 2, May 2003

Skin has different properties depending on intrinsic effects such as inherent factors, race, gender and so on. Besides, it has been known that skin may change because of the environmental stress such as UV, climate and life style. We would like to know the differences of skin characteristics between male and female. The results of this study might be applicate the depart of dermatology and cosmetology.

I.F. Almeida, D. Endo, M.F. Bahia, **Moisturizing properties of two oleogels following single application**, Skin Research and Technology, Vol. 9, No. 2, May 2003

Oleogels are interesting new systems obtained with a hydrophobic liquid. On the last years there were discovered and developed many organogelators that in same cases were able to gelify biocompatible liquids. Their applications were investigated in several areas such as organic chemistry, environmental chemistry and also in pharmaceutical and cosmetics fields.

S. Bielfeld, M. Brandt, A. Gerstenkorn, K. Wilhelm, **Capacitance measurement of skin moisture: sophisticated calibration of instruments**, Skin Research and Technology, Vol. 9, No. 2, May 2003

Absolute valuesof different instruments designed to measure the skin capacitance are not comparable, even though they all work with the same measurement principle. Even in the same instrument type differences in measurement results are common. For this reason, studies are generally performed with only one instrument and a comparison of data obtained in different studies with different instruments is not regarded as valid.

P.C. Pinto, L.M. Pereira, L. Monteiro Rodriguez, **Skin water dynamics: disposition-decomposition analysis (DDA) od transepidermal water loss (TEWL) and epidermal capacitance**, Skin Research and Technology, Vol. 9, No. 2, May 2003

Knowledge about human skin water dynamics seems to represent a growing importance to understand the organ's normal physiology. Mathematical modelling of (cutaneous water) related variables obtained through skin bioengineering, provided new perspectives to approach this problem.

M. Setaro, A. Sparavigna, **It is possible to define a "biological age"of the skin?**, Skin Research and Technology, Vol. 9, No. 2, May 2003

The evaluation of global skin performance as compared to anagraphical age of the subject is until today dependent on clinical evaluation. By doing so, "pre-clinic" alterations of skin aging, are often missed, loosing the possibility to set up adequate strategies of prevention and treatment. Non-invasiev evaluations based on the measurements of skin parameters allow to monitor functional alterations of the skin with age in objective, sensitive specific and reproducible way.

D. Kelly, J. Bessiere, J. Crimmins, S. Renard, **Anti-inflammatory properties of Amazonian Oil**, SOFW-Journal, 129. Jahrgang 4-2003

The rainforest regions of South America are the most bio-actively diverse natural phenomena on the planets housing 70 % of the world's flora and fauna, 10-15 million insects and 20000 different species of planet life.

R.L. Rizer, T.M. Weber, A. Kowcz, **Evaluation of Tolerance and Efficacy of a Skin Cream Using a Diabetic Foot Skin Model**, Poster at the American Academy of Dermatology, 61st Annual Meeting, San Francisco, March 2003

Diabetis often have significant problem with skin dryness and susceptibility to skin infections due to elevated blood glucose levels, impaired sweating and circulatory insufficiencies

R.L. Rizer, T.M. Weber, A. Kowcz, **Establishment of the Tolerance Profile for a Topically Applied Facial Lotion Using an Atopic and Rosacea Population Model**, Poster at the American Academy of Dermatology, 61st Annual Meeting, San Francisco, March 2003

Newly developed cosmetic and drug skin products are typically evaluated using a battery of tests to establish the product's safety profile.

R.L. Rizer, A. Kowcz, T.M. Weber, A. Filbry, F. Rippke, **Tolerance Profile and Efficacy of a Menthol Containing Itch Relief Spray in Children and Atopics,** Poster at the American Academy of Dermatology, 61st Annual Meeting, San Francisco, March 2003

Itch is a persistent and tenacious problem in the management of atopic dermatitis and other dry skin conditions. It is particulary difficult to control itch in atopic children, who may not understand the consequences of scratching.

A. Vargas , A. Castro, **Formulacion de jabon liquido con productos naturals:medida de su efectividad,** Actualizaciones Terapéuticas Dermatológicas y Estéticas, Vol. 25, No. 3

Los habones estan formados por la saponificacion d' acidos grasos de alto peso molecular, con alkalis. Teniendo presente la incidencia de dermatitis de contacto por Jabones y la solicitud del consumidor y especialista tratante, de un producto seguro, no irritante, y que no remueva la capa lipidica, se formulo un Jabon con productos naturales que aporta el efecto buscado. Siguiendo los principos de formulacion se utilizaron mezclas de detergents anionicos y anfotericos con una sustancia viscosante.

P.-G. Sator, J.B. Schmidt, H. Hönigsmann, **Comparison of epidermal hydration and skin surface lipids in healthy individuals and in patients with atopic dermatitis,** J Am Acad Dermatol, March 2003

The water content of the stratum corneum and the skin surface lipids form a balance that is important for the appearance and function of the skin. Nevertheless, the water content of the stratum corneum and the skin lipids, the water-binding substances from the hydro-lipid film of the skin, act together as a barrier to the environment.

S.-J. Choi, M.-G. Song, W.-T. Sung, D.-Y. Lee, J.-H. Lee, E.-S. Lee, J.-M. Yang, **Comparison of Transepidermal Water Loss, Capacitance, and pH Values in the Skin Between Intrinsic and Extrinsic atopic Dermatitis Patients**, J Korean Med Sci 2003, 18, 93-6, p. 93-96

Atopic dermatitis (AD) is characterized by an intensely pruritic skin disease with typical distribution and morphology. The age of onset is nearly always within the first 5 yr of life, and lifetime prevalence in children is roughly 10 to 15% in industrialized countries.

L.R. Gaspar, P.M.B.G. Maia Campos, **Evaluation of the protective effect of alpha-tocopheryl acetate in a sunscreen, preventing erythema formation, transepidermal water loss and sunburn cell formation,** IFSCC, Vol. 6, No. 3/2003

Nowadays, vitamin E acetate is used as an antioxidant and moisturizer in sunscreens. Although free vitamin E presents UV protection effects, little data has been forthcoming documenting the beneficial effects of vitamin E acetate on cutabeous photodamage, when combined with sunscreens. The aim of this study was to evaluate the protective effect of a sunscreen formulation with or without vitamin E acetate on erythema in hairless mice, transepidermal water loss (TEWL) and sunburn cell formation.

T. Seki, S. Morimatsu, H. Nagahori, M. Morohashi, **Free residual chlorine in bathing water reduces the water-holding capacity ofthe stratum corneum in atopic skin**, J Dermatol. 2003 Mar;30(3): p. 196-202

Some patients with atopic dermatitis (AD) develop dry skin or exacerbated cutaneous inflammations with frequent swimming in public pools or after bathing. We examined the effects of residual chlorine in bathing water on the function of the stratum corneum (SC) in patients with AD and determined the lowest chlorine concentration showing an effect. In addition, we investigated the relationship between the free residual chlorine concentration in bathing water and the water-holding capacity of the SC in patients with AD. Twenty patients with AD and 10 normal control (NC) subjects were included in this study. The hydration status of the SC on the flexor surface of the forearm was measured with a corneometer before and after the subject's arms were immersed in tubs filled with comfortably hot water (40 degrees C) containing residual chlorine at concentrations of 0, 0.5, 1.0 and 2.0 mg/L for 10 minutes in a room maintained at normal temperature (24 degrees C) and relative humidity (55%). The water-holding capacity of the SC after immersion was calculated by integration of the hydration status determined every 30 seconds over a period of 10 minutes. In the patients with AD, the average SC hydration status after immersion in comfortably hot water containing residual chlorine at 1.0 and 2.0 mg/L was significantly lower than that following immersion in water containing a negligible concentration of residual chlorine (i.e., less than 0.03 mg/L) ($p<0.05$). In the NC subjects, significant differences were observed only between the 2.0 mg/L and the negligible residual chlorine groups ($p<0.05$). The waterholding capacity of the SC was significantly decreased with a residual chlorine concentration of 0.5 mg/L or higher in the patients with AD ($p<0.01$). However, in the NC subjects, a significant decrease in waterholding capacity was observed only at a residual chlorine concentration of 2 mg/L ($p<0.01$). These results indicate, first, that the water-holding capacity of the SC in patients with AD is more sensitive to free residual chlorine exposure than that in NC subjects without AD. Second, these results suggest that free residual chlorine exposure in patients with AD may play a role in the development or exacerbation of AD.

E. Boelsma, L.P.L van de Vijver, R.A. Goldbohm, I.A.A. Klöpping-Ketelaars, H.F.J. Hendriks, .L. Roza, **Human skin condition and its associations with nutrient concentrations in serum and diet**, Am J Clin Nutr 2003;77: p. 348–355

Background: Nutritional factors exert promising actions on the skin, but only scant information is available on the modulating effects of physiologic concentrations of nutrients on the skin condition of humans. Objective: The objective was to evaluate whether nutrient concentrations in serum and diet are associated with the skin condition of humans. Design: A cross-sectional study was conducted in which data on serum concentrations of nutrients, dietary intake of nutrients, and the hydration, sebum content,

and surface pH of skin were obtained from 302 healthy men and women. Skin condition was measured with the use of noninvasive techniques. Dietary intake was assessed with 2 complementary food-frequency questionnaires. Multiple regression analysis was used to evaluate associations of serum vitamins and carotenoids and of dietary micro- and macronutrients with skin condition. Results: After adjustment for potential confounders, including sex, age, and smoking, statistically significant associations were shown in the total population between serum vitamin A and skin sebum content and surface pH and between the dietary intake of total fat, saturated fat, monounsaturated fat, and skin hydration. Monounsaturated fat intake was also associated with surface pH. Associations between serum -cryptoxanthin and skin hydrationm and between surface pH and fluid and calcium intakes were observed in men only. Conclusion: Several associations between nutrients in serum and diet and skin condition were observed, indicating that changes in baseline nutritional status may affect skin condition.

D. Lautenschläger, **Hautanalyse – Moderne Geräte helfen**, Ki-Magazin 3/2003

Die Hautanalyse ist ein zentraler Bestandteil der kosmetischen Behandlung. Sie schafft die Grundlage für für erfolgreiche hautspezifische Konzepte. Ein großes Angebot an Geräten kann die Hautbestimmung erleichertern. Was können diese Instrumente genau.

X. Briand, **Algal Active Substances**, Cosmetics & Toiletries, Vol. 118, No. 2, Feb. 2003, p.55 ff

In recent years, ingredients from the sea have shown to be effective in cosmetic applications. In this article, the author explains how some of these ingredients can be used successfully in personal care formulations.

Y. Yoshizawa, K. Kitamura, S. Kawana, H. Maibach, **Water, salts and skin barrier of normal skin,** Skin Research and Technology, Vol.9, No. 1, Feb. 2003

We recently reported that open application of seawater for 20 min ameliorated experimental irritant contact dermatitis induced by sodium lauryl sulphate (SLS) cumulative irritation. The efficacy was overall contributed by 500 mM of sodium chloride (NaCl) and 10mM of potassium chloride (KCl), which are consistent with the each concentration in seawater.

R. Huei Chen, W. Yuu Chen, **Skin hydration effects, film formation time, and physicochemical properties of a moisture mask containing Monostroma nitidium water-soluble mucilage,** Journal of Cosmetic Science, Vol. 54, No. 1, Jan/Feb. 2003

The objectives of the study were to explore the effects of using the water-soluble mucilage of Monostroma nitidium to replace the humectant and half of the thickening agent on the rheological properties, color, storage stability, water-holding capacity, and film formation time of moisture masks thus prepared. Results showed that moisture masks containing water-soluble mucilage were pseudoplaxtic fluids.

N. Krüger, L. Fiegert, D. Becker, T. Reuther, M. Kerscher, **Spurenelemente in Form eines Kupfertripeptidkomplexes,** Kosmetische Medizin, 1/2003, 24. Jahrgang

In den letzten Jahren wurde eine Reihe von neuen dermatokosmetischen Wirkstoffen entwickelt, um Hautalterungssymptome zu bessern. Neben konsequentem Lichtschutz, Retinol und Antioxidantien werden jetzt auch in Deuschland Spurenelemente bei Hautalterung eingesetzt. In der hier vorgestellten offenen, kontrollierten Untersuchung an 40 Probanden zeigte sich bei topischer Applikation von Kupfertripeptid eine Zunahme der Hautdichte in der 20MHz-Sonographie, eine verbesserte Hydratation der obersten Hautschichten gemessen mittels Corneometrie sowie eine im Vergleich zu Retinol und Placebo signifikant stärkere Glättung der Haut, erfasst mit dem Visio-Scan.

L.R. Gaspar, P.M. Maia Campos, **Rheological behaviour and the SPF of sunscreens,** Int. J. Pharm. 2003, Jan. 2,250(1), p. 35-44

Due to a large variety of sunscreens, it is important to study among other things, the effect of three vehicle on the thickness and uniformity of sunscreen films. In this study, we determined the physical stability of five sunscreens SPF 15 (FA to FG), containing or not PVP/eicosene crosspolymer (PVP/EC), and two different self-emulsifying bases (SEB), and also evaluated the influence of the vehicle in their SPF.

H. Schroeder, P. Jasmin, A. Sanquer, P. de Villiers, **Corneometric assessment of seasonal variations of skin hydration of 124 normal South African dogs**, 2003 European Society of Veterinary Dermatology, Veterinary Dermatology, 14, p. 237–267

Skin hydration is a relatively unexplored field of veterinary dermatology. The objective of this study was to measure skin hydration of normal dogs to establish baseline values for of South on different

cutaneous areas African dogs and to compare the findings of winter vs. summer. A corneometer was used to measure skin hydration (*C* values) in 62 dogs in summer and 62 in winter, using 4 replicates on 20 different cutaneous sites. For statistical analyses, an ANOVA was performed with the following variables: season, sex, age, weight, length and thickness of hair coat, activity and mode of life. Then, for the significant variables, multiple comparisons were performed using a Newman–Keuls test. Right and left aspects of the 20 sites were pooled in 11 different cutaneous areas: periorbital (*C* = 5.4); external and internal ear pinnae (*C* = 6.2 and *C* = 16.8, respectively); chin (*C* = 8.6); axillae (*C* = 8.0); inguinal (*C* = 12.7); palmar and dorsal aspects of front (*C* = 5.4) and hind (*C* = 5.1) feet; and ano-genital (*C* = 5.9). Every cutaneous area was less hydrated in winter than in summer ($P < 0.0001$ for 7 on 11), except the internal ear pinna which was more hydrated in winter ($P < 0.0001$). Total skin hydration was also lower in winter (*C*mean = 6) than in summer (*C*mean = 7.5), $P < 0.0001$. Comparing the various cutaneous areas, chin, axillae and particularly internal ear pinnae and inguinal areas were more hydrated than the other cutaneous areas measured. These findings show that the skin of South African dogs is less hydrated in winter than in summer. It might then be useful to use topical products (shampoos and lotions) that hydrate the skin of dogs more frequently in winter. Any correlation between variously hydrated cutaneous areas and preferential areas for the development of certain dermatoses, e.g. atopy, impetigo and chin pyoderma may be studied further.

A. Zimmermann, A. Kligman, F. Anderson, **The vexing problem of dry skin**, Journal of Cosmetic Science, 2002 Annual Scientific Meeting

We all know what dry skin is…don't we?

G. Kampf, M. Muscatiello, D. Häntschel, M. Rudolf, **Dermal tolerance and effect on skin hydration of a new ethanol-based handgel**, J Hosp Infect. 2002 Dec;52(4): p. 297-301

We studied the dermal tolerance (repetitive occlusive patch test; ROPT) and the skin hydrating properties of a new ethanol-based gel [85% (w/w)], Sterillium Gel. For the ROPT, 53 participants were studied. Gel was applied to one site on the back under an occlusive patch during an induction phase (nine applications over three weeks) and two weeks later to a virgin site on the back during a challenge phase (one application). Twenty-four hours after the removal of the patches (induction phase and challenge phase), then 48 and 72 h later (challenge phase) sites were graded for skin reactions using a standardized scale. In the induction phase none of the 53 participants had a skin reaction. In the challenge phase one participant had a barely perceptible skin reaction, and one had mild erythema at one time point. To evaluate skin hydrating properties of the gel, treated skin of 21 participants was compared to untreated skin. The gel was applied twice a day to the forearm for 14 days. Control corneometer values were taken before application of the gel (mean: 32.7 +/- 5.0) and after one (36.3 +/- 4.4) and two weeks (36.1 +/- 5.4). Relative skin hydration on treated skin in comparison with an untreated control field was significantly higher after one week by 6.85% ($P = 0.0031$; paired t -test for dependent samples) and after two weeks by 4.47% ($P = 0.0153$). Sterillium Gel did not demonstrate a clinically relevant potential for dermal irritation or sensitization, and significantly increased skin hydration after repetitive use, and so could enhance compliance with hand hygiene among healthcare workers.

M. Egawa, M. Oguri, T. Kuwahara, M. Takahashi, **Effect of exposure of human skin to a dry environment,** Skin Research and Technology, Vol. 8, No. 4, Nov. 2002

There was a significant decrease of water content of stratum corneum at both test sites from the time points 0 h to 3 h and 6 h ($P<0.01$) and transepidermal water loss from the time point 0 h to 6 h ($P<0.05$). Regarding the roughness parameters, a significant increase of Rz in the directions of 45º/225º and 90º/270º to the body axis and Sm in the directions of 0º/180º ($P<0.05$) on the forearm and VC1 ($P<0.05$) on the cheek.

R. Korichi, **Video Imaging in the Measurement of Makeup Efficacy and Performance,** Cosmetics & Toiletries October 2002, Vol. 117 No. 10

Video imaging techniques add quantitative data about the visual effects of makeup when evaluating efficacy and performance of products such as mascaras, lip colorants, facial foundations and nail enamels.

H. Dobrev, **Changes in Epidermal Water Content in Patients with Psoriasis Vulgaris**, Medicine and Stomatology Session, 18 October, 2002 House of Scientists, Plodiv, Bulgaria

The aim of this study was to determine the epidermal water content in lesional and perilesional skin before and after treatment with ditranol.

J-H. Park, S-W. Son, Y-M. Yoon, M-H. Lee, Y-S. Lee, H-C. Kim, H-S. Oh, C-H. Oh, **Objective**

evaluation for xerosis by morphological study in atopic dermatitis, Symposium of the International Society for Bioengineering and the Skin, Baltimore Oct. 24-26, 2002

It is essential to be able to measure and record the severity of atopic dermatitis for routine clinical practice and research. Many clinical severity scales have been proposed, but not yet objective. Of severity scoring systems currently available for atopic dermatitis, the SCORAD index has been the most extensively tested.

J.W. Fluhr, J.L. Sugarman, T.L. Diepgen, M.L. Williams, **The objective severity assessment of atopic dermatitis (OSAAD),** Symposium of the International Society for Bioengineering and the Skin, Baltimore Oct. 24-26, 2002 (Poster)

An objective measure utilizing permeability barrier function and stratum corneum hydration, with computer-assisted estimates for extent of disease.

M-H. Lee, S-J. Hong, J-H. Park, H-C. Kim, H-S. Oh, C-H. Oh, **Quantitative evaluation of patch test results – comparing the studies between new skin color analysis technique and other bioengineerin tools,** Symposium of the International Society for Bioengineering and the Skin, Baltimore Oct. 24-26, 2002

Contact dermatitis is a common problem occurring in the field of dermatology and patch test is the only reliable procedure for the detection of the causative agent. In evaluation of patch test result, visual scoring system is wide being used as a objective method. However, it is well known that variations exist even in the interpretations by experienced dermatologist.

P.G. Sator, J.B. Schmidt, M.O. Sator, J.C. Huber, H. Hönigsmann, **Parameters of skin aging during hormone replacement therapy,** EADV 7th Congress, 2002, Abstract

All patients with HRT showed an increase in skin hydration, elasticity and thickness, as well as subjective and clinical improvement.

U. Uksal, C. Atasavun, B. Özcelik, S. Utas, A. Ferahbas, **The effects of hormone replacement therapy on the skin of postmenopausal women (abstract),** 11th Congress of the European Academy of Dermatology and Venereology, Prag 2002

The study was performed to compare skin pH, transepidermal water loss (TEWL), skin surface lipids and hydration in postmenopausal women receiving hormone replacement therapy (HRT) and those who not. Two parallel age-matched groups (each 24) of 48 postmenopausal women evaluated by tewameter, sebumeter, pHmeter and corneometer.

H. Dobrev, **Treatment of Psiorasis Vulgaris with Hydrocolloid Occlusive Dressings in Combination with Betamethasone Dipropionate 0.05 % Cream**, Medicine and Stomatology Session, 18 October, 2002 House of Scientists, Plodiv, Bulgaria

L.M. Rodrigues, P.C. Pinto, P. Lamarao, **After-sun claims substantiation: experimental criteria to assess the in vivo effects of sun care products under controlled-using conditions,** Cosmetics & Toiletries, Vol. 117, No. 10, October 2002

The authors describe a practical method of substantiating claims of “after-sun” products. Ten healthy women 35-65 years old were irradiated on both legs (antero-lateral) in a laboratory for six sequential days using an indoor solarium-type UV source. Efficacy assessment endpoints were defined from the product’s typical claims.

G.R. Leonardi, L. R. Gaspar, P.M. Campos, **Application of a non-invasive method to study the moisturizing effect of formulation containing vitamins A or E or ceramide on human skin,** Journal of Cosmetic Science, Vol. 53, No. 5, September/October 2002

Moisturizers containing vitamins A and E as well as ceramides are believed to improve the skin condition by increasing the water content of the stratum corneum. The aim of this research was to evaluate, through the capacitance method (a non-invasive method), the moisturizing effect of an O/W emulsion (non-ionic self-emulsifying base) containing vitamin A palmitate, vitamin E acetate, and ceramide III on human skin. The studies were carried out on a group of 40 healthy Caucasian female test subjects between 30 and 45 years of age, using the Corneometer CM 825 PC.

M.M. Jiménez Soriano, M.J. Fresno Contreras, E. Sellés Flores, **Pharmacotechnical characterization and effectiveness testing of a proposed emulsion for the treatment of dry skin,** Boll Chim Farm. 2002 Sep-Oct; 141(5): p. 333-342

One of the most important objectives of the Pharmaceutical Industry is the development of new excipients as well as the optimization of other more traditional ones. Also, the investigation of new active substances able to prevent, palliate or treat the cutaneous dehydration is another of the most important of their objectives. Both tendencies are implanted in this experimental work: we propose an emulsion formulated with the base--Neo PCL' (25%), NMF (Lactil', 5%) and a peculiar active--Honey of Rosemary (15%). The working scheme is as follows: 1) Pharmacotechnical Characterization--organoleptic characteristics, Photomicrograph Study, Type of Emulsion, pH, Rheology; 2) Stability Study by means of accelerated tests based on temperature and centrifugation; 3) Effectiveness Study by applying of non-invasive assessment techniques. An emulsified dermopharmaceutical form is obtained (O/W) with a satisfactory organoleptic characteristics and eudermic pH (5.2), attributable to the acid character of Honey. From the rheological study, a very good results are obtained: viscosity (T = 408.8.D0.549), structural recuperation (30%) and thixotropy (AD1/AD2 = 1.36). On the other hand, from the effectiveness results (corneometric--P.I.120 = 43.2%- and sebumetric--E.I. = 33-144 mg/cm2-), a high level of moisturizing is deduced, which is attributable to the synergic action of both Lactil' and Honey. Finally, the proposed emulsion would serve as a treatment for all type of dry skin.

M. Rohr, A. Schrader, **FOITS – corneometry influenced by peripheral expperimental conditions,** Congress Stratum Corneum III, Basel, September 2001 and The Essential Stratum Corneum, edited by R. Marks, J.-L. Lévêque, R. Voegeli, Martin Danitz Ltd., London, 2002

Besides a good compatibility, which should be a matter of course for cosmetic products, the skin's physiological effectiveness, in particular moisture and skin-smoothing effects, are of main interest for this kind of product. Techniques such as FOITS (Fast Optical In vivo Topometry of human Skin), and corneometry are used to investigate their effectiveness. In order to succeed in reproducible and statistically significant results, experimental side conditions, such as a defined panel, controlled climatic conditions or a test design that includes a positive and a negative standard, are the basic starting tools.

J. Gareiss, M. Ghyczy, **Normalization of inflammation and humidity in sodium lauryl sulfate (SLS) – perturbed skin in vivo by gel state phosphatidylcholine,** The Essential Stratum Corneum, 2002 Martin Dunitz Ltd.

Phosphatidylcholine (PC) is the most abundant component of biological membranes. It possesses an intrinsic hydration force, and its metabolites are essential osmoprotectants. PC that is composed of saturated fatty acids (hydrogenated PC), also named gel-state PC or HPC, possesses physical properties that are comparable with those of the components of the skin permeability barrier.

I. Le Fur, F. Morizot, S. Lopez, C. Guinot, J. Latreille, E. Tschachler, **Seasonal changes in skin biophysical properties in healthy Caucasian women,** Congress Stratum Corneum III, Basel, September 2001 and The Essential Stratum Corneum, chapter 60, edited by R. Marks, J.-L. Lévêque, R. Voegeli, Martin Danitz Ltd., London, 2002

The human skin surface has to adapt constantly to changing environmental conditions, such as temperature and relative humidity. Several studies have demonstrated the detrimental effects of winter weather in our countries on the skin and seasonal changes in certain biophysical parameters. The work presented here examines seasonal variations of biophysical parameters on facial skin in Caucasian women in France.

R. Lambrecht, P. Clarys, K. Alewaeters, A. O. Barel, **Influence of in vivo iontophoresis on the skin barrier and percutaneous penetration**, Congress Stratum Corneum III, Basel, September 2001 and The Essential Stratum Corneum, chapter 21, ed. by R. Marks, J.-L. Lévêque, R. Voegeli, Martin Danitz Ltd., London, 2002

Iontophoresis is a technique used to enhance the transdermal delivery of a drug by means of an electric current. The iontophoretic transport is influenced by several factors, such as concentration, size, ionic strength and the Ip of the drug and pH of the solvent, and also by the applied intensity and shape of the current and the application time.

J.W. Wiechers, M. Snieder, N.A.G. Dekker, W.G. Hansen, **Factors influencing Skin Moisturasation Signal Using Near Infrared Spectroscopy**, Proceedings of the 22nd IFSCC Congress, Edinburgh 23.-26. Sep. 2002

The effectiveness of skin moisturisers can be measured by electrical and spectropic methods. We explored the benefits of near infrared (NIR) spectroscopy for the investigation of skin moisturisation. This technique provides information on the interaction of water molecules with its surrounding structures and has been used to identify whether the water is freely moving, loosely or tighly bound.

B.S. Hammond, E. Fendler, **The Impact of a Skin Care Program in a Fiberglass Facility utilizing Bioengineering Techniques**, International Conference on Occupational and Environmental Exposures of Skin to Chemicals, September 8-11, Hilton Crystal City, Washington DC

A study was conducted at a fiberglass manufacturing facility to better understand the effects of a skin care regimen. A comprehensive skin care program was implemented that included site surveys and anlyses. A training program and the use of Gojo products.

B.S. Hammond, E. Fendler, J.H. da Silva Tavares, A. de Abreu Sodré, **A Comprehensive Approach of a Hand Regimen System in Oil Production and Refinery Facility**, International Conference on Occupational and Environmental Exposures of Skin to Chemicals, September 8-11, Hilton Crystal City, Washington DC

A study was conducted at three oil production and refinery facilities to better understand the effects of a skin care regimen. A comprehensive analysis of the skin care program was conducted that evaluated costs, skin condition, washing practises, and waste management.

R. Armengol, L. Mayordomo, A. Benaiges, J. Bosch, E. Serra, **Influences of exercise on the ion distribution in human epidermis and on the skin hydration**, Posters of the 22nd IFSCC Congress, Edinburgh 23.-26. Sep. 2002

The loss of different electrolytes by sweating after intense exercise is well known and the influence of these changes in blood plasma, muscles and other organs has been deeply studied.

I. Le Fur, S. Lopez, F. Morizot, J. Latreille, C. Guinot, E. Tschachler, **Age-related reference ranges for skin biophysical parameters in healthy women**, Posters of the 22nd IFSCC Congress, Edinburgh 23.-26. Sep. 2002

The aim of this study was to establish age-related reference ranges in healthy Caucasian women for some widely used skin biological parameters on different body areas.

L. Ambroisine, C. Guinot, J. Latreille, E. Mauger, M. Tenenhaus, I. Le Fur, S. Lopez, F. Morizot, E. Tschachler, **Relationship between visual and tactile skin characteristics and skin biophysical parameters**, Posters of the 22nd IFSCC Congress, Edinburgh 23.-26. Sep. 2002

The skin does more than simply encase the human body.

K.-P. Wilhelm, K. Kaspar, F. Schumann, K. Articus, **Development and validation of a semiautomatic image analysis system for measuring skin desquamation with D-Squames,** Skin Research and Technology 2002, No. 8

Analysing D-Squames with the image analysis system proved to be reproducible, independent of the shape of ROI, cost effective and fast and easy to operate. It has shown to be a suitable and reliable method for the objective determination of desquamation levels.

H.J. Blaheta, B. Vollert, D. Zuder, G. Rassner, **Intravenous regional anesthesia (Bier's block) for botulinum toxin therapy of palmar hyperhidrosis is safe and effective**, Dermatol Surg. 2002 Aug;28(8): p 666-71

Background: Botulinum toxin type A (BTX-A) has been shown to be highly effective in reducing palmar hyperhidrosis. Since palmar injections is a painful procedure, the use of an anesthesia method is recommended. Objective: To assess the efficacy of intravenous regional anesthesia (IVRA) for painless treatment of palmar hyperhidrosis with BTX-A compared to topical application of a local anesthetic agent. Methods: Thirty patients with palmar hyperhidrosis were treated with BTX-A injections, using a total dose of 100 U BTX-A for each hand. One palm was pretreated with a topical application of local anesthetizing cream (EMLA cream), while the other palm was anesthetized with IVRA. Sweat secretion was visualized with Minor's test and quantified by corneometer analysis before and after BTX-A therapy. BTX-A therapy was significantly less painful in palms anesthetized with IVRA than in palms pretreated with EMLA cream ($P < 0.0001$, paired Wilcoxon rank test). Results: Two weeks after the BTX-A injections, corneometer measurements showed that spontaneous sweat production had declined significantly, from 115 +/- 16.25 (left hand) and 114 +/- 17.58 (right hand) before therapy to 81.5 +/- 27.33 (left hand) and 74 +/- 28.08 (right hand) after therapy ($P < 0.001$, paired t test). Conclusions: IVRA safely and effectively alleviates the pain associated with BTX-A treatment for palmar hyperhidrosis. Quantitative analysis with the corneometer showed that BTX-A significantly reduces sweat production. We conclude that IVRA is a suitable method for providing pain relief in the treatment of patients with palmar hyperhidrosis.

C. Packham, H. Packham, **Health and Safety at work: special report**, Occupational Skin Management

Update, Croner, Issue 60, August 2002

S. Seidenari, **Non-Invasive Techniques for Diagnosis and Monitoring of Skin Diseases: an Updating of Recent Techniques useful in Dermatology,** 20th World Congress of Dermatology, Paris, 2002

Besides the necessity of a realistic assessment of spontaneous course of diseases, the evaluation of the cost/benefit ratio of potentially new treatments is increasingly required. Objective documentation of dermatological disorders can be achieved by means of bioengineering techniques, which provide numerical values as a basis for statistical analysis and enable instant in vivo information in the absence of interferences with the spontaneous course of the disease.

I. Le Fur, S. Lopez, F. Morizot, J. Latreille, C. Guinot, E. Tschachler, **Age-Related Reference Ranges for Skin Biophysical Parameters in Healthy Women,** 20th World Congress of Dermatology, Paris 2002

Purpose: The aim of this study was to establish age-related reference ranges in healthy Caucasian women for some widely used skin biophysical parameters.

I. Le Fur, A. Reinberg, S. Lopez, F. Morizot, E. Tschachler, **Facial Skin Circadian Rhythms of Healthy Women Investigated Using Non-Invasive Methods,** 20th World Congress of Dermatology, Paris 2002

Purpose: The aim of this study was to document around the clock changes in a set of skin biophysical parameters.

E.A. Holm, G.B.E. Jemec, **Objective Measurement of Atopic Dermatitis with Non-Invasive Techniques,** 20th World Congress of Dermatology, Paris 2002

Quantification of desease severity is a prerequisite for the development of evidence based therapy. Today, patient history and clinical scoring are the main tools for dermatologists when attempting to assess the morbidity of patients with atopic dermatitis AD. These methods however have their limitations, as they all are operator dependant and frequently show poor inter- and intra-observer reproducibility.

F. Distante, L. Rigano, R. D'Agostino, A. Bonfigli, E. Berardesca, **Intra- and Inter-Individual Differences in Sensitive Skin,** Cosmetics &Toiletries July 2002, Vol. 117, No. 7,

The authors investigated the intra-individual and the inter-individual variations of transepidermal water loss, capacitance and microcirculation in 10 different facial areas in subjects with "sensitive skin" and in subjects with "non-sensitive skin".

P. Msika, F. Perin, P. Beau, G. Georgesco, J.C. Pittet, B. Chadoutaud, J.C. Choulot, L. Vaillant, **AvocadoFurane, Pentapeptides and Soy Isoflavones: A Clinical Study against Hormonal Aging,** Bioengineering and The Skin, International Congress 27-28th June 2002, Paris

A patented association containing a new inducer of collagen synthesis via TGF-beta (Avocadofurane), an MMP's inhibitor (Pentapeptides) and soy isoflavores was evealuated in postmenopausal skin aging. 30 women were engaged in two clinical studies (age < 50, no hormonal replacement theraphy) and have applied twice daily the product for 1 year.

F. Pirot, V. Faivre, G. Peyrot, F. Falson, **Prediction of Stratum Corneum Water Loss and Skin Hydration from Physiochemical Parameters**, Bioengineering and the Skin, International Congress 27-28th June 2002, Paris

The amount of water contained in the stratum corneum (SC) is dependent on natural moisturizing factors (NMF) and its intercellular lipids. Hydration of the SC, which is exposed to relatively dry environment is maintained by NMF, a mixture of highly hydroscopic and water-solulable substances. The goal of the present stady was (i) to investigate the water content in SC ex vivo and the skin hydration in vivo after treatment with an highly hydrophilic substances, (ii) to examine the correlation between SC water loss, skin hydration and physiochemical parameters (i.e. the octanol/water partition coefficient of these substances.

I. Buraczewska, M. Loden, **Influence of pH on Skin Barrier Recovery**, Bioengineering and the Skin, International Congress 27-28th June 2002, Paris

PH of the skin surface is known to be acidic (around 5), whereas body's internal environment has a neutral pH. Cosmetic products, have various pH values, from acidic to alkalic. The aim of the presented study was to check ig pH of an alkaline moisturizing cream would influence skin barrier recovery and dryness in surfactant-damaged human skin.

P.-A. Wendling, G. Dell' Acqua, **Quantitaive Evaluation of Skin Biophysical parameters of a Population living in the Swiss Alps**, Bioengineering and the Skin, International Congress 27-28th June 2002, Paris

Previous studies, in which skin biophysical characteristics of human volunteers were measured, have evidenced that populations where genetic background, geography, environmental factors, as well as life style habbits differ, present different skin biophysical characteristics.

A. de Castro, **Efectividad de cremas antienvejecimiento con activos naturales,** GCI Latinoamerica, Vol. 1, No. 2, Mai-August 2002,

La autora describe un estudio con el uso de una crema que contiene una mezcla de filtros solares fisicos, extractos vegetales, hidratantes, antirradicales libres, sustancias antiinflamatorias con el objetivo de comprobar la eficacia de materias primas de origen vegetal en el tratamiento y prevencion del fotoenvejecimiento.

Hurdles getting to the Market…is the product right?…is it safe?….is it legal? A report from the Britisch Society of Cosmetic Chemists, IFSCC Magazine – Vol. 5, No. 3/2002

The 2002 spring symposium at the Royal Society of Medicine proved to be a great success

B. Roy, **Duoskin: significant hydratisierende Wirkung,** Kosmetische Medizin, Ausgabe 5/2002, 23. Jahrgang

Die hydratisierende Wirkung der beiden Präparate Duoskin Gesicht und Duoskin Körper wurde bewertet und mit der von zwei hydratisierenden Referenzprodukten verglichen. Es handelt sich um eine monozentrische, vergleichende, randomisierte Studie. Die Ergebnisse beziehen sich auf 12 Frauen mit sehr trockener Haut. Jede Probandin war gleichzeitig ihre eigene Kontrolle, da ein Areal unbehandelt blieb.

E. Proksch, H.P. Nissen, M.F. Bremgartner, C.J. Urquhart, **Erhöhung der Hautfeuchtigkeit durch Mg-reiches Duschgel,** Kosmetische Medizin, 4/2002, 23. Jahrgang

Baden oder Duschen mit gewöhnlichen Detergenzformulierungen kann zu Problemen bei Patienten mit Psoriasis, Ekzemen und bei trockener Haut führen. Detergenzien können eine Irritation verursachen und die Trockenheit der Haut verschlimmern. Die therapeutische Wirkung des Totes Meer Salzes bei Hauterkrankungen ist seit der Antike bekannt; Magnesiumsalze sind der überwiegende Bestandteil des Salzes aus dem Toten Meer. In der vorliegenden Untersuchung wurde die Wirkung eines Duschgels, welches ein besonders magnesiumchlorid-reiches Salz aus der Tiefe des Toten Meeresenthält (Mavena Derma Line Mg46 Duschgel), zur Reinigung bei Psoriatikern eingesetzt.

T. Gambichler, P. Altmeyer, S. Rotterdam, M. Herde, M. Stücker, K. Hoffmann, **Bioengineering der Haut,** Kosmetische Medizin, 4/2002, 23. Jahrgang

Nicht-invasive Untersuchungstechniken (Bioengineering) am Hautorgan werden in der Dermatologie und Kosmetologie zunehmend eingesetzt. Gegenüber der bloßen klinischen Untersuchung bietet der Einsatz von Bioengineering-Methoden viele Vorteile. Es lassen sich morphologische und funktionelle Parameter der Haut objektiv darstellen und standardisiert messen, die der bloßen klinischen Untersuchung bzw. sensorischen Wahrnehmung oft unzugänglich sind.

MegaSun beauty & care, **Sonnen ohne Risiko,** Kosmetische Medizin, 4/2002, 23. Jahrgang

Sonne gilt für große Bevölkerungsteile als die Universal-Arznei aus der „Himmelsapotheke". Doch der Dermatologe rät: Was für die Risiken und Wirkungen von Arzneimitteln gilt, gilt auch für die Solarien-Besonnung: Die Dosis ist entscheidend. Auf der Pressekonferenz am 16.10.2002 in Hamburg präsentierte die KBL-Solarien AG den Medien sowie dem Fachhandel ein auf streng wissenschaftlicher Basis entwickeltes Gerät zur individuellen Hauttypbestimmung, um Solarstrahlen für gesunde und natürliche Bräune optimal zu dosieren – das megaSun care Terminal.

B. Gabard, S. Schliemann-Willers, **Better Skin Protection with New Barrier Creams,** SOFW Journal, 128. Jahrgang 4-2002

Skin protection creams are considered judicially as cosmetics. Besides a good efficacy, a main requirement to be fulfilled by these preparations is maximal safety as they are often applied on lesioned skin.

S. Haug, **Feuchtigkeit, Fettgehalt und pH-Wert der Haut im Gesicht – Eine Untersuchung zur Festlegung von Normalwerten an definierten Punkten im Gesicht und am Hals,** Dissertation an der

Technischen Universität München 2002

Das größte Organ des menschlichen Körpers, die Haut, besitzt eine Gesamtfläche von 1,5-2,0 m², die von Körpergröße und Gewicht abhängig ist [1]. Die Haut ist in mehreren Schichten aufgebaut. Das 6-20µm, an Handinnenfläche und Fußsohle zwischen 200-600 µm [54,86], dicke kernlose Stratum corneum (Hornhaut) ist die oberste Schicht der Haut. Es besteht aus 13 Zellschichten [76]. Der Aufbau des Stratum corneum ist dabei ähnlich einer Mauer aus Ziegelsteinen und Mörtel (bricks and motar-Modell). Die Ziegelsteine entsprechen in dieser Modellvorstellung proteinreichen Korneozyten, die hauptsächlich au seiner starren Zellhülle [6], Keratinfilamenten [107] und dem interfilamentären Matrixprotein [28] bestehen.

J. Woodruff, **Body of evidence,** Soap, Perfumery & Cosmetics 2002 April

Proving effect may not be new but it is of course an absolute requirement these days. And there are many different ways of going about it, explains John Woodruff.

J. Djordjevic, G. Vuleta, J. Milic, H. Zhai, H. Maibach, **O/W Emulsions Enriched with Vitamin E,** Cosmetics & Toiletries 2002 April, Vol. 117, Nr. 4

Vitamin E has an important protective function for the entire organism. It is believed that the broad biological activities of vitamin E are due to its ability to inhibit lipid peroxidation and stabilize biological membranes.

C. Fox, **Antimicrobials,** Cosmetics & Toiletries 2002 April, Vol. 117, Nr. 4

This article reviews antimicrobial agents and their use in personal care products as reported in more than 50 patents and journal articles published between 1996 and 2001

J.W. Wiechers, C. Verboom, V.A.L. Wortel, W.A. Starmans, **Multifunctionality: From „One in More" to „More in One",**Cosmetics & Toiletries 2002 April, Vol. 117, Nr. 4

The authors explain the requirements for interactions of single components in mixtures in order to obtain multifunctional mixtures. These requirements include synergy and the need to excel in a single specific performance.

G. Maramldi, M. A. Esposito, **Potassium Azeloyl Diglycinate: A Multifunctional Skin Lightener,** Cosmetics & Toiletries, March 2002, Vol. 117, Nr. 3

Skin lightening and sebum normalization are among the useful cosmetic functions of potassium azeloyl diglycinate, a soluble derivative of azelaic acid.

A. Kramer, T. Bernig, G. Kampf, **Clinical double-blind trial on the dermal tolerance and user acceptability of six alcohol-based hand disinfectants for hygienic hand disinfection**, Journal of Hospital Infection, 2002, 51: 114-120

Six commercially available available alcohol-based hand rubs (AHD 2000, Desderma, Muscasept A, Manorapid (Poly-Alkohol, Spitacid, and Sterillium)) were investigated in a clinical double-blind trial involving 10 participants who had no previous experience of using hand rubs (Group 1) and seven who had substancial professional experience of using hand rubs (Group 2, viro laboratory staff).

M. Ghyczy, V. Vacata, **Phosphatidylcholine and Skin Hydration,** "Skin Moistarization", Cosmetic Science and Technical Series Vol. 25, ed. by J. Leyden, Marcel Dekker Inc., New York, 2002

Phosphatidylcholine (PC) is the most abundant phospholipid in animal cells. It possesses an intrinsic hydration force, and its metabolites are essential osmoprotectants. Phosphatidylcholine composed of saturated fatty acids (hydrogenated PC; HPC) possesses physical properties which are comparable with those of the components of the skin permeability barrier.

D. Black, A. del Pozo, Y. Gall **Evaluation of surfactant effects on stratum corneum using squamometry, transepidermal water loss measurements and the sorption-desorption test**, The Essential Stratum Corneum, chapter 41, ed. by R. Marks, J.-L. Lévêque, R. Voegeli, Martin Danitz Ltd., London, 2002.

Overexposure to certain cleansers will result in skin damage, manifested by impaired barrier function, leading to irritant reactions with prolonged use. Evaluation of barrier function deterioration is thus a useful indicator of early stratum corneum (SC) damage, and may help to predict potential skin irritancy for these products.

A. O. Barel, **Product Testing: Moisturizers**, In P. Elsner, et al. (Edts): Bioengineering of the Skin, CRC Press, 2002, Chapter 21

The presence of an adequate amount of water in the stratum corneum is important for maintaining the following properties of the skin: general appearance of a soft, smooth, flexible, and healthy-looking skin; and an intact barrier function allowing a slow rate of transepidermal water loss (TEWL) under dry external conditions, which are frequently encountered.

M. Egawa, M. Oguri, T. Hirao, M. Takahashi, M. Miyakawa, **The evaluation of skin friction using a frictional feel analyzer,** Skin Research & Technology, 2002 Feb;8(1): p. 41-51

Background/Aims: Sensory evaluation is an important factor for cosmetic products. Several devices for the measurement of sensory properties have been developed in recent years. The objective here is to measure skin surface friction using these devices and examine the correlation with other physiological parameters in order to evaluate the potential of physical measurement of tactile sensation. Methods: A KES-SE Frictional Analyzer, a commercial device for measurement of surface frictional characteristics, was used in this study. An arm holder was added to this device for measurement on the human forearm. The frictional coefficient (MIU) and its mean deviation (MMD) were used as the parameter to indicate surface friction. The moisture content in the stratum corneum was measured with a Corneometer CM825, the transepidermal water loss with a Tewameter TM210, the viscoelastic properties of the skin with a Cutometer SEM575 and the skin surface pattern by observing the negative replica using silicon rubber. Results: The MIU was not influenced by load; however, it was increased due to water application on the skin. The relationship between MIU and the moisture content in the stratum comeum, between MMD and skin surface pattern and between MMD and viscosity of both normal human forearm skin and SDS (sodium dodecyl sulfate)-induced dry skin were confirmed by statistical analysis in a test on human subjects. There was also a correlation between either MIU or MMD and sensory evaluation in the morning after the application of moisturizing products. Human skin surface friction was measured by using a KES-SE Frictional Analyzer. Conclusion: Judging from the correlation between either MIU or MMD and sensory evaluation, we considered this instrumental analysis to be useful for evaluating the tactile impression of human skin.

S. Schliemann-Willers, W. Wigger-Alberti, P. Kleesz, R. Grieshaber, P. Elsner, **Natural vegetable fats in the prevention of irritant contact dermatitis,** Contact Dermatitis, January 2002, Vol. 46 No. 1

Chronic irritant contact dermatitis (ICD) is one of the most pressing problems in occupational medicine and is common in the food processing industry. To date, protective creams that fulfil the special requirements in the foodstuffs industry have not been available.

C. Hun Huh, K. Il Seo, S. Duck Kim, J. Han, H. Chul Eun, **Biophysical changes after mechanical injury of the stratum corneum in normal skin,** Contact Dermatitis, January 2002, Vol. 46 No. 1

Scrubbing off the stratum corneum with a rough towel after soaking in warm water is a bathing custom unique to Korea. However, Korean dermatologists have advised against this practice due to the potential harm that it may cause, though there is little data to support this advice.

D. Swatschek, W. Schatton, J. Kellermann, W.E. Müller, J. Kreuter, **Marine sponge collagen: isolation, characterization and effects on the skin parameters surface-pH, moisture and sebum**, Eur J Pharm Biopharm, 2002 Jan;53(1): p. 107-113

A previously described isolation procedure for collagen of the marine sponge Chondrosia reniformis Nardo was modified for scaling-up reasons yielding 30% of collagen (freeze-dried collagen in relation to freeze-dried sponge). Light microscope observations showed fibrous structures. Transmission electron microscopy studies proved the collagenous nature of this material: high magnifications showed the typical periodic banding-pattern of collagen fibres. However, the results of the amino acid analysis differed from most publications, presumably due to impurities that still were present. In agreement with earlier studies, sponge collagen was insoluble in dilute acid mediums and all solvents investigated. Dispersion of collagen was facilitated when dilute basic mediums were employed. The acid-base properties of the material were investigated by titration. Furthermore, a sponge extract was incorporated in two different formulations and compared with their extract-free analogues and a commercially available collagen containing product with respect to their effects on biophysical skin parameters. None of the preparations had a noticeable influence on the physiological skin surface pH. Skin hydration increased only slightly. However, all tested formulations showed a significant increase of lipids measured by sebumetry.

L.A. Young, J.C. Dodge, K.J. Guest, J.L. Cline, W.W. Kerr, **Age, Breed, Sex and Period Effects on Skin Biophysical Parameters for Dogs Fed Canned Dog Food**, American Society for Nutritional Sciences, J. Nutr. 132: 1695S–1697S, 2002

Noninvasive skin biophysical methods have been used in clinical and experimental dermatology for humans (1). The application of some of these methods has also been investigated for companion animals (2–9). Skin biophysical measurements have been reported to be affected by age, breed, sex, site of measurement, animal excitement, evaluation (time) period or season, gonadal status and even coat color (9). The objective of this study was to look at the effect of age, breed, sex and time period on skin biophysical parameters for dogs fed a nutritionally complete and balanced canned food for adult dogs.

T. Sato, W. Sakamoto, W. Odanaka, K. Yoshida,O. Urishibata, **Clinical effects of dietary hyaluronic acid on dry, rough skin**, Aesthetic Dermatology Vol . 12: p. 109-120, 2002

A double-blind feeding study was carried out wherein 35 subjects who frequently suffer from dry, rough skin were given either a dietary hyaluronic acid supplement (120 mg/day) or a placebo for comparison for a 4-week period. The results have clarified the following: (1) Measurements of skin moisture showed that ingested hyaluronic acid acted to increase moisture content. (2) Microscopic skin surface analysis showed that ingested hyaluronic acid acted to increase skin smoothness and to ameliorate wrinkles. (3) Significant increases in blood hyaluronic acid concentration were found in both the hyaluronic acid and placebo ingestion groups, but the percentage increase was higher in the hyaluronic acid group. Other clinical laboratory test results indicated no clinically significant changes. It has been shown from the above that ingestion of hyaluronic acid is effective at increasing moisture retention and smoothness in the skin, and there are also no safety problems.

M. Zondlo Fiume, **Final Report on the Safety Assessment of Lecithin and Hydrogenated Lecithin**, International Journal of Toxicology, 20 (Suppl. 1), Cosmetic Ingredients Review: p.21–45, 2001

Lecithin is a naturally occurring mixture of the diglycerides of stearic, palmitic, and oleic acids, linked to the choline ester of phosphoric acid, commonly called phosphatidylcholine. Hydrogenated Lecithin is the product of controlled hydrogenation of Lecithin. Bilayers of these phospholipids in water may form liposomes, a spherical structure in which the acyl chains are inside and not exposed to the aqueous phase. Lecithin and Hydrogenated Lecithin are used in a large number of cosmetic formulations as skin conditioning agents-miscellaneous and as surfactant-emulsifying agents. Hydrogenated Lecithin is also used as a suspending agentnonsurfactant. Historical data on concentration of use of Lecithin reveals that 0.1% to 1.0% is the concentration range most frequently seen, with concentrations up to 50% reported for two moisturizing products. A solution of 65% Lecithin is currently reported to be used at concentrationsup to 3% in cosmetics.Nonocclusive application of Lecithin-containing liposomes to murine skin resulted in 30% penetration to the subdermis. In piglet skin, the same application resulted in 99% accumulating in the stratum corneum. In general, liposomes are considered effective in capturing other compounds inside their spherical structure and delivering any such captured compound through the skin barrier. As a result, caution should be exhibited in formulating cosmetic products that contain these ingredients in combination with other ingredients whose safety is based on their lack of absorption or where dermal absorption is a concern. Lecithin is virtually nontoxic in acute oral studies, short-term oral studies, and subchronic dermal studies in animals. Lecithin is not a reproductive toxicant, nor is it mutagenic in several assays. In an oral carcinogenicity study, brain neoplasms were found in mice exposed to Lecithin. In a subcutaneous carcinogenicity study, no neoplasms were found in mice and rats exposed to Lecithin. Adverse reactions to Lecithin in a metered-dose inhaler have been reported. Lecithin and Hydrogenated Lecithin were generally nonirritating and nonsensitizing in animal and human skin. Based on the available data, Lecithin and Hydrogenated Lecithin are safe as used in rinse-off cosmetic products; they may be safely used in leave-on products at concentrations up to 15%, the highest concentration tested in clinical irritation and sensitization studies; but the safety of use could not be substantiated in cosmetic products likely to be inhaled. Because of the possibility of formation of nitrosamines, these ingredients should not be used in cosmetic products in which *N*-nitroso compounds may be formed.

G. Hillebrand, M. J. Levine, K. Miyamoto, **The Age-Dependent Changes in Skin Condition in African Americans, Asian Indians, Caucasians, East Asians, and Latinos,** IFSCC Magazine, October/December 2001, Vol. 4, No. 4

Understanding the similarities and differences in skin characteristics as a function of age, race and geography should aid in the development of skin care products that better meet consumers' skin care needs around the world.

K.-D. Neander, F. Hesse, **The role of cream mousses in the treatment of dry skin in patients with diabetes mellitus,** Podology, LII, Issue 10/2001, p. 19-21

Diabetics are well known for their frequent struggles with the problem of “dry skin”. The diverse and unpleasant effects to which these patients are exposed range from pruritus to skin inflammations, particularly in the interdigital spaces of the feet. As has been demonstrated in a variety of studies, lack of moisture is at the heart of this problem.

D. Perrenoud, D. Gallezot, G. van Melle, **The efficacy of a protective cream in a real-world apprentice hairdresser environment**, Contact Dermatitis, Vol. 45 No. 3, September 2001
The object of this study was to compare the protective action of a new barrier cream to its vehicle in the context of hand irritation of apprentice hairdressers caused by repeated shampooing and exposure to hair-care products.

I. Le Fur, A. Reinberg, S. Lopez, F. Morizot, M. Mechkouri, E. Tschachler, **Analysis of Circadian and Ultradian Rhythms of Skin Surface Properties of Face and Forearm of Healthy Women**, J Invest Dermatol, Vol. 117, NO. 3 September 2001, p. 718–724

Biologic rhythms of cells and organisms are well documented and have been extensively studied at the physiologic and molecular levels. For the skin, many circadian changes have been investigated but few systematic studies comparing skin at different body sites have been reported. In this study we investigated facial and forearm skin circadian rhythms in eight healthy Caucasian women. Noninvasive methods were used to assess skin capacitance, sebum excretion, skin temperature, transepidermal water loss, and skin surface pH on fixed sites of the face and the volar forearm during a 48 h span under standardized environmental conditions. Using the cosinor or ANOVA methods, circadian rhythms could be detected for sebum excretion (face), transepidermal water loss (face and forearm), skin temperature (forearm), pH (face), and capacitance (forearm). No circadian rhythmicity was found for the other biophysical parameters. In addition to the 24 h rhythm component, rhythms with periods of 8 h were found for sebum excretion, of 8 and 12 h for transepidermal water loss (face and forearm), and of 12 h for skin temperature (forearm). Our study confirms that rhythms of skin surface parameters are readily measurable and that these rhythms differ between different sites. Furthermore, we demonstrate for the first time that, for transepidermal water loss (face and forearm), sebum excretion, and skin temperature (forearm), in addition to circadian rhythms, ultradian and/or component rhythms can be detected.

M. Egawa, T. Hirao, M. Takahashi, **The measurement of skin friction using a frictional feel analyser**, Congress Stratum Corneum III, Basel, September 2001

Sensory evaluation is an important factor for cosmetic products. Several devices for the measurement of sensory properties have been developed in the recent years.

G.G. Hillebrand, K. Miyamoto, B. Schnell, M. Ichihashi, R. Shinkura, S. Akiba, **Quantitative evaluation of skin condition in an epidemiological survey of females living in northern versus southern Japan,** J Dermatol Sci. 2001 Aug, 27 Suppl 1: p .S42-52

Image analysis and biophysical methods were used to compare the skin condition of a group of females ranging in age from 5 to 65 years who had lived all of their lives in either Kagoshima (n=300), located in southern Japan, or Akita (n=302), located in northern Japan. Kagoshima annually receives approximately 1.5 times more solar UVB radiation than Akita. The methods used and corresponding skin parameters reported in this survey were: high resolution digital imaging followed by computer analysis of facial images for facial skin wrinkling and hyperpigmentation; silicone skin replicas followed by Moiré interferometry for facial skin surface roughness (texture); the Minolta Chromameter for skin color (L*a*b*) on sun-exposed (forehead) and sun-protected (upper inner arm) skin sites; the Corneometer for skin capacitance (hydration) on the cheek and ventral forearm; the Sebumeter for sebum excretion rate on the forehead; and the Minolta Spot Thermometer for skin temperature on the upper cheek. Compared with Japanese women living in Akita, Japanese women living in Kagoshima had significantly longer facial wrinkles, higher number of wrinkles, larger hyperpigmented spots, higher number of spots, rougher facial skin texture, more yellow foreheads and upper inner arms, darker foreheads, and less stratum corneum hydration in the cheeks and arms. When compared on an age-for-age basis, the average 40-year-old Kagoshima women has the same level of facial wrinkling as a 48-year-old Akita women, a delay of 8 years for living in the northern latitude. For facial hyperpigmentation, the delay is 16 years; the average 40-year-old Kagoshima women has the same level of facial hyperpigmentation as a 56-year-old Akita women. The results further testify to the skin damaging effects of sun exposure and may be useful in public health education to promote everyday sun protection.

K. de Paepe, K. Janssens, J.P. Hachem, D. Roseeuw, V. Rogiers, **Squamometry as a screening method for the evaluation of hydrating products**, Skin Research and Technology, Vol.7, No. 2,

August 2001

Squamometry is a combination of sampling corneocytes by adhesive coated discs following by colour measurements after staining the cells. In this study, the correlation between stratum corneum (SC) hydration and scaling was investigated using capacitance measurements and squamometry, respecitively.

M. Gloor, B. Wasik, W. Gehring, **Hat ein Hamamelis-Destillat eine entzündungshemmende Wirkung?,** H+G Zeitschrift, Ausgabe 7/8-2001

Fragestellung: Beeinflußt der Wirkstoff Hamamelis die irritative Reaktion der Haut bei experimentellen Irritationsmodellen? Versuchsanordnung: Bei 15 Versuchspersonen wurde der Natriumlaurylsäure (NLS)-Irritationstest an jeweils 4 Versuchsstellen beider Unterarme volar durchgeführt. Es wurde einmal täglich 1% NLS 30 Minuten lang appliziert. Nach Beendigung der NLS-Einwirkung wurden die Prüfpräperationen aufgetragen. An den jeweils 4 symmetrischen Versuchsstellen wurden geprüft.

H. Löffler, H. Dickel, O. Kuss, T. Diepgen, I. Effendy, **Characteristics of Self-estimated Enhanced Skin Susceptibility,** Acta Derm Venereol 2001; 81: 343–346

A considerable number of people complain about enhanced skin sensitivity. The aim of this study was to investigate the characteristics of subjective statements and objective measurable parameters in subjects with self-estimated enhanced skin susceptibility. Four-hundred-and-twenty volunteers completed a questionnaire form with a self-estimation of skin susceptibility, possible triggering factors and other skin problems. In addition, basal values of transepidermal water loss, cutaneous blood flow and skin hydration were measured.

T.H. Kim. E.H. Choi, Y.C. Kang, S.H. Lee, S.K. Ahn, **The Effects of Topical α-Hydroxyacids on the Normal Skin Barrier of Hairless Mice**, British Journal of Dermatology 4011, 2001

α-hydroxyacids (AHA) such as glycolic acid and lactid acid have recently been used in cosmetic and dermatological formulations.

T. Dietz, **Two Novel O/W Emulsifiers with Complementary Properties**, Cosmetic Science Conference 2001, Düsseldorf

The two novel O/W emulsifiers ABIL® Care 85 and TEGO® Care CG 90 are introduced.

M. Ghyczy, W. Gehring, V. Vacata, B. Gertchen-Ohligschläger, **Normalisation of Skin Humidity in SLS Pertubed Human Skin In Vivo by Gel State Phosphatidylcholine,** Cosmetic Science Conference 2001, Düsseldorf

The central role of skin moisturizers in stratum corneum (SC) for the healthy skin was established in the last decade.

P. Agache, S. Mary, P. Muret, A.M. Matta, P. Humbert, **Assessment of the Water Content of the Stratum Corneum Using a Sorption-Desorption Test,** Dermatology 2001

Various instruments based on electrical properties of the skin are currently used to assess the stratum corneum (SC) hydration state or water holding capacity. However, no direct relation with the quantity of water measured is provided. The objective of the present study was to calibrate the Corneometer, a device displaying electrical-capacitance-related values (which reflect the skin hydration state), and the amount and behaviour of the water taken up by the outer part of the SC during a sorption-desorption test.

I. Castiel-Higounenc, R. Jourdain, C. Queille-Roussel, C. Ferraris, P. Bastien, R. Schmidt, O. de Lacharrière, **Is barrier function disrupted in atopic xeroxis?,** Poster for SFIC,Lausanne, July 2001

Atopic dermatitis (AD) is thought to be accompanied by alterations of the epidermis including reduction in water content and an augmentation in the transepidermal water loss (TEWL). In addition, studies have suggested that qualitative and quantitative differences exist in certain epidermal lipids of the intercorneocyte spaces of atopic patients, as compared to healthy subjects. Recent studies, however, have challenged these findings and indicate that the results obtained are highly dependent upon the skin zone evaluated as well as the clinical characteristics of the subjects being studied. The purpose of the work presented here was to more thoroughly characterize the water content and the barrier function of the cutaneous barrier of atopic xerosis patients as well as to analyze the type and quantity of intercorneocyte lipids found in the epidermis of these same patients.

A. Castro, A. Vargas, **Formulacao de Sabonete Liquido com Productos Naturais: Medida de sua**

Efectividade, Cosmetics & Toiletries (Portugese), Vol. 13 No 6, p. 93, 2001

P.-G. Sator, J.B. Schmidt, M.O. Sator, J.C. Huber, H. Hönigsmann, **The influence of hormone replacement therapy on skin ageing. A pilot study,** Maturitas 39 (2001) 43-55

We studied the effect of hormonal treatment on skin ageing in menopausal women. Twenty-four patients without hormone treatment for at least 6 months were included. Patients were assigned to three therapy groups: 1, oestrogen only 2. transdermal oestrogen and progesterone.One group without therapy was included as a control group. Treatment was continued for 6 months. Three patients, one from group 2 and two from group 3, discontinued therapy before the study endpoint. The following skin parameters were measured at monthly intervals during treatment.

*H. Lambers, H. Pronk***, Biophysical Methods for Stratum Corneum Characterization**, in T. Förster (Editor): Cosmetic Lipids and the Skin Barrier, 2001 by Marcel Dekker

There is no doubt that the application of cosmetic lipids has many positive effects on the structure and function of the skin. These effects are pleiotropic, caused either by direct interaction with the epidermis, particularly the stratum corneum, or indirectly, by influencing the physiologic, homeostatic condition of the skin.

S. Sustmann, **Body care for dry skin**, Scientific Study Eubos Med, 2001

Dry skin is a widespread phenomenon of our time and is characterized by a deficiency of fat and moisture.

S. Sustmann, **Face care for sensitive and particularly dry skin**, Scientific Study Eubos Med, 2001

Daily influences, such as stress and the effects of weather, attack our skin and cause damage that is initially slow and scarcely detectable.

H.-P. Nissen, S. Sustmann, **Body care for normal to oily and sensitive skins**, Scientific Study Eubos Med, 2001

Body cleansing is particularly important in modern civilization, with its emphasis on hygiene, and it makes an important contribution to individual well-being.

A. Berghi, E. Bauza, G. Oberto, D. Pyronel, N. Domloge, **In vivo Studies of Phytosterol Sulfate Effect on human skin hydration and barrier function,** Society for Investigative Dermatology, May 2001

Phytosterol Sulfate (PS) is a new sterol and homologue to cholesterol sulfate an essential component in the human epidermis. Sterols are critical for epidermal barrier function; they mediate lipid synthesis and stratum corneum formation, desquamation, and membrane hydration. They also serve as an important precursor for Vitamin D.

M. Paye, Y. Cartiaux, V. Goffin, G.E. Piérard, **Hand and Forearm Skin: Comparison of their Respective Responsiveness of Surfactants**, Skin Research and Technology, Vol. 7, No. 2, May 2001

Skin compatibility of detergent products is usually evaluated using predictive tests where products are applied on the back of the forearm of the volunteers, even if these products come more readily into contact with the consumers' hands.

J. Djordjevic, G. Vuleta, H. Zhai, H.I. Maibach, J. Milic, **Effect of the Oil Phase of O/W Emulsions with Vitamin E Acetate on Skin Moisutre Content and Skin Barrier Function**, IFSCC Conference, Stockholm/Sweden, May 7-9, 2001

Three cosmetic emulsions with vitamin E acetate (5%) were formulated using polymeric emulsifier, with different type but same amount of emoillient oil (25 %).

H.M. Ribeiro, J. Morais, L. Rodrigues, **Long-term Influence of Polymers on the Biological Properties of the In Vivo Normal Human Skin**, IFSCC Conference, Stockholm/Sweden, May 7-9, 2001

Cosmetic formulations are actually included into the normal skin care daily habits and often aim to contribute to the normal skin physiology.

A.O. Barel, R. Lambrecht, P. Clarys, B.M. Morrison JR., M. Paye, **A Comparative Study of the Effects on the Skin of a Classical Bar Soap and a Syndet Cleansing Bar in Normal Use Conditions and in the Soap Chamber Test**, Skin Research and Technology, Vol. 7, No. 2, May 2001

The skin irritation potential of a body cleansing product is intended to be used at home with repetitive and brief contact with the skin.

G. Pellacani, S. Seidenari, **Water sorption-desorption test and moisture accumulation test for functional assessment of atopic skin in children**, Acta Derm Venereol. 2001 May;81(2): p. 100-3

Sorption-desorption and moisture accumulation tests are simple and quick methods for the in vivo functional analysis of stratum corneum hydration kinetics. The aim of this study was to evaluate the hydration dynamics of the uninvolved and affected skin of children with atopic dermatitis and to compare them with the skin of healthy children. The study investigated 45 children. The dynamic tests were performed using the corneometer CM820. Numerical parameters were calculated. With the sorptiondesorption test, eczematous skin showed lower water accumulation during the sorption phase, whereas water was released more slowly during the desorption phase. With the moisture accumulation test, increases in water accumulation velocity and in water accumulation were observed in atopic children. Dynamic tests showed that the stratum corneum of unaffected atopic skin was less hydrated but more easily hydratable than normal skin. Conversely, despite a lower absorption capability, eczematous skin showed a greater avidity to retain water. New functional parameters (water-sorption capacity and accumulated water decay) are proposed to describe more precisely the hydration kinetics of eczematous skin.

M. Lodén, W. Wessman, **The influence of a cream containing 20% glycerin and its vehicle on skin barrier properties,** Int J Cosmet Sci. 2001 Apr;23(2): p. 115-9

Glycerin is widely used in cosmetics and well as in pharmaceutical formulations, mainly as humectant. In vitro studies have shown glycerin to prevent crystallization of stratum corneum model lipid mixture at low room humidity. Whether this may affect the skin barrier function during repeated application of glycerin in a cream base to normal skin is not known. Therefore, the influence of a cream containing 20% glycerin was compared with its placebo cream in a bilateral, double-blind study on 17 healthy volunteers. The effect was evaluated as influence on hydration with a corneometer and on skin barrier function. Skin barrier function was assessed as permeability to water with an evaporimeter (transepidermal water loss; TEWL) and as sensitivity to an irritating surfactant by measuring the biological response (measured as TEWL and skin blood flow). Ten days treatment of normal skin with 20% glycerin significantly increased skin corneometer values, indicating an increased hydration. However, our study failed to show an influence of glycerin on human skin, in terms of TEWL and skin sensitivity to SLS-induced irritation.

C. Fuchs, C. Heinemann, S. Schliemann-Willers, P. Elsner, **Wirksamkeitsnachweis eines Pflegeproduktes**, Kosmetische Medizin 4/2001

Berichtet wird über eine dreiwöchige Anwendungsbeobachtung eines Pflegeproduktes, in welcher der Einfluss des Produktes auf die Hornschichtfeuchtigkeit an 20 Probanden mit atopischer Hautdisposition und trockener, irritierbarer Haut in form einer Kurz- und Langzeitstudie geteste wurde.

G.G. Hillebrand, B. Schnell, K. Miyamoto, M. Ichihashi, R. Shinkura, S. Akiba, **The Age-Dependent Changes in Skin Condition in Japanese Females Living in Northern Versus Southern Japan**, IFSCC Magazine, Vol. 4, No. 2, April/June 2001

Image analysis and biophysical methods used to compare skin conditions of a group of females ranging in age from 5-65 years who have lived all of their life in either Kagoshima prefecture (n=300) located in southern Japan or Akita prefecture (n=302), located in Nothern Japan.

W. Gehring, M. Gloor, **Der Effekt von Dexpanthenol bei experimentell geschädigter Haut**, (The effect of dexpanthenole in experimentally damaged skin). H+G, Band 76, April 2001-05-21

Im Rahmen einer randomisierten vehikelkontrollierten, doppelbilinden Studie wurde Dexpanthenol in zwei unterschiedlichen lipophilen Vehikeln im repetitive Waschtest untersucht.

C. Fox, **Literature and Patent Review: Analytical and Test Methodologies,** 1990-2000, Part I. Cosmetics & Toiletries, Vol. 116, No. 4, April 2001-05-21

This article reviews some of the important methodologies published during the past ten years on the subject of cosmtics and toiletries.

T.-H. Oh, J.-H. Jeong, K.-H. Jang, **The Comparison of Shampoos for Skin Hydration by Measurement of Epidermal Capacitance in Normal Canine Skin**, *J Vet Clin* 18(3): p. 206-210, (2001)

Various commercial shampoos were frequently prescribed for dermatologic therapy in small animal practice. Skin hydration affected by the shampoos, however, was not evaluated routinely. In order to evaluate the skin hydration for the exact prescription of shampoos method to measure skin hydration of shampoos are needed. This study was undertaken to evaluate the skin hydration effect of shampoo on canine skin using Comeometer. Five healthy dogs were applied with 7 commercial

shampoos: Humilac, Sebocalm, Sebolytics, Etiderm, Benzoyl peroxide, HyLyt and Zn-7 Derm. Skin hydrations were evaluated by measurement of electrical capacitance by Comeometer. A statistically significant increase in skin hydration was found 17($p< 0.05$) and 77 minutes ($p<0.01$) after application of Humilac indicating a humidifying effect of this product. A statistically significant decrease in skin hydration was found for the Benzoyl peroxide after 77 minutes ($p < 0.05$). No statistically significant differences between the other shampoos were found. None of the products tested had any negative effect on the skin barrier function. The Comeometer was found useful for detecting skin hydration to shampoos and considered as a simple and useful tool for prescription of various shampoos routine practice.

H. Song, **The Effects of Inositol Extracted from Rice on the Skin**, Personal Care Ingredients Asia, March 2001

Inositol, which belongs to the vitamin B group, is a water soluble crystaline compound.

K. Mijyajmoto, **Quantitative comparison of the differences in facial skin aging and Skin Biophysical Properties in Japanese femals living in south and north part of Japan, and global research expansion on Caucasians, East Asians, Indian Asian and Latinos**, 5th ASCS, March 2001

Avoidance of sun exposure has been clearly recognized as the best way to prevent premature skin aging (e.g. wrinkling and age spots) and more severe neoplastic disease (squamous and basal cell carcinoma and malignant melanoma).

L. Rigano, F. Distante, A. Bonfigli, E. Berardesca, **Functional map of "normal" and "sensitive" facial skin for trans-epidermal water loss**, **capacitance and microcirculation,** 5th ASCS March 2001

Different body sites are reported to show significant variations in skin biophysical and functional properties such as the response to locali applied stimuli or substances, including cosmetic products.

E. Azizah, T. Rosemiarti, C. Weki, R.I.S. Tranggono, **Comparative Study of Several Whitening Agents in Cosmetic Products**, 5th ASCS March 2001

Melanin is the main factor determining skin color, which provide protection against UV irradiation. An abnormal increase in the amount of melanin in the epidermis is the main cause of hyperpigmentation due to several factors such as aging, pregnancies, endocrine disorders, sexual hormone treatments, sunlight bums, etc. Some pharmaceutical agents such as arbutin, kojic acid, vitamin C and its derivatives have been used as whitening agents, which control the number of melanin by inhibiting melanin production in melanocytes, because of their low toxicity to melanocytes. This study was aimed to compare several whitening agents in the same base creams. Twelve healthy volunteers were involved in the study; each received 4 different types of whitening creams. Two types of creams were used on each side of face and two others on the outer of each arm. Subject were evaluated for the number of melanin and erythema (with Mexameter MX 16), skin lightness and skin color index (with Chromameter CR 300), and skin moisture level (with Corneometer CM 820), over 12 weeks. The result obtained show that the cream contained 3% Arbutin and 0.005% Licorice Extract was better in decrease the number of melanin (3.41%), while the cream contained 3% Ascorbyl Phosphate Magnesium and 0.005% Licorice Extract was better in increase skin lightness (4.32%).

*A. Msi, T. Rosemiatri, E. Azizah, R.I.S. Tranggono***, Comparison Study of Single and Multi Alpha Hydroxy Acids in Decreasing the Number of Melanin**, 5th ASCS March 2001

Alpha Hydroxy Acids (AHAs) are a group of organic acids that play a specific role in the cycle of carbohydrate and other metabolic pathways.

M.K. Park, S.C. Ma, J.H. Kim, H.B Pyol, **Study of Preparation of Sodium Chloride-Free w/s Emulsion Using NFM, Chitin Derivatives and the Other**, 5th ASCS March 2001

In general a w/o or o/w emulsion is stabilized by sodium chloride which is hydrated by and increases electric conductivity of aqueous solutions.

Assessing and managing risks at work from skin exposure to chemical agents, HSE Books, Guidance for employers and health safety specialists, 2001, p. 23

D. Iliev, U. Hinnen, P. Elsner, **Skin Bioengineering Methods in Occupational Dermatology**, Skin Bioengineering Vol. 26, March 2001

Measruing biophysical properties of the skin is not only useful to study cutaneous physiology and pathology but may also be of value for the prediction of eczema risk, for the detection of subclinical eczema and for therapy control in occupational dermatology.

M. Rohr, K.-H. Schrader, **Climatic Influence on Cosmetic Skin Parameters.** Skin Bioengineering Vol. 26, March 2001

A high degree of standardization is required in order to quantify the effects of cosmetics. As the following discussion will show, it is not only normal standardization procedures, such as acclimatization of volunteers in special air-conditioned laboratories, which have to be taken into consideration when interpreting objective and subjective cosmetic parameters, but also the effect of the actual climate during the application phase and especially during the days of measurement.

G. Pellacani, B. Belletti, S. Seidenari, **Evaluation of the Short-Term Effects of Skin Care Products: A Comparison between Capacitance Values and Echographic Parameters of Epidermal Hydration,** Skin Bioengineering, Vol. 26, March 2001

The hydration kinetics of the epidermis is influenced by various environmental conditions and controlled by the organism. Since the stratum corneum receives water from within the body and from the environment. Different techniques have been employed to detect and measure surface changes after application of skin care products, to define the mechanisms of water binding in the stratum corneum and to objectively measure the hydration effects of moisturizers.

R. Girard, K. Amazian, J. Fabry, **Better compliance and better tolerance in relation to a well-conducted introduction to rub-in hand disinfection**, J Hosp Infect., 2001 Feb;47(2): p. 131-7

The aim of the study was to demonstrate that the introduction of rub-in hand disinfection (RHD) in hospital units, with the implementation of suitable equipment, drafting of specific protocols, and training users, improved compliance of hand disinfection and tolerance of user's hands. In four hospital units not previously using RHD an external investigator conducted two identical studies in order to measure the rate of compliance with, and the quality of, disinfection practices, [rate of adapted (i.e., appropriate) procedures, rate of correct (i.e., properly performed) procedures, rate of adapted and correct procedures carried out] and to assess the state of hands (clinical scores of dryness and irritation, measuring hydration with a corneometer). Between the two studies, the units were equipped with dispensers for RHD products and staff were trained. Compliance improved from 62.2 to 66.5%, quality was improved (rate of adapted procedures from 66.8% to 84.3%, P > or = 10(-6), rate of correct procedures from 11.1% to 28.9%, P > or = 10(-8), rate of adapted and correct procedures from 6.0 to 17.8%, P > or = 10 (-8)). The tolerance was improved significantly (P > or = 10(-2)) for clinical dryness and irritation scores, although not significantly for measurements using a corneometer. This study shows the benefit of introducing RHD with a technical and educational accompaniment.

Y. Yoshizawa, H. Tanojo, S.J. Kim, H.I. Maibach, **Sea Water or its Components Alter Experimental Irritant Dermatitis in Man**, Skin Research and Technology, Vol. 7, No. 1, February 2001

Ocean bathing has been considered “healthy” for skin, but its efficacy remains testimonial in nature.

T. Reuther, S.C. Behrens-Williams, M.Kerscher, **Untersuchungen zur Wirkung von Mometasonfuroat-Fettcreme auf die epidermale Barriere**. H+G, Supplement 2/2001

J.S.C. English, J. Ratcliffe, H.C. Williams, **Irritancy of industrial hand cleansers tested by repeated open application on human skin,** Contact Dermatitis, Vol. 40, No. 2

The aim of this study was to compare the irritancy potential of 2 industrial hand cleansers with a brand leader of “mild” children’s hand cleanser and with an emollient.The products were tested using repeated open application tests (ROATs) on the forearms of 40 subjects. Scoring of signs and symptoms (itching or burning), transepidermal water loss (TEWL) and stratum corneum hydration (Corneometer) evaluated responses.

F. Li, E. Conroy, M. Visscher, R. Wickett, **The ability of electrical measurements to predict skin moisturization. Effects of NaCl and glycerin on short-term measurements**, J. Cosmet. Sci., 52, p. 13-22 (January/February 2001)

Non-invasive methods to evaluate skin hydration by measuring electrical properties are widely used in the cosmetic industry. However, there is still some controversy about factors that affect measurement. For example, concerns have often been expressed about the possible confounding effect of salts, either in the formulation or on the skin. Ionized salts on the skin may increase electrical conductivity and may lead to changes in electrical properties that are not related to increased water content. We have performed a systematic study of the effects of salt, i.e., sodium chloride, and glycerin on the electrical properties of skin as measured by the three most commonly used instruments, the

Nova® DPM 9003, the Corneometer® CM 825, and the Skicon® 200. Formulations containing salt from 0-3% and glycerin from 0-10% were tested for their effects at one and two hours after a single application. Salt lowered the readings in the absence of glycerin and increased the reading in the presence of glycerin. For all three instruments, there was a linear correlation between the measurement and the glycerin level in the presence or absence of salt.

J. Lübbe, C. Ruffieux, G. van Melle, D. Perrenoud, **Irritatives Potenzial des Händedesinfektions-mittels n-propanol auf vorgeschädigter Haut**, H+G, Supplement 1/2001

Die alkoholische Händedesinfektion ist Methode der Wahl zur Vorbeugung der Übertragung nosokomialer Infektionen in Spitälern.

H. Dobrev, **Evaluation of the inhibitory activity of topical indomethacin, betamethasone valerate and emollients on UVL-induced inflammation of means of non-invasive measurements of the skin elasticity,** Photodermatology, Photoimmunology & Photomedicine, January 2001

Topical indomethacin has been reported to inhibit ultraviolet light-induced erythema. The objective of this study wajs to verify this assertion and to compare indomethacin 10% ointment to betamethasone valerate 0.1% ointment, water-in-oil emulsion and oil-in-water emulsion by means of non-invasive skin elasticity measurements.

A. Sirvent, D. Doyen, P. Girard, **The safety and efficacy of cosmetic products**, Personal Care, Jan. 01

To be exported to the entire world, cosmetic products have to satisfy the different regulations of each country.

J.W. Fluhr, H. Dickel, O. Kuss, I. Weyher, T.L. Diepgent, E. Berardesca, **Impact of anatomical location on barrier recovery, surface pH and stratum corneum hydration after acute barrier disruption,** British Journal of Dermatology 2001; 146: p. 770-776

It is not known whether distinct anatomical locations will respond with different recovery rates following acute barrier challenges. To investigate whether barrier parameters differ at five body sites during recovery from acute disruption. Acute barrier disruption was achieved by tape stripping and by acetone extraction of stratum corneum lipids. Transepidermal water loss (to assess barrier function) capacitance (for stratum corneum hydration) and skin surface pH were measured at each of five different body sites in 14 human volunteers. Individual measurements were obtained every 24 h for 96 h. Lipid-rich skin areas (e.g. the forehead) were the most vulnerable to barrier disruption by either method.

N. Vidakovic, M. Primorac, M. Stupar, G. Vuleta, **In Vivo Study: Influence of Polyacrylic Anticellulite Gels on Hydration and pH-Value of the Skin**, SOFW-Journal 11-2000

The effect on hydration and pH-value of the skin has been investigated on 22 female subjects during the thirty-day treatment. The following formulations have been tested: polyacrylic gel with 2% of caffeine, ployacrylic gel with propylene-glycol plant extract of Ivy – 2%, Horse Chestnut – 2%, Seaweed – 1,5%, as well as ployacrylic gel with caffeine and above-mentioned plant extracts.

S. Tamburic, G. Abamba, J. Ryan, **Potencial Umectante do d-α-Tocoferol**, Cosmetics & Toiletries (Edicao em Portugues), Vo. 12, set/out 2000

Produtos umectantes são desenvolvidos com a intenção de melhorar as condições e ….

M.F. Silva, L.B. Silva, P.J. Rolim Neto, D.P. Santana, **Óleo de Babaçu: Novo Adjuvante Lipofilcio**, Cosmetics & Toiletries (Edicao em Portugues), Vo. 12, set/out 2000.

O óleo be babaçu é um óleo vegetal extraído do coco da palmeiera babaçu…

S.M. John, W. Uter, H.J. Schwanitz, **Relevance of Multiparametric Skin Bioengineering in a Prospectively-followed Cohort of Junior Hairdressers**, Contact Dermatitis, Vol.43, No. 3, September 2000

There is conflicting evidence concerning predictors of individual susceptibility to develop irritant contact dermatitis in wet work. A cohort of initially 92 hairdresser apprentices was prospectively followed for 3 years.

H. Dobrev, **In vivo Study of Skin Mechanical Properties in Psoriasis Vulgaris**, Acta Derm. Venerol., 2000; 80, p. 1-5

The aim of this study was to investigate the mechanical properties of the skin in psoriatic plaques before and after treatment with dithranol in clinically uninvolved psoriatic skin in comparison with skin of healthy controls.

P. Wirtz, **Objektive Beurteilung physiologischer Parameter der Haut von an atopischem Ekzem erkrankten Kindern: eine Untersuchung von pHWert, transepidermalem Wasserverlust und Corneometrie an der Haut gesunder und erkrankter Kinder mit klinisch nicht betroffener und mittels lokalem SCORAD differenzierter ekzematöser Haut**, Dissertation zur Erlangung der Doktorwürde der Technischen Universität München, 2000

M. Takahashi, **Recent Progress in Skin Bioengineering and its Application to Evaluation of Cosmetics.** SOFW Journal, September 2000
With the advances in skin bioengineering technology, great progress has been made in the techniques used for testing the efficacy of cosmetics to the skin ranging from the physical properties to the biochemical characteristics of the skin.

S. Herman, **Skin Deep**, Global Cosmetic Industry, September 2000

With a growing ethnic population in the U.S., large and small marketers need to turn their attention to skin-care products.

S.M. John, W. Uter, H.J. Schwanitz, **Relevance of Multiparametric Skin Bioengineering in a Prospectively-Followed Cohort of Junior Hairdressers**, Contact Dermatitits, Vol. 43, No. 3, Sept.2000

There is conflicting evidence concerning predictors of individual susceptibility to develop irritant contact dermatitis in wet work. A cohort of initially 92 hairdresser apprentices was prospectively followed for 3 years. The association between anamnestic and clinical findings, and multiparametric skin bioengineering data (transepidermal water loss TEWL), microcirculation, capacitance, pH, sebum, temperature) was investigated. The observation intervals were 3 months in the 1st year of training and 12 months thereafter.

G. Yosipovitch, A. Maayan-Metzger, P. Merlob, L. Sirota, **Skin barrier properties in different body areas in neonates,** Pediatrics. 2000 Jul; 106(1 Pt 1): p. 105-108

Objective: The aim of the study was to investigate skin barrier function in neonates in different anatomic sites during the first 2 days of life. Design: The study population consisted of 44 healthy full-term newborn infants. Transepidermal water loss (TEWL), stratum corneum hydration (SCH), and skin surface pH were measured in different anatomic sites (forehead, flexor part of forearm, upper back, abdomen, inguinal region, palms, and soles) during the first 10 hours of life and 24 hours later. Measurements were recorded with a Tevameter, a Corneometer, and a skin pH meter with a flat glass electrode. Results were compared with those in 20 healthy adults. Results: TEWL was lower in infants than in adults in the forehead, palms, soles, and higher in the forearms. It was significantly higher on day 1 than on day 2 in the soles, palms, and forearms, and in the forearm, palms, and inguinal region compared with the other anatomic sites. SCH was significantly lower in the infants on the forehead, back, and abdomen, and higher on the forearms and palms; it was significantly higher on the first day of life on the forearms and palms, and lower in the inguinal region. Skin surface pH was significantly higher in the infants in all body sites (>6.6 in most measurements). On day 2, it was significantly lower than on day 1, but still higher than in adults. SCH correlated positively with TEWL in the neonates but not in the adults. None of the variables were related to gestational age, sex, mode of delivery, or body weight. Conclusdions: Changes take place in SCH, water loss, and pH in the first 2 days after birth, suggesting that the stratum corneum barrier is still in the process of adapting to extrauterine life. The significant anatomic variability in TEWL and SCH should be taken into account in evaluating the permeation of skin care products and topical medications in newborns.

J.W. Wiechers, F.J. Groenhof, A. Barlow, **Relative Performance Testing of Formulations: Emollients,** Cosmetics &Toiletries, Vol. 115, No. 7, 2000

Cosmetic formulators select raw materials to be incorporated into their skin-care formulations based on the individual functionality of these ingredients. Some of these materials, such as emulsifiers, are essential to manufacture skin-care products, and other ingredients, such as moisturizers, provide a specific skin-care benefit.

C. Houghton, **New natural oils**, Cosmetic Science & Business 2000

Here we look at a selection of vegetable oils from different sources which have recently come under R&D spotlight.

V. Lambert, I. Le Fur, C. Guinot, F. Morizot, S. Lopez, E. Tschachler, **Comparaison des Parametres Biophysiques Cutanés en Hiver et en Été chez des Femmes Caucasiennes,** IIième Congrès de la Société D'Ingénierie Cutanée, Juin 2000

Les modifications environmentales au cour des saisons fávorisant la survenue de pathologies cutanée mais sont aussi citées par les femmes comme fávorisant l'apparition des signes de sensinilité cutanée.

O. Doucet, L. Ferrero, D. Fouchard, V. Decherf, L. Zastrow, **Description of a new Type of O/W Emulsion Allowing the Formation of Liquid Crystals After Application Onto the Skin. Interest for Creating Intensive and Long Lasting Moisturizer**, XXIst IFSCC Congress 2000, Berlin

Most of the topically-applied products leave onto the skin surface a cream-residue which is of particular importance in the regulation of the bio-disponibility of the active ingredients. Once the spreading phase onto the skin is over, the evaporation of some volatile compounds, such as water, promptly modifies their intial structure.

A. Teglia, A. Mondelli, **Short Term Effects of Hydrophilic Ingredients on the Hydration Parameters of the Stratum Corneum,** XXIst IFSCC Congress 2000, Berlin

Though the real benefit of raising the skin's water content is not fully explained, it is evident to everyone that without an adequeate amount of water, skin displays undesirable perceivable changes (brittleness, flakiness, roughness) and its protective function tends to be impaired.

A. de Castro, **Measurement of the Effectivity of Natural Raw Materials: Soja Protein, Barley, Titanium Dioxide and Zinc Oxide**, XXIst IFSCC Congress 2000, Berlin

Consumer's preference for natural materials, as well some obtained by biotechnology processes instead of animal or chemical origin, in products for skin care, obeys to the fact that on one hand they are looking to avoid possible adverse reactions, and in the other hand, they constitute renewable sources of raw material.

M. Gotsche, R. Dieing, A. Jentzsch, P. Hoessel, W. Schrof, **Investigations of Polymers for Skin Care**, XXIst IFSCC Congress 2000, Berlin

There is a need for improved skin care products due to a demographic shift in the population. A major challenge for the cosmetic chemist in this area is the improvement of skin smoothness and moisturization.

W. van Es-Spiekman, G.W. Lucassen, **Skin Characterization: Human Skin Water Content Versus Lipid Content Measured by Corneometer, Sebumeter and ATR-FTIR Spectroscopy**, XXIst IFSCC Congress 2000, Berlin

Skin characterization methods are important for the cosmetic industry, personal care industry, in pharmacology and dermatology. Water content and lipid content are of special importance because of their crucial role in the barrier function of the skin.

F. Distante, L. Rigano, S. Sirigu, R. D'Agostino, A. Bonfigli, E. Berardesca, **Intra- and Inter-Individual Differences in Facial Skin Functional Properties: Influence of Site and "Skin Sensitivity" for Bioengineering Studies**, XXIst IFSCC Congress 2000, Berlin

Biophysical and functional skin differences according to the body site have been widely reported by non-invasive studies of skin bioengineering in the past years.

J. Brasch, M. Hüttemann, E. Proksch, **Iontophoresis of nickel elicits a delayed cutaneous response in sensitized individuals that is similar to an allergic patch test reaction**, Contact Dermatitis, 2000, Vol. 42, p. 36-41

Wearing of patch test chamber fro 1-2 days is uncomfortable for the patients.

D. Schmid, A. Lang, T. Allgäuer, C. Bayerl, E.G. Jung, **Beurteilung der Veränderung der Hautbeschaffenheit durch die Heilpflanzensäfte Brennnessel und Löwenzahn**, Akt. Dermatol. 2000

Wir führten eine Anwendungsbeobachtung über die Beeinflussung von objektiven und subjektiven Parametern der Hautbeschaffenheit durch die Kombination der Heilpflanzensäfte Brennnessel und Löwenzahn bei gesunden Probandinnen durch. Zehn Probandinnen

(Versuchsgruppe) nahmen über 6 Wochen die Kombination der Heilpflanzensäfte oral ein, gleichzeitig erhielten sie eine standardisierte Körperpflege mit Basiscreme DAC, weitere 10 Probandinnen (Kontrollgruppe) benutzten lediglich die standardisierte Körperpflege mit Basiscreme DAC.

H. Dobrev, **Evaluation of the photoprotective activity of topical indomethacin, betamethasone valerate and emollients by means of non-invasive measurements of the skin elasticity,** Department of Dermatology, Plodiv, Bulgaria

Topical indomethacin has been reported to inhibit ultraviolet light-induced erythema.

H. Dobrev, **Treatment of psoriasis vulgaris with hydrocolloid occlusive dressins in combination with betamethasone dipropionate 0.05% cream**, 7th National Congress of Dermatology and Venereology, May 2000

In the present preliminary study we report comparative results regarding a new method, used for the first time in Bulgaria.

H. Dobrev, **Immediate effects of cosmetic series for men "Karo Royal" on the skin water content and pH**, 7th National Congress of Dermatology and Venereology, May 2000

Six products of cosmetic series for men "Karo Royal" (Alen Mak, Plodiv) were studied.

H. Dobrev, **Assessment of cosmetical products by means of measurements of the epidermal water content and residual lipid film on skin surface,** 7th National Congress of Dermatology and Venereology, May 2000

The aim of the present study was to compare the moisturizing effect of six emulsions by means of skin capacitance measurements (Corneometer).

A .Markowetz, **Die Pflege reifer Haut,** Dermatologie & Ästhetik 3/2000-10-13 und Haut, Heft 3, Mai 2000

Reife Haut benötigt eine andere Pflege als junge Haut. Es bestehen einige Unterschiede, denen bei der Pflege Rechnung getragen werden muss. Reife Haut ist in der Regel besonders trocken und benötigt daher eine gute Feuchtigkeitszufuhr und eine Verbesserung des Hautgefühls.

W. Baschong, C. Artmann, J. Röding, **Comparison of Skin Moisturization Attained by Supplementing the NMF in the Skin or by Applying Water Binding Molecules on the Skin Surface**, SOFW April 2000

Skin moisture can principally be improved either by hydrophilic substances binding water on the skin surface (humectants), or by enriching the natural moisturizing factor (NMF) of the skin.

J. Lübbe, D. Perrenoud, **Skin Irritancy of Alcoholic Skin Disinfectants,** 13th ISBS Jerusalem, March 2000 and Skin Research and Technology, Vol. 6, No. 3, August 2000 and Skin Research and Technology, Vol. 6, No. 3, August 2000

Irritant contact dermatitis (ICD) of the hands is a recognized problem in health care workers (HCW) exposed to disinfectants.

J.W. Fluhr, O. Kuss, T. Diepgen, S. Lazzerini, A. Pelosi, E. Beradesca, **Testing for Irritation with a Multiparametric Approach: Comparison of Eight Parameters and Five Different Irritation Models,** 13th ISBS Jerusalem, March 2000 and Skin Research and Technology, Vol. 6, No. 3, August 2000

The assessment of irritated skin reactions by non-invasive bioengineering methods is widely used.

D. Black, A. Del Pozo, S. Diridollou, J.M. Lagarde, Y. Gall, **Stratum Corneum Barrier Function Assessment Using the Sorption-Desorption Test and Laser Doppler Flowmetry,** 13th ISBS Jerusalem, March 2000 und Skin Research and Technology, Vol. 6, No. 3, August 2000

The Stratum Corneum (SC) serves as a multi-factor protective barrier for the underlying skin whereby any abnormality in this function leads to degenerative changes in this tissue.

E.A. Sagiv, S. Dikstein, **The Efficiency of Humectants as Skin Moisturizers in Presence of Oil.** 13th ISBS Jerusalem, March 2000.

J.W. Fluhr, A. Pelosi, L. Lazzerini, F. Distante, S. Dikstein, E. Berardesca, **Corneocyte Surface Area is Influenced by Hormonal Status in Humans: Assessment with the Noninvasive VIC-Method (Videomicroscopic Imaging of Corneocytes),** 13th ISBS Jerusalem, March 2000

The corneocytes surface area has been studied invasively and non-invasively with different methods in the last decades.

I. Le Fur, C. Guinot, S. Lopez, F. Morizot, V. Lambert, E. Tschachler, **Age-Related Reference Ranges for Skin Biophysical Parameters in Healthy Caucasian Women**, 13th ISBS Jerusalem, March 2000 and 13th ISBS Jerusalem, March 2000 and Skin Research and Technology, Vol. 6, No. 3, August 2000

Knowledge about the variations of skin biophysical parameters is a prerequisite for the interpretation of results of the skin bioengineering studies.

F. Li, E. Conroy, M. Visscher, R. Wickett, **Influence of Formulations Containing Salt and Glycerin on the Electrical Properties of Skin: Correlation Between Single Treatments and Long-Term Results,** 13th ISBS Jerusalem, March 2000 and Skin Research and Technology, Vol. 6, No. 3, August 2000

In recent years, non-invasive methods to evaluate skin hydration by measuring electrical properties have become increasingly popular.

A.M. Matta, P. Muret, P. Humbert, **In Vivo Calibration of the Corneometer CM820 and the Evaporimeter EP1 Servomed for the Assessment of the Water Content of the Upper Part of the Epidermis Using a Water Sorption Desorption Test,** 13th ISBS Jerusalem, March 2000 and Skin Research and Technology, Vol. 6, No. 3, August 2000

Various instruments based on electrical properties of skin, are presently available to assess the hydration state of it, and the different electrical methods have been compared for the evaluation of the hydration state.

A.O. Barel, K. Alewaeters, P. Clarys, **Non-Invasive Bioengineering Study of the Effects on the Human Skin of a Direct Electric Current,** 13th ISBS Jerusalem, March 2000

The effects of a small intensity direct electric current (galvanic current) on the volar forearm skin was examined in vivo by several non-invasive bioengineering methods.

G. Pellacani, S. Seidenari, **Functional Non-Invasive Tests for the Assessment of the Stratum Corneum Hydration Kinetics in Children Affected by Atopic Dermatitis,** 13th ISBS Jerusalem, March 2000

Sorption-Desorption Test (SDT) and Moisture Accumulation Test (MAT) enable to assess the functional properties of the stratum corneum.

A. Leal, J. Alves, L. Rodrigues, **Usefulness of Transcutaneous Indictors as Predictors of Peripheral Dysfunction**, 13th ISBS Jerusalem, March 2000 and Skin Research and Technology, Vol. 6, No. 3, August 2000

Transcutaneous monitoring of biological signals has been a major research objective specially for cicular (haemodinamics) of hydro-electrolytic parameters.

K. Janssens, K. de Paepe, D. Roseeuw, V. Rogiers, **Lack of Correlation between Stratum Corneum Hydration and Scaling Pattern: Evaluated by Corneometry and Squamometry,** 13th ISBS Jerusalem, March 2000 and Skin Research and Technology, Vol. 6, No. 3, August 2000

Squamometry is a combination of smapling corneocytes by adhesive coated discs followed by colour measurements after staining of the cells.

D. Black, A. del Pozo, J.M. Lagarde, Y. Gall, **Seasonal variability in the biophysical properties of stratum corneum from different anatomical sites,** Skin Research and Technology 2000, 6, p. 70-76

A 10-month-long study on a panel of 24 young female subjects was carried out to determine whether various biophysical aspects of the stratum corneum (SC) varied with season.

H.E. Packham, C.L. Packham, **Skin Bioengineering as a Contribution to Product Performance and Safety**, Cosmetics & Toiletries 03/2000

With today's increasing consumers sophistication and the demand both for products that work and are safe for the user, there is a need for greater objectivity and accuracy in both formulations and claims made by the manuafcturer.

C. Stoltz, **How Can the Special Needs of Mature Skin be Catered For?** Cosmetics & Toiletries 03/2000

S. Lopez, I. Le Fur, F.Morizot, G. Heuvin, C. Guinot, E. Tschachler, **Transepidermal Water Loss, Temperature and Sebum Levels on Women's Facial Skin Follow Characteristic Patters,** Skin Research and Technology, Vol. 6 No. 1, February 2000

The aim of this study was to compare the biophysical properties of different facial zones.

E.A. Sagiv, S. Dikstein, **The Efficiency of Humectants as Skin Moisturizers in Presence of Oil,** 13th ISBS Jerusalem, March 2000 and Skin Research and Technology, Vol. 6, No. 3, August 2000 and Skin Research and Technology, Vol. 7, No. 1, February 2001

The research on the treatment of "dry skin syndrome" is hampered by the lack of suitable animal models.

A.E. Sagiv, A. Ingber, S. Dikstein, **A Novel In Vivo Model in Guinea Pigs for Dry Skin Syndrome,** Skin Research and Technology, Vol. 6 No. 1, February 2000 and Skin Research and Technology, Vol. 6, No. 3, August 2000

The lack of suitable validated animal model for the comparison of the pharmacological effectiveness of known and potential moisturizers in the treatment of "dry skin syndrome" let us to develop such an in vivo model.

E.A. Sagiv, S. Dikstein, **The Efficiency of Humectants as Skin Moisturizers in Presence of Oil,** 13th ISBS Jerusalem, March 2000 and Skin Research and Technology, Vol. 6, No. 3, August 2000 and Skin Research and Technology, Vol. 7, No. 1, February 2001
The research on the treatment of "dry skin syndrome" is hampered by the lack of suitable animal models.

G. Gacic-Vukavljak, **Sebum Control Performance with Powdered Silicone Elastomers**. Personal Care Ingredient Asia Conference, Bangkok, March 2000.

T. Barlow, J.W. Wiechers, **Measuring Skin Hydration**. C&T, December 1999

In the contribution to the series"From Test to Claim", aimed at cosmetic scientists that are involved in the management or execution of trials relating to cosmetic claim substantiation, we will be discussing probably the most popular type of skin efficacy, anemly the hydration or skin moisturization.

J.W. Wiechers, A. Barlow, **Just below the Skin Surface: Skin Hydration**. Cosmetics & Toiletries 114 (12) 47-53, 1999

Gut gepflegt, Test – Stiftung Warentest Nr. 11, 1999

Eingecremt von Kopf bis Fuss – dat tut gut. Muss es aber die teure Bodylotion aus der Parfümerie sein? Muss es nicht, zeigte der Test.

M. Fischer, I.M. Schneider, R. Neubert, W. Wohlrab, **Über den Einfluss methylverzweigter Fettsäuren auf die Barrierefunktion des Stratum corneum,** Dermatosen in Beruf und Umwelt, 47/221-264, Nov/Dez 1999

Es wurde die Wirkung von methylverzweigtem Fettsäuren (2 % bzw. 5 % 10-Methylpalmitinsäure und 10-Methylhexadec-9-ensäuren als Penetrationsehancer untersucht.

J.W. Wiechers, M. Lüder, F.J. Groenhof, A. Barlow, **Building Skin Functionality Into Formulations.** IFSCC 2, 34-40, October-December 1999.

L.M. Harnisch, M.K. Raheja, L.K. Lockhart, A. Pagnoni, A. Lopez, A. Gabbianelli, **Substantiating Antiaging Product Claims**, C&T, Vol. 114, No. 10, October 1999

Areas of the body most battered by the damaging effects of UV raditation, such as face and hands, are also the most visible in our social life.

L. Norlén, I. Nicander, B. Lundh Rozell, S. Ollmar, B. Forslind, **Inter- and Intra-Individual Differences in Human Stratum Corneum Lipid Content Related to Physical Parameters of Skin Barrier Function In Vivo,** J Invest Dermatol 112: p. 72–77, 1999

For a full understanding of the properties of the human skin barrier, physical macroscopic parameters of barrier function must be correlated to the structural organization of the barrier on a molecular level. This study was undertaken to relate differences in the relative composition of the three main lipid classes of human stratum corneum, i.e., free fatty acids, cholesterol, and ceramides, to differences in transepidermal water loss, stratum corneum electrical impedance, and corneometer value. A new high performance liquid chromoatography/light scattering detection-based analysis

method recently developed was used for collection of quantitative lipid data in conjunction with gas chromatography/mass spectrometry/flame ionization detection measurements on the free fatty acid fraction. After subtraction of contaminating lipid fractions we have estimated the molar ratio of the human skin barrier lipid composition to be, respectively, 15% cholesterol esters, 16% saturated long chain free fatty acids, 32% cholesterol, and 37% ceramides. The inter-individual difference in the relative amount of free fatty acids, cholesterol, and ceramides, respectively, can be >100% in the individual case. It was found that the relative amount of ceramides to cholesterol is larger in the wrist area, paralleled by a higher transepidermal water loss and Corneometer value as well as different skin electrical impedance values as compared with the upper forearm area. We conclude that the site-dependent differences in the stratum corneum lipid composition are small compared with the large inter-individual variation. Interestingly, in the individual case, no correlation was registered between relative ceramide content and barrier properties.

M.M. Jiménez Soriano, M.J. Fresno Contreras, E. Sellés Flores, **Pharmacotechnical caracterization and effectiveness study of a dermopharmaceutical form: Rosemary honey contributions as a moisturizing active,** Bollettino chimico farmaceutico 138(8): p. 401-417, October 1999

We have designed, elaborated and studied a dermopharmaceutical form formulated on the basis of a modern self-emulsifying excipient and rosemary honey (known as Miel de La Alcarria--Spain--according to the Governing Council), in order to obtain a hight degree of cutaneous hydratation. The formulation is typified and characterized from a pharmacotechnical and rheological points of view. In this sense, the experimental protocol has emphasized rheological essays which give relevant practical information. Also, we have performed a complete study of it physical and structural stability, and, lastly, we evaluated the dermopharmaceutical effectiveness. The work plan included the following tests: 1) Pharmacotechnical Essays--organoleptic characteristics, photomicrograh study, type of interposition, pH-determination, rheological and thixotropic study and physical stability tests; 2) Dermopharmaceutical Effectiveness Assays--Corneometric and Sebumetric measurements. From the results, we have deduced that the emulsified binary system that is proposed, stable from a physical and structural points of view, presents confirmed properties and a very good cosmetological adequation. In this sense, our emulsion presents a high degree of moisturizing/emollient power that qualifies it not only as a magnificent eudermic dermopharmaceutical form, but also as a very appropriate vehicle for Dermopharmaceutical and/or Dermatological Formulation.

G. Yosipovitch, B. Mevorah, M. David, **Migratory Ichthyosiform Dermatosis With Type 2 Diabetes Mellitus and Insulin Resistance**, Arch Dermatol. 1999; 135(10): p. 1237-1242

Background: In addition to the well-defined hereditary primary ichthyoses, many sporadic or less well-defined keratinization disorders with or without systemic manifestations have been reported. Herein we describe ichthyosiform dermatosis associated with type 2 diabetes mellitus. Observations: The patients were members of a large Arab family with heavy consanguinity. Eighteen members were affected with a variously severe scaly disorder. They showed migratory polycyclic keratotic scaly plaques evolving into diffuse generalized scaling or complete remission. Acanthosis nigricans–like lesions were also noted, and there was an association with type 2 diabetes mellitus. A scarcity of intercorneocyte lamellae and reduction in lamellar body contents were observed. Conclusions: We could not find a report of a similar dermatosis. Furthermore, an association between ichthyosis and diabetes has not been documented. Therefore, we believe that this may constitute a new entity. In addition to the well-defined groups of hereditary primary ichthyoses, many sporadic or familial ichthyosiform disorders have been described. In the latter group of less well-defined ichthyoses, there may be extracutaneous manifestations. Whereas excessively dry skin of the shins with mild ichythyosiform skin changes has been associated with diabetes,[1] true ichthyosis has not been reported, and, to the best of our knowledge, hereditary ichthyosiform dermatosis has not been associated with diabetes.Herein described is a heavily consanguineous Arab family, originating in Africa, that displays a unique form of migratory ichthyosiform dermatosis as well as type 2 diabetes mellitus, probably representing a new entity.

A. de Castro, **Productos Naturales: Utilidad y medida de su eficacia**, Actualizaciones Terapeuticas Dermatologicas y Esteticas, Vol. 22 No. 5, Sept/Oct 1999

La preferencia del consumador por materiales naturales o biotecnológicos obeche al hecho de evitar las posibles reacciones adversas.

A.M. Vargas, A. de Castro, **Proteina de Soja: Evaluacion de su Efecto Hidratante**, IFSCC Chile May 1999 and Actualizaciones Terapeuticas Dermatologicas y Esteticas, Vol. 22 No. 5, Sept/Oct 1999

La piel, el órgano más voluminoso…

A. De Castro, A.M. Vargas, **Evaluacion del tratamientodel prurito con el residuo lipidico de la cebada**. Actualizaciones Terapeuticas Dermatologicas y Esteticas, Vol. 22 No. 5, Sept/Oct 1999

J.W. Wiechers**, Combining Clinical and Sensory Assessment of Skin Moisturisation**. XXth Conference of the Int.Federation of the Societies of Cosmetic Chemists, Cannes (Poster) 09/1999.

J.W. Fluhr, M. Gloor, S. Lazzerini, P. Kleesz, R. Grieshaber, E. Berardesca, **Comparative study of five instruments measuring stratum corneum hydration (CORNEOMETER CM 820 and CM 825, Skicon 200, Nova DPM 9003, DermaLab) Part II. In vivo**, Skin Research and Technology, Vo. 5, 1999, p. 171-178 and ISBS and EEMCO Meeting, Liege, 09/1999

The hydration state of the stratum corneum can be measured with different instruments.

J.W. Fluhr, M. Gloor, S. Lazzerini, P. Kleesz, R. Grieshaber, E. Berardesca, **Comparative study of five instruments measuring stratum corneum hydration (CORNEOMETER CM 820 and CM 825, Skicon 200, Nova DPM 9003, DermaLab) Part I. In vitro**, Skin Research and Technology, Vo. 5, No. 3, August 1999

The hydration state of the stratum corneum can be measured with different instruments.

W. Gehring, R. Bopp, F. Rippke, M. Gloor, **Effect of topically applied evening primrose oil on epidermal barrier function in atopic dermatitis as a function of vehicle,** Arzneimittel-Forschung/Drug Research 49(II), 7, 635-642 (1999)

The aim of this study was to establish the effect on barrier function in atopic dermatitis of topical evening primrose oil in an amphiphilic and a stable water-in-oil emulsion. The studies were vehicle-controlled in two populations of 20 atopic subjects. Barrier function was assessed in terms of transepidermal water loss and stratum corneum hydration after a 4-week treatment period and a 1-week

C. Packham, **Bio-engineering and the skin,** AOHNP(UK) 1999

In this article a modern approach to the age-old problem of irritant contact dermatitis is examined.

L. Vaillant, L. Declerq, D. Malvy. J.C. Béani, J. Bazex, D. Maes, S. Hercberg, **Topical Antioxidant treatment provides long term pretective benefits against skin aging,** Poster Arbois 1999

Most photoniological effects (from sunburn to immunosuppressin, photoaging and photocarcinogenesis) are attributed to ultraviolet raditation and are believed to be essentially mediated by reactive oxigene species.

J.W. Wiechers, V.A. Wortel, **Creating Effective Claim Support Packages**, Cosmetics & Toiletries, July 1999

It is interesting to study the history of ceramides as an example of what can happen to ingredient claims. Unilever scientists identified ceramide 1 as a functional skin lipid in 1982 and many scientific papers have since been written to describe the beneficial skin effects of ceramides. The name of this ingredient was popularized by Elizabeth Arden, a company belonging to the Uniliver group, when they launched Ceramide Time capsules in 1990.

M. Förschle, I. Frei, **Elastisch und geschmeidig – Tests zur Messung der Hautstraffung,** Kosmetik International 6/99

Der Hauptnutzen vieler Produkte ist es, die Haut der jüngeren Konsumentin elastisch und geschmeidig zu erhalten, bzw. die der älteren Verwenderin wieder straffer aussehen zu lassen.

E. Thumm, E..G. Jung, C. Bayerl, **Überprüfung der Auswirkung von Kosmetika auf Hautrauhigkeit, Feuchtigkeitsgehalt und Barrierefunktion der Haut**. Kosmetische Medizin 3 Juni 1999

In einer seitenkontrollierten Studie wurde drei Kosmetikpräparate auf liposomaler Basis hinsichtlich ihrer Auswirkung auf a)Hautrauhigkeit (Skin Visiometer SV 500), b) den Feuchtigkeitsgehalt des Stratum corneum (Corneometer CM825) und c) die Hautbarrierefunktion bzw. den transepidermalen Wasserverlust/TEWL (Tewameter TM 210) untersucht.

K. Lanzerath, **Eine Notwendigkeit für die dermatolische Praxis? Die apparative Bestimmung von Hautparametern,** H+G Band 74, Heft 6, 1999

Transepidermaler Wasserverlust (TEWL), Corneometrie, Sebumetrie, Melanin- und Erythembestimmung – Schlagworte, die in der dermatologischen Forschung und Praxis immer mehr an Bedeutung gewinnen.

B. Gabard, **Dry Skin and the Cosmetic Benefit of Moisturization**, 12th ISBS, Boston, 06/98 and Skin Research and Technology, Vol.5 No. 2, May 1999

The importance of water for the functional integrity of skin in general and of the horny layer in particular has been recognized for a long time and is underlined by the wealth of literature published on this subject.

P. Clary, A.O. Barel, B. Gabard, **Non-invasive electrical measurements for the evaluation of the hydration state of the skin: comparison between three conventional instruments – the Corneometer®, the Skicon® and the Nova DPM®,** Skin Research and Technolgy, 1999, 5, p. 14-20

Some electrical properties of the skin may be related to the water content of the horny layer and measurements of impedence and/or capacitance have been used to assess the hydration state of the skin surface.

L. Rodrigues, P. Pinto, N. Galego, P.A. Da Silva, L.M. Pereira, **Transepidermal water loss kinetic modeling approach for the parameterization of skin water dynamics**, Skin Research and Technology, Vol.5 No. 2, May 1999

The evaluation of transepidermal water loss (TEWL) is one of the methods most frequently used in studies involving skin water dynamics. However, TEWL does not provide a direct measurement of epidermal barrier function, being rather a surrogate effect of it. In particular, when external stimuli change cutaneous water balance, these stimuli must be taken into account in order to achieve a rigorous interpretation of the results.

S. Tamburic, G. Abama, **Moisturizing Potential of d-α-Tocopherol**, Cosmetics & Toiletries, 05/1999

Moisturizing products are designed with the intention of improving skin condition and appearance by increasing skin hydration. The classic approach to this problem involves the use of occlusive ingredients (to decrease the level of transepidermal water loss) and humectants (to imporve the water-binding ability of the stratum corneum.

A. de Castro, A.M. Vargas, **Alternativas Naturales en el Tratamiento del Fotoenvejecimiento**, IFSCC Chile May 1999

Estudíos realísados a nivel mundial …

N. Arnejo, **Evaluacion del poder de retención de agua de los agentes humectantes**, IFSCC Chile May 1999

Los humectantes son apliamente usados …

S.H. Perez Damonte, G.M. Cuomo, R.L. Galimberti, **Evaluacion Instrumental de la Piel Sensible**, IFSCC Chile May 1999

Numerosos patientes se haceran a la consulta cosmética…

M. Maruno, F.C. Facco, P.A. Rocha Filho, **Hydration, Oily and PH of Skin In Vivo Evaluation After Application of Both Simple and Complex Emulsions Containing Hydrolyzed Proteins**, IFSCC Chile May 1999

Cosmetic industry considers skin treatment as a market which is increasing and spreading throughcosmteic products as well.

A. Vexler, I. Polyansky, R. Gorodetsky, **Multi-Parametric Examination of Irradiated Skin in Breast Cancer Patients,** Skin Research and Technology, Vol. 5 No. 2, May 1999

More than 12 % of the women in Wesren Hemisphere are projected to develop carcinoma of the breast.

C. Dani, E. Martelli, M.F. Reali, G. Berini, G. Panin, F.F. Rubaltelli, **Effects of Application of Vitamin E Ointment to Premature Neonates' Skin***,* Pediatric Research April 1999

Following the hypothesis that oxidative stress plays a role in the development of skin lesions in preterm infants, we planned a prospective study to investigate the effects of application on epidermis of a vitamin E ointment.

J.W. Wiechers, **Verbraucher messen etwas anders. Vergleich objektiver und subjektiver Hautfeuchtigkeitsbestimmung.** Parfümerie und Kosmetik, 80 (4) 50-56, 1999.

W. Voss, G. Schlippe, M. Breuer, **Tests on Cosmetics Scientific Standards**, SOFW-Journal 4/99

In general, body care articles and cosmetics have only a low allergy potential. The probability that toxic-irritative reactions will arise after proper use is even lower.But especially with patients with sensitive skin, unclear skin reactions, which can frequently be confused with allergies, can arise. The cosmetics manufacturers, however, would like to produce safer products and naturally want to avoid that type of problem from the start.

H. Tronnier, **Empfindliche Haut,** Seminar Hausarzt Praxis März/April 1999

Die Empfindlichkeit der Haut hat keineswegs nur somatische Aspekte und Ursachen, sondern auch psychogene. Sie wird damit partiell vergleichbar mit anderen menschlichen Empfindungen, deren Existenz niemand bestreitet, deren Definition aber alles andere als einfach ist. Kann man einer Haut ihre Empfindlichkeit ansehen?

A. Fendl, **Einzelheiten der Hautdiagnose**. Natürlich schön/Grundlagten der Ganzheitskosmetik, Handwerk und Technik – 1999

Wie ein Mantel schützt der eigene fettige Film die Haut gegen negative Einflüsse von aussen und Wasserverluste von innen.
treatment-free period.

S. Bielfeldt, H. Köhler, J. Gassmüller, **Minimalinvasive Verfahren in der Wirksamkeits- und Verträglichkeitsprüfung von Kosmetika**. 13. Symposium der DGK Bad Neuenahr, 1999

J.W. Wiechers, **Efficacy Testing of Cosmetic Ingredients. In: Hincal, A.A., and de Jong (Eds.) Recent Advances in Pharmaceutical**, Cosmetic and Food Excipients. Minutes 9th Int. Pharmaceutical Technology Symposium, Editions de Santé, Paris, 126-138 Book Chapter, 1999

K.P. Wittern, F. Stäb, R. Wolber, T. Blatt, R. Keyhani, V. Schreiner, U. Schönrock, **Wirkstoffe und ihre Wirkprinizpien**. 13. Symposium der DGK, Bad Neuenahr, 1999

U. Maerker, P. Behm, V. Schreiner, **NIR-Spektroskopie und Haut,** Poster Bad Neuenahr 1999

Wasser findet sich in großen Mengen im lebenden Gewebe der Epidermis.

C. Greif, W. Wigger-Alberti, M. Arens-Corell, P. Elsner, **Beurteilung einer Körperlotion für trockene und empfindliche Haut,** Poster – 5. Tagung der ABD, Aachen 03/99 und Allergologie 3, 03/1999

Durch häufige Reinigungsmaßnahmen kann es zu einer starken Entfettung des Stratum corneum und zu Störungen der epidermalen Permeabilitätsbarriere kommen.

M. Bock, H.J. Schwanitz, **Modulation der epidermalen Permeabilitätsbarriere durch die topische Anwendung von CO_2 – imprägniertem Wasserklinische und hautphysiologische Untersuchungen**, Allergologie 3, 03/1999

Eine Stabilisierung der epidermalen Permeabilitätsbarriere bzw. der physiologische Wiederaufbau nach Barrierstörungen werden zu den wichtigesten Zielen der Externabehandlung gezählt.

T. Fischer, W. Wigger-Alberti, C. Greif, P. Elsner, **Irritative Wirkung von abrasiven Reinigungsmitteln auf die Barrierefunkton der Haut,** Allergologie 3, 03/1999

Dermatologische Hautreinigung am Arbeitsplatz sollte schadstoffbezogen so mild wie möglich und so reinigend wie nötig sein.

V. Rosenberger, A. Klotz, K.-P. Wilhelm, **Nachweis der Wirksamkeit einer traubenkernöl- und harnstoffhaltigen Creme anhand biophysikalischer Untersuchungen,** Allergologie 3, 03/1999

Die zunehmende Problematik der Gesunderhaltung arbeitsbelastender Haut in der Bevölkerung macht die Entwicklung geeigneter Pflegeprodukte notwendig

H. Tronnier, C.M. Heeks, M. Wiebuch, U. Heinrich, **Comparative Measurement of Skin-Hydration**, Poster at Clinical Dermatology Update, 03/99

A sufficient horn-skin layer hydration which is neither endogenously nor exogenously reduced is the perequisite of a functioning skin barrier.

H.-G. Ji, B.-S. Seo, **Retinyl Palmitate at 5% in a Cream: Its Stability, Efficacy and Effect,** Cosmetics &Toiletries, 03/99

This paper evaluates the stability, efficacy and effect of retinyl palmitate at 5% in four different cream formulations: w/o water-in-silicone, o/w and multilamellar vesicles.

M. Paye, G. Gomes, C.R. Zerweck. G.E. Pierard, G.L. Grove, **A hand immersion test under laboratory-controlled usage conditions: the need for sensitive and controlled assessment methods**, Contact Dermatitis, Vol. 40, No. 3

Exaggerated test conditions were frequently used to investigate the cutaneous tolerance of detergent products in the past. As the sensitivity of newly designed biometric methods is steadily improving, the trend towards more realistic test conditions should be encouraged.

B. Chadoutaud, L. Curtil, C. Veret, F. Alais-Gallou, **Evaluation objective en double avuegle de la performance hydratante et de la rémanence de duex émollients corporels E/H et H/E dans le traitement des peaux sèches et très sèches,** Les Nouvelles Dermatologiques, Vol. 18 No. 2, Feb. 99

Cette étude en double aveugle randomisée chez 20 volontaires à peau sèche et très sèche, concerne l'analyse controlatérale de l'activité hydratante de deux émulsions

E. Bárány, M. Lindberg, M. Lodén, **Biophysical characterization of skin damage and recovery after exposure to different surfactants,** Contact Dermatitis, Vol. 40, No. 2

The majority of adverse skin reaction to personal-care products are presumed to be caused by irritant substances, like surfactants. In this study, different aspects of the irritant reaction after a single exposure to 8 surfactants were characterized during 2 weeks.

C. Packham, **Chemicals and your health: Beware!**, Engine Repair and Remanufacture, January 1999

Most people working in the engineering industry will at some time be exposed to chemicals, the range of which, is enormous and includes substances, such as the solvents used in paint spraying or to degrease engine components; this includes metal working fluids, epoxy resin compounds, and even the skin cleanser used by the mechanic or fitter to clean hands after work.

P.M. Müller, R. Jermann, **The Skin,** IFSCC Vol. 1 No. 1, October/December 1998

The authors introduce a novel psycho-physical approach to determining subejctive skinfeel involving weights on panelists' volar forearms. Through this method and by determining differentiation threshold values, the authors demonstrate that skin moisturized with a liposomal formulation performs better than skin dehydrated with sodium dodecyl sufate and aqueous ethanol.

U. Bornschein, **Der Schuß ins Waschwasser...** Die Schwester/Der Pfleger 12/98

Die Ganzkörperwaschung der Patienten durch Pflegende ist im Krankenhaus eine täglich wiederkehrende Verrichtung. In vielen Einrichtungen ist dafür ein Pflegestandard geschaffen worden. Dabei kommt es oft zu einer Diskussion um den Waschwasserwechsel, und dies nicht nur aus hygienischen Gesichtspunkten.

F. Morizot, I. Le Fur, E. Tschachler, **Sensitive Skin,** Cosmetics & Toiletries Vol. 113, November 1998

Studies on skin reactions to irritant substances and topical preparations have a long history. Clinical signs and symptoms of irritant reactions in the dermatological sense are well defined and are synonymous with skin inflammatory reactions.

J.W. Wiechers, **Multifunktionelle Mischungen: Eine neue Workstoffgeneration?** Parfümerie & Kosmetik, 79 (11) 36-38, 1998.

L. Rodrigues, Y.R. Salgueiros, N. Galego, P. Pinto, N. Da Silva, I.Z. Ferro, **Study on the In Vivo Performance of Two Capacitance Systems: Assessment of the Experimental Reproducibility and sensitvity**, J. Appl. Cosmetol. 16, October – December 1998, p. 135-153

The epidermal water content is one of the most fundamental indicators for cutaneous functional evaluation. The major role of water in the skin physiological and pathophysiological processes is actually well known and recognised and for it, the reinforcement or re-establishment of these properties, through a wide variety of topical formulations, including cosmetics, is a frequent objective of therapeutical intervention.

H. Zhai, **Preventing Irritant Dermatitis**, Cosmetics&Toiletries, October 1998

The author reviews the role of moisturizers in preventing irritant dermatitis with testimonial and controlled experimental data.

J.S. Koh, K.S. Chae, H.O. Kim, **Skin Characteristics of Normal Korean Subjects According to Sex and Site using Non-Invasive Bioengineering Methods**, Korean J Dermatol., 1998 Oct; 36(5): p. 855-864

Background: During the last few years, the in vivo study of the physiological parameters of the skin by non-invasive methods has been considerably developed. So far, there have been some reports on the skin characteristics only in parts, but there has not been any criteria to classify those of normal subjects. Objective: The aim of the present study was to investigate the skin characteristics of healthy Korean subjects according to sex and sites using non-invasive methods. Methods: To determine normal levels of sebum, skin hydration, transepidermal water loss (TEWL), skin elasticity and skin color according to sex, 163 subjects (male; 124, female; 39) were used to investigate 5 different anatomical sites. 6 different instruments were used: The Sebummeter SM 410, Corneometer CM 820, Evaporimeter EP1, Cutometer SEM 474, Chromameter CR-121, and Mexameter MX 16, for evaluating sebum excretion rate, capacitance, TEWL, mechanical property and skin color respectively. Results: Differences were noticed depending on the anatomical sites and sex. Most of the measuring parameters were significantly different according to sites and sex. The values of sebum levels, capacitance and TEWL were higher in the males on the cheek, forehead and crows foot, whereas in the females, higher values were observed on the dorsum of the hand. The skin elasticity varied considerably among the nine-parameters but, for the elastic ratio (R2, R5), the females showed significantly higher values than the males in all sites except the forehead. Skin lightness (L* value) was higher in the females, whereas the males showed lugher values in the category of redness (a* value) and yellowness (b* value). The values of the eqrthema index (EI) and melanin index (MI) were also higher in the males on all sites. Correlations between the skin parameters mentioned above were calculated. A negative, correlation between capacitance and TEWL was observed only on the cheek (male/female, r =-0.2/ r =-0.4, p<0.05). The L* value correlated negatively with MI. Mioreover the values between a* and El also showed sipificant correlations in the male (cheek and dorsum of hand, y =0.2, forehead and crows foot, r =0.3, p<0.05). There were considerably significant correlations between the visual pigmentation score and instrumental skin parameters in the males (visual pigmentation score vs. L* value measured by Chromameter ; cheek/crows foot, r = -0.3/y =-0.4, visual pigmentation score vs. MI by Mexameter ; cheek/crows foot, r =0.2/ r =0.4, viisual winkle score vs. sebum excretion rate measured by Sebumeter ; cheek, r=0.2, visual winkle score vs. elasticity parameters measured by Cutometer ; cheek, R2/R5/R7, r =-0.3/ r =-0.2/ r =-0.3, p<0.05). Conclusion: Skin physiological parameters can be evaluated by non-invasive skin bioengineering methods which show quantitative modifications in physiological conditions in relation to sites and sex.

D. Khazaka, **Assessing Hydration of the Skin - A Practical Approach to the Measurement with the Corneometer CM825®**, Euro Cosmetics 10/98

The measurement of the moisture content of the skin surface is one of the most important parameters in cosmetics. This study describes the advantages of the capacitance method of the Corneometer CM 825® concerning the influence of products on the skin, occlusion effects and the penetration depth of the scatterfield.

B. Varangot, S. Marull, R. Voultoury, V. Couturaud, **Normal and Dry Skin Evaluation of Corneocyte Size as a Function of Depth in the Epidermis by Tape Stripping and Image Analysis,** Poster - 20th IFSCC Congress Cannes, 09/1998

Cosmetologists have long been interested in dry skin (slinicalassessment and treatment).

I. Le Fur, S. Lopez, F. Morizot, M. Dubourgeat, C. Guinot, E. Tschachler, **Comparison of Malar and Frontal Zones by Bioengineering Methods for Different Cosmetic Skin Type Groups of Women,** Poster - 20th IFSCC Congress Cannes, 09/1998

During the past decades the in vivo study of physiological parameters of the skin by non invasive methods has considerately developed.

Y. Yazan, M. Seiller, S. Avcier, M. Demirel, **Comparison of Glycolic, Lactic and Glycolic + Lactic Acids in Multiple Emulsion Systems,** 20th IFSCC Congress Cannes, 09/1998

G. Leone, S. Siladji, G.F. Secchi, M. Carducci, M. Fazio, **A New Challenge For High SPF Sunscreens: The Outdoor Dynamic Test** - Product Evaluation - 20th IFSCC Congress Cannes, 09/1998.

D. Black, A. Del Pozo, S. Diridollou, J.M. Lagarde, Y. Gall, **Assessment of Emollient Effects on the Stratum Corneum of Wingter Dry Skin Using A Multiple Measurement Approach**, Stratum Corneum II Symposium, Cardiff, 09/98

A randomised single-blind study was carried out on 13 female volunteer subjects aged 21-43, (mean 35 yrs), with the aim of assessing the effects of a glycerine/vaseline based emollient cream on the stratum corneum of winter dry skin.

J.W. Wiechers, A. Barlow, **Skin Moisturisation and Elasticity Originate From at Least Two Different Mechanisms.** Stratum Corneum II Symposium, Cardiff, 09/98.

O. Barel, P. Clarys, B.Gabard, **In Vivo Evaluation of the Hydration State of the Horny Layer: The Use of Electrical Measurements for Claim Support**, Stratum corneum II Symposium, Cardiff, 09/98

Objective assessment of the hydration state of the horny layer and evaluation of the efficacy of moisturizers can be readily done with simple instruments based on electrical methods.

J.W. Fluhr, S. Lazzedni, F. Distante, M. Gloor, E. Beradesca, **Effects of Prolonged Occlusion on Stratum Corneum Barrier Function and Water Holding Capacity**, Stratum Corneum II Symposium, Cardiff, 09/98

Occlusion is used in clinical practice to enhance transcutaneous penetration and drug delivery to the skin. Occlusion can also be generated by the professional use of protective garments, gloves and cosmetics.

J.W. Fluhr, W. Gehring, M. Gloor, S. Lazzerini, P. Kleesz, E. Berardesca, **Comparative Study of 5 Instruments Measuring Stratum corneum Hydration in Vitro.** Stratum Corneum II Symposium, Cardiff, 09/98.

A.V. Schreiner, Zeden, G. Gercken, U. Hoppe, P.Gerson, **Comparison of Barrier Properties of Different Layers of Stratum Corneum of Xerotic Skin of Elderly and Normal Skin**. Stratum Corneum II Symposium, Cardiff, 09/98

T. Fischer, C. Greif, W. Wigger-Alberti, P. Elsner, **Instrumentelle Methoden zur Bewertung der Sicherheit und Wirksamkeit von Kosmetika,** Aktuelle Dermatologie, 8/9-1998

Durch die Erfordernisse eines Wirksamkeits- und Sicherheitsnachweises für Kosmetika gewinnen nichtinvasive biophysikalische Meßmethoden zunehmend an Bedeutung. Neben der Bestimmung des transepidermalen Wasserverlustes und der Messung der Hautfeuchtigkeit, des Oberflächenfettes, des pH-Werts, und der Elastizität kommen der Erfassung des Oberflächenreliefs, der Farbe und der Hautdurchblutung große Bedeutung zu. Mit diesen Methoden können u.a. die hautfeuchtigkeitsfördernden, glättenden und straffenden Wirkungen von Topika sowie der Grad der Irritation durch Externa evaluiert werden. Zur Messung und Vergleichbarkeit dieser unterschiedlichen Hautfunktionsparameter sind standardisierte Meßbedingungen erforderlich.

R. Vanbever, D. Fouchard, A. Jadoul, N. De Morre, V. Préat, J.P. Marty, **In vivo Noninvasive Evaluation of Hairless Rat Skin after High-Voltage Pulse Exposure**. Skin Pharmacol Appl Skin Physiol 1998

Short high-voltage pulses have recently been shown to dramatically increase and expedite transdermal drug transport via a mechanism bypothesized to involve electroporation. This study addresses tolerance issues of the method in vivo in hairless rat. Chromametry, transepidermal water loss (TEWL), laser Doppler flowmetry (LDF) and corneometry were jointly used for noninvasive sensing of skin biophysical parameters. Slight increases in skin redness, TEWL and LDF values followed the application of electric pulses. The changes in skin capacitance were nonisignificant. The magnitude of the alterations depended on the electrical features of the pulses. When compared to iontophoresis, high-voltage pulses did not induce stronger alterations of skin functions. This report provides the first in vivo demonstration of the safety of the high-voltage pulses proposed for transdermal delivery.

M. Paye, G. Gomes, C. Zerweg, G.E. Pierard, G.G. Grove, **A Hand Immersion Test in Laboratory-Controlled Usage conditions: A Need For Sensitive and Controlled Assessment Methods,** 12th ISBS, Boston, 06/98

In the investigation of cutaneous tolerance of detergent products, exaggerated test-conditions are frequently used.

R.R. Warner, K.J. Stone, Y.L. Boissy, N. Lilly, M.J. Spears, K.L McKillop, **Electron Microscopy of Hydrated Skin: Water Disrupts the Barrier Lipids,** 12th ISBS, Boston, 06/98

Using conventional transmission electron microscopy of RuO_4-fixed tssue combined with cryo/scanning electron microscopy (Cryo-SEM) of frozen biopsies, prolongued water exposure is shown to seriously disrupt stratum corneum (SC) lipid ultrastructure and the intercellular space.

J. Fluhr, M.Gloor, F. Distante, S. Lazzerini, E. Berardesca, **Glycerol Modulates Recovery of Barrier Function In Vivo,** 12th ISBS, Boston, 06/98

The mechanism promoting barrier repair in vivo after applying of the stratum corneum are not completely clear; the modulation of water flux is probably the key factor involved.

P. Clarys, A.O Barel, **Percutaneous Penetration Models In Vivo - Evaluation By Means Of Non-Invasive Biophysical Measurement Techniques,** 12th ISBS, Boston, 06/98

The methods for in vivo percutaneous penetration on human volunteers are limited.

R. Lambrecht, P. Clarys, B. Gabard, A.O. Barel, **Relation Between Capacitance Measurements and Biomechanical Skin Properties Under Different Hydration Conditions,** 12th ISBS, Boston, 06/98

The biomechanical characteristics of the stratum corneum are influenced by the water content of this layer.

J.W. Fluhr, E. Berardesca, M. Gloor, W. Gehring, **Protective Value of Bathoils with Different Solvent Characteristics Against Different Irritation.** 12th ISBS, Boston, 06/98.

M. Willard, D. Tonucci, L. Harnisch, J. Bowman, L. Jorgensen, W. Dressler, **Modified Mini-Regression Moisturization Protocol to Evaluate Different Moisturizer Technologies Using Biophysical and Clinical Measurements.** 12th ISBS, Boston, 06/98.

J.W.Wiechers, T. Barlow, **Skin Moisturization and Elasticity Originate From at Least Two Different Mechanisms**, 12th ISBS, Boston, 06/98

Skin moisturisation and elasticity are clearly linked in people's mind.

E.H. Braue, J.S. Graham, J.L. Martin, J.E. Zallnick, C.R. Nalls, P. Matterson, L.W. Mitcheltree, **Comparison of Skin Thickness Measuremnt Techniques Using the DermaScan C Ultrasound Imaging System**, 12the ISBS, Boston, 06/98

Our laboratory has used a wide variety of bioengineering analytical methods for evaluating the severity of sufur mustard (SM) skin lesions in several animal models.

C. Greif, W. Wigger-Alberti, M. Arens-Corell, P. Elsner, **Beurteilung einer Körperlotion für trockene und empflindliche Haut**, Kosmetische Medizin Nr. 5, 1998.

In einer offenen kontrollierten Anwendngstudie über 3 Wochen wurde an 30 Probanden eine Body Milk auf Hautverträglichkeit und Wirksamkeit getestet. Dazu wurden folgende hautphysiologische Parameter erfaßt: Hautfeuchtigkeit, transepidermaler Wasserverlust, Hautelastizität, pH-Wert sowie Hauttemperatur.

G. Yosipovitch, G.L. Xiong, E. Haus, L. Sackett-Lundeen, I. Ashkenazi, H.I. Maibach, **Time-Dependent Variations of the Skin Barrier Function in Humans: Transepidermal Water Loss, Stratum Corneum Hydration, Skin Surface pH, and Skin Temperature**, J Invest Dermatol 110: p. 20–23, 1998

Although circadian rhythms have been described for many human functions, there are minimal data on circadianrhythmsrelatedtoskinphysiology. This study investigated the circadian rhythmicity of skin variables related to skin barrier function in humans. We measured transepidermal water loss, stratum corneum moisture, skin surface pH, and skin temperature in 16 healthy volunteers (nine men and seven women, aged 23–53 y). Subjects were sampled every 2 h in two sessions over a 24 h span. Twelve samples were obtained for each variable in the following sites: forehead, forearm, upper back, and shin. We used cosinor analysis and ANOVA to validate observed differences. Time-dependent rhythms were detected in most skin vari ables except in stratum corneum hydration. We found a statisticallysignificant circadianrhythmicity characterized by cosinor analysis in transepidermal water loss, skin surface pH, and skin temperature on the forearm, forehead, and shin.Peak–troughdifferencesoccurredin alllocations. The values of the same variables measured at different sites correlated positively, whereas the values of the different variablesdidnot.Theseresults suggestthat skinpermeability is higher in the evening and night than in the morning. These data may be clinically relevant in several aspectsapplied to skin physiology and topical drug application.

T. Fischer, C. Greif, W. Wigger-Alberti, P. Elsner, **Instrumentelle Methoden zur Bewerbung der**

Sicherheit und Wirksamkeit von Kosmetika, Kursprogramm Sicherheitsaspekte in der Kosmetik, Basel, Mai 1998

Durch die Erfordernisse eines Wirksamkeits- und Sicherheitsnachweises für Kosmetika gewinnen nichtinvasive biophysikalische Meßmethoden zunehmend an Bedeutung. Neben der Bestimmung des transepidermalen Wasserverlustes und der Messung der Hautfeuchtigkeit, des Oberflächenfettes, des pH-Werts, und der Elastizität kommen der Bestimmung des Oberflächenreliefs, der Farbe und der Hautdurchblutung große Bedeutung zu. Mit diesen Methoden können u.a. die hautfeuchtigkeitsfördernden, glättenden und straffenden Wirkungen von Topika sowie der Grad der Irritation durch Externa valuiert werden. Zur Messung der Vergleichbarkeit dieser unterschiedlichen Funktionsparameter sind standardisierte Meßbedingungen erforderlich.

E.J. Thumm, C. Bayerl, E.G. Jung, **Evaluation Of The Efficacy Of Cosmetic Products By Using Profilometry,** 3rd Int.Symposium on Cosmetic Efficacy, May 1998

Efficacy of three cosmetic products was studied by using laser profilometry for skin roughness, by corneometry for the hydration of stratum corneum and by assessment of transepidermal water loss (TEWL).

J.W. Fluhr, G. Vrzak, M. Gloor, **Hydratisierender und die Steroidpenetration modifizierender Effekt von Harnstoff und Glycerin in Abhängigkeit von der verwendeten Grundlage**, H+G 4/1998

Ausgangspunkt war die bekannte hydratisierende Wirkung von Harnstoff und Glycerin auf die Hornschicht bei Anwendung in Externagrundlagen, die bekannte penetrationsfördernde Wirkung von Harnstoff auf Dermatokortikosteroide sowie der penetrationsfördernde Effekt von Glycerin, der früher für Hexylnikotinat nachgewiesen worden war. Überprüft werden sollte die Konzentrationsabhängigkeit der Wirkung von Harnstoff und Glycerin, die Abhängigkeit der Wirkung dieser Wirkstoffe vom verwendeten Vehikel und die Penetrationsbeeinflussung für Hydrokortison durch Glycerin.
Untersucht wurden insgesamt 49 Versuchspersonen, die Hydratisierung wurde mit Hilfe der Corneometrie und Skicon-Methode gemessen, die Wirkstoffpenetration für Hydrokortison mit Hilfe des Blanchingeffektes. Die Untersuchungen zeigen, daß Harnstoff und Glycerin in allen verwendeten O/W- und W/O-Grundlagen eine vergleichbare hydratisierende Wirkung aufweisen. Eine Steigerung der Harnstoff- Konzentration von 5 auf 10% erbrachte keine eindeutigen Vorteile, whrend 10% Glycerin unabhängig von der Grundlage effektiver als 5% ist. Harnstoff wirkt nicht in jedem Vehikel penetrationsförderned auf Steroide, sondern nur in der verwendeten wasserreichen O/W-Emulsion. Glycerin beeinflußte bei den vorliegenden Untersuchungen die Hydrokortisonpenetration nicht.

J.W. Fluhr, M. Gloor, W. Gehring, **Protective Value of Bath Oils With Different Solvent Characteristics Against Irritation,** The Journal of Investigative Dermatology, Vol. 110, No. 4, April 1998.

The presented study was carried out to evaluate the the protective value of bathoils with different solvent characteristics and different content of non-ionic tenside against 3 different irritation models (NLS 2 %occluded, water, mechanical irritation).

H. Tronnier, **Empfindliche Haut**, Kosmetische Medizin 4, 10/98

Eine einheitliche Ursache für eine empfindliche Haut gibt es nicht. Zahlreiche Funktionsabweichungen, die anamnestisch zu erfassen und mit geeigneten Methoden zu bestimmen sind, können individuell das Muster einer empfindlichen haut abgeben oder die Grundlage einer empfindlichen haut darstellen. Wesentlichen Einfluß können psychogene Faktoren haben.

J. Gottfreund, T. Meyer, **Die Bedeutung des pH-Wertes 5,5 in Emulsionen.** Kosmetische Medizin Nr. 3, 1998.

Es wird die Bedeutung des pH-Wertes 5.5 in Emulsionen dargestellt. In einer W/O-Emulsion wurde der pH-Wert der Wasserphase auf einen Wert von 5,5 eingestellt. Es ließ sich zeigen, daß der durch Umwelteinflüsse tiefe pH-Wert der Haut sich an 5,5 anpaßt. Bei der Auswahl der Rohsteoffe für den Fettkörper einer Emulsion müssen die speziellen Bedingungen, die durch den pH-Wert bedingt sind, berücksichtigt werden.

I. Tausch, B. Hughes-Formella, A. Schölermann, F. Rippke, **Harnstoff - ein wichtiger Wirkstoff in der Dermatotherapie**, Kosmetische Medizin Nr. 3., 1998.

Die hydratisierenden eigenschaften der Präparate Eucerin® 10% Urea Lotio und Eucerin® Salbe 10% Urea wurden in kontrollierten klinischen Prüfungen über 4 Wochen an insgesamt 78 Patienten mit trockener Haut bei atopischen Ekzem im erscheinungsfreien Intervall im Vergleich zu der wirkstoffreien Grundlage (Lotio) bzw. zu unbehandelter Haut (Salbe) geprüft. Beide Präparationen

führten im Vergleich zu den Ausgangswerten zu einer signifikanten Erhöhung des Wassergehaltes der Hautoberfläche.

M. Morrison, Y. Cartiaux, M. Paye, Charbonnier, H. Maibach, **Demonstrating Invisible (Subclinical) Sodium Lauryl Sulfate Irritation with Squamometry**, AAD, Orlando, March 1998

High concentration of sodium lauryl sulfate (SLS) may cause skin damage when applied to skin under occluded conditions.

R. Ward, **The Human Factor,** SPC March 1998
With the proposed ban on animal testing on the horizon, Dr. Rachel Ward looks at the ethical aspects of human volunteer testing

Glättende Wirkung im Vordergrund. Dermaforum März 1998

W. Gehring, F. Schwan, Th. Meyer, M. Gloor, **Eignung von Emulsionen als Vehikel für verschiedene Ceramide,** Kosmetische Medizin Nr. 2, 1998

In einer O/W-Emulsion wurden ein Phytoceramidgemisch und 2 synthetische Ceramide bei intakter Barrierefunktion und nach Lipidextraktion untersucht. Einmalige Applikation der Ceramide in beiden Vehikeln hat keinen Effekt auf die Barrierefunktion der Epidermis erkennen lassen, der auf den Ceramidgehalt zurückzuführen ist. Zwei Stunden nach Applikation der Formulierungen wurde ein Barrierefunktionstest mit Nikotinsäureester durchgeführt. Nur durch die syntetischen Ceramide in der O/W-Emulsion konnte nach Lipidextraktion eine Reduktion des Nikotinsäure-Erythems festgestellt werden.

C. Fox, **Cosmetic and Pharmaceutical Vehicles: Skin Care, Hair Care, Makeup and Sunscreens,** Cosmetics & Toiletries, January 1998

The author surveys 39 articles and patents from the past four years for advances in the science and technology of cosmetic and pharmaceutical vehicles. Here, in Part 2 of a two-part series, topics include hair-care vehicles, lipsomes, makeup, shampoos, skin-care vehicles, sticks and sunscreen vehicles.

M. Arens-Corell, J. Welzel, H.H .Wolff, **Beurteilung von Hautreinigungsmitteln für trockene und empfindliche Haut**, Kosmetische Medizin 1/1998.

Die zunehmende Problematik trockener und empfindlicher Haut in der Bevölkerung macht die Entwicklung geeigneter Reinigungsmittel notwendig. Ihre Hautverträglichkeit und minimierte Austrocknungwirkung kann in dermatologisch kontrollierten Anwendungsbeobachtungen unter Einbeziehung der Messung hautphysiologischer Parameter objektiv geprüft werden. Das Beispiel eines Duschöls und einer Waschemulsion für trockene und empfindliche Haut zeigt, daß durch einen hohen Ölanteil ebenso wie durch die Auswahl milder Syndetsubstanzen bei Anpassung des pH-Wertes im Hautphysiologischen, leicht sauren Bereich die Hautreinigung unter Praxisbedingungen ohne Austrocknung und Irritationen möglich ist.

EnviroDerm's Skin Breakthrough. Engine Repair and Remanufacture, 01/98

Until now, prevention of occupational skin disease was very much a hit and miss affair. There was no practical way of detecting unseen damage to the skin from working practice or contact with chemicals.

P.M. Müller, R. Jermann, **The Skin**, IFSCC Magazine, Vol.1 No. 1, 1998

The authors inroduce a novel psycho-physical approach to determining subjective skinfeel involving weights on panelists' volar forearms. Through this method and by determining defferentiation threshold values, the authors demonstrate that sin moisturized with a liposomal formulation performs better than skin dehydrated with sodium dodecyl sulfate and aqueous ethanol.

C.A. Morton, M. Lafferty, C.H. Henderson, M. Jones, J.G. Lowe, **Pruritus and skin hydration during dialysis,** Nephrol Dial Transplant (1996) 11: p. 2031-2036

Background: Dry skin is frequently observed in uraemic patients and a link with the common complaint of pruritus has been suggested. Objective data on skin dryness in haemodialysed patients is sparse and equivocal. No such information exists for the many patients now receiving peritoneal dialysis. We assessed the prevalence and severity of both pruritus and skin dryness in a uraemic population receiving maintenance dialysis. Methods: Forty-eight haemodialysis and 24 eritoneal dialysis patients were examined and skin dryness assessed by clinical grading and measurement of stratum corneum

hydration using a corneometer. Forty age- and sex-matched controls were also assessed. Several biochemical parameters with possible relevanceto pruritus were measured. Regular emollient therapy was prescribed to pruritic dialysis patients and efficacy assessed. Results: Dialysis patients overall had clinically drier skin than controls, especially the peritoneal dialysis group. Stratum corneum hydration levels were significantly reduced in the peritoneal dialysis *(P<* 0.004), but not the haemodialysis, population. Twenty-seven per cent of haemodialysed and 54% of peritoneal dialysis patients complained of pruritus. Pruritic patients in each dialysis group had significantly lower hydration than non-pruritic patients (/><0.05). Regular emollient use in pruritic patients produced a marked reduction in severity of pruritus, abolishing the symptom in nine of 21 patients treated. Conclusion: Reduced stratum corneum hydration correlates with pruritus in patients on maintenance haemodialysis and peritoneal dialysis, and may be alleviated by simple emollient therapy.

H. Dobrev, **Value of the Non-Invasive Skin Bioengineering Investigations of the Skin Mechanical Properties In Vivo,** 5th National Congress of Rheumatology, November 1997

During recent years several modern non-invasive bioengineering methods and devices for evaluation of the skin mechanical properties have been introduced.

H. Dobrev, **Changes of Epidermal Hydration after Single Application of Different Moisturizers,** 1st Balkan Congress of Medicine, October 1997

Effects of single application of pure petrolatum, paraffin oil, glycerine, water-in-oil emulsions (65 % lipids) and oil-in-water emaulsions (25 % lipids) were studied on the volar forearm skin of 20 healthy volunteers.

M.Kläsgen-Radez, **Putting Claims to the Test**, SPC Oktober 1997

The pressure is on to substantiate your product claims or drop them altogether. Michael Kläsgen-Radez of Courage + Khazaka explains how high-tech equipment is making this possible in skin care.

A.O. Barel, R. Lambrecht, P. Clarys, B.M. Morrison Jr., M. Paye, **Comparative study of the effect on the skin of two soap bars in normal use and in the soap chamber test,** Experimental Dermatology Vol 6 No 5, ISICD and ISBS Meeting Rome 2-4 October 1997

A double-blind study of the normal use during 10 weeks of two soap bars (soap and a syndet) was carried out on 25 female subjects. Eventual skin changes were evaluated by bioengineering measurements during the ten weeks treatment. Characterization of the skin was carried out using measurements of the skin colour, hydation, skin surface pH and TEWL.

D.A. Comes, M.J. Dolan, E.J. Fendler, R.A. Williams, **Characterization and treatment of occupational contact dermatitis**, Experimental Dermatology Vol 6 No 5, ISICD and ISBS Meeting Rome 2-4 October 1997

During the last two decades, bioengeneering techniques have emerged as highly effective tools for the evaluation of skin condition. Studies have been performed to assesss the potential of skin bioengineering instrumentation and techniques for the evaluation and treatment of occupational skin condition. Using large panels of automotive technicians, bioengineering techniques, such as TEWL and skin hydration, were used to characterize the extent of contact dematitis and the effectiveness of intervention with protective moisturizing creams.

G. Richter, S. Großmann, **Comparison of special skin protective creams and ointment basis (German Pharmacopoeta DAB 10) in different irritation models,** Experimental Dermatology Vol 6 No 5, ISICD and ISBS Meeting Rome 2-4 October 1997

Skin irritation was performed with sodium lauryl sulphate (1% and 2%, big Finn Chamber, 30 min, day 1 to 5 and 8 to 11, volar side of the right forearm) or with the skin disinfectant Sterillium® (open, 30 min, 3 times daily, day 1 to 5 and 8 to 11, volar side of the left forearm), respectively on all 21 human volunteers. Assessment data: Tewameter-, Chromameter-, Corneometer-data and visual score.

A. Teglia, A. Mondelli, **Influence of cosmetic treatments on the intercorrelations of skin elasticity, hydration and microrelief,** 19th IFSCC Congress Sydney, October 1996 and Experimental Dermatology Vol 6 No 5, ISICD and ISBS Meeting Rome 2-4 October 1997

Skin Hydration, elasticity and surface microtopography are important cutaneous parameters reflecting sensory/aesthetic qualities of the skin and have been largely adopted as indicators of the effectiveness of cosmetic treatments. Several studies have been made about the influence of environmental and biological factors on them, while little is known about their correlation. Aim of our

study was to investigate their intercorrelation and possible influence of cosmetic applicartions on their relationship. 30 healthy volunteers were subject to the study over a period of one year. 7 skin sites for each longitudinal half of the body were taken as test areas: volar aspect of the forearm (3sites), upperarm, breast cheek, forehead. The subjects divided into two groups were properly instructed to apply twice a day a W/O emulsion (1st group) and an O/W emulsion (2nd group) on the test sites of a half of the body; contolateral untreated sites were used as controls. Biophysical measurements of skin hydration, mechanical properties and surface geometry were made at regular intervals over the test period for each volunteer. The data collected were submitted to statistical analyses for cross-correlation and differences of the means. The following variables were considered: electric capacitance EC as measure of the hydration of the horny layer; the viscoelastic to elastic ratio Uv/Ue and the biological elasticity Ur/Uf as mechanical properties of the skin; mean roughness depth Rz and coefficient of skin estensibility LD as parameters of the skin surface microtopography. Age of the subjects was considered as biological variable. On untreated skin were observed: significant correlation of topographycal and mechanical parameters with age; correlation of Rz with Uv/Ue (direct) and with Ur/Uf (inverse); correlation of LD with EC (inverse) and with Ur/Uf (direct). Correlation of mechanical properties with hydration was not significant. Treatment with W/O emulsion increases significantly hydration, elasticity and skin smoothness; intercorrelation of biophysical variables does not show important variations. The baseline correlation of microrelief parameters with age was reduced. Treatment with O/W emulsion increases moderately hydration and smoothness but does not effect the elastic properties of the skin; correlation of Rz with biological elasticity and viscoelastic component loses significance. Exposure of the skin to different type of emulsions ca effect selectively the cutaneous biophysical parameters and vary their intercorrelation.

J.W. Wiechers, **Relative preformance testing: Introducing a tool to facilitate cosmetic ingredient selection,** Cosmetics and Toiletries, 112 (9) 1997, p. 79-84.

D.W. Ramsing, T. Agner, **Preventive and Therapeutic Effects of a Moisturizer**. Acta Dermatovenereologica, September 1997, Vol. 77, p. 335-337

The effects of a moisturizer (Locobase) on previously irritated skin was measured using trans-epidermal water loss (Evaporimeter®), blood flow (laser doppler flowmetry) and skin moisture content (Corneometer®).

J.-L Lévêque, **Non-Invasive Methods for Efficacy Substantation: Importance and Limits,** IFSCC Conference Mexico 25-27 September 1997

In the 1970's and 80's, the first measurements for the efficacy of cosmetics using non-invasive methods were obtained, and the surprise was not in being able to show that these products had real and measurable effects, but rather showing how significant and variable these improvements could be. Today these methods remain indispensable but they must be used, as with all instrument, with care and with a critical approach so necessary for avoiding technical errors and misinterpretation. Since they can only provide indirect measurements, they cannot individually give a complete picture of the complexity of clinical phenomena and even less decribe the totality of a cosmetic property where, the pleasure of application, the sublety in the effect experienced and the result obtained in comparison to expectations and their own self-image, is blended together with the evaluation of the consumer.

B.K. Sun, H.K. Lee, J.C. Cho, J.I. Kim, **Clinical Improvement of Skin Aging by Retinol Containing Products: With Non-Invasive Methods,** IFSCC Conference Mexico 25-27 September 1997

Retinol as well as RA (retinoic acid) is well known to have many benificial effects on (photo)aged skin. But the skin irritation potential and unstable condition of the products containing them have been some problems in their cosmetic uses. So, retinol containing gel product (MDC gel) was developed for less skin irritancy and more stability in cosmetic products. To examine the clinical effects of retinol containing product, we used clinical non-invasive assessment techniques on 40 volunteers for 6 months maintaining double-blind test conditions. According to our results, the use of retinol containing product improved skin color and hydration level slightly. But there was no statistical difference. There was no erythema reaction compared to the use of RA. Especially, the skin elasticity increased above 20% and skin wrinkles od crows`feet region decreased more than 10%. Besides the instrumental analysis, a large majority of volunteers felt that their skin was improved in the case of wrinkles, elasticity, hydration and color.

H.-K. Ji, Y.-H. Jeon, **Study on Stability, Efficacy, and Effect of a Cream Containing 5% of Retinyl Palmitate,** IFSCC Conference Mexico 25-27 September 1997

Retinyl Palmitate, the skin normalizer, is useful to promote greater skin elasticity, to diminish lipid peroxidation and skin roughness following UV exposure, and promote a youthful general skin appearance. In manufacturing creams, Retinyl Palmitate (RP), which is a derivative of retinol, is used since retinol is easily oxidized by heat and light. However, only a small mount of retinyl palmitate is used since using a large amount of it may be harmful to its stability. In this study, thermal stability and UV stability of W/O-, W/S-, O/W-and MLV-type creams containing 5% of retinyl palmitate and 10% of tocopheryl acetate (TA) are measured by Chroma Meters, and the content of RP is quantitatively analyzed by HPLC at 25°C and 45°C. Also, how RP has been changed by heat, light, etc. is measured by HPLC, and toxicity of the changed substance is studied. Particle size of each type of the cream is measured, cellular renewal is measured by using DHA (dihydroxyacetone) and Chroma Meters in order to study their efficacy and effect, moisture content is measured by using Corneometer and Tewameter, and how much wrinkles are improved is studied by using Image Analyzer. Development of MLV-type cream containing 5% of RP and 10% of TA, and satisfying conditions for better creams has been successful.

V. Zuang, C. Rona, F. Distante, E. Beradesca, **The Use of a Capacitance Device to Evaluate the Hydration of Human Skin,** J. Appl. Cosmetol. 15 July-Sept.1997

In this study, the Corneometer® CM 820 has been shown to be a sensitive and useful tool, able to quantify skin hydration in a rapid and inexpensive way. The study has been designed in such a manner as to avoid as much as possible the limitations of the instrument. However, even then the results have to be interpreted with caution, bearing in mind that the instrument only gives relative information on the water content of the stratum corneum and not absolute values.

M. Arens-Corell, **Reinigung und Pflege der Babyhaut**, Kosmetische Medizin 1997 18,2

Baby skin is highly sensitive concerning dehydration and irritation. Mild cleansing agents with maximum skin compatibility and adaptation of the pH of the cleansing product to 5.5 in accordance with the developing acid mantle of the skin are necessary. For skin care water-in-oil emulsions with a strong protective effect are predominantly used. Occlusion has to be avoided. Skin compatibility and care effect should be examined by Dermatologists. The diaper region must be protected from urine and feces by mild cleansing and special creams.

H. Tronnier, **An Irritation-Test for the Evaluation of "Sensitive Skin", Tensides and Barrier-Cremes,** Kosmetische Medizin 1997 18, 2

Two variants of an irritation model are described, both of which are suitable for testing the irritation properties of surfactants as well as for determining the protective effect of skin ointments. This model can also be used to assess individual skin sensitivity in evaluations of possible occupational eczema and the length of time the subject in question is likely to remain in his/her present job. It may also prove useful for assessing job suitability.

M. Gloor, S. Schermer, W. Gehring, **Ist eine Kombination von Harnstoff und Glycerin in Externagrundlagen sinnvoll,** Zeitschrift für Hautkrankheiten H+G 7 (72) 1997

The influence of a monotherapy with glycerol and urea, respectively, on the stratum corneum hydration against exsiccation by a tenside solution and on the skin - smoothing effect was investigated in comparison with a combination therapy with glycerol and urea. Here, an increase of 5% in the dose of urea in an oil-in-water did not produce significant advantages with regard to the stratum corneum hydration and the protective effect against the dehydration by tenside solutions. In contrast to this an increase in the dose of glycerol of over 5% in an oi-in-water-emulsion proved to be efficient under both criteria. With regard to the stratum corneum hydration and the protective effect against exsiccation by tensides, the combination of 5% glycerin and 5% urea was superior to a monotherapy, with exception of the oil-in-water-emulsion containg 10% glycerin. With regard to the smoothing effect only the combination of 5% urea and 5% glycerin produced a significant advantage.

G. Sauermann, T. Mann, U. Hoppe, K. Takahashi, M. Tagawa, **Skin Care Efficacy of Phospholipids,** IFSCC and 4th Hungarian Congress on Cosmetics and Household Chemicals, Budapest 1997

Goal of the study: The question was investigated whether phospholipids dispersed in a basic vehicle formulation display skin care potential.

J.C. Espejo, J.F. Vozmediano, **Valoratión de la hidratación cutánea por métodos de exploración no invasivos,** Piel Vol.12 No.6 1997

El grado de humedada cutánea y la regulación del transito de agua hacia la atmósfera dependen de la integridad de la epidermis y más en concreto del estrato córneo.

T. Russo, V. Landeryou, L. Hall, **Polyglycerol Esters, A New Class of Active Skin Moisturisers,** Cosmetics and Toiletries Manufacture Worldwide 1997

This research has demonstrated that skin moisturisation properties of PGEs can be documented through the use of quantitative measurements. The substantivity studies have demonstrated that high HLB PEGs have the ability to be retained within the stratum corneum and are not easily removed via water washing. This substantive nature provides longer lasting skin moisturizing benefits. The independant research study at Clarkson University has provided new insight into the mechanism by which PEGs moisturise the skin.

R. Wachter, M.Hofmann, C. Panzer, E. Stenberg, **Hydagen® CMF, Multifunctional Agents of Biomarine Origin,** Cosmetics and Toiletries Manufacture Worldwide 1997

Chitosan is a natural polymer which is obtained from the shells of marine crustaceans. Different qualities of these cationic polymers were developed for the cosmetic industry according to a new process and tested in comparison with other film formers.

Gute Pflege für die Fältchen, Tagescremes für die "reife" Haut, Stiftung Warentest, Juli 1997

Für die „reife“ oder „anspruchsvolle“ Haut – charmant umschreiben die Kosmetikfirmen ihre Angbote für die ältere Haut.

Siliconas Para La Industria Del Cuidado Personal, Ciencia & Cosmetica, Año 8 No. 14

Formulatión de productos para el cuidado de la piel y del cabello, de bellezea, para el afeitado y antitranspirantes/desodorantes. Usando fluidos, emulsiones y antiespumantes de siliconas suministrados por Dow Corning.

W. Meuling, A. Franssen, D. Brouwer, J. van Hemmen, **The influence of skin moisture on the dermal absorption of propoxur in human volunteers: a consideration for biological monitoring practices,** The Science of the Total Environment, 1997

A large number of workers in agriculture are exposed daily (through skin contact) to pesticides either directly during mixing and loading or indirectly due to contact. The aim of this study was to investigate the influences of skin moisture on the dermal uptake of the pesticide propoxur.

I. Tausch, K. Bohnsack, A. Schölermann, F. Rippke, J. Grassmüller, **Efficacy of Eucerin® 10% urea cream and Aquadrate® cream in the treatment of xeroderma,** Australian Journal of Dermatology: Abstracts 19th World Congress of Dermatology, Sydney, June 1997

To compare the efficacy and safety of a 10% urea containing cream (Eucerin® 10% Urea Cream) with Aquadrate® Cream and demonstrate essential similarity in the treatment of xerosis a doubleblind intraindividual comparative study according to GCP standards was performed.

D.A. Comes, M.J. Dolan, E.J. Fender, R.A. Williams, **Treatment of contact dermatitis in the health care and automotive occupations**, Australian Journal of Dermatology: Abstracts 19th World Congress of Dermatology, Sydney, June 1997

Irritant and allergic contact dermatitis is a serious problem in many occupations. Among those with the most severe problems are automotive and body shop technicians and health care professionals. However, there is a dearth of studies which objectively characterize the extent of contact dermatitis in these occupations.

M. Lodén, **Barrier recovery and influence of irritant stimuli in skin treated with a moisturizing cream,** Contact Dermatitis, Vol. 36, No. 5, 1997

Moisturizers are used daily by many people to alleviate symptoms of clinically and subjectively dry skin. Recent studies suggest that certain ingredients in creams may accelerate the recovery of a disrupted barrier and decrease the skin susceptibility to irritant stimuli. In the present single-blind study, a moisturizing cream was tested for its influence both on barrier recovery in surfactant-damaged skin and on the susceptibility of normal skin to exposure to the irritant sodium lauryl sulphate (SLS). Parameters measured were transepidermal water loss (TEWL) and skin corneometer values, indicating degree of hydration. Treatment of surfactant-damaged skin with the test cream for 14 days promoted barrier recovery, as observed as a decrease in TEWL. Skin corneometer values also normalized more rapidly during the treatment. In normal skin, use of the test cream significantly reduced TEWL after 14 day of treatment, and irritant reactions to SLS were significantly decreased. Skin corneometer values increased after only one application and remained elevated after 14 days. In conclusion, the accelerated rate of recovery of surfactant-damaged skin and the lower degree of SLS-induced irritation in normal

skin treated with the test cream may be of clinical relevance in attempts to reduce contact dermatitis due to irritant stimuli.

L. Pereira, M. Melo, I. Jaco, S. Abrunhosa, L. Rodrigues, **Nonparametric System Analysis Approach for the Characterization of Skin Hydration Dynamics**, Poster, IN COSMETICS/ISCD Conference, Düsseldorf 4-7 May 1997

From a functional point of view skin is a highly complex organ with interfaces sensitive and homeostatically equilibrated biological systems with a number of aggressive environmental conditions.

L. Rodrigues, P. Pinto, P. Quaresma, N. Galego, N. Silva, M. Melo, M. Fitas, H.M. Ribeiro, L.M. Pereira, **Testing the Biological Efficacy of Facial Moisturising Creams, Short-Term and Long-Term Studies,** Poster, IN COSMETICS/ISCD Conference, Düsseldorf 4-7 May 1997

Being one of the most popular consumer's preference formulations, the use of facial moisturizers is fast growing into the normal diary personal skin care habits, being inclusively regarded as an important therapeutical co-adjuvant in clinical dermatological practice.

P. da Silva, P. Pinto, N. Galego, N. Silva, P. Quaresma, L.M. Pereira, L. Rodrigues, **Assessment of the Biological Effects of Human-like Ceramides**, Poster, IN COSMETICS/ISCD Conference, Düsseldorf 4-7 May 1997

The study of epidermal component biological functions is a central theme in human skin biology among with Ceramides representmajor group following the regognitionof its imporatant involvement in some physiological processes such as "epidermal barrier function" and "skin aging".

P. Quaresma, N. Silva, L. Gouveia, S. Longo, P. Pinto, N. Galego, L. Rodrigues, **Effect of Post-occlusive Hydration on Human Skin Profile Evaluated by Light Transmission Optometrical Analysis,** Poster, IN COSMETICS/ISCD Conference, Düsseldorf 4-7 May 1997

Development of new skin profile analysis systems has been an important research motivation specially concerning cosmetological science 1-5.

H.M. Ribeiro, L. Nougiera, L. Rodrigues, L. Pereira, J. Morais, **Skin Surface Kinetic Analysis to Assess the Efficacy of Haircare Polymers Applied to Skin Care Formulations,** Poster, IN COSMETICS/ISCD Conference, Düsseldorf 4-7 May 1997

Stratum corneum (SC) water retension properties are a crucial factor in keeping the skin supple and flexible.

A. Barel, P. Clarys, I. Manou, **Objective Evaluation of the Cosmetic Use of Some Selected Essential Oils as "Active Ingredients" in Skin Care Products,** Conference Proceedings - IN-COSMETICS 97

The first sources of medicinal products; skin care and care products were plants and herbs.

K.-P. Wilhelm, **Skin Hydration Measurements: General Considerations and Possible Pitfalls,** Conference Proceedings - IN-COSMETICS 97

The primary function of the stratum corneum (SC), the outermost skin layer; is to protect our body from dessication and from a barrier to percutaneaous absorption of topically applied xenobiotics.

D. Khazaka, **Claim Support and Efficacy Testing,** Industry Supplier News 1997

P. Clarys, I. Manou, A.O. Barel, **Influence of temperature on irritation in the hand/forearm immersion test,** Contact Dermatitis Vol. 36 No. 5 1997

As indicated by in vitro experiments the penetration of irritants through the skin is significantly influenced by the temperature of the solution. In vivo experiments, demonstrated equally a significant influence of temperature in surfactant-induced skin irritation. In order to evaluate the irritant potential of detergent solutions under normal user conditions, we used the hand/forearm immersion test. We compared 2 detergents with different anionic character in a repetitive immersion protocol (30 min immersion on 4 consecutive days). The solutions were tested at 2 temperatures (37°C and 40°C). The irritation was quantified by assessment of the stratum corneum barrier function (transepidermal water loss), skin redness (a*colour parameter) and skin dryness (capacitance method). Both detergents affected the integrity of the skin in a significant way. The anionic content as well as the temperature of the solutions were found to be determinative for the irritant potential, with a stronger response for higher anionic content and temperature, respectively.

D.A. Comes, M.J. Dolan, E.J. Fendler, T.K. Turner, R.A. Williams, **Physiological and Microbiological Effects of Topical Alcohol Gel Use,** GOJO Industrie, Inc. 1997

F. Stäb, G. Sauermann, and U. Hoppe, **Evaluation of Moisturizers,** Bioengineering of the Skin CRCPress Skin Surface Imaging and Analysis 1997

The stratum corneum (SC) skin of human consists of 15 or more layers of dead corneocytes, depending on the skin site. The water content of the outermost layers of SC is very low in comparison with the innermost part of SC and the lower layers of the epidermis. Therefore, the existence of a physiological relevant water gradient in stratum corneum can be generally assumed. Along this gradient, water diffuses passively from the living part of the epidermis to the skin surface. this normal physiological transeqidermal water loss depends on an intact barrier function of SC and appears to also be important for the transepidermal signalling and regulation of the cell renewal rate in the epidermal basal keratinocyte layer. The water content of the stratum corneum is influenced by endogenous and exogenous parameters and can even be modulated by environmental humidity.

J.W. Wiechers, **A Supplier's contribution to performance testing of personal care ingredients,** SOFW-Journal, 123. Jahrgang 14/97

Current cosmetic formulations address a wide variety of customer needs. This variety requires a plethora of personal care ingredients. In order to create excellent new products, it is essential that the formulator not only knows the physical properties of the components (s)he chooses, but also the skin performance that these products may have. In order to facilitate the selection process for the formulator, we have investigated the effect of our products against some of the most prominent claim areas of cosmetic products: skin moisturisation, elasticity, substantivity, and mildness.

E. Beradesca, **EEMCO guidance for the assessment of stratum corneum hydration: electrical methods,** Skin Research and Technology 1997-3

The improvement of stratum corneum hydration is one of the most important claims in the cosmetic industry. Objective assessment of moisturization can be done with devices based on electrical methods provided these instruments are used in an appropriate manner.

A.O. Barel, P. Clarys, **In vitro calibration of the capacitance method (Corneometer CM 825) and conductance method (Skicon-200) for the evaluation of the hydration state of the skin,** Skin Research and Technology 1997-3

A major problem with electrical measurements of the capacitance of the skin using the well known capacitance method (Corneometer) resides in the fact that the results of this instrument are expressed as arbitrary capacitance hydration units that are not directly related to real electrical units or to the water content of the horny layer. The purpose of this study was to establish a calibration of the capacitance method using a simple in vitro simulation system of the horny layer.

P. Clarys, I. Manou, A. Barel, **Relationship between Anatomical Skin Site and Response to Halcinonide and Methyl Nicotinate Studied by Bioengineering Techniques**. Skin Research and Technology 3/1997

Regional differences in percutaneous penetration and skin properties are well documented. However, only a few studies have investigated the relationship between substance penetration and specific skin characteristics in function of the body region. It was our aim to evaluate the physiological effect of topically applied substances in function of skin parameters determined at different body regions.

J. Bettinger, J. Fluhr, M. Gloor, W. Gehring, **Have Oil/Water Emulsions a Dehydrating Effect on the Horny Layer,** Euro Cosmetics 3/97

Since oil/water emulsifiers can be considered as surfactants which have a strong dehydrating effect, this study investigates the question of whether the usage of o/w emulsions also has a dehydrating effect on the skin. In 5 groups, each with 10 experimental subjects, five different o/w emulsions were used. One arm of each subject was treated with the emulsion over 3 days. Both arms were then washed with pure water and subsequently the moisture content of the horny layer measured with a corneometer. For unpretreated skin in all cases the washing lead to dehydration; none of the o/w emulsions led to any additional dehydrating effect.

D.A. Comes, M.J. Dolan, E.J. Fendler, T.K.T urner, R.A. Williams, **Effects of Alcohol Gel on Human Skin**, American Academy of Dermatology, 55th Annual Meeting March 1997

Alcohol has been historically recognized as a safe and effective topical antiseptic with the undesirable characteristic of skin drying. The formulation of alcohol gels may mitigate or eliminate the drying effect of the alcohol. This study was initiated to evaluate the effects of alcohol gels on the skin.

D.A. Comes, M.J Dolan, E.J. Fendler, T.K. Turner, R.A. Williams, **Effects of an alcohol Sanitizer (Gel) on Human Skin,** Poster at AAD, San Francisco March 1997

Alcohol has been historically recognised as a safe and topical antiseptic with the undesirable characteristic of skin drying. The formulation of alcohol gels may mitigate or eliminate the drying effect of alcohol. This study was initiated to evaluate the effects of alcohol gels on human skin. This study provides a comprehensive assessment of the effects of alcohol gels on human skin.

P. Clarys, R. Lambrecht, A.O Barel, **Does lipid sampling with the Sebutape technique disturb the skin physiology?**, Skin Research and Technology, 1997, 3 p. 169–171

Lipid sampling with the Sebutape technique takes at least one hour to obtain a representative follicular pattern.

U. Heinrich , **Potwierdzanie Dzialania Kosmetycznego,** Pollena 2/97

Proof of cosmetic efficacy. In the following some methods, which have proven to be relevant in establishing cosmetic efficacy are shown. With the help of these methods and a special study design, it is possible to determine and to evaluate the character and extent of the influence cosmetics have on skin care and smoothing effects. (Article in Polish)

V. Zuang, **Zastosowanie Corneometru CM 820 Do Oceny Nawodnienia Skory Ludzkiej;** Pollena 2/97

The use of Corneometer CM 820 to evaluate the Hydration of Human Skin. Directive 93/35/EEC on the testing of cosmetics requires that evidence is provided to support the efficacy claims made for marketed products. In order to fulfil this requirement without resorting to the use of animals, non-invasive skin bioengineering techniques are now being employed with human volunteers. These techniques provide quantitative and objective data, if the measurements are performed under rigorously standard conditions. In this study, a non-invasive instrument, the Corneometer® CM 820, which measures skin capacitance, has been used to evaluate the short term effects of three commercially available moisturisers, by monitoring the water content of the stratum corneum at different treated test sites of human skin (inner forearm) in comparison with that at an untreated site. A standard reference material (20% glycerol in distilled water) was employed, so that results could be compared between laboratories and to avoid differences relating toinstrumentation and methodologies. Measurements with the Corneometer© CM 820 were taken at the baseline visit, bafore product application, and at 1, 3, and 6 hours post application, at each test and control site.

K.P. Wilhelm, proDERM institut for applied Dermatological Research GmbH. Schenfeld, Germany. **Client-Server based On-Line Data Acquisition for Skin Bioinstrumentation Devices**.

During dermatological safety and efficacy studies, huge amounts of data- both instrumental data as well as evaluator scores may accumulate. We have developed an integrational data with on-line data acquisition capability. The program runs in a Macintosh network. A graphical interface facilitates data entry. A multilevel password system secures unauthorised use. In order to comply with GCP/GLP requirements all data entries and any possible changes relating to experimental studies- both scores and instrumental values -are secured in a log file together with date, time, and initials of the person entering the data. The program can at present acquire data from: Chromameter (Minolta), Tewameter, Corneometer, pH-Meter, Sebumeter, Mexameter, (all Courage and Khazaka). However, the open architecture would easily allow to incorporate more instruments with a serial interface. Data can be exported in DOS, windows or Macintosh format for easy import into any spreadsheet or statistics programs. The program has been completely validated and successfully used in a contract research organisation for over 12 months. Automatic data acquisition has proven to be very useful tool to facilitate and speed up data analysis and to enhance the quality and reliability of test results.

D.A. Comes, E.J. Fendler, M.J. Dolan and R.A. Williams, **Bioengineering Instrumentation: Automation and Use.** Skin Research and Technology, Vol. 2, No.4, Nov. 1996

Objective: The increasing complexity and use of bioengineering skin test instrumentation has created a critical need for unified software that controls the instruments, collects and stores data, performs analysis, and generates reports. In this study, user-friendly software programs were developed and applied to perform panel testing on a large number of test subjects utilising bioengineering skin test instrumentation. Methods/Results: Generic software programs were developed to integrate and automate operation, data storage, and data analysis of multiple bioengineering skin instruments. The software was applied to the following instruments:- Courage and Khazaka - Sebumeter SM810, Corneometer CM 820, skin pH-meter 900, Tewameter TM210; Minolta Chromameter CR300,

and NOVA DPM 9003. Conclusions: Automation of skin bioengineering instrumentation allows evaluation studies to be performed using a large number of test subjects (with multiple variables). This greatly increases the statistical validity of data and overall efficiency, whilst negating the historical constraints which required a large commitment of resources.

K.P. Wilhelm, **Possible Pitfalls in Skin Hydration Measurements.** Skin Research and Technology, Vol. 2, No.4, Nov 1996.

Stratum Corneum (SC) and the outermost skin layer adapts quickly and efficiently to variable outside relative humidities by means of binding or releasing water. The water content (WC) of SC greatly influences the appearance, surface contour and feelingof the skin. A broad range of cosmetic and pharmaceutical products aim to increase WC of SC. However, the visual appearance of "dry and rough", or "hydrated and soft" skin is not only determinedby the SC WC, but also by the quantity and the quality of intercellular lipids. It is therefore almost impossible to determine the WC of SC visually.
Various instruments utilising electrical methods, eg capacitance, impedence, resistance and conductance, are commercially available for the objective measurement of SC hydration. However, all methods may be influenced by various surces of disturbance. Additionally, systematic errors in the study design may invalidate the results independant of the methodology behind the instrument.
Care has also been taken in the interpretation of the data obtained. Various specific examples of possible pitfalls in skin hydration measurements as well as a strategy to avoid them will be presented

A. Barel, **Evaluation of Stratum Corneum hydration: Comparison between Electrical Capacitance (Corneometer CM825) and Conductance (Skicon 200) Measurements,** Skin Research and Technology Vol. 2 No. 4 Nov. 1996

In vivo determinations of the hydrationof the superficial laayers of the epidermis can be carried out using electrical instruments. We compared the conductance (microSiemens) at high frequency (3.5Mhz) and a recent version of the corneometer, CM 825, designed to measure the capacitance at high frequency (1.0 Mhz). Calibration of the capacitance instrument is now possible using filter paper impregnated with a moiturising aqueous solution and with solvents of different dialectic constant. The detection depth of the probe can be evaluated when covering the moistened filter paper with plastic foil of variable thickness. The accuracy, sensivity and reproducibility of the measuring capabilities of both instruments were compared in vivo on subjects with a wide range of hydration state of the horny layer.

P.M. Clarys, A.O. Barel, **The Influence of a Single Topical Corticosteroid Application on the Hydration State of the Stratum corneum,** Skin Research and Technology, Vol. 2, No. 4, Nov 1996.

The impact of vehicle properties on stratum corneum hydration and bioavailability of active substances is well known. As demonstrated by the reports on side effects after prolonged treatment with topical corticosteroids, the active substance may equally effect the integrity of the stratum corneum. Few studies evaluate the short term effects of topically applied corticosteroids. In our experiment, we evaluated the influence of a single topical corticosteroid application on the stratum corneum hydration. Two different corticosteroid molecules were tested as well as the influence of the applied quantity, the time, the corticosteroid concentration and the influence of a moisturiser (urea). One of the tested corticosteroid caused drying of the skin while the other did not. The addition of urea caused an increase of stratum corneum hydration.

M. Lodén, **Measuring Hydration of the Skin: A Practical Approach,** Skin Research and Technology, Vol. 2, No. 4, Nov 1996.

Techniques for the assessment of skin hydration are often based on the electrical properties of the skin.

M.A. Francomano, K. Mantovani, P. Pepe, A. Di Nardo, S. Seidenari, **Baseline Biophysical Skin Parameters in Subjects with Sensitive Skin,** Skin Research and Technology, Vol. 2, No. 4, Nov 1996.

Aim of the study: to assess the baseline biophysical parameters in subjects with sensitive skin.

C.A. Morton, M. Lafferty, C.H. Henderson, M. Jones, J.G. Lowe, **Pruritus and skin hydration during dialysis,** Nephrol Dial Transplant (1996) 11: p. 2031-2036

Background: Dry skin is frequently observed in uraemic patients and a link with the common complaint of pruritus has been suggested. Objective data on skin dryness in haemodialysed patients is sparse and equivocal. No such information exists for the many patients now receiving peritoneal dialysis. We assessed the prevalence and severity of both pruritus and skin dryness in a uraemic population receiving maintenance dialysis. Methods: Forty-eight haemodialysis and 24 eritoneal dialysis patients were examined and skin dryness assessed by clinical grading and measurement of stratum corneum

hydration using a corneometer. Forty age- and sex-matched controls were also assessed. Several biochemical parameters with possible relevanceto pruritus were measured. Regular emollient therapy was prescribed to pruritic dialysis patients and efficacy assessed. Results: Dialysis patients overall had clinically drier skin than controls, especially the peritoneal dialysis group. Stratum corneum hydration levels were significantly reduced in the peritoneal dialysis *(P<* 0.004), but not the haemodialysis, population. Twenty-seven per cent of haemodialysed and 54% of peritoneal dialysis patients complained of pruritus. Pruritic patients in each dialysis group had significantly lower hydration than non-pruritic patients (/><0.05). Regular emollient use in pruritic patients produced a marked reduction in severity of pruritus, abolishing the symptom in nine of 21 patients treated. Conclusion: Reduced stratum corneum hydration correlates with pruritus in patients on maintenance haemodialysis and peritoneal dialysis, and may be alleviated by simple emollient therapy.

A. Herpens, U. Maerker, V. Schreiner, U. Hoppe, **Estimation of epidermal turnover by semiautomatic measurement of corneocyte area**, Proceeding of the 19th IFSCC Congress, Sydney 10/96

Different approaches and cosmetic ingredients have been described as being able to enhance the epidermal turnover (ET) of the skin of the elderly, for example peeling of the stratum corneum (SC) and/or topical application of alpha-hydroxyacids and retinoids.
Measurement of the efficacy of such procedures currently relies on estimation of the rate of disappearance of a stratum corneum coloration achieved by covalent binding of dyes to structural dyes or lipids of the SC (SC transmits time studies, 1, 2). But these methods should be considered with great care because there are possible sources of artefact.
We present a method and measurement protocol we believe to be less susceptible to such pitfalls, more closely related to changes in the mitotic activity of the epidermal cells, delivering reliable and producible results and significantly less invasive to human volunteers. Our method mainly relies on exfoliative cytology with assessment of the parameter "corneocyte area"(CA), which is well-known to be closely related to ET as shown by its strong dependance on age (3,4).

D.A. Comes, E.J. Fendler, M.J. Dolan, R.A. Williams, **Work Cream Effectiveness with a Heavy Duty Skin Cleanser,** Skin Research and Technology, Vol. 2, No. 4, Nov 1996.

The acceptability and effectiveness of creams is mitigating or improving contact dermatitis of automotive mechanics was studied using multiple bionengineering skin instrumentation techniques, visual skin ebaluation and subject self-evaluation.

R. Voegeli, J. Meier, S. Doppler, J. Stürzebecher, P. Girard, **Elastase and Tryptase Determination on Human Skin Surface,** Cosmetics and Toiletries Magazine Vol. 111 July 1996.

The skin, as an organ enveloping the body, mainly functions to seal and mediate the body from the environment. Various biochemical and biophysical systems help maintain the integrtiy of this exposed organ via complex physiological processes with well-defined interactions between cells and enzymatic reaction cascades

J. Woodruff, **Testing time,** Cosmetics, June 1996

In his continuing series on impending EC cosmetics-legislation, John Woodruff looks at the requirements for proof of efficacy, and takes a trawl around available testing facilities.

S. Seidenari, B. Belletti, G. Pellacani, **Time Course of Skin Changes Induced by Short-term Occlusion with Water: Evaluation by TEWL, Capacitance, and B-scanning Echography**, Skin Research and Technology, Vol. 2 No.1 February 1996.

Application of water under occlusion increases hydration of the stratum corneum, thereby swelling the corneocytes and promoting the uptake of water into intercellular lipid domains. Hydration values, as measured by capacitance, remain higher for 20 min after soaking skin with tap water. Equalisation of water diffusion between the stratum corneum and the ambient air occurs within 20 min. Water, re-emitted from a 24h occlusion site, is recorded as increased TEWL values. B-scanning techniques, based on segmentation, enable the visual observation of the dynamics of changes due to inflammatory processes in the skin and the quantitive assessment of epidermal and dermal components of skin reactions. The effects of simple occlusion with a test chamber are assessable using the echographic evaluation of dermal edema. The aim of our study was to investigate the sonographic aspects of hydration, as documented by measurements of TEWL and capacitance, induced by a short-term occlusion with water.

A. Dweck, **Botanicals –Research of Actives**, Cosmetics & Toiletries magazine, Vol. 111, January

1996, p. 46-57

Because skin care products cannot infringe on the Medicines Act, it is important to start with some definitions.

J. Bettinger, J. Fluhr, M. Gloor, W. Gehring, **Have oil/water emulsions a dehydrating effect on the horny layer?**, Kosmetische Medizin 1996 1: 46-49, 1996

The emulsifiers used in wash solutions, which have a dehydrating effect on the horny layer of the skin, have a large hydrophilic and a small lipophilic moiety. Such oil/water (o/w) emulsifiers are also used in o/w emulsions, although here combined with emulsifiers, which are responsible for the consistency of the emulsion. Under repeated use of the o/w emulsions, the emulsifiers remain on the skin after evaporation of the water component. It can be assumed that on renewed contact with water by showering, bathing or sweating, this can form a wash solution, resulting in skin dehydration. The intention of the present work was to answer this question.

H. Gerny, **IV Medizinische und Kosmetische Behandlungen,** Kosmetik und Dermatologie, Krause & Pachernegg Verlag GmbH, Wien.

Die Langzeitwirkung einer Pflege kann nur dann einigermaßen beurteilt werden, wenn ein klar definierter Ausgangspunkt bezüglich des aktuellen Hautzustandes und Hauttypes gegeben ist. Die Bestimmung des Hauttypes ist ein sehr komplexer Vorgang, da viele äusserliche Einflüße auf unser Hautbild einwirken. Auch ist die Haut hormonell empfindlich und stellt ein Bild unseres Innenlebens dar. Da der Zustand der inneren Schichten ohne chirurgische Maßnahmen nicht definitiv beurteilbar ist, kann nur die Summe aller Beobachtungen durch Auge, Lupe, und Woodlampe sowie Apparativer Hilfsmittel einen approximativen Anhaltspunkt über den Zustand der Haut geben. Es ist empfehlenswert, nach dem 35. Altersjahr von Zeit zu Zeit eine Hautbeurteilung durchführen zu lassen, um die Pflege nach dem aktuellen Hautbedürfnis anzupassen.

L. Celleno, A. Vasselli, M.V. Tolaini, A. Mastroianni, F. Macchia, **Verifica di tollerabilità ed accetabilità cosmetica di detergenti cutanei: confronto di metodiche,** Cosmesi Dermatologica 45, 1995

La detersione cutanea è un atto igienico ma reppresenta altresi un important momento cosmetologico e dermatologico. Infatti solamente se il prodotto utilizzato è cosmetologicamente ben accettato essa risulta un atto gradevole. Inoltre spesso l'uso di tensioattivi o saponi tradizionali si traduce in un'alterazione del film idrolipidico superficiale. Se a questo fa seguito l'esposizione e il danneggiamento della strato corneo, può innescarsi quel meccanismo che conduce alla comparsa della dermatite irritativa da contatto, facilitando anche l'insorgenza della dermatite allergica da contatto (1,2).

I. Tausch, J. Gaßmüller, W.J. Kessler, **Beurteilung der protektiven und pflegenden Potenz von Lichtschutzpräparaten mit biophysikalischen Methoden**, Wissenschaft Dt. Derm. (43), 1995

Während einer zehntägigen UV-Bestrahlung wurden die Eigenschaften zweier Lichtschutzpräparate (LSF6, LSF20) untersucht. Als Vergleich dienten unbehandelte als auch mit der jeweiligen Grundlage behandelte Hautareale. Es wurde die Intensität des UV-Erythems mit einem Farbmeßgerät, die Hautfeuchtigkeit mittels der Corneometrie und die Hautoberflächenstruktur durch Profilometrie beurteilt. Beide Lichtschutzpräparate unterdrückten das UV-Erythem vollständig, der Feuchtigkeitsgehalt der Haut und die Faltentiefe blieben unverändert. In den Arealen, die einer zehntägigen UV-Bestrahlung ohne Lokalbehandlung ausgesetzt waren, traten deutliche Erytheme, Feuchtigkeitsverluste und eine Zunahme der Faltentiefe auf. Die Anwendung der Grundlagen allein zeigte nur bei einem Präparat eine leichte Lichtschutzwirkung. Neben den UV-protektiven Eigenschaften, die bei beiden Lichtschutzpräparaten gleich gut waren, sind die herausragenden pflegenden Eigenschaften der LSF20-Emulsion hervorzuheben.

A.O .Barel, P. Clarys, **Measurement of Epidermal Capacitance**, Handbook of Non-Invasive Methods and the Skin, J. Serup G.B.E. Jemec, 1995

The presence of an adquate amount of water in the stratum corneum is important for the following properties of the skin: general appearance of a soft, smooth, well-moisturized skin, in contrast to a rough and dry skin; of a flexible skin, in contrast to a brittle and scaly skin; and of an intact barrier function allowing a slow rate of transepidermal water loss (TEWL) under dry conditions. As a consequence, the in vivo determination of the degree of hydration of the horny layer is an important factor in the characterization of normal and pathological situations of this layer, of an actinic aged skin, of irritated skin conditions, and, finally, in the assessment of the effciency of various moisturizing topical products. As pointed out by Tagami, the use of various dermatocosmetic products in order to restore softness, smoothness, and moisture in very dry skin is widely practised in western countries.

F. Distante, E. Berardesca, **Hydration,** Bioengineering of the Skin: Methods and Instrumentation, CRC Press 1995

The development of commercially available measurement devices that allow for the quantitative evaluation of skin function and provide continuous data is an important advance in experimental dermatology. Indeed the measurement of skin hydration has gained considerable interest in recent years because the water content of the stratum corneum influences various physical characteristics of the skin such as barrier function, drug penetration, and mechanical properties. Generally, three different commercially available methods for evaluating skin moisture are used: capacitance, impedance, and conductance.

Kein Aha Erlebnis, Test Gesichtspflegemittel mit Fruchsäuren, Test 10/95

Sind Pflegemittel mit Fruchtsäuren wirklich die Kosmetik der Zukunft, die Wunschträume von ewig jugendlichem Aussehen wahr werden läßt? Oder reizen die Mittel vor allem die Haut, wie andere Fachleute vermuten? In neun dieser Tiegelchen und Töpfchen schauten wir genauer hinein.

P. Girard, L. Violin, A Denis, M. Maurice, **Comparison of three methods for measuring in vivo skin hydration on humans, depending on epidermal depth: "NMR Spectroscopy", "Transient Thermal Transfer" and "Corneometry"**, IFSCC - In Between Congress, Montreux, Switzerland, 18-20 September 1995

The aim of this study is to determine the more convenient method of measuring skin hydration at several epidermal depths. Two in vivo, non invasive, quantitative and innovative methods - "Nuclear Magnetic Resonance Spectroscopy! (NMRS) and "Transient Thermal Transfer" (TTT) - and conventional corneometry are compared.

M. Lodén, E. Hagforsen, M. Lindberg, **The Presence of Body Hair Influences the Measurement of Skin Hydration with the Corneometer**, Acta Derm Venereol (Stockh) 1995; 75: p. 449-450

Techniques for the assessment of skin hydration are often based on the electrical properties of the stratum corneuni. A commonly used instrument for measurements of skin moisture is the corneometer, which detects changes in the dielectric constant of the material in contact with the probe. It has been suggested that different materials, for example cream residues and desquamating scales, may interfere with the Corneometer readings, hut this question has not been settled conclusively in previous studies. In the present study the influence of body hair was examined. Significantly lower Corneometer values were obtained on the dorsal aspect of the forearm than on the volar aspect (/><0.05), indicating that the former region was less hydrated than the latter. After shaving of the skin, however, there was no difference in the Corneometer readings between the two regions. Thus, the presence of hair needs to be considered when the hydration status of the skin is examined with the use of a Corneometer.

H.C. Korting, **Rationale der Hautreinigung mit sauren Syndets,** 38. Tagung der Deutschen Dermatologen Gesellschaft, Berlin, 29. April - 03. Mai 1995

W. Gehring, M. Fischer, M. Gloor, **Die Bedeutung von rückfettenden Substanzen in Waschlösungen**, 38. Tagung der Deutschen Dermatologen Gesellschaft, Berlin, 29. April - 03. Mai 1995

Cetiol HE wird als rückfettende Substanz tensidischen Waschlösungen zugegen, um die Hautfreundlichkeit zu verbessern. Der Effekt von 5% Cetiol HE wurde im Waschversuch an 15 gesunden Probanden in vivo und in vitro am Gefrierschnitt menschlicher Haut (GMH) sowie Kammerpenetrationstest (KPT), zwei bewährten Irritationsmodellen, überprüft. Als Meßparameter in vivo galten die Hornschichtfeuchtigkeit (Kapazitätsmessung) und der transepidermale Wasserverlust (Evaporimeter)

P. Elsner, **Nichtinvasive Techniken in der Hautphysiologie,** 38. Tagung der Deutschen Dermatologen Gesellschaft, Berlin, 29. April - 03. Mai 1995

Nichtinvasive Techniken (Synonyma: Bioengineering-Verfahren, biophysikalische Meßverfahren) haben in den vergangenen Jahren in verschiedenen dermatologischen Forschungsgebieten Eingang gefunden. Dazu zählen insbesondere die Hautphysiologie, die Dermatopharmakologie und Dermatotoxikologie, die Allergologie und die Berufsdermatologie, aber auch die Erforschung der Kollagenosen, der Veränderungen der Altershaut (dermatologische Gerontologie) un die Onkologie.

A.M.Grunewald, M. Gloor, W. Gehring, P. Kleesz, **Barrier Creams,** Dermatosen 43, Heft 2 - 1995

Repetitive washing with 0.01 mol/l sodium lauryl sulphate solution for one week was followed by a measurable skin function disorder as evaluated by corneometry, laser Doppler flowmetry, and transepidermal water loss (TEWL) measurements. The application of commercially available barrier creams (Marly Skin®, Saniwip®, Tactosan®) as well as the application of well-defined oil-in-water emulsions containing 10% urea or 10% glycerol, respectively, significantly reduced skin function deterioration following repetitive washings. Urea and glycerol containing oil-in-water emulsions were at least as effective as the most effective commercial barrier cream Tactosan and had the additional advantage of better user acceptance.

P. Soto, C. Queille Roussel, B. Soler, A. Clucas, **Evaluation of a New Moisurizing Cream using a mini Regression Test,** AAD-Congress, New Orleans, February 1995

Xerosis is a very common condition affecting at least 75% of persons over the age of 64 (1) and also a significant number of younger people. Although not associated with significant physical instability, it is uncomfortable and esthetically unacceptable to many patients. Treatment is based on the use of moisturizers, of which a large variety are available commercially.

J.D. Büscher, B.C. Lippold, **Messung feuchthaltender Effekte an menschlicher Haut,** Krankenhaus-pharmazie, 15. Jahrgang, Nr. 12, 1994

Die Wirkung von Feuchthaltern auf die Barriere Stratum corneum wird mit einem Corneometer bestimmt. Diese nicht invasive und einfache Methode erlaubt quantitativ, die Veränderung der Hornschichthydratation zu messen. Glycerol, Natriumthioglycolat, Natriumlactat, Harnstoff, Propylenglycol und Natriumedetat erhöhen significant (7-12%), Diethylenglycolmonoethylether (Transcutol®) erniedrigt schwach in 10%-iger Lösung die Hautfeuchte, 2-Butanol und Ethanol bleiben praktisch ohne Einfluß.

C. Trullas, J. Coll, C. Pelejero, J. Vilaplana, S. Sirigu, C. Dederen, **Cosmetological Activity of Glycolic Acid Incorporated in a New Topical Delivery System (W/O/W Emulsion),** 18th International IFSCC-Congress, Venice, October 1994

The cosmetological potential of alpha hydroxyacids (AHA'S) is still evolving. The powerful research in physicochemistry has provided a promising new delivery system, the multiple emulsion W/O/W which could permit a controlled and sustained release of AHA'S, modifying their efficiency and safety. The cosmetological activity and safety of a W/O/W multiple emulsion containing 3% of glycolic acid has been assessed by bioengineering methods using several tests. A six-hour test and 30-days study for comparison of the effects of 3% glycolic acid in two delivery systems W/O/W multiple emulsion and O/W emulsion were conducted. The cutaneous biophysical variables evaluated were electrical capacitance of stratum corneum, skin surface lipids, transepidermal water loss, biomechanical properties, blood flow and skin surface topography. The safety of 3% glycolic acid in the two delivery systems was determined using patch testing and assessment of cutaneous responses by visual scoring and biophysical non-invasive methods (evaporimetry, laser doppler flowmetry, reflectance spectophotometry).

B. Seybold, K. Seidel, K. Beck-Devalle, F. Hevert, K. Klein, T.L. Diepgen, **Distribution and Variation of Basic Physiological Characteristics of Uninvolved Skin in the General Population - a Bioengineering Study,** The 10th International Symposium on Bioengineering & the Skin, Cincinnati, Ohio, June 13-15, 1994

The aim of the study was to data about the distribution and variation of bioengineering parameters in the general population (GP).

E. Berardesca, G.P. Vignoli, F. Distante, P. Brizzi, G. Rabbiosi, **Effects of Water Temperature on Surfactant Induced Dermatitis,** The 10th International Symposium on Bioengineering & the Skin, Cincinnati, Ohio, June 13-15, 1994

Surfactants are a common cause of irritant contact dermatitis. Their aggressive action on skin structures is well documented even though the complex meachnisms of skin irritation are not fully understood.

C. Baudry, C. Loufrani, **Les Meilleures Crèmes Hydratantes,** Le Guide D'Achat, No. 273, Mai 1994

La peau de votre visage mérite ce qu'il y a de mieux. «50» passe au crible les crèmes hydratantes.

C. Letawe, D. Castelli, GE. Pierard, **Les Nouvelles Dermatologiques**, Nouv. Dermatol.C.C.I. 1994; 13-No 4

Une étude ouverte a été réalisée avec le Cold cream fluide Kéfrane dans l'indication de la xérose atopique. Les évaluations cliniques et biométrologiques, incluant la squamométrie, la capacitance et la perte insensible en eau, on révélé après quinze jours d'applications biquotidiennes, une correction de la xérose que devient très nette après un mois de traitement.

A.M. Grunewald and M.Gloor, **Value of barrier creams against skin damage due to repeated washings,** Second International Symposium on Irritant Contact Dermatitis (ISICD), Zurich, April 14-16, 1994

The aim of our study was to evaluate the protective effect of barrier creams onto irritant contact dermatitis. Therefore the following skin function parameters were evaluated: corneal lipids (sebumetry), water content of the corneal layer (corneometry), transepidermal water loss (TEWL), pH of the skin, skin reddening (colorimetry) and skin blood flow (laser doppler flow). We did standardized washings of both arms on the first and the 8th day. The subjects were asked to wash 5 times daily for one week.
In a first study we evaluated the irritating effect of repeated washings with 0.01 mol/l sodium lauryl sulphate solution on 20 subjects. We were able to show that there is a more than 12 hours lasting change in skin function parameters after one week of repeated washings. Concerning corneometry, corneal lipids, TEWL, pH and laser doppler flow there were highly significant differences before and after repeated washings ($p<0.01$). In a second study we evaluated the irritation reducing effect of 3 barrier creams on 15 subjects for each cream. Using the same method as in our first study, one selected arm was additionally treated with a barrier cream 5 times daily. Barrier creams had a highly significant ($p<0.01$) effect on laser doppler flow, corneometry and tewl. Nevertheless they were not able to offer complete protection. The different barrier creams showed significant differently positive effects onto skin function parameters.

B. Gabard, P. Treffel, F. Charton-Picard and R. Eloy, **Irritant reactions on hairless micropig skin: A model for testing barrier creams,** Second International Symposium on Irritant Contact Dermatitis (ISICD), Zurich, April 14-16, 1994

Occupational dermatoses are most numerous among recognized occupational diseases and their frequency is increasing. Skin barrier creams (SBC) are designed to prevent or reduce the irritancy or hazardous materials in the working and/or home environment. Used repeatedly, detergents, organic solvents or cutting oils presumed to be responsible for the development of numerous chronic irritant dermatitis.
Many methods have been used to identify the potential protective efficacy of SBC but up to now, there is no widely accepted model. Main difficulties reside in the wide range of possible irritants and in the obvious need to reproduce the frequent repetition of a low-grade exposure.

Ch. Münzberger, U.F. Haustein, U. Elefant, **Effects of UVA- and UVB-radiation on transepidermal water loss, water content of the horny layer and skin surface lipids**, Second International Symposium on Irritant Contact Dermatitis (ISICD), Zurich, April 14-16, 1994

In the last year many studies have provided important new knowledge concerning the benefits and risks of skin exposure to sunlight and ultraviolet radiation, among them the acute and chronic effects on damage of the skin barrier. We examined the transepidermal water loss, the water content of the horny layer and the amount of skin surface lipids in relation to low dose UV-radiation. The transepidermal water loss was measured with the TEWAMETER TM 210, the water content of the horny layer with the CORNEOMETER CM 820 and the skin surface lipids with the SEBUMETER SM 810 PC (all from Courage and Khazaka GmbH). The ultraviolet radiation of 25 healthy adults was performed with UVA (Philips TL-K 40W/09N) and UVB (Philips TL 20W/01). One time radiation with UVA as well as with UVB did not show significant changes on all measured biophysical parameters. Transepidermal water loss, the water content of the horny layer and the amount of skin surface lipids were not different before radiation and 5 minutes, 1, 2 and 24 hours after radiation. On the contrary cumulative radiations 4 times per week resulted in damage of the skin barrier and showed changes of the biophysical parameters measured.

L.A. Scott, S.A. Pitts, P.S. Horn, C.K. Kappes, **Use of instrumental techniques for skin safety applications,** Second International Symposium on Irritant Contact Dermatitis (ISICD), Zurich, April 14-16, 1994

When properly conducted and interpreted, patch testing is a valuable tool for predicting the allergenic and irritant potential of a test material. Patch test results are currently evaluated via the use of visual grading schemes which require trained clinical graders to obtain accurate and reproducible results. Due to the element of subjectivity associated with any visual grading technique and the potential for interlaboratory variation despite common visual descriptors, alternative nonsubjective methods were

evaluated. This study was initiated to evaluate the sensitivity of various non-invasive instrumental techniques to detect the skin response following repeat patch test exposure to mild skin irritants. The instruments evaluated including the ServoMed Evaporimeter, Minolta Chroma Meter, DiaStron Dermal Erythema Meter, IBS Skicon, Corneometer and Nova Dermal Phase Meter. A repeat patch test was conducted with 0.0% to 0.15% Sodium Lauryl Sulfate applied to the outer aspect of the upper arm in a randomized fashion. Following acclimation to room conditions maintained at 20-25°C and a relative humidity of 30-35%, baseline instrumental values were established at each patch test site prior to treatment. Patches were applied for a 24 hour exposure duration each, on Friday, Monday and Wednesday. Instrumental and visual measurements were obtained daily. Colorimetric and transepidermal water loss (TEWL) measurements correlated highly (r^2>0.95) with our historic visual grading scheme, successfully detecting treatment differences in a dose dependent fashion. Minolta Chroma Meter (a*) results agreed with both the DiaStron Erythema meter and TEWL measures with Pearson correlation coefficients of 0.99 and 0.97, respectively. In contrast, skin hydration measures failed to detect treatment differences predicted by other quantitative methods. Given the ease of use, the Minolta Chroma Meter was further validated for patch test applications under non-acclimated room conditions. Minolta a* values, assessed as the difference from baseline (a* post treatment-a* at baseline), have accurately detected treatment differences for a variety of surfactant formulations. Historically, the Minolta a* value has been the sole endpoint used to evaluate the skin response. To increase the sensitivity of the Minolta Chroma Meter for patch test applications, alternative models are being explored which utilize the L*, a* and b* co-ordinates of the CIE system as a function of repeated patch test exposure. This program supports the use of the Minolta Chroma Meter for patch test applications and provides a strong opportunity to standardise patch test results.

P. Treffel, B. Gabard, E. Bieli, **Stratum corneum (SC) dynamical function measurements after irritant and moisturizer application,** Second International Symposium on Irritant Contact Dermatitis (ISICD), Zurich, April 14-16, 1994

This study was conducted on the ventral forearm of 6 healthy volunteers. Sorption-Desorpiton Test (SDT) and Moisture Accumulation Test (MAT) were performed with a Nova ™ DPM 9003. Each test was quantified by 3 parameters. SDT: Pre-Hydration State (PHS), Hygroscopicity (H), Water Holding Capacity (WHC). MAT: PHS, Water Accumulation Velocity (WAV), Water Accumulation (WA).

W. Matthies, **Assessment of skin compatibility of consumer products - Current strategy and methods in industry (exemplified on a dishwashing liquid),** Second International Symposium on Irritant Contact Dermatitis (ISICD), Zurich, April 14-16, 1994

Improvement of skin compatibility is a priority task in formulating consumer products. Experience shows that control of typical skin diseases like desiccation eczema of the hands may be reached by adequate protection and skin care, but these proportions being not always followed by the consumer. Therefore, it is a special task for industry to optimize products with respect to skin compatibility using milder surfactants, refattening agents, or other caring substances, whenever possible. Decisive instruments for improvement of formulations are standardised test models, which help comparing characterising and quantifying effects of formulations for their differentiation, and generating use related data. Modern laboratories work with in vitro secreening, e.g. cell culture techniques, skin explants or physiologic membranes in order to evaluate toxic effects of substances and formulations (Neutreal red test, skin culture, HET-CAM Model on the Chorioallantoic membrane of hen's eggs). After generating those screening data, further investigation can be performed directly in human volunteers, if general toxicity for man can be assessed as negligible and local tolerance is foreseeable good. In humans maximal short term exposition (contact with undiluted product) can be tested in an open epicutaneous test after Burckhardt. This model is suitable for classification of products according to their irritation potential, but also for assessment of use conditions, when the product is intended to be used for short time contact with the skin, only. Occlusive patch test techniques are useful for comparison of numerous variants in the same individual regarding primary irritation and kinetics of local toxic effects. Besides primary irritation mainly chapping and dryness reactions give hints for different mechanisms of action of substances on or in the stratum corneum. Assessment of the in-use situation needs test methods, which reflect the foreseeable overuse/misuse or the real home use condition. Measurements of physiologic function with physical methods (Laser Doppler Flow, TEWL, Capacity, pH-value measurement, image analysis etc) enable the investigator to objectify results and to survey studies with larger numbers of participants who are using products under real use conditions. As an example results with a new dishwashing liquid show, that this procedure is suitable to demonstrate improvement of products towards better compatibility which also can be experienced by the consumer condition.

P. J. Frosch, A. Kurte, **Efficacy of skin barrier creams (IV). The repetitive irritation test (RIT) with a**

set of 4 standard irritants, Contact Dermatitis, 1994. 31. 161-168

An improved human model for the quantification of skin barrier creams (BCs) is described. In contrast to the previously published procedure, the back, instead of the forearm, and a total of 4 irritants are used. Due to the larger area, 3 BC formulations can be simultaneously compared to the control field, which receives the irritant only, without BC-pre-treatment. On 10 human volunteers, the irritants 10% sodium lauryl sulfate (SLS), 1% sodium hydroxide (NaOH), 30% lactic acid (LA) and undiluted toluene (TOL) were applied via large Finn Chambers for 30 min, 5 x during the 1st week and 4x during the 2nd week. Taktosan Salbe (water-in-oil emulsion) and RAWI Speerschutzcreme (oil-in-water emulsion) were applied 30 min before contact with the irritants. In order to assess reproducibility and interindividual variation, the BC RAWI was tested in duplicate. Irritant cutaneous reactions were quantified by 4 parameters: erythema score, transepidermal water loss, blood flow volume and stratum corneum hydration by measuring capacitance. The results showed marked differences in efficacy. Taktosan significantly suppressed irritation by SLS. NaOH and LA, which was apparent in nearly all parameters. RAWI caused significant inhibition of SLS irritation, and a positive trend against the NaOH and LA was observed. Both BCs failed against TOL. The results of duplicate testing with RAWI showed good reproducibility. The dogma that oil-in-water emulsions are primarily effective against lipophilic irritants, and water-in-oil emulsions against hydrophilic irritants, needs to be re-evaluated on this basis of our fndings. This model seems to have potential for further studies on BCs and might elucidate the complex interaction of BCs with irritants.

W. Courage, **Hardware and Measuring Principle: Corneometer,** Biogengineering of the Skin: Water and the Stratum Corneum", edited by: Peter Elsner, Enzo Berardesca, Howard I. Maibach, 1994.

The degree of moisture of the stratum corneum (SC) is an important factor when medically evaluating the skin function. The importance of this parameter in dermatology has already been described and discussed in detail in the literature. Generally, four different measuring methods for skin moisture are practiced: infrared spectroscopy, resonance frequency, impedance, and the Corneometer® capacitance methods. Impedance and Corneometer® methods are widely used today.

G. Marti-Mestres, J. Passet, H .Maillols, V. van Sam, J.J. Guilhous, J.P. Mestres, B. Guillot, **Evaluation expérimentale de l'hydratation et du pouvoir occlusif in vivo et in vitro d'excipients lipophiles et de leurs émulsions phase huile continue,** Int. Journal of Cosmetic Science 16, 161-170, 1994

Une étude a été réalisée sur trois émulsions eau dans huile et leurs phases grasses respectives, vaseline, huile de paraffine et huile d'amande douce, en vue de comparer luers propriétiés occlusives et par voie de conséquence leur influence sure l'hydratation cutanée. Une méthode in vitro utilisant des cellules de type 'Patel' a permis dans un premier temps de classer les différentes émulsions et leurs phases grasses en fonction de leur perméabilité à la vapeur d'eau, ce qui conduit par ordre croissant de degré d'occulsion à: huile d'amande douce, huile de paraffine et vaseline. Pour les études in vivo chez l'homme, l'influence de l'application des mémes substances sur la petere insensible d'eau (PIE) et l'hydratation cutanée a été mesurée avec un évaporimètre et un cornéomètre. Les différentes pahses grasses, utilisées pures, augmentent l'hydratation par effet occlusif, ce phénomène étant objectivè par les mesures de PIE. Par contre pour les èmulsions correspondantes, il semblerait que l'augmentations de l'hydratation ne fasse pas intervenir de mécanisme occlusif.

R.A. Tupker, **Prediction of Irritancy,** Bioengeneering of the Skin: Water and the Stratum Corneum, 1994, Chapter 7

"All substances are damaging to some people under some circumstances." This statement by Kligman stresses the importance of extrinsic and intrinsic factors in skin irritancy. The dichotomy of "extrinsic" and "intrinsic" also appears in the theory concerning the pathogenesis of chronic irritant dermatitis. Wether or not this type of dermatitis will develop depends on the balance between the sum of all harmful influences. (detergents, shampoos, solvents, dry wind, blow heaters, etc.) on the one hand, and the repair capacity of the skin on the other hand. Chronic irritant contact dermatitis is one of the most frequently encountered skin diseases and constitutes the ultimate purpose of performing predictive irritancy testing, division into extrinsic and intrinsic yields two main categories: (1) predictive irritance testing of various substances aimed to select the least irritating substance and (2) predictive irritancy testing with one or more standard irritant(s) aimed to select a population that is at risk for chronic irritant contact dermatitis. This chapter deals with some methodological considerations in predictive irritancy testing. Animal irritancy tests such as the Draize assay are still commonly used. However, it is known that different species exhibit varying reactivity, especially toward agents with low irritant potency. This chapter focuses therefore on human skin testing.

B. Gabard, P. Treffel, **Hardware and Measuring Principle: The Nova^{tm} DPM 9003,** Bioengeneering of

the Skin: Water and the Stratum Corneum, 1994, Chapter 15

Standard methods used to evaluate the hydration state of the skin surface have focused on visible skin characteristics such as rough, scaly surface. Besides the fact that only "dryness" and not "hydration" can be evaluated by this method, clinical evaluation of the severity of the lesions is subject to two main criticisms: variation between observers and nonparametric description (i.e. ordinal data) for quantification. Therefore, development of commercially available measurement devices that allow for quantitative evaluation of the skin function and provide continuous data is an important advance in experimental dermatology. In particular case of the hydration of the stratum corneum (SC), most instruments use electrical methods to quantify moisturization, such as the Skicon® and the Corneometer® which have gained acceptance. A third is now available, the NOVATMDPM 9003, which will be described here.

M. Lodén, M. Lindberg, **Product Testing-Testing of Moisturizers,** Bioengineering of the Skin: Water and the Stratum Corneum, 275-288, 1994

Moisturizers are used to restore and/or to maintain a normal function of the stratum corneum (SC). Mostly they are used on the indication of so-called dry skin. When performing product testing of moisturizers, bioengineering devices are used for evaluating how these products affect the function of SC, the main diffusion barrier in the skin. Biophysical measurements of dry skin need to be carefully evaluated. A number of highly developed noninvasive methods for the study of skin physiology have appeared during recent years and a number of papers on the use of these methods are now being published.

D. van Neste, **Skin Hydration in Detergent-Induced Irritant Dermatitis**, Bioengineering of the Skin: Water and the Stratum Corneum, 223-232, 1994

It is a thermodynamic rule that water escapes "passively" through the body surface of a homeothermic living organism and returns into a cool and dry environment. There is a consensus in viewing the primary role of the epidermis as a producer of a structurally highly ordered hydrophobic domain usually confined to the extracellular spaces within the stratum corneum (SC). Indeed, after terminal differentiation, corneocytes are embedded in a continuous meshwork of lipid bilayers. The aim of the specialized domain is to prevent desiccation of the body. In this concept, programmed cell death of SC cells makes them like missiles with a lipid load synthesized in the cell after launching and extruding from the cell after completion of the differentiation program. Recently it became clear that flux of water through the SC is a regulatory mechanism for cell proliferation.

J.Bettinger, M. Gloor, W. Gehring, **Influence of a pretreatment with emulsions on the dehydration of the skin by surfactants,** Int. Journal of Cosmetic Science 16, p. 53-50, 1994

Improving the water content of the horny layer of the skin is of great importance in dermatology (atopic dermatitis, ichthyosis etc.) and in cosmetics (to soften the skin surface
[1]. It is believed that emulsion bases lead to hydration of the stratum corneum [2]. The hydration is believed to last a few minutes if an o/w-emulsion is used [3] and a few hours in the case of w/o-emulsions [4].The present study addresses whether the hydrating effect really does last for such a short time. Literature also proposes an increase in water content by using urea, which is a component of many dermatological skin-care ointments [3, 5-8].

A. Teglia, G. Secchi, **New protein ingredients for skin detergency: native wheat protein-surfactant complexes**, Int. Journal of Cosmetic Science 16, p. 235-246, 1994

The cutaneous tolerability of detergent formulations can be improved by means of suitable additives. Exogenous proteins, for example, are able to reduce the skin irritation potential of surfactants according to a double mechanism: they complex the surfactant molecules lowering the concentration of their free monomeric species; they link to the skin keratin forming a protective colloidal layer that shields the denaturing attack of surfactants. Protein derivatives used as additives for detergency are usually prepared by partial hydrolysis of animal sclero-proteins or plant reserve proteins. The main purpose of the hydrolytic cleavage is to make them water soluble and suitable for liquid products. Native, non hydrolysed wheat proteins have been recently introduced as active ingredients for detergents. Water solubility and stability are obtained by means of complexion with surfactants which also increases their actual hydrophobicity, an important parameter affecting cosmetic properties of proteins.

G. Borroni, C. Zaccone, G. Vignati, G.P. Vignoli, E. Berardesca, G. Rabbiosi, **Dynamic Measurements: Sorption-Desorption Test,** Int. Journal of Cosmetic Science 16, p. 217-222, 1994

Probably no concept in physiology of the skin has been so improperly used as the term "hydration of the stratum corneum (SC)", for the simple reason that the SC is physiologically poor in

water and is one of the tissues in the human body with the lowest water content. The SC of the human skin is dry. Despite the frequent use of the term "hydration" with regard to the SC, this is not even exceptional when compared with the most external layers of the integument of many other animal species. Rather than hydration of the SC, we need to speak about "critical or optimal dehydration", given the progressive but controlled tendency of water in the human skin to decrease from the innermost to the outmost layers of the SC. The SC's dryness is a factor favouring the integrity of the underlying organism and is a means through which the skin's barrier function is carried out. The exceptional poverty of water in the SC, and hence its high hygroscopicity, has encouraged the development of a simple but ingenious research approach: bathing the SC with water and seeing for how long it remains damp.

P. Clarys, C. Eeckhout, J. Taeymans, P. Gross, A.O. Barel, **Influence of short daily exposure to thermal water on the hydration state of the skin,** Threat to the Skin, p. 333-337, 1994

The thermal Kurzentrum of Lenk (Switzerland) is one of the spas recognized by the Department of Health of Switzerland as a centre specialized in the treatment of rheumatic patients. Part of the typical 3-week cure in the centre consist of daily bathing in hot thermal water containing high concentrations of salts and sulphur (sulphates and hydrogen sulphide). According to recent data from balneo-therapeutic treatments, the sulphur which penetrates the skin is oxidized and provokes various physiological responses in the skin: vasodilatation in the microcirculation, an analgesic influence on the pain receptors and inhibition of the immune response.

R. Bimczok, A. Ansmann, S. Bielfeldt, D. Billek, H. Driller, G. Feistkorn, F. Heinze, R. Huttinger, B. Komp, H. Lautenschläger, M.-C. Leneveeu-Duchemin, L. Motitschke, L. Pohl, A. Reng, H.-J. Schulze, B. Thomaskamp, K. Tolkiehn, H. Tronnier, H.-U. Wekel, K.P. Wittern, **A multicenter comparison of different test methods for the assessment of the efficacy of skin care products with 368 human volunteers**, J. Soc. Cosmet. Chem., 45, 1-19 (January/February 1994)

In a mulricenter study, commonly used objective and subjective methods for the assessment of the efficacy of skin care products were compared. The study was performed with two different all-purpose skin care creams at eleven centers in Germany, with a total of 368 healthy female volunteers. Measurement of skin hydration with the comeometer demonstrates a fundamental improvement of skin condition and correlates with subjective assessment by the volunteers. Results are statistically highly significant, and there is a fair correlation between the different centers. The methylene blue method, surfometry, and image analysis are also suitable for performance measurements, but show broader standard deviations and lower statistical significance. Under the chosen conditions, results for TEWL and skin surface lipid measurements were not significant at the $p < 0.05$ level.

G. Yosipovitch , E. Tur, G. Morduchowicz, G. Boner, **Skin surface pH, moisture, and pruritus in haemodialysis patients**, Nephrol Dial Transplant. 1993; 8(10): p. 1129-32

Pruritus is one of the most common complaints of haemodialysed patients. However, its pathogenesis remains unclear. Dryness of the skin and the effects of pH changes on the nerve endings in the skin have been suggested as related factors. In the present study we measured skin pH using a skin pH meter and skin moisture using a corneometer at four different sites in 41 haemodialysis patients, before and after dialysis, and in 40 healthy controls. Thirty patients (73%) complained of pruritus, six severe constant, 12 moderate and 12 mild. Skin surface pH was higher in patients than in controls in the upper back (5.54 +/- 0.14 versus 5.22 +/- 0.08, $P < 0.02$), forearm (5.5 +/- 0.1 versus 5.13 +/- 0.1, $P < 0.01$) and forehead (5.35 +/- 0.08 versus 5.04 +/- 0.07, $P < 0.004$), whereas there was no difference in the axilla. Haemodialysis had no effect on skin pH, and there was no correlation with blood pH, blood bicarbonate and serum electrolytes. There was no correlation between skin surface pH and pruritus. Skin moisture was lower in haemodialysis patients than in controls in the forehead and axilla. There was no correlation with pruritus. Skin surface pH is higher in haemodialysed patients than in healthy controls in most areas of the body, despite the fact that these patients have a decreased blood pH. Thus, the skin pH is not related to systemic acid-base balance. It is possible that the uraemic state affects the ability of the dermal cells to secrete acid, making the skin more susceptible to bacterial and fungal infections.

P.J. Frosch, A. Kurte, **Efficacy of Skin Barrier Creams,** Contact Dermatitis, 1993

An improved human model for the quantification of skin barrier creme (BC) is described. In contrast to the previously published procedure the back instead of the forearm and a total of 4 irritants are used. Due to the larger area 3 BC formulations can be simulaneously compared to the control field which received the irritant only without BC-pretreatment. On 10 human volunteers the irritants 10% sodium lauryl sulfate (SLS), 1% sodium hydroxide (NaOH), 30% lactic acid (LA) and undiluted toluene (TOL) were applied via large Finn chambers for 30min, 5x during the first week and 4x during the second

one. Taktosan Salbe (water-in-oil emulsion) and RAWI speerschutzcreme (oil-in-water emulsion) had been applied 30 min before contact with the irritants. In order to assess reproducibility and interindividual variation the BC RAWI was tested in duplicate. Irritant cutaneous reactions were quantified by 4 parameters: erythema score, transepidermal water loss, blood flow volume and stratum corneum hydration by measuring capacitance. The results showed marked differences in efficacy. Taktosan suppressed significantly the irritation of SLS, NaOH and LA, apparent in nearly all parameters. RAWI caused significant inhibition of the SLS irritation and a positive trend against NaOH and LA was observed. Both BC failed against TOL. The results of the suplicate testing with RAWI showed a good reproducibility. The dogma that oil-in-water emulsions are primarily effective against lipophilic irritants and water-in-oil emulsions against hydrophilic ones needs to be re-evaluated on the basis of our findings.
This model seems to have potential for further studies on BC and might elucidate the complex interaction of BC with irritants.

A. Triebskorn, M. Gloor, **Noninvasive Methods for the Determination of Skin Hydration,** "Noninvasive Methods for Quantification of Skin Functions", 1993

In 1953, Blank showed that water makes up 10%-20% of the stratum corneum. As soon as the amount of water decreases below 10%, the skin develops a rough and dry looking appearance. Kligman in 1963, maintained that the lipids of the skin surface were of no essential significance for the appearance of the horny layer, rather that the appearance of the skin is mainly due to the water content of the horny layer. Based on the postulated affiliation between stratum corneum hydration and the macroscopic aspect of the skin, diverse methods for assessing horny layer hydration have been developed.

V. Bousquet, D. Redoules, I. Raynal, G. Dahlem, Y. Gall, **Les principales techniques d'objectivation des effets des dermo-cosmétiques,** Cosmétologie, 1993

La mise au point de produits dermo-cosmétiques de plus en plus performants grâce aux progrès de la galénique a entraîné le développement d'un ensemble de méthodes d'évaluation visant à mesurer leurs effets directement sur la peau et de la manière la plus objective.

R. Marks, C. Edwards, **Methods to aid the coice of shade from a range of colour disguise cosmetics,** University of Wales College of Medicine, 26 May 1993

The range of cosmetic camouflage products for major disfiguring skin conditions are well known, and are available in a wide range of shades. They require considerable skill and training for their blending and application which also needs a finishing layer of powder for best effect. These products are admirably suited to their use on major blemishes, but would be difficult to apply by a consumer at home for minor blemishes.

H. Tronnier, **Wirksamkeitsnachweis für Kosmetika,** SOFW-Journal, 119. Jahrgang, 5/1993

Ein Wirksamkeitsnachweis ist, wie zahlreiche Publikationen beweisen, oftmals selbst in der Medizin nicht einfach. Gelingt er noch bei einem Vergleich eines wirkstoffhaltingen Präparates gegen ein Placebo, so ist oft ein Unterschied in der Effektivität zwischen zwei wirkstoffhaltigen Präparaten nicht mehr zu finden oder wenigstens nicht mehr statistisch zu sichern.

J.P. Marty, C.M. Vincent, E. Fiquet, **Études des proprétés hydratante de la Crème Hydratante Visage Neutrogena,** Réalités Thérapeutiques en Dermato-Vénérologie N. 15, Feb. 1992

La créme Hydratenate Visage Neutrogena est une émulsion huile/eau dont les propriétés hydratantes peuvent être liées d'une part à un effet occlusif et d'autre part à une action humetante directe sur les cellules cornées.

A. Cohen-Letessier, *E. Fiquet*, *J.P. Marty*, *C.M. Vincent*, **Évaluation des propriétés de la crème hydrophile lipophile (Evaluation of a water/oil emulsion (Effadiane))**, Les Nouvelles, 11/92

Effadiane is a water/oil emulsion, its effect on the skin hydration has been investigated in human volunteers by non invasive technics: the transepidermal water loss measurement to verify and occlusive effect, the corneometric measurement to demonstrate the direct water uptake by the horny layer. The emulsion persistency on the skin surface has been evaluated by sebumetry. Good correlation has been established between the hydration power and the persistency of the emulsion over time.

E. Fiquet, C.M. Vincent, A. Cohen-Letessier, J.P. Marty, **Evaluation des propriétés de la crème hydrophile lipophile (Effadiane™),** Nouv. Dertol. 1992: 11 p. 429-431

Effadiane™ is a water/oil emulsion, its effect on the skin hydration has been investiagetd in human volunteers by non-invasive techniques: the transepidermal waterloss to verify occlusive effects, the corneometric measurement to demonstarte a a direct water uptake by the horny layer.

A. Teglia, G. Mazzola, *G.F. Secchi*, **Relationship between Chemical Characteristics and Cosmetic Properties of Protein Hydrolysates**, 17th IFSCC Congress, Yokohama/Japan, 10/92

More than 20 protein hydrolysates, taken from the market or especially prepared for the test, of animal and vegetable origin and with significantly different molecular characteristics were tested and compared with respect to three cosmetic properties: substantivity to hair, reduction of sodium laurylsulfate (SLS) irritation and foaming. Peptide adsorption on hair was evaluated on virgin and damaged tresses after incubation with 2.5% hydrolysate solutions, re-extraction with 50°C hot water and high ionic strength solution and quantification after fluorescamine reaction. Inhibition of induced SLS skin and eye irritation was evaluated by visual scoring, moisture content of the horny layer (Electric Capacitance, EC) and transepidermal water loss (TEWL) measurements after skin chamber application and by Eytex methodology. Foaming properties were evaluated by standard Ross-Miles method. Molecular size, net charge and hydrophobicity were studied as important parameters affecting these cosmetic properties and were related to the origin of hydrolysates and the characteristics of the manufacturing process.

A.O. Barel, *P. Clarys*, *A. Romsée*, *B. Wessels*, **Misurazioni ellectriche non invasive per la misurazioni dell´idratazione dello strato corneo: confronto tra misure di capacià (capacitanza) e di conductibilità**, Cosmetics & Toiletries 04/92

La misura dell'idratazine dello strato corneo è un fatto importante nella ricerca dermo-cosmetica.

V. Rogiers, **Capacitance and TEWL Measurements: The Need for Standardisation,** Dep. of Toxicology, Vrije Universiteit Brussels

Stratum corneum moisturisation can be assessed both *in vivo* as well as *in vitro*. The past few years, several practical, simple, quick and non invasive in vivo methods based on the electric and di-electric properties of the skin have been developed. Interest for such techniques is broad and varied: for example for dermatological research (regional variations, ageing, burns, etc.) and also in efficiency tests of the hydrating capacity of dermato-cosmetic preparations on human volunteers.

R. Wolf, E.Tur, D. Wolf, M. Landau, **The effect of smoking on skin moisture and on surface lipids,** International Journal of Cosmetic Science 14/92

In the present retrospective study we investigated the effect of smoking on the moisture and surface lipid levels of the skin. We analysed data from the files of 576 female clients treated in a Tel-Aviv cosmetic parlour. Measurements have been conducted by the same cosmetician, by commercially available equipment, on every client receiving cosmetic treatment, regardless of the nature of the treatment. Results demonstrated a significant difference of skin moisture in the various smoking groups: women who smoked 11-20 cigarettes per day showed significantly lower mean values than the non-smoker group, as expected. Moreover, women before or after menopause showed no significant differences in their moisture measurements. The surface lipid variables showed no significant differences in mean over the four smoking groups. We believe that the objective of the study was achieved, and that the results, indicating decreased skin moisture in smokers, will serve well in anti-smoking campaigns. We also believe that the present study will stimulate other investigators to conduct similar studies that will provide answers to many questions which still remain open.

D. Wilhelm, P. Elsner, H.I. Maibach, **Standardized Trauma (Tape Stripping) in Human Vulvar and Forearm Skin**, Acta Derm Venereol (Stockh) 1991; 71: 123-126

Mechanical trauma to genital skin may favor the transmission of sexually transmitted diseases. To study differences between vulvar and forearm skin in epidermal repair after standardized trauma, transepidermal water loss, capacitance and pH of forearm and vulvar skin in 10 healthy premenopausal women were monitored for 7 days after a standardized trauma induced by tape stripping to glistening. Vulvar and forearm skin showed similar responses immediately after tape stripping: a sudden increase in transepidermal water loss and capacitance. Forearm skin, however, reacted more intensely than vulvar skin; forearm skin readings remained significantly higher than normal values for 2 days after tape stripping, whereas vulvar skin readings were not significantly different from normal. Thus, vulvar skin did not respond as extensively as forearm skin, presumably because it is a less complete barrier against excess body water loss. On the other hand, vulvar skin seemed to recover faster from skin damage than forearm skin, probably because of its higher epidermal cell turnover.

Vittel continue d'innover: création d'un Espace Beauté et d'une Centre de Dermo-Cosmétologie, Vittel Magazine, N° 29, 1991

Sous la galene thermale à quelques pas griffon de la Grande Source dans le prolongement des Thermes dont la restructuration a été réalisée.

P. Agache, *P. Creidi*, *B. Faivre*, **Assessment of skin hydration and softening effects of colloidal oat fraction containing cream**, J. Appl. Cosmet. 1-6, Jan.- March 1992

A concentrated colloidal oat fraction in a O/W cream has been compared with a reference O/W emollient cream for stratum corneum hydrating and skin surface softening effects in a double-blind randomized study in 10 healthy female volunteers whose skin had been made dry and irritated by repeated applications of sodium dodecylsulfate.
Stratum corneum hydration was assessed through conductance measurements. Skin surface smoothness was evaluated through a visual plus tactile subjective assay and by profilometry of skin surface casts. All methods demonstrated recovery of the skin following one week's treatment with either product. This improvement was sustained a week later. It is concluded that the tested oat extract enriched cream has a hydrating and softening effect on the skin surface which is "similar or superior to that of a conventional O/W strongly moisturizing cream".

D. van Neste, **Evaluation d'état Fonctionelle de la peau par des methodes non invasives**, Skinterface, Blgium 1991

Intérêt des mesurees capacitance, de perte transépidermic d'eau, de flux sanguin et de leur évaluation combinée pour quantifier des processus inflammatoires cutanés chez l'homme.

D. van Neste, **Comparative study of normal and rough human skin hydration in vivo: Evaluation with four different instruments**, Journal of Dermatological Science, 1991

Appropriate monitoring of skin hydration during clinical and/or experimental trials needs devices with acceptable reproducibility and sensitivity under conditions ranging from increased, and normal to low hydration. The aim of this study was to compare the variation of electrometric data generated by 4 different instruments (Skicon Hygrometer, 2 CM420 and a CM820 corneometer) in normal and experimentally damaged skin displaying surface roughness. Rough skin sites were observed during the healing process after repeated tape stripping of stratum corneum in humans (e.g. 10-14 days after insult). They displayed lower conductance and /or capacitance levels as compared to normal skin sites of the same subjects. The Skicon hygrometer showed higher variability as compared to the corneometers and was less sensitive, in relative terms, in the rough skin sites. This device also showed a moderate zero drift and re-zeroing was repeatedly utilized during the experiment. When the corneometer data were plotted against the hygrometer data, the slope of the regression line generated by the CM420a was different from CM420b and from CM820; the two latter were not significantly different from each other. Hence, comparison of absolute data obtained under comparable conditions (in this case CM420a and CM420b) in a single laboratory should not be made without prior calibration. Standards for evaluating interinstrumental variation are currently unavailable. This aspect of the measurement of electrical properties of the skin has not been investigated in great details and has often been neglected in the past. Our findings also indicate that a constant control over the performances of a particular device should further improve the reliability of the data.

A. del Pozo, *C. Cosa*, **Dispensacion dermofarmaceutica: Apoyo technologico al rol del Farmaceutico**, Departemento de farmacia, Unitad docente de Farmacia Galenica, Universidad de Barcelona, 1991

El concepto "dermofarmacia" resulta en ocasiones, poco preciso, resultando a veces difficil delimitar su contenido y ámbito de actuación en relación, por un lado, al de la "dermatologia", y por estrictame el extremo opuesto, al dela "comotòlogia".

Check-up Cosmetologique et Biometrologie Cutanée, Actualités Pharmaceutiques, Jul. 1991, Special Dermo-cosmétologie, No. 289

La notion de "Check-Up" cutane a toujours exprime un souci de rigueur pour definir des besoins cutanes et des reponses performantes. Une logique, aujourd'hui scientifique, qui s'assuie sur des connaissances precises de la physiologie cutanee pour interpreter les differents etats de la peau et proposer de veritables methodes de correction; c'est l'avenement d'une cosmetologie de soins, rigoureuse.

R. Böhm, *M. Ghyczy*, *S. Hager*, **The influence of liposomes from Soybean, lecithin on the efficacity of fungicides**, Internationales Symposium über Pflanzenschutz, University Gent/Belgium, 07.05.1991

Lecithin is a mixture of phospholipids and oil that arises during the processing of oil seeds. Phospholipids are components of all living organism. They fulfill two functions: the emulsification of water insoluble substances, for example in blood and in the digestive tract and the formation of compartments as the major component of biological membranes. Phospholipids are one of the most commonly used emulsifiers in foodstuffs. Liposomes are vesicles in water comprised of phospholipids organized in double membranes, the same organization as occurs in biological membranes. Liposomes have become of practical significance in medicine and cosmetics. In this study, liposomes were produced from soya lecithin and were tested in the treatment of grape vines. The liposome dispersion was used as an additive in the spray cocktail at a concentration of 0,4%.

A.O. Barel, *P. Clarys*, B. *Wessels*, *A. de Romsée*, **Non-invasive electrical measurements for evaluating the water content of the horny layer: comparison between capacitance and conductance measurements**, Abstracts of the Conference on Prediction of Percutaneous Penetration, Brussels, 10.-12.04.1991

The measurement of the hydration state of the stratum corneum is an important factor in dermato-cosmetic research. This parameter is used for characterization of skin surface and for the evaluation of the efficacy of skin moisturing products. Different electrical measurements were developed for studying skin hydration. When applying an alternating voltage to the skin, the horny layer behaves similar to a simple electric circuit where a resistor and a capacitor are connected in parallel. The sensitivity, performance and practical use of one instrument which measures mainly the contribution of the capacitance properties of the skin (**Corneometer**) was compared with an instrument which measures the contribution of the conductance properties of the skin (Skicon). An evaluation of the efficacy of moisturing preparations (O/W and W/O emulsions) on the skin was carried out in vivo using two types of instruments. The influence of environmental factors such as the relative humidity was evaluated by measuring the same skin under increasing relative humidity (from 30 to 80%).

P. Elsner, *H.I. Maibach*, **AT-based Data Aquisition and Analysis System for the Skin Bioengineering Laboratory**, Dermatosen 39, Heft 4 1991

In recent years, bioengineering instruments have found wide application for the non-invasive evaluation of functional properties of human skin. These devices measure transepidermal water loss (evaporimetry), skin hydration (methods based on conduction, impedance, and capacitance), skin blood flow (laser Doppler velocimetry, photoplethysmography), friction (friction meter), and mechanical properties (e.g. twistometer, suction devices), and allow the investigator to generate considerable data which requires documentation and analysis. Although some instruments meanwhile offer interfaces for the transfer of data into personal computers, integrated data acquisition systems supporting the whole spectrum of instruments used in the laboratory are lacking. We have developed an inexpensive data acquisition and analysis system for our skin bioengineering laboratory which allows the acquisition of data from several instruments simultaneously or in sequence. The data are fed into a spreadsheet on a personal computer and conversions and basic statistics are computed automatically. The system consists of an AT-compatible PC with two serial interfaces and an analog-digital conversion board. The software is an industry-standard spreadsheet (Lotus 1-2-3) with an instrument set (Lotus Measure). Using this system, we considerably improved the precision of our measurements and the scientific productivity in our skin bioengineering laboratory.

W.O. Seiler, **Rückfettung: Balsam für die Altershaut**, Moderne Geriatrie, 03/91

Ältere Patienten schätzen oft Wasser und Seife wenig. Sie ahnen vielleicht besser als wir Ärtzte: Wasser, Scheuern und waschaktive Substanzen (Seife, Tenside) zur Hautreinigung entfernen die physiologischen Hautoberflächentenside.

K. Klein, H.-W. Voss, M. Voss, **Untersuchungen zur Oberflächencharakteristik der menschlichen Haut – Teil 1**, Umwelt & Gesundheit aktuell

In der Kosmetik begnügt man sich häufig bei der Beurteilung des Charakters der menschlichen Haut bzw. der Zuordnung zu bestimmten Hauttypen zumeist nur mit einer (subjektiven) visuellen Begutachtung.

P. Elsner, H.I. Maibach, **The Effect of Prolonged Drying on Transepidermal Water Loss, Capacitance and pH of Human Vulvar and Forearm Skin**, Acta Derm Venereol (Stockh) 1990; 70: 105-109

The effect of prolonged drying on transepidermal water loss (TEWL), capacitance and pH of vulvar and forearm skin was studied in 15 healthy female volunteers. A desiccation chamber that absorbed water evaporating from the skin surface was applied to the forearm and labia majora skin daily

for 4 days. Skin TEWL, capacitance and pH were measured daily and 4 days after removal of the desiccation chamber at the site of drying and at a symmetrical control site. Under desiccation, TEWL both of forearm and of vulvar skin showed an increase during the first days of drying, followed by a gradual decrease. After 4 days of drying, forearm TEWL was reduced to 91 % of the control value, without reaching significance. Vulvar TEWL was significantly reduced to 80 % of the control value. Although relative reduction of vulvar TEW L was higher than that of forearm TEW L, the absolute value of vulvar TEWL after drying remained significantly higher than that of forearm TEWL. Skin capacitance significantly decreased under drying both in forearm and vulvar skin. Skin pH was significantly reduced by drying at the vulva, but not at the forearm. It is concluded that although changes in physiological parameters during drying seem to be more pronounced in vulvar than in forearm skin, differences suggest that the specific properties of vulvar skin are not explained by anatomically related occlusion alone.

D. Doughty, J. Jamillo, E. Spengler, **Methods for Assessing the Mildness of Facial Cleansing Products**, 16th IFSCC Congress, New York, 1990

The mildness of a facial cleansing product was assessed in studies using exaggerated use conditions on the forearm as well as on the face.

V. Rogiers, M.P. Derde, G. Verleye, D. Roseeuw; **Standardized Conditions Needed for Skin Surface Hydration Measurements,** Cosmetics & Toiletries, Vol. 105, October 1990

Stratum corneum moisturization can be assessed by various in vitro and in vivo instrumental testing techniques. Simple, quick and noninvasive in vivo methods based on the electric and dielectric properties of the skin have been developed. Methods working in the lower part of the MHz zone seem to be very useful. A comparison between two commercially available electrical methods, measuring electrical conductance (Skicon-100) and electrical capacitance (Corneometer CM 420) respectively, showed that both are very suitable methods for measuring the hydration state of the superficial epidermis.

F. Pouzaud, **Pharmaskin ou la reconquête de la cosmétologie**, PraxiPharm, 04.10.1990

K.H. Schrader, **Criteria for practical dermatophysiological investigations of soaps and detergents**, Parfümerie + Kosmetik, 10/90

To begin with the aim of skin and hair cleansing is treated also from the physico-chemical point of view. Then the advantages and disadvantages of syndets and soaps are brought out. The effects of surface-active agents on skin and hair are described. In the main part field efficacy tests are discussed in detail. First of all the general prerequisites for these tests are described taking into special account the climatic influences. In particular, simulated skin cleansing tests are presented as well as the determination of methylene blue adsorbed to the skin. Moreover, the measurement of transepidermal water loss caused by the action of surfactants is explained and an in-vitro test estimating the compatibility with the ophtalmic mucosa is described. The investigation was carried out with a number of well-known surfactants of different chemical structures. In the tests molar concentrations were compared instead of the actual concentrations. The results are explained and interpreted in detail with special regard to the interdependence of all results obtained. This leads to the conclusion that it seems appropriate to compare a number of dermatophysiological parameters in order to eventually judge the effect of these products on the skin.

Frank Hevert, **Kenngrößen eines betrieblichen Hautreinigungsmittels**, Arbeitsmedizin, Sozialmedizin, Präventivmedizin, 08/90

G. Jemec, **Relation between scaling evaluated by the D-SQUAME™ Tape and skin hydration evaluated by capacitance measurement**, 8th international symposium "Bioengineering and the skin", Stresa / Italia, June 1990

A.B. Cua, *H.I. Maibach*, *K.P. Wilhelm*, **Elastic properties of human skin: relation to age, sex and anatomical region**, Dermatologica Research, 1990

Using a recently developed noninvasive, in vivo suction device for measuring skin elasticity, we evaluated age, sex, and regional differences in the visco-elastic properties of skin. A total of 33 volunteers participated in the study consisting of (a) 8 young females, (b) 9 old females, (c) 8 young males and (d) 8 old males. Measurements were performed on 11 anatomical regions; three different loads were applied: 100, 200, and 500mbar. The parameters used were: immediate distension (Ue); delayed distension (Uv); immediate retraction (Ur) ; and, final deformation (Uf).

To compare between subjects and anatomical regions, relative parameters independent of skin thickness were calculated: Uv/Ue, the ratio between the viscoelastic properties of skin and immediate distension, and Ur/Uf, which measures the ability of the skin to regain its initial position after deformation. Generally, Uv/Ue increased while Ur/Uf decreased with aging. Responses were variable with respect to load applied. Variability, within anatomical regions was also noted. However, differences between the sexes were not statistically significant for most regions. These findings are in congruence with earlier studies suggesting the differences are mainly attributable to alterations in the elastic fiber network. This procedure provides a simple, quantitative assessment of elastic properties of the skin. Its application may help in future investigations of other connective tissue disorders.

C. Artmann, *M. Ghyczy*, *H.G. Pratzel*, *J. Röding*, **Influence of various liposome preparations on skin humidity,** Parfümerie + Kosmetik, 05/90

The influence of similar liposome dispersions with varying phospholipid composition on the hydration of the skin was investigated by measurements of the capacitive resistance in human skin. The phospholipids influence the hydration behaviour of the liposomes on the skin.

V. Rogiers, **Assessment of skin surface hydration: the need for standardized conditions in capacitance measurements,** Lecture held at the congress of CIE Cosmetic Ingredients Europe, 21.-23.03.1990, Wiesbaden

The practical usefulness of the CORNEOMETER CM 820, a commercially available apparatus for measuring stratum corneum moisture content, has been evaluated on the skin of normal volunteers. Factors such as cleaning procedure intragroup and regional variations, temperature and humidity have been examined. Under well-defined conditions of skin cleaning, environmental temperature and relative humidity large site-to-site variations occurred. However when selected areas, 1/4, 2/4 and 3/4 on the forearm, were studied, constant hydration values were measured for the individual spots for at least 1 month, although they differed significantly among each other. On the contrary, corresponding areas on the right and left forearm had exactly the same hydration value for at least 1 month. When the efficacy of moisturizing creams has to be tested, well-defined areas of one forearm may serve as controls, whereas on the corresponding areas of the other forearm the samples may be applied. Age seemed to be an important additional factor influencing skin hydration, whereas gender had no effect. When the efficacy of moisturizing creams was tested it appeared that some w/o creams had a significantly higher effect than o/w creams and this was dependent on the skin type involved. Creams with 10% glycerol exhibited significantly higher hydration values than those without. In conclusion, simple capacitance measurements are very useful for assessment of skin surface hydration on the condition that standardized conditions are rigorously taken into account.

Celleno, **Valutazione dermatologica dei prodotti per la detersione della cute,** Cosmesi Dermatologica, 30/1990

The authors report the results and the methods of the dermatological and cosmetological evaluation of 16 solid products for cleaning the skin (traditional soaps, neutral soaps, syndets).There is a growing need for valid and reliable tests to evaluate the cosmetic properties and the safety of cosmetics. Data obtained in this field will contribute to the protection of both the consumer and the cosmetic industry.

A.O. Barel, **Protocole of the experimental determinationof the efficacy of hydrating products on the human skin by measurements of the hydration of the horny layer with a Corneometer CM 820 PC (Courage + Khazaka)**, Vrije Universiteit Brussel, Algemene Biologische Scheikunde, Brussel 1989

K.-H. Schrader, **Optimierung eines kosmetischen Pflegeproduktes auf die menschliche Haut,** H+G Zeitschrift für Hautkrankheiten 12/89

After explaining the idea and purpose of cosmetic products, we report on the course of development these products usually take: marketing briefing, selection of the raw materials, serial experiments and stability tests, and finally, dermatophysiological efficacy tests. In particular, we deal with the application of adenosine triphosphate (ATP) and its moisturing and smoothing effect on human skin. Our results are discussed in details.

M. Rieger, **Skin, water and moisturization,** Cosmetics & Toiletries Vol. 104, 12/89

The well-know British dermatologist, John Cotterill, recently (Int. J. Dermatol. 27 (X), 682-683 (1988)) took cometic publications (and the industry) to task for providing conflicting messages.

D. van Neste, *L. Ghys*, *J.L. Antoine*, *J.P. Riboux*, **Pharmacological modulation by Cetirizine and**

Atropine of the Histamine - and Methacholine- Induced wheals and flares in human skin, Skin Pharmacology Reprint, Vol. 2 No. 2 (pp. 93 - 102) 1989

This study was planned to verify wether different methods for the measurement of skin reactivity, i.e., wheal and flare area, wheal trickness, skin capacitance and transepidermal water loss, were or were not able to discriminate between intradermally injected agonists (histamine and methacholine). For evaluating agonist/antagonist interactions, we adopted a cross-over, double- blind, placedo-controlled study designed to compare the effects of cetirizine and atropine. The intradermal injection of agonists elicited the appearance of wheal and flare reactions and, after histamine, the skinfold thickness was significantly increased. Skin capacitance and transepidermal water loss measurements reflected sweat gland activation after methacholine injection but were, respectively, not or less affected by histamine dry skin prick test or saline; hence, both methods appear very sensitive for in vivo testing of cholinomimetic agents. Cetirizine inhibited all the specific skin modifications induced by histamine challenge, wheals, flares and increase thickness, without affecting the methacholine-induced perspiration. This would further support the H1 specificity of this anti-H1 agent in vivo. However, at the agonist/antagonist ratios tested in view of the safety of the test persons, we were unable to objectivate methacholine blockade by atropine.

S. Bonazzi, *G.C. Gazzaniga*, **Skin plastoelasticity modifications due to application of a reconstructed moisturizing compound,** 3rd international congress on cosmetic dermatology, Wien, 27.-29.10.1989

P. Elsner, H.I. *Maibach*, **Ein PC/AT - gestütztes Datenerfassungssystem für das Hautphysiologielabor,** Workshop "Computer in der Dermatologie", 6.10.1989

Für die quantitative Untersuchung physiologischer Parameter des Hautorgans wurde eine Reihe nichtinvasiver Methoden entwickelt, die Anwendung v.a in der Dermatopharmakologie und der Dermatotoxikologie gefunden haben. Zu diesen Methoden zählen die Evaporimetrie zur Messung des transepidermalen Wasserverlustes, konduktive und kapazitative Verfahren zur Messung des epidermalen Wassergehaltes und die Messung der Hautdurchblutung mittels des Laser-Doppler-Verfahrens. Die Reproduzierbarkeit von Evaporimeter- und Laser-Doppler-Messungen wird durch dynamische Veränderungen der Meßgrößen beeinträchtigt. Ferner fallen bei experimentellen Studien mit den genannten Geräten erhebliche Datenmengen an, deren manuelle Erfassung unökonomisch ist. Wir haben daher ein Datenerfassungssystem emtwickelt, mit dem die Meßwerte von Hautoberflächen-Thermistor, Evaporimeter, Kapazitometer, pH-Meter und Laser-Doppler direkt in ein Spreadsheet auf einem PC eingelesen und sofort statistisch ausgewertet werden können. Hardwareseitig besteht das System aus einem AT-kompatiblen Computer mit 2 seriellen Schnittstellen und einem Metrabyte DAS-16-A/D-Board, das die simultane Erfassung von bis zu 16 Datenkanälen erlaubt. An Software werden Lotus 1-2-3 und Lotus Measure eingesetzt. Der Aufbau des Systems und Einsatzmöglichkeiten werden erläutert.

F. Hevert, *U. Stelbrink*, *B. Bush*, *K.H. Schrader,* **Hautschutz mit abdruckfreier Hautcreme,** Arbeitsmedizin, Sozialmedizin, Präventivmedizin, 10/89

A new barrier cream without lipids in the formulation is particularly suited for skin protection of workers in the fields of electronics and light engineering. In addition the cream protects the components and articles to be worked on: no fat- or- silicone-oil containing fingerprints are transferred. Excellent skin-tolerance, high-acceptance, easiness on the skin and healing properties on already damaged skin add to the product's attributes. The efficacy was investigated on subjects in industrial plants. Objective data on the protective effect and tolerance were determined experimentally under controlled laboratory conditions.

L. Nogueira, *D. Gabrielle*, **New techniques to assay skin care products,** D & CI 09/88
The skin is a complex organ with numerous functions, some remarkable subtle. Cosmetic products play an important role in maintaining the integrity of the skin, including restoration of the skin’s slightly acidic pH (average 5 to 5.5).

Vor Übertreibung wird gewarnt, Stiftung Warentest, 07/89

P. Morganti, *S.D. Randozzo*, **Gli indici di idratazione e di emolienza per la verifica dello stato cutaneo,** Incontri di Cosmetologia No. 3, 07/89

Per la misurazione sia del sebo di superficie che dell'idrazione cutanea ci si è serviti di un sistema computerizzato denominato Dermotest Hytech dato dall'unione del Sebometer SM 810 PC et del CORNEOMETER CM 820 PC, opportunamente collegati ad un PC mediante un adeguato

programma di utilizzazione. Utilizzando il Dermotest Hytech è possibile ottenere direttamente sia i valori sebometrici espressi in mg/cm

E. Berardesca, *G. Borroni*, *L. Rigano, G.F. Secchi*, **Valutazioni dermatologiche e misurazioni cutanee nella detersione con latte di soia atomizzato,** Incontri di cosmetologia, 06/89

La detersione come processo di eliminazione dello sporco superficiale e dell'accesso die secrezioni sebacee e sudorifere, di riduzione della carica betterica a microtica epidermaica, di normalizzazione degli scambi cutanei con l'ambiente ha spesso come inconveniente pricipale la dissoluzione del film hydrolipidica e làumento della perdita d'acqua transepidermica (TEWL), la combinatione…² che i valori della idratazione cutanea espressi in CV (corneometer values).

Desai, **Kosmetische Spezialprodukte aus nachwachsenden Rohstoffen**, Vortrag anläßlich des SCC annual meeting, New York, 02.-04.12.1988, Parfümerie und Kosmetik, 6/89

Special cosmetic products bases on regrowing raw materials. Some new cosmetic specialities based on "regrowing raw materials" are introduced. These chemicals are harmless from the toxicological and dermatological point of view. Moreover, they possess interesting cosmetic properties such as gentleness, anti-irritation, emolliency and moisture regulation. The new bio-raw materials presented here offer various possibilities for a wide use in all fields of the grooming cosmetics.

T. Frödin, **Specific determination of epidermal water by optothermal infrared spectometry,** Regional Symposium, Copenhagen, 15.06.89

Optothermal infrared spectrometry (OTIS) is recently introduced technique shown to be useful for assessment of the water content of human stratum corneum in vivo.

C. W. Blichmann, **Effects of single application of a moisturizer,** Regional Symposium, Copenhagen, 15.06.89

Effects of single application of an oil in water emulsion were studied on the forearm skin of 12 healthy volunteers.

A. Winther, **Effects of repeated application of a moisturizer,** Regional Symposium, Copenhagen, 15.06.89

Skin hydration and scale pattern on forearm skin was studied after one week application (twice daily) of a moisturizer (Decubal lotion), with follow-up after one week with no treatment.

P. Morganti, *S.D. Randazzo*, **L´utilizzazione degli indici di correzione per il trattamento cosmetico della cute secca e desidratata,** Il Prodotto Chimico, April 1989

La normale funzione prottetiva della cute è strettamente legata all'azione prottetiva svolta dal film lipidico di superficie che la ricopre come una barriere, difendendola dalle agressioni dell'ambiente esterno, e dal suo contentunuto del acqua, indispensabile per manterla morbida elestica a hydratata.

J.L. Antoine, *J.L. Contreras*, *D. van Neste*, **ph Influence on surfactant-induced skin irritation,** Dermatosen in Beruf und Umwelt, Band 37, 1989, 3, p. 96 - 100

Even though various experimental methods have been proposed for in vitro testing of detergents such as SLS (sodium laurylsulfate) no absolutely relevant clinical information can be inferred from them as to the irritancy of a given compound. In particular the relative importance of pH needs further assessment. This study reports on in vivo evaluation of skin function changes under given experimental conditions with SLS applied at 3 different pH values. There is a dramatic increase of transepidermal water loss (TEWL), i.e. a substantial reduction in the barrier function of the skin, when SLS is applied under occlusion for 48 H. The alkaline control solution (NaOH pH 9) induced low-grade, but significant TEWL increases, as compared to the other controls (distilled water pH7; HCl pH5), which had no influence on TEWL. The changes obtained with the controls were much lower than those observed with SLS. The barrier-function changes induced by the surfactant SLS could, however, promote transepidermal passage of acid and/or alkaline molecules, hence increasing toxic damage of the skin; yet no such effects could be observed, indicating that the main effects are due to detergency. Assessment of cutaneous blood flow values (CBFV) by laser Doppler velocimetry showed increased values after SLS. When pH-adjusted SLS solutions were compared, there was neither a difference in relation to pH nor did the control solutions induce any significant CBFV change. This study reveals that TEWL and CBFV are probably the most reliable methods to investigate acute irritancy by SLS. Accordingly, pH cannot be considered as a major contributive factor of irritancy when SLS solutions are applied under occlusion (48H). The current level of sebaceous secretion and the electrical properties of the skin surface were not parameters to evaluate acute SLS-induced skin damage, but longitudinal

studies are presently being conducted in order to assess their significance in monitoring epidermal repair after SLS insults.

M. Rimpler, **Zur Wirksamkeit von Kosmetika, Teil1: Messung der Hautfeuchtigkeit,** Beauty Nr. 2/89

Immer wieder wird die Möglichkeit diskutiert, wie sich Änderungen des Hautorgans sinnvoll erfassen und verwerten lassen.

H. Nougaigui, *J.L. Antoine*, *M.L. Masmudi*, D. *van Neste*, *J.M. Lachapelle*, **Étude invasive et non-invasive du pouvoir protecteur d´une crème siliconée et de son excipient vis-à-vis de l´irritation cutanée induite par le laurylsulfate de sodium,** Ann. Dermatol. Venereol. 116:1989, p. 389 - 398

Invasive and non-invasive studies of the protective effect of a silicone-containing cream and its vehicle on cutaneous irritation induced by sodium laurylsulphate. The purpose of our study was to evaluate the protective effect of a new silicone-containing barrier-cream (Anthydro TM) and its vehicle (AnthydroTM without silicone) in the prevention of cutaneous irritation by detergents: We therefore planned a study in several stages, using an anionic surfactant well known for its irritant properties: sodium laurylsulphalte (SLS) in aqueous solution. In a first series of experiments, the protective effect of the Anthydro cream against SLS was studied by invasive methods on guinea-pigs in order to determine histologically the protective effect of the cream when a 10 p.100 SLS solution was applied on the skin under occlusion during 24 hours (Square chambersTm, Van der Bend). Typical and reproducible lesions were apparent, and the protected sites were compared with the unprotected sites. In parallel, we used non-invasive methods (conductivity, transepidermal water loss and cutaneous blood flow) to determine in humans the protective effect of Anthydro cream in comparison with unprotected sites after application during 24 hours of patches soaked with a 5 p. 100 SLS solution on the foreams of 13 adult and healthy volunteers (Silver patch testsTm, Van der Bend). In both experiments the Anthydro cream was effective in reducing the SLS- induced cutaneous irritation. In a second series of experiments, the Anthydro barrier-cream was compared with its "base" (Anthydro without silicone) in terms of effectiveness, following the same experimental procedure (invasive on guinea-pigs, and non-invasive on humans). The base was shown to be effective in protecting against irritation. However, the histological lesions were less intense when the skin was protected by Anthydro than by its vehicle. Concerning the non-invasive methods in humans, no signifiant statistical differences appeared in the measurement of various parameters between the sites protected by Anthydro and the sites protected by the vehicle. These results lead us to suggest the existence of an essentially mechanical protective effect in which the silicone plays a very small part in terms of effectiveness. These experimental results necessitates further investigations to be extrapolated to occupational conditions without test performed in industries and well-conducted epidemiological investigations.

K.-H. Schrader, S. Bielfeld, **Vergleichende experimentelle Untersuchungen zwischen Hautoberflächenprofil und der Hautfeuchtigkeit,** Parfümerie und Kosmetik, Nr 2/89

Kosmetische Wirkungen von Pflegeprodukten an der menschlichen Haut sind oft sehr gering und demzufolge auch nicht so einfach nachzuweisen. Häufig ist es deshalb nicht möglich, diese geringen Veränderungen anhand eines Prüfkriteriums zu dokumentieren. Zu den wichtigsten Parametern zur Charakterisierung der kosmetischen Hautwirkungen ist die Hautrauhigkeit sowie die Hautfeuchtigkeit von großer Bedeutung.

P. Nissen, **Physikalische Meßmethoden in der Kosmetik,** Kosmetik International, p. 18 - 22, 11/1988

Bei der Anwendung physikalischer Meßmethoden in der kosmetischen Praxis sind grundsätzliche Gesichtspunkte zur Messung sowohl hinsichtlich der Methoden als auch der Versuchsdurchführung zu beachten. Die anwendbaren Meßverfahren sollten einfach und ohne großen technischen, personellen und finanziellen Aufwand möglich sein. Diese Bedingungen werden von einigen Meßgeräten erfüllt. Mit ihrer Hilfe kann in kurzer Zeit eine exakte Hautdiagnose gestellt und die kosmetischen Wirkansprüche bestimmter Produkte überprüft werden.

K.-H. Schrader, *S. Bielfeldt*, **Die Beeinflussung der Hautfeuchtigkeit und Hautglätte durch den Biokatalysator Adenosintriphosphat (ATP),** Ärztliche Kosmetologie,1988, 372-378

Sehr geringe Mengen ATP-Dinatriumsalz (0,005%, 0,05%) wurden in einem feuchtigkeitsspendenden Gesichtstonic eingesetzt. Gemessen wurde die Beeinflussung der Hautfeuchtigkeit und der Hautglätte. Obwohl die Grundlage erwartungsgemäß bereits befriedigende Wirkungen, insbesondere was die Hautfeuchtigkeit anbelangt, erzielt, führt der Zusatz sehr geringer Mengen ATP noch zu einer dramatischen Wirkungssteigerung.

Blichman, *J. Serup*, **Assessment of skin moisture measurement of electrical conductance,**

capacitance and transepidermal water loss, Acta Derm Venereol 1988

Experiments on skin moisture were undertaken using three different equipments, i.e. the Skicon 100 and Corneometer CM 420 hydrometers, and the ServoMed EP1 evaporimeter. Studies included ten healthy volunteers. Water was applicated to test sites on the forearm and the palm of the hand, and effects monitored by the three methods. Parallel increases in conductance, capacitance and transepidermal water loss were registered lasting about five min. The Skicon-100 was more sensitive for measurement of increased hydration while the Corneometer CM 420 might be more sensitive for measurement of decreased hydration. Inter- and intra- individual variations were minor with all instruments. According to reproducibility studies the Corneometer CM 420 was more accurate than the Skicon-100. Technical experiments indicated that the Corneometer CM 420 depicts changes of hydration down to a depth of 0.1 mm while the Skicon-100 measures very superficially. In conclusion, both hydrometers were relevant and valid for assessment of skin moisture. The methods are supplementary, and their combined use is recommended.

Fiorentini, *Becheroni*, *Iorio*, **Hyaluronic acid: analytical procedures for purity determination, polymerization degrees and comparative instrumental tests "in vivo",** International Journal of cosmetic science 26.29/09/88

Recent studies have shown that hyaluronic acid is an important molecule in cosmetics, although there are different, sometimes controversial theories about its role. This work is an analytical contribution to the characterization and a control of hyaluronic acid. The main techniques used are UV, GCP or SEC, IR and corneometry. Surveys conducted with the aid of these techniques have allowed a better knowledge of the molecular weight determination and of the uniform quality of commercial supplies. These procedures may be of application for quality control and promote further investigation on the biological tissular role played by hualuronic acid in topical cosmetic products. The analytical results of a study of the evaluation of oil/water (o/w) emulsions containing hyaluronic acid of different origins are reported. The analytical data obtained from cutaneous hydratation control apparatuses were compared statistically. The choice of hyaluronic acid, made through screening and evaluation by the above-mentioned techniques, ensures the optimal formulation of the finished product and a quality standard of the active principle.

H. Tronnier, **Die Haut als Grenzschicht,** Kosmetik International 8/88

Als äußere Begrenzung des Organismus ist die menschliche Haut wie kein anderes Organ Umwelteinflüssen ausgesetzt. Eine seiner wesentlichsten Aufgaben ist es, diese Umwelteinflüsse abzuwehren, zu neutralisieren oder soweit zu modifizieren, daß sie den Organismus nicht gefährden. Einen Teil insbesondere akuter Schädigungen vermag die Haut über verschiedene Rezeptoren, die sie insgesamt auch zu einem Sinnesorgan machen, zu erkennen. Gegen andere, insbesondere relativ schwache und chronische Noxen vermag die Haut mit Anpassungsvorgängen, erwähnt sei nur die Hornschichtverdickung oder die Pigmentbildung, zu reagieren. In dem Thema "Die Haut als Grenzschicht" möchte ich zu drei Komplexen Stellung nehmen, die entweder zurzeit zum Teil kontrovers diskutiert werden oder von denen ich glaube, daß sie thematisch aus Ihrer Arbeitsrichtung von Interesse sein könnten.

D. van Neste, *J.L. Antoine*, **A vehicle controlled study of the effects of hydrating agents in a human model of rough dermatitic skin,** Bioengineering and the Skin, 4/1988

Rough dermatitic skin (RDS) sites induced by sodium laurylsulphate (SLS, aqueous solutions at 10%,5% and 1% left under occlusion for 48 hours, distilled water served as a 0% SLS control; ten subjects) showed increased transepidermal water loss (TEWL) and increase cutaneous blood flow values (CBFV) which lasted from day 1 to days 5 to 7. There were no significant changes of skin electrical properties (COND) 24 hours after removal of the SLS patches. However, this lag phase was followed by a gradual decrease of COND (days 2 to 5). Normal COND values were again recorded around day 7 after the initial insult, along with elimination of the superficial SLS induced flake. COND was correlated with clinical scores of roughness. Finally, almost complete recovery of RDS was observed by day 10 with normal TEWL, CBFV and COND. A time course study of TEWL, CBFV and COND showed epidermal repair after daily topical treatment with the vehicle alone tested or the vehicle with hydrating agents (HA) (10% urea and 5% lactic acid).When compared with untreated skin or vehicle treated RDS patches, COND was higher at HA treated sites. Under the experimental conditions proposed in this study, COND did not reflect the acute changes of barrier function of the skin as accurately as TEWL or CBFV measurements. It generated a signal closely related to the feeling of roughness, hence allowing instrumental monitoring of the epidermal healing underneath the superficial scale. Finally, it provided quantitative data in relation to substantivity of topically applied hydrating agents onto experimentally induced RDS in human skin.

E. Beradesca, *H.I. Maibach*, **Racial Differences in Sodium Lauryl Sulphate induced cutaneous irritation: black and white,** Contact Dermatitis 18: 65-70, 1988

The different reactivity of black and white skin after exposure to sodium lauryl sulphate (SLS) has been investigated. 9 white and 10 black male volunteers entered the study. The tests were performed on the back at 3 sites: untreated skin, skin pre-treated with occlusion and skin pre-delipidized. Irritant reactions were elicited applying 0.5% and 2.0% SLS via Finn chamber patch tests and monitored by means of laser Doppler velocimetry (LDV), transepidermal water loss (TEWL) and stratum corneum water content (WS).
Higher TEWL, LDV, and WC values were recorded for 2.0% SLS when compared to 0.5% SLS and baselines. Pre-treatment with short-term occlusion generally increased values, while delipidization produced flattening of the data more detectable in whites than in blacks. Significant TEWL differences for two concentrations were recorded in whites for the occluded site ($P<0.02$) while in blacks in the untreated ($P<0.04$) and delipidized ($P<0.03$) sites. LDV revealed significant changes in the untreated and pre-occluded white skin ($P<0.05$ and 0.01, respectively). In blacks, the values were significantly different only in the pre-occluded skin ($P<0.01$). Water content correlated with the visual score and was greatly increased in sites with strongly positive reactions ($P<0.01$). It appears that there are significant differences in the modulation of irritation, in the behaviour of water barrier function and of the erythematous response between blacks and whites. Clinical correlations are discussed.

A.O. Barel, P. Clarys, B. Wessels, R. van Straat, **Quantitative Biophysical Measurements of the Mildness Properties of Cleaning and Detergent Products in Hand Immersion Test**, Algemene en Biologische Scheikunde, Vrije Univerteit Brussel, Belgium

Hevert, *Berz*, **Händewaschen ohne Wasser,** Arbeitsmedizin, Sozialmedizin, Präventivmedizin, 1987

Within the feasibility stage of ORDET (Prospective Study on Hormones and Diet in Breast Cancer Etiology) a reproducibility study on the measuring of cutaneous sebum has been carried out. The Schwarzhaupt SM410 Sebumeter was used for the assessment of the sebum production. 11 measurements were taken from the forehead, back and nape over 36 hr. period, on 9 women ranging in age from 28 to 61 years. A good reproducibility was observed for all measurements and sebumeter discrimination capacity for different levels of sebum production appears particularly high for the forehead. The use of forehead sebum measurement has proved to be suitable for epidemiological studies.

Morganti, *Randazzo*, *Cardillo*, **Role of insoluble and soluble collagen as skin moisturizer**, J. Appl. Cosmetol. 10-12/1986

The normal state of skin hydration depends mainly on the water content present at the stratum corneum level. In order to evaluate the water-binding property of soluble and insoluble animal collagen, and in order to compare its abilities in cutaneous hydratation, both the long and short-term water-binding capacity of human skin was tested "in vivo". First data shows that the presence of soluble native collagen is indispensable in order to obtain a long-lasting hydrating effect.

Dikstein, *Katz*, *Maibach*, **Instruments for measuring stratum corneum moisture content**, International Journal of Science,289-292, 1986, 8

Tronnier, **Dermatologische Bewertung von Kosmetika und Körperpflegemitteln,** Ärztliche Kosmetologie, p.374-398, 1987

The practitioning dermatologist is interested in body care products and cosmetics because of their potential side-effects which may be allergic or primarily toxic. In view of skin physiology also cosmetics and body care products having special effects, such as light and skin protective preparations, deodorants and antiperspirants, dandruff and hair removing products, washing products and preparations which are supposed to have an anti-wrinkle effect on the skin, are of interest to the dermatologist. These preparations claiming a certain effect are opposed to the series of cosmetics which to some extent also make this claim, but on the whole have general effects such as improvement of the hydration of the horny layer and influence on the pH-value of the skin effects which, however, are also assigned to some special products.
These preparations contain a number of active substances the effects of which are at least controversial and often difficult to prove. So, it is pointed out to the fact that just in case of body care products and cosmetics the effect of the basic substances used is essentially responsible for the effects of care.

M. Gloor, *M. Gehse*, *E. Wölfle*, **Beeinflussung der Hornschichtfeuchtigkeit durch waschaktive**

Substanzen, Ärztliche Kosmetologie, 15/1985

Bei 32 hautgesunden Versuchspersonen wurde der Wassergehalt der Hornschicht vor und nach Anwendung einer 3-bzw.6%igen Tensidlösung (3mal täglich über 4 Tage) bestimmt. Bei weiteren 20 gesunden Versuchspersonen wurde die gleiche Untersuchung mit einer 3-bzw 6%igen Seifenlösung vorgenommen. Die Messungen erfolgten mit Hilfe der Infrarotspektroskopie und der Kapazitätsmessung der Hornschicht. Eindeutig war mit beiden Methoden ein Dehydratationseffekt sowohl durch die Seife als auch durch die Tensidlösung nachweisbar, der bei der Tensidlösung quantitativ weitgehend unabhängig von der Konzentration der waschaktiven Substanzen war, bei der Seifenlösung jedoch bei der 6%-Lösung weniger ausgeprägt als bei der 3% Lösung. In der zweiten Stunde nach der letzten Waschung kam es nach Anwendung der Tensidlösung zu einem deutlichen Rehydratationseffekt, der nach Anwendung der Seife nicht in gleichem Ausmaß zu beobachten war. Der Rehydratationseffekt war unabhängig von der Konzentration der waschaktiven Substanz. Beim Vergleich der Methoden erwies sich der Rehydratationseffekt als eindrucksvoller, wenn man die infrarotspektroskopischen Meßwerte zugrunde legte. Wie infrarotspektroskopische Untersuchungen nach Strippen der Haut zeigen, erstreckt sich die Dehydratation der Hornschicht nur auf deren oberflächlichste Anteile.

Simon, **Cosmetic effect in relation to hydration of the skin proved by changed electric conductivity,** Ärztliche Kosmetologie, p. 256-259, 1984

Several skin care products have been investigated. The skin resistance was measured with a dermotest apparatus. Computer processing revealed that complex cosmetic treatment causes a decrease of skin resistance (i.e. an increase of the skin hydratation) as compared to the control side.The results are supported by the opinions of the treated subjects.

Y. Werner, **The water content of the stratum corneum in patients with atopic dermatitis**, Acta Derm Venereol 66:281-284, 1984

K. Mosler, **Hautfeuchtigkeitsmessung – kein Problem mit dem Corneometer CM 420,** Parfümerie + Kosmetik 64, 1983, p. 375-379

Der Hydratationsgrad der Hornschicht – das Stratum Corneum – und auch seine Beeinflussung durch Pharmaka und Kosmetika spielen eine wichtige Rolle, nicht nur in der Dermatologie, sondern auch in der allgemeinen Körperpflege

K.-H. Schrader, **Untersuchungen wasserretinierender Kosmetika auf der Haut,** Parfümerie + Kosmetik 62, 1981

Mit dem Corneometer zur Bestimmung der aktuellen Feuchtigkeit der oberen Hautschichten gelingt es, kosmetische Produkte auf ihren Hydratationseffekt - besonders im Stratum Corneum- zu überprüfen. Für diese Untersuchungen wurden eine W/O-Emulsion, eine O/W-Emulsion sowie ein Gesichtswasser herangezogen, die zugleich mit einem entsprechenden Wirkstoff der Haut auch Wasser zuführen. Es wurden alternativ geprüft - neben dem jeweiligen Placebo: Harnstoff, Desamidokollagen, Natriumsalz der Pyrrolidoncarbonsäure und Kollagenhydrolysat. Der Effekt bei einigen Wirkstoffen zeigt auch bei 120 Minuten nach der Applikation noch deutlich erhöhte Werte gegenüber der Kontrolle, während bei anderen eine Exsikkation gemessen wurde. Die Resultate dieser Prüfungen lassen weitere Untersuchungen mit anderen Wirkstoffen sinnvoll erscheinen.

H. Tronnier, **Differenzierte Feuchtigkeitsmessungen an der menschlichen Haut,** Ärzliche Kosmetologie 308, 1980

Differentiated moisture measurements on human skin are carried out by means of the demonstration of resonance frequency measurements, resistance measurements and condensor methods. Furthermore, the importance of applying the appropriate base in therapy and cosmetics depending on the individual hydration condition is demonstrated.

H. Tronnier, **Meßmethoden zur Prüfung kosmetischer Präparate und Grundstoffe,** Parfümerie + Kosmetik 61, 1980, p. 421 - 433

Unsere Kenntnisse über Reaktionsabläufe in der menschlichen Haut, insbesondere auch über die, die Schutz- und Abwehrfunktionen des Hautorgans bedingen, sind dem Dermatologen zum Teil aus pathologischen Störungen, also dermatologischen Krankheitsbildern, geläufig.