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STUDIES LIST
Tewameter®

Prüfung der irritativen Wirkung von hydrophilen und lipophilen Irritantien im repetitiven Irritationstest
Dissertationzur Erlangung des doctor medicinae (Dr. med.) vorgelegt dem Rat der Medizinischen Fakultät der Friedrich-Schiller-Universität Jena
von Alexander Krebs geboren am 10.06.1975 in Sömmerda

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.

J. Pinnagoda, RA Tupker, PJ Coenraads, JP Nater, **Transepidermal water loss with and without sweat gland inactivation;** Contact Dermatitis 1989, Juli 21, pp. 16-22

The influence of eccrine sweating on transepidermal water loss (TEWL) was investigated. TEWL was simultaneously measured on both forearms, with and without topical inactivation of the eccrine sweat glands by 0,3 ml of 0,5 % aqueous scopolamine hydrobromide (HBr), applied under 1 h occlusive patches. The degree of sweat inhibition, after exercise was measured at 2,3 and 4 h after patch removal. In 42 out of 44 subjects, complete sweat inhibition (on exercise) was achieved only at 4 h after removal. After a 15-min rest in a room at 20 degrees C, the pre-exercise TEWL values (at 4 h) on the treated and untreated sites were not different (Pgreater than 0,05), in 38 out of 44 subjects.

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, 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.

Giorgio Mazzola, *Gianfranco Secchi*, *Alessandro Teglia*, **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.

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.

R.Nöring,J.Stork.B.Born,B.Labrot,H.Mann,P.Saake,M.Spallek, **Transepidermaler Wasserverlust bei Atopie,** Dermatosen 41, Heft 3, 1993

Bei 279 Meitarbeitern wurde der Atopie-Score bestimmt, an vier verschiedenen Körperstellen (Unterarmstreckseite, Unterarmbeugeseite, Handrücken und Handfläche) wurde der Transepidermale Wasserverlust (TEWL) gemessen. Es zeigt sich, daß der Atopie-Score und der TEWL unabhängige Größen sind.

A.O. Barel, *P. Clarys*, **Study of the Stratum Corneum barrier function by Transepidermal water loss (TEWL) measurements. Comparison between two commercial instruments: Evaporimeter® and Tewameter®**, (Studio sulla funzione barriera dello strato corneo per mezzo della perdita di umidita´per traspirazione cutanea (TEWL). Confronto tra due strumenti: Evaporimeter® e Tewameter®), Cosmetics & Toiletries Ed.It.n. 1/94

The measurement of Trans Epidermal Water Loss (TEWL) is an important non invasive method for assessing the efficiency of the skin as a protective barrier. As a consequence, the measurement of TEWL provides information concerning the integrity of the epidermis in normal, irritated and diseased skin situations, concerning the effects of chemicals on the surface of the skin and concerning the objective evaluation of occlusive pharmaceutical and cosmetic preparations. In the past different non invasive methods and instruments have been developed to measure TEWL. Until recently, the only commercial available TEWL instrument was the Evaporimeter® made by Servomed, Sweden, based on the open chamber evaporation gradient method. This widely used instrument, measures the water evaporation gradient developed from the skin surface in an open chamber system. Hygrosensors coupled with thermistors measure at two different distances from the skin surface, the water evaporation at the skin surface. Recently a new instrument based on the same principle of measurement of the water evaporation gradient in an open chamber, was developed and became commercially available: Tewameter TM 210® made by Courage+Khazaka, Germany. It is the purpose of this chapter to compare the two commercial instruments under identical experimental conditions. The following parameters will be comparatively analyzed and described: general technical description of the probes and the instruments, evaluation of the accuracy, reproducibility and range of TEWL measurements and a comparative study of some typical applications of TEWL measurements in dermato-cosmetic research. TEWL-measurements were carried out with both instruments after stripping, occlusion and the treatment with irritant detergents.

Jeanne Duus Johansen, Dorte Ramsing, Gunhild Vejlsgaard and T. Agner, **Skin barrier properties in patients with recessive x-linked ichthyosis**, Second International Symposium on Irritant Contact Dermatitis (ISICD), Zurich, April 14-16, 1994

Recessive X-linked ichthyosis (RXLI) is scaling disorder of the skin with the biochemical abnormality known to be steroid sulphate deficiency. In epidermis levels of cholesterol are decreased and levels of cholesterol sulphate increased. The influence of this disturbed lipid composition of the epidermis with respect to skin barrier function was examined in the present study. Skin response to patch testing with sodium lauryl sulphate (SLS) 0.5% for 24 hours was evaluated in 13 patients with RXLI and 15 age- and sex-matched controls. Basal skin properties and skin response to SLS were studied by measurement of transepidermal water loss (TEWL), skin hydration (electrical capacitance),

and erythema index. No statistically significant difference in basal TEWL was found between RXLI patients and controls. Skin hydration, as reflected by electrical capacitance of the skin, was significantly decreased in patients with RXLI. After exposure to SLS TEWL was significantly increased in control subjects as compared to ichthyosis patients (p=0.047). Increase in TEWL after SLS-exposure was statistically less for RXLI patients than for controls (p=0.0049). No statistically significant difference in erythema index was found between the two groups in basal values or in values obtained after SLS-exposure. The implication of the study is a better understanding of the skin barrier function in scaly disorders.

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.

A. Kurte and P.J. Frosch, **What is the optimal time course of application for barrier creams?,** Second International Symposium on Irritant Contact Dermatitis (ISICD), Zurich, April 14-16, 1994

There is no scientific data on the optimal timing of barrier creams (BC) regarding the contact with the irritant. Most of all it is totally unclear whether the application before contact with the irritant is more effective than afterwards. Therefore we studied a popular BC (Atrix Handcreme, Beiersdorf) in our recently described Repetitive Irritation Test on human volunteers with four standard irritants and changed the mode of BC application as follows: 30 min before the irritant, 30 min before and 30 min after the irritant, and 30 min after the irritant only. On normal back skin of 10 volunteers the 4 irritants were applied via large Finn chambers for 30 min: 10% sodium lauryl sulphate (SLS) 1%, sodium hydroxide (NaOH), 30% lactic acid and undiluted toluene. Control fields received the irritant only. Cutaneous irritation was quantified by use of non-invasive bioengineering techniques (TEWL), blood flow volume, capacitance for stratum corneum hydration) and a clinical score for erythema. The results showed marked differences regarding the 3 types of application of BC. Overall, best protection was observed when the BC was applied before and after the irritants; significant differences vs control were found for nearly all parameters. The application before the irritant was almost as effective as before and after for SLS and NaOH, but markedly less effective for lactic acid. For the latter irritant the third mode of BC application (only afterwards) showed striking efficacy, but was least efficacious for the other irritants. The results demonstrate that the degree of inhibition of irritancy depends on the time sequence of BC application. Usage before and after the irritant may be more effective than only one application. For some irritants the application after the irritant may be just as effective as the application before. This observation may have important implications for work places where BC cannot be used before or during working hours.

Ch.Münzberger, U.F. Haustein and 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.

E. Tur, Z. Eshkol, Sarah Brenner and H.Il Maibach, **The cumulative effect of subthreshold concentrations of irritants**, Second International Symposium on Irritant Contact Dermatitis (ISICD), Zurich, April 14-16, 1994

The aim of the present study was to assess the cutaneous response to repetitive applications of subthreshold concentrations of the same irritant or a combination of irritants, using objective non-invasive measurements as well as visual scoring. Ten subjects were patch-tested to determine the minimal irritant dose (MID) to dilutions of aqueous sodium lauryl sulphate and lactic acid. Each subject was then patch-tested for a period of 24 h with half of MID of each chemical (10 patches of each). At 25 h additional patches were applied over the same sites, containing five successive twofold dilutions of each irritant, starting with half of MID. Each chemical was thus applied onto itself and onto the other chemicals as well. In addition, combinations of half the MID of each substance and twofold dilutions of the other were also applied for two consecutive periods of 24 h. At 25 and 49 h the cutaneous changes were monitored by using the non-invasive methods of laser Doppler flowmetry and reflectance spectrophotometry, in addition to visual scoring. No visual changes were detected, whereas significant differences between the various patch-testing combinations were detected by the instrumentation. Cutaneous blood flow over sites treated with half the MID of one substance increased upon an additional 24 h period of occlusion with half the MID of the other substance ($p<0.05$), and in several occasions even with a quarter of the MID. Repeated application of certain combinations of the substances resulted in an elevated blood flow as well. Reflectance spectrophotometric measurements gave similar results, with the additional finding of an elevation upon reapplication of the same substance ($p<0.05$).These results may provide initial insight into the interaction between the skin and irritants. Although no visual alterations could be detected, the noninvasive instruments were able to detect cutaneous responses to consecutive applications of subthreshold concentrations of various combinations of two chemical irritants. The detectable changes obtained with the addition of a quarter of the MID on top of half of it suggest an augmentation of the response.

G. Zeller, N.Y. Schürer and G. Goerz, **Patch testing of dental alloys**, Second International Symposium on Irritant Contact Dermatitis (ISICD), Zurich, April 14-16, 1994

Complaints about "allergies to dental alloys" encounter frequently the dermatologists or dentists office. "Standardised patch tests" may then be performed on the patients back. However, the stratum corneum provides a barrier against transepidermal waterloss (TEWL) as well as unlimited penetration of chemicals. The quality of the barrier varies between the different regions of the body (oral, back, arm). In this context, we posed the question, whether the current standardised patch test procedure of dental alloys on the back is optimal. Therefore, we performed triplicate patch tests on 30

patients with "oral complaints to dental alloys". Patch tests were applied on the back and the insides of both upper arms. The skin surface of one arm was pre-treated with acetone wipes in order to disturb the stratum corneum barrier prior to the application of the patch test. The individual TEWL was measured prior and after to the acetone wipes. The patch test procedure was performed according to the recommendations of the German contact dermatitis group. Of the 30 patients tested, 15 patients revealed reactions to dental alloys. Thereof, 5 (33%) patients reacted in triplicate, 8 (53%) reacted only on their arms (duplicate) and 2 (13%) reacted only on the acetone-pre-treated arm. Reactions to benzoylperoxide (7), cadmiumchloride (6), sodiumthiosulfatoaurate (4) and zincchloride (4) were observed. We conclude, that patchtesting of dental alloys may better be performed on the upper arm, where the physiological stratum corneum is thinner, yet disruption of the epidermal barrier with acetone wipes in general, is not necessary to prevent false negative results on the back.

Vera Rogiers and Diane Roseeuw, **TEWL measurements in patch test assessment: The need for standardisation,** Second International Symposium on Irritant Contact Dermatitis (ISICD), Zurich, April 14-16, 1994

When soap, shower and shampoo formulations are brought in contact with skin, irritation may occur which can be assessed by TEWL measurements. Of utmost importance is that the methods involved are well standardised. The aim of this study was to develop such standardised conditions for TEWL measurements and patch testing. For TEWL measurements the TEWA-meter was used. Several of the factors studied play an important role: the measuring probe should be warmed up to body temperature (30.9 ± 1.0°C) before measurements are carried out; the pressure on the measuring probe must be kept constant; a shielding box should only be used when excessive air turbulence can occur; the location of the measurements site on the body is a variable. Corresponding places on the right left forearm exhibit the same TEWL; the environmental temperature and relative humidity must be kept constant; cleaning procedures of the skin may affect TEWL measurements. Factors of minor importance seem to be age and sex of the volunteers. Under standardised conditions the reproducibility of the TEWL measurements on the forearm of 20 female volunteers between 23-27 years old during one month was high: CV = 5% at the individual level and 10% at the group level. For patch testing different methods were compared taking into account the factors that affect TEWL measurements. When aqueous detergent solutions (1% sodium laurylsulfate (SLS) in desionised water was taken as a reference) were patch tested, factors affecting TEWL measurements were found to be the volume of the detergent solution on the patch, the occlusiveness of the dressing, the use of an appropriate blank, the occlusion time and the reading time after air exposure. When under these standardised conditions the irritancy potential of two new non-ionic surfactants, caprilyl/capryl glucoside and decyl glucoside, was measured on the forearm of 13 volunteers (female between 20-29 years old) versus the amphoteric surfactant cocoamidopropylbetaine and the anionic SLS, the following ranking was found: water < alkyl glucosides < betaine < SLS.

S.M.John, U.Gödecke and H.J.Schwanitz, **Bioengineering of the skin as a tool for primary prevention of occupational skin disease? A nine-months experience,** Second International Symposium on Irritant Contact Dermatitis (ISICD), Zurich, April 14-16, 1994

Introduction: Which factors influence individual susceptibility to develop dermatitis in wetwork? Little is known so far, even less has been incorporated in legal requirements. To date, in Germany, youths at risk are presently - if at all - screened for irrelevant disorders like acne. An objective instrumentary for efficient pre-employment counselling in wetwork is needed. Methods: Prospective studies are the only valid study design when the role of endogenous factors such as "skin sensitivity" is to be investigated. A prospective cohort study in hairdressers' apprentices was designed correlating anamnestic and clinical findings (e.g. Erlangen atopy score) with bioengineering methods (transepidermal water loss [TEWL], microcirculation [LDF], pH, sebum, temperature). The intended observation period is to be three years (full educational cycle), the observation intervals were 3 months in the first year of training, and will then be 6 months. Results: The results of the first nine months of the study are now available, including 4 investigations in 3-months-intervals in the first year

of training, and will then be 6 months. Results: The results of the first nine months of the study are now available, including 4 investigations in 3-months-intervals. So far 92 junior apprentices were investigated, 62 within the first 20 days of professional training. Within the observation period 25 (27%) developed moderate or severe occupational dermatitits at any one stage, 39 (43%) developed mild dermatitis, 28 (30%) apprentices did not develop dermatitis (yet). 6 of 92 left the profession for reasons other than the skin, 7 (8%) had to give up for occupational skin disease. Clinical parameters (Erlangen atopy-score) so far do not significantly correlate the development of contact dermatitis, nor do the investigated bioengineering parameters (including TWL) compared to unaffected controls. However, there was a significant increase of RWL within the first six months of training in "cases" and controls, which afterwards normalized in unaffected individuals. Conclusion: The aim of this study is to develop a skin sensitivity score (SSS) as an objective and predictive parameter in wetwork by combination of (a) clinical and (b) non-invasive bioengineering parameters. This aim has not yet been reached. More epidemiological data is needed. Work-related monitoring using bioengineering methods may become of importance for early diagnosis of occupational contact dermatitis.

P.G.M. Van der Valk and G. Zarafonitis, **Horny layer thickness as assessed functionally by sellotape stripping and transepidermal water loss does not predict sodium lauryl sulphate skin irritations,** Second International Symposium on Irritant Contact Dermatitis (ISICD), Zurich, April 14-16, 1994

To elicit an irritant or allergic skin reaction a chemical has to penetrate the skin. The horny layer plays an important role as a barrier for most chemicals. Therefore it seems likely that horny layer barrier function is important in preventing allergic and irritant contact dermatitis. Differences in horny layer barrier function may account for differences in susceptibility to irritants. The thickness of the horny layer may be an important factor in barrier function. If it is assumed that by sellotape stripping a layer of corneocytes is removed with a constant thickness both between subjects and within subjects and permeability constants do not vary the thickness of the horny layer can be estimated according to Fick's law by the number of strips needed to increase permeability. Transepidermal water loss (TEWL) has been suggested as an indicator for horny layer barrier function. Stripping the skin with sellotape increases transepidermal water loss according to Fick's law. We studied the correlation between the number of sellotape strips needed to remove a constant functional part of the horny layer as assessed by transepidermal water loss with the response of the skin to a standardised irritant stimulus. In 20 subjects a site on the volar side of the forearm was tapestripped until TEWL was 40 g/m²/h. On the contralateral side of the other forearms skin was patch tested 48 hours to sodium lauryl sulphate (SLS) 3%. Redness of the exposed skin was read semi-quantitatively on a 0-4 scale after the exposure.
The results are presented in the table.

Erythema	1.35 ± 0.67	r = 0.12* NS
TEWL	43.97 ± 16.60	r = 0.15 NS
Strips	29.25 ± 12.41	

Mean erythema score, mean TEWL (g/m²/h) score and mean number of strips *Correlation coefficient between erythema and TEWL score with the number of strips (NS = not significant).
The number of strips needed to increase TEWL till 40 g/m²/h did not predict skin irritation. The lack of correlation may be explained by:
1. Permeability constants vary significantly between subjects:
- because the horny layer thickness and the quality of the barrier are inversely related for
- sellotape stripping removes a layer with varying thickness inversely related to the barrier quality of the horny layer.
2. Other factors than differences in barrier function do account for differences in susceptibility to SLS.

A. Hannuksela and M. Hannuksela, **Irritant effects of a liquid detergent in wash and chamber tests,** Second International Symposium on Irritant Contact Dermatitis (ISICD), Zurich, April 14-16, 1994

Irritant properties of a detergent can be tested by using patch and chamber tests and various kinds of use tests. The aim of the present study was to compare the results of use and 12 mm Finn Chamber tests.

The study subjects (10 atopic and 11 non-atopic medical students) washed the outer aspects of their upper arm with a liquid detergent for one minute twice daily for one week. 48 h chamber tests with five concentrations of the same detergent in water were concurrently applied to the upper back skin. Transepidermal water loss (TEWL), electrical capacitance and skin blood flow were measured to quantify the reactions on day 0, 2, 5 and 7. Irritant dermatitis developed equally in the atopics and non-atopics in the wash test, whereas in the chamber in the TEWL was significantly higher in the atopics than in the non-atopics. The chamber test results thus predicted poorly the results of the wash test.

P. Treffel, B. Gabard and 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.

Peter J. Frosch and Antonius 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.

M.Ghyczy, J. Greiss Th. Kovats, **Liposomes from Vegetable Phosphatidylcholine,** Cosmetics & Toiletries, July 1994

The structure of the skin, especially the stratum corneum with its important function as a barrier to minimize transepidermal water loss (TEWL), has been extensively studied and reviewed. During the proliferation of epidermal cells and their migration from the basal layer to the upper layer of the stratum corneum, cell differentiation is accompanied by a tremendous change in metabolic activities.

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

T.L. Diepgen, M. Fartasch, A. Huner and U. Funke, **Bioengineering Methods in Occupational Dermatology,** The 10th International Symposium on Bioengineering & the Skin, Cincinnati, Ohio, June 13-15, 1994

A. Teglia, G. Secchi, **Evaluation of the Protective Efficacy of Proteins and Mild Tensides against the adverse Cutaneous Effects of Anionic Detergents by means of TEWL and Profilometric Measurements,** 18th International IFSCC-Congress, Venice, October 1994

The repeated use of anionic-based detergents is reported to induce adverse events on the human skin, such as alteration of the stratum corneum barrier function and increase of roughness. Our investigation focused on quantification and comparison of the protective effects of mild surfactants and protein derivatives in simple and complex tenside systems based on sodium lauryl sulfate, sodium laureth sulfate and sodium C14-16 olefin sulfonate. Cocamidopropyl betaine, cocamidopropylamine oxide and alkyl polyglucoside were used as mild surfactant additives; wheat proteins with different average molecular size were tested. The variations in skin permeability were assessed by TEWL measurements. The changes in skin surface morphology were analysed by three-

and two-dimensional roughness parameters of the skin relief. Exposure models were based on the soap chamber test and on standardised washing procedures. Proteins and mild surfactants show comparable efficacy in the one-day occlusion tests, but better results were observed for proteins in the occluded and open repeated exposures.

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).

S. Sirigu, S. Giogilli, C. Dederen, **Functionality and Mildness of Solid Detergents: A Study of Correlation among Formulative Aspects, Instrumental Data and Sensorial Results,** 18th International IFSCC-Congress, Venice, October 1994

The aim of our study was to find a correlation between chemical and formulative aspects of different solid detergents and their features of functionality, skin mildness and sensorial properties. Eight different products were chosen for the test: five syndets, two combars and one alkaline soap. Several cutaneous parameters were investigated in vivo, by using different techniques of measure. The cutaneous innocuity was evaluated on 15 volunteers by means of an occlusive 48 hours patch test. Skin compatibility (respect of pH physiological values, skin barrier functionality and skin roughness) was evaluated on 12 subjects before and after repeated standard washing with the products. Measurements were taken for TEWL, pH skin colorimetry and image analysis. Sensorial performances were assessed, according to the Quantitative Descriptive Analysis method by a panel of 12 well trained evaluators. Results obtained from different methods were then correlated. As far as the cutaneous compatibility is concerned, correlations were found between visual and colorimetric evaluations of acute irritation, and between acute irritation and composition. No correlation was found between repeated wash test results and acute irritation. A good correlation was evidenced by comparing instrumental dryness and roughness evaluations with the correspondent skin sensorial perceptions. Sensorial foam evaluations were well correlated to the composition.

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

P. Elsner, H.I. Maibach, **Biophysical Properties of Human Male Genital Skin,** The 10th International Symposium on Bioengineering & the Skin, Cincinnati, Ohio, June 13-15, 1994

Ron 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.

Donald R. Wilson, Howard I. Maibach, **TEWL and the Newborn**, Bioengeneering of the Skin: Water and the Stratum Corneum, 1994, Chapter 11

Dermatological science made great strides in the 19th century utilizing man‘s own tools-a history, visual inspection, and palpitation. However, some areas of investigation defy such evaluation; for example, historical, visual, or palpatory changes defy discernment. Practical examples include nonerythematuous irritation and subclinical forms of disease. It is in this area that measurement of transdermal water loss (TEWL) find strong advocates and provides information not otherwise obtainable. In addition, TEWL is an easily measured, noninvasive estimate of the integrity of the skin‘s water barrier, which has proven its usefulness in many related academic and commercial fields. The noninvasive nature of TEWL measurement makes it an especially attractive technique for neonatal studies where research ethics is of great concern. The TEWL techniques employed in neonatal research originate from successful applications on adult human and animal models. Historically, dermatoxicology and pharmacology investigations have used TEWL to assess the local effects of drugs, occlusive materials, and other substances applied to the skin.TEWL has played a valuable part in identifying the function of strateum corneum (SC) lipids. The cosmetic industry employs TEWL to evaluate moisturizer efficacy and to evaluate the irritation and barrier destruction potentials of soaps and solvents. The measurement is also useful in monitoring the recovery processes of wound healing and SC rejuvenation. The transdermal patch industry uses TEWL to help predict the permeability of cadaver skin for drug diffusion studies in vitro. In the clothing industry, TEWL is useful in examining fabric irritation mechanisms and occlusive effects. TEWL has also helped characterize types of dermatitis. This chapter focuses specifically on TEWL as it is applied to investigating the barrier function of neonatal skin.

A. Teglia, G. Secchi, **New protein ingredients for skin detergency: native wheat protein-surfactant complexes**, Int.Journal of Cosmetic Science 16, 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.

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. We looked for an animal model that would present the following characteristics: - pharmacological reactions similar to the ones of human skin, allowing a meaningful comparison of the irritant reactions to be made; - possibility of easily repeating applications of various concentrations of the irritants; - possibility of quantifying the irritation with non-invasive skin measurements techniques. For these purposes, we chose the Yucatan hairless micropig (YHP), the skin of which is known to be very close to human skin, at least morphologically. In a first preliminary stage, the following experiments were conducted: 1. Physiologic characterisation of the normal YHP skin with repeated measurements on different sites of skin colour (Minolta Chromameter), skin hydration (Courage + Khazaka Corneometer) and transepidermal water loss (TEWL; Servomed evaporimeter); 2. Measurements of the skin reactions to histamine (Pricktest), aqueous methylnicotinate, NaOH, aqueous Na-lauryl sulfate (NaLS) and toluene; 3. Occlusive application of different cutting oils. The results show the following similarities and differences with known properties of human skin: 1. YHP skin showed lower L*- and b*-, but similar a*-values, skin hydration slightly lower but TEWL similar compared to known Caucasian skin data. Site differences were detected. 2. Reactions to histamine, toluene and NaOH were well characterised and took place in a concentration range similar to the one used in corresponding experiments on human skin. This was also the case for NaLS, although the reaction showed a strong erythema, a decrease of hydration changes but little barrier impairment as measured with TEWL. YHP skin proved very insensitive to Methylnicotinate. 3. It was also shown that some cutting oils could provoke a measurable irritation after a single occlusive patch application. In conclusion, these experiments to be completed to better characterise the properties of the YHP skin but these preliminary results appear to support the use of this animal model in thinking about a near-practise test system for SBC.

S.R. Hartmann, H.Pietsch, G.Sauermann,R.Neubert, **Untersuchungen zur Hautverträglichkeit von alkoholischen Händedesinfektionsmitteln,** Dermatosen 42, 6, 241-245, 1994

Ziel der vorliegenden Arbeit war die Untersuchung der Wirkung von alkoholischen Händedesinfektionsmitteln auf die menschliche Hautoberfläche hautgesunder, volarer Unterarme. Die Untersuchung erfolgte im Rahmen einer Cross-over Studie über einen Beobachtungszeitraum von acht Monaten an 56 randomisiert ermittelten Probanden unter praxisrelevanten Bedingungen. Die Studie fand von September 1992 bis April 1993 statt. Die 56 Probanden waren Mitarbeiter einer pharmazeutischen Firma. Ein Unterarm aller Mitarbeiter wurde volar im Durchschnitt sieben mal pro Arbeitstag im Rahmen der Vorschriften über die hygienische Händedesinfektion behandelt. Der andere Kontrollunterarm blieb während des gesamten Beobachtungszeitraums unbehandelt. Behandelte Areale konnten mit den unbehandelten Arealen verglichen werden. Die Erfassung und Beurteilung möglicher Hautzustandsveränderungen erfolgte durch dermatologische Bewertung und durch sechs weitere Untersuchungsmethoden. Bestimmt wurden: Grad der Schuppung der Haut (Abschuppungsrate), Hautfeuchtigkeit, Haut-pH-Werte, transepidermaler Wasserverlust (TEWL), Hauttemperatur und Hautmikrotopographie. Der Einfluß saisonaler Gegebenheiten wie Außentemperatur und Luftfeuchtigkeit auf unbehandelte wie behandelte Areale konnte durch die vergleichende Versuchsanordnung berücksichtigt werden. Die Abschuppungsrate lag an den behandelten Arealen an den meisten Meßzeitpunkten unter dem Niveau der unbehandelten Areale.

Der TEWL lag an den behandelten Arealen zu jedem Meßzeitpunkt hochsignifikant über dem Niveau der unbehandelten Areale.

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.

L. Halkier-Sorensen, **Hautschutz bei Reinigungspersonal**, TWDermatologie Heft 6, November/Dezember 1994

Berufstätige, die an ihrem Arbeitsplatz hautreizenden Substanzen ausgesetzt sind, sollten zum Hautschutz Feuchtigkeitspräparate verwenden. Zur Überprüfung der Wirksamkeit eines solchen Präparates wurde eine Feldstudie mit 111 Arbeitskräften aus dem Reinigungs- und Küchenbereich durchgeführt. Die Ergebnisse zeigen, daß die Probanden generell von der Verwendung des Feuchtigkeitspräparates profitieren. Vor allem aber für jene Personen, die bereits mit Hautirritationen vorbelastet sind, erscheint die Anwendung eines Feuchtigkeitspräparates unverzichtbar.

H. Tronnier, **Neues zum Wirkungsnachweis von Körperpflegemitteln**, 38. Tagung der Deutschen Dermatologen Gesellschaft, Berlin, 29. April - 03. Mai 1995

D.A. Comes, E.J. Fendler, M.J. Doland, R.A. Williams, Poster Presentation**, Skin Bioengineering Instrumentation: Automation and Use**

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.

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.

A.O. Barel, P. Clarys, **Comparison of Methods for Measurement of Transepidermal Water Loss,** Handbook of Non-Invasive Methods and the Skin, J. Serup G.B.E.Jemec, 1995

The measurement of transepidermal water loss (TEWL) is an important noninvasive method for assessing the efficiency of the skin as a protective barrier. The stratum corneum forms a barrier against diffusion of water through the epidermis and constitutes the main obstacle to the penetration of molecules coming in contact with the surface of the skin.

E. Berardesca, H.I. Maibach, **Racial Differences in Skin Function: An Update,** Cosmetics & Toiletries® magazine Vol. 110, October 1995

The most prominent characteristic of racial and ethnic groups is skin color. However, despite the visible color differences, documented anatomical and ultrastructural differences are only minimal. Furthermore, controversy remains as to wether these features also have a functional relevance in skin physiology. Some aspects of skin physiology may indeed have practical implications on the racial incidence and prevalence of some diseases, including skin cancer, acne and pigmentation disorders. In recent years, scientists have devoted much work to further characterizing racial differences and have published reviews of their objective techniques.

E. Weißhaar, R. Sabel, C. Smith, M. Coißbau, E.-M. Röpke, H. Gollnick, **Does a New Lipidizing Agent in a Medical Soap Prevent Lipid Loss Induced by Repetitive Washing,** Skin Pharmacology Society: 12th Annual Meeting 1995

Skin care e.g. choosing a suitable soap is an important factor in preventing skin disease. Various medical soaps claim to minimize the strain put on the skin by repetitive washing. The aim of this study was to determine wether a new relipidising agent in a medical soap which supposedly counteracts lipid loss induced by repetitive washing leads to a significant change in transepidermal waterloss, pH, sebum excretion and 8 epidermal lipids.

T. Heinzelmann, K. Müller-Decker, J.J. Levy, F. Marks, **Proinflammatory Eicosanoids and Interleukin-1 in Suction Blister Fluid from Primary Irritated Human Skin,** Skin Pharmacology Society: 12th Annual Meeting 1995

In order to establish an alternative or supplement to the Draize test, an in vitro skin irritancy test was developed with human keratinocyte-derived proinflammatory interleukin-1 and eicosanoids as in vitro parameters. These are currently validated for their relevance and reliability: In a clinical study the eicosanoid
and the IL-1*a* content of a human suction blister fluid (SBF) and skin inflammation (clinical syptoms, transepidermal water loss TEWL) of irritant and vehicle-treated skin are evaluated. Here, the data after application of sodium lauryl sulfate (SLS) are presented.

K. Stephanek, J.J. Levy, A. Kesckés, **The Local Reaction Followed Topical Application of Leukotriene B4 on Healthy Human Skin**, Skin Pharmacology Society: 12th Annual Meeting 1995

The archidonic acid-derived metabolite leukotriene B4 (LTB4) seems to play an important role in the pathogenesis of several skin diseases like psoriasis, leukocytoclastic vasculitis and atopic dermatitis.

H.P. Nissen, H. Biltz, R.Muggli, **Borage Oil,** Cosmetics & Toiletries® magazine Vol. 110, October 1995

Researchers have discussed use of polyunsaturated fatty acid supplements to treat atopic dermatitis (AD) for more than half a century. Oil from evening primrose seeds has attracted special attention because it contains -linolenic acid (GLA). Morse et al found that oral administration of this oil significantly reduces the general severity of AD, in a dose-dependant manner. The fatty-acid profile of blood lipids in AD patients shows an increase in the proportion of linoleic acid, with a decrease in arachidonic acid and other metaboilites of linoleic acid. These findings suggest defective functioning of the enzyme -6-desaturase in AD. In a previous communication, we reported that systemic

administration of evening primrose oil leads to smoother skin. This evidence has provoked much interest as to wether topical application gives similar results.

P. Soto, C. QueilleRoussel, 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.

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).

G.E. Piérard, **Relevance, Comparison, and Validation of Techniques,** Handbook of Non-Invasive Methods and the Skin, J. Serup G.B.E.Jemec, 1995

Measuring in an objective way is always in need of additional breakthrough. Dermometrology and bioengineering have been and remain closely associated in the search for improvements of quantitative noninvasive assessments. The pre-bioengineering times and the descriptive phase of dermometrology are behind us. Ingenious researches pioneered methods that may now look crude, time-consuming, and sometimes lacking in reproducibility.

Y. Ghane, A. Hüner, M. Fartasch, T.L. Diepgen, **Entwicklung eines Testmodells zum Wirksamkeitsnachweis von Hautschutzpräparaten,** 38. Tagung der Deutschen Dermatologen Gesellschaft, Berlin, 29. April - 03. Mai 1995

Die irritative Wirkung hautbelastender Arbeitsstoffe soll durch das Auftragen von Hautschutzpräparaten reduziert werden. Bisherige, für den Wirksamkeitsnachweis eingesetzte Methoden tragen der Arbeitsplatzsituation nicht genügend Rechnung, in der subtoxisch-kumulative Handekzeme durch den wiederholten Kontakt mit relative gering irritativen Substanzen entstehen.

F. Distante, E. Berardesca, **Transepidermal Water Loss,** Bioengineering of the Skin: Methods and Instrumentation, CRC Press 1995

Measurements of transepidermal water loss (TEWL) is widely used to characterise the water barrier function of skin, both in physiological and pathological treatments on diseased skin. In vivo TEWL can be measured according to three different techniques.

E.Weißhaar, R.Sabel, C.Smith, M.Coißbau, E.-M.Röpke, H.Gollnick, **Does a New Lipidizing Agent in a Medical Soap Prevent Lipid Loss Induced by Repetitive Washing,** Skin Pharmacology Society: 12th Annual Meeting 1995

Skin care eg choosing a suitable soap is an important factor in preventing skin disease. Various medical soaps claim to minimize the strain put on the skin by repetitive washing. The aim of this study was to determine wether a new relipidising agent in a medical soap which supposedly counteracts lipid loss induced by repetitive washing leads to a significant change in transepidermal waterloss, pH, sebum excretion and 8 epidermal lipids.

W.Schlüter-Wigger, P.Elsner, **Klinische Prüfung der Wirksamkeit von vier kommerziellen Hautschutzpräparaten im repetitiven Irritationstest (RIT).** 2. Poster Preis ICPCD Zürich, 10/1995

K. De Paepe, P. Vandamme, M.P. Derde, D. Roseeuw, V. Rogiers, **Ceramides/Cholesterol/ Free fatty acids ontaining body lotions: Effect on TEWL of aged and SLS-damaged skin,** Active Ingredients International Conference Paris, November 1996
Thus the basic question still remains unanswered, namely if it is possible, considering the galenic difficulties involved in a correct formulation, to devleop efficient cosmetic products by adding essential barrier lipids. If will be a challenge for the cosmetic industry to look for suitable solutions. One of these could be an increased interest in basic research of the barrier function of the skin leading to products that can either protect the barrier and keep it in good condition or restore a damaged barrier.

U. Griesbach, **High Molecular Weight Chitosan A Multifunctional Biopolymer as an Active Ingredient for Skin and Hair Care,** Active Ingredients International Conference Paris, November 1996

Hydagen CMF as a high molecular hydrocolloid is an excellent active agent for the entire skin care range as well as in decorative cosmetics. However, on account of the cationic character and the high molecular weight, this chitosan product is not compatible with anionic surfactants and can therefore not be used in surfactant skin cleansing products containing anionics.

J.Welzel, K.P.Wilhelm, H.H. Wolff, **Skin permeability barrier and occlusion: no delay of repair in irritated human skin,** Contact Dermatitis, Vol.35 No. 3, September 1996

It has been reportd that occlusive treatment of irritated skin results in a reduction of barrier repair activities in hairless mice. In contrast, the clinically observed benefit of occlusion in the treatment of hand eczema and other chronic skin diseases with a pertubed barrier function is well-known. While the beneficial effect of occlusion has been proven for the treatment of psoriasis there are no controlled clinical studies of the effect of occlusion on irritated human skin. We have therefore evaluated the effect of various occlusive treatments on repair of the human skin permeability barrier under controlled experimental conditions.

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, 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.

K. Paepe, P. Vandamme, M.P. Derde, D. Roseeuw, V. Rogiers, **Ceramides/Cholesterol/ Free Fatty acids containing body lotions: Effect on TEWL of aged and SLS-damaged skin.** Active Ingredients, International Conference Paris, November 1996

Total removal of the sratum corneum or perturbation of the barrier lipids by the use of solvents or tape stripping will lead to a significant increase in water loss through the upper layers of the skin, followed by a cascade of metabolic events in the epidermis, including an immediate secretion of new formed lamellar bodies (Lee et al.,1994) There are several categories of skin conditions or disorders, in which the skin is generally considered to be dry and rough, with an impaired lipid barrier and an increased TEWL (Thestrup- Pederson, 1995). The effect on the barrier function seems to be dependant on the type of lipids affected. It has even been suggested that a linear relationship could exist between the total amount of lipids removed from the stratum corneum and the degree of barrier disruption (TEWL). The TEWL thus seems to be a signal for barrier repair and regulates the recovery by initializing the burst of lipid synthesis. Barrier repair usually occurs over a period of 6 hours to 3 days (Jass and Elias, 1991). Whereas epidermal lipid synthesis is clearly linked to barrier functions, the nature and origin of signals that initiate and propagate the biosynthetic response are still a subject of current studies (Nickhoff & Naidu, 1993; Wood et al., 1994). Transcutaneous water loss itself is not the regulatory signal alone since the removal of barrier lipids also allows a simultaneous, passive loss of extracellular calcium and potassium ions. Under basal conditions these ions inhibit the onset of new lipid synthesis (Lee et al., 1994). In addition to ion depletion which may be one of the stimuli for lipid synthesis, chronic or acute barrier disruption leads to the generation of epidermal and dermal cytokines, growth factors and other interleukines that in turn triggers epidermal hyperplasia and dermal inflammation (Elias, 1994).

U. Griesbach, **High Molecular Weight Chitosan A Multifunctional Biopolymer as an Active Ingredient for Skin and Hair Care**, Active Ingredients International Conference Paris, November 1996

Hydagen CMF as a high molecular hydrocolloid is an excellent active agent for the entire skin care range as well as in decorative cosmetics. However, on account of the cationic character and the high molecular weight, this chitosan product is not compatible with anionic surfactants and can therefore not be used in surfactant skin cleansing products containing anionics.

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.

J. Effendy, H. Loeffler, and R. Happle Dept. of Dermatology, University of Marburg, Germany. **Experiences with Patch Testing with Sodium Laurel Sulphate as a Tool PredictingHuman Skin Susceptibility.** Skin Research and Technology,Vol.2, No.4, Nov 1996.

Compared with the alkali resistance test (ART), a widely used method employing sodium hydroxide, a 24h patch testing with 0.5% aqueous sodium lauryl sulphate (SLS) has been tested for predictng human skin susceptibility to an irritant. Forty patients (age range from 20 to 60) with an active irritant contact dermatitis (ICD), 40 patients in whom ICD had cleared, as well as 40 healthy volunteers serving as controls were tested. Skin responses to SLS were assessed both visually and by the measurement of transepidermal water loss (TEWL) as an indicator of stratum corneum integrity. A significant increase in erythema scores and TEWL has been induced by SLS, and the increase in TEWL was even more pominent in patients with active ICD. On the other hand, a decrease in alkali resistance was only found in patients with active ICD, but not in patients with healed ICD. This study suggests that the SLS test, unlike ART, may provide a non-invasive tool predicting a possible consitutional skin susceptibility or indicating a subclinically impaired skin barrier function.

E.J. Fendler, et al, **Automated Techniques for Determination and Analysis fo TEWL Data.** Skin Research and Technology,Vol.2,No.4, Nov 1996.

Transepidermal water loss (TEWL) measurement is an extremely useful technique for the assessment of the skin barrier function. Although many publications in the bioengineering field report TEWL data, few have defined TEWL steady state (stabilisation time) conditions. Theoretically, in measuring TEWL, steady state is the point in time when the rate of water vapour entering the measuring probe is equal to the rate exiting the measuring probe. This time may vary for different subjects and different skin types. Using mathematical formulations, a procedure was developed to establish each subject TEWL steady state condition. This procedure accomodate inter-personal variations as well as instrumental measurement errors. Conclusion: An objective method was developed which allows determination and analysis of steady-state TEWL data. This method can be applied to any time-dependant measurements which approach a steady state value.

A. Teglia and G. Secchi, **Minimizing the Cutaneous Effects of Anionic Detergents** Cosmetics and Toiletries Magazine Vol. 111, August 1996

Evaluating the protective efficacy of proteins and mild surfactants via transepidermal water loss and profilometric measurements.

Susanne Thoma; **Beziehung zwischen dem gemessenen transepidermalen Wasserverlust und der Messsondentemperatur des Tewameters;** Inauguraldissertation zur Erlangung der Doktorwürde der Medizinischen Universität zu Lübeck, 1996

Die Haut stellt eine wichtige Barriere für den Körper zwischen Umwelt und Körperinnerem dar. Die Barrierefunktion wird im Wesentlichen vom Stratum corneum, der Hornschicht, übernommen. Trotzdem kommt es zu einem Wasserverlust über die Haut, der in zwei verschiedene Anteile, den Wasserverlust durch das Schwitzen und den Wasserverlust über passive Diffusion unterteilt werden kann. Der passive Wasserverlust, der ständig vorhanden ist, wird als transepidermaler Wasserverlust (TEWL) oder auch im Gegensatz zum Schwitzen als „Perspiratio insensibilis“ bezeichnet. Durch das Straum corneum können Wasser und andere Moleküle nur über passive Diffusion gelangen. Die Diffusion erfolgt entlang eines Konzentrationsgradienten und folgt somit im Prinzip dem Fick’schen Diffusionsgesetz.

Lautenschläger, Dr. H., Mönchengladbach, **Kühlschmierstoffe - Forderung des modernen Hautschutzes.** Mineralöltechnik 6/96

Skin protection is a large topic in the field of metal working industry basically by use of metal working fluids. Both user, manufacturer, and distributor of lubricants take a strong interest in prophylactic skin protection measures. For that reason, high demands are made on lubricants, its handling and skin protection measure. These demands are followed by newly developed lubricants and skin protection measures concerningits chemical compounds and measuring technique. Today's tendencies and the increasing all-embracing way of personal attitude are clearly demonstrated by the need to furnish evidence of compatibility and effect. Physical and chemical parameters of lubricants and skin protection measures as well as its skin compatibility are specifically taken into account.

A. Di Nardo, C. Cota, L. Mantovani, S. Seidenari, **Evaluation of Organic Solvent-Induced Damage by Non Invasive Measuring Methods**. Skin Research and Technology,Vol.2, No.4, Nov 1996.

D.A. Comes, E.J. Fendler, M.J. Dolan, and R.A. Williams, **Work Cream Effectiveness with a Heavy Duty Skin Cleanser.** Skin Research and Technology,Vol.2, No.4, Nov 1996.

W.Gehring, **Einfluß von Ceramiden auf die Barrierefunktion der Haut in Abhängigkeit von ihrem Vehikel,** SÖFW 4/97

Ceramide stellen einen wesentlichen Bestandteil der epidermalen Barrierelipide dar. In dem hohen Gehalt der Barrierelipide an Ceramiden wird ein wesentlicher Parameter für die epidermale Barrierefunktion und ein grundlegender Faktor für das Wasserbindungsvermögen der Hornschicht gesehen. Gegenstand der Untersuchungen war es, den Einfluß einer einmaligen Ceramidanwendung in einer W/O- und einer O/W-Emulsion sowie in liposomaler Formulierung auf die Barrierefunktion der Epidermis und die Hydratation des *Stratum corneum* zu untersuchen. Die Untersuchungen wurden vergleichend bei einem gesunden Kollektiv, bei experimentell induzierter trockener Haut - soweit es möglich war - auch bei Atopikern durchgeführt. Untersucht wurden zwei Phytoceramide und drei analoge synthetische Ceramide.

Comes, D.A. et al, **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.

D.A.Comes, M.J.Dolan, E.J.Fendler,R..A.Williams, **A Unified Approach to the Evaluation of Occupational Irritant Dermatitis,** American Academy of Dermatology, 55th Annual Meeting March 1997

Occupational irritant dermatitis has historically been evaluated by utilizing visual observation. These clinical observations od skin condition and results from patch testing have limited sensitivity and some degree of variability among trained evaluators. Recent advances in skin bioengineering instrumentation and techniques have reduced the variability among investigators and have increased the sensitivity of evaluation to the detection of subclinical levels of irritation. A software program has been developed by our lab to integrate and automate the operation, data storage, and data analysis of multiple skin bioengineering instrumentation.

Hong-Keun Ji, Young-Hwan 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.

H.Zhai, H.I.Maibach, N.Poblete, **A Stripped Skin Model to Predict the Irritation Potential of Topicals In Vivo in Man,** American Academy of Dermatology, 55th Annual Meeting March 1997

An in vivo human model was utilized to predict the irritation potential of barrier creams after partial removal of stratum corneum with cellophane tape stripping.

M.Fartasch, **Praktischer Einsatz von Bioengineering-Methoden in der Berufsdermatologie: Möglichkeiten und Grenzen,** 3. Dermatologisches Alpenseminar Berchtesgaden 1997

Nicht-invasive hautphysiologische Meßmethoden (bioengineering methods) bieten neue Möglichkeiten zur Erfassung der unterschiedlichen Reaktion der Haut auf die Irritation. Schädigungen der Haut, die zunächst nicht sichtbar sind, können durch einige dieser Meßverfahren bereits frühzeitig registriert werden.

M.Gebhardt, C.Hersmann, A.Bauer, R.Bartsch, U.Wollina, W.Schneider, M.Stadeler, P.Grieshaber, **Erfassung von Hautschädigungen im Rahmen einer Untersuchung von Auszubildenden des Bäcker- und Konditorhandwerks,** 3. Dermatologisches Alpenseminar Berchtesgaden 1997

In einer dermatologischen Verlaufsuntersuchung von Auszubildenden sollen Faktoren evaluiert werden, die die Vorhersage des Auftretens von berufsbedingten Hautproblemen ermöglichen und prämorbide oder Risikozustände charakterisieren helfen.

Gute Pflege für die Fältchen, Tagescremes für die "reife" Haut, Stiftung Warentest, Juli 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.

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.

A. Di Nardo, S.Seidenari, P.W.Wertz, A.Giannetti, **Barrier impairment in atopic dermatitis skin correlates with an alteration in ceramide stratum corneum composition,** Australian Journal of Dermatology: Abstracts 19th World Congress of Dermatology, Sydney, June 1997

Atopic dermatitis skin shows a tendency to be easily irritated and appears dry. This clinic pecularity corresponds to impaired barrier function and to increased TEWL values. A few studies suggest that a reduced amount of total ceramides (especially of ceramide 1) deriving from epidermal keratinocytes are responsible for functional abnormalities of the skin of atopic dermatitis (AD) patients. The aim of the present study was to analyze the relationship between epidermal lipids and barrier impairment in atopic dermatitis skin.

I.Effendy, H.I.Maibach, I**n vivo functional changes in human stratum corneum induced by substances with known irritation properties,** Australian Journal of Dermatology: Abstracts 19th World Congress of Dermatology, Sydney, June 1997

Functional changes in stratum corneum of normal human skin induced by repeated application of all-trans retinoic acid (RA), glycolic acid (GA) and calcipotriol was investigated in 6 healthy volunteers in comparison with sodium lauryl sulphate (SLS), a standard irritant. RA (0.1%) in ethanol, GA (12%) in water, calcipotriol (0.005%) ointment and SLS (1%) in water were applied with occlusion for 60 minutes once a day, over a period of 2 weeks (5 consecutive days weekly) on dansyl chloride-labelled skin and on untreated skin. Changes in stratum corneum were examined utilizing noninvasive bioengineering techniques.

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.

T.Hariya, K.Inoue, Y.Umino, H.Ichikawa, **Alteration of physiological parameters and the amount of skin sIgA in sensitive skin,** Australian Journal of Dermatology: Abstracts 19th World Congress of Dermatology, Sydney, June 1997

In recent surveys, more than 30% of healthy female as well as patients suffered from certain skin diseases such as atopic dermatitis or rosacea-like dermatitis believe that they have sensitive skin, and the population of this group has been expanding. It has been reported that a symptom of atopic dermatitis is influenced by exacerbating factors such as physical conditions. In this study, we

examined the effects of these excerbating factors on skin physiological parameters and secretory lgA amount in healthy female volunteers with sensitive skin.

R.A.Tupker, **The value of transepidermal water loss measurement in skin irritancy testing,** Experimental Dermatology Vol 6 No 5, ISICD and ISBS Meeting Rome 2-4 October 1997

Transepidermal water loss (TEWL) measurement is a highly sensitive method to determine barrier function impairment of the stratum corneum. By means of TEWL measurement it is possible to discriminate between detergents according to their irritancy, using different types of exposure methods. The same holds true for other irritants that exert their irritant action by impairing the barrier function of the skin.

A.Di Nardo, A.Conti, M.Martini, S.Seidenari, I**n vivo assessment of n-alkyl-sulfate-induced skin irritation: By means of non invasive methods,** Experimental Dermatology Vol 6 No 5, ISICD and ISBS Meeting Rome 2-4 October 1997

Sodium Lauryl sulfate is the most frequently used model for studying in vivo irritation. It is also one of the most frequent surfactants in soap preparations and cosmetic emulsions. To investigate the irritant potential of sodium salts of n-alkyl sulfates with different carbon chain length (n=8, 12, 14) we applied these substances on the volar forearm of 10 human healthy volunteers aged 24 to 35.

A.O.Barel, R. Lambrecht, P.Clarys, B.M.Morrison, 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, St.Großmann, **Comparison of special skin protective creams and ointment basis (German Pharmacopoeta DAB10) 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.

Dr. H.-P. Nissen, Dr. S. Sustmann, **EUBOS Sensitive DUSCHÖL F – Körperpflege für sensible und besonders trockene Haut;** lt. Gutachten 1997

Alkaliseifen-freie Syndets, d.h. Waschpräparate mit neutralem oder einem sogenannten hautneutralen pH-Wert, haben sich als milde Reinigungsmittel für den generellen Gebrauch bewährt. Speziell für Personen mit erhöhter Hautirritabilität, mit Hautproblemen angeborener oder erworbener Art, bietet diese Entwicklung die Möglichkeit einer schonenden Hautreinigung: Durch den neutralen

bis leicht sauer eingestellten pH-Wert wird eine alkalische Quellung der Haut, mit all ihren möglichen Folgen, vermieden. Deshalb werden Syndets auch von Dermatologen als Adjuvans therapeutischer Maßnahmen empfohlen (z.B. EUBOS flüssig). Trotz der Vorteile der modernen seifenfreien Körperreinigungsprodukte kann es bei trockener und sehr trockener Haut, jedoch insbesondere auch bei vorgeschädigter Haut, zu einer weiteren Exsiccation kommen. In Verbindung mit den Waschgewohnheiten (z.B. tägliches Duschen) ist eine Austrocknung der Haut, Schuppung und Jucken vor allem bei Personen mit Hautproblemen, welche den Dermatologen aufsuchen, ein belastendes Problem.

E.Schnetz, O.Kuss, H.Merck, P.Elsner, P.J.Frosch, M.Lange, T.L.Diepgen, M.Fartasch, **Development and evaluation of an in vivo test model for cumulative irritation - first results of a multi center study,** Experimental Dermatology Vol 6 No 5, ISICD and ISBS Meeting Rome 2-4 October 1997

The aim of this multi center study is the development of a protection factor for barrier creams. The first step is to find a test model which produces reliable results and is reproducible in all centers and easy to handle. We tested a cumulative irritation model over 14 days with a break at the weekend.

D.A. Comes, M.J. Dolan, E.J. Fendler, T.K. Turner, and R.A. Williams, **Physiological and Microbiological Effects of Topical Alcohol Gel Use,** GOJO Industrie, Inc. 1997

E.J. Fendler, M.J. Dolan, and R.A. Williams, **Characterization and Treatment of Occupational Contact Dermatitis,** GOJO Industries 1997

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.

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.

L. Rodriges, P. Pinto, N. Galego, L.M. Pereira, **Usefulness of Mathematical Modelling Application To Comparative Testing.** Skin Research and Technology 3/1997.

L.Rodrigues, P.Pinto, N.Galego, M.Fitas, L.M. Pereira, **Skin Permeation Fundamentals-Effects On Skin Physiological Properties Through Electrical Modulation.** Skin Research and Technology 3/1997.

St. Seidenari, **Follow Up of Inflammatory Diseases Using 20 MHz Sonography.** Skin Research and Technology 3/1997.

H. Lautenschläger, H.P. Nissen, W. Wieland, **Neue Untersuchungen zur Hautverträglichkeit von Kühlschmierstoffen.** Arbeitsmedizin Sozialmedizin Umweltmedizin, Heft 12, Dezember 1997

Kühlschmierstoffe sind sehr weit verbreitete Arbeitsstoffe, insbesondere in der metallverarbeitenden Industrie. Aus arbeitsmedizinischer Sicht steht die Hautverträglichkeit dieser Produkte im Vordergrund. Die vorliegende Messungen und Daten zum transepidermalen Wasserverlust und zur Chromametrie zeigen, daß Kühlschmierstoffe hinsichtlich ihrer akuten Hautverträglichkeiten und der Langzeitwirkungen auf die Haut differenziert werden können. Dadurch werden sowohl dem Hersteller als auch dem Verwender meßbare Kriterien bezüglich der Auswhl dieser Arbeitsstoffe an die Hand gegeben.

Beweiskraft der Tests. Beauty Forum 1/98

Für jedes Hautproblem bietet die Kosmetikindustrie die wirksame Patentlösung - zumindest laut werbekräftiger Aussagen.

Hongbo Zhai, Ya-ching Chang, Malkiat Singh, H.I. Maibach, **An In Vivo Nickel Allergic Contact Dermatitits (ACD) Human Model For Topical Therapeutics.** AAD, Orlando, March 1998

MP. Vienne, S. Cours Darne, C. Lauze, P. Dupuy, **Repairing Effect and Tolerance of Amerma Oat Milk Treatment Cream and Aveeno Moisturizing Cream on Damaged Skin**, AAD, Orlando, March 1998

S. dos Santos Guerra Filho, **Evaluation of Potential Irritation of Cosmetic Products**, International Cosmetic Expo'98, Miami February 1998

The continual need in the cosmetic industries for developing products with low irritation or sensibilizing potential has forced constant improvements in evaluation techniques utilized by the testing laboratories.

The scientific literature is extensive in papers discussing the direct correlation between the increse of the TEWL in parallel with the skin irritation in products. It is not appropriate to generalize this fact because in some cases the increased TEWL is not matched at the same intensity by skin irritation. We have evaluated emulsion and tensoactive systems utilized in hair products, and our conclusion is that in some systems the TEWL increase did not necessarily correlate to the irritation due to the molecular weight of the tensoactive utilized. The evaluation of a formulation must include both TEWL and irritation tests simultaneously.

G. Gallacher, H.I. Maibach, **Is Atopic Dermatitis a Predisposing Factor for Experimental Acute Irritant Contact Dermatitis?**, Contact Dermatitis Vol. 38 No. 1, January 1998

Proclivity to acute irritant contact dermatitis has been reviewed by comparing the response in patients with atopic dermatitits to controls. Although several controlled studies demonstrate such a poclivity, others do not, suggesting that the mechanisms involved are complex.

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.

Th. Gassenmeier, W. Pittermann, S. Nieveler, Th. Förster, M. Kietzmann, **Experimentally induced epidermal barrier perturbation: Measurement of transepidermal water loss (TEWL) using the isolated perfused bovine udder skin (BUS) model.** Poster Henkel 5/1998

M. Arens-Corell, J. Welzel, HH 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.

H. Zhai, Y-H. Leow, H.I. Maibach, **Human Barrier Recovery After Actue Acetone Perturbation: An Irritant Dermatitis Model.** Clinical and Experimental Dermatology, Vo. 23 No. 1 January 1998

The Efficacy of a topical agent in barrier recovery was evaluated after acetone-induced acute water loss barrier disruption in vivo in humans. The upper back of several volunteers was rubbed with acetone-soaked cotton balls until elevated rates of transepidermal water loss (TEWL) occurred.

P.Teofoli, G.Monticone, O.De Pita, M. Ribuffo, **Hydroquione Or Kojic Acid For The Treatment Of Malasma Colorimetric Evaluation And Effects On Skin Barrier Function (TEWL) And Hydration.** 3rd Int.Symposium on Cosmetic Efficacy, May 1998
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

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.

J.I. Ademola, A.Cua, S. Amin, P.Liu, J. Avalos,L. Miller, M. Miller, N. Scrofani, A. Anigbogu, H.I. Maibach, **Dermatopharmacokinetics Of Topical Formulations In Human Stratum Corneum.** The Journal of Investigative Dermatology, Vol. 110, No. 4, April 1998.

G.Yosipovitch, A. Mayan, M. David, P. Merlov, L. Sirota, **Transepidermal Water Loss, Stratum corneum Moisture and Skin Surface pH of the New Born Infant in Different Body Areas,** 12th ISBS, Boston, 06/98.

R.R. Warner, K.J. Stone, Y.L. Boissy, N.Lilly, M.J. Spears, **Electron Microscopy of Hydrated Skin: Water Disrupts the Barrier Lipids.** 12th ISBS, Boston, 06/98.

E.J. Fendler, B. Hammond, R.A. Williams, M.J. Dolan, **A Controlled Use Trial Of Protective Hand Cream in The Metal Working Industry.** 12th ISBS, Boston, 06/98.

E. Berardesca, S Lazzerini, F. Pirot, M. Singh, H.I. Maibach, **Racial Differences in pH and TEWL Gradient into Superficial Stratum Corneum,** 12th ISBS, Boston, 06/98.

B.M. Morrison, Y. Cartiaux, M. Paye, V. Charbonnier, H.I. Maibach, **Demonstrating Invisible (Subclinical) Sodium Lauryl Sulfate Irritation with Squamometry.** 12th ISBS, Boston, 06/98.

R.R. Warner, K.J. Stone, Y.L. Boissy, N.Lilly, M.J. Spears, **Electron Microscopy of Hydrated Skin: Water Disrupts the Barrier Lipids.** 12th ISBS, Boston, 06/98.

J. Fluhr, M.Gloor, F. Distante, S. Lazzerini, E. Berardesca, **Glycerol Modulates Recovery of Barrier Function In Vivo.** 12th ISBS, Boston, 06/98.

P. Clarys, A.O Barel, **Percutaneous Penetration Models In Vivo - Evaluation By Means Of Non-Invasive Biophysical Measurement Techniques.** 12th ISBS, Boston, 06/98.

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.

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.

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.

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

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.

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.

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.

N.Y. Schürer, **Beeinflussung der epidermalen Barriere durch Externa**. Kosmetische Medizin Nr. 5, 1998.

Beim Studium der Beeinflussung der epidermalen Barriere durch Externa ist ein Studium der Hautphysiologie genau so wichtig, wie das der Externa, ihrer kosmetischen Wirkstoffe und ihrer Galenik. Gerade in vivo unterliegen die meßergebnisse vielen, meist nur teilweise greifbaren, intra- und interindividuellen Einflüssen.

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 Anwendungstudie 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.

Ch. Packham, **The first in a series of articles aimed at helping to prevent damage to health in the workplace**. 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.

K. De Paepe, P. van Damme, M. Paule Derde, D. Roseeuw, V. Rogiers, **Body Lotions Enriched with Skin Identical Lipids: A TEWL Study of Aged Skin and SLS-Induced Scaly Skin.** Euro Cosmetics 2 Vol. No. 7, 02/99.

Recently, it has been shown that both the qualitative lipid composition of the intercellular lamellar sheets of the straum corneum (SC) are important for the maintenance of the barrier function of the skin. In order to investigate whether supplementation of major barrier lipids to skin care products could exert a beneficial effect on a damaged barrier function as measured by transepidermal water loss (TEWL), a body lotion, with known composition, was enriched with ceramides, cholesterol and fatty acids using a weight ration of 50 / 25 / 25, the appropriate ration found in the SC.

Bauer, R. Bartsch, M. Stadeler, U. Vollina, P. Elsner, **Evaluierung von prädiktiven Parametern für die Entwicklung von Handekzemen im Ausbildungsverlauf bei Auszubildenden des Bäcker- und Konditorhandwerks.** Allergologie 3, 03/1999

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 treatment-free period.

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

T.Fischer, W. Wigger-Alberti, C. Greif, P. Elsner, **Irritative Wirkung von abrasiven Reinigungsmitteln auf die Barrierefunkton der Haut.** Allergologie 3, 03/1999

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

U. Berndt, U. Hinnen, D. Iliev, P. Elsner, **Eignung hautphysiologischer Meßmethoden als Screening-Verfahren zur Identifizierung ekzemgefährdeter Personen**. Allergologie 3, 03/1999

Hong-Geun Ji, Bong-seok Seo, **Retinyl Palmitate at 5% in a Cream: Its Stability, Efficacy and Effect.** C&T, 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.

H+G Band 74, Heft 6, 1999. **Hautmeßgeräte unentbehrlich für Klinik + Praxis**

Eine Notwendigkeit für die dermatologische Praxis ? Die apparative Bestimmung von Hautparametern

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.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.

L. Rodrigues, Y.R.Salgueiros, N.Galego, P.Pinto, N.Silva, I.Z.Ferro, **Study on the In Vivo Performance of Two Capacitance Systems: Assessment of the Experimental Reproducibility and sensitvity**. Skin Research and Technology, Vol.5 No. 2, May 1999

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.

E.Schnetz, O.Kuss, J.Schmitt, T.L.Diepgen, M.Kuhn, M.Fartasch, **Intra- and inter-individual variations in transepidermal water loss on the face: facial locations for bioengineering studies**. Contact Dermatitis 40, 1999.

The volar forearm is the favored location for bioengineering studies. However, transepidermal water loss (TEWL), which is an important indicator of the function of the epidermal barrier, shows regional variations, and for the evaluation of cosmetic formulations, facial skin would be more

suitable. In this study, we have compared 10 facial locations with 1 test site on the volar forearm for absolute TEWL values, reproducibility, and correlation.

E. Thumm, E..G. Jung, Ch. 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.

W.Pittermann, **Tierversuchsfrei forschen mit dem Rindereuter-Modell. Parfümerie und Kosmetik, Nr. 3/99.**

Haut und Schleimhaut sind nicht nur wegen der anatomischen und funktionellen Unterschiede Zielorgane besonderer Art. In der regulären Sicherheitsprüfung für den Arbeits- und Verbraucherschutz werden sie als mögliche Angriffspunkte für lokal oder systemisch schädigende Rohstoffe oder Chemikalien behandelt. Im Mittelpunkt der kosmetischen Forschung steht jedoch die Pflege von Haut und Schleimhaut sowie die Wirksamkeit von Inhaltsstoffen und Formulierungen.

H.Dobrev, **In vivo Study of Skin Mechanical Properties in Psoriasis Vulgaris**. Acta Derma, 3/1999

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?

*W.Voss,G.Schlippe,M.Breuer***, Tests on Cosmetics Scientific Standards**. SÖFW-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.

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.

V.Rogiers, **EEMCO Guidance for the Assessment of the Transepidermal Water Loss (TEWL).** EEMCO Group 1999.

*M.Puschmann, A.Melzer,H.P.Nissen***, Hautgättende, hautelastische und hautschützende Wirkung einer Urea-Ceramid-Kombination.** Kosmetische Medizin Nr.4, 1999

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

Y. Kawasaki, D. Quan, K. Sakamotor,R. Cooke, H.I. Maibach, **Influence of Surfactant Mixutres on Intercellurlar Lipid Fluidity and Skin Barrier** Function. Skin Research and Technology, Vol.5 No. 2, May 1999

Surfactant mixtures are used in cosmetic and pharmaceutical formulas in order to establish product efficacy while maintaining mildness and skin lipids. The electron paramagnetic resonance (EPR) technique of the spin labeling method with a nitroxide spin probe is a valuable method in the study of biological membranes. The objective of this study was to define the influence of surfactant mixtures on intercellular lipid.

V Rogiers, K. De Paepe, I. Van Hecke, D.Roseeuw, **A Light Transmission Method for the Study of Microrelief and Ageing.** ISBS and EEMCO Meeting, Liege, 09/1999

M. Puschmann, A. Melzer, H.P. Nissen., **Hautglätende, hautelastische und hautschützende Wirkung einer Urea-Ceramid-Kombination.** Kosmetische Medizin Nr. 4, 1999-11-22

Sebostase ist ein häufiges dermatologisches Krankheitsbild. Sie wird durchexogene Faktoren, (Klima, Waschgewohnheiten) und/oder konstitutionelle Faktoren wie Alter und atopische Hautdiathese hervorgerufen. Eine auffällige Häufung derartiger Sympotome findet sich in der kalten Jahreszeit. Hier ist das Klima (Temperatur, Luftfeuchtigkeit) sowohl im Freien als auch in den gebäuden als wichtiger Kofaktor anzusehen. Zur Therapie trockener Haut werden traditionell Salben/Fettsalben, Ölbäder sowie harnsoffhaltige Zubereitungen eingesetzt.

S.Bielfeldt, H.Köhler, J.Gassmüller, **Minimalinvasive Verfahren in der Wirksamkeits- und Verträglichkeitsprüfung von Kosmetika**. 13. Symposium der DGK Bad Neuenahr, 1999

D. Peiler, **Hautschutz im Dentallabor**, Dissertationsarbeit 1999

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 tudy to investigate the effects of application on epidermis of a vitamin E ointment.

G.Kutz,D.Peltner, **Aktuelle Formulierungskonzepte moderner Hautkosmetika am Beispiel der trockenen Haut**. Kosmetische Medizin, Nr. 5 – 1999

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/NovDez 1999

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.

K.De Paepe, JM Lagarde, Y.Gall, D.Roseeuw, V.Rogiers, **Study of the Human Skin Microrelief by a Standardised Light Transmission Method**. 13th ISBS Jerusalem, March 2000.

A.Leal, J.Alves, L.Rodrigues, **Usefulness of Transcutaneous Indictors as Predictors of Peripheral Dysfunction**. 13th ISBS Jerusalem, March 2000.

JP Hachem, K.De Paepe, E.Vanpée, L.Kaufman, V.Rogiers, D.Roseeuw, **Combination Therapy Improves the Recovery of the Human Skin Barrier Function: An Experimental Model Using**

Contact Allergy Patch Test Combined with TEWL Measurements. 13th ISBS Jerusalem, March 2000.

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.

H.E.Packham, c.L. Packham, **Skin Bioengineering as a Contribution to Product Performance and Safety**. Cosmetics & Toiletries 03/2000

S. Lopez, I. Le Fur, F.Morizot, G. Heuvin, Ch. 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.

W. Pittermann, Th. Gassenmeier, S. Nieveler, Th. Förster, M. Kietzmann, **Experimentally Induced Epidermal Barrier Perturbation: Measurement of Transepidermal Water Loss (TEWL) Using the Perfused Bovine Udder Skin (BUS) Model**. IFSCC Vol. 3, No. 1, January/March 2000-04-12

This paper describes the measurement of the TEWL under in vitro conditions using the isolated perfused Bovine Udder Skin (BUS) model.

Ch.Houghton, **New natural oils**. Cosmetic Science & Business 2000.

H.E.Packham, **Skin Bioengineering as a Contribution to Product Performance and Safety**, C&T, 2000

H.Zhai, F.Brachman, A.Pelosi, A.Anigbogu, M.B.Ramos, M.C. Torralba, H.I. Maibach, **A bioengineering study on the efficacy of a skin protectant lotion in preventing SLS-induced dermatitis,** Skin Research and Technology, Vol. 6, No. 2, May 2000

S.Sakai, S.Sasai, Y.Endo, K.Matue, H.Tagami, S.Inoue, **Characterization of the Physical Properties of the Stratum Corneum by a New Tactile Sensor**. Skin Research and Technology, Vol. 6, No. 3, August 2000.

The physical properties of the stratum corneum (SC) change with its water content which is regulated by the presence of water solutes (natural moisturizing factors) and lipids in the SC, and are considered to be responsible for the induction of desquamation, skin surface roughness and fine wrinkles.

O.Tanno, Y.Ota, R. Hikima, M.Matsumotor, M.Ota, S.Inoue, **An Increase in Endogenous Epidermal Lipids Improves Skin Barrier Function**. XXIst IFSCC Congress 2000, Berlin

Stratum corneum lipids, especially ceramides, cholesterol, and fatty acids, play a critical role in the formation and maintenance of the epidermal permeability barrier.

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.

N.Ota, T.Horiguchi,N.Fujiwara, N.Kashibuchi, Y.Hirai, H.Mori, **Identification of Skin Sensitivity through corneocytes Measurements.** XXIst IFSCC Congress 2000, Berlin

Surveys conducted in many nations suggest that up to 50% of cosmetic users beleive they have sensitive skin and products specifically designed for this skin type have become an important cosmetic category. In developing such products, objective assessment of the degree and the type of sensitivity is desirable.

J.Min Choi, J. Young Lee, B. Kee Cho, **Chronic Irritant Contact Dermatitis: Recovery Time in Man**. Contact Dermatitis 42, 2000

Chronic irritant contact dermatitis (ICD) is a common skin disease, especially in the workplace, but determining the recovery time of chronic ICD is not easy. To measure the recovery time of chronic ICD, we examined the skin reactivity to a model surfactant, sodium lauryl sulfate (SLS), on previous chronic ICD and normal sites by visual grade and non-invasive instruments.

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.

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.

F.Distante, L.Rigano, S.Sirigu, R.D'Agosötino, 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.

D.T.Floyd, H.I.Leidreiter, **Performance-Driven: New Silicone CoPolymers.**Global Cosmetic Industry September 2000
Experimenting with Dimethicone Copolyols for personal-care products.

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 subejcts. Scoring of signs and symptoms (itching or burning), transepidermal water loss (TEWL) and stratum corneum hydration (Corneometer) evaluated responses.

M. Takahashi, **Recent Progress in Skin Bioengineering and its Application to Evaluationof Cosmetics.** SÖFW 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.

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.

K.De Paepe, JM Lagarde, Y.Gall, D.Roseeuw, V.Rogiers, **Study of the Human Skin Microrelief by a Standardised Light Transmission Method**. 13th ISBS Jerusalem, March 2000 and Skin Research and Technology, Vol. 6, No. 3, August 2000

JP Hachem, K.De Paepe, E.Vanpée, L.Kaufman, V.Rogiers, D.Roseeuw, **Combination Therapy Improves the Recovery of the Human Skin Barrier Function: An Experimental Model Using Contact Allergy Patch Test Combined with TEWL Measurements.** 13th ISBS Jerusalem, March 2000 and Skin Research and Technology, Vol. 6, No. 3, August 2000

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.

L.Rodrigues, P.Pinto, L.M.Pereira, **The Quantitative Assessment of the In Vivo "Barrier Function".** 13th ISBS Jerusalem, March 2000 and Skin Research and Technology, Vol. 6, No. 3, August 2000.

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.

M. Takahashi, **Recent Progress in Skin Bioengineering and its Application to Evaluation of Cosmetics.** SÖFW 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.

Ken-ichiro O'goshi, Makiko Iguchi, Hachiro Tagami, **Functional analysis of the stratum corneum of scalp skin:studies in patients with alopecia areata and androgenetic alopecia,** Arch. Dermatol. Res. (2000) , Springer-Verlag

Because of the presence of thick long hairs on the scalp, little information is available concerning the functional characteristics of the stratum corneum (SC) of scalp skin. We therefore conducted a functional study of the SC of lesional scalp skin of patients with alopecia areata and of patients with androgenetic alopecia.We compared the scalp with the cheek and the flexor surface of the forearm (volar forearm). The water barrier function of the scalp SC of both patient groups, in terms of transepidermal water loss (TEWL), was almost comparable to that of the volar forearm, and was far better than that of facial skin.

M.Winnefeld, M.A.Richard, M.Drancourt, J.J.Grob, **Skin tolerance and Effectiveness of Two Hand Decontamination Procedures in Everyday Hospital Use**. British Journal of Dermatology 2000.

Hand decontamination is crucial to control nosocomial infections. The utility of hand decontamination is related not only to its antimicrobial effectiveness, but also to ist acceptability by hospital staff.

Thomas Förster , Henkel KgaA, **Cosmetic Lipids and the Skin Barrier,** 2001 by Marcel Dekker

There is no doubt that the application os 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.

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

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

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.

W. Gehring, M. Gloor, **Der Effekt von Dexpanthenol bei experimentell geschädigter Haut**. H+G (76) 1-7, 2001

Im Rahmen einer randomisierten vehikelkontrollierten, doppelbilinden Studie wurde Dexpanthenol in zwei unterschiedlichen lipophilen Vehikeln im repetitive Waschtest untersucht.

N.Ota, T.Horiguchi, N.Fujiwara, N.Kahibuchi, Y.Hirai, F.Mori, **Identification of Skin Sensitivity through Corneocytes Measurements.** IFSCC Magazine-vol.4, No.1 – 2001

Surveys conducted in many nations suggest that up to 50% of cosmetic users believe they have sensitive skin and products specifically designed for this skin type have become an important cosmetic category. In developing such products, objective assessment of the degree and the type of sensitivity is desirable. Unfortunately, currently available methods, including measurements of trans-epidermal water loss (TEWL) and lactic acid stinging test do not correlate well with self-assessed sensitivity and cannot be used to identify persons who are more prone to develop adverse skin reactions than other users.

B.D.Park, J.K.Youm,, S.Jeong,E.H.Choi, S.Hun, **The Effectiveness of Multi-Lamellar Emulsion damaged skin.** Personal Care Ingredients Asia, March 2001

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

M.Park, S.Ma, J.Kim, H. Hanbul, **Study of Preparation of Sodium Chloride-Free w/s Emulsion Using NFM, Chitin Derivatives and the Other**. 5th ASCS March 2001

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.

B.Gabard, P.Treffel, **Correlation of in vitro and in vivo Testing.** Skin Bioengineering, Vol. 26, March 2001.

A major problem encountered during the development of topical preparations not designed for transdermal but for local activity is to ensure sufficient therapeutic activity or, in the case of generic formulations, bioequivalence with the branded product. There are several possible approaches to evaluate the penetration of drugs into the skin and to investigte the effect of different vehicles on topical drug delivery.

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**. 2001 IFSCC Conference, Stockholm/Sweden, May 7-9, 2001

R.Roguet, C.Faller, F.Dreher, C.Lotte, I.Harris, M.Bracher, D.Pollet, U.Pfannenbecker, N.Dami, M.Ponec, **Evaluation of Reconstructed Human Epidermis Kits for the In Vitro Assessment of Cosmetic Safety**. 2001 IFSCC Conference, Stockholm/Sweden, May 7-9, 2001

W.Wigger-Alberti, A.Krebs, N.Göritz, K.P.Wilhelm, P.Elsner, **Concurrent Testing of Cutaneous Irritants in Vivo**. 2001 IFSCC Conference, Stockholm/Sweden, May 7-9, 2001

H.M.Ribeiro, J.Morais, L.Rodrigues, **Long-term Influence of Polymers on the Biological Properties of the In Vivo Normal Human Skin**. 2001 IFSCC Conference, Stockholm/Sweden, May 7-9, 2001

N. Widler, A.Sigrist, F.Gafner, **Lipid Analysis and Transepidermal Water Loss in Snakes**. 2001 IFSCC Conference, Stockholm/Sweden, May 7-9, 2001

P.Contreiras Pinto, L.M. Pereira, R.Minhos, J.Serra, L.Rodrigues, **The In Vivo Skin Water Content Dynamical Analysis Through Compartmental Modeling a Validation Approach.** 2001 IFSCC Conference, Stockholm/Sweden, May 7-9, 2001

T.H.Kim. E.H.Choi, Y.C.Kang, S.H.Lee, S.K.Ahn, **The Effects of Topical ~-Hydroxyacids on the Normal Skin Barrier of Hairless Mice**. British Journal of Dermatology 4011, 2001

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

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

S.J.Bashir, A.Chew, A.Anigbogu, F.Dreher, H.I.Maibach, **Physical and Physiological Effects of Stratum Corneum Tape Stripping.** Skin Research and Technology, Vol.7, No.1, February 2001

J.Lübbe, C.Ruffieux, G.van Melle, D.Perrenoud, **Irritatives Potenzial des Händedesinfektions-mittels n-propanol auf vorgeschädigter Haut**. H+G, Supplement 1/2001

T.Reuther, S.C.Behrens-Williams, M.Kerscher, **Untersuchungen zur Wirkung von Mometasonfuroat-Fettcreme auf die epidermale Barriere**. H+G, Supplement 2/2001

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: pp. 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.

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

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

B.Deog Park, Y.Kim, M.Jin Lee, J.K. Youm, S.Jeong,E.Ho Choi, S. Hun Lee, **Properties of a Pneudoceramide Multi-Lamellar Emulsion In Vitro and In Vivo**. C&T June 2001

Many physiochemical and biological functions of skin-care products in the last decade were generally concerned with the stratum corneum (SC). The structure of the SC was proposed as a "brick & mortar model" by Elias in 1981. Bricks represented the corneocytes and intercellular lipids (composed of cholesterols, fatty acids and ceramides) formed the mortar.

***F.Ourvrard-Baraton, A.Bernois, D.De Queral, B. Le Varlet, C.M.Vincent, B.Nagot, C.Ailaud, M.Bayer, N.Garcia, C.Miquel, N.Perichou, P.courtellemont, O.Doucet, A.Mavon,C.Mikler, J.P.Marty,* Validation inter-laboratoire d'un modèle d'absorption percutanée in vitro: pouvoir discriminant de la peau d'oreille de porc. Infuence de la perte insensible en eau (P.I.E.) et de la pilosité**. Poster for SFIC,Lausanne/CH, Juli 2001

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 getestet wurde.

Ch.Y.Levin, H.I. Maibach, **Do cool water or physiologic saline compresses enhance resolution of experimentally-induced irritant contact dermatitis?** Contact Dermatitis Vol.45 No.3, September 2001

Acute irritant contact dermatitis (ICD) is frequently treated with cool water or saline compresses. While presumed effective, little quantitative evaluation documents the treatment's benefit. This study sought to determine the efficacy of both distilled water and physiologic saline compresses on experimentally-induced ICD.

P. Clarys, L.Lambrechts, K.Alewaeters, A.O.Barel, **Influence of in vivo iontophoresis on the skin barrier and percutaneous penetration**. Congress Stratum Corneum III, Basel, September 2001.

M.Rohr, A.Schrader, **FOITS- Corneometry influenced by experimental side conditions**. Congress Stratum Corneum III, Basel, September 2001.

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.

M.Egawa, T.Hirao, M.Takahashi, **The measurement of skin friction using a frictional feel analyzer**. Congress Stratum Corneum III, Basel, September 2001.

P. Clarys, L.Lambrechts, K.Alewaeters, A.O.Barel, **Influence of in vivo iontophoresis on the skin barrier and percutaneous penetration**. Congress Stratum Corneum III, Basel, September 2001.

M. Egawa, T.Hirao, M.Takahashi, **The measurement of skin friction using a frictional feel analyzer**. Congress Stratum Corneum III, Basel, September 2001.

K.De Paepe, K.Janssens, JP 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.

H.Blitz, HP Nissen, S.Sustmann, **Body care for sensitive and especially dry skin**. Scientific Study Eubos Med – 2001

The test product EUBOS sensitive shower oil F exhibits very gooed skin compatibility with dry and very dry skin and is also suitable for cleansing eczematous skin.

S.Sustmann, **Body care for dry skin**. Scientific Study Eubos Med – 2001

The test product EUBOS DERMAL BALSAM is very well-tolerated by the skin. Evidence of the suitability of the product for dry skin conditions with an impaired barrier function was provided by studies on the regeneration of damaged skin as well as the positive effect on skin moisture, tautness, and roughness.

S.Sustmann, **Face care for sensitive and particularly dry skin**. Scientific Study Eubos Med – 2001

The test products EUBOS sensitive moisturing cream and EUBOS sensitive regenerating cream are characterized by excellent skin compatibility particularly with sensitive and dry skin. The very good skin compatibility is confirmed by both the subjective assessment of the subjects and the objective assessments made in a controlled test program.

HP Nissen, S.Sustmann, **Body care for normal to oily and sensitive skins**. Scientific Study Eubos Med – 2001

The test product EUBOS liquid is characterized by the following properties on dermatological and physiological skin testing:

- Excellent skin compatibility
- Intensive cleansing/defatting effect on the skin surface
- No drying-out of the skin
- No refatting properties
-

S. Schliemann-Willers, 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, Ji Han, Hee 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.

N. Widler, A. Sigrist, F. M. Gafner, **Lipid Analysis and Transepidermal Water Loss in Snakes,** IFSCC Magazine January/March 2002, Vol. 5, Nr. 1

The lipids of 101 snake sheddings from 32 different species kept at Pentapharm's serpentarium were extracted and analysed by HPLC/LSD (light scattering detection) and TLC. The snake shedding extracts were compared with those of human stratum corneum.

B. Gabard, S. Schliemann-Willers, **Better Skin Protection with New Barrier Creams,** SÖFW 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.

H. Tronnier, **Effects of Textiles on Human Skin***,* SÖFW Journal, 128. Jahrgang 4-2002

Very often, the people concerned as their employers make detergent residues in clothes responsible for skin reaction to textiles. Sometimes allergies are suspected.

S. Richert, A. Schrader, K. Schrader, **Comparing Methods to Measure Porcine Skin Integrity In Vitro,** Cosmetics & Toiletries, January 2002, Vol. 117, Nr. 1

To confirm the integrity of porcine skin prior to penetration tests, published studies show that measuring transepidermal water loss, transdermal electrical resistance or caffeine penetration levels are often chosen techniques. New results demonstrate that TEWL is the superior method.

John Woodruff, **Body of evidence, Test,** Soap, Perfumery & Cosmetics 2002 April

P roving 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.

P. Contreiras Pinto, L. M. Pereira, R. Minhós, L M. Rodrigues, **Testing the Discriminative Capacity of Compartmental Modeling for the Analysis of the IN-VIVO Epidermal Water Content Changes Following Topical Application under Occlusion,** IFSCC Magazine, April/June 2002, Vol. 5 No. 2

Mathematical modelling of cutaneous variables is an attractive strategy to meet the complex nature of in-vivo skin, especially in the presence of an external stimulus such as a topical product.

M. Fuchs, S. Schliemann-Willers, C. Heinemann, P. Elsner, **Tacrolimus enhances irritation in a 5-day human irritancy in vivo model,** Contact Dermatitis, May 2002, Vol 46 No. 5

Tacrolimus (FK 506) is a macrolide discovered in 1984 as a metabolic product of Streptomyces tsukabaensis. It has been used successfully in treating atopic dermatitis, allergic contact dermatitis, lichen planus mucosae and pyoderma gangrenosum. In the present study, we evaluated the antiinflammatory activity of FK506 in 2 human skin inflammation models.

M. Stücker, M. Hoffmann, P. Altmeyer, **Instrumental evaluation of retinoid-induced skin irritation,** Skin Research and Technology 2002, No. 8

Adapting retinoid therapy to the patient's skin type can reduce the initial irritative side-effects. During the first days, patients with skin type 1 or 2 should add a medium potency corticosteroid. Stronger skin irritation caused by tazarotene therapy increases therapy effects.

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

Chris a. Helen Packham, **Health and Safety at work: special report**, Occupational Skin Management Update, Croner, Issue 60, August 2002.

Urquhart C., Rayner C., **Mavena® Mg^{46} Dead Sea Salt Balneotherapy Accelerates Restoration of Barrier Function in Japanese Skin,** 20th World Congress of Dermatology, Paris 2002

Therapeutic bathing in Dead Sea salt solution in the ambulatory setting is commonly referred to as "Balneotherapy". Chronic skin diseases such as atopic dermatitis and psoriasis are often associated with a poor hydration status and a compromised barrier function of the skin. Dead Sea salts have a different mineral composition to salts arising from other sources.

F. Rippke, V. Schreiner, H-J. Schwanitz, **The acidic milieu of the horny layer,** Am J Clin Dermatol 2002; 3 (4): 261-272

The acidic pH of the horny layer, measurable on the skin surface, has long been regarded as a result of exocrine secretion of the skin glands. The 'acid mantle' was thought to regulate the bacterial skin flora and to be sensitive primarily to skin cleansing procedures. In recent years, an increasing number of investigations have been published on the changes in, and constituents and functions of, the pH of the deeper layers of the stratum corneum, as well as on the influence of physiological and pathological factors.

Seidenari S., University of Modena, Italy, **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.

Le Fur I., Lopez S., Morizot F., Latreille J., Guinot C., Tschachler E., **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.

Le Fur I., Reinberg A., Lopez S., Morizot F., Tschachler E., **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.

Holm E.A., Jemec G.B.E., **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.

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.

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".

EH Choi, W-S Park, E-D Son, SM Hwang, MJ Kim, SK Ahn, SH Lee, **The effect of change in epidermal calcium gradient on stratum corneum lipid and epidermal differentiation,** The Essential Stratum Corneum, 2002 Martin Dunitz Ltd.

Lamellar bodies (LBs) are the source of lipid composition of the stratum corneum (SC). SC intercellular lipid bilayers formed from secreted LBs are the most important structure of the permeability barrier. The cornified cell envelope (CE), formed during the terminal differentiation of keratinocytes, is a specialized structure covalently bound with SC intercellular lipids. This forms a structurally and functionally complete permeability barrier. Also, during epidermal differentiation, specific keratins are synthesized.

R. Lambrecht, P. Clarys, K. Alewaeters, A.O. Barel, **Influence of in vivo iontophoresis on the skin barrier and percutaneous penetration,** The Essential Stratum Corneum, 2002 Martin Dunitz Ltd.

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 lp of the drug and pH of the solvent, and also by the applied intensity and shape of the current and the application time.

T. Schmidt, N. Widler, F. Gafner, G. Imanidis, **Stratum Corneum lipid composition as a predective tool for permeability?,** The Essential Stratum Corneum, 2002 Martin Dunitz Ltd.

This theory envisages a linear correlation between the logarithm of the steady-state flux and the exchange cohesive energy between the permeating molecule and the lipid compounds of the stratum corneum (SC). The latter cohesive parameter is obtained from solubility parameter calculations and an attempt is made to verify the theoretical approach with experimental permeability data.

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.

K. De Paepe, J.-P. Hachem, E. Vanpee, D. Roseeuw, V. Rogiers, **Beneficial corneotherapeutic effects of skin-tolerance-tested moisturizing creams,** The Essential Stratum Corneum, 2002 Martin Dunitz Ltd.

In the present work, an oil-in-water (o/w) moisturizing cream was applied to experimentally elicited, scaly skin in order to investigate whether the product could promote a more rapid recovery of the disturbed barrier function (as measured by transepidermal water loss (TEWL measurements) than physiological barrier repair. Experimental models of both irritant (ICD) and allergic (ACD) contact dermatitits were applied. ICD was provoked by sodium lauryl sulfate (SLS), well known for its damaging action on the skin barrier function. The ACD study concerned a nickelmediated contact allergy patch (CAP) test, carried out in nickel-sensitized volunteers.

V. Rogiers, E. Houben, K. De Paepe, **Transepidermal Water Loss Measurements in Dermato-Cosmetic Sciences**, Bioengineering of the skin: water and the stratum corneum, sec. Edition, CRC Press 2002, pp. 63-76.

The stratum corneum (SC) plays an important role in the clinical appearance of the skin as a result of its water-holding capacity and lipidic content. In addition, it acts as a barrier to protect the body from percutaneous absorption of a wide variety of xenobiotics, from desiccation, and from insults by a number of environmental conditions.

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.

Mariko Egawa, Motoki Oguri, Tomohiro Kuwahara, Motoji 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.

J.W. Fluhr, J.L. Sugarman, T.L. Diepgen, M.L. Williams, **The objective severity assessment of atopic dermatitis (OSAAD),** 2002 U.S. Symposium of the International Society for Bioengineering and the Skin, Baltimore Oct. 24-26, 2002

An objective measure utilizing permeability barrier function and stratum corneum hydration, with computer-assisted estimates for extent of disease.

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. Kawai, Y. Kohno, K. Ogawa, K. Sakuma, N. Yoshikawa, D. Aso, **Can inorganic powders provide any biological benefit in stratum corneum, while residing on skin surface?,** IFSCC magazine, Vol. 5, No. 4, oct./dec. 2002

The plasminogen (Plg) activation system plays a role in the process leading to dry skin with impaired barrier function, and serine protease inhibitors are known to improve dry skin. In this study. We have discovered that a urokinase-type Plg activator (UK), a trigger of the Plg activation system, which was previously believed to work within the epidermis, also exists in stratum corneum (SC). Focusing on the UK reaction in SC, we sought to develop a method of dry skin prevention.

B. S. Hammond, E. Fendler, Gojo Industries, **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.

T. Yokota, M. Matsumoto, et. al., **Classification of sensitive skin and development of a treatment system appropriate for each group**, Proceedings of the 22nd IFSCC Congress, Edinburgh 23.-26. Sep. 2002

Recent consumer marketing surveys have shown that the number of female consumers, assessed as having sensitive skin, has been increasing. In order to find an effective approach to improve sensitive skin, has been increasing. In order to find an effective appraoch to improve sensitive skin, it is important to know the detailed mechanism of sensitive skin.

K. Matsumo, K. Mizukoshi, et. al., **Benefits of cosmetics bases in treating atopic dermatitis: Studies using a mouse chronic dermatitis model provided by repeated hapten applications**, Posters of the 22nd IFSCC Congress, Edinburgh 23.-26. Sep. 2002

L. R. Caspar, P Maia Campos, et. al., **Evaluation of the protective effect of alpha-tocopherol acetate in a sunscreen, preventing erythema and transepidermal waterloss**, Posters of the 22nd IFSCC Congress, Edinburgh 23.-26. Sep. 2002

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).

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, chapter 55, ed. by R. Marks, J.-L. Lévêque, R. Voegeli, Martin Danitz Ltd., London, 2002.

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.

R. Lambrecht, P. Clarys, K. Alewaeters, A. O. Barel **Influence of in vivo iontophoresis on the skin barrier and percutaneous penetration**, 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.

I. Le Fur, A. Reinberg, S. Lopez, F. Morizot, M. Mechkouri, E. Tschachler, **Facial Skin circadian rhythms of healthy women investigated using non-invasive methods,** 22th IFSCC Congress, Edinburgh, 23-26 September 2002

The investigation was performed during a weekend, subjects were sampled every 4 hours during a 48h-span making a total of 12 time point measurements.

E. H. Choi, W.-S. Park, E.-D. Son **The effect of change in epidermal calcium gradient on stratum corneum lipid and epidermal differentiation,** The Essential Stratum Corneum, chapter 10, ed. by R. Marks, J.-L. Lévêque, R. Voegeli, Martin Danitz Ltd., London, 2002.

Lamellar bodies (LBs) are the source of lipid composition of the stratum corneum (SC). SC intercellular lipid bilayers formed from secreted LBs are the most important structure of the permeability barrier. The cornified cell envelope (CE), formed during the terminal differentiation of keratinocytes, is a specialized structure covalently bound with SC intercellular lipids.

Miklos Ghyczy, VladimirVacata, **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.

A. Kramer, **V. Mersch-Sundermann et al., Toxikologische Bewertung für die Händedesinfektion relevanter antimikrobieller Wirkstoffe**, in Günter Kampf (Ed.): Hände-Hygiene im Gesundheitswesen, Springer Verlag, 2003, Kapitel 5

J. Fluhr, Jeffrey L. Sugarman, Thomas L. Diepgen, M. L. Williams, **The Objective Severity Assessment of Atopic Dermatitis (OSAAD) Score,** 61st Meeting of the American Academy of Dermatology, March 21-26, 2003

Measurements of epidermal permeability barrier function and SC hydration correlated closely with clinical estimates of disease severity. PH was found not to be a sensitive measure of AD severity. The OSAAD score correlated well with current "gold standard" of AD severity, the SCORAD ($p<0,001$; Spearman correlation coefficient of $r=0,63439$)

M. Kucharekova, M. Hornix, T. Ashigaka, S. T'kint, G.J. de Jongh, J. Schalkwijk, P.C.M. van de Kerkhof, P.G.M. van der Valk, **The effect of the PDE-4 inhibitor (cipamfylline) in two human models of irritant contact dermatitis,** Archives of Dermatological research, Vol. 295, April 2003

Repeated application revealed that betamethasone-17-valerate caused a statistically significant reduction in erythema and TEWL compared to cipamfylline and placebo. We also observed a significant suppression of proliferating cells and cytokeratin 16 expression at sites treated with betamethanose compared to the other sites.

R. Huei Chen, W. Yuu Chen, **Skinhydration 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.

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.

L. Monteiro Rodriguez, J. Martins Magro, **Bioengineered characterisation of the thermal burn injury healing process**, Skin Research and Technology, Vol. 9, No. 2, May 2003

Full thickness burn injuries may be followed-up through non-invasive bioengineered methodologies. This elegant approach to this complex multifactorial process allows us to obtain quantitative data involving several variables representing structure and function, providing more objective support to practical management and therapeutical intervention.

J. Fluhr, J.S. kao, P.M. Elias, K.R. Feingold, **Short-term glucocorticoid treatment compromises both permeability barrier homeostasis and stratum corneum integrity: inhibition of epidermal lipid synthesis accounts for functional abnormalities**, Skin Research and Technology, Vol. 9, No. 2, May 2003

Prolonged exposure of human stratum corneum to excess endogenous or exogenous glucocorticoids (GC) can result in well-recognized cutaneous abnormalities. Here, we determined wheter short-term GC treatment would alter two key functions of the skin, permeability barrier homeostasis and stratum corneum (SC) integrity and cohesion, and the basis for these changes.

P.C. Pinto, R. Minhos, L.M. Pereira, L. Monteiro, **Validation of a compartmental model to quantitatively describe transepidermal water loss**, Skin Research and Technology, Vol. 9, No. 2, May 2003

New computational methods are being applied to analyze data from TEWL experiments mostly using non-linear algorithms. A new strategy involving the application of a compartmental model to TEWL data obtained from a Plastic Occlusion Stress Test (POST) has been used with encouraging results. This strategy is now being validated in order to establish its major determinants affecting the model‘s parameters.

P.C. Pinto, L.M. Pereira, L. MonteiroRodriguez, **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. Bock, H.J. Schwanitz, **Site variations in susceptibility to SLS at the volar forearm evaluated by TEWL measurement**, Skin Research and Technology, Vol. 9, No. 2, May 2003

According to the "guidelines on sodium lauryl sulphate (SLS) exposure test" of the ESCD standardisation group the flexor side of forearm skin with cubital fossa and wrist excluded is the preferred study site'. This study analyses the exact anatomic region within the suggested test area in respect to the outcome of SLS exposure test.

L.M. Rodrigues, P. C. Pinto,L.M. Pereira, **Quantitative description of human skin water dynamics by a disposition-decomposition analysis (DDA) of trans-epidermal water loss and epidermal capacitance,** Skin Research and Technology, Vol.9, No. 1, Feb. 2003

In vivo water assessment would greatly benefit from a dynamical approach since the evaluation of common related variables such as trans-epidermal water loss or "capacitance" measurements is always limited to instantaneous data. Mathematical modelling is still an attractive alternative already attempted with bi-exponential empirical models.

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.

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.

H. Lambers, H. Pronk, S. Piessens and E. Voss, **Natural human skin surface pH is on average below 5,** Gordon Conference, Aug. 2003

The acidic surface pH and the pH gradient over the stratum corneum (SC) are important for optimal condition of the skin, supporting the following functions: regulation of skin microflora, thereby preventing pathogenesis, optimal structure and function of the lipid barrier, optimal stratum corneum homeostasis.

A. del Pozo, **In vivo screening of surfactant effects on stratum corneum,** Association de Pharmacie Galenique Industrielle, Paris 22-23 Oct. 2003

Prolonged or repeated exposure of skin to surfactants used in personal care products or cleaners often results in damage to the stratum corneum (SC) barrier function. Prevention of stratum

corneum damage requires careful formulation of such products and suitable screening methods to detect changes in stratum corneum function.

Suk-Jin Choi, Min-Gyu Song, Whan-Tae Sung, Dong-Youn Lee, **Comparison of TEWL, Capacitance, and pH Values in the Skin between intrinsic and extrinsic atopic dermatitis patients***,* J Korean Med Sci 2003, 18, 93-6, pp. 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.

T. Yokota, M. Matsumoto, T. Sakamaki, R. Hikima, S. Hayashi, M. Yanagisawa, H. Kuwahara, S. Yamazaki, T. Ogawa, M. Hayase, **Classification of sensitive skin and development of a treatment system appropriate for each group,** IFSCC Magazine, Oct./Dec. 2003, Vol. 6, No. 4

In order to find an effective approach to improve sensitive skin, it is important to know the detailed mechanism of sensitive skin. In this study, detailed characteristics of sensitive skin were investigated using non-invasive methods. Sensitive skin was classified into three different types based on their particular characteristics.

E. Kawai, Y. Kohno, K. Ogawa, K. Sakuma, N. Yoshikawa, D. ***Aso,*** **Can inorganic powders provide any biological benefit in stratum corneum, while residing on skin surface?** , Revista SRCC, Vol. 3, Nr. 3/2003

The plasminogen (Plg) activation system plays a role in the process leading to dry skin In this study, we have discovered that a urokinasetype Plg activator (UK), a trigger of thePlg activation system, which was previously believed to work within the epidermis, also exists in stratum corneum (SC).

T. Yokota, M. Matsumoto, T. Sakamaki, **Classification of Sensitive Skin and Development of a Treatment System Appropriate for Each Group,** IFSCC magazine, Vol. 6, Nr. 4, Oct./Dec. 2003.

In order to find an effective approach to improve sensitive skin, it is important to know the detailed mechanism of sensitive skin. In this study, detailed characteristics of sensitive skin were investigated using non-invasive methods. Sensitive skin was classified into three different types based on their particular characteristics.

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.

Cr. Rodrigues da Silva, **A Rain Forest Botanical improves bar soap properties,** Happi, Nov. 2003.

The Amazon Rain Forest presents incomparable biodiversity, representing approximately 25% of all the plants on earth. Its inhabitants, Indians or natives of the region often referred to as “caboclos”, utilize this diversity to improve their health and beauty. The “traditional use” of these plants is often referenced in the product stories told by cosmetic companies.

JW Fluhr, L. Bankova, PM Elias, KR Feingold, **Assessment of permeability barrier function measuring transepidermal water loss: comparing 3 closed-loop systems and 4 open-loop systems in vivo and in vitro**, Skin Research and Technology, Vol. 9, Nr. 2, May 2003, “Abstract Nr. 10”.

The permeability barrier function is traditionally measured with instruments assessing the transepidermal water loss (TEWL) relaying on (i) closed loop systems (ii) open loop systems. In the present study three closed loop system-based instruments were compared under different experimental in vivo conditions with 4 open-loop based instruments: MEECO, H4300, VapoMeter, TM 210, TM 300, DermaLab and EP.

M. Takahashi, M. Egawa, T. Hirao, **The frictional feel analyzer**, Skin Research and Technology, Vol. 9, Nr. 2, May 2003, "Abstract Nr. 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.

S.M. Fuchs, C. Heinemann, J. W. Fluhr, S. Schliemann-Willers, U. Gräfe, P. Elsner, **Anti-inflammatory efficacy of Poria cocos in SLS induced irritant contact dermatitis and UVB-induced erythema**, Skin Research and Technology, Vol. 9, Nr. 2, May 2003, "Abstract Nr. 39".

A great number of compounds is available for the treatment of inflammatory skin diseases, the most effective external anti-inflammatory compounds being glucocorticoids. Their side effects have motivated a continuing search for other therapeutical compounds, and fungal metabolites like Poria cocos have figured in the literature

D. Haentschel, M. Gorath, J. Degwert, **Non- and semi-invasive quantitative and qualitative assessment of epidermal regeneration by the use of an in vivo wound healing model**, Skin Research and Technology, Vol. 9, Nr. 2, May 2003, "Abstract Nr. P66".

Normal wound healing is a carefully controlled balance between new tissue formation and destruction processes necessary to remove damaged tissue. The non-invasive measurement of transepidermal water loss (TEWL; TEWL probe for the DermaLab Cortex Technologies, Hadsund, Denmark) and skin roughness by the use of the PRIMOS (Phaseshift Rapid in vivo Measurement of Skin) system (GF Messtechnik, Teltow, Germany) allows a continuous follow-up of cutaneous processes accompanied with changeable conditions of the impairment of the epidermal barrier function or the skin topographym, respectively.

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, Nr. 2, May 2003, "Abstract Nr. P81".

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 effect of vehicle on the performance of urea.

L. M. Rodrigues, J. Martinsmagro, M. Mouzinho, P. Pinto, M. Almeida, **Bioengineered characterisation of the thermal burn injury healing process**, Skin Research and Technology, Vol. 9, Nr. 2, May 2003, "Abstract Nr. P86".

Full thickness burn injuries may be followed-up through non-invasive bioengineered methodologies. This elegant approach to this complex multi-factorial process allows us to obtain quantitative data involving several variables representing structure and function, providing more objective support to practical management and therapeutical intervention.

J. W. Fluhr, J. S. Kao, P. M. Elias, K. R. Feingold, **Short-term glucocorticoid treatment compromises both permeability barrier homeostasis and stratum corneum integrity: inhibition**

of epidermal lipid synthesis accounts for functional abnormalities, Skin Research and Technology, Vol. 9, Nr. 2, May 2003, “Abstract Nr. P95”.

Prolonged exposure of human stratum corneum to excess endogenous or exogenous glucocorticoids (GC) can result in well-recognized cutaneous abnormalities. Here, we determined whether short-term GC treatment would alter two key functions of the skin, permeability barrier homeostasis and stratum corneum (SC) integrity and cohesion, and the basis for these changes.

P. C. Pinto, R. Minhós, L. M. Pereira, L. Monteiro Rodrigues, **Validation of a compartmental model to quantitatively describe transepidermal water loss**, Skin Research and Technology, Vol. 9, Nr. 2, May 2003, “Abstract Nr. P105”.

New computational methods are being applied to analyze data from TEWL experiments mostly using non-linear algorithms. A new strategy involving the application of a compartmental model to TEWL data obtained from a Plastic Occlusion Stress Test (POST) has been used with encouraging results.

*P. C. Pinto, L. M. Pereira, L. Monteiro Rodrigues***, Skin water dynamics: disposition-decomposition analysis (DDA) of transepidermal water loss (TEWL) and epidermal capacitance**, Skin Research and Technology, Vol. 9, Nr. 2, May 2003, “Abstract Nr. P106”.

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.

E. Hernandez **Bioengineering in Dermatology and Cosmetology: Methods, Studies and Prospects**, SÖFW-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.

M. Gloor, B. Wasik, 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.

I. Arsic, S. Tamburic, S. Savic **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, Cr. 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.

Institut u. Poliklinik für Arbeits-, -Sozial- und Umweltmedizin der Univers. Erlangen-Nürnberg, **Hautbelastung, Hautbeanspruchung und Hautschutzverhalten bei Krankenpfelgeschüler(inne)n**, Prof. Dr. med. H. Drexler.

Fragestellung: Wie hoch ist die Inzidenz beruflich verursachter Dermatosen unter Berücksichtigung von Risikofaktoren, Exposition und Hautschutzverhalten bei Berufsanfängern in der Krankenpflege? Welche Parameter sind geeignet, die berufliche Belastung zu objektivieren?

J. W. Arbogast, E. J. Fendler, B. S. Hammond, **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: pp 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.

Monteiro Rodrigues L.1, Martins Magro J.1, Contreiras Pinto P.2,Mouzinho M.3, Almeida A.3; **NON-INVASIVE ASSESSMENT OF WOUND-HEALING PATHOPHYSIOLOGY BY TRANSCUTANEOUS INDICATORS;** Annals of Burns and Fire Disasters - vol. XVII - n. 3 - September 2004

SUMMARY. The non-invasive assessment of post-burn wound recovery allows new insights into wound-healing pathophysiology. This pilot study enrolled thermal burn patients (n = 9) with autografted wounds. Grafted lesion (GL) and donor lesion (DL) areas were followed for 6 months by non-invasive measurement of local microcirculation, transcutaneous PO2, and transepidermal water loss (TEWL); the contralateral intact areas were used as controls. The results show that local flow changes in GL were significantly different ($p < 0.05$) from normal until week 6, while in DL differences still persisted at week 8. No differences between GL and DL were found for transcutaneous PO2 measurements. However, full functional recovery was achieved earlier in DL, while in GL statistically significant differences ($p < 0.05$) between the lesion and the control area were still present at week 26. TEWL evolution demonstrated that significant differences ($p < 0.05$) between lesions, compared with the respective controls, persisted in week 26, probably resulting from different recovery mechanisms. Globally, the present study helps to define the wound-healing functional profile of the lesions, highlighting the interest of the non-invasive assessment of wound pathophysiology in burn care and rehabilitation.

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.

P. M. van Kemenade, M. M. J. Houben, J. M. Huyghe, **Do osmotic forces play a role in the uptake of water by human skin?**, Skin Research and Technology 2004 10, 109-112.

Background/Purpose: To describe the water and ion transport through the skin under different conditions, we developed a three-component mixture model. This model has proven to describe the transient change in transepidermal water loss (TEWL) after a change in relative humidity and the result of damage to the skin.

K. Matsumoto, K. Mizukoshi, M. Oyobikawa, **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, 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.

M. Fröschle, R. Plüss, K. Bojarski, A. Peter, **Antiaging Effect with Cosmotropic Substances**, SÖFW-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.

*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, 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.

"Symposium Medical – Für sie referiert", **Hautzustandsmessung als Präventionshilfe am Arbeitsplatz**, Symposium Medical 2004, S. 22.

Während Augen, Ohren, Lunge und andere Organe, die am Arbeitsplatz Schadstoffen oder Belastungen ausgesetzt werden, in der Arbeitsmedizin schon seit vielen Jahren überwacht und gemessen werden, wird die Haut, die mit ca. 1,8 m² das größte menschliche Organ darstellt, vielfach außer Acht gelassen oder maximal visuell überprüft

J. W. Fluhr, J. Ennen, **Standardized washing models: facts and requirements**, Skin Research and Technology, 2004, 10, 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.

Chris 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.

F.H.W. Jungbauer, J. J. van der Harst, J. W. Groothoff, P. J. Coenraads, **Skin protection in nursing work: promoting the use of gloves and hand alcohol**, Contact Dermatitis 51, pp. 153-140, 2004.

Nursing has been indentified as a wet-work occupation, with a high prevalence of occupational irritant contact dermatitis. Reduction of exposure to skin irritants contributes to the prevention of occupational skin disease in nurses. The role of the use of soap and water, hand alcohol and gloves in prevention programmes is discussed.

L. M. Rodrigues, P. C. Pinto, J. M. Magro, M. Fernandes, J. Alves, **Exploring the influence of skin perfusion on transepidermal water loss**, Skin Research and Technology 10, pp. 257-262, 2004.

Eventual relationships between the vascular function and transepidermal water loss (TEWL), in vivo, have not been entirely explored. By promoting local perfusion alterations through a well-known challenge test, the "tourniquet-cuff occlusion" manoeuvre, the present study searches for other dynamical factors influencing the cutaneous barrier, further exploring the applicability of these flow-related variables in dermatological research.

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** (abstract), 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 (abstract),** 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.

H. Dickel, Th. M. Bruckner, St. M. Erdmann, J. W. Fluhr, **The "strip" patch test: results of a multicentre study towards a standardization.** Arch Dermatol Res (2004) 296: 212-219, Springer Verlag.

The „strip" patch test (SPT) is a variant of patch testing which is used for substances with a poor percutaneous penetration. Penetration of the substance is enhanced by repeated applications of adhesive tape prior to their application to the skin. However, no guidelines exist for standardized performance of the SPT.

S. L. Hester, Chr. A. Rees, R. A. Kennis, D. L. Zoran, **Evaluation of Corneometry (Skin Hydration) and Transepidermal Water-Loss Measurements in two canine breeds**, 2004 , 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.

Kerstin Luise 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.

V. Nikolai, K. Quecke, **Beobachtungen zur Feuchtigkeitsregulation am Pferdehuf mittels TEWL-Messung**, Der praktische Tierarzt 85, Heft 11, S. 816-819, 2004.

Die Hornqualität des Pferdehufes wird sowohl in Fachkreisen als auch von Laien oftmals anhand des Feuchtigkeitsgehaltes des Hornes beurteilt. Aussagekräftige Messungen des tatsächlichen Feuchtigkeitsgehaltes liegen jedoch noch nicht vor. Vielmehr wird lediglich eine grobsinnliche Beurteilung des Hufhornes durchgeführt. Unter Einsatz eines aus der Humandermatologie stammenden Gerätes zur Bestimmung des transepidermalen Wasserverlustes wurde eine praktikable Methode zur indirekten Erfassung des Feuchtigkeitsgehaltes von Hufhorn erprobt.

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, Okt. 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.

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.

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...,** Skin Research and Technology, 2005-11, May, pp. 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.

K. De Paepe, E. Houben, R. Adam, F. Wiesemann, V. Rogiers, **Validation of the VapoMeter, a closed unventilated chamber system to assess transepidermal water loss vs. the open chamber Tewameter®,** Skin Research and Technology 2005-11, May, pp. 61-69.

The Stratum Corneum (SC) – the uppermost layer of the epidermis – contains the barrier function of the skin. Besides the proteinaceous hydrophilic corneocytes, this barrier consists of lipid-rich hydrophobic intercellular bilayers.

F. Tokumura, K. Umekaga, M. Sado, S. Otsuka, S. Suda, M. Taniguchi, **Skin irritation due to repetitive application of adesive tape: the influence of adhesive strength and seasonal variability**, Skin Research and Technology 2005-11, May, pp. 102-106.

Medical pressure-sensitive adhesive tapes are applied to human skin in one of two ways, depending on their indication for use. Either they are replaced and applied on the same site every day,

as is the case with traditional sticking plasters and surgical tapes, or they are pressed on to and remain on the skin for a few days when used at the site of the transdermal delivery of drugs.

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, pp. 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.

R. Debowska, K. Rogiewicz, T. Iwanenko, I. Eris, **Folic Acid (Folacin) – New Application of a Cosmetic Ingredient**, Kosmetische Medizin 3/2005, pp. 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.

C. Rosado, P. Pinto, L.M. Rodrigues, **Comparative assessment of the performance of two generations of Tewameter®: TM210, TM300**, International Journal of Cosmetic Science. 2005. 27. pp. 237-241.

The measurement of transepidermal water loss (TEWL) has been established as one of the main parameters in the assessment of skin barrier function. One of the most widely employed devices to measure TEWL is the Tewameter®. Courage and Khazaka launched the TM300 in 2003 and successfully eliminated some of the limitations of the previous model.

Patrícia M. B. G. Maia Campos, Mirela D. Gianeti, Gisele M. S. Gonçalves, Lorena 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 ISCC 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.

Toru Tsuchiya, Shinichiro Haze, Tetsuji Hirao, Junichi Hosoi, Akio Kikuchi, Ken Shoji, Masahiro Tanida, Takanari Tsuda, **ODORANT INHALATION LOWERED STRESS LEVELS SYSTEMICALLY, SUBSEQUENTLY RESULTING IN THE IMPROVEMENT OF CUTANEOUS FUNCTIONS:LINKAGE BETWEEN OLFACTORY SENSATION AND SKIN,** Presentation at the ISCC in 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.

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 Phildelphia, USA, abstract.

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.

J.W. Fluhr, M. Breternitz, M. Flach, P. Elsner, **Acute eperimentally 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 Phildelphia, USA, abstract.

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.

Yujin Sunwoo, Chinmei Chou, Junko Takeshita, Motoko Murakami, Yutaka Tochihara; **Physiological and Subjective Responses to Low Relative Humidity;** Journal of Physiological Anthropology 2005; pp. 7-14

In order to investigate the influence of low relative humidity, we measured saccharin clearance time (SCT), frequency of blinking, heart rate (HR), blood pressure, hydration state of skin, transepidermal water loss (TEWL), recovery sebum level and skin temperature as physiological responses. We asked subjects to judge thermal dryness and comfort sensations as subjective responses using a rating scale. Sixteen non-smoking healthy male students were selected. The pre-room conditions were maintained at an air temperature (Ta) of 25°C and a relative humidity (RH) of 50%. The test room conditions were adjusted to provide a Ta of 25°C and RH levels of 10%, 30% and 50%.

L. Bankova, P. Kleesz, R. Grieshaber, P. Elsner, J.W. Fluhr, **Irritant potential of food additives: a bioengineering irritation study,** Presentation on the ISBS Meeting 2005 in Phildelphia, USA, abstract.

Goal of the study: To assess the skin irritant effects of food additives and the potential relevance for the development of irritant contact dermatitis. Methodoloy: The irritants (ascorbic acid, acetic acid and sodium hydroxide at different pH values) were applied to the skin of the mid-back of 19 volunteers twice daily for four days using and occlusive epicutaneous patch test system and in combinations with sodium lauryl sulfate (SLS).

C. Heinemann, C. Paschold, J.W. Fluhr, W. Wigger-Alberti, S. Schliemann-Willers, P. Elsner, **Induction of a hardening phenomenon by repeated application of SLS and subsequent analysis of the changes in the lipid composition of the stratum corneum,** Presentation on the ISBS Meeting 2005 in Phildelphia, USA, abstract.

The hardening phenomenon results from the adaptation of the skin to repeated influence of exogenous irritative noxes. This study focuses on the lipid composition on the stratum corneum before and after induction of a hardening phenomenon.

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 EADV London, Okt. 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.

Rosado C, Pinto P, Rodrigues LM, **Modeling TEWL-desorption curves: a new practical approach for the quantitative in vivo assessment of skin barrier**, Exp Dermatol 2005: 14: 386-390 Blackwell Munksgaard, 2005

The objective of the present study was to test the discriminative capacity of the mathematical modeling of the transepidermal water loss (TEWL) curves that result from a plastic occlusion stress test (POST) to variations in the skin barrier – insults inflicted to the skin or differences in two distinct anatomical regions. This study was exclusively performed in the arm. On the first part of the work , three different insults to the skin barrier were assessed: tape stripping, lipid extraction with ether: acetone, and skin-surface biopsy.

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 EADV London, Okt. 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.

Hongbo Zhai, Emi Dika, M. Goldovsky, H. I. Maibach, **Tape Stripping Method in Man: Comparison on Evaporimetric Methods,** Presentation at the EADV London, Okt. 2005.

Transepidermal water loss (TEWL) documents integrity of stratum corneum (SC) water barrier function and is a sensitive indicator of skin water barrier alteration. Adhesive tape stripping is commonly used for investigating SC physiology, bioavailability and bioequivalence of topical drugs.

M. Fischer, Chr. Donath, J. Radke, W. Ch. Marsch, J. Soukup, **Skin function parameters in intensive-care patients**, Skin Research and Technology 11/05, pp. 268-271.

Intensive-care patients are at risk for organic failures. But there are hardly any results known for the skin barrier function of patients in intensive care. There are only studies of transepidermal water loss (TEWL) in premature infants (1,2). It was found that premature infants have an insufficient cutaneous barrier, which can be improved by bland local therapy (2).

G. Primavera, J. W. Fluhr, E. Berardesca, **Standardization of Measurements and Guidelines**, Bioengineering of the Skin: Water and the Stratum Corneum, Second Edition, CRC Press 2005, pp. 83-95.

Measurement of transepidermal water loss (TEWL) is widely used to characterize the water barrier function of skin (both in physiological and pathological conditions), to perform predictive irritancy tests, and to evaluate the efficacy of therapeutic treatments on diseased skin. TEWL assessment can be performed using different techniques [1,2] (closed-chamber method, ventilated-chamber method, and open-chamber method).

Dr. I. Hütter, Dr. A. Behler, S. Cornelsen, **‘Vitamin‘ of surfactants profiled,** Personal Care, Nov. 2005, pp. 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.

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: pp. 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%).

Annika S.g. Ansel; **Schadstoffe und Allergene in der Innenraumluft: Untersuchung zur Beeinflussung von Hautfunktion und allergologischer Reaktivität bei Patienten mit atopischem Ekzem;** Dissertation 2005 bei 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.

Judith A Tunggal[1, 6], Iris Helfrich[1, 6], Annika Schmitz[1], Heinz Schwarz[2], Dorothee Günzel[3], Michael Fromm[3], Rolf Kemler[4], Thomas Krieg[1, 5] and Carien M Niessen[1] ; **E-cadherin is essential for *in vivo* epidermal barrier function by regulating tight junctions;** The EMBO Journal - Vol. 24, No. 6/2005, S. 1146-1156

Cadherin adhesion molecules are key determinants of morphogenesis and tissue architecture. Nevertheless, the molecular mechanisms responsible for the morphogenetic contributions of cadherins remain poorly understood *in vivo*. Besides supporting cell–cell adhesion, cadherins can affect a wide range of cellular functions that include activation of cell signalling pathways, regulation of the cytoskeleton and control of cell polarity. To determine the role of E-cadherin in stratified epithelium of the epidermis, we have conditionally inactivated its gene in mice. Here we show that loss of E-cadherin in the epidermis *in vivo* results in perinatal death of mice due to the inability to retain a functional epidermal water barrier.

Bernard Gabard, **Testing the Efficacy of Moisturizers,** 2005 by CRC Press LLC

Among the beneficial properties claimed for dermatological and cosmetic productsm “moisturizing” is possibly the most widely used. This term has been coined after the now classic observations of Blank, who discovered the plasticizing effect of water in the stratum corneum (SC). A common skin surface disturbance, xerosis, or so-called dryness of the skin, is experienced by most persons at some time, by a few persons all the time, and by all individuals increasingly as they grow older. Thus, as consumers advance in age, concern about dry skin increases. In addition, moist, clean, soft, and wrinkle-free skin is perceived as youthful, and for this reason, moisturizers are widely used, and skin care with these products is regarded as a dominant growth area in cosmetics and toiletries.

Marie Lodén, **Transepidermal Water Loss and Dry Skin,** 2005 by CRC Press LLC

The outer layer of the skin, the stratum corneum (SC), is produced by the basal layer in the epidermis. The SC consist of about 20 stacked layers of dry, flattened dead bodies of epidermal cells; the corneocytes. The protein-enriched corneocytes and the lipid-enriched intercellular domains make SC highly resistant to physical and chemical trauma.

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.

Miteva M, Richter S, Elsner P, Fluhr JW, **Approaches for optimizing the calibration standard of Tewameter TM 300**; Exp Dermatol 2006: 15: 904–912, 2006 The Authors Journal compilation Blackwell Munksgaard

Abstract: Calibration of devices measuring transepidermal water loss (TEWL) is in intensive discussion. Comparative studies revealed that comparable measuring systems, e.g. open and closed chamber systems, do not always deliver the same results, even when expressing the measured values in SI units, namely in g/m2/h. Therefore, adequate and reliable calibration procedures need to be established.We were able to test the reliability of a multi-step calibration algorithm for an open chamber system such as Tewameter TM 300. In order to achieve reliable measurements, the maintenance of stable microclimate conditions without air turbulences is mandatory. The TEWL values should be compared with those determined gravimetrically on heated skin simulators. The reproducibility of the results is warranted by consecutive measurements on different adjacent spots of a defined area. Preheating of the probe sensors is an effective approach for shortening the measuring time and gaining a rapid steady-state. The accurate calibration of the probe can be checked under laboratory conditions any time.The critical point of the calibration and ultimately the accuracy of in vivo measurements maintain the steady functional capacity of the probes during the entire duration of continuous studies. The studied calibration procedure ensures these requirements.

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, pp. 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).

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.

Newsletter #1/2006, Raumstation: Fachinformationsdienst zur Nutzung der Internationalen Raumstation, **Experiment „SkinCare“ auf der Raumstation: Hautphysiologische Messungen in Schwerelosigkeit**, 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.

C. Mas-Chamberlin, Ph. Mondon, F. Lamy, K. Lintner, **Potential preventive performance**, Soap, Perfumery & Cosmetics, June 2006, pp. 38-40.

I t is not easy to measure the preventive efficacy of skin care products, but Claire Mas-Chamberlin, Philippe Mondon, Francois Lamy, Karl Lintner, Claire Jossan and Frederique Girard report on an accelerated skin ageing-type process used to investigate active efficacy.

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.

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.

F. Tokumura, Y. Yoshihura, T. Homma, H. Nukatsuka, **Regional differences in adhesive tape stripping of human skin,** Skin Research and Technology 2006, 12, pp. 178-182. *

Medical pressure-sensitive adhesive tapes are applied to various regions of the human body for many purposes. Although some adhesive tapes are designed for a specific purpose and applied to a single region, such as first-aid bandages for the fingers and a variety of adhesive pads for foot-care, a large number of adhesive tapes are applied to various regions.

Junko Ishikawa, Hirofumi Narita, Naoki Kondo, Yutaka Takagi, Yoshinori Masukawa, and Takashi Kitahara, **Regional Analysis of Ceramides within the Human Stratum Corneum by Normal Phase Liquid Chromatography Electrospray Ionization Mass Spectrometry**, Biological Science Laboratories, and Analytical Research Center, Kao Corporation, 2606 Akabane, Ichikai-Machi, Haga-Gun, Tochigi 321-3497, Japan, Oral Presentation on the 24th IFSCC Congress, Osaka, Oct. 2006. *

Ceramides (CERs) are the major component of the stratum corneum (SC), accounting for 30-40% of SC lipids by weight. SC CERs, together with cholesterol and fatty acids, form extracellular lamellae that are responsible for the epidermal permeability barrier. Previous studies reported de-creases of SC CERs in atopic dermatitis patients, who have low cutaneous barrier function. Such al-terations of CER contents may be responsible for the impaired water-barrier function of the skin in atopic dermatitis.

Chika Katagiri, Jotaro Nakanishi, and Toshihiko Hibino, **Identification of a Regulatory Molecule in Keratinocyte Denucleation and its Relevance to Barrier Disruption**, Oral Presentation on the 24th IFSCC Congress, Osaka, Oct. 2006. *

The terminal differentiation of keratinocytes results in the formation of stratum corneum, that serves as a protective barrier against hazardous environments. During the transition phase from granular to cornified cells, keratinocytes lose their nuclei to form the cornified layer, a crucial step in completing differentiation and to invoke subsequent physiological functions. Disordered differentiation

frequently leads to the persistent presence of nuclei in the cornified layers, a condition known as parakeratosis that seriously disrupts the barrier function of the skin. This study is aimed at elucidating the mechanisms of keratinocyte denucleation and its disorder, parakeratosis.

S. M. Fuchs, C. Heinemann, S. Schliemann-Willers, H. Härtl, J. W. Fluhr, P. Elsner, **Assessment of anti-inflammatory activity of *Poria cocos* in sodium lauryl sulphate-induced irritant contact dermatitis**, Skin Research and Technology 2006, 12, pp. 223-227. *

A great number of compounds is available for the treatment of inflammatory skin diseases like atopic dermatitis (1), dermatitis solaris or psoriasis (2), the most effective external anti-inflammatory compounds being glucocorticoids. Their side effects (3) have motivated a continuing search for other therapeutical compounds, and fungal metabolites like *Poria cocos* (PoCo) have figured in the literature. The present study was designed to evaluate the anti-inflammatory efficacy of PoCo extracts against experimentally induced irritant contact dermatitis (ICD) in a non-invasive human *in vivo* model with different parameters.

Maria Miteva, Stefan Richter, Peter Elsner, Joachim W. Fluhr; **Approches for optimizing the calibration standard of Tewameter TM 300,** Experimental Dermatology 2006, pp 904 – 912.

Calibration of devices measuring transepidermal water loss (TEWL) is in intensive discussion. Comparative studies revealed that comparable measuring systems, e.g. open and closed chamber systems, do not always deliver the same results.

Joachim W. Fluhr, Kenneth R. Feingold, Peter M. Elias, **Transepidermal water loss reflects permeability barrier status: validation in human and rodent in vivo and ex vivo models,** Experimental Dermatology 2006, pp 483 – 492

Permeability barrier function is measured with instruments that assess transepidermal water loss (TEWL), either with closed- or open-loop-systems. Yet, the validitiy of TEWL as a measure of barrier status has been questioned recently.

Uwe Wollina, Jörn Kubick,i **Dexpanthenol supports healing of superficial wounds and injuries**, Kosmetische Medizin 5+6/2006, pp. 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.

*Barbara-Isabell Bettzüge-Pfaff, H. Prieur***, Nutzen einer adjuvanten Basiscreme bei trockener, atopischer Haut,** Kosmetische Medizin 5+6/2006, pp. 261-263.

I m 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.

Heike Heinrich, Birgit Garbe, Hagen Tronnier, Marie Béjot, Jean Marc 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, pp. 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.

Caroline Maria 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%.

Hiroshi Fujita, Tetsuji Hirao, Motoji Takahashi, **A Simple and non-invasive visualization for assessment of carbonylated protein in the stratum corneum,** Skin Research and Technology 2007, pp. 84-90.

Stratum corneum (SC) ist 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.

Teresa Weber, Alexandra Kowcz, Nathan Trookman, Ronald 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.

Reto 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.

Ulrike Eich; **THERMISCHE VERLETZUNGEN IM KINDES- UND JUGENDALTER;** Lübeck 06.06.2007

1.1 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[86]. Thermische Verletzungen entstehen im Kleinkind- und Vorschulalter vorwiegend (etwa 85%) in Form von Verbrühungen, d.h. bei Kontakt mit heißen Flüssigkeiten[18, 20, 84]. Der Inhalt einer Tasse mit heißem Wasser genügt, um bis zu 30% der Körperoberfläche eines Säuglings- oder Kleinkindes zu verbrühen[27]. Verbrennungen treten hingegen häufiger bei Schulkindern auf und werden vornehmlich durch Hausbrände, Grillunfälle und Experimentieren mit dem Feuer hervorgerufen[11, 43, 62]. Bei circa 3000 Kindern verbleiben nach der Therapie einschränkende Narben[43, 62]. Diese sind häufig hypertroph, verursachen Schmerzen und Juckreiz und können zu funktionellen Einschränkungen führen[32]. Gut sichtbare Narben, insbesondere an Gesicht und Händen, können zudem auch psychosoziale Probleme im Leben der Kinder nach dem Unfall hervorrufen[51].

Hongbo Zhai, Emi Dika, Marina Goldovsky, Howard I. Maibach **Tape-stripping method on man: comparison of evaporimetric methods,** Skin Research an Technology 2007, pp. 207-210

If the occlusion time of a closed chamber evaporimeter on the skin is too long, saturation might occur. We previously compared an open chamber and a closed chamber device on healthy volunteers. Comparable data on stripped skin with higher evaporation rates are not available.

Kunio Shimada, Koji Awai, Hirofumi Irie, **Ceramide Polymer improves skin texture**, Personal Care, May 2007, pp. 47-50

Anti-ageing cosmetics are increasingly demanded today. Many consumers, especially women, care about keeping their skin young by controlling wrinkles and freckles and keeping their skin soft, firm, smooth and beautifully white. Ingredients for controlling the ageing of the skin are demanded and are actively studied.

Isaak Wontroba, **Der Einfluss von linear polarisiertem Licht auf Hauttemperatur, Hautwasserabgabe und sudomotorische Aktivität**, Digitale Dissertation FU Berlin, pp. 1-37

Zur Untersuchung, welche Auswirkungen inkohärentes polarisiertes Licht (VIP = visible incoherent polarized light) auf die menschliche Haut zeigt, sind in unterschiedlichen Messreihen an insgesamt 48 Probanden Veränderungen von Evaporation und Temperatur über der Haut des Unterschenkels in einem Messzylinder (Tewameter) untersucht worden. Verwendet wurde eine im Rahmen der VIP-Lichttherapie eingesetzte Lichtquelle der Firma Bioptron.

M. Kerscher, T. Reuther, G. Schramm, **Chlormadinonacetat enthaltende Mikropille verbessert unreine Haut**, Frauenarzt 48 (2007), Nr. 4, pp. 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

C. Rosado, P. Pinto, L.M. Rodrigues, **Comparative assessment of the performance of two generations of Tewameter: TM210 and TM300**, Blackwell Synergy, Int J Cosmet Sci, Volume 27, Issue 4, pp. 237ff.

The mesurement of transepidermal water loss (TEWL) has been established as one of the main parameters in the assessment of skin barrier function. One of the most widely employed devices to measure TEWL is the Tewameter. Courage and Khazaka launched the TM300 in 2003 and successfully eliminated some of the limitations of the previous model.

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

Hommel Pharma GmbH & Co.KG 2007; **Aectan . der natürliche Zellschutz mit Ectoin;** www.aectan.de

Die Zellen der menschlichen Haut sind täglich vielen schädlichen Umweltfeinflüssen ausgesetzt. Intakte Zellen können sich in den meisten Fällen dagegen wehren. Sollte dennoch eine Schädigung erfolgen, regenerieren sie sich mit Hilfe eines eigenen Zellreparatur-Mechanismus. Wenn dieser natürliche Zellreparatur-Mechanismus gestört oder überfordert können kosmetische oder pharmazeutische Wirkstoffen eine Lösung sein. In jüngster Vergangenheit wurde eine neue Klasse solcher Zell-reparierender und schützender Substanzen identifiziert. Gefunden wurden sie u. a. dort, wo deren Eigenschaften von lebensnotwendiger Bedeutung sind – in Organismen die unter extremen Bedingungen wie z. B. in den Salzseen der Wadi Natrun Wüste (Abb. 1) in Ägypten existieren.

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. 67

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.

Haejun Yim, Yong Suk Cho, Cheong Hoon Seo, Boung Chul Lee, Jang Hyu Ko, Dohern Kim, Jun Hur, Wook Chun, Jong Hyun Kim; **The use of AlloDerm on major burn patients: AlloDerm prevents post-burn joint contracture;** BURNS, Vol. 36, Issue 3, pp. 322-328

A total of 64 patients received AlloDerm graft selectively on joint areas during the study period from March, 2005 to July, 2007. From January to March, 2008, a total of 31 patients returned to our burn center to examine the functional results by measuring range of motion of joints. Additionally, the quality of grafted skin condition criteria of skin elasticity, scar thickness, trans-epidermal water loss, melanin and erythema level was measured in a total of 11 patients among them. By analyzing the limitation level of 55 joints excluding hand areas, we found that 24 joints (43.6%) showed no limitations, 12 joints (21.8%) showed limitations below 10%, 16 joints (29.1%) showed limitations between 10 and 19% and 3 joints (5.5%) showed limitations over 20%. The scar thickness of non-AlloDerm applied areas was 2.5 ± 0.9 mm and AlloDerm applied areas was 1.8 ± 0.7 mm ($p = 0.396$). Trans-epidermal water loss for non-AlloDerm applied areas was 20.9 ± 7.7 g/h/m^2 and AlloDerm applied areas was 10.8 ± 3.4 g/h/m^2 ($p < 0.001$). Erythema value for non-AlloDerm applied areas was 436.1 ± 65.8, whereas AlloDerm applied area was 394.4 ± 61.2 ($p < 0.001$). Acellular dermal matrix is a good option for treating major burns to prevent scar formation after burn and loss of joint function

Gabriele Betz, University of Basel, Institute of Pharmaceutical Technology, Basel Switzerland, **In Vivo Comparison of Various Liposomal Formulations for Cosmetic Application**, IcoS, June 2007, Istanbul Türkiye, pp. 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.

G. Maaß, **Anwendungsstudie der sebamed TROCKENE HAUT Produkte bei Kindern mit atopischem Ekzem**, Kosmetische Medizin 6/2007, pp. 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.

Anew method of measuning the Transepidermal Water Loss (TEWL) of dog skin.
Toru Yoshihara, Kenichiroh Shimada, Yasuyuki Momoi, Katsuhiko Konno and Toshiroh Wasaki.
J. Vet. Med. Sci. 69(3), 2007

*Abstract:*Human skin barrier funktion is evaluated by measuring transepidermal water loss (TEWL). However, this conventional method has not been applied to assess canin skin barrier function because the equipment is not suitable for dogs due to the effects of eir turbulence resulting movement of the subject and vapor from the subject‘s hair coat. The TEWL analyzer CC-01 was developed as a closed-chamber method device; this means that instead of using the open-chamber

method, it has a vantiilated chamber that uses dry air. TEWL value s measured by CC-01 show less variability than those measured by the convetional method. An ambient temperature of 20-26°C is optimal for measurement with the CC-01, and humidity affects te length of measurement but not te values. The CC-01 may be more reliable for measuremnet of TEWL than the conventional methods and may give new insights in the evaluation of skin barrier function in dogs.

University of Basel, Inst. of Pharmaceutical Technology, **In Vivo Comparison of Various Liposomal Formulations for Cosmetic Application**, 7th Int. Cosmetic Symposium (IcoS), 20-22 June 2007, Istanbul Türkiye

Liposomal formulations hae been used for skin moisturization, due to the occlusive effect of a phospholipid film deposited on the skin surface. Furthermore, interactions between liposomal lipids and Stratum corneum lipids may affect positively the structure of the Stratum corneum. Phospholipids themselves are hygroscopic and bin water.

Gabriel 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.

Gabriele Feller-Heppt, Christina Wagner, Selma Ugurel, **Wirksamkeit und Patientenzufriedenheit verschiedener Pflegecremes bei Atopikern und Neurodermitispatienten im erscheinungsfreien Intervall**, Kosmetische Medizin 5/2007, pp. 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.

M. Andreas, 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

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

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.

N. Garcia Bartels, A. Mieczko, H. Proquitté, R. Wauer, T. Schink, Ul 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

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).

JW. 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

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

Yan Cheng, Yi-ynag Dong, Mei-xian Dong, Chao Wang et al; **Protection effect of cosmetics on human skin under simulated rigorous environment,** Skin Research and Technology 2008, 14, pp. 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

Kristien De Paepe, Evelien De Rop, Evi Houben, Ralf Adam, Vera Rogiers; **Effects of lotioned disposable handkerchiefs on skin barrier recovery after tape stripping ;** Skin Research and Technology 2008; 14; 440-447

During an acute viral cold the skin of the nostrils and nasolabial area often becomes red and irritated. Owing to a runny nose and frequent use of disposable handkerchiefs, the nasolabial skin area may become quite painful. In order to find out whether the use of lotioned handkerchiefs could bring some relive and might increase the personal comfort of the cold patient, a controlled forearm skin model was designed to mimic the in use situation during a common cold.

Evi Houben, Ralf Adam, Jean-Pierre Hachem, Diane Roseeuw, Vera Rogiers, Kristien 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.

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, pp. 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

Naveed Akhtar, Gulfishan Ahmed, Mahmood Ahmed, Nazar Ranjha, Ahmad Mahmood, **Grapefruit Extract Cream: Effects on Melanin and Skin**, Cosmetics and Toiletries magazine, Vol. 123, No. 1/January 2008, pp. 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.

Venotrain Micro Balance Klinische Studie
18.04.2008 www.bauerfeind-phlebogie.de

Klinisch bewiesen: 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

Recharacteriasation of the nonlesional dry skin atopic dermatitis through disrupted barrier function
Karger 09.03.2008

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.

Relationships between skin properties and environmental parameters
Skin and Research Technology Vol14, 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.

Effects of oxybytin on exercise-induced sweating in healthy individuals.
Marthe van Houte, Ankie M. Harmze, Vera H. M. Deneer, Ron A. Tupker.
Journal of dermatological Treatment 2008;19

Objectives: Oxybutynin has been proven to be effective in patients with generalized hyperhydrosis. Some dermatoses aggravate as a result og sweating. Therefore, oxibutynin might also be useful in such normohidrotic patients. The aim was to avaluate the afficacy and safty of different does of oxybutynin on exercise-induced sweating in healthy individuals. *Methods:* Two randomized, double-blind, placebo-controlled, cross-over studies were performed, in which two different dosges (2,5 and 5 mg) of oxybutynin were tested. The degree of sweating was determined by transepidermal water loss (TEWL) measurement on the forearm and hand during exercise. Futhermore, the effectiveness was evaluated by means of the individual‘s global assessment score, and side effects were noted. *Results:* No significant differences between oxybutynin and placebo were found on the forearm and the hand at both dosages of oxybutynin with respect to TEWL values and the individual‘s global assessment score. Side effects consisted of diarrhoea, dizzines, dry mouth and dry eyes. *Conclusions:* In this model, oxybutynin did not result in inhibition of exercise-induced sweating in healthy volunteers.

*Bianca Sommer***; Regenerationsergebnisse nach Nervenverletzungen an der oberen Extremität – Einflussfaktoren und die Optimierung klinischer Untersuchungsmethoden**; 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).

Exercise-induced Sweating in Healthy Subjects as a Model to predict a Drug‘s Sweating-reducing Properties in Hyperhidrosis: a Prospective, Placebo-controlled, Double-blind study.
Acta Derm Venereol 2008;88
Marthe van Houte, Ankie M. Harmze, Vera H. M. Deneer, Ron A. Tupker.

The aim of this study was to develop a model to evaluate the efficacy of drugs with expected sweat-reducing properties in healthy subjects in order to select candidate drugs for the systemic treatment of primary generelized hyperhidrosis. A randomized, double-blind, placebo-conrolled cross-over study was performed in 8 healthy subjects. Sweating was induced by exercise. The degree of sweating at different exercise levels was determined by measurement og transepidermal water loss.

Hautanalysegeräte
Neue Wege in der Hautdiagnostik

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.

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
. J.W. Fluhr MD, M. Breternitz MD and P. Elsner MD
*Skin Physiology Laboratory, Department of Dermatology, Friedrich-Schiller-University, Jena, Germany**Background 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.

Electronically av.

Vergleichende Untersuchung zur Belastungund Beanspruchung am Arbeitsplatz durch Reinigunsmittel auf Mineralöl-und auf Pflanzenölbasis unter besonderer Berückstichtigung akuter und Chronischer Hauterkrankung

Abschlussbericht

Electronically av.

Protective glasses and dental fearDr. Márta Alberth, Dr. Judit Nemes
University of Debrecen, Medical and Health Science Center, Faculty of DentistryDebrecen, Hungary Objective
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.

Internal Wool Lipids Rich in Ceramides for Skin Care; *Raquel Ramírez, Meritxell Martí, Clara Barba, Sandra Méndez, Jose Luis Parra; 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.

Development of the skin analogue liquid crystal in non-aqueous condition and its cosmetic application to improving atopic dermatitis : An innovative atopy care; *Kwan Young Jeong1, Jung Hyun Choi1, Yun Ji Lee1, Tae Hwa Jeong1, and Dong Kyu Lee2; 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.

Studies of Ceramide Lotion on M oisture of Skin; *Keh-Feng Huang, Edward Tsai, Daniel Chang-Chin Kwan, Yu-Fang Chen, Kuan-Chin Chen, Ming-Fu Wang, 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.

Stability and Clinical Efficacy of Cosmetic Formulations Containing Different Peptides;
Glasiela Lemos Anconi, Patrícia Maria Berardo Gonçalves Maia Campos; 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.

Biomimetic Liquid Crystals as Skin Barrier Restructuring Agents; *Alain Thibodeau; 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. The stratum corneum (SC), the outermost layer of the epidermis

Clinical efficacy of cosmetic formulations containing *Myrtus communis* extract; *Patricia M. B. G. Maia Campos; Flavio Bueno de Camargo Junior; Sabrina M. Bertucci; Emeline Esteves de Oliveira; Glasiela Lemos Anconi; Lorena Rigo Gaspa; 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.

Assessment of Transepidermal Water Loss (TEWL) and Comparison Between Equipments; *Silva VRL1,2,3, Schulman MA1, Gimenis JM1,2, Baby AR3, Ferelli C1, Taqueda MES3, Velasco MVR3, Kaneko TM3. 1 ISIC Clinical Research Institute, Brazil; 2 University Anhembi Morumbi, Brazil; 3 Department of Pharmacy, School of Pharmaceutical Sciences, University of São Paulo (FCF-USP), Brazil, Ifscc Barcelona 2008*

Moisturizers are used on large body surfaces to maintain the smoothness of the skin. It is well known moisturizers can increase stratum corneum hydration by occlusion of the skin surface or by water-attracting properties. This study presents a discussion of different equipments, Tewameter®, (Courage&Khazaka) and Vapometer® (Delfin) after treatment with different moisture substances to evaluate the transepidermal water loss.

Relevance of Lipid Self-Assembly in Nanostructures on the Skin Properties; *Lucyanna Barbosa-Barros, Clara Barba, Luisa Coderch, Alfons de la Maza and Olga López. Departament de Tecnologia de Tensioactius, I.I.Q.A.B.-C.S.I.C. Barcelona, Spain, 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.

Evaluation of the Safety and Efficacy of Cosmetic Formulations Containing *Saccharomyces cerevisae* Extract and Vitamins*;* *Lorena R. Gaspar, Flavio B. de Camargo Jr, Mirela D. Gianeti, Patrícia M. B. G. Maia Campos * Universidade de São Paulo - Faculdade de Ciências Farmacêuticas de Ribeirão Preto, 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].

Hagen Tronnier, Mathilde Wiebusch, Ulrike 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. 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: S.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.

Jürgen Lademann, Joachim 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 t reatment 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.

Effects of lotioned disposable handkerchiefs on skin barrier recovery after tape stripping; Skin Research and Technology 2008 ; 14, S.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.

Hagen Tronnier, Mathilde Wiebusch, Ulrike Heinrich; **First Skin-Physiological Tests in Weightlessness in the ISS Space Station;** IFSCC Magazin – vol. 11, no 3/2008

A prolonged stay in weightlessness induces several medical alterations of the human body and also results in impairment of the skin. The stratum corneum, epidermal barrier as well 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 the ASTROLAB-Mission within the Skin Care program initiated by the ESA. The skin was analysed before, partly during and after the mission. In addition, the tests were repeated after one year.

Dr. Karl-Heinz 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.

del Pozo A[1], Solans M[1], Fernandez C[1], Dolz M[2], Corrias F[3], Herráez M[3], Diez-Sales O.; **Efficacy evaluation and characterization of chitosan nanoemulsions with Spirulina hydro-glycolic extract;** Ifscc Barcelona 2008 (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 [1]. Lecithins (phosphatidylcholines) have been used in several studies as surfactants for topical nanoemulsion vehicles. These surfactants are able to form nanoemulsions without co-surfactants.

De Paepe, Kristien; De Rop, Evelien; Houben, Evi; Adam, Ralf; Rogiers, Vera ; **Effects of lotioned disposable handkerchiefs on skin barrier recovery after tape stripping;** Skin Research & Technology 2008; 14 : S. 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.

Wong Lip Wih, Anna S. Ranti, Suryaningsih, Maily, **Indonesian plants yield useful agents;** Personal Care, Nov. 2008; S.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.

G. Campos, J. Coll, L. Campderros, M. Recasnes, D. Panyella, J. Ginestar; **FP0394 COMPARISON OF THE ANTI-AGING EFFICACY OF A CREAM VERSUS A CREAM PLUS SERUM TREATMENT;** Abstract; EADV Paris 09/2008;

Objectives: The purpose of this study is to compare, using bioengineering methods, the efficacy of applying an anti-aging cream alone or in combination with an antiaging serum. The anti-aging products included in this study contain a peptide similar to procollagen fragment, hyaluronic acid, a glycosaminoglycans complex and polysaccharides with urea.

T. Reuther, S. Schröder, M. Kersche; **FP0363 ANALYSIS OF SITE-DEPENDENT DIFFERENCES OF TRANSEPIDERMAL WATER LOSS, SKIN CAPACITANCE AND SKIN SURFACE-PH USING BOTH T-TEST AND CORRELATION ANALYSIS;** Abstract; EADV Paris 09/2008;

Transepidermal water loss (TEWL), skin capacitance (SC) and skin surface-pH (pH) are today standard parameters for assessing skin barrier function. While there are many studies analysing the relationship between absolute values from different sites using t-test investigations providing information from the analysis of such data using correlation analysis are very rare. Therefore the aim of the present study was to analyze TEWL, SC and pH of the forearm (FA) and the forehead (FH) using and comparing t-test and correlation analysis.

*Z. D. Draelos, E. Baltas****;*** **FP1448: 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; **FP0079 PHYSIOGEL INTENSIVE - A NEW, EFFECTIVE MOISTURISING 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.

Firooz, S. Davoudi, B. Sadr, S. Keshavarz, M. Naghizadeh; **FP0446 COMPARATIVE STUDY OF SKIN HYDRATION AND TRANSEPIDERMAL WATER LOSS IN PATIENTS WITH SULFUR MUSTARD-INDUCED DERMATITIS 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.

M. Chang, J. Han, C. Lee, S. Kim; **FP0395 THE SURFACE PROFILES OF LIP CORNEOCYTES ARE DIFFERENT FROM FACE AND ARM SKIN;** Abstract; EADV Paris 09/2008;

A novel approach about the surface characteristics of corneocytes has been studied by atomic force microscope(AFM) nowadays. The physical properties of lip skin is very particular compared to normal skin, face and arm. But there are little studies about the lip skin. In this study, we have studied the characteristics of surface profiles of lip skin, and we have compared lip to face and arm skin.

H. Tronnier, M. Wiebusch, U. Heinrich; **FP0374 SKIN PHYSIOLOGICAL PARAMETERS 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. Methods: In a non-invasive skin-physiological test program, the following measurements were recorded:

1. The effect of a skin care treatment and
2. Further effects of weightlessness on the skin.

U. Heinrich, B. Garbe, H. Tronnier, W. Stahl, C. Moore, M. J. Arnaud; **FP0324 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).

A. Reich, J. Kopyra, K. Korfanty, E. Pióro, K. Postrzech; **FP0302 INFLUENCE OF SOAPS 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).

Prof. Dr. Judit Darózy, Dept. Dermatology, St. István Hospital, Budapest (HU),Dr. György Fekete, Dept. Dermatology, Petz Aladár Country Hospital, Györ (HU),Dr. Enikö Sólyom, Child Health Centre, Borsog-A.-Z. Country Hospital, Miskolc (HU),Dr. Wolfgang Kollecker, Dr. A. & L. Schmidgall GmbH, Wien (A),Dr. R. Renato Kaiser, Parcopharm SA, Baar (CH); **Lokale adjuvante Behandlung der atopischen Dermatitis und anderer Hauterkrankungen mit Pelsano® med Salbe bei Kindern;** ARS MEDICI 11 ■ 2008

In einer offenen multizentrischen Studie wurden insgesamt 48 Kinder mit atopischer Dermatitis und

anderen Hauterkrankungen mit Pelsano® med Salbe behandelt. Während der dreiwöchigen Intervalltherapie verbesserten sich die typischen Leitsymptome trockene Haut, Juckreiz, Schuppung, Erythem und Lichenifikation hochsignifikant ($p < 0,001$). Die während der Behandlung durchgeführten Messungen verschiedener Hautparameter zeigten eine hoch - signifikante Verbesserung der Hydratation der Haut bei gleichzeitiger Reduktion des transepithelialen Wasserverlustes (TEWL), was auf eine verbesserte Barrierefunktion hinweist.

S. Gardinier, J. Latreille, C. Guinot, E. Tschachler; **FP0318 THE SKIN HYDRATION STATE AS DETERMINED BY A SCORE BASED ON BIOPHYSICAL PARAMETERS AND RAMAN SPECTROSCOPY 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****;*** **FP0881 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

Diana Khazaka; **Useful and practical advice for measuring TEWL and skin moisture with Cornemeter and Tewameter;** Vortrag, PPP; 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.

Dorothee 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.

Farsinejad K, Firooz A, Davoudi S, Robati R, Hoseini M, Ehsani A, Sadr B.; **Biophysical characteristics of skin in diabetes: a controlled study;** Department of Dermatology, Razi Hospital, University of Tehran/Medical Sciences, Tehran, Iran.

Background: Cutaneous complications are common in diabetes. Previous assays suggest that hyperglycemia and decreased insulin signal are involved in the impairment of skin function. The aim of this study was to evaluate the biophysical characteristics of skin in patients with diabetes mellitus and compares them with healthy non-diabetic controls. Objective: To measure biophysical characteristic of skin including transepidermal water loss (TEWL), water content, sebum and skin elasticity in patients with diabetes mellitus and compare them with healthy non-diabetic controls.

H. Tronnier, M. Wiebusch, U. Heinrich; **Project Skin Care of the European Long-Term Mission (Astrolab) on the ISS;** DermaTronnier, Research

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.

*M. Ionescu, A. Gougerot, A.M. Matta, L. Lefeuvre, M. Bohbot***; Melanocytes’ dendricity down-regulated by the association niacinamide-ascorbic acid;** JAAD, March 2009, San Francisco

To assess the effects of the association niacinamide-ascorbic acid on melanogenesis process in human skin explants exposed to solar simulated radiation (SSR). Normal human skin explants were treated (untreated control) by an O/W emulsion based on the assiciation niacinamide-ascorbic acis (2mg/explant, 1 time per day from baseline to day 9, 30 min before SSR irradiation).

H. Maibach, Hongbo Zhai; **Tape Stripping Method in Humans: Comparison of Evaporimetric Methods;** Cosmetics & Toiletries magaine, Vol. 124, No. 2, February 2009, pp. 26-30

The stratum corneum (SC) has been well recognized as a principal water barrier of the skin. It is a cellular tissue, a fabric of cornified cells creating a tough, flexible, coherent membrane, acting as a two-way barrier, minimizing water loss, electrolytes and other body constituents, and decreasing the entry of noxious substances from the external environment. Maintenance of the SC structural integrity is critical to barrier function. Transepidermal water loss (TEWL) documents the integrity of SC water barrier function, and is a sensitive indicator of skin water barrier alternation.

Stephen Bielfeldt, Volker Schoder, Ulrike Ely, André van der Pol, Johanna de Sterk, Klaus-Peter Wilhelm; **Assessment of Human Stratum Corneum Thickness and ist Barrier Properties by In – Vivo Confocal Raman Spectroscopy;** IFSCC Magazine – vol. 12, no 1 / 2009-05-15

Measurement of water concentration profiles across living human skin by confocal Raman spectroscopy has developed into a powerful tool for a better understanding of distribution and function of water in the epidermis. From the water profile across the epidermins the border between stratum

corneum and stratum granulosum can be estimated. This is due to the steep drop in water concentration from the inner to the outer side of the stratum corneum.

D. 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: 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.

David Boudier, Catherine Lenaers, Claire Sabbadini, Delphine Creel, Brigitte Closs; **Certified Organic Actives For Cosmetic Formulations;** HAPPI, May 2009, pp. 70-77;

With more consumers interested in following a healthy and eco-conscous lifestyle, demand for natural and organic beauty care products has grown tremendously in the past couple of years. Indeed, it is more than a trend, consumers today expect their cosmetics to be natural. Silab has more than 20 years of experience in the field of natural active ingredients. Most recently, we have developed a range of certified organic active ingredients that respond to the main cosmetic claims: anti-aging, anti-free radicals, moisturizing and soothing.

H. Seirafi, K. Farsinejad, A. Firooz, SM Davoudi, RM Robati, MS Hoseini, AH Ehsani, B Sadr; **Biophysical characteristics of skin in diabetes: a controlled study;** JEADV 2009, 23, 146-149;

Cutaneous complications are common in diabetes, with approcimately 30% of patients experiencing some skin involvement during the course of their illness; these may also be the first presenting sign of diabetes or even herald the diagnosis by many years. The skin involvement in diabetes encompasses various clinical entities such as acanthosis nigricans, necrobiosis lipoidica, diabetic dermopathy and neuropathy, sclerodema and granuloma annulare.

Seyyed Masoud Davoudi, Saeed Keshavarz, Bardia Sadr, Majid Shohrati, Mohammad Mehdi Naghizadeh, Khalil Farsinejad, Mehdi Rashighi-Firouzabadi, Hamed Zartab, Alireza Firooz; **Skin hydration and transepidermal water loss in patients with a history of sulphur mustard contact: a case-control study,** JEADV 2009, 23, 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.

D. Boudier, S. Mazalrey, S. Goffflo, E. Vignau, B. Closs; **Double approach to improve epidermal barrier function;** Personal Care, September 2009

The primary function of the skin is to act as a barrier against unwanted influences from the environment and to protect the body from waterloss. This barrier function is ensured mainly by the stratum corneum, the upper layer of the epidermis. The stratum corneum comprises corneocytes, which are keratinised keratinocytes, surrounded by lamellar lipid membranes. Thse lamellar lipids play a fundamental role in the structure and functions of the epidermis. They cement the corneocytes and with them form the permeabl barrier of the epidermis.

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.

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 Barcelona, 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.

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 Barcelona, 2009

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).

P. Contreiras Pinto, J.G. Morais, L. Monteiro Rodrigues; **TcpO2 decay rates used as a metabolic indicator of the human skin in vivo;** ISBS Besancon, 2009

Transcutaneous variables such as TepO2 and skin's microcirculation (LDF) had been used to approach skin metabolic activity, particularly in conditions that are related with the normal physiologic state. The sensibility of these variables to changes increase with the use of dynamical protocols that overstimulates skin and permits the study in extreme conditions. The 100% oxygen ventilation atmosphere used as a challenge test evokes the capacity to understand and quantify the maximum Oxygen disposition in the skin, which ultimately may be related with several skin conditions involving cutaneous perfusion

P. Contreiras Pinto, J.G. Morais, L. Monteiro Rodrigues; **To understand skin circulatory physiology by low perfusion experiments with a monocompartmental model. The influence of age;** ISBS Besancon, 2009

Monocompartmental evaluation of Laser Doppler Flowmetry (LDF) and transcutaneous oxygen (TepO2) data has been applied to low perfusion experiments, accepting that oxygen disposition rates may be reliable predictors of vascular impairment. After defining a new compartmental model to analyze TepO2 and LDF data from dynamical maneuvers, the authors applied this model to a group of normal individuals (young versus old) to evaluate the applicability of the model and the influence of age over those parameters.

P. Contreiras Pinto, C. Parreirao, L. Monteiro Rodrigues; **Characterization of sensitive skin syndrome volunteer's barrier by dynamical analysis;** ISBS Besancon, 2009

Several studies suggest that 50% of the population considers to suffer from some cutaneous sensibility. Some of these individuals do not show any objective skin sign and therefore his characterization is often difficult or even impossible. The auto-perception of these symptoms is the only way to diagnose the condition. The use of dynamical measurements such as the Plastic Occlusion Stress Test (POST) combined with compartmental analysis had been suggested to be a more sensitive method to discriminate small differences in the skin barrier function.

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.

C. Rosado, P. Pinto, LM. Rodrigues; **Assessment of moisturizers and barrier function restoration using dynamic methods,** Skin Research and Technology 2009; 15: 77-83

Dynamic methods, such as the mathematical modeling of the transepidermal water loss curves that result from a plastic occlusion stress test (POST), enable the complete characterization of the dynamic water balance established between the deep and the superficial skin structures. Previous studies have indicated that this methodology was able to detect impaired barrier function and differentiate normal and dry skin. The objective of the present study is to apply the discriminative capacity of the model to the efficacy testing of moisturizing products.

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.

Maia Campos, Gianeti, Kanashiro A., Lucisano-Valim YM, Gaspar LR; **In vitro antioxidant and in vivo photoprotective effects of an association of bioflavonoids with liposoluble vitamins,** NCBI 2009,

A new tendency in cosmetic formulation s is the association of botanical extracts and vitamins to improve skin conditions by synergic effects. The objective of this study was to determine the antioxidant activity of associated bioflavonoids, retinyl palmitate (RP), tocopheryl acetate (TA) and ascorbyl tetraisopalmitate (ATIP), as well as their photoprotective effects in preventing increased erythema, transepidermal water loss (TEWL) and sunburn cell formation in hairless mouse skin.

Dal Belo, Gaspar, Maia Campos, 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.

Campos PM, Goncalves GM, Gaspar LR; **In vitro antioxidants activity and in vivo efficacy of topical formulations containing vitamin C and its derivatives studied by non-invasive methods ;** NCBI 2009;

Vitamins C and its derivatives, mainly due to their antioxidant properties, are being used in cosmetic producs to protect and to reduce the signs off ageing. However, there are no studies comparing the effects of vitamin C and its derivatives, magnesium ascorby phosphate (MAP) and ascorbyl tetra-isopalmitate (ATIP), when vehiculated in topical formulations, mainly using objective measurements, which are an important tool in clinical efficacy studies. Thus, the objective of this study was to determine the in vitro antioxidant activity of AA and its derivatives, MAP and ATIP, as well as their in vivo efficacy on human skin, when vehiculated in topical formulations.

Gaspar LR, Camargo FB Jr., Gianeti MD, Maia Campos PM; **Evaluation of dermatological effects of cosmetic formulations containing Saccharomyces cerevisiae extract and vitamins;** NCBI 2009,

Saccharomyces cerevisiae extract (SCE) is used in cosmetics since it can act in oxidative stress and improve skin conditions. This study investigated dermatological effects of cosmetic formulations containing SCE and/or vitamins A, C and E. The formulation studied was supplemented or not (F1: vehicle) with vitamins A, C and E esters (F2) or with SCE (F3) or with the combination of vitamins and SCE (F4). Formulations were patch tested on back skin of volunteers. For efficacy studies, formulations were applied on volunteers and transepidermal water loss (TEWL), skin moisture (SM), skin microrelief (SMR) and free radicals protection wre analysed after 3h, 15 and 30 days of application.

Gaspar LR, Campos PM; **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.

Dal'Beo SE, Gaspar LR, Maia Campos PM; **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.

Tadini KA, Gaspar LR, Maia Campos PM; **Epidermal effects of tretinoin and isotretinoin: influence of Isomerism;** NCBI 2009,

The efficacy of tretinoin is well established in the treatment of acne and photoaged skin, however as a typical side effect of tretinoin treatment most patients develop a low-grade irritant dermatitis. Since isotretinoin topical treatment usually shows much lower incidence and intensity of adverse effecs than tretinoin topical treatment, histological studies are needed to scientifically

evaluate the effects of isotretinoin application on epidermis and also to assess if it can be used in anti-aging products as an alternative to tretinoin.

Jari Alander, **Shea butter with improved moisturisatino properties,** Personal Care, September 2009, pp. 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.

Joachim 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

Nobuko Hashiguchi, Yutaka Tochihara; **Effects of low humidity and high air velocity in a heated room on physiological responses and thermal comfort after bathing: An experimental study;** International Journal of Nursing Studies 46, 2009, pp. 172-180

In the present study we investigated the effects of low relative humidity (RH) and high air velocity (VA) on physiological and subjective responses after bathing in order to present the evidence for required nursing intervention after bathing. Eight healthy male subjects participated in this experiment. There were four thermal conditions which combined RH (20% of 60%) and VA (low: less than 0.2m/s or high: from 0.5 to 0.7 m/s) After taking a tub bath, subjects sat for 80 min in the test room under each condition. In addition, one condition under which the subjects were exposed to 20% RH and high VA condition for 80 min without bathing condition was conducted.

Sara Farahmand, Lilian tien, Xiaoying Hui, Howard I. Maibach; **Measuring transepidermal water loss a comparative in vivo study of condenser-chamber, unventilated-chamber and open-chamber systems;** Skin Research and Technology 2009; 15; pp. 392-398

Two main systems have been utilized for measuring transepidermal water loss (TEWL): open chamber and closed chamber. Yet, further validation aned standardization studies may be necessary to reveal the sensitivity, precision, and robustness of these instruments. Three instruments are compared for their applicability to assesss TEWL: unventilated chamber, open chamber and condenser chamber. The comparative study was performed on human forearm skin.

Nadja Miriam Kienle; **Botulinumtoxin versus thorakoskopische Sympathektomie bei Patienten mit palmarer Hyperhidrose**; 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].

www.mani.at/pages/gesundbheit/studie-zur olivencreme.php

Positiver Effekt der Mani Bio-Olivenölcreme

Motivation der Studie war herauszufinden, ob die Mani Bio-Oliven Crème anti-inflammatorische (entzündungshemmende) Eigenschaften hat und zur schnelleren Wundheilung beiträgt. Bei Behandlung von leichten Verbrennungen mit dieser Creme ist aufgefallen, dass der Schmerz schnell nachlässt und die Haut sich schneller regeneriert. Aus diesem Grund hat die Firma Bläuel in Zusammenarbeit mit alchemia-nova und Unterstützung der österreichischen Forschungsförderungsgesellschaft mbH beschlossen, diesen Erfahrungswert zu überprüfen. Eine Studie von alchemia-nova kann in diesem Auftragsumfang auf keinem Fall einer klinischen ähnlich kommen und eine Bewertung auf heilende Eigenschaften kann nicht zu medizinischen Zwecken erfolgen.

Sophie Gardinier, Sabine Guéhenneux, Julie Latreille, Christiane Guinot, Erwin 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.

Georg Khazaka, Christiane Uhl, Beate Becker; **Skin analysis techniques advance;** Personal Care, January 2010

New legal regulations and growing competition in the market of cosmetic products demand more and more tests in the field of bioengineering. R&D departments are looking out for bioengineering methods which are non-invasive, objective, sensitive and reproducible. Skin analysis techniques have significantly advanced and technology now allows multiple measurements to be conducted and real-time quantitative values calculated. Such testing can be reproduced in laboratories worldwide. For higher reproducibility, it is important to standardise the test protocol and documentation. For this reason, in 1993, EEMCO (European Group on Efficacy Measurement of Cosmetics and other Topical Products) was foundet in order to create guidelines for tests such as the one for the assessment of Trans Epidermal Water Loss in cosmetic sciences.

Paula Lennon, Jean-david 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.

Gorm Krogh Johnsen, Anner berit Haugsnes, Orjan g. Martinsen, Sverre Grimnes; **A new approach for an estimation of the equilibrium stratum corneum water content;** Skin Research and technolgy 2010; 16: pp. 142-145

Water is the single most vital parameter governing the function of the epidermal stratum corneum (SC) and other keratinised tissues, and a knowledge of the hydration state therein is of general interest. The corneum hydration state has been shown to be an indicator in the determination and evaluation of non-visible skin disease such as atopic eczema. We want to investigate the possibility of finding an objective measuring method that estimates in vivo water content and hydration state of the SC.

John Woodruff; **Testing - backing up the claims;** www.cosmeticsbusiness.com August 2010;
I nstrumental 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.

Jay A. Goldstein, Bernard Grubstein, Michael Rothman; **Compositions and Methods for the Treatment of Wounds ans Scar Tissue;** http://www.faqs.org/patents/app/20080317830

Compositions for the treatment of wounds and/or scars are described herein. The compositions contain between 1 and up to 30% by weight, more preferably between 1 and 20%, most preferably between about 5 and 10% by weight particles, such as titanium dioxide or a similar material in a pharmaceutically acceptable base or carrier, such as petrolatum. The compositions are less greasy than petrolatum alone, and thus are more aesthetically pleasing. The compositions exhibit occlusive properties comparable to petrolatum. The compositions are absorbed into the skin, unlike petrolatum, and exhibit significant wound healing characteristics not observed with petrolatum alone. In one embodiment, the pharmaceutically acceptable base is petrolatum and the particles are titanium dioxide. The compositions can be used to treat complex, hard to heal wounds, such as diabetic ulcers; pressure sores, such as bed sores; lacerations; bite wounds; burns; penetrating wounds; surgical wounds, etc. The composition can also be used to promote normal healing of scar tissue. The compositions can also be used for the topical delivery of one or more active agent. The compositions can be used to reduce fine lines and wrinkles, and to rehydrate skin or to treat dry skin.

Mleczko, Anna; **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.

Ilaria Ghersetich et A L.Int J.; **HYLACTIVE;** Dermatological Division Barcelona

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.

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. Descoubes, C. Faucheux, A. Bernois, C. Heusèle, J.C. Pittet, S. Schnebert **EVALUATION OF IN VIVO KERATINOCYTE SIZE WITH CONFOCAL LASER SCANNING MICROSCOPY AT 830 AND 445 NM,** ISBS 2010 Buenos Aires, Argentina

Confocal Laser Scanning Microscopy (CLSM) allows visualization of the keratinocytes of the different layers of the epidermis rapidly and non invasively. The aim of this study was to quantify in vivo the size of the keratinocytes of the granular and spinous layers with the new VivaScope® 1500 Multilaser to investigate the age effect on the forehead and the ventral forearm. A panel of 98 healthy Caucasian women aged 18 - 70 was recruited for the study. Photoageing was scored according to the Larnier scale. Biomechanical properties of the skin were measured with Cutometer SEM 575 (Courage & Khazaka) with a 2 mm probe and a 500 mBar suction on the cheek and the ventral forearm. Image acquisitions were taken with the VivaScope® 1500 Multilaser (Lucid - Mavig GmbH) on the forehead and the ventral forearm with 2 wavelengths: 445 nm and 830 nm. Three stacks, separated by 5 mm, with a 2 µm step were performed from the skin surface to 150 µm depth. Mosaics of images (3 x 3 mm) were acquired at the center of this region of interest at granular layer and spinous layer levels. Images were analyzed with ConfoScan V 02 (Orion Concept).

Frau Prof. Dr. med. V. Mahler, **Rizinuswachsperlen – eine icht irritierende Alternative zu reibemittelhaltigen Handreinigern,** KOM Newsletterservice Volume 1 – Issue 8, September 2010

Zur Entfernung starker Industrieverschmutzungen (Öl, Fett, Ruß, Metallstaub, Graphit etc.) werden bislang Handreiniger mit abrasiven Bestandteilen wie Walnussschalenmehl, Sand oder Kunststoffmehle eingesetzt. Diese Reibekörper stehen jedoch aufgrund ihrer Materialeigenschaften im Verdacht Hautirritationen herbeizuführen. Als Alternative zu abrasiven Reibekörpern wurden Schmutzlösekörper aus hydriertem Rizinusöl (Active Soft Pearls) entwickelt. Durch ihre polare Oberfläche werden hartnäckige Verschmutzungen bei der Reinigung gelöst und entfernt. Ziel der vorliegenden Studie war es, unter standardisierten Bedingungen die in vivo Effekte von reibekörperhaltigen und reibemittelfreien Waschlösungen auf die menschliche Haut zu untersuchen.

*TURNA I˙ LKNUR 1 , MEHTAP Ü NL Ü BI Ç AK 1 , PINAR EKER 1 , H Ü LYA ELL I˙ DOKUZ 2 & S¸ EBNEM Ö ZKAN 1***; 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.

C. Try, R. Messikh, A. Elkhyat, JM. Sainthillier, C. Vidal, T. Lihoreau, S. Mac-Mary, A. Jeuidy, 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).

Patricia M. B. G. Maia Campos, Mirela D. Gianeti, Daiane G. Mercurio, Lorena 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.

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;** 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 secretion and skin sensitivity). Fifteen healthy Caucasian women, aged from 30-40 years, have been admitted to the study centre for 12 days. The experimental period was divided into 3 sections.

P. Contreiras Pinto, C. Parreirao, L. Monteiro Rodrigues; **Characterization of sensitive skin syndrome volunteer's barrier by dynamical analysis;** Skin Research and Technology 2010; 16; p. 479

Several studies suggest that 50% of the population considers to suffer from some cutaneous sensibility. Some of these individuals do not show any objective skin sign and therefore his characterization is often difficult or even impossible. The auto-perception of these symptoms is the only way to diagnose the condition. The use of dynamical measurements such as the Plastic Occlusion Stress Test (POST) combined with compartmental analysis had been suggested to be a more sensitive method to discriminate small differences in the skin barrier function. So, the present presentation tries to illustrate this condition by compartmental analysis in individuals with the auto perception of sensitive skin.

H. Tagami, **The barrier function and water-holding capacity of the stratum corneum are not simply inter-related each other but are influenced by underlying pathological conditions as well as by body locations;**

The barrier function and water-holding capacity constitutes the indispensable functional properties of the stratum corneum (SC). Both can be instrumentally evaluated *in vivo* as transepidermal water loss (TEWL) or as high frequency impédance, i.e., conductance and capacitance. From the observation of their behaviors in commonly observed skin changes, it is generally though that they are correlated each other. Recently, it is reported that the filaggrin gene mutations that causes dry, scaly skin changes of ichthyosis vulgaris based on the deficiency in filaggrin-derived amino acids, i.e., the natural moisturizing factor, ion the SC may also induce SC barrier impairment, leading to the development of atopic dermatitis by facilitating the penetration of various environmental antigens. However, the elevated TEWL values recorded instrumentally in patients with ichthyosis vulgaris is rather mild to allow the permeation of those large molecular environmental antigens, although the skin surface hydration state is extremely low even compared with sénile xérosis, another well known dry skin condition.

M.M. Pereira, L. Monteiro Rodrigues; **Assessing the effects of different semi-occlusive wound dressing over the epidermal barrier recovery;** Skin Research and Technology 2010, 16; pp. 488-489

To evaluate the impact of different wound dressings in the recovery of the skin "barrier" function. 30 healthy women, ages ranging 19-49 y.o. were selected after informed written consent. A Sodium Lauril Sulfate (SLS) solutation (5%) was applied under occlusion (24h) in predefined sites of both forearms (volar). This induction phase was followed by the repairing phase with the application of different wound dressings: hidroxipoliuretan (PermaFoam), Hialuronic acid (Hyalofill), polyurethane film (Opsite Flexigrid) and gauze soaked in saline. Site distribution was previously randomized (Latin aquare).

M. Steiner, S. Aikman-Greed, F.D. Dick; **Side-by-side comparison of open chamber (TM 300) and closed chamber (Vapometer) TEWL;** Skin Research and Technology 2010; 16; pp. 489-490

We compared a closed-chamber TEWL meter (transepidermal water loss, Delfin Vapometer (DV) against an open-chamber TEWL meter, which is viewed as the reference standard for TEWL measurements (Courage & Khazaka TM 300). The TM 300 was used in two modes, the standard open chamber method (CKO) and a closed mode (CKC) with a semi-permeable membrane chamber cover.

540 TEWL measurements were taken in 17 participants with sessions of three and six sets of measurements on different days, measuring the TEWL on the dorsum and palm of both hands on each occasion. Four participants took part on either day one or day two only. The order of TEWL measurements was randomised to exclude confounding by interference when taking repeated measures.

*Mirela D. Gianeti, Patrícia 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 CorneometerTM CM285, SebumeterTM SM810 and TewameterTM 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.

Eric S. Abrutyn; **Skin Care Moisturizers;** Cosmetics & Toiletries Vol. 125, No. 12/December 2010, pp. 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.

*Benevenuto, Carolina G.; Di Matteo, Miguel A.S²; Maia Campos, Patrícia M.B.G; Gaspar, Lorena R..,***INFLUENCE OF THE PHOTOSTABILIZER IN THE PHOTOPROTECTIVE EFFECTS OF A FORMULATION CONTAINING UV-FILTERS AND VITAMIN A,** IFSSC 2010 Buenos Aires, Argentina

Retinyl palmitate has been used in daily use moisturizing, antiageing and protective formulations since it acts on epithelization in dry and rough skin, as well as on keratinization considered being abnormal. However, some studies report that this substance shows some photoreactivity and can form photoproducts, which can lead to the impairment of safety and efficacy of cosmetic products containing this vitamin. Consequently, cosmetic formulators have been doing many efforts to stabilize formulations containing vitamin A derivatives and other photounstable substances such as searching for new UV-filters or using photostabilizers to increase their photostability and consequently their safety and effectiveness. Thus, the objective of this research was to evaluate the influence of different photostabilizers on the photoprotective effects of a cosmetic formulation containing UV-filters and a vitamin A derivative.

Bertucci, Sabrina M.1; Freitas, Luciana S.1; Gaspar, Lorena R. 1; Mercurio, Daiane G. 1;

Gianeti, Mirela D. 1; Maia Campos, Patrici, **EFFICACY OF COSMETIC FORMULATIONS CONTAINING GREEN TEA AND *GINKGO BILOBA* EXTRACTS – PRE-CLINICAL AND CLINICAL STUDIES,** IFSSC 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.

*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,** IFSSC 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].

Selem, Claudia, Delic, Norberto **Sphagnum Magellanicum Peat. Characterization and Proposal for Cosmetics Uses.**

This paper focuses on the characterization of Spagnum Magellanicum peat, its properties and the different uses in cosmetic products. Studies were conducted to analyze the organic, inorganic and microbiological content of this material. The results determined that it is an important source of poliphenols with antioxidant capacity. It has anti-inflammatory action and is safe in contact with skin. It has germicide properties. Humic substances have a large capacity to retain multivalent ions forming metalorganic complexes acting as a natural organic sequestrant. Because the intensity of UV light absorption it can be used in the formulation of coloured sunscreen emulsions and taking into account the other properties tested in the development of others cosmetic products. Considering the results obtained we found that Sphagnum Magellanicum peat has interesting properties for being used in the cosmetic industry coupled with the benefit of this raw material which has the important property of being natural and organic.

Giorgio Dell'Acqua, Kuno Schweikert, Giuseppe Calloni; **Oak, Green Tea and Orange Derivatives to Disrupt JAK/STAT, NF-kB Irritation Pathways;** Cosmetics & Toiletries, Vol. 126, No. 1/January 2011

Skin is exposed to the external environment that brings with it daily aggressions such as UV light, chemicals, pollution, temperature, etc. these aggressions can create skin irritation, especially in sensitive skin individuals, leading to itching and discomfort. Moreover, in the long-term, irritation leads to skin damage and premature aging as a result of elastosis and matrix degradation. It is therefore important to stop skin irritation rapidly to not only reduce skin discomfort, but also avoid further skin damage. Skin irritation is sustained by a crosstalk mechanism between a keratinocyte in the epidermis layer and the infiltrating immune cell, e.g. T lymphocytes. This cross-talk creates an amplification loop that leads to overreaction and escalates the inflammatory process with consequent skin erythema and irritation.

P. Pintrp, C. Rosado, C Parreirao, LM Rodigues; **Is there any barrier impairment in sensitive skin?: a quantitative analysis of sensitive skin by mathematical modeling of transepidermal water loss desorption curves,** Skin Research and Technology 2011; 17; 181-185

Sensitive skin is a vague, subjective and difficult to characterize affliction. If affects a large part of the population and is accompanied with great interest by the cosmetic industry. Some studies have suggested that sensitive skin is the result of impaired barrier function, which leads to the exposure of immune system cells and sensitive nerves, resulting in marked cutaneous responses to otherwise harmless stimuli. This study aimed to investigate the cutaneous barrier integrity of individuals with sensitive skin by a novel approach: a plastic occlusion stress test followed by measurement of transepidermal water loss (TEWL) desorption curves.

Alain 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.

Dipl.-Pflegelehrerin Ulrike 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).

Alain Thibodeau, Philip Jacobs, Sergio Amari; **Olive oil fatty acids: positive effects for the skin;** Personal Care, March 2011, pp. 51-57

The skin is externally located and thus serves as a sheath separating internal organs from direct contact with the environment. The main roles of the skin are: protection from UV radiation (melanogenesis), immune defence and a barrier function preventing the penetration of foreign particles. Perhaps of greater importance, skin – especially the stratum corneum layer – is dynamically involved in the management of internal water levels. The first skin layer facing the external environment is the stratum corneum; the outermost layer of the epidermis. This histological section is predominantly represented by keratinocytes. The epidermis is constantly renewed through an upward movement – and differentiation – of keratinocytes originating from epidermal basal layers upt to the stratum corneum.

Truus Roelandt, Diane Roseeuw, Jean Pierre Hachem; **Practical Use and Significance of Transepidermal Water Loss Measurements;** J. Fluhr (ed.), Practical Aspects of Cosmetic Testing, Springer-Verlag Berlin Heidelberg 2011

Transepidermal water loss (TEWL) is universally recognized to be a measure of skin barrier function, either at baseline, after experimentally induced barrier abrogation or following topical treatments. In mammals, it is also known as “insensible water loss” as it is a process over which organisms have little physiological control. Measurements of TEWL (grams per square meter per hour) is useful for identifying skin damage caused by certain chemicals, physical insult (such as “tape stripping”) or pathological conditions such as eczema as rates of TEWL increase in proportion to the level of damage even before the damage is clinically visible. It may thus be considered as the tool that evaluates the water barrier function of the epidermins.

Alain Thibodeau, Philip Jacobs, Sergio Amari; **Biomimetic ingredient offers formulation benefits;** Personal Care, March 2011

The skin is externally located and thus serves as a sheath separating internal organs from a direct contact with the environment. The main roles of the skin are: protection from UV radiation (melanogenesis), immune defence and a barrier function preventing the penetration of foreign particles. Perhaps of greater importance, skin – especially the stratum corneum layer – is dynamically involved in the management of internal water levels. The first skin layer facing the external environment is the stratum corneum; the outermost layer of the epidermis. This histological section is predominantly represented by keratinocytes. The epidermis is constantly renewed through an upward flow of keratinocytes originating from epidermal basal layers up to the stratum corneum.

Tiffany Oliphant, chad Dubbelde, Robert A. Harper; **Moringa butter: ancient botanical in modern form;** Personal Care June 2011, pp. 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.

Géraldine Mayeux. Emmanuelle Xhauflaire-Uhoda, Gérarld E. Piérard; **Patterns of aluminium hydroxychloride deposition onto the skin;** Skin Research and Technology, 2011

The normal stratum corneum (SC) is nearly impermeable except for some small size xenobiotics and a minute amount of water evaporating from its surface. This property supports the concept of a diffusional barrier function that may be weakened in some conditions. The remarkable barrier effect results from the highly organized structure of the SC. The predominant route for water passage is though to reside in the intercorneocyte path composed of a complex mixture of lipids structured in rigid bilayer arrays. In practice, the measurement of transepidermal water loss (TEWL) is performed at rest in a cool environment in order to assess this physiological process. Under physical or emotional stress, TEWL is severely altered by sweating.

Martina 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.

Emmanuelle Xhauflaire-Uhoda, Géraldine Mayeux, Pascale Quatresooz, André Scheen, Gérald E. Piérard; **Facing up to the imperceptible perspiration. Modulatory influences by diabetic neuropathy, physical exercise and antiperspirant;** Skin Research and Technology 2011; 17: pp. 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.

Giancarlo Guglielmini; **Shikimic Acid: An Innovative Ingredient for Multiple Cosmetic Uses;** IFSCC Magazine 3/2011, pp. 203-207

This paper presents multiple cosmetic uses relating to a patented cosmetic ingredient of vegetable origin derived from Illicium verum (star anise) (INCI name: Shikimic Acid). Its efficacy was demonstrated by different in vivo and in vitro tests mainly for deodorant applications. It is also indicated for its anti-acne, anti-danduff, and exfoliating activity. Shikimic acid is particularly suitable for formulations to be used for those applications intended to achieve enzymatic and bacterial inhibition for reduction or elimination of human body odor. Shikimic acid is a pure product found in plant. Its name is derived from the Japanese name shikimi (flower) for Illicium verum, the plant from which it is obtained.

Patricia Maia Campos, Daiane G. Mercurio, Mirela D. Gianeti, Ananda 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.

Marine ingredients focus: a look at marine products

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.

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; pp. 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.

Miriam Mateu, Cristina Davi, Elena Canadas, Albert Soley, Raquel Delgado; **Effective ingredients from marine biotechnology,** Personal Care, April 2012, pp. 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.

Yue Zheng, Bahman Sotoodian, Wei Lai, Howard I. Maibach; **Buffering capacity of human skin layers: in vitro;** Skin Research and Technology 2012; 18:pp.114-119

Normal stratum corneum encompasses an acidic environment with normal pH ranging from 4-6. Skin exposure to aqueous acid or alkaline solutions induces changes in pH, which may rapidly revert to baseline values. This phenomenon is called buffering capacity. Hence, disturbed skin pH could be associated with skin disease. Factors contributing to buffering capacity include sweating, keratin, proteins, stratum corneum thickness, free amino acids and other epidermis water-soluble constituents. Heuss and later Schade and Marchionini introduced the concept of skins surface acidic characteristic.

Tiffany Oliphant, Robert A. Harper; **Advantages of jojoba esters in nonwovens;** Personal Care, February 2012, pp. 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.

Yue Zheng, MD, and Howard I. Maibach, MD, **In Vitro Buffering Capacity of Human Skin Layers,** Vol.127, No.6/June 2012 Cosmetics & Toiletries

Normal stratum corneum (SC) is acidic, with typical pH ranges from 4 to 6, and while skin exposed to aqueous acid or alkaline solutions exhibits changes in pH, it may rapidly restore to the baseline values. This phenomena is called buffering capacity. Many factors contribute to skin's buffering capacity including kreatin, proteins, sweat, SC thickness, free amino acids and other water-soluble epidermis constituents. Previous studies demonstrate that skin buffering capacity can be measured in vitro by applying several concentrations of hydrogen chloride (HCl) and sodium hydroxide (NaOH) on skin and evaluating the pH change pre-and post-dosing. Here, the authors employed this technique to evaluate the buffering capacity of skin layers including intact SC, denuded SC and dermis skin samples.

Gerlach N., Herling M., Heinrich U., Tronnier H., **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.

Takahiro Kubota, **Evaluation of skin surface hydration state and barrier function of stratum corneum of dorsa of hands and heels treated with PROTECT X2 skin protective cream,** Drug Discoveries & Therapeutics. 2012; 6(3):157-162

"Skin roughness" is a commonly utilized term in Japan for disturbed skin surface, which develops from synergistic interactions of various factors such as dryness and inflammation. The skin is composed from external to internal of the stratum corneum (SC), epidermis, dermis, and subcutaneous tissue. The SC covers the skin surface as an extremely thin membranous barrier and has an important protective role against the external environment (1). Approximately 30% of the content of the SC is water, which functions to maintain smoothness and softness of the skin surface even under dry external environmental conditions (2). Thus, the SC Has an important barrier function to prevent the infiltration of harmful substances from outside of the body and also prevents water loss from the living tissues that it covers.

B.A. Khan, N. Akhtar, K. Waseem, T. Mahmood, A. Rasul, M. Iqbal, S.-u.-Zaman; **Visioscan VC98, Corneometer MPA5 and Tewameter MPA5**; African Journal of Pharmacie and Pharmatologie Vol. 6(3), pp. 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.

S Pérez Damonte, M Baptista, MA Moyano, M Nunez, A Segall, **The effect of a lipoic acid on the skin: biomechanical properties,** IFSCC 2012, 15-18 Oct. 2012, Sandton, South Africa

α –lipoic acid or the reduced form dihydrolipoate are potent scavengers of hydroxyl radicals, superoxide radicals, peroxyl radicals, singlet oxygen and nitric oxide with anti-inflammatory properties Previously, we have demonstrated in vivo the effect of α-lipoic acid (0.5%) and ascorbic palmitate (0.2%) in the improvement oft he skin barrier and diminished the redness is a sensitive skin. The aims of this study were to analyze the clinical efficacy of formulations containing α-lipoic at 2.5% and 5.0% by measuring in vivo the biochemical parameters of transepidermal water loss TEWL and the color oft he skin initially and after the application.

*J Breugnot, D Rondeau, M Le Guillou, B Closs***; Pilot study for a fast, qualitative and quantitative measurement of barrier function by fluorescence in-vivo laser scanning microscopy**, IFSCC 2012, 15-18 Oct. 2012, Sandton, South Africa

The skin's barrier function is essentially carried out by the stratum corneum (SC), the most external layer of the skin. Many extrinsic or intrinsic factors can affect the integrity of the barrier function and the SC. Clinically, excessive water loss and the apprearance of squamae on the surface of the skin are among the signs and symptoms of an altered barrier function.

S Mac-Mary, A Elkhyat, J 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 ot 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 od a cosmetic specifically formulated for the skin of prepubertal children.

M Okumiya, M Minamoto, A Saito, H Taniguchi; **Study on the oil gel design filler product and its moisturizing effect,** IFSCC 2012, 15-18 Oct. 2012, Sandton, South Africa

Cosmetic preparation which is composed of hydrophilic gel as outer phase and emulsified cream as inner phase has been marketed since 1980's as a design filler (Design Filler Product). This particular type of skin care product is very different from the ordinary emollient cream in terms of product form. It has been well appreciated by the cosmetic's consumer as it has beautiful appearance and high-tech image. In general, composition of transparent hydrophilic gel (Water Gel) as outer phase is hydrophilic polymers like carbomer, polyalcohols as humectants and active ingredients. On the other hand, cream and cholesteric liquid crystal are used as inner phase. Design filler product is prepared by injecting inner phase into outer phase by using computer programmed filling machine so that beautiful 3D design is drawn.

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, JL 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.

MV Velasco, R Vieira, F Fialho-Pereira, A Ferandes, I Salgado-Santos, Cao 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 ppary 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 α, - δ/ β and – γ. PPAR γ 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 δ/ β is the predominant subtype, whereas PPAR γ is induced during epidermal differentation. PPAR γ 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.

Werner Voss, Ilsabe 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.

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.

Ao. Univ.-Prof. Dr. Otto 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.

Neti 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.

G Musitelli, S Sacchi, M Bleve, P Capra, Paola Perugini; **A new approach to evaluate in vivo biomechanical properties of nails,** ISBS Copenhagen 2012

Objective: Recently, a lot of new products claiming hardener, moisturizing or whitening effects about nails are developed. In according to requirements introduced by the 1223/2009 Regulation, it is mandatory to find and validate instrumental methods able to verify product effects. The aim of this work is to present a versatile quantitative approach in which measurements of thickness and water content are associated to a compression test for in vivo evaluation of flexibility and elasticity of the nails.

L Palma, L Tavares, C Monteiro, MJ Bujan, LM 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.

C Rosado, J Ferreira, P Pinto, LM Rodrigues ; **Efficacy assessment of cosmetic formulations by dynamic tewl analysis;** ISBS Copenhagen 2012

The dynamic approach based on the mathematical modelling of TEWL values following a Plastic Occlusion Stress Test (POST) has been recently refined, since the conventional 30 minutes evaluation is time consuming. The aim of this work is to confirm that a reduction in the time of data collection has enough sensitivity to assess the efficacy of a moisturizer. Fifteen female healthy volunteers participated in the study. On D0, an occlusive patch was applied in the volar forearm of each volunteer 24 hours.

G Spongiatto, C Mello-Sampayo, MM Pereira, H Silva, MF Otuki, BS Lima, LM Rodrigues; **An in vivo, minimally invasive rodent model to assess skin repair** ; ISBS Copenhagen 2012

Skin healing pathophysiology is addressed by a micromodel designed to study cutaneous « barrier » recovery in the rat. The model uses a well known contact challenger-sodium lauryl sulphate (SLS). In small concentrations it evokes inflammation, edema and barrier impairment without any relevant histological changes. This study aimed to establish the minimal concentration of topically applied SLS able to evoke barrier impairment in the rat's skin.

G Spongiatto, C Mello-Sampayo, MM Pereira, H Silva, MF Otuki, BS Lima, LM Rodrigues; **Studying the impact of age in the rat's skin physiology;** ISBS Copenhagen 2012

Animal models have been useful to study specific mechanisms affecting human skin. It is the case of ageing and the micromechanical changes determining wrinkle in UV irradiated mice. These models allowed to perceive that ageing involved many peculiar mechanical responses that cannot be explained by homogeneous deformation of the skin. Nevertheless, the different life span of these species also affects the processes and this is a majoraspect to consider. This project aimed to compare the skin properties of two Wistar rats groups with different ages – young-adult rats (n=7, 20-24 week-old, weight 379 ± 30g) and old-adult rats (n=5, 48-72 week-old, weight 520±60g).

L Tavares, L Palma, O Santos, MA Almeida, MJ Bujan, LM Rodrigues ; **Body mass index and association with in vivo skin physiology**, ISBS Copenhagen 2012

Although poorly documented, obesity seems to impair normal skin's physiology. In fact modifications in skin's basic functions involving the « barrier » and epidermal hydration balance, skin biomechanics and repair mechanisms seems to be consistently present in these patients. The aim of this work is to evaluate how the body mass index (BMI) correlate with these skin indicators. This study invlved 51 female volunteers, aged between 20 and 46 (mean 29+7) years old, with no relevant pathologies except the overweight or obesity. All procedures respected Helsinky principles and respective amendments.

P.A. Lehmann, T.J.Franz ; **Assessing the Bioequivalence of Topical Retinoid Products by Pharmacodynamic Assay;** Skin Pharmacology and Physiology 2012 ;25 :269-280

Purpose : To develop a simple pharmacodynamic (PD) assay fot the evaluation of the bioequivalence of topically applied retinoid products. Methods : Daily applications of products containing tretinoin or adapalene were made to the forearms of human subjects for up to 21 days. Percutaneous absorption was enhanced through the use of polyethylene film occlusion (5h). Pharmacologic activity was assessed through the daily measurement of three cutaneous responses intimately linked to retinoid-induced changes in epidermal differentiation : (1) erythema ; (2) exfoliation (scaling/peeling), and (3) increased transepidermal water loss.

L Tavares, L Palma, O Santos, MA Almeida, MJ Bujan, LM 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).

Sybille Ingeburg, Amalie 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.

FRITZ Klaus; **skin physiologic changes before and after laser treatment**; IMCAS , Lecture number: 5462, http://www.imcas.com/zh/imcas2013/schedule/abstract/id/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).

Methods for treatment of human skin damaged by laser treatment or chemical peelings and compositions useful in such methods; http://www.surechem.org/index.php?Action=document&docId=271329&db=USPTO... Publication Number: 20030012762 Application Date: 20030116

FIELD OF THE INVENTION The present invention is concerned with methods for treatment of human skin damaged by laser treatment or chemical peelings and compositions useful in carrying out such methods. BACKGROUND OF THE INVENTION Laser treatments are nowadays widely used in cosmetics, dermatology and surgery. A wide selection of laser devices are available for these purposes, such as: Neodymium Yttrium-Aluminium-GarnetLaser[Neodymium:YAG](1064 nm) This laser provides a high penetration depth and produces a photothermolysis. By superposition of a potassium titanyl phosphate crystal the frequency can be doubled, thus halving the wave length to 532 nm. The emerging green light is well absorbed by structures containing melanine or oxyhemoglobin. Thus, this laser is used for the treatment of epidermic pigmented lesions.

Christiane Uhl, Diana Khazaka, C+K electronic GmbH; **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.

Gary 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.

K. Mizukoshi, H. Akamatsu; **The investigation of the skin characteristics of males focusing on gender differences, skin perception, and skin care habits;** Skin Research and Technology 2013; 19: 91-99

Background/purpose: Various studies have examined the properties of male skin. However, because these studies mostly involved simple measurement with non-invasive devices, a lack of understanding of the properties of male skin remains. Methods: In this study, we focused and investigated not only on simple instrumental measurements but also on gender differences and men's subjective perceptions of skin and daily skin care habits.

Y. Gao, X. Wang, S. Chen, S. Li, X. Liu; **Acute skin barrier disruption with repeated tape stripping: an in vivo model for damage skin barrier;** Skin Research and Technology 2013; 19: 162-168

Purpose: To establish a model of standardized acute barrier disruption, investigate the response of normal human to repeated tape stripping, and analyze the change of damaged skin with non-invasive examination techniques for skin, such as TEWL and squamometry. Methods: Repeated tape stripping with corneofix was applied on three different anatomical sites, the measurement of TEWL was performed on the baseline and after every 5 strips. Then the samples of corneofix were analyzed using Visioscan VC98 and squamometry.

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.

Dr. M. Farwick, Dr. 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“).

www.floratech.com; **Improved skin barrier recovery with L22 in a lotion**; In-Cosmetics, Paris 2013

L22 improves the recovery of skin barrier function better than Olive Oil or Caprylic/Capric Triglyceride Oil, common emollients with skin-lipid like components. L22 is a botanically derived system which delivers the skin lipid profile of a healthy 22 year old. TEWL (transepidermal water loss) was measured using a Tewameter TM300 on normal, untreated forearm skin. The forearms were then exposed to acetone in order to partially extract the natural skin lipids. TEWL measurements were again taken 30 minutes after acetone extraction, followed by one application of each lotion or water (negative control).

www.floratech.com; **Skin barrier recovery with Floraesters 60**; In-Cosmetics, Paris 2013

2% Floraesters 60 performed statistically significantly ($p<0.05$) better than the vehicle when compared to the baseline values and demonstrated no statistical significant difference from petrolatum three hours after application. TEWL (transepidermal water loss) was determined using a Tewameter TM300 on normal, untreated forearm skin (baseline), followed by exposure to a 0.3% solution (w/w) of SLS (sodium lauryl sulfate) for appoximately 18 hours under occlusion using 19mm Hill Top Chambers (to break down the barrier of the skin). TEWL measurements were again taken 30 minutes following chamber removal and percent increase from baseline was determined.

www.floratech.com; **Improved skin barrier function with Floraesters 60**; In-Cosmetics, Paris 2013

1% Floraesters 60 performed statistically significantly ($p<0.01$) better than the vehicle, and equivalent to 5% petrolatum. TEWL (transepidermal water loss) was determined using a Tewameter TM300 on normal, water-treated forearm skin (see image above). The forearms were then treated with one application of various test articles, followed by exposure to a 0.3% solution (%w/w) of SLS (sodium lauryl sulfate) approximately 12 hours under occlusion using 19mm Hill Top Chambers.

www.floratech.com; **Increased skin barrier function with Floraesters 20,30,and 60**; In-Cosmetics, Paris 2013

2% Floraesters 20, 2%Floraesters 30, and 2% Floraesters 60 performed statistically significantly ($p<0.001$) better than the vehicle when compared to the untreated skin at the time of evaluation and statistically equivalent to 5% petrolatum at the time of evaluation. TEWL (transepidermal water loss) was determined using a Tewameter TM300 on normal, untreated forearm skin (see image above). The forearms were then treated with one application of various test articles, followed by exposure to a 0.3% solution (w/w) of SLS (sodium lauryl sulfate) for approximately 12 hours under occlusion using 19mm Hill Top Chambers.

Henk Hoeksema, Marie De Vos , Jozef Verbelen, Ali Pirayesh, Stan Monstrey; **Scar management by means of occlusion and hydration: A comparative study of silicones versus a hydrating gel-cream** ;www.elsevier.com/locate/burns JBUR-4018; No. of Pages 12

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, trans epidermal 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.

Dr. M. Brock, Dr. 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.

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;** http://dx.doi.org/10.1016/j.burns.2013.03.025

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 similiar 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.

B. Singh, H. Maibach; **Climate and skin function: An Overview**; Skin Research and Rechnology 2013; 19; 207-212

Background: Climates of the world are diverse and produce changes in skin integrity and functioning. Evidence on skin and ist response to severe climates is limited, but information can be inferred from data chracterizing skin under controlled climate conditions using noninvasive bioengineering techniques. Methods: A literature search was conducted on the effects on major climate conditions on skin integrity and function. Results: Exposure of murine skin to low humidity

promotes a hyperproliferactive and proinlammatory response, which can be prevented with topical agents or occlusion. Transepidermal water loss (TEWL) and average skin temperature (Tsk) is highly sensitive to climate or ambient temperature (Tambient). High altitudes leave skin more susceptible to UV radiation and even brief exposures cause surface changes. Pollution can result external skin aging and may be a risk factor for exacerbation of dermatoses.

J. du Plessis, A. Stefaniak, F. Eloff; S. John, T. Agner, T.-C. Chou, R. Nixon, M. Steiner etc.; **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 oft he 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.

N. Mohd Noor, S. H. Hussein; **Transepidermal water loss in erythrodermic patients of various aetiologies**; Skin Research and Technology 2013; 19; 320-323

Background/purpose: Despite its severity not much work has been done to explore the barrier function in patients with erythroderma. This study compares TEWL between skin of healthy subjects and erythrodermic patients of various aetiologies and at different sites. We also assess TEWL between patients with acute and chronic erythroderma. Methods: Twenty-five erythrodermic patients and 26 age, race and sex-matched healthy controls were performed at five sites; right cheek, left volar forearm, abdomen, upper back and right calf using Tewameter TM210. Results: TEWL in erythrodermic patients were significantly higher than healthy individuals at all the sites ($P < 0.001$). There were significant differences in TEWL between anatomical sites in controls ($P < 0.001$) but not in patients. The highest TEWL for the patient and control groups were that of the abdomen and the right cheek respectively.

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.

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, Ph.D., 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.

G. Eros, I.B. Nemeth, E. Csizmazia etc., **The irritant effects of pharmaceutical excipients used in topical formulations;** University of Szeged – Dermatology, Allergology

The dermal and transdermal application of drugs rises all over the world which, partly due to the high expecations toward these formulations, leads to the development of several new pharmaceutical excipients. Meanwhile active agents undergo thorough examinations during their development, little is known about the safety profile of pharmaceutical excipients. Surfactants, for instance, while acting as penetration enhancers may damage skin barrier, leading to irritant contact dermatitis.

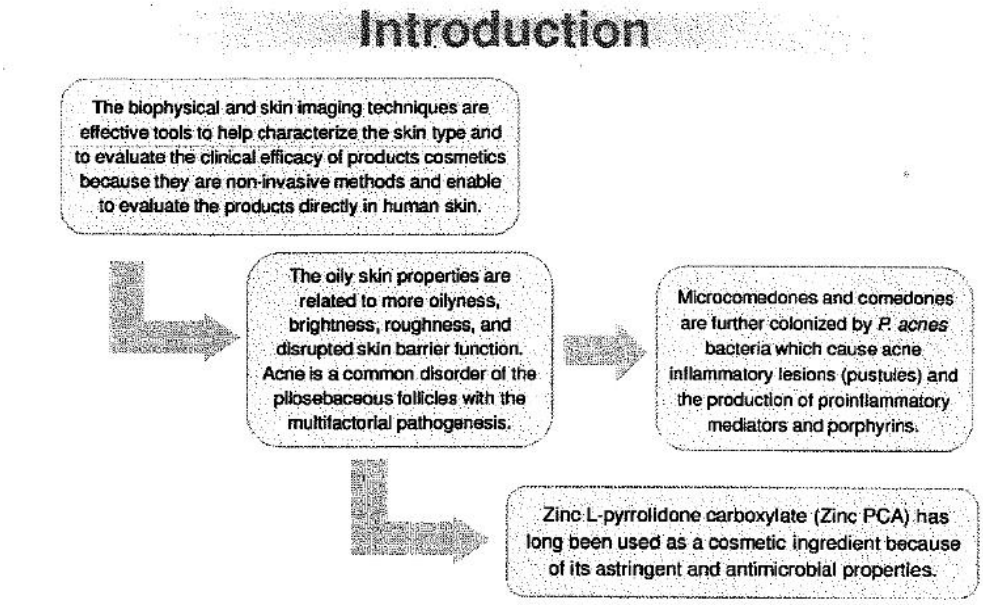
L.v. Oppen-Bezalel, O. Ramot, O.B. Chitrit, F. Havas; **Jojoba leaf extract enhances skin performance from inside**; Personal Care September 2013

Jojoba is a shrub native to the Sonoran and Mojave deserts of Arizona, California, and Mexico. It is the sole species of the family Simmondsiaceae, placed in the order Caryophyllales. Jojoba is commonly for its oil, a liquid wax ester, present in seeds. Unlike jojoba oil, IBR-Gapture is an aqueous extract of the jojoba leaf. Sourced from this well adapted desert plant, able to maintain itself effectively in extremely warm and dry environments, IBR-Gapture (now referred to as 'the jojoba leaf extract') captures these unique abilities via delicate and natural extraction. Jojoba plants reserve the scarce water supply of the harsh desert, acting as a drop of vitality in the arid scenery. IBR's jojoba leaf extract is a natural heir to the jojoba plant's ability to moisturise, protect and beautify.

Dr. Mario Schweitzer; **A Physiological Experiment for Skin Research on ISS** ; Kayser-Threde GmbH 2013

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.

Teixeira, Raquel S., Araújo, Lidiane A., Mercúrio, Daiane G., **Application of biophysical techniques to evaluate the efficacy of a gel with zinc pca**; University of Sao Paulo, 2013



Daiane. G. Mercurio, **Effects of sun exposure habits on skin aging: a multivariate analysis**; ISBS, Milan 15-16.10.2013

Summary: Skin exposure to ultraviolet (UV) radiation is related with molecular, morphological, structural and clinical changes on the skin, which characterizes photoaging. However, there are few studies that correlate sun exposure habits and objective measurements using biophysical and skin image techniques. Thus, the aim of this study was to evaluate the influence of the sun exposure habits on the biophysical and morphological characteristics of aged skin using multivariate analysis. For this, 40 healthy female volunteers (aged between 18- 30 or 40-65 years) filled a questionnaire concerning their sun exposure and protection habits during different periods of their lives. The characterization of the skin of dorsal and volar forearms was performed using objective measurements by biophysical and skin image techniques in terms of transepidermal water loss, direct measurement of the skin topography, viscoelasticity, dermis thickness and echogenicity, and structure and morphology of the epidermis by in vivo Reflectance Confocal Microscopy. Principal Component Analysis (PCA) of the values of each parameter was used to visualize the relationship between variables and groups. According to the PCA analysis, the sun exposure habits are directly related to increased dermis thickness, reduced echogenicity and elasticity.

U. Griesbach, M. Hloucha, A. Mehling, D. Prinz; **Ein Pflegeadditiv mit Öldeposition für ein gutes Hautgefühl und hohe Pflegeansprüche**; SOFW Journal; 139; 10-2013

Was kann man heute von Hautreinigungsprodukten erwarten? Wie können Hautreinigungsprodukte attraktiver, besser, wertvoller werden? Welche Technologien helfen dem Entwickler? Hautreinigung ist ein wichtiges Segment in der Kosmetikindustrie. In 2012 wurden in Europa z.B. in den Segmenten Duschgele/Flüssigseifen/Intimpflege und Badezusätze 967.000 Tonnen für rund 6,67 Mrd. € verkauft (Datenrecherche aus Euromonitor). Während der Aufbau eines tensidischen Kosmetikproduktes in den Anfängen der Kosmetikentwicklung recht einfach war und als Alternative zum Seifenstück galt, können Produkte heute aufgrund einer Vielzahl von Basis- und Zusatzstoffen anders komponiert und mit zusätzlichen Vorteilen ausgestattet werden. Unter dem Preisdruck vieler Händler und Handelsketten hat sich allerdings die Zusammensetzung der Formulierungen von Duschen und Badezusätzen verändert. Zwei Trends sind dabei zu beobachten:

Kostendruck führt zu reduzierten Rezepturen, z.B. im Gehalt an waschaktiven Substanzen, Verzicht auf hochwertige, milde Tenside und auf Wirkstoffe. Auf der anderen Seite gibt es einen Trend zu cremigen Systemen, die entweder Ölkomponenten und/oder Polymere enthalten und sehr pflegend sein können, oft auch einen Hauch Luxus vermitteln.

C. Galzote, R. Estanislao, M.O. Suero, A. Khaiat, M.I. Mangubat, R. Moideen, H. Tagami, X. Wang; **Characterization of facial skin of various Asian populations through visual and non-invasive instrumental evaluations: influence of age and skincare habits;** Skin Research and Technology 2013;19; 454-465

Background/purpose: We aimed to evaluate the impact of age and skincare habits on facila skin of different Asian ethnicities by comparing skin properties and skincare habits among various Asian populations of varying age groups. Methods: We evaluated approximately 100 female subjects each from a total of eight Asian cities in China, Indian, South Korea, Japan and the Philippines grouped according to age ranging from 14 to 75 years during a summer season. Facial skin was characterized using dermatological examinations of the cheek. Information regarding personal skincare habits was collected using a questionnaire.

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.

Birken AG; **Wirksamkeit und Verträglichkeit von Nasenbalsam bei Hautirritationen;** 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. 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.

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.

J.W. Fluhr, R. Darlenski; **Transepidermal Water Loss (TEWL);** Non Invasive Diagnostic Techniques in Clinical Dermatology; Springer Berlin Heidelberg 2014; ISBN 978-3-642-32108-5

Introduction: The skin separates the inner part of our body against the potentially harmful environment. The skin barrier protects the human body against many external stressors, namely, physical stress (e.g., mechanical, thermal, UV radiation), chemical stress (e.g., tensides, prolonged water exposure, solvents), and environmental conditions [1]. Furthermore the skin as a barrier prevents the organism from loss of essential components such as ions, water, and serum proteins. The skin as a barrier also reflects internal processes, diseases, disease activity, and some of the lifestyle, manifested in intrinsic and extrinsic aging. The skin has also sociocultural functions and plays an important role in communication and self-expression.

K. Heinrich, U. Heinrich, H. Tronnier; **Influence of Different Cosmetic - Formulations on the Human Skin Barrier;** Skin Pharmacology and Physiology 2014; 27:141-147

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: 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.

D. Khazaka, C. Uhl; **Measurement and understanding of TEWL;** Personal Care March 2014

The outer layers of the skin, especially the stratum corneum, play a vital role in protecting the body against many external stressors of chemical, physical and environmental nature, at the same time preventing the organism from losing water, ions and serum proteins to keep the skin flexible and elastic. Through this barrier water constantly evaporates from the skin surface, which is reflected in the transepidermal water loss (TEWL).

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.

J. d. Plessis, A. Stefaniak, F. Eloff, S. John, T. Agner etc.; **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.

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;27:9–17

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.

A.McDougall; **Skin barrier function study highlights oatmeal efficacy;** William Reed Business Media SAS; 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.

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

Abstract: Unsere Idee war es, einen neuartigen natürlichen PPAR ɣ 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 ɣ zu fungieren, vorhersagen und die Hypothese später mit verschiedenen in vitro Tests bestätigen. Zuerst zeigte der Wirkstoff seine Bindungsaffinität zu PPAR ɣ. 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

Abstract: We were interested in developing a novel natural PPAR ɣ 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 ɣ full agonist, and we later confirmed this by several in vitro tests. First, the active showed ist binding affinity to PPAR ɣ. 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.

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 als 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.

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.

G.Musitelli, S. Sacchi, E. Raffaldi, P. Capra, P. Perugini; **Evaluation of safety and effectiveness of nail products by a versatile quantitative approach;** IFSCC 2014 Paris

Introduction: The nail plate, whose thickness is roughly in the range of 300–800 mm, is composed of three histological layers:the dorsal, intermediate and ventral plates. The nail plate is composed mainly of hard keratin and lipids, like hair. It was reported that the total lipid content in the

nail plate was 1.4% ,and that its fatty acid content was higher and ceramide content was lower than the stratum corneum.

Tyszczuk B., Szczepanik B., Mlosek R. K., Malinowska S., Dębowska R., Rogiewicz K., Eris I.; **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. 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.

K.Shingaki, S. Kawaguchiya, Y. Hasegawa, M. Sumitani, Y.Yamamoto, K. Torii; **Analysis of environmental factors and related molecular mechanisms that reduce cutaneous sensation and the development of cosmetics to prevent and improve functional decline of cutaneous sensation**; IFSCC 2014 Paris

Summary: The beneficial effects of touch have been well investigated in infant psychological and physiological development and adult homeostasis. Cutaneous sensation, which facilitates the beneficial effects of touch, alters under the influence of disease and aging. However, the environmental factors that affect cutaneous sensation, their related molecular mechanisms, and the possibility of cosmetics against decline have not been well studied. In this study, we showed a significant positive correlation between age and the perception threshold of a 2000-Hz current which stimulates Aβ-fibres and a significant negative correlation between a 2000-Hz current perception threshold (CPT) and the skin’s physiological parameters. In addition, ultraviolet (UV) radiation significantly increased the 2000-Hz CPT in the skin, decreased the expression of neuroprotective growth factors, and altered the expression of matrix components which are the scaffoldings of nerve fibres in the normal human dermal fibroblasts. Furthermore, we showed a significant 2000-Hz CPT decrease 1 month after treatment with cosmetics that included moisturizing ingredients and vitamins. From these results, it is suggested that chronic UV exposure induces the functional decline of cutaneous sensation by decreasing the neuroprotective functional components of the skin and that cosmetics are useful for preventing and improving the decline of cutaneous sensation.

W. Joyce, P.Leonardo, S. Marcos, T.Thaís, **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.