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STUDIES LIST
CUTOMETER®

Bosio, *Teresa Anfossi*, *Silvia Audi*, *Grivetta*, **Indici biofisici della cute in rapporto all'età determinati in elastometria cutanea,** Incontri di cosmetologia, 06/89

L'indagine è condotta mediante l'impiego del CUTOMETER SEM 474; il pricipio di funzionamento dello strumento si basa sulla possibilità di misurare, mediante uno speciale sensore optoelettronico, l'altezza della cute aspirata all'interno di una sonda da una depressione di 250 mBar (2,3). I risultati di ogni singola determinazione vengono presentati sotto forma di grafico delle deformazioni cutanee dove in ordinata è indicata l'altezza in mm della cute aspirata nella sonda ed in ascissa sono indicati i tempi a cui il parametro altezza viene rilevato. Si osserva di norma il seguente comportamento:rapido e lineare incremento del parametro altezza seguito da una fase di crescita lenta fino al ragiungimento del valore della massima deformazione cutanea indotta dalla forza applicata.

S. Bonazzi, *Gazzaniga*, **Skin plastoelasticity modifications due to application of a reconstructed moisturizing compound,** 3rd international congress on cosmetic dermatology, Wien, 27.-29.10.1989

o.A., **Biométrologie cutanée**, Actualités Pharmaceutiques, Nov. 1990

A.O.Barel, **Non-invasive measurement of the viscoelastic properties of human skin with the suction method,** 8th international symposium "Bioengineering and the skin", Stresa / Italia, June 1990

Elsner, **Mechanical properties of human vulvar skin,** 8th international symposium "Bioengineering and the skin", Stresa / Italia, June 1990

Using a newly developed suction device, the mechanical properties of forearm and vulvar skin were studied in 22 healthy women, 12 before and 10 after the menopause. The ratio between viscous deformation (Uv) and elastic deformation (Ue) and the biological elasticity, i.e. the ratio between immediate recovery (Ur) and total deformation (Uf), were both significantly lower in vulvar than in foream skin. Ur/Uf decreased significantly with load in vulvar, but not in foream skin, whereas Uv/Ue was not load-dependent in either site. Uv/Ue remained constant with age in both test sites, whereas Ur/Uf was significantly lower in post-menopausal women in both foream and vulvar skin. In vulvar, but not in forearm skin, Uv/Ue was significantly correlated with body height which may be an indicator of mechanical connective tissue properties. Viscous deformation plays a lesser role and biological elasticity is decreased in vulvar compared to foream skin. Despite differences in mechanical parameters at both sites, age-related changes seem to be similar.

Teresa Anfossi, **Influence of environment factors on skin elastometric patterns**, 8th international symposium "Bioengineering and the skin", Stresa / Italia, June 1990

A.B. Cua, *H.I. Maibach*, *K.P. Wilhelm*, **Elastic properties of human skin: relation to age, sex and anatomical region**, Dermatologica Research, 1990

Using a recently developed noninvasive, in vivo suction device for measuring skin elasticity, we evaluated age, sex, and regional differences in the visco-elastic properties of skin. A total of 33 volunteers participated in the study consisting of (a) 8 young females, (b) 9 old females, (c) 8 young males and (d) 8 old males. Measurements were performed on 11 anatomical regions; three different loads were applied: 100, 200, and 500mbar. The parameters used were: immediate distension (Ue); delayed distension (Uv); immediate retraction (Ur) ; and, final deformation (Uf). To compare between subjects and anatomical regions, relative parameters independent of skin thickness were calculated: Uv/Ue, the ratio between the viscoelastic properties of skin and immediate distension, and Ur/Uf, which measures the ability of the skin to regain its initial position after deformation. Generally, Uv/Ue increased while Ur/Uf decreased with aging. Responses were variable with respect to load applied. Variability, within anatomical regions was also noted. However, differences between the sexes were not statistically significant for most regions. These findings are in congruence with earlier studies suggesting the differences are mainly attributable to alterations in the elastic fiber network. This procedure provides a simple, quantitative assessment of elastic properties of the skin. Its application may help in future investigations of other connective tissue disorders.

V. Parison, **Validation d´une nouvelle méthode de mesure de l´élasticité cutanée: le Cutometer. Application à l´étude de l´effet de l´hydratation sur les propriétés biomécaniques de la peau,** Thèse pour le diplôme de docteur en Pharmacie, 29.11.1991

F. Mérot, J.P. Borthier, P. Denis, Ph. Masson, **Incidence du diametre de la sonde sur les mesures d'elasticite cutanee,** Congres SFC-ISIPCA, Versailles (France), 16-18 Novembre 1992

Pour chaque catégorie de peau l'étirement maximal moyen augmente en fonction du diamètre de la sonde / selon la classification adoptée, l'étirement maximal moyen est significantivement plus important pour la catégorie "peaux relachées" / la dispartié des résultats individuels obtenus avec les trois sondes suggére l'impliation de structures cutanées différentes.

P. Busch, *K. Schumann*, *H. Verbeek*, **Die Entwicklung der Hautkosmetik in den letzten 25 Jahren,**
Parfümerie + Kosmetik 02/92

Masahiro Nishimura and Takuo Tsuji, **Measurements of Skin Elasticity with a New Suction Device - Relation to Age, Sex, Anatomical Region, Sun-Exposure and Comparison with Deseased Skin-,**
Jpn J Dermatol: 1111-1117, 1992

Using a recently developed in vivo suction device for measuring skin elasticity, we evaluated age, sex, and regional differences in the elastic properties. Skin elasticity decreased with aging at all anatomical regions. Differences between the anatomical regions in the same age groups were significant, but no significant differences were noted between the sexes. The measurements in patients with skin deseases (PSS and Ehlers-Danlos syndrome) showed interesting results. This procedure allows assessment of skin elasticity, and its application to deseased skin, particularily connective tissue disorders may be helpful for diagnosing, deciding progression and evaluating therapeutic effects.

A. Barel, P. Clarys, **In Vivo Evaluation of Skin Ageing: Relations between Viscoelastic Properties and Skin Surface Roughness Parameters,** 9th ISBS Meeting, Japan, October 19 +20, 1992

Ageing of the skin is clearly characterized by changes in a variety of physical parameters related to the dermis. We have studied the influence of age on the mechanical properties of the skin and on skin roughness. Both physical properties are correlated with modifications in the structure of the papillary and reticular dermis.

P.G. Agache, D. Varchon, Ph. Humbert, A. Rochfort, **Non-Invasive Assessment of Biaxial Young's Modulus of Man in Vivo,** 9th ISBS Meeting, Japan, October 19 +20, 1992

The elastic modulus (E) is a major parameter of the skin mechanical behaviour. Unfortunately up to now only its variation could be currently estimated in vivo, and without access to absolute differences.

K.P. Wilhelm, A.B. Cua, H.I. Maibach, **In Vivo Study on Age-Related Elastic Properties of Human Skin, Noninvasive Methods for the Quantification of Skin Functions**, 1993;190:203

Ph. Masson, P. Blin, R. Urbaniak, F. Mérot, **Influence of Operative Procedures on Cutaneous Deformations following Measurement of Skin Elasticity by Vertical Stretching,** 18th International IFSCC-Congress, Venice, October 1994

Numerous systems are available for experimenters in order to evaluate the biomechanical properties of the skin and especially its elasticity. The principle of the cycle vertical stretching-relaxing process under partial vacuum is operated by different equipment using probes of different sizes and especially 2.8 and 13 mm providing various (cutometer 0-500 millibars) or fixed tensile strengths. Each inventor praises the merits of his own equipment and its specificity without the support of any objective and comparative analysis able to provide the possibility of justification and evaluation of the comparative advantages.

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

O.A. Barel, P. Clarys, R. Lambrecht, **In Vivo Study of the Mechanical Properties of the Human Skin with the Suction Method (Cutometer),** The 10th International Symposium on Bioengineering & the Skin, Cincinnati, Ohio, June 13-15, 1994

T. Krusche, W.I. Worret, **Mechanical Properties of Keloids in Vivo During Treatment with Intralesional Triamcinolone Acetonide,** The 10th International Symposium on Bioengineering & the Skin, Cincinnati, Ohio, June 13-15, 1994

F. Panisset, D. Varchon, P. Agache, Ph. Humbert, **Assessment of Human Stratum Corneum Tangent Modulus in Vivo,** 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

Asserin, Agache, Humbert, **Checking the Mechanical Performance of a Skin Suction Meter: the Cutometer,** The 10th International Symposium on Bioengineering & the Skin, Cincinnati, Ohio, June 13-15, 1994

Ch. Baudry, C. Loufrani, **Les Meilleures Crèmes Hydratantes,** Le Guide D'Achat, No. 273, Mai 1994

F. Deleixhe-Mauhin, C. Piérard-Franchiomont, G. Rorive, G.E. Piérard, **Influence of Chronic Haemodialysis on the Mechanical Properties of Skin,** Clinical and Experimental Dermatology 1994; 19: 130-133

Certain features of the skin of patients undergoing chronic haemodialysis suggest an ageing process. Seventy-two haemodialysed patients were studied by a non-invasive technique using the Cutometer SM 474 to determine biomechanical properties of the skin. Patients undergoing chronic haemodialysis showed some impairment of changes in viscous properties of skin similar

Y. Takema, Y. Yorimoto, M. Kawai and G. Imokawa, **Age-related Changes in the Elastic Properties of Human Facial Skin,** British Journal of Dermatology, 1994.

Using recently designed, commercially available, non-invasive instruments, we measured the thickness and elasticity of the skin of the face and ventral forearm in 170 women, and evaluated the effects of age and exposure to sunlight. Skin thickness decreased with age in ventral forearm skin, which has limited exposure to sunlight, but increased significantly in the skin of the forehead, corners of the eyes, and cheeks, which are markedly exposed to sunlight

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).

J Ennen, S Jaspers, G Sauermann, U Hoppe, **Measurement of Biomechanical Properties of Human Skin,**Cosmetic and Toiletries Manufacture World-wide, Jan. 95

The biomechanics of skin comprises a complex interrelashionship and interaction of three layers - epidermis, dermis, and subcutaneous tissue. Assessment of the mechanical properties of the skin by noninvasive techniques has turned out to be a difficult task. The intimitate interconnection of the different tissue compartments of the skin, the anisotrophy, and time dependance of the mechanical properties, as well as the regional variations in skin make biomechanical measurements more difficult than other types of skin measurement. Measurement of those parameters of skin that describe the biomechanical properties of the skin are currently performed mainly by two different mechanical modes. Firstly, the test mode of torsion is represented by a rotating disc and guard ring torque measurement. Secondly, the mechanical test mode of elongation is represented by the instrumentation of a suction device. The mechanical parameters of extensibility and elastic recovery, both represented in a biological elastic modulus of skin, can be measured by both approaches. In this paper the characteristics, the similarities, and the differences of both bioengeneering techniques of characterizing the biomechanical properties of skin are described.

Th.Krusche,W.Worret, **Mechanical properties of keloids in vivo during treatment with intralesional triamcinolone acetonide,** Arch.Dermatol Res 287-293, 1995

The mechanical properties of 17 keloids in 9 patients before and during treatment with intralesional triamcinolone acetonide were studies using a recently developed noninvasive suction device for measuring skin elasticity in vivo. Each keloid was treated with intralesional injections of 10 mg/ml triamcinolone acetonide without local anaesthetic at intervals of 3 weeks. A total of four measurements per keloid were performed, before treatment and 3 weeks after the first, second and third treatments. The parameters used were: immediate distension (Ue), delayed distension (Uv), immediate retraction (Ur) and final distension (Uf). Relative parameters independent of skin thickness were calculated: Uv/Ue, the ration between the viscous and the elastic deformation of the skin, and Ur/Uf, representing the ability of the skin to return to its initial position after deformation (biological elasticity). After three injections of triamcinolone acetonide a marked decrease in Uv/Ue and a less-pronounced increase in Ur/Uf compared with baseline values was observed. These findings indicate that the main effect of intralesional steroids on the connective tissue of keloids is a decrease in viscosity due to a loss of ground substance. This method provides a noninvasive quantitative assessment of the mechanical properties of scars and is well suited to comparative studies on the efficacy of various scar therapies.

Th.Krusche, **Keloidbehandlung / Neues Gerät objektiviert den Therapieerfolg,** Medical Tribune Nr. 5, 03.02.1995

Cutometer, mit dem die mechanischen Eigenschaften des Keloids gemessen werden. Die Sonde saugt mit Unterdruck das Keloidgewebe an, auf dem Bildschirm erscheint die gemessene Elastizitätskurve.

G.E.Piérard,R.Kort,C.Letawe,C.Olemans,C.Piérard-Franchimont, **Biomechanical assessment of photodamage,** Skin Research and Technology 1:17-20, 1995

Background/Aims: Intrinsic aging and photoaging may present different biomechanical properties. Dorsal and volar forearm skin is differently exposed to UV-light. The object was to derive a cutaneous extrinsic aging score (SEAS) representative of UV aging, i.e. the global photoaging corrected for intrinsic aging.

H.Dobrev, **In Vivo Noninvasive Study of the Elastic and Viscoelastic Properties of Human Skin after a Short Term Appliation of Topical Corticosteroids,** 6th Congress of Dermatology and Venerology, Pleve, Bulgaria, May 11-13, 1995

A noninvasive, in vivo suction device for measuring skin elasticity (Cutometer SEM 474, Courage + Khazaka electronic GmbH, Köln, Germany) was used to determine the alteration in the mechanical properties of the skin after a short term application of 5 commercially available topical corticosteroids as ointments and creams. 25 volunteers (20 female and 5 male, aged 16-54 years) were investigated. The following relative parameters, independent of skin thickness, were caluclated and compared: R2 (Ua/Uf) - gross, R5 (Ur/Ue) - net, R7 (Ur(Uf) - biologic elasticity and R6 (Uv/Ue) - viscoelastic/elastic ratio. Corticosteroid ointments increase the purely elastic parameters R2, R5 /$p<0.05$/, R7 as well as the parameter of viscoelasticity R6 /<0.001/. Corticosteroid creams alter the elastic parameters weakly while increase the viscoelastic parameter R6 significantly /$p<0.05$/. These effects of topical corticosteroid formulations are probably due to the hydration of the stratum corneum and softening of keratin, which imporve the epidermal mechanical properties. On the other hand as a result of dermal oedema and some biochemical effect on the ground substance perhaps, the friction between the fibres is reduced and interstitial fluid movement is facilitated through the fibrous network. The applied noninvasive method can be useful for an evaluation and comparison of local effects of the different dermatologic topicals on the elastic and viscoelastic properties of human skin.

V.Couturaud,J.Coutable,A.Khaiat, **Skin biomechanical properties: in vivo evaluation of influence of age and body site by a non-invasive method,** Skin Research and Technology 1:68-73, 1995

The stratum corneum is covered by a network of microdepressions which have been classified by Hashimoto (1). Escande (2) introduced the concept of microdepressionary network, mDN, representing Hashimoto's primpary [I] and secondary [II] lines. The primary lines are visible, and represent the deepest furrows delimiting 3- to 4-sided polygons. Their anatomic base is at the level of the dermal-epidermal junction, the furrows surrounding a group of papilla (3). The secondary lines are inside these figures and cross all or parts of their surface. Their presence is noticeable only from the stratum granulosum.

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.

A.O. Barel,W.Courage,P.Clarys, **Suction Method for Measurement of Skin Mechanical Properties: The Cutometer ®,** Handbook of Non-Invasive Methods and the Skin, J. Serup G.B.E.Jemec, 1995

The mechanichal properties of the human skin have been extensively studied in the past most in vitro and less in vivo. Skin is a complex organ which as many other biologicals, presents in a combined way the typical properties of elastic solids and viscous liquids. As a consequence the mechanical properties of the skin are called viscoelastic. Typical properties of viscoelastic materials are nonlinear stress-strain properties with hysteresis (the stress-strain curves obtained on loading will not be superposed on the curves obtained by unloading). Furthermore the deformation of the skin is time-dependent with a typical phenomenon of creep. The creep is characterized as an increasing deformation of the skin in function of time when a constant stress is applied on this material. The viscoelastic properties of the skin are due to the components of the skin: collagen fibers and elastin fibers impregnated in a ground substance of proteoglycans.

W.I. Worret, Th. Krusche, **Objektive Nachweismethoden zur Überprüfung von Narbentherapeutika,** 38. Tagung der Deutschen Dermatologen Gesellschaft, Berlin, 29. April - 03. Mai 1995

Es gibt mehrere Methoden, um hypertrophe Narben und Keloide der Hautoberfläche anzugleichen. Intraläsionale Triamcinolon-Injektionen gelten dabei als Standardbehandlung.

Th.Krusche,W.-I.Worret, **Änderung der mechanischen Eigenschaften von Keloiden während Behandlung mit intraläsionalem Triamcinolonacetonid,** 38. Tagung der Deutschen Dermatologischen Gesellschaft in Berlin, 29.04.-03.05.1995

P. Elsner, **Skin Elasticity,** Bioengineering of the Skin: Methods and Instrumentation, CRC Press 1995

Mechanical properties of human skin have interested dermatologists and bioengineers for a considerable time, as differences between biomechanical skin parameters at various skin sites and changes with age and disease are obvious. Objective functional assessment of skin mechanics was necessary in order to correlate mechanical properties with anatomical and biochemical findings.

G.E. Piérard, Nikkels-Tassoudji, Piérard-Franchimont, **Influence of the Test Area on the Mechanical Properties of Skin,** Dermatology 1995, 191: 9-15

New advances in bioengineering have provided commercially available devices for measuring the mechanical properties of skin in vivo. Reproducibility of data and methodological approaches have not yet been thoroughly studies. Objective: To study the reproducibility and the influence of the area of the test site on the values of biomechanical variable yielded in a normal population. Method: A 500-mbar suction was transmitted to the skin through Cutometer probes equipped with a 2- or 8-mm opening. Results: The best reproducibility was obtained for the maximum distension of skin and for the biological elasticity. The values of the standard biomechanical ratios were almost the same for both probes. Linear correlations were found between parameters of elasticity.

N. Nikkels-Tassoudji, F. Henry, C. Letawe, C. Piérard-Franchimont, P. Lefèbre, G.E. Piérard, **Mechanical Properties of the Diabetic Waxy Skin,** S. Karger, Basel, 1995

Background: In some diabetic patients, the skin of the hands has a waxy appearance. Objective: To study subclinical skin stiffening in diabetic patients using a noninvasive, in vivo suction device measuring skin extensibility and elasticity. Skin thickness was also measured by high-resolution ultrasonography. Methods: Evaluations were made on the dorsum of the hands and on the volar aspect of the forearms. Results: In type 1 diabetic patients, the extensibility of skin was decreased while values of thickness and elasticity were increased. These alterations were most prominent on the hands. Similar modifications, although less pronounced, were also found in type 2 diabetic subjects. Conclusion: The reported biomechanical changes indicate the presence of subclinical skin stiffening in many patients with diabetes mellitus. Such noninvasive biometrological evaluations could be used for monitoring, rating and correlating some diabetes-associated disorders.

G.E. Piérard, R. Kort, C. Latawe, C. Olemans and C. Piérard-Franchimont, **Biomechanical Assessment of Photodamage,** Skin Research and Technology 1995.

Background/Aims: Intrinsic ageing and photoaging may present different biomechanical properties. Dorsal and volar forearm skin is differently exposed to UV-light. The object was to derive a cutaneous extrinsic ageing score (SEAS) representative of UV ageing, i.e. the global photoageing corrected for intrinsic ageing.

G.E. Piérard, C. Letawe, A. Dowlati and C. Piérard-Franchimont, **Effect of Hormone Replacement Therapy for Menopause on the Mechanical Properties of Skin,** Jags 43:662-665, 1995.

Objective: To evaluate the effect of hormone replacement therapy (HRT) for menopause on the mechanical properties of the skin in healthy women. Design: A group of 114 women, including 43 nonmenopausal controls, 46 menopausal women with HRT and 25 menopausal women without HRT, participated in the study. Mechanical properties of the skin were measured on the volar forearm using a computerized suction device.

M. Viatour and G.E. Piérard, **A Computerized Analysis of Intrisinc Forces in the Skin, BSL** Clinical Experimental Dermatology Paper, 15/8/1995.

The skin of the volar forearm is a site selected for many biometrological studies. We studied the influence of forearm position when evaluating the surface topography and mechanical properties of the skin in normal young adults. Optical profilometry of skin replicas and the suction biomechanical method (Cutometer, 2 and 8 mm probes) were used in combination with evaluation of the thickness and sliding mobility of the dermis and dermohypodermal tissues.

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.

K. Matsuzaki, N. Kumagai, S. Fukushi, O. Ohshima, M. Tanabe, H. Ishida, **Cultured Epithelial Autografting on Meshed Skin Graft Scars: Evaluation of Skin Elasticity.** Burn Science Publishers, Inc. 1995

Many patients with meshed skin graft scars compalin of the scars unsightly appearance and hardness. Since 1989 we have shaved away meshed skin graft scars and then resurfaced the area with autologous cultured epithelium in nine patients. This method improved the disfigurement of meshed skin graft scars, with minimal sacrifice of normal donor skin. Furthermore, autologous cultured epithelium grafted areas had high skin elasticity compared with meshed skin graft scars, as measured with a noninvasive suction device.

I. Diepenbrock, U. Heinrich, H. Tronnier, **Der Einfluß von Nikotin auf die Haut,** Parfümerie und Kosmetik 12/95

Die Beschaffenheit der Haut als größtes menschliches Organ ist wie keine zweite ein Gradmesser für das Alter des gesamten Organismus. Nicht selten lassen sich durch ihren Zustand Rückschlüsse auf vorhandene Erkrankungen schließen. Der Einfluß des Rauchens nun auf die Hautelastizität bestätigt um ein weiteres die oben genannte Feststellung. Aufgrund des Vergleichs von quantitativen Messungen der Hautelastizität bei Rauchern und Nichtrauchern über verschiedene Altersgruppen ließ sich eindeutig feststellen, daß die Elastin- und Kollagenfasern eine längere Zeit benötigen, um wieder in ihre ursprüngliche Ausgangslage zurückzukehren. Weiterführende Untersuchungen ergaben sogar einen verstärkten Abbau der elastischen Fasern. Auf jeden Fall läßt sich fesstellen, daß die Haut bei Rauchern um durchschnittlich 11 Jahre älter ist als bei Nichtrauchern vergleichbaren Alters.

Alessandro Teglia, Antonella Mondelli, **Influence of cosmetic treatments on the intercorrelations of skin elasticity, hydration and microrelief,** 19th IFSCC Congress Sydney, October 1996

Skin Hydration, elasticity and surface microtopography are important cutaneous parameters reflecting sensory/aesthetic qualities of the skin and have been largely adopted as indicators of the effectiveness of cosmetic treatments. Several studies have been made about the influence of environmental and biological factors on them, while little is known about their correlation. Aim of our study was to investigate their intercorrelation and possible influence of cosmetic applicartions on their relationship. 30 healthy volunteers were subject to the study over a period of one year. 7 skin sites for each longitudinal half of the body were taken as test areas: volar aspect of the forearm (3sites), upperarm, breast cheek, forehead. The subjects divided into two groups were properly instructed to apply twice a day a W/O emulsion (1st group) and an O/W emulsion (2nd group) on the test sites of a half of the body; contolateral untreated sites were used as controls. Biophysical measurements of skin hydration, mechanical properties and surface geometry were made at regular intervals over the test period for each volunteer. The data collected were submitted to statistical analyses for cross-correlation and differences of the means. The following variables were considered: electric capacitance EC as measure of the hydration of the horny layer; the viscoelastic to elastic ratio Uv/Ue and the biological elasticity Ur/Uf as mechanical properties of the skin; mean roughness depth Rz and coefficient of skin estensibility LD as parameters of the skin surface microtopography. Age of the subjects was considered as biological variable. On untreated skin were observed: significant correlation of topographycal and mechanical parameters with age; correlation of Rz with Uv/Ue (direct) and with Ur/Uf (inverse); correlation of LD with EC (inverse) and with Ur/Uf (direct). Correlation of mechanical properties with hydration was not significant. Treatment with W/O emulsion increases significantly hydration, elasticity and skin smoothness; intercorrelation of biophysical variables does not show important variations. The baseline correlation of microrelief parameters with age was reduced. Treatment with O/W emulsion increases moderately hydration and smoothness but does not effect the elastic properties of the skin; correlation of Rz with biological elasticity and viscoelastic component loses significance. Exposure of the skin to different type of emulsions ca effect selectively the cutaneous biophysical parameters and vary their intercorrelation.

J. Woodruff, **Testing time,** Cosmetics, June 1996

In his continuing series on impending EC cosmetics-legislation, John Woodruff looks at the requirements for proof of efficacy, and takes a trawl around available testing facilities.

Enomoto DHN, Mekkes JR, Bossuyt PMM, Hoekzema R, Bos JD; **Quantification of cutaneous sclerosis with a skin elasticity meter in patients with generalized scleroderma**; J Am Acad Dermatol 1996;35:381-387

Background: The skin score, a subjective assessment of skin elasticity, is widely used in patients with systemic sclerosis. Although this scoring method is regarded as a validated and accepted tool, the interobserver and intra-observer reproducibility is relatively poor. Objective: Our purpose was to investigate wheter the recently developed SEM 474 cutometer, which exerts a controlled vacuum force to the skin, can measure skin elasticity more objectively than the skin score.

Dr.H.Gerny, **IV. Medizinische und Kosmetische Behandlungen**, Kosmetik+Dermatologie, 1. Ausgabe 1996

Die Langzeitwirkung einer Pflege kann nur dann einigermaßen objektiv beurteilt werden, wenn ein klar definierter Ausgangspunkt bezüglich des aktuellen Hautzustandes und Hauttypes gegeben ist. Die Bestimmung des Hauttypes ist ein sehr komplexer Vorgang, da viele äußerliche Einflüsse auf unser Hautbild einwirken. Auch ist die Haut hormonell empfindlich und stellt ein Bild unseres Innenlebens dar.

*J. Ennen,S. Jaspers G. Sauermann, U. Hoppe***, Measurement of Biochemical Properties of the Human Skin,** Cosmetics and Toiletries Manufacture Worldwide

The biomechanics of skin comprises a complex interrelationship and interaction of three layers - epidermis, dermis, and subcutaneous tissue. Assessment of the mechanical properties of the skin by noninvasive techniques had turned out to be a difficult task. The intimitate interconnection of the different tissue compartments of skin, the anisotrophy, and time dependance of the mechanical properties, as well as the regional variations in skin make biomechanical measurements more difficult than other types of skin measurement. Measurement of those parameters of skin that describe the biomechanical properties of the skin are currently performed mainly by two different mechanical modes. Firstly, the test mode of torsion is represented by a rotating disc and guard ring torque measurement. Secoindly, the mechanical test mode of elongation is represented by the instrumentation of a suction device. The mechanical parameters of extensibility and elasic recovery, both represented in a biological elastic modulus of skin, can be measured by both approaches. In this paper the characteristics, the similarities, and the differences of both bioengineering techniques of characterizing the biomechanical properties of skin are described.

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.

F. Henry, G.E. Pierard, **Biomechanical Properties of Striae Distensaie of Pregnancy.** Skin Research and Technology, Vol.2 No. 4 Nov.1996

Backround and Objective**:** Striae Distensae of pregnancy is a common finding. There is currently a lack of information about the rheological properties of such lesions. The purpose of this study was to compare the mechanical properties of striae distensae before and after delivery. Patients and methods: A total of 79 primigravid entered the study. Rheological properties of the skin were evaluated in vivo using a CUTOMETER equipped with a 2-mm probe. Results: Mechanical properties of striae distensae developing during pregnancy resembled those of the surrounding skin. By contrast, significant differences were yielded during post-partum. Extensibility of striae distensae was increased although parameters of elasticity remained normal. Conclusion: Rheological properties of striae distancae of pregnancy vary in time. This might reflect the changes in hormones and in the mechanical stresses normally setting the skin under tension.

H. Dobrev, **Age-Related Changes in Skin Mechanical Properties.** 5th National Conference of Gerontology and Geriatry, October 1996

A.O. Barel, **Mechanical Function of the Skin: State of the Art.** Skin Research and Technology,Vol.2, No.4, Nov 1996.

J. Habig, E. Vocks, F. Kautzky, M. Dahm, S. Borelli, **Influence of single UVA and UVB irradiation on surface structure and viscoelastic properties of the skin in vivo.**

The present study was designed to evaluate the effects of single irradiation either with UVA (dosage:50J/cm²), or UVB(dosage IMED) on surface structure and viscoelastic properties of the skin. Biophysical measurements by means of profilometry and cutometry were carried out on normally sun-protected skin areas directly before and 24 hours after irradiation. UVA induced neither immeasurable changes in skin surface structure (expressd by the profilometrically calculated parameters of roughness Ra and RxDIN and the parameter Wt reflecting depths of furrows) nor in its viscoelastic properties (expressed by the cutometrically calculated ratio Uv/Ue reflecting viscosity and the ratio Ur/Uf reflecting biological elasticity). However, a single dry-thermogenic dose of UVB radiation was followed by significant increase in the depths of furrows, increase in viscosity and decrease in biological elasticity.

J.Habig, E.Vocks, F.Kautzky, M.Dahm, S.Borelli, **Einfluß einmaliger UVA- und UVB-Bestrahlung auf Oberflächenbeschaffenheit und viskoelastische Eigenschaften der Haut in vivo,** Hautarzt 47, 1996

The present study was designed to evaluate the effects of single irradiation either with UVA (dosage: 50J/cm2) or UVB (dosage: 1 MED) on surface structure and viscoelastic properties of human skin. Biophysical measurements by means of profilometry and cutometry were carried out on normally sun protected skin areas directly before and 24 hours after irradiation. UVA induced neither measurable changes in skin surface structure (expressed by the profilometrically calculated parameters of roughness Ra and RzDIN and the parameter Wt reflecting depths of furrows) nor in its viscoelastic properties (expressed by the cutometrically calculated ratio Uv/Ue reflecting viscosity and the ratio Ur/Uf reflecting biological elasticity). However, a dry themogenic dose of UVB radiation was followed by significant increase in the depth of furrows, increase in viscosity and decrease in biological elasticity.

J.R.Mekkes, D.N.H.Enomoto, R.Hoekzema, J.D.Bos, C.de Borgie P.M.M.Bossuyt, **Quantification of cutaneous sclerosis in patients with generalized scleroderma with a skin elasticity meter,** American Academy of Dermatology, 55th Annual Meeting March 1997

A skin score, a subjective assessment of skin elasticity, is widely used in patients with systemic sclerosis. Although this scoring method is regarded as validated and accepted tool, the interobsever and intraobserver reproducibility are relatively poor. Aim of the study: To investigate whether the recently developed SEM 474 cutometer, which exerts a controlled vacuum force to the skin, can measure skin elasticity more objectively.

B.K.Sun, H.K.Lee, J.C.Cho, J.I.Kim, **Clinical Improvement of Skin Aging by Retinol Containing Products: With Non-Invasive Methods,** IFSCC Conference Mexico 25-27 September 1997

Retinol as well as RA (retinoic acid) is well known to have many benificial effects on (photo)aged skin. But the skin irritation potential and unstable condition of the products containing them have been some problems in their cosmetic uses. So, retinol containing gel product (MDC gel) was developed for less skin irritancy and more stability in cosmetic products. To examine the clinical effects of retinol containing product, we used clinical non-invasive assessment techniques on 40 volunteers for 6 months maintaining double-blind test conditions. According to our results, the use of retinol containing product improved skin color and hydration level slightly. But there was no statistical difference. There was no erythema reaction compared to the use of RA. Especially, the skin elasticity increased above 20% and skin wrinkles od crows‘feet region decreased more than 10%. Besides the instrumental analysis, a large majority of volunteers felt that their skin was improved in the case of wrinkles, elasticity, hydration and color.

M.Kläsgen-Radez, **Putting Claims to the Test**, SPC Oktober 1997

The pressure is on to substantiate your product claims or drop them altogether. Michael Kläsgen-Radez of Courage + Khazaka explains how high-tech equipment is making this possible in skin care.

H. Drobrev, **In Vivo Study of Skin Mechanical Properties in Scleredema of Buschke.** Derma 1029. October 1997

A non-invasive, in vivo suction device was used to investigate the mechanical properties of the skin in a patient with scleredema of Buschke. Clinical scoring of skin induration and measurements of skin elasticity were performed over 9 anatomic regions on admission and after 3 (on discharge), 17 and 28 months. Immediate distension, final distension and immediate retraction were significantly decreased, while the viscoeleastic to elastic ratio was significantly increased in the patient as compared to the healthy controls. Delayed distension and biological elasticity were preserved. Low value of skin distensibility correlated with a severe skin induration ($p<<0.001$). The changes were more expressive with the 8 mm-diameter measuring probe than the 2 mm-diameter probe. The method applied can be used for objective and quantitative assessment of skin involvement in scleredema of Buschke.

B.C.Murray, R.R.Wicket, **Correlations between Dermal Torque Meter®, Cutometer®, and Dermal Phase Meter® measurements of human skin,** Skin Research and Technology 1997-3

The Dermal Torque Meter® (DTM) and the Cutometer® are instruments that measure mechanical properties of skin. The NOVATMDermal Phase Meter® (DPM) measures the stratum corneum(SC) hydration level. The objectives of this study were to determine which parameters of the DTM data curves were most sensitive to changes in SC hydration level, which of the two instruments (Cutometer or DTM) was most sensitive, and what correlations existed between the Cutometer and DTM data.

H.Blitz, M.Schidelko, H.P.Nissen, H.Driller, **Skin mechanics measured in vivo: A new and accurate model more sensitive to age and moisturising treatment,** Australian Journal of Dermatology: Abstracts 19th World Congress of Dermatology, Sydney, June 1997

Measurements of skin mechanics are required to better understand the condition of human skin and loss of elasticity in the epidermis. The study presents a new method which shows that cosmetic products are capable to induce significant changes in the mechanical properties of human skin after an application twice a day for one week.

H. Dobrev, **In Vivo Study of Skin Mechanical Properties in Patients with Systemic Sclerosis.** 5th Nat.Congress of Theumatology in Sofia, November 1997.

Background: Measurements of skin elasticity are more sensitive than the skin severity score and very appropriate for an evaluation of sclerodermatous skin.

H. Dobrev, **Changes of Skin Mechanical Properties after Single Application of Different Moisturizers.** 1st Balkan Congress of Medicine, October 1997

H. Dobrev, **Use of Cutometer to Assess Dermal Oedema in Erysipeals of the Lower Legs.** 1st Balkan Congress of Medicine, October 1997

H. Dobrev, **In Vivo Study of Skin Mechanical Properties in Erysipelas of the Lower Legs.** 1st Balkan Congress of Medicine, October 1997

H. Dobrev, **Value of the Non-Invasive Skin Bioengineering Investigations in Patients with Scleroderma (Review).** 5th National Congress of Rheumatology, November 1997

S.A.Barkovic, Y. Appa, G. Payonk, **A Clinical Evaluation of a Glycolic Acid Hand Treatment with Retinyl Palmitate and an SPF 15 on Photoaged Hands**, AAD, Orlando, March 1998

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.

J. Hart, Ch. Polla, **Oat Fractions.** Cosmetics & Toiletries March 1998

Clinical and in vitro studies demonstrate the ability os specific topically applied oat fractions (oat ß-glucan, hydrolyzed oat protein and oat extract) to provide targeted benefits in the skin care and hair care.

W. John Kitzmiller, L. Singer, D. Page, M. Visscher, R.R. Wickett, **Use of Noninvasive Biophysical Techniques to Compare Effects of Laser Resurfacing and Dermabrasion on Perioral Skin**. 12th ISBS, Boston, 06/98.

R. Lambrecht, P. Clarys, B. Gabard, A.O. Barel, **Relation Between Capacitance Measurements and Biomechanical Skin Properties Under Different Hydration Conditions.** 12th ISBS, Boston, 06/98.

Ph. Humbert, H. Zahouani, N. Bizouard, J. Asserin, J.Arnaud-Battandier, **Evaluation of Efficacy of an Anti-Aging CreamContaining Anti-Glycation Agents and Vitamins Using a Non-Invasive Method.** 12th ISBS, Boston, 06/98.

P.Y. Rizvi, St. Kaplan, B.M. Morrison, **Seasonal Skin Changes as Measured by Biophysical Instruments.** 12th ISBS, Boston, 06/98.

P.Y. Rizvi, **Seasonal Skin Changes as Measured by Biophysical Instruments.** Poster 12th ISBS Boston, 06/98.

H. Tronnier, **Neuere Wirkstoffe in der Kosmetik**. Kosmetische Medizin Nr. 2-1998

Eine Reihe neu oder wieder entdeckter Wirkstoffe für die Kosmetik wird vorgestellt und kritisch beleuchtet. Manches ist an Wirkungen an der Haut nachgewiesen, anderes bisher nur in Modellen und dann einfach auf die Haut übertragen worden. Für den Wirkungsnachweis bedeutet das aber speziell in der Kosmetik, daß dieser zur Bewertung prophylaktischer Maßnahmen, die ja erst nach Jahrzehnten zum Tragen kommen, natürlich kaum geführt werden kann, und hier ein Rückgriff auf eine Beeinflussung von Mechanismen, die zu einer Alterung, vor allem einer vorzeitigen führen, erfolgen muß.

Y. Yazan, M. Seiller, S. Avcier, M. Demirel, **Comparison of Glycolic, Lactic and Glycolic + Lactic Acids in Multiple Emulsion Systems.** 20th IFSCC Congress Cannes, 09/1998

Y. Nishimori, H. Tsuruoka, K. Matsumoto, M. Kawai, A. Pearse, C. Edwards, R. Marks, **A new Approcah for the Improvement of Photoagend Skin Through Collagen Fiber Bundle Reconstruction Mechanism.** 20th IFSCC Congress Cannes, 09/1998.

Many anti-wrinkle and anti-photoaging cosmetics contain retinoic acid (RA) or RA-derived chemicals to induce the production of connective tissue components. However, this approach does not always produce longlasting or satisfactory results. Investigations of injured skin reveal that the ultrastructural condition of dermal connective tissue, especially dermal collagen fiber bundles, is an extremely important factor affecting both the mechanical properties and surface profiles. Photoaging is skin injury caused by solar radiation. Our research indicates that restoration of the ultrastructural changes of ther dermal collagen fiber bundles is more important than simple promotion of the production of cnnective tissue components.

D. Black, A. Del Pozo, S. Diridollou, J.M. Lagarde, Y. Gall, **Assessment of Emollient Effects on the Stratum Corneum of Wingter Dry Skin Using A Multiple Measurement Approach**. Stratum Corneum II Symposium, Cardiff, 09/98.

A randomised single-blind study was carried out on 13 female volunteer subjects aged 21-43, (mean 35 yrs), with the aim of assessing the effects of a glycerine/vaseline based emollient cream on the stratum corneum of winter dry skin.

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.

C.Greif, W. Wigger-Alberti, M. Arens-Corell, P. Elsner, **Beurteilung einer Körperlotion für trockene und empfindliche Haut.** Allergologie 3, 03/1999

M.Förschle, I. Frei, **Elastisch und geschmeidig**. Kosmetik International 6/99

*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.

R. Jermann, R. Voegeli, J. Meier, **Wirkstoffe und Marktsystem der Pflegekosmetik – Rückblick, Veränderungen und zukünftige Trends**. SÖFW-Journal-Jubiläumsausgabe 1999

Die Pflegekosmetik weist eine eher junge Geschichte auf, die weniger als 100 Jahre zurück geht. Pentapharm ist seit über 20 Jahren Hersteller von Pflegewirkstofen für die Kosmetikindustrie. Vor allem in dieser Zeit hat sich sowohl bei den Produkten der Pflegekosmetik wie auch bei den Wirkstoffen viel verändert. dieser Artikel zeigt im ersten Teil die Entwicklungen des ganzen Marktsystems der Pflegekosmetik mit all den Einflüssen von außen.

U. Heinrich, B. Meick, H. Tronnier, **Neue Wege bei Behandlung von Cellulite**. Pharmazeutische Zeitung Sonderdruck 45/94, 139. Jahrgang, 1999

Das Körperbewußtsein der Verbraucher ist in den vergangenen Jahren deutlich gestiegen. Dabei werden neben reinigenden und pflegenden Anwendungen auch zunehmend Maßnahmen ergriffen, um die Körpersilhouette zu verbessern. Die Cellulite – ein weit verbreitetes Phänomen – nimmt dabei eine zentrale Stellung ein. Das sichtbare Bild der Cellulite beruht auf einer Zunahme von Fettpolstern in der Subcutis (Unterhautfettgewebe), einer Bindegewebesschwäche sowie einer Minderung der Durchströmungsverhältnisse in en Blut- und Lymphbahnen. Die Ursache ist somit eine zum Teil anlagebedingte Schwächung des Bindegewebes mit gleichzeitigen Auftreten von vergrößerten Fettzellkammern infolge von Übergewicht, unausgewogener Ernährung, Bewegungsmangel, etc.

L.M.Harnisch, M.K. Raheja, L.K.Lockhart, A.Pagnoni, **Substantiating Antiaging Product Claims**. C&T, Vol. 114, No. 10, October 1999.

R. James Koch, MD; Elbert T. Cheng, MD; **Quantification of Skin Elasticity Changes Associated With Pulsed Carbon Dioxide Laser Skin Resurfacing;** ARCH FACIAL PLAST SURG/VOL 1, OCT-DEC 1999

While Skin resurfacing using pulsed carbon dioxide lasers appears to have a skin-tightening effect clinically, the debate continues over its actual effects on dermal collagen. There have been multiple histological evaluations of its effects, but it is unclear how this translates into substantive changes in skin elasticity. Objective measures of results obtained from facial plastic surgery procedures are desirable. Uniform photographic documentation has improved, but there are still inconsistencies in patient position and lighting, which may lead to skepticism over viewing the presented results. Also, physician-based grading systems have inherent elements of subjectivity no matter how good the intentions. Quantification of results in a purely objective manner would be of great benefit for all facial plastic procedures. This need has been recognized with the use of cephalometric radiographs to monitor orthognathic procedures and grid systems to assess browlift results.

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

H.Dobrev, **Non-invasive Monitoring of the Mechanical Properties of Keloids during Cryosurgery.** Acta Derm Venereol, 1999

M. Puschmann, A. Melzer, H.P. Nissen., **Hautglättende, 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.

H.Fadhli, C.Edwards, S.Gaskell, R.Marks, **Differences between normal skin and Unaffected Psoriatic Skin are Demonstrated by Cutometer and Uniaxial Extensometry, and Confirmed by Measurement of Elastic Fibre Content.** 13th ISBS Jerusalem, March 2000.

F.Henry, O.Martalo, G.E.Pierard, **Liminar Perception Threshold of Cutaneous Distension**. 13th ISBS Jerusalem, March 2000.

L.F.Gouveia, J.Tavares, L.Rodrigues, **Mathematical Modelation of Cutometer Acquired Signals**. 13th ISBS Jerusalem, March 2000.

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

H. Dobrev, **Photoaging and Skin Elasticity**, Research Reports of the Union of scientists in Bulgaria, 19. May 2000

S.Diridollou, A.Pavy-Le Traon, A.Maillet, F.Bellossi, D.Black, F.Patat, J.M.Lagarde, M.Beron, Y.Gall, **Characterisation of Gravity-Induced Facial Skin Oedema Using Biophysical Measurement Techniques**. Skin Research and Technology, Vol. 6, No. 3, August 2000

In humans, the microgravity environment can be expected to induce swelling of facial tissues and shrinking of the tissues in the lower limbs, together with a loss in body weight. To evaluate fluid shifts in skin, the head-down bed-rest model was used. the aim of the present study was to evaluate the appearance of facial oedema in subjects undergoing antiorthostatic bed-rest at an angle of –10°.

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.

L.F.Gouveia, J.Tavares, L.Rodrigues, **Mathematical Modulation of Cutometer acquired signals.** Skin Research and Technology, Vol. 6, No. 3, August 2000

A.Morita, K.Kobayashi, I.Isomura, T.Tsuji, J.Krutmann, **Ultraviolet A1 (340-400nm) Phototherapy for Scleroderma in Systemic Sclerosis**. AAD 2000

The presence of an inflammatory infiltrate consisting of helper T cells and a dysregulated matrix metabolism leading to excessive deposition of collagen are two pathogenetic factors responsible for the developments of fibrosis and sclerosis in patients with systemic sclerosis. In previous studies, ultraviolet A1 (UVA1) radiation phototherapy was shown to deplete skin-infilltrating T cells through the induction of T-cell apoptosis and to up-regulate the expression of matrixmetalloproteinase-1 (collagenase-1) in dermal fibroblasts.

D.Schmid, A.Lang, T.Allgäuer,Ch.Bayerl, E.G.Jung, **Beurteilung der Veränderung der Hautbeschaffenheit durch die Heilpflanzensäfte Brennnessel und Löwenzahn**. Akt.Dermatol. 2000.

Wir führten eine Anwendungsbeobachtung über die Beeinflussung von objektiven und subjektiven Parametern der Hautbeschaffenheit durch die Kombination der Heilpflanzensäfte Brennnessel und Löwenzahn bei gesunden Probandinnen durch. Zehn Probandinnen (Versuchsgruppe) nahmen über 6 Wochen die Kombination der Heilpflanzensäfte oral ein, gleichzeitig erhielten sie eine standardisierte Körperpflege mit Basiscreme DAC, weitere 10 Probandinnen (Kontrollgruppe) benutzten lediglich die standardisierte Körperpflege mit Basiscreme DAC.

J.Grudeva-Popova, H.Dobrev, **Biomechanical measurement of skin distensibility in scleredema of Buschke associated with multiple myeloma**. Clinical and Experimental Dermatology, 2000

H.Dobrev, **Evaluation of the photoprotective activity of topical indomethacin, betamethasone valerate and emollients by means of non-invasive measurements of the skin elasticity**.

H.Dobrev, **Photoaging and Skin Elasticity**. National Session of Young Scientists, May 2000

H.Dobrev, **Changes in Skin Elasticity after an Application of Emulsions containing urea and alphahydroxy acids**. 7th National Congress of Dermatology and Venereology, May 2000

H.Dobrev, **Influence of telegrammatherapy on the skin physiology.** 7th National Congress of Dermatology and Venereology, May 2000

H.Dobrev, **Treatment of psoriasis vulgaris with hydrocolloid occlusive dressins in combination with betamethasone dipropionate 0.05% cream**. 7th National Congress of Dermatology and Venereology, May 2000

H.Dobrev, **Use of Cutometer to assess epidermal hydration**. Skin Reserach and Technology 2000.

H.Song, **The Effects of Inositol Extracted from Rice on the Skin**. Personal Care Ingredients Asia, March 2001

A.O.Barel, R.Lambrecht, P.Clarys, **Mechanical Function of the Skin: State of the Art**. Skin Bioengineering. Vol 26, March 2001

The in vivo mechanical properties of the human skin have been studied extenively. The skin is a complex five-layered structure organ, which as many other biological materials presents the typical properties of elastic solids and various liquids in a combined way known as viscoelastic properties. Typical mechanical properties of viscoelastic material are nonlinear stress-strain properties with hysteresis (the stress-strain curve obtained during loading will not be superposed by the curve obtained during unloading).

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

There is no doubt that the application of cosmetic lipids has many positive effects on the structure and function of the skin. These effects are pleiotropic, caused either by direct interaction with the epidermis, particularly the stratum corneum, or indirectly, by influencing the physiologic, homeostatic condition of the skin.

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.

R.R. Wickett, **Stretching the Skin Surface:** Skin Elasticity. C&T, March 2001.

This contribution to the series “From Test to Claim” deals with the instrumental measurement of skin elasticity, discussing measuring conditions, relevant parameters to record, data analysis and the type of conclusions that could be drawn from such measurements. In particular, this paper will review the use of the Dermal Torque Meter (DTM) and the Cutometer to measure the elasticity of the stratum corneum.

D.Khazaka, **News in the Field of Elasticity Measurement**. Cosmetic Science Conference 2001

H.Dobrev, **Evaluation of the inhibitory activity of topical indomethacin, betamethasone valerate and emollients on UVL-induced inflammation of means of non-invasive measurements of the skin elasticity.** Photodermatology, Photoimmunology & Photomedicine, January 2001.

Topical indomethacin has been reported to inhibit ultraviolet light-induced erythema. The objective of this study was to verify this assertion and to compare indomethacin 10% ointment to betamethasone valerate 0.1% ointment, water-in-oil emulsion and oil-in-water emulsion by means of non-invasive skin elasticity measurements.

K.Tsukahara, Y.Takema, S.Moriwaki, T.Fujimura, S.Mayama, G.Imokawa, **Carbon dioxide laser treatment promotes repair of the three-dimensional network of elastic fibres in rat skin**, British Journal of Dermatology, Vo143, 2001.

We have previously reported that ultraviolet (UV) B irradiation induces a loss of linearity in the three-dimensional structure of dermal elastic fibres, which results in the reduction of elastic properties of the skin and leads to wrinkle formation. We further reported that repair of wrinkles by all-trans retinoic acid is accompanied by recovery of the linearity of elastic fibres. Carbon dixide lasers are widely used for treating wrinkles in cosmetic surgery.

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.

H. Dobrev, **A Study of Human Skin Mechanical Properties by Means of Cutometer**, Folia Medica, XLIV 3/2002

M. Aalberts, **Functional changes in the bovine cervix during preganancy**, Thesis 2001-2002, Utrecht University, Faculty of Veterinary Medicine

P.M. Van Zuijlen, **Perspectives On Burn Scar Evaluation and Artificial Skin**. Dissertation 2002

G. Maramldi, M. A. Esposito, **Potassium Azeloyl Diglycinate: A Multifunctional Skin Lightener,** Cosmetics & Toiletries, March 2002, Vol. 117, Nr. 3

Skin lightening and sebum normalization are among the useful cosmetic functions of potassium azeloyl diglycinate, a soluble derivative of azelaic acid.

T. Gambichler, P. Altmeyer, S. Rotterdam, M. Herde, M. Stücker, K. Hoffmann, **Bioengineering der Haut,** Kosmetische Medizin, 4/2002, 23. Jahrgang

Nicht-invasive Untersuchungstechniken (Bioengineering) am Hautorgan werden in der Dermatologie und Kosmetologie zunehmend eingesetzt. Gegenüber der bloßen klinischen Untersuchung bietet der Einsatz von Bioengineering-Methoden viele Vorteile. Es lassen sich morphologische und funktionelle Parameter der Haut objektiv darstellen und standardisiert messen, die der bloßen klinischen Untersuchung bzw. sensorischen Wahrnehmung oft unzugänglich sind.

H. Zahouani , J. Asserin, Ph. Humbert, **Mechanical Properties of the Skin During Friction Assessment**, CRC Press 2002, pp. 49-58.

Previous studies on the tribology of human skin have attempted to demonstrate a correlation between certain certain tactile sensations and the friction between the skin surface and variety of probes. In addition, friction measurements have been used to provide in vivo information about the effects of age, hydration, dermatitis, and cosmetic products on both the interfacial and bulk properties of skin.

H.S. Yoon, S.H. Baik, C.H. Oh, **Quantitative measurement of desquamation and skin elasticity in diabetic patients,** Skin research and Technology, Vol. 8,No. 4, Nov. 2002

Diabetes mellitus is responsible for many cutaneous alterations. Xerosis and sclerotic change of the skin are the most common findings. Recently non-invasive computerized devices have been developed and used for determining the desquamation rate and measuring the mechanical properties of the skin. Using these devices, the necessity to characterize the conditions of the skin in the healthy as well as the diseased state is increasing.

P. Humbert, P. Creidi, B. Chadoutaud, J.C. Choulot, P. Msika, **Photoageing: clinical and biometrological results of a double-blind randomized trial evaluating a new cosmetic product containing avocadofurane plus pentapeptides and retinol (abstract),** 11th Congress of the European Academy of Dermatology and Venereology, Prag 2002.

The role of metallo matricial proteinases (MMPs) in cutaneous ageing is now well established. Moreover the decrease of TGF-beta has been more recently discovered. Two new molecules have been developed in this field: pentapeptides which inhibit the production of MMP1, -3, -9 by UV exposure on fibroblast cultures and pure heptadecadienylfurane (Avocadofuranea) which increases the collagen synthesis via a specific stimulation of TGF beta.

J-H. Park, S-W. Son, Y-M. Yoon, M-H. Lee, Y-S. Lee, H-C. Kim, H-S. Oh, C-H. Oh, **Objective evaluation for xerosis by morphological study in atopic dermatitis,** 2002 U.S. Symposium of the International Society for Bioengineering and the Skin, Baltimore Oct. 24-26, 2002

It is essential to be able to measure and record the severity of atopic dermatitis for routine clinical practice and research. Many clinical severity scales have been proposed, but not yet objective. Of

severity scoring systems currently available for atopic dermatitis, the SCORAD index has been the most extensively tested.

Oba A., Gomi T., Nishimori Y., Graves C., Pearse A., Edwards C., **A Non-invasive Method for Measuring Invisible Subcutaneous UV Damage,** 22nd IFSCC Congress, Edinburgh, 25.09.2002

Repeated exposure to UV radiation can induce subcutaneous damage leading to permanent structural degradation and formation of visible wrinkles. In the early stages when damage is slight, the body is capable of repairing itself , and intervention with certain drugs or treatment products may slow or even reverse the process of photoaging. This is not possible, however, when damage is severe and extensive.

H. Zahouani, C. Pailler-Mattei, R. Vargiolu, M.A. Abellan, **Assessment of the elasticity and tactile properties of the human skin surface by tribological tests,** 22nd IFSCC Congress, Edinburgh, 25.09.2002

The current paper describes the assessment of the visco-elasticity and tactile properties during a static and frictional contact of a spherical indentor on an inner human forearm. The current techniques that simultaneously measure the normal load F_z between the contacting surfaces and the friction force F_x, can be used to determine the normal and lateral stiffness, the Young modulus, static and dynamic friction forces F_z, F_d and respective friction coefficients: μ_s, μ_d.

L.M. Rodrigues, P.C. Pinto, P. Lamarao, **After-sun claims substantiation: experimental criteria to assess the in vivo effects of sun care products under controlled-using conditions,** Cosmetics & Toiletries, Vol. 117, No. 10, October 2002

The authors describe a practical method of substantiating claims of “after-sun” products. Ten healthy women 35-65 years old were irradiated on both legs (antero-lateral) in a laboratory for six sequential days using an indoor solarium-type UV source. Efficacy assessment endpoints were defined from the product’s typical claims.

H. Dobrev, **Study of Human Skin Fatigue**, Medicine and Stomatology Session, 18 October, 2002 House of Scientists, Plodiv, Bulgaria

P. Msika, F. Perin, P. Beau, et. al., **AvocadoFurane, Pentapeptides and Soy Isoflavones: A Clinical Study against Hormonal Aging, Bioengineering and The Skin**, International Congress 27-28th June 2002, Paris

A patented association containing a new inducer of collagen synthesis via TGF-beta (Avocadofurane), an MMP’s inhibitor (Pentapeptides) and soy isoflavores was evealuated in postmenopausal skin aging. 30 women were engaged in two clinical studies (age $<$ 50, no hormonal replacement theraphy) and have applied twice daily the product for 1 year.

U. Berndt, P. Elsner, **Hardware and Measuring Principle: The Cutometer**, In P. Elsner, et . al. (Edts): Bioengineering of the Skin, CRC Press, 2002, Chapter 7

H. Dobrev, **Mechanical Properties in Other Dermatological Diseases,** In P. Elsner, et . al. (Edts): Bioengineering of the Skin, CRC Press, 2002, Chapter 7

H. P. Dobrev **Mechanical Properties in Other Dermatological Diseases**, Bioengineering of the Skin: Skin Biomechanics, chapter 19, ed. by P. Elsner, E. Berardesca, K.-P. Wilhelm u. H. I. Maibach, Dermatology: Clinical & Basic Science Series, CRC Press LLC, Florida/ USA, 2002.

Human Skin, as a complex multi-layered organ, has three major mechanical properties: Stiffness, i.e., resistance to change of shape; elasticity, i.e., ability to recover the initial shape after deformation; Viscoelasticity, i.e., time-dependent deformation with a “creep” phenomenon and nonlinear

stress-strain properties with “hysteresis”.These properties are altered in dermatological diseases, which are accompanied with pathological induration or softening of the skin. Noninvasive bioengineering measurements allow quantifying the alterations of skin mechanics *in vivo.*

Hristo Dobrev, **In vivo study of skin mechanical properties in Raynaud’s phenomenon,** 14th International Congress for Bioengineering and the skin, May 21-24, 2003

Mechanical properties of the skin in patients with suspected secondary Raynaud’s phenomenon significantly differ from these in patients with primary Raynaud’s phenomenon and resemble those in patients with edematous phase of scleroderma. Our findings suggest that the non-invasive measurements of skin elasticity could be helpful in identifying patients with Raynaud’s phenomenon at risk of developing systemic sclerosis.

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.

D. Brokken, LJM Schlangen, PM van Kemenade, **A mechanical model for the skin suction experiment**, Skin Research and Technology, Vol. 9, Nr. 2, May 2003, “Abstract Nr. P72”.

The skin suction experiment is one of the most widely used methods in dermatology and cosmetology to evaluate the mechanical properties of the skin. Usually, the skin is sucked into an aperture repeatedly by applying an intermittent partial vacuum (P).

I. Sadiq, T. Stoudemayer, A. Kligman, **Blue light visualizes the degree of solar elastosis in photodamaged human facial skin**, Skin Research and Technology, Vol. 9, Nr. 2, May 2003, “Abstract Nr. P74”.

We have utilized the short wavelength visible light (blue light) to visualize the fluorophores and chromophores of photo-aged facial skin. Topographic details of the surface can also be seen with great clarity.

*H. Dobrev***, In vivo study of skin mechanical properties in Raynaud´s phenomenon**, Skin Research and Technology, Vol. 9, Nr. 2, May 2003, “Abstract Nr. P76”.

Raynaud´s phenomenon is usually the first symptom on patients with systemic sclerosis and may precede skin changes by several months or years. Non-invasive measurements of skin elasticity are very sensitive and appropriate for objective and quantitative evaluation of sclerodermatous skin.

*HK Lee, SY Ahn, JH Bae, SJ Moon, IS Chang***, Comparisons of skin characteristics between men and women using non-invasive methods in young healthy Asians**, Skin Research and Technology, Vol. 9, Nr. 2, May 2003, “Abstract Nr. P84”.

Objective: Skin has different properties depending on intrinsic effects such as inherent factors, race, gender, and so on. Besides, it has been known that skin may change because of the environmental stress such as UV, climate and life style.

M. Jouandeaud, M. Dana, B. Closs, **A new generation of tensor actives**, Household and Personal Products Industry, June 2003

After age 50, or thereabouts, women experience a slackening of the skin and a loss of elasticity and tone. Cutaneous aging results primarily in the appearance of more or less marked wrinkles, which are accentuated on the photo-exposed body areas such as the face, the neck or hands. In or-

der to “erase”the effects of age, consumers are eager to test an entire range of anti-wrinkle substances, or take more drastic measures such as undergoing plastic surgery.

L.P.L. van de Vijver, E. Boelsma, R.A. Bausch-Goldbohm, L. Roza, **Subjective skin condition and its association with objective skin measurements**, Cosmetics & Toiletries, Vol. 118, No. 7, July 2003

From a group of 302 volunteers, the authors obtained both selfreported subjective evaluations of skin condition and objective measurements of skin conditions, and then looked for correlations between the subjective and objective kin measures.

L.J.M. Schlangen, D. Brokken, P.M. van Kemenade, **Correlation between small aperture skin suction parameters: statistical analysis and mechanical model,** Skin Research and Technology, Vol.9, No. 2, May. 2003

Skin suction experiments are widely used in order to evaluate the effects of skin treatments, both for cosmetic and for dermatological purposes. Classically, the elevation of the skin is measured at different discrete time instances after the pressure has been changed. Relations between the classical parameters-Uv, Ur, Ue and Uf-have been investigated and used in order to develop a new model for interpreting the mechanical properties of the skin.

P-A. Wendling, G. Dell'acqua, **Skin biophysical properties of a population living in Valais, Switzerland,** Skin Research and Technology 2003, 9, 306-311

On average we observed low values of skin capacitance that identify subjects with dry skin. Measures of skin visco-elasticity ratios were also particulary low, while skin pH and sebum content were in the normal range. Age was correlated with a decrease of skin elasticity and sebum content, but there was no correlation with hydration or pH.

H. Dobrev, **Application of Cutometer Area Parameters for Study Human Skin Fatigue,** Department of Dermatology and Venereology, Medical University, Plovdiv, Bulgarien.

The hallmark of age-related changes of skin mechanical properties is the decrease in its elastic properties (1-2). This results in bigger fatigue of adult skin than young skin after applying multiple stress at one and the same anatmoic region.

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.

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.

R. Randall Wickett **Standardization of Skin Biomechanical Measurements,** Bioengineering of the Skin: Skin Biomechanics, chapter 15, ed. by P. Elsner, E. Berardesca, K.-P. Wilhelm u. H. I. Maibach, Dermatology: Clinical & Basic Science Series, CRC Press LLC, Florida/ USA.

Standardization of measurement methods has been a goal of many researchers working on noninvasive measurement of skin function. For example, Pierard stated, “optimization of noninvasive biophysical measurements should benefit from strict standardization of measurements and frequent calibration of devices.” While no absolute standards for skin measurements have been published, helpful guidelines have been published for measurement of transepidermal water loss (TEWL) and the electrical properties of skin for assessment of skin hydration.

U. Berndt, P. Elsner **Hardware and Measuring Principle: The Cutometer®,** Bioengineering of the Skin: Skin Biomechanics, chapter 07, ed. by P. Elsner, E. Berardesca, K.-P. Wilhelm u. H. I. Maibach, Dermatology: Clinical & Basic Science Series, CRC Press LLC, Florida/ USA.

The biomechanical properties of human skin are a complex combination of elastic and viscous components. Elasticity correlates with the function of elastin fibers; viscosity is controlled by the collagen fibers and the surrounding intercellular ground substance, which consists primarily of water and proteoglycans. The cutometer allows the measurement of the viscoelastic properties of the skin in vivo, which provides valuable information on physiological and pathological changes of human dermis as well as on the efficacy of topical treatments. It is recognized as a standard tool in dermatological and cosmetic research.

A. O. Barel **Product Testing: Moisturizers**, Bioengineering of the Skin: Skin Biomechanics, chapter 21, ed. by P. Elsner, E. Berardesca, K.-P. Wilhelm u. H. I. Maibach, Dermatology: Clinical & Basic Science Series, CRC Press LLC, Florida/ USA.

The presence of an adequate amount of water in the stratum corneum is important for maintaining the following properties of the skin: general appearance of a soft, smooth, flexible, and healthy-looking skin; and an intact barrier function allowing a slow rate of transepidermal water loss (TEWL) under dry external conditions, which are frequently encountered

H. Dobrev (Department of Dermatology and Venereology, Med. Uni. Plovdiv, Bulgaria), **Impact Of Three Different Emulsions On Skin Hydration And Elasticity.**

The well-hydrated skin is smooth, soft and elastic. Therefore, the restoration and maintenance of skin water content is the main goal of skin care products. Currently, two kind of moisturizers are used [1, 2]: Emollients (lipids), which reduce the loss of water from the skin by simple occlusion of its surface and by improvement of water-holding capacity of stratum corneum in result of restoration of the lipid layers around the corneocytes. Humectants (urea, glycerin, lactic acid, pyrrolidone carboxylic acid, hyaluronic acid), which bind or attract water in or to the corneal layer.

*Hristo Dobrev***, Comparative Study Of The Mechanical Properties In Erysipelas Of The Lower Legs Using Suction Method And Share Wave Propagation Method**, EADV Plovdiv Bulgaria, 13th Congress “The Renaissance Of Dermatology”, Florence 2004.

Inflammatory dermal edema in erysipelas alters skin mechanics. The aim of this study was to compare the informativeness of two different methods for evaluation of skin mechanical properties.

Hristo Dobrev, **Application Of Cutometer Area Parameters For Study Human Skin Fatigue**, Department of Dermatology and Venereology, Med. Uni. Plovdiv, Bulgaria.

The hallmark of age-related changes of skin mechanical properties is the decrease in its elastic properties [1-2]. This results in bigger fatigue of adult skin than young skin after applying multiple stress at one and the same anatomic region. Skin fatigue can successfully be evaluated with a suction skin elasticity meter (Cutometer) using measurements with several repetitions of the measuring cycle [3].

Dr. M. Fröschle, Dr. R. Plüss, A. Peter, F. Etzweiler, **Phytosteroids for skin care**, Personal Care, Vol. Sept. 2004.

Healthy skin is a largely self-regulating system. In order to keep metabolic processes functioning efficiently, the relevant biological precursors and activators must be available to the skin cells for metabolism. If, due to age-related changes, the body no longer provides a sufficient amount of certain substances, an additional external supplement can proactively support the biological processes and thus counteract the advance of the ageing process.

F. M. Hendriks, D. Brokken, C.W. J. Oomens, F. P. T. Baaijens, **Influence of hydration and experimental length scale on the mechanical response of human skin in vivo, using optical coherence tomography**, Skin Research and Technology 10, pp. 231-241, 2004.

Human skin is a complex tissue consisting of different layers. To gain better insight into the mechanical response was studied with experiments of various length scales. Also, the influence of (superficial) hydration on the mechanical response is studied.

Dr. med. dent. JENS RABBELS; **Klinische und Experimentelle Untersuchungen zur Abheilung von Spalthautentnahmestellen;** Berufsgenossenschaftlichen Unfallklinik Tübingen 2004

1 Einleitung

1.1 Die Wunde Man versteht unter einer Wunde eine Unterbrechung des Zusammenhangs von
Körpergewebe mit oder ohne Substanzverlust. Ursache können unterschiedliche physikalische oder chemische, aber auch entzündliche oder ischämische Einwirkungen sein. Dabei kommt es zur Eröffnung von Blut- und Lymphgefäßen sowie zur Zellschädigung. Unter einer kutanen Wunde wird eine mehr oder minder klaffende Durchtrennung der Haut verstanden. Die oberflächlichste Form einer Hautwunde ist die Hautabschürfung oder Exkoriation. Sie betrifft immer nur die gefäßlose Epidermis. Da die Epidermis zur Regeneration befähigt ist, heilen diese oberflächlichen Wunden narbenlos ab (9). Tiefere Wunden liegen vor, wenn die Verletzungstiefe in der Dermis liegt, wie z.B. bei Spalthautentnahmestellen. Die tiefste Form der Hautwunde ist der Vollhautdefekt, bei dem alle Hautschichten verlustig sind.

Prof. Dr. med. H. Tronnier, PD Dr. Ulrike Heinrich, **Beautytek-Studie: Gutachten über einen Wirksamkeitsnachweis einer kosmetischen Behandlung**, Dermatronnier, Institut für experimentelle Dermatologie i. A. für medilab GmbH & Co., Würzburg, Mai 2004.

Unter Bezugnahme auf unseren Forschungsauftrag 19/2/04 vom 20.02.2004 sowie unter Bezugnahme auf Ihr Schreiben vom 29.09.2003 erstatten wir Ihnen nachfolgend ein Gutachten über einen Wirksamkeitsnachweis einer kosmetischen Behandlung. *

G. Guglielmini, M. Cucchiara, **Cosmetic treatment for heavy legs**, Research and development Laboratories, Pero, Italien, poster presentation, IFSCC Orlando USA, 2004.

Heavy legs is a really widespread problem. It hits the 50% of the adults of more than 50 years old, with a with a prevalence for female sex, interested 4 times more than the male one. Subjects perceive some symptoms associated to a sense of tiredness and to a sensation of pain for lower limbs…

Manoj Kumar, **Biotechnology for Personal Care: A Case Study of Silk-Elastin Protein Polymer**, Biochemistry Department, USA, poster presentation, IFSCC Orlando USA, 2004.

Designer Proteins are in need as active ingredients to perform a variety of functions and to impart desired characteristics to personal care product formulations. Advances in genetic engineering offer a unique opportunity to design specific, targeted properties, and production of consistent fermentation based protein polymers with desired properties that are important to provide specific benefits.

J. C. Leverett, J. Gour, J. Mayne, **Immunofluorescent Imaging Of Dermal Proteins Using Laser Scanning Confocal Microscopy**, IFSCC Orlando 2004, Podium Proceedings.

More powerful tools are needed in order to develop the next generation of functional cosmetics. Today´s highly evolving field demands a greater understanding of the root causes of actinic and age related damage that until recently were seen as merely surface phenomenon. By understanding these causes, better solutions can be discovered which will produce a more profound effect for the consumer.

H. Dobrev, **Application of Cutometer area parameters for the study of human skin fatigue**, Skin Research and Technology 2005-11, May, pp. 120-122.

The hallmark of age-related changes of skin mechanical properties is the decrease in its elastic properties. This results in larger fatigue of adult skin than young skin after applying multiple stress at one and the same anatomic region.

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. Vincent, M. Szubert, I. Eris, K. Rogiewicz, **Efficacy of Dr. Irena Eris Anti-Cellulite Body Cream,** Poster presentation Centre For Science And Research Dr. Irena Eris, 2005.

Cellulite is a skin problem which characterizes non-inflammatory lesions of subcutaneous tissue (lipodystrophy), leading to changes in smoothness of skin surface. Epidemiological data indicates that cellulite is problem for 80-95% of women population. The pathogenesis of cellulite covers complex of different factors: genetics, hormonal and life style.

*Karl Lintner, Claire Mas Chamberlin, Philippe Mondon, Olivier Peschard***, IgG fragments regulate IL6 production in keratinocytes: potential use in anti-age treatments,** Sederma S.A.S., Le Perray, 78612 France, Presentation at the ISCC in Florence 2005. *

Cytokines play a fundamental role in inter-cellular communication. Their secretion rate and cellular concentrations are well regulated and in an equilibrium state (“homeostasis”) in healthy, young skin. Ageing leads to changes in these equilibriums. DHEA clearly controls IL6: the age-related decrease in DHEA (by a factor of >2 after age 50) is accompanied by increased IL6 levels. Cytokine IL6 is also known to be strongly induced in skin by UV rays.

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.

Sungyeon Ahn, Jihyun Bae, Seunghun Kim, Haekwang Lee, Seongjoon Moon, Ihseop Chang, Oksub Lee, **CORRELAT ION BETWEEN CUTOMETER® AND QUANTITATIVE EVALUATION USING MOIRE TOPOGRAPHY IN AGE-RELATED SKIN ELASTICITY,** Presentation at the ISCC in Florence 2005. *

As aging occurs, our skin gets more wrinkles, becomes drier and loses its elasticity. Validating the evaluation of skin elasticity is especially important, because it is not as visible as other signs of aging such as wrinkles. Here, we identified the correlation between age and the parameters given by

Cutometer®, and we present the parameters of that reflect the decreases in skin elasticity in terms of ages. (U_r/U_f, U_a/U_f, U_r/U_e, U_a, r = -0.687~-0.725). Also we developed an evaluation method to quantify the sensory value of viewing. A five-grade standard of Moire topographic photo scale on face was prepared using sensory evaluation of 20 to 61 year-old women.

Paola Granata , Roberto Maffei Facino , Adriano Ghirardini , Enzo Berardesca , Grazia Primavera , Manuela Carrera, **TYROSYL-HISTIDINE DIPEPTIDE: A NEW APPROACH AGAINST PREMATURE AGING,** Presentation at the ISCC in Florence 2005

Oxidative fragmentation of polyunsaturated fatty acids in the skin generates cytotoxic aldehydes, mainly 4-hydroxy-*trans*-2-nonenal (HNE), involved in premature skin aging and photo-aging, due to the formation of collagen and elastin cross-links, skin enzymes inactivation, accumulation of lipid peroxidation products. Since histidine-containing dipeptides have been recently shown to possess carbonyl quenching activity, we developed a series of different dipeptides with the aid of combinatorial chemistry and each of them was subjected to antioxidant and anti-carbonyl assays, in a cell-free model using the ORAC assay (Oxygen Reactive Antioxidant Capacity) for anti-lipoperoxidant activity, HPLC analysis for the evaluation of the HNE quenching ability and LC-MS/MS for the characterization of the site and of the mechanism of adduction.

Katsuhiko Yagi, Katsuki Ogawa, Tetsuya Kanemaru, Kyoko Joichi, Naomi Kunizawa, and Ruriko Takano, **OPTICAL REJUVENATING MAKEUP USING AN INNOVATIVE SHAPECONTROLLED HYBRID POWDER,** Presentation on the IFSCC in Florence 2005

For women, the sagging on the face skin that is noticed with aging is one of the important problems that
should be solved. Although conventional cosmetics that can prevent sagging are only skin-care products, no makeup cosmetics that can correct the appearance of sagging have been developed. The vital factors of an optical rejuvenating makeup were found to recover the skin tension and to lighten up the face shadow appeared on the sagging skin. Therefore, the hybrid powder consisting platy barium sulfate on the surface of titanium dioxide coated mica having red interference light was developed. The panel test resulted that almost all panels could realize the rejuvenating effect of the foundation containing the powder. The image analysis showed that the finishing of the foundation was 12-years-younger than no makeup face.

*Jin-Hui Kim, Gwan-Sub Sim, Jin-Hwa Kim, Dong-Hwan Lee, Young-Ho Cho, Bum-Chun Lee, Hyeong-Bae Pyo,***Effects of *Draconis sanguis* on antioxidant and MMP-1 expression in human dermal fibroblast,** Presentation on the IFSCC in Florence 2005.

UV irradiation stimulates the production of free radicals and reactive oxygen species (ROS) and overexpression of matrix metalloproteinases (MMPs) in the human skin. These cause various types of cell damages and destruction of connective proteins such as collagen in the skin. In order to develop new anti-photoaging agents, we examined the antioxidant activity and the inhibitory effect of MMP-1 (collagenase) with the extracts of oriental herbs.

F. Distante , V. Pagani , B. Green , A. Bonfigli , J. W. Fluhr, **OBJECTIVE EVALUATION OF PLACEBO EFFECT IN COSMETIC TREATMENT,** Presentation on the IFSCC in Florence 2005

Product's packaging and efficacy claims may stimulate pleasant emotions during cosmetics' use thus enhancing their perceived benefits. Aim of the study: To objectively evaluate the influence of packaging and strongly claimed attributes on cosmetic efficacy both by non-invasive bioengineering techniques and by self-assessment. The selected cosmetic product was a marketed antiaging gluconolactone-based formulation. The packaging was either a fancy refined jar or an unbranded plain container.

Sonnen-Apotheke, Kötzing, **Dermokosmetik**, Beratung in der Apotheke, PTA Nr. 11, Oktober 2005.

Eine gute Unterstützung bei Promotionaktionen zum Thema „Hautpflege“ sind Hautanalysegeräte. Sie erleichtern den Einstieg in die Beratung, individuell auf den Hauttyp und Hautzustand der Kundin oder des Kunden abegestimmt.

A. O. Barel, K. Henau, P. Clarys, **In vitro calibration and validation of the reviscometer using silicone polymers as simple skin model systems,** Presentation on the ISBS Meeting 2005 in Phildelphia, USA, abstract.

In vitro determination of the mechanical properties and isotropy of various polymers used as skin model systems can be determined using the shear wave propagation method. The Reviscometer (Courage-Khazaka, Cologen, Germany) measures the resonance running time (RTT) between 2 sensors which are placed with constant pressure on the surface of the material. The RTT times are expressed in arbitrary units related to time.

P. Clarys, K. Henau, A.O. Barel, **Investigation of intrinsic and photoaging of human skin using the reviscometer and the cutometer,** Presentation on the ISBS Meeting 2005 in Phildelphia, USA, abstract.

In vivo and mechanical isotropy/ anisotropy properties of the skin can be determined using the shear wave propagation method (Reviscometer, Courage-Khazaka). The wave travelling time from transmitter to receiver (Resonance Running Time, RTT), expressed in arbitrary time units, is inversely proportional to the stiffness of the skin.

*M. Jouandeaud, C. Lenaers, S. Mazalrey, J. Dorotyn, B. Closs,***Synthesis capacities of human fibroblasts compared to those of fibroblasts from striae,** Presentation on the ISBS Meeting 2005 in Phildelphia, USA, abstract.

The deterioation of the fibril network of the skin is due mainly to aging and other types of modifications such as hormonal modifications. One of the problems often encountered as a result of a modification of the skin fibrous network is striation.

H. Dobrev, **Evaluation of the efficacy of a Rooibos Extract containing anti-wrinkle cream**, EADV, May 2005, Sofia, Bulgaria (abstract and poster).

Background: Rooibos plant possesses scientifically proven anti-oxidative, anti-allergic, antimicrobial and anti-inflammatory features. Aim: To evaluate the efficacy of a Rooibos extract containing cream on aged facial skin using in vivo skin bioengineering techniques.

D. Schmid, F. Suter, F. Zülli; **Soothing Factor from Opuntia Cactus for Sensitive Skin;** SÖFW-Journal 131/11-2005, pp. 2-5;

Sensitive skin tends to be more susceptible to some environmental factors. People with sensitive skin report exaggerated reactions such as redness, itching or rashes when their skin is in contact with certain cosmetics, plants or fabrics, hot or cold, or insect bites. Normally, people with sensitive skin show quicker an erythemal reaction against ultraviolet irradiation. Skin that is sensitive to sun, typically shows allergic reactions, induced by ultraviolet radiation alone or in combination with chemical ingredients in skin care products.

D. Schmid, F. Suter, F. Zülli, **Soothing Factor from Opuntia Cactus for Sensitive Skin**, SÖFW-Journal 11-2005, pp. 14-18.

Sensitive skin tends to be more susceptible to some environmental factors. People with sensitive skin report exaggerated reactions such as redness, itching or rashes when their skin is in contact with certain cosmetics, plants or fabrics, hot or cold, or insect bites. Normally, people with sensitive skin show quicker an erythemal reaction against ultraviolet irradiation.

H. Dobrev, **The Effects of topically applied Matrixyl, natural grape seed and avocado oils on skin surface, hydration and elasticity**, EADV, May 2005, Sofia, Bulgaria (abstract). *

Background: Matrixyl is a lipophilic pentapeptide that stimulates the collagen synthesis by fibroblasts in the skin. The grape seed extract is rich in flavonoids which are powerful antioxidants. Avocado oil consists predominantly of unsaturated fatty acid glycerides, vitamins and minerals, and has good emollient properties.

L. K. Smalls, R. R. Wickett, M. O. Visscher, **Effect of dermal thickness, tissue composition, and body site on skin biomechanical properties**, Skin Research & Technology 2006, 12, pp. 43-49. *

The epidermis, the fibrous collagen and elastin network of the dermis, and the hypodermis give rise to the biomechanical properties of the skin. Measurements of these properties have been used extensively to evaluate treatments for the repair of facial actinic damage and the effects of aging and to assess the effectiveness of facial resurfacing treatments (1-3).

F. Khatyr, C. Imberdis, D. Varchon, J.-M. Lagarde, G. Josse, **Measurement of the mechanical properties of the skin using the suction test**, Skin Research & Technology 2006, 12, pp. 24-31. *

The mechanical behaviour of skin in vivo is both viscoelastic (1,2) and anisotropic (3-5). Currently, the suction test is the only real test that is in use in both research laboratories and dermatology departments. This is mainly because of the availability on the market of perfectly operational apparatuses such as the Dermaflex A (Cortex Technology, Hadsund, Denmark) (6) and in particular the Cutometer SEM575 (Courage Khazaka, Köln, Germany) (7).

F. Guillaumie, B. M. Malle, K. Schwach-Abdellaoui, T. C. Beck, **A New Sodium Hyaluronte for Skin Moisturization and Antiaging**, Cosmetics & Toiletries Vol. 121, No. 4, April 2006, pp. 51-58.

In response to growing concerns about animal-derived sources for hyaluronic acid, some researchers have turned to biotech methods to produce this skin moisturizing agent.

Rennekampff HO, Rabbels J, Reinhard V, Becker ST, Schaller HE; **Comparing the Vancouver Scar Scale with the cutometer in the assessment of donor site wounds treated with various dressings in a randomized trial;** Burn Care Res. May 2006

Cutaneous scarring observed in wounds is, to a significant degree, dependent upon the time it takes for the wounds to heal. Various topical dressings are proposed to influence healing time in donor sites. In this prospective randomized study, we examined the effect of Vaseline gauze (VD; Branolind, Paul Hartmann AG, Germany), Biobrane (BD; Bertek Pharmaceuticals, Inc., Morgantown, WV), an occlusive film dressing Barrier Flex (OD; Moelnlycke Health Care GmbH, Germany), and an equine collagen foil, Tissu Foil E (CD; Baxter, Heidelberg, Germany), on re-epithelialization and scarring in standardized donor site wounds. At 6 months after surgery, donor site scars and normal uninjured mirror sided skin were evaluated in 33 patients using both the Vancouver Scar Scale (VSS) and the cutometer SEM 575 (Courage and Khazaka). The median healing time for OD was 14 days, BD 16 days, CD 19 days, and VD 19 days. The single parameter pliability of the VSS was not significantly different from uninjured skin when all donor site scars were pooled. No difference was found between the four groups. Viscoelastic analysis of all pooled patient data showed a significant difference for Uf (total deformation), Ua (total recovery), Ur (immediate retraction), Ue (immediate distension), Ur/Ue, and Ur/Uf, indicating that donor sites significantly differed from normal uninjured skin.

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.

S. Tamburic, **Effects of Polymer Entrapment of Prunus Spinosa Fruit extract on its cosmetic efficacy**, Journal of Applied Cosmetology, vol. 24, number 2, April/June 2006, pp. 1-14.

The aim of this paper was to find out whether the entrapment of herbal extract into polymeric "reservoir" systems affects its skin efficacy.

C. Lenaers, M. Dana, M. Pinel, B. Closs, **Immediate and long-lasting skin tightening**, Personal Care, Sept. 2006, pp. 65-67.

The use of tensor active ingredients in anti-age care products is well-known to provide the users with immediate and visible effects. Nevertheless, these tensor active ingredients provide only mechanical effects on the skin surface that are also short-term effects.

D. Khazaka, **Objective Measurement at all Stages of the treatment**, 5th Asia Pacific Conference on Antiaging Medicine, Bali, September 2006.

The days are over when a dermatologist only looked at the skin to make a diagnosis and to decide about the following treatments and to recommend skin care products to use. For almost 20 years now there is scientific equipment available to measure different parameters on the skin, such as hydration and sebum level, pH, elasticity, pigmentation skin texture and wrinkles and many more.

D. Schmid, C. Schürch, F. Zülli, **Mycosporine-like Amino Acids from Red Algae Protect against Premature Skin-Aging,** Euro Cosmetics 9-2006, pp. 18-22.

Normal skin aging is accompanied by slow and continuous structural, functional, and metabolic changes in the skin. Such changes are greatly accelerated when the skin is exposed to solar UV radiation. The solar UV spectrum which reaches the earth's surface has been divided into UVB (290 – 320 nm) and UVA (320 – 400nm).

Enzo Berardesca, Norma Cameli, Grazia Primavera, Manuela Carrera;
Clinical and Instrumental Evaluation of Skin Improvement after Treatment with a New 50% Pyruvic Acid Peel; Dermatol Surg 2006

Pyruvic acid is an a-keto acid that presents keratolytic, antimicrobial, and sebostatic properties as well as the ability to stimulate new collagen production and elastic fibers formation. Because of its low *p*Ka and its small dimension, it penetrates rapidly and deeply through the skin, so far as to be considered a potent chemical peel agent. It has proven its efficacy for the treatment of many dermatological conditions such as acne, superficial scarring, photodamage, and pigmentary disorders. Pyruvic acid application usually induces intense burning, and the postpeeling period is characterized by erythema, desquamation, and, sometimes, crusting.

Fernanda Distante, Valerie Pagani, Adriana Bonifigli, Luigi Rigano, Joachim Fluhr, **Objective evaluation of the placebo effect in cosmetic treatments. A randomized controlled study,** IFSCC Magazine – vol. 9, no 3/2006

A product's packaging and claimed efficacy may stimulate pleasant emotions during the use of cosmetics, thus enhancing their perceived benefits. The aim of this study was to evaluate if smart packaging and strongly claimed efficacy attributes can influence the objectively measured efficacy, allowing a true placebo effect to be associated with a given cosmetic treatment

C. Lenaers, D. Boudier, Ch. Chauprade, D. Rondeau, B. Closs, **Wrinkle Reduction by Stimulation of the Skin's Mechanical Resistance**, Cosmetics & Toiletries, Vol. 121, No. 11/Nov. 2006, pp. 47-56.

Wrinkles are a symptom of structural failure in the dermis. They indicate that the skin is losing its ability to support its own weight, and that fibroblasts in the dermis are losing their capacity to attach to collagen fibers and transmit mechanical information.

L. Rigano, C. Andolfatto, **Antiaging Effects of a Skin Repair Active Principle**, Cosmetics & Toiletries, Vol. 121, No. 11/Nov. 2006, pp. 57-64.

Sodium DNA is an ingredient with activity at the cellular level. This fact has led to its incorporation in numerous high-end antiaging skin care products. An explanation of that activity and results of several tests of one sodium DNA material are presented in this article.

*Hristo Dobrev***, In vivo study of skin mechanical properties in Raynaud's phenomenon**, Skin research and Technology 2007, pp. 91-94.

Raynaud's phenomenon (RP) is usually the first symptom in patients with systemic sclerosis (SS) and may precede skin changes by several months or years. Non-invasive measurements of skin elasticity are very sensitive and appropriate for objective and quantitative evaluation of sclerodermatous skin.

Andre Rougier, Sopie Seite, **Clinical efficacy of topically applied vitamin C associated with madecassoside on skin aging,** AB28 J AM ACAD DERMATOL

Cutaneous aging is a complex biological process that affects the different compartments of the skin. In sun-exposed areas, skin aging is caused by two distinct processes: chronological aging and sun-induced actinic damage, called photoaging. We have previously demonstrated in vivo, the beneficial effect of topically applied vitamin C in the treatment of skin aging.

Jonathan Crowther, Paul Matts, Jennifer Jarvis, **Quantification of body skin aging requires measuring multiple parameters,** AB29 J AM ACAD DERMATOL

Background: Changes in skin with increasing age result in alteration of its physical and chemical characteristics. In areas of the body where skin is subjected to mechanical stress from repeated bending (knees, elbows) or to environmental stressors, such as repeated exposure to UV radiation (hands, décolletage), these differences may become more obviously expressed.

Tilmann Reuther, Ammal Atwan, Martina Kerscher, **Evaluation of skin elasticity using an approach with repeated deformation of the skin,** AB15 J AM ACAD DERMATOL

One prominent feature of aged skin is the decreased capability of relaxation in particular after repeated deformation. Measuring of this phenomenon appears to be an interesting approach for assessing skin aging. However, comparatively little data dealing with this topic is available. Therefore the aim of the present study is to evaluate skin elasticity after repeated deformation as a measure of skin aging with respect to age and skin thickness.

Rungisima Wanitphakdeedecha, Woraphong Manuskiatti, Sasima Eimpunth, Sadwalak Hunnangkul,
The effects of single application of mucopolysaccharide polysulphate (MPS), AB96 J AM ACAD DERMATOL

To study the efficacy on the skin hydration of mucopolysaccharide polysulphate (MPS) 0,1% after single application. Twenty female volunteers aged 30 to 45 years with dry skin, defined by the corneometer, were recruited to the study. All subjects were asked to apply 2 g of MPS cream on a selected forearm.

Rungisima Wanitphakdeedecha, Woraphong Manuskiatti, Sasima Eimpunth, Sadwalak Hunnangkul,

The effects of mucopolysaccharide polysulphate (MPS) on the hydration and elasticity of human skin), AB95 J AM ACAD

To study the efficacy of mucopolysaccharide polysulphate (MPS) in hydration and elasticity of human skin. Methods: Sixty female volunteers aged 30 to 45 years with dry skin, defined by the corneometer, were recruited to the study. The volunteers were randomly treated with MPS and placebo.

Toni Miller, Sonia Batra, Jose Ramirez, **Evaluation of the effect of a Novel Bi-Mineral Complex on photoexposed periorbital skin**, AB32 J AM ACAD

The elasticity of the skin is attributable to elastic fibers that can stretch and then recoil. The elastic fibers contain elastin – a large protein synthesized by dermal fibroblasts that forms spiral filaments comparable to springs. The spiral filaments are crosslinked together and, when the skin is stretched, this crosslinking enables the spiral filaments to spring back to their original positions.

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.

T. Reuther, J. Bayrhammer, M. Kerscher; **Einsatz biophysikalischer Messverfahren zur Untersuchung der hautphysiologischen Wikung injizierbarer Hyaluronsäure;** Hautarzt 2007, 58: 1046-1050

Hyaluronsäure (Glukoronsäure-ß-1-3-N-Acetyl-Glycosamin; HS) ist ein wichtiger physiologischer Bestandteil der extrazellulären Matrix gesunder Haut. Bis zu 50% des Gesamtkörpergehaltes humaner HS befinden sich in der Haut. Es handelt sich um ein großes anionisches Glukosaminoglykan (GAG), das aus Doppelzhuckergrundbausteinen (D-Glukoronsäure + N-Acetylglucosamin) aufgebaut ist und ein lineares Polymer mit bis zu > 10.000 Monomeren bildet. HS hat verschiedene wichtige Funktionen in der Haut. So kann das Molekül große Mengen Wasser binden und ist essenziell für die kutane Hydratationshomöostase. Außerdem ist HS wichtig für die Zelldifferenzierung, den Zellgerüstaufbau, die Zellmigration und –mobilität, für die selektive Diffusion verschiedener Stoffe im Gewebe (z.B. Elektrolyte und diverse Nähr- und Abfallstoffe), die Mediation von Immunprozessen sowie den Aufbau der extrazellulären Matrix.

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].

Kazue Tsukahara, Mitsuyuki Hotta, Tsutomu Fujimura, Keiichi Haketa, Takashi Kitahara, **Effect of room humidity on the formation of fine wrinkles in the facial skin of Japanese**, Skin Research and Technology 2007, 13, pp. 184 – 188

Changes in humidity are commonly known to influence the condition of the skin. Previous studies of the skin dealt with variations in relative humidity (RH) either through statistical analysis or by maintaining room humidity at a constant level; however, the range of humidity and the length of acclimation varied in each study.

Laurence Ambroisine, Khaled Ezzedine, Anissa Elfakir, Sophie Gardinier, Julie Latreille, Emmanuelle Mauger, Michel Tenenhaus, Christiane Guinot, **Relationships between visual and tactile features and biophysical parameters in human facial skin,** Skin Research and Technology 2007; 13: pp. 176 – 183

Skin properties, such as colour, hydration and texture, can be studied on a qualitative basis by a clinical assessment or on a quantitative basis using techniques thaqt measure biophysical properties of the skin. The aim of this study was to explore the links between facial skin features and a range of skin biophysical parameters using multivariate methods.

Dr. Horst Frank, Dr. E. Schubert, Dr. H. Konrad, Dr. A. Eggert, **Biokybernetik - ein sanfter Weg zur Gewebestraffung und Körperformung,** Ästhetische Dermatologie 2/2007, pp. 44 – 47

Dysformien, Alterungsprozesse, Schönheit und ewige Jugend. Die Angst des Menschen vor dem Altern ist sicherlich der wichtigste Beweggrund, „forever young“ zu sein. Daran hat sich über die Jahrhunderte nichts geändert. Das heute vorherrschende gesteigerte Körperbewußtsein in Verbindung mit einer erfreulich gesteigerten Lebenserwartung und einer bis ins hohe Alter erhaltenen körperlichen und geistigen Fitness lassen diesen Wunsch jedoch immer mächtiger werden.

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.

Kazue Tsukahara, Mitsuyuki Hotta, Tsutomu Fujimura, Keiichi Haketa, Takashi Kitahara, **Effect of room humidity on the formation of fine wrinkles in the facial skin of Japanese**, Skin Research and Technology 2007; 13; pp. 184-188

Changes in humidity are commonly known to influence the condition of the skin. Previous studies of the skin dealt with variations in relative humidity (RH) either through statistical analysis or by maintaining room humidity at a constant level: however, the range of humidity and the length of acclimation varied in each study.

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.

Farina Hashmi, James Malone-Lee, **Measurement of skin elasticity on the foot,** Skin Research and Technology 2007; 13, pp. 252-258

The Cutometer 580 MPA is a device that is designed to measure the viscoelastic properties of skin in response to the application of negative pressure. The aim of this study was to test the Cutometer 580 MPA for the repeatable, quantitative measurement of the specific indices of elasticity of pedal skin.

Sungyeon Ahn, Seunghun Kim, Haekwang Lee, Seongjoon Moon, Ihseop Chang, **Correlation between a Cutometer and quantitative evaluation using Moire topography in age-related skin elasticity,** Skin Research and Technology 2007; 13; pp. 280-284

As aging occurs, our skin gets more wrinkles, becomes drier and loses its elasticity. Validating the evaluation of skin elasticity is especially important, because it is not as visible as other signs of aging such as wrinkles. So it is needed tha the method for measuring skin elasticity is able to reflect perception about the change of the skin state.

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.

C. Orlandi, R. Loubies, S. Baeza, C. Reyes, X. Worstman, **Clinical Experience of the Treatment with Pro-Xylane TM, Isobioline TM and Phytocomplex TM on Chilean Women with Hormonal Aging,** 21st World Congress of Dermatology, Buenos Aires, Argentina

An open and prospective study was performed in order to evaluate the action of a formulation with pro-xylane, isobioline and phyto-Complex in 59 patients with hormonal aging during a period of twelve weeks. An open and prospective study was peformed in 59 patients, between 50 and 65 years of age (average 55 years old), with hormonal aging in order to evaluate the action of a formulation with –xylane, isobioline and phyto-complex.

P. Msika, S. Bredif, S. Garnier, J. Legrand, **Oligosaccharidic and Peptidic Extract from Maca Root: A new Cell Energizer With Clinical Anti-Aging Properties,** 21st World Congress of Dermatology, Buenos Aires, Argentina

Purpose of the study: Maca (Lepidium meyenii) was an integral part of the diet and commerce of residents of Andes region. The Incas found maca root so potent that they restricted Maca use to their Royalty. Now days, maca powder is used worldwide as nutraceutical ingredient. We have developed and patented an oligosaccharidic and peptidic extract obtained by a biotechnological process from maca flour.

C. Oresajo, M. Yatskayer, H. Fares, T. Stephens, I. Hansenne, **A Twelve-Week, Clinical Evaluation of the Skin Firming Benefits of a Topical Product Containing Hyaluronic Acid and Oligo Peptides on the Face, Neck, Upper Chest and Hands,** 21st World Congress of Dermatology, Buenos Aires, Argentina

Purpose of the study: The objective of this study was to assess the efficacy and safety of a test product on subjects with mild to moderate photodamage on the face, neck, upper chest and hands. Methods: 69 female volunteers between the ages 35 to 65 years with mild to moderate photodamage on the face and hands (scores 3-8 on a 10cm scale) were enrolled in 12-week single-center study.

S. Cho, DH. Lee, CH Won, S. Lee, MJ Lee, JH Chung, **A Rondomized, Double-Blind Clinical Trial on the Clinical Efficacy of Oral Supplementation with Chlorophyll Extracts on Skin Aging,** 21st World Congress of Dermatology, Buenos Aires, Argentina, 2007

Chlorophyll, a polyene photoreceptor of plants, is known to have anti-inflammatory effects. Though its beneficial roles on aged skin were reported, there have been few systematic studies. The aim of this study is to evaluate the efficacy and tolerability of dietary chlorophyll extract supplementation on aging skin. Thirty healthy females (aged more thean 45) were randomised to take low-dose or high-dose dietary supplementation containing chlorophyll extracts for 12 weeks

Arturo Puig, Jos´w Maria García Antón, Montserrat Mangues **A new Decorin-like Tetrapeptide for Optimal Organization of Collagen Fibers**, IFSCC Magazine – vol. 10, no 4/2007

Decorin interacts with collagen via its protein core and influences collagen fibrillogenesis, thus regulating excessive bundle-like aggregation of collagen. As skin ages, there is a lack of functional decorin which results in disrupted collagen fibers and a reduction in the tensile stregth of the skin. Therefore, a substitute for decorin would make up for the non-functional decorin that is present as we age

M. Paye, S. Mac-Mary, A. Elkhyat, C. Tarrit, P. Mermet, P.H. Humbert; **Use of the Reviscometer for measuring cosmetics-induced skin surface effects;** Skin Research and Technology 2007; 13; pp. 343-349

The Reviscometer RVM 600 that measures resonance running time (RRT) has been shown to be inversely related to the skin stiffness. However, very few publications describe the use of this instrument for testing the effect of cosmetic products. Slight xerotic skin condition was induced by usind an alkaline soap for 1 week. Skin has then been rehydrated with a lotion or further dehydrated and dried with sodium lauryl sulfate.

Christian Oresjo, Margarita Yatskayer, Angelike Galdi, Nathan S. Trookman, et al. **Multi-Center, Clinical Evaluation of a Broad Spectrum Sunscreen Moisturizer Containing a new Photostable UVA/UVB Complex for Treatment of Photodamaged Facial Skin**, www.lorealusa.com; Poster

Photoaging is the result of chronic cumulative exposure to UV radiation. UVB radiation changes throughout the year and according to location, whreas UVA radiation is less variable. UVA rays are lower in energy than UVB, however they are twenty times more abundant. Efficient and stable broad spectrum protection is therefore needed year round for adequate protection against photoaging.

Viele Blender – Gesichtscremes mit UV-Schutz. Auf den Lichtschutz in Gesichtscremes kann man sich oft nicht verlassen. Sieben Produkte sind deshalb „mangelhaft“ und nur drei insgesamt „gut“. Test 1/2008, pp. 28 - 31

Eine gute Gesichtscreme soll die Haut in erster Linie mit zusätzlicher Feuchtigkeit versorgen, damit sie frisch, glatt und gesund bleibt. Der Trend geht allerdings dahin, diese Cremes mit Lichtschutzfiltern anzureichern, um die Haut vor vorzeitiger Alterung und Fältchenbildung zu schützen. Ein Ansatz, den viele Hautärzte unterstützen.

Prof. Dr. Thomas Krieg,Prof. Dr. Margitta Worm, PD. Dr. Jörg Wenzel, PD. Dr. Thilo Gambichler, Prof. Dr. Annegret Kuhn, Prof. Dr. Elisabeth Aberer, Prof. Dr. Karin Scharffetter-Kochanek, **Diagnostik und Therapie der zirkumskripten Sklerodermie;** AWMF online; AWMF-Leitlinien-Register Nr. 013/066; 11/2008

Bei der zirkumskripten Sklerodermie handelt es sich um ein Spektrum von sklerotischen Erkrankungen der Haut mit je nach Subtyp und Lokalisation möglicher Beteiligung von hautnahen Strukturen wie Fettgewebe, Muskulatur, Gelenke und Knochen. Ein Befall innerer Organe wie z.B. Herz, Lunge, Niere oder Gastrointestinaltrakt tritt bei der zirkumskripten Sklerodermie ebenso wenig wie Übergänge in eine systemische Sklerodermie auf. Die Inzidenz der zirkumskripten Sklerodermie wird

mit ca. 27 pro 1 Mio. Einwohner (Silman et al. 1988; Peterson et al. 1997) angegeben. Die zirkumskripte Sklerodermie tritt mit einer Häufigkeit von 2,6 - 6 zu 1 häufiger bei Frauen als bei Männern auf (Silman et al. 1988). Das breite klinische Spektrum der zirkumskripten Sklerodermie führte zur Entwicklung einer Reihe verschiedener Klassifikationen (Jablonska 1975b; Peterson et al., 1995). Für diese Leitlinie wird eine Klassifikation vorgeschlagen, die das Ausmaß, die Ausbreitung und die Tiefe des fibrotischen Prozesses berücksichtigt. Hieraus resultiert eine Einteilung in die vier Hauptformen "limitiert, generalisiert, linear und tief" (**Abbildung 1**). Vorteil dieser einfachen Klassifikation ist der eindeutige Bezug zu
den therapeutischen Empfehlungen dieser Leitlinie. Diese Einteilung reflektiert teilweise auch den unterschiedlichen klinischen Verlauf der einzelnen Untergruppen. So wird für die limitierte Variante eine Rückbildung bei ca. 50 % der Patienten nach ca. 2,5 Jahren beschrieben (Christianson et al. 1956, Peterson et al. 1997). Hingegen wird für die generalisierte, lineare und tiefe Form eine längere durchschnittliche Erkrankungsdauer mit ca. 5,5 Jahren beschrieben. Hierbei handelt es sich allerdings nur um Durchschnittswerte. Sekundäre Veränderungen wie Hyper-, Depigmentierung, Kontrakturen und atrophische Veränderungen zeigen in der Regel nur eine sehr geringe und langsame Rückbildungstendenz. Die Häufigkeitsmuster für die verschiedenen Subtypen sind altersabhängig. So tritt die lineare Form im Kindesalter deutlich häufiger auf (Zulian et al, 2006). Vorwiegend im Kindesalter wird im Verlauf oder sogar gleichzeitig ein Auftreten mehrerer Formen beobachtet, z.B. einer linearen Form in Kombination mit einer limitierten Form. Dies sollte entsprechend bei Beschreibung der Diagnose angegeben werden.

Small Proteoglycans in the skin: New Targets in the fight against skin aging
*Gilles Pauly, Jean-Luc Contet-Andonneau, Philippe Thoussou, tous Donoux etal***.** Datum Unbekannt

Proteoglycans take an important part in tissue homeostasis. In the skin, Proteoglycans are present in the extracellular matrix of dermis, particularly with lumican which plays an importna role in dermal homeaostasis. In the epidermis, several small proteoglycans such as the syndecans are synthesised and play an important role in keratinocyte activation.

Influence of age and regional differences on skin elasticity as measured by the Cutometer
Skin research and technology, vol. 14 / 2008

The medical properties of the skin are due to the thickness and quantative properties of the epidermis, dermis and subcutis. During aging, quantitative and qualitative changes occur in the skin. Loss of elasticity, reduction in the epidermal thickness and collagen content, increased wrinkling and pigment lesions

Was können Kosmetika leisten?
Beautyforum 05 / 2008

Messung der Hautelastizität; Ein wichtiges Kapitel sind Problemhäute, die aus Barriere- und Verhornungsstörungen resultieren. In diesen Fällen bitet hinsichtlich der Wirkstoffe und Transportsysteme die Korneotherapie von Prof. A Klingman gute Ansatzpunkte (s. auch Ästhetische Dermatologie 2007 (3), 8-16)

Cosmetic effectiveness of topically applied hydrolysed keratin peptides and lipidis derived from wool
Skin and Research Technology Vol14, No.2 May 2008

Wool is primarily (ca. 85%-95%) composed of keratin proteins that combine to give it desirable properties such as strength, insolubility and moisture regain. Different classes of keratin proteins are respresented in the complex macromolecular stucture, each of which has specific functions and characteristics. Protein hydrolysates from various sources have long been used in skin and hair personal care products and are known to confer improved campatitbility, feel moisturisation and help maintain the natural structure…

THE EFFECTS OF TOPICALLY APPLIED MATRIXYL, NATURAL GRAPE SEED AND AVOCADO OILS ON SKIN SURFACE, HYDRATION AND ELASTICITY

H. Dobrev, Department of Dermatology, Medical University, Plovdiv, Bulgaria

Background: Matrixyl is a lipophilic pentapeptide that stimulates the collagen synthesis by fibroblasts in the skin. The grape seed extract is rich in flavonoids which are powerful antioxidants. Avocado oil consists predominantly of unsaturated fatty acid glycerides, vitamins and minerals, and has good emollient properties.

Correlating Age and Quantifying Product Efficacy on Human Skin Using Noval Viscoelastic Parameters

*Di Qu , jesse Leverett , o. Freis , M. Sabadotto , G. Paul Seehra , john scimeca , Bill Luke , G. Pauly , A. Rathjens**y***

Biological age and anti-aging product effiacacy were evaluated in human skin in vivo using noval viscoelasticparameters. The Cutometer SEM 575 (CK Electronics) was employd to collect the mechanical responses of the skin. Measurments were conducted on the inner forearm skin of sixty-nine healthy female volunteers age 18 to 60 years. Cutometer data were then analyzed using an automated technique of inflection point and area analysis to obtain novel viscoelastic parameteters termed total viscoelastic recovery (R/R), elastic recovery (R/R), and "viscous"recovery (R/R). Our results showed strong correlation of age with two skin viscoelastic parameters – viscoelastic and elastic recovery . Age did not seem to affect the viscous component although a sligh declining trend was observed. Standard curves were constructed based on those parameters to provide linear age – elasticity functions for quantification of product efficacy.A6 week anti-aging product efficacy trial was then conducted on 30 volunteers to evaluate the biomechanical properties of skin . At the end of the trial , significant improve- meter in viscoelastic and elastic parameters were observed when comparend to baseline. Average elastic improvement at 6 weeks corresponded to approximately a 15-year shift using our previously characterized standard curves relating skin viscoelasticity and age.

A nonlinear elastic behavior to identify the mechanical Parameters of Human skin *in vivo;* A. Delalleau, G.Josse , J.-M. Lagarde , H. Zahouani and J.-M. Bergheau; *Skin Research and Technology 2008 ;14*

Background/purpose: Various nalyses have been performed to identify the mechanical properties of the human skin tissue *in vivo* . They generally usse different approaches and hypotheses (behavior laws as well as mechanical testes)and the obtained results are consequently difficult to analyze and compare.

In this paper , an inverse methods that can be adapted to any kind of mechanical testes and behavior laws is presented .

Use of Cutometer to Asses Skin Water Content, *Daniela BL Terci, Douglas Terci, Diogo Terci, Adriano Pinheiro, ifscc Barcelona 2008*

Assessing the skin water content (skin hydration) is one of the first and most important measurements to test the efficacy of cosmetics on the skin surface. The quantity of literature worldwide dealing with this subject indicates the significance of this measurement.

Development of Thermotropic Gel Patch Technology improving skin moisture and resilience physiochemically : An innovative skin shielding and drug-delivering challenger;

Tae Hwa Jeong1, Kwan Young Jeong1, Sang Keun Han1, Seong Jong Lee1, Seh Hoon Kang1 and Seong Geun Oh; Ifscc Barcelona 2008

Sol-Gel transition has been vigorously investigated in various chemical synthesis to manufacture powders, polymers, and encapsulating materials. Starting from pharmaceutical industries, Sol-Gel transition and its applications have been focused to enhance the time-releasing

patterns of drugs such as insulin and to maintain their effective periods much longer than conventional methods. Therefore, many researchers in pharmaceutical fields have paid their attention to develop bio-compatible polymers which show Sol-Gel transitions to be transformed nearby human¡s bodytemperature, as well as bio-degradable ones.

Development of a noble solid lipid emulsion technology using silicone-based waxes and its cosmetic applications improving instant skin resilience and skin protection. *Sang Jun Kim1, Tae Hwa Jeong1, Eun Ah Ko1, Seh Hoon Kang1, Kwan Young Jeong1, Sang-Keun Han1, Seong Jong Lee1 and Seong Geun Oh; Ifscc Barcelona 2008*

Recently, women make more effort for their beauty. Because the entry of women in public affairs have been extended. And their appearances can affect to their social images. Moreover, many of skin problems are caused by the stress of social activities and the environmental problems. Especially, the problems with skin aging are appeared a lot by the increase in UV exposure. In these situations, many cosmetics for anti-aging are gaining popularity. The wax formulations of cosmetic are effective on skin protection and moisturization.

In Vivo Assessment Of Ectoin: A Randomized, Placebo-Controlled Clinical Trial;
Heinrich U, Garbe B, Tronnier H.; Ifscc Barcelona 2008;

The objective of this study was to determine the anti-aging properties of Ectoin with special regard to its compatibility and efficacy. For this purpose 104 voluntary female participants were included in a monocentric, randomized, double-blind application test. Moisturizing properties, skin surface structure and skin elasticity were tested, comparing Ectoin (2 %: Treatment B) to a reference emulsion (Treatment A) versus an untreated control. None of all treated participants showed side effects during the study.The gained results of this study display that the natural cell protection concept of Ectoin is transferable to skin care

Advanced Glycation End Products Crosslinks Breaker: A New Approach for Improvement of Aged Skin; *Akihiro Tada, Akiko Kanamaru, Midori Oyobikawa, Tetsuo Maeda, Hiroshi Oshima; Ifscc Barcelona 2008*

The reaction between proteins and glucose was first reported by Maillard [1], who observed, while cooking food, glucose and other reducing sugars reacting with protein amino acids to form adducts that after dehydration and rearrangement became stable brown pigments. This reaction between reducing sugar and proteins has been named non-enzymatic glycation. These glycation products undergo further complex reactions to become irreversibly cross-linked, forming a broad range of heterogeneous
fluorescent and yellow-brown products called advanced glycation end products (AGEs).

Biotechnological Process For The Synthesis Of Omega 9 Compound For Enhancement Of Anti-elastase Activity With Firmness And Restructuring Efficacy; *Lucie Couturier, Florent Yvergnaux ; Ifscc Barcelona 2008*

Inhibition of human neutrophile elastase is an important target due to the enzyme's involvement in tissue destruction of a number of skin disease states [1]. Elastase itself cleaves collagens, as well as elastin and other proteins with important biological functions. A variety of different types of inhibitors and inhibitor formulations have been devised for treatment of these targets [2,3]. Oleic acid is a highly selective non-toxic inhibitor of elastase. To enhance the vectorization of Omega 9 into the skin, especially in the dermis where elastase acts, Omega 9 type compound has been synthesised through a biotechnological process, miming a structural lipid analogue of the skin.

Bi-Functional Study of Ion Calcium in the Skin
Silvia H.Pérez Damonte1, Claudia Liliana Selem, Claudia Groisman; Ifscc Barcelona 2008

The Calcium ion has an important function in the skin. Its gradient plays a role in regulating epidermal growth and differentiation *in-vivo*. In the intact epidermis, the extra cellular calcium content is low in both, malpighi and spinosum strata, but increases from the inner to the outer layer of the stratum granulosum [1]. Also, the calcium ion participates in the formation of the epidermal desmosomes, fibroblasts and keratinocytes, which provide the integrity and firmness of the skin [2]. All of these factors are important for the correct function of the epidermal barrier.

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.

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.

BASF Beauty Care Solutions; **Lys'lastine, the face designer;** Cosmetics & Toiletries 9/2008, vol.123, no 9;

Major discoveries about elastin.

Elastin naturally brings to mind the skin's youthful appearance and level of elasticity, both of which are symbolic values that make this molecule a choice ingredient in anti-age strategies. Nevertheless, the real scientific aspects of elastin are surprisingly not very well known including information about its structure, its function, and aging process.

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.

John Staton – Dermatest, Australia; **Tools for anti-ageing claim support;** Personal Care, Nov. 2008; S.19-22

Anti-ageing covers a substantially broad area of claims associated with both the prevention and the treatment of chronological and environmental effects on the condition of human skin. A large number of instrumentally based clinical methods are available for the substantiation of claims related to anti-ageing. This article describes the most common of these and considers only those which are essentially non-invasive.

J. Vokurkova, H. Buckova, P. Sin; **FP1585 TREATMENT OF GIANT CONGENITAL MELANOCYTIC NEVI AND CUTOMETRIC MEASUREMENT OF THE SKIN VISCOELASTICITY AFTER REPEATED EXPANSIONS AND SURGERY;** Abstract; EADV Paris 09/2008

Introduction: All types of surgical procedures _ neonatal dermabrasion, parcial excisions, expansion and reexpansion of skin flaps etc. are used in children with diagnosis a Giant Congenital Melanocytic Nevi. Scar maturation after a surgery and especially after a transfer of expanded flap has its biological rules. However, it differs in individual patients in as much as one year. For objective examination of scar maturity and evaluation of its elasticity, it is possible to apply measurement with the Cutometer device. According to the measurement results, an algorithm may be evaluated for individual surgical procedures and especially for the best timing of re-expansion or if to continue in dermabrasion method.

C. Huh, M. Choi, S. Lee, S. Kim, Y. Park, B. Kim, H. Park, S. Choi, S. Youn,K. Park; **FP0723 Low dose 1064nm Q-switched Nd:YAG laser for the treatment of melasma;** Abstract; EADV Paris 09/2008;

Background : Melasma is a common acquired pigmentary disorder that is known for its recalcitrance to the conventional treatment. Although Q-switched Nd:YAG laser(QSNYL) is widely used for the treatmemt of melasma, little has been published regarding its effect. Objectives: In this study, we would like to know the effect of low dose 1064nm QSNYL(MedLite C6, HOYA Conbio, CA) on the treatment of melasma objectively.

H. Tronnier, M. Wiebusch, U. Heinrich; **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.

A.Fourtanier, B. Ladan, C. Camus, N. Dami, V. Delvigne, R. Bazin, M. Hughes, A. Green; **COMPARISON OF FACIAL SKIN PARAMETERS IN CAUCASIAN AUSTRALIAN AND EUROPEAN WOMEN;** Abstract; EADV Paris 09/2008

The aim of this study was to compare two Caucasian female populations aged 40 to 69 years with very different lifestyles and cosmetic habits: one (n= 67) living in a temperate climate in Europe (Paris 55° N); the other (n= 80), living in subtropical Australia (Nambour, 26° S). Using a patented proprietary skin evaluation tool (Diagnôs Expert®) in each location, we compared the skin properties of women classified into three age groups : 40 to 49, 50 to 59, 60 to 69. This tool combines several techniques including a capacitance method (Corneometer®) for hydration and a suction method (Cutometer®)for assessment of mechanical properties. The greatest wrinkle-depth , the intensity of the darkest pigmented spot (selected clinically) and sebaceous activity were measured on images acquired by camera with an adapted magnification (x10 and x60) and analyzed by a specific software.

V. Delvigne, C. Camus, M. Isono, G. Yang, M. Daveno, D. Amar2, B. Lavaud, C. Hoang Van Chu, V. Delvigne, R. Bazin; **FP0207 COMPARISON OF SKIN PROPERTIES IN VARIOUS POPULATIONS USING A NEW MULTI -CRITERIA MEASURING DEVICE;** Abstract; EADV Paris 09/2008;

Purpose of the study: To assess a new testing battery device for evaluating skin condition in relation to age and skin ethnicity and skin type. Methods: Facial skin data have been recorded in female volunteers by the same operator in 5 different countries from December 2003 to April 2004. Study volunteers included various ethnic skin types i.e. caucasian (Paris, France), hispanic (Mexico city, Mexico), asian (Tokyo, Japan and Hong-Kong, China) and African American (Chicago, USA). At least one hundred women per city were involved and split into 4 natures of skin (normal, dry , oily and combined) and 5 age groups (20- 29 years, 30 - 39 years, 40 -49 years, 50 -59 years and over 60 years).

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

*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).

R. M. Debowska, A. Dzwigalowska, M. Szubert, K. Rogiewicz, I. Eris, B. Pander; **FP0313 EFFICACY EVALUATION OF RE-MODELLING FACE CARE PRODUCT;** Abstract; EADV Paris 09/2008

Background: Skin ageing is an important and interesting topic of study. It results from the combination of intrinsic ageing and photoageing, which is due to the environmental influence. The cosmetic industry creates and develops for the ageing population constantly improving products. Objectives: The aim of this study was to evaluate the in vivo efficacy and beneficial effects of application of the re-modelling face cream containing an anti-wrinkle peptide, vitamin E, proteins from sweet almonds and peach oil.

Bernadette nedelee, Jose A. Correa, Grazyna Rachelska, Alecis Armour, Leo LaSalle; **Quantitative Measurement of Hypertrophic Scar: Intrarater Reliability, Sensitivity, and Specificity;** Journal of Burn Care & Research May/June 2008

The comparison of scar evaluation over time requires measurement tools with acceptable intrarater reliability and the ability to discriminate skin characteristics of interest. The objective of this study was to evaluate the intrarater reliability and sensitivity and specificity of the Cutometer, the Mexameter and the DermaScan C relative to the modified Vancouver Scar Scale (mVSS) in patient-matched normal skin, normal scar (donor sites), and hypertrophic scar.

S. Akita, K. Akino, T. Imaizumi, A. Hirano; **Basic fibroblast growth factor accelerates ans improves second-degree burn wound healing,** 2008 by the Wound Healing Society

Second-degree burns are sometimes a concern for shortening patient suffering time as well as the therapeutic choice. Thus, adult second-degree burn patients (average 57.8 ≠13.9 years old), mainly with deep dermal burns, were included. Patients receiving topical basic fibroblast growth factor (bFGF) or no bFGF were compared for clinical scar extent, passive scar hardness and elasticity using a Cutometer, direct scar hardness using a durometer, and moisture analysis of the stratum corneum at 1 year complete wound healing. There was significantly faster wound healing with bFGF, as early as 2.2 ≠ 0.9 days from the brun injury, compared with non-bFGF use (12.0 ≠ 2.2 vs. 15.0 ≠ 2.7 days, $p < 0.01$).

Bernadette nedelee, Jose A. Correa, Grazyna Rachelska, Alecis Armour, Leo LaSalle; **Quantitative Measurement of Hypertrophic Scar: Intrarater Reliability and Concurrent Validity;** Journal of Burn Care & Research May/June 2008

Research into the pathophysiology and treatment of hypertrophic scar (HSc) remains limited by the heterogeneity of scar and the imprecision with which its severity is measured. The objective of this study was to test the interrater reliability and concurrent validity of the Cutometer measurement of elasticity, the Mexameter measurement of erythema and pigmentation, and total thickness measure of the DermaScan C relative to the modified Vancouver Scar Scale (mVSS) in patient-matched normal skin, normal scar, and HSc.

R. M. Debowska, B. Tyszczuk, J. Zielinska, K. Rogiewicz, I. Eris, B. Pander; **FP0312 THE EFFECTS OF AN ANTI-AGEING BODY CARE PRODUCT, CONTAINING ANTI-WRINKLE PEPTIDE, REPAIRING ENZYMES AND PLANT WAXES;** Abstract; EADV Paris 09/2008;

Background: Aging is an inevitable process which concerns every organ of our body, including the skin. Every day our skin is exposed to external factors. They influence the skin's condition and its appearance. Many women concern themselves mainly with the skin on the face and neck. However, they forget about the rest of their body skin, which undergoes aging as well and thus also needs suitable care. Objectives: The aim of this study was to evaluate the in vivo efficacy and beneficial

effects of application of the body cream containing an anti-wrinkle peptide, repair enzymes, and olive, bee, cocoa and mango wax.

Di Qu, Ph. D., Chris J. Masotti, and G. Paul Seehra, Ph. D.; **Novel Cutometer Analysis for Evaluation of Skin Viscoelastic Properties/ Nouveaux Paramètres pour l'Evaluation des Propriétés Viscoélastiques de la Peau ;** SFIC 2008 (Kongress in Monaco) (Poster, engl. + franz.);

Quantitative evaluation of biomechanical properties of human skin *in vivo* is the subject of continuous investigation [1,2]. The Cutometer (*Courage & Khazaka*) has been frequently used to measure the mechanical properties of skin Conventionally with this instrument, skin viscoelastic properties are defined by many linear parameters (Uf, Ue, Uv, Ur, and Ua) from a typical mode 1 measurement of the Cutometer. The ratios of those U values, particularly Ue/Uf (overall elasticity), Ur/Uf (pure elasticity), and Ur/Ue (elastic-viscous ratio), are frequently reported [3,4,5]. In our extensive studies using the Cutometer we have noticed significant variability of those U parameters leading to inconsistent results.

Luigi Rigano, Mauro Pleardo, Elena Pini et al; **Novel Retinol-like Actives from Parrot Feathers;** IFSCC magazine – vol. 11, no 4 / 2008

Several classes of pigments are responsible for coloration in birds. Melanin pigments most commonly appear in bird feathers and bare parts. They impart black, brown and chestnut hues. Carotenoids are a second group of coloring biochemicals in birds. These two types of pigment-based coloration are found in nearly every order of extant birds. In contrast, parrots harbor bright-colored pigments in their feathers, which have different structures.

G. Boyer, L. Laquièze, A. Le Bot, S. Laquièze, H. Zahouani ; **Dynamic indentation on human skin in vivo : ageing effects;** Skin Research and Technology 2009; 15, pp. 55-67

Knowledge of the mechanical properties of the human skin is very important for cosmetic and clinical research. Objective and quantitative measurements are essential to compare studies performed by different experimenters in different centres. The aim of this paper is to present a method to measure the viscoelastic properties of human skin in vivo dynamic indentation. A complete device to assess the stiffness and damping of skin has been developed.

C. Oresajo, M. Yatskayer, R. Rizer, S. Raab, Z. Draelos; **A multicenter, controlled clinical study to evaluate the efficacy and tolerance of an antioxidant composition containing vitamin C, ferulic acid, and phloretin on photodamaged skin;** JAAD, March 2009, San Francisco

The purpose of this study was to evaluate the effectiveness of an antioxidant composition containing vitamin C, ferulic acid, and phloretin in improving the visible signs of photodamaged skin. A 24-week, multicenter, clinical study of 55 females 35 to 65 years of age with self-perceived sensitive skin, mild to moderate periocular fine and coarse wrinkles, and mild to moderate hyperpigmentation on the face and back of the hands were enrolled.

R. Wanitphakdeedecha, S. Eimpunth, W. Manuskiatti; **The effects of tetrahydrocurcumin in curmin cream on the hydration, elasticity, and color of human skin;** JAAD, March 2009, San Francisco

An antioxidant used in cosmetic applications should have the capability to efficiently quench free radicals on the surfact of the skin. Tetrahydrocurcumin (THC) plays an important role in the antioxidant mechanism resulting in the significant neutralization of free radicals in a dose-dependent manner. Recent studies revealed the superior free radical scavenging ability of THC.

N. Trookman, E. ho, R. Ford, V. Gotz; **Clinical efficacy and tolerance of a novel treatment serum for photodamaged facial skin;** JAAD, March 2009, San Francisco

Oxidative damage induced by environmental factors, such as chronic ultraviolet exposure, cotributes to the process of photoaging and results in the formation of biochemical events which leads

to increased collagen degradation and the suppression of collagen synthesis. Clinical manifestations of photodamage include a loss of skin elasticity and firmness, fine lines and wrinkles, and uneven skin tone

PATRICE WENDLING, JEFF EVANS; **Skin Changes Help Identify Scleroderma Mimics;** WWW.SKINANDALLERGYNEWS.COM July 2009

CHICAGO — Few physicians would be fooled nowadays by gadolinium-induced nephrogenic systemic fibrosis, but there are other diseases that can masquerade as scleroderma. The precise diagnosis of sclerodermalike illnesses is important because even though many of them are called scleroderma, they are different from systemic sclerosis in their treatments and outcomes, Dr. Virginia Steen said at a symposium sponsored by the American College of Rheumatology. The diagnosis is most often based on the distribution and clinical characteristics of skin findings, as biopsies don't always differentiate types of scleroderma. She recommended watching for the following conditions: **Lipodermatosclerosis** is one condition that physicians often fail to think of as a scleroderma mimic. Also known as hypodermatitis sclerodermaformis, it refers to localized chronic inflammation and fibrosis of the skin and subcutaneous tissues of the lower leg. In the acute stage, the leg is inflamed and warm, the skin is very tight, and cellulitis may be present. The ankle and toes are not involved.

G. Boyer, L. Laquièze, A. Le Bot, S. Laquièze, H. Zahouani ; **Dynamic indentation on human skin in vivo : ageing effects ;** Skin Research and Technology 2009, 15; pp. 55-67

Knowledge of the mechanical properties of the human skin is very important for cosmetic and clinical research. Objective and quantitative measurements are essential to compare studies performed by different experimenters in different centres. The aim of this paper is to present a method to measure the visco-elastic properties of human skin in vivo using dynamic indentation. A complete device to assess the stiffness and damping of skin has been developed.

Motoko Murakami, Osamu Tanno, Hiroyuki Kurokawa; **Evaluation of skin mechanical properties by determining of resonant frequency and loss resistance with tactile sensor;** Skin Research and Technology No 1, Feb. 2009, pp. 125+126

To clarify the characteristics of resonance frequency change and loss resistance by determining the mechanical properties of skin with a tactile sensor (Venustron Axiom Incl, Japan), which is a device used to elucidate the mechanical characteristics of skin based on implementation of a resonance circuit and piezoelectric oscillator. Thwo different experiments were performed with 30 healthy Japanese males as subjects.

K. Miyamoto, O. Kuwanzuru, N.Yoshikawa; **Sudden skin appearance change in skin aging, skin elasticity tipping model as a key indicator of the skin aging progression;** Journal of investigative Dermatology (2009), Volume 129

Understanding bio-elasticity of human tissues is important to maintain human health and wellness including skin substrates against aging. It has been considered signs of skin aging are appeared gradually, while we discovered sudden skin condition change occurred in the aging process. A new skin elastic model was proposed as a new skin aging progression, by characterizing multilayered skin physical properties

Diana Khazaka, Christiane Uhl; **More than 2 decades of bioengineering for efficacy testing and product recommendation;** Household and Personal Care TODAY, n1/2009,

Due to high competition in the cosmetic and growing customer expectations, in the past two decades there has been a continuousdevelopment of new cosmetic products with more efficient ingredients covering new effects on the skin. Simultaneously to this, there was an increasing demand for new measuring techniques to substantiate the new product claims. The field of skin bioengineering

has consequently been immensely enriched in the last years by inventing new physical and optical measurement methods for all kind of skin parameters.

Martin Johannes Koehler, Anja Preller, Nadja Kindler, Peter Elsner, Karsten König, Rainer Bückle, Martin Kaatz; **Intrinsic, solar and sunbed-induced skin aging measured in vivo by multiphoton laser tomography and biophysical methods;** Skin Research and Technology 2009; 15; 357-363;

In aging skin, the decreasing dermal collagen content due to diminished collagen synthesis is responsible for some of the clinically most evident signs of intrinsic aging skin such as thinning, loss of elasticity and fine wrinkling. Extrinsic skin aging is mainly a consequence of cumulative ultraviolet (UV) exposure of the skin, but can be accelerated my nicotine abuse and environmental hazardous compounds

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.

G. Sliwinski, A. Schneider, M. Schulz, M. Wolf, A. Fiolka, M. Meyer, H. Feussner, Z. Sliwinski, R. Poll, c. Thiele; **Physical Organ Phantoms for Training in Minimal Invasive Surgery (MIS);** O. Dössel and W.C. Schlegel, WC 2009, IFMBE Proceedings 25/VI, pp. 120-123, 2009;

In surgical training realistic phantoms of organs are necessary. Today's system only meet the requirements of a simulation of a medical intervention very limited. As of now it is only possible to learn the basis skills on such systems. Complicated and complex procedures have to be practised in experiments on animls or under supervision on the patient. As of now the physical organ phantoms do not display the requested features.

Krueger N., Luebberding S., Oltmer M, Streker M, Kerscher M.; **Age Realted Changes in Skin Mechanical Properties – Quantitative Evaluation Of 120 Female Sugjects In A Trial With A Strict Design;** University of Hamburg, Department of Chemistry, Devision of Cosmetic Science

One of the most important functions of the skin is the protection against mechanical exposure. The mechanical properties of the skin depend on the thickness and qualitative characteristics of the epidermis, dermis and subcutis. During the aging process the tree layered skin system changes strongly accompanied by changes in its mechanical properties, resulting in higher vulnerability and other skin diseases.

N. Waranuch, M. Sirada, K. Ingkaninan, W. Wisuitiprot; **The correlation between Cutometer's parameters of skin elasticity and ages of Thai female volunteers;** ISBS Besancon, 2009

Skin elasticity is one of aging signs that can be measured using several equipments. Cutometer is one among those used to quantify skin elasticity. Skin property can be demonstrated in term of Cutometer's parameters; Ua/Uf: gross elasticity, Ur/Ue: net elasticity, Uv/Ue: ration of viscoelastic to elastic distension and Ur/Uf: relative elastic parameters. However, the correlations of its parameters with skin properties reported in many publications are often in disagreement. Besides, a report on Asian population is limited.

A.O. Barel, R. Clysen, P. Clarys; **Evaluation of the elastic properties of the skin using the suction method (Cutometer). Which parameters to use for claims in anti-aging treatments?** ISBS Barcelona, 2009

In cosmetic claims concerning the efficacy of anti-aging products and treatments, general terms such as elasticity, firmness, tonus etc. are used. Based on the suction method, the Cutometer (Courage-Khazaka, Germany) evaluates quantitavely the elastic and viscoelastic properties of the skin. In the Strain versus Time mode (which is mostly used) the vertical deformation of the skin due to vacuum, is measured in function of time and various linear skin deformation parameters are recorded.

N. Krueger, S. Luebberding, M. Oltmer, M. Streker, M. Kerscher; **Age-related changes in skin mechanical properties. Quantitative evaluation of 120 female subjects in a trial with a strict design.** ISBS Barcelona, 2009

The most commonly used method to determine the mechanical ability of skin is the creep test using suction chamber devices. Until now there is no scientific consensus upon which skin deformation parameters are particularly suitable to describe age related changes in human skin mechanics The aim of this study was to examine common mechanical skin parameters to find those best representing the influence of aging.

M Lanctin, A. Nkengne, G. Stamtas, F. Le Goff, A. Papillon, C. Bertin ; **Changes on body skin as a function of age ;** ISBS Besancon, 2009

Facial skin aging has been a great concern in cosmetodermatology and many publications have documented the age-related transformations of skin. However to our knowledge, few studies have been conducted to systematically investigate the changes of skin attributes in different body sites. This study was designed to assess the link between age and skin body attributes such as hydration, firmness, color, stretch marks and cellulite. The study involved 150 healthy women Caucasian volunteers aged between 18 and 70 years of age and with a Body Mass index (BMI) between 20 and 26 kg/m².

J.W. Wiechers, S. Mac-Mary, S. Vacheron, J.M. Sainthillier, E. Garcia, G. Khazaka, P. Humbert, B. Gabard; **How to measure exactly the same location on the face as a function of time with digital photography;** ISBS Besancon, 2009

The fight against skin aging is truly international, although the symptoms may differ throughout the world. Whereas Caucasians notice wrinkles as one of the first signs of their passing years, Asians observe skin discolourations. All of us want to have a skin with a perfect colour (a uniform complexion without any discolouration) and a perfect smooth surface (without any wrinkles or other signs of roughness). Hence, there must be products to achieve these effects as well as ways to measure whether these products are successful.

K.P. Wilhelm, G. Springmann, S. Bielfedt; **Functional food, food supplements and the skin,** ISBS Besancon, 2009

Functional food and food supplements are foods or dietary products that should provide a health benefit beyond basic nutrition. The worldwide market for these products is estimated to be in excess of $ 100 billion. Such products are regulated in Europe under the food (supplement) legislation. However there is a potential distinction and separation between food supplements and drugs. While initially functional food and food supplements were mainly provided as a “soft alternative” to pharmaceutical drugs to improve health parameters that could be early linked to nutrition i.e. lower cholersterol levels, prevent osteoporosis, induce natural sleep etc.

K.A. Tadini; **Acetil hexapeptide-3 in a cosmetic formulation acts on skin anisotropy – clinical study;** ISBS Besancon, 2009

Acetyl hexapeptide-3 has been used in anti-aging topical formulations since it has demonstrated effects in improving the skin appearance. However, there are few scientific studies about its effects on epidermis and dermis, when vehiculated in topical formulations, mainly using objective measurements, which are an important tool in clinical efficacy studies. Thus the aim of this

study was to determine the clinical efficacy of the acetyl hexapeptide-3 using biophysical techniques. Formulations with and without acetyl hexapeptide-3 were applied to the ventral forearm and the face area of human volunteers. Skin conditions were evaluated after 2 and 4 week period daily applications, by analyzing the stratum corneum water content

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.

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.

Dr. med. Christine Schrammer-Drusio, **Fachfrau in Sachen Haut – die Kosmetikerin als Hautpflegetherapeutin,** natur & kosmetik, service, pp. 39

Die Kosmetikerin von heute muss sich in Theorie und Praxis rund um das Thema Haut auskennen. Dafür spielt die fundierte und theorie- sowie fachorientierte Ausbildung und eine stetige Weiterbildung die größte Rolle. Ohne berufliche Fortbildung ist es auf Dauer unmöglich, zeitgerecht und marktorientiert zu arbeiten. Um die Haut der Kundinnen und Kunden für die kosmetische Kabinenbehandlung spezifisch zu bestimmen, liegt ein Schwerpunkt im richtigen erkennen der Hautgrundbilder und Hautzustände – die so genannte Profi-Hautanalyse. Noch immer werden Hauttypen und Hautgrundbilder häufig verwechselt.

Bazela K., Dzwigalowska A., Kazmierczak E., Debowska R., Rogiewicz K., Eris I, **Corrective make-up cosmetics – the study of efficacy and camouflage effect;** 18th EADV Congress, Berlin, 2009

Corrective make-up can be applied to hide the skin imperfections accompanying numerous skin diseases. The aim of this study was to evaluate the efficacy and camouflage effect of corrective make-up in patients with pigmentary disorders, acne and pre-rosacea. Corrective fluid foundation efficacy was tested on 20 subjects and applied once a day for 4 weeks. The skin moisturization, oil content and elasticity were measured using Multiprobe Adapter System MPA 5 probes.

C. Catala-Pétavy, L. Machet, G. Georgescdo, F. Pétavy, A. Maruani, L. Vaillant; **Contribution of skin biometrology to the diagnosis of the Ehlers-Danlos syndrome in a prospective series of 41 patients;** Skin Research and Technology 2009; 15 pp. 412-417

The diagnosis of the Ehlers-Danlos syndrome (EDS) is primarly clinical. Clinical signs result from modifications of the rheological properties of the skin: thickness, extensibility and hydration. Our

main objective was to demonstrate what skin biometry can contribute to the diagnosis and evaluation of the different types of EDS. Forty-one patients clinically diagnosed with EDS were paired by age and sex to 41 healthy subjects with no known dermatologic disease, in particular connective tissue diseases.

Kentaro Kajiya, Eriko Kawai, Jiro Kshimoto, Michael Detmar; **A Novel Mechanism of Cutaneous Photo-Aging Mediated by the Impairment of Lymphatic Function and the Protective Role of a Lymphatic-promoting Compound;** IFSCC Magazine – vol. 12, no 4 / 2009; p. 417

The lymphatic system plays an important role in the maintenance of tissue fluid homeostasis and the afferent phase of immune response. However, the role of the lymphatic system in mediation of aging and its molecular mechanism have been totally unknown. Here we have identified, for the first time, the importance of the cutaneous lymphatic system in the process of ultraviolet (UV) B-induced skin-damage. UVB induced the prominent enlargement of lymphatic vessels wich were leaky and hyperpermeable, suggesting that the function of enlarged lymphatic vessels induced by UVB was impaired.

T. Ezure, J. Hosoi, S. Amano, T. Tsuchiya; **Sagging of the cheek is related to skin elasticity, fat mass and mimetic muscle function,** Skin Research and Technology 2009, 15: pp.299-305

Facfial sagging is associated with aging, although the mechanism remains unclear. The aim of this study was to investigate the mechanism of facial sagging by examining the relationship of sagging severity to changes of skin elasticity, fat mass and facial muscle function at the cheek. Faces of 108 healthy Japanese female volunteers, aged 20-60 years were photographed at an angle of 45° Standard scores of sagging severity were established by analyzing the photographs. We examined the correlations of scored sagging levels with skin elasticity measured with a Cutometer MPA 580, fat content estimated by bioelectrical impedance analysis and facial muscle function (lip sealing force and occlusal force) in middle-aged female volunteers (30-40 years) with a wide range of sagging scores.

Dobrev H.; **How do cosmetic products improve the skin mechanical properties?** Congress of EADV, 2009, Berlin

Objective: to study the mechanisms for improving skin mechanical properties after short-term and long-term application of cosmetic products containing different active ingredients. Skin mechanical properties were determined using a non-invasive suction device (Cutometer). A total of 52 healthy female volunteers (aged 18-64 years) divided into 3 groups were studied. The first group was measured before and 120 min after single application on volar forearm of two emulsions containing urea and complex of alpha hydroxyacids, respectively.

G. Oberto, K. Cucumel, Y. Guerif, R. Chabert, A. Berghi, C. Dal Farra, N. Domloge; **Catch them young;** SPC April 2009

The epidermal basement membrane is an essential and highly specialised zone of the skin that links the dermis to the epidermis. Aside from its structural role, the basement membrane participates in the selective flow of communication between the epidermis and the dermis, which is essential for skin homeostasis. The basement membrane contains specialised structures, called the anchoring complex, which ensures the quality and stability of the connection and communication between the dermis and the epidermis.

L.-C. Gerhardt, A. Lenz, N.D. Spencer, T. Münzer, S. Derler; **Skin-textile friction and skin elasticity in young and aged persons;** Skin Research and Technology 2009; 15, pp. 288-298

The mechanical properties of human skin are known to change with ageing, rendering skin less resistant to friction and shear forces, as well as more vulnerable to wounds. Until now, only few and contradictory results on the age-dependent friction properties of skin have been reported. This study has investigated in detail the influence of age on the friction of human skin against textiles. In

vivo skin-friction measurements on a force plate were combined with skin analyses concerning elasticity, hydration, pH valule and sebum content.

Armengol R., Benaiges A., Bosch J., **Cellular senescence inhibition halts skin ageing;** Personal Care, January 2010, pp. 29-33

Over time, cells show a decrease in their replicative and metabolic capacity, resulting in a reduction in their number of duplications achieving a state of proliferation arrest. This phenomenon off loss of replicative capacity is known as cellular senescence. The existence of a molecular clock is suggested, marking the moment when the capacity of cell replication stops and senescence starts. This marker is place on the DNA molecules located at the ends of chromosomes, called telomeres, a term which comes from the Greek word “telos” (end) and “meros” (part). Each time, a cell deivides, its telomeres are shortened, thus reducing their subsequent cellular replicative capacity.

*Choi, Mira; Choi, Jee-Woong; Lee, Sun-Young; Choi, Sun-Young; Park, Hye-Jin***; Low-dose 1064-nm Q-switched Nd:YAG laser for the treatment of melasma;** Volume 21 (4) Informa Healthcare – Jul 1, 2010

Abstract Background : Melasma is a common acquired pigmentary disorder which is sometimes hard to treat with conventional methods. Various kinds of modalities have been applied for the treatment of melasma but none shows constantly good results. Objectives : In this study, we would like to know the effect of low-dose 1064 -nm Q-switched Nd:YAG laser (QSNYL) on melasma and want to evaluate the changes of skin after laser treatment. Methods : Twenty melasma patients were enrolled. Two regions were evaluated from each patient; a total of 40 sites. The 1064-nm QSNYL at fluences of 2.0–3.5 J/cm 2 was used to treat the whole face, including the melasma lesions. The fluence was adjusted individually and increased until erythema was developed on the laser-treated area. The treatment was performed five times with a 1-week interval. Non-invasive measuring methods, including a chromatometer, mexameter, cutometer, visioscan and a corneometer, were used before and after treatment.

Anne-Laurie Rodrigues, Olga Freis, Louis Danoux, Christine Jeanmaire, Philippe Moussou, Mélanie Sabadotto, Andreas Rathjens, **Functional moisturiser raises skin barrier functioin;** Personal Care, January 2010, pp 40-43

One of the skin’s primary functions is to protect our body from external aggressions such as allergens, dirt, irritants, chemicals, as well as from water loss from the inside. Stressful environmental conditions, including weather (cold, wind, sun) and pollution in addition to daily-used products, such as soap and surfactants, may alter the skin’s natural water balance and affect its protective functions. If the skin’s protective barrier is compromised, skin becomes dry and flaky and more sensitive to external stress factors, such as pollution, air-conditioning and frequent cleansing.

Maier H., Schmalwieser A., Rohn H., Kellner LL., Wanka A., El Modeir A., Felke S., Schmid-Kubista K., Shmidt J., Cabaj A., Stadlmann H., Spiess J., Binder S., Fischer W., Hönigsmann H., **UV-Belastung bei der bäuerlichen Arbeit. Eine Studie im Auftrag der Sozialversicherungsanstalt der Bauern.**

Landwirte haben ein erhöhtes Risiko, an UV-induzierten Haut- und Augenschäden zu erkranken. Aufgrund der unzureichenden Datenlage werden UV-induzierte Hauttumore derzeit noch immer nicht als echte Berufskrankheiten (BK) anerkannt. Unsere Studie umfasst zwei Teile. In der epidemiologischen Untersuchung wurde bei einer repräsentativen Gruppe von Landwirten und einer Kontrollgruppe aus reinen Innenarbeitern das Wissen zu den Themen „Sonnenschaden und Sonnenschutz“ mittels eines detaillierten Fragebogens abgefragt und die Häufigkeit von UV-induzierten Haut- und Augenproblemen durch eine vollständige dermatologische und ophtalmologische Untersuchung ermittelt.

Tomonubu Ezure, Satoshi Amano, **The severity of wrinkling at the forehead is related to the degree of ptisos of the upper eyelid;** Skin Research and Technology 2010, 16: pp. 202-209

Wrinkling and sagging of the face are well-known features of aging. The mechanism of wrinkle formation has been studied extensively in relation to the deterioration of the dermal condition caused by sun exposure and aging, which enhance the fixation of transiently formed wrinkles. However, little is known about transient wrinkles induced by change of facial expression as putative initiators of fixed wrinkles. The forehead represents a major part of the face, and wrinkles appear there, as well as at the corners of the eyes, around the eyes and around the mouth.

ICS-IUGA 2010 Abstract Form, **Feasibility and correlation of in vivo measurement of vaginal biomechanical properties using a purpose designed vaginal probe;** Joint Annual Meeting of theInternational Continence Society and the International urogynecological Association; 23rd – 27th August 2010, Toronto, Canada

In the field of dermatology, non invasive aspiration devices that can measure the biomechanical properties of skin are clinically used. They are presumed to measure properties of the dermal component of the skin, consisting of collagen and elastin fibers. It seems logical that these devices could be applied for similar measurements at the level of the vagianl wall. One such device (DermaLab skin pro be, Cortex Technology, Hadsund, Denmark) has already been used for that purpose. The aspiration device, has a diameter of 2cm and a height of 1.5cm. The probe suctions at a preset vacuum pressure the vaginal wall into an opening of 10 mm diameter (=aperture). During this process it measures the actual pressure (stress) and vaginal wall displacement (strain).

T. Reuther, J. Bayrhammer, M. Kerscher; **Effects of a three-session skin rejuvenation treatment using stabilized hyaluronic acid-based gel of non-animal origin on skin elasticity: a pilot study;** Arch. Dermatol Res (2010) 302: 37-45

The purpose of this study was to evaluate in vivo the effects of micropuncture injections of stabilized hyaluronic acid-based gel of non-animal origin (NASHA, Restylane Vital) on skin elasticity, a major aspect of skin ageing. Patients (n=19) underwent a series of three treatment sessions, spaced 4 weeks apart, with NASHA injected into the lower facial cheeks. Using the suction principle, 12 parameters describing the viscoelastic properties of the skin were assessed, before each treatment session and at follow-up visits 4 and 16 weeks after the last treatment. Treatment with NASHA significantly increased skin firmness and improved its viscoelastic recovery capacities. The most significant differences from baseline were noted at the end of the study. The changes observed in this study may underlie some of the cosmetic improvements noted after treatment with NASHA.

N. Akhtar, Mk. Waqas, M. Ahmed, T. Saeed, G. Murtaza, A. Rasool, MN. Aamir, SA khan, NS. Bhatti, A. Ali;
Effect of Cream Formulation of Fenugreek Seed Extract on Some Mechanical Parameters of Human Skin; Tropical Journal of Pharmaceutical Research August 2010, 9 (4): 329-337

Skin has good frictional properties, assisting locomotion and manipulation due to its texture. It is elastic and can be stretched and compressed within limits. Elastic fibres within the skin form a fibrous network that is interwoven between the collagen bundles throughout the dermis. As aging occurs, human skin gets more wrinkled, becomes drier and loses its elasticity. Evaluation of skin elasticity is especially important, because it is not as visible as other signs of aging such as wrinkles. Skin mechanical parameters are most sensitive to epidermal hydration. Epidermal hydrating produced by moisturizers influences the mechanical properties of skin. Accumulation of water in the dermis diminishes friction between fibres and facilitates movement of the interstitial fluid. At the upper level, they are attributed to the softening of the outer layers of the epidermis (mainly stratum corneum).

Miriam Mateu, Elena Canadas, Juan Cebrian, Nuria Alminana; **Novel elasticity and tightness enhancing peptide;** Personal Care, June 2010

Wrinkles, lack of firmness or sagginess are the most visible signs of skin ageing. A variety of environmental, hormonal, and genetic factors result in skin elasticity loss. Mature skin becomes less elastic and less able to resist any deformation, leading to many of the visible manifestations of ageing. The synergistic efects of chronological ageing, photoageing environmental factors, and hormonal deficiency, cause skin quality deterioration with age. Hormonal ageing of skin due to oestrogen loss during the menopause is though to include atrophy, elasticity loss and decreased sebaceous secretions, and collagen and water content. Intrinsically, aged skin shows characteristic fine wrinkling and appears smooth. Especially from the age of 40 years, synthesis and turnover of new components by fibroblasts slow, and enzyme action on fibres increases, implying skin elasticity loss and a less supple and more hardened collagen.

Tomonobu Ezure, Satoshi Amano; **Influence of subcutaneous adipose tissue mass on dermal elasticity and sagging severity in lower cheek;** Skin Research and technology 2010; 16: p. 332-338

Obesity is a significant risk factor for various cardiometabolic diseases, for example hypertension, atherosclerosis and type 2 diabetes. Subcutaneous adipose tissue lies just beneath the dermal layer, and is composed of lipid-filled cells termed adipocytes. Until recently, adipocytes were considered only as an inert fat-storing tissue, but recent studies have demonstrated that adipocytes play dynamic roles in the highly regulated processes of secreting various bioactive compounds, including steroids, hormone precursors and cytokines, collectively named adipokines.

Akita, Sadanori, Akino, Kozo, Imaizumi, Toshifumi, Hirano,Akiyoshi; **Wound Repair and Regeneration;** Volume 16, Number 5

Second-degree burns are sometimes a concern for shortening patient suffering time as well as the therapeutic choice. Thus, adult second-degree burn patients, mainly with deep dermal burns, were included. Patients receiving topical basic fibroblast growth factor (bFGF) or no bFGF were compared for clinical scar extent, passive scar hardness and elasticity using a Cutometer, direct scar hardness using a durometer, and moisture analysis of the stratum corneum at 1 year after complete wound healing.

Fong SS, Hung LK, Cheng JC: **The cutometer and ultrasonography in the assessment of postburn hypertrophic scar--a preliminary study;** U.S. National Library of Medicine,National Institutes of Health

Sixteen patients with various degrees of postburn hypertrophic scars were evaluated by ultrasonography and elastometry. An Aloka Echo Camera (SSD-500) with a 7.5 MHz probe and a Cutometer SEM 575 skin elastometer were used. Serial monthly examinations were performed using both pieces of equipment. In some patients, more than one scar was assessed. The assessments were correlated with clinical grading of the progress of the scars. It was noted that ultrasonography was very sensitive in the localization of scar tissues, distinguishing them from normal skin, assessment of thickness and also delineation of the extent of scar tissues. The subcutaneous part of the scar could be assessed. Cutometer SEM 575 is a new machine that applies a gentle suction to the skin to measure its viscoelasticity. It is sensitive, the inter-observer variation is low, and it could be used for the grading of a scar. These two assessment techniques compliment other methods of scar assessment and will prove useful when assessment of response to treatment is required.

Henry H. Chan, David S. Y. Wong, W. S.Ho, L. K. Lam, W. Wei; **The Use of Pulsed Dye Laser for the Prevention and Treatment of Hypertrophic Scars in Chinese Persons**

Background. Pulse dye laser has been used with variable degrees of success in the treatment of hypertrophic scars, and although earlier reports suggested a significant degree of improvement, more recent studies have raised concern about its effectiveness. Furthermore, most previous studies

examined its use in patients with light skin types, and the use of pulse dye laser in dark-skinned patients for the treatment of hypertrophic scars is not well established.

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.

R. Armengol, B. Martinez-Teipel, E. Rubio; **Combined forces work to restore skin firmness;** Personal Care September 2010, pp. 52-55

Due to ageing and external factors, the skin loses its thickness, it produces a reduced amount of structural components and, in general, its biomechanical properties deteriorate. At a facial level, skin expresses these changes with the appearance of wrinkles and flaccidity. This fact is aggravated by the action of gravity, which exerts a constant downward force, altering the shape of the facial oval. To counter these adverse effects, it is essential to recover and maintain the good condition off the skin structural elements; dermal-epidermal junction, epidermal cohesion and dermal extracellular matrix. Union provides strength and firmness. The skin is structured in several tightly bound layers: epidermis, dermis and hypodermis. The epidermis maintains cell cohesion through structures such as desmosomes, which keep adjacent cells firmly together.

C Jeanmaire, V. Bardey, F. Henry, L. Danoux, L. Bailly, M. Sabadotto, O. Freis, G. Pauly, A. Rathjens, **Mushroom extract recovers youthful skin properties;** Personal Care, September 2010

The organism is daily aggressed by different types of stress. The best known is oxidative stress defined as the toxic effect of chemically reactive oxygen species (ROS) or reactive nitrogen species. Reactive oxygen species can damage cellular components, leading to impaired physiological functions and thus inducing aeing. To counteract ROS, cells have many anti-oxidant enzyme systems. Among these, perroxiredoxins, are key enzymes having a role in cellular detoxification due to theirr reduction potential.

Univ. Prof. Mag. Pharm. Dr. Gerhard Buchbauer; **die österreichische Kosmetika- und Parfüm-Industrie;** EURO COSMETICS 7/8-2010 Pressemitteilung von DermaTronnier.

Aus Anlass des 20jährigen Bestehens des Instituts für exsperimentelle Dermatologie an der Universität Witten/Herdecke – DERMATRONNIER – fanden am 21.4 und 22.4.2010 die VII. Dermadays in Witten statt. Mit der Veranstaltung Dermadays berichtet das Institut seinen Freunden und Partnern über die Arbeit der letzten Jahre und bedankt sich bei den eingeladenen Gästen

gleichzeitig für die Mit- und Zusammenarbeit. Das umfangreiche wissenschaftliche Programm der diesjährigen Dermadys, vorwiegend von Partnern des Instituts gestaltet, zeigt wiederum die breite Themenvielfalt. Sie reichte von der Histologie der Haut über die Neurophysiologie des Juckreizes, die Penetrationsprobleme von Wirkstoffen, Fragen und aktuelle Situation zum in vitro Sonnenschutz, die Logistik für hautphysiologische Messungen der Schwerelosigkeit bis zu Wirkungen und den Nachweis von Stoffen in Nahrungsergänzungsmitteln und zu den Anwendungsmöglichkeiten der Photoakustik in der photodermatologischen Forschung.

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

Mac-Mary Sophie, Sainthillier Jean Marie, Jeudy Adeline, Sladen Christelle, Williams Carah, Bell Mike, Humbert Philippe; **STUDY OF ASYMMETRICAL FACIAL DAMAGE DUE TO CUMULATIVE UVA EXPOSURE;** ISBS 2010 Buenos Aires, Argentina

Published studies assessing whether asymmetrical facial UV exposure leads to any underlying differences in skin physiology and morphology are only observational. These studies demonstrate that visible signs of photot ageing are more evident on the window exposed side of the face suggesting a role for UVA in photo ageing. Aim: To assess the physiological skin changes associated with visible asymmetrical photo ageing. Methods: 10 subjects were enrolled in the study (age 64 ± 6, 8 women and 2 men), presenting with asymmetrical signs of photoageing due to overexposure of one side of their face to the sun through a window over a long period of time. Split-face biometrological assessments were performed (clinical scoring, hydration with corneometer®, mechanical properties with cutometer®, transepidermal water loss with Aquaflux®, skin relief with fringe projection, photography). Results: significant differences (P<0.05) were observed on clinical scores of wrinkles which were greater on the window exposed side, skin roughness assessed with fringe projection on the cheek and skin heterogeneity assessed with spectrocolorimetry on the cheekbone.

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).

Sin P, Stupka I, Brychta P; **Evaluation and comparison of composite and split-thickness skin grafts using Cutometer MPA580;** Annals of Burns and Fire Disasters – vol. XXIII – n.4 – December 2010

In our preliminary experiments we found that composite skin grafts consisting of allogeneic acellular dermis and thin epidermal autologous grafts applied to the excised burn wound in one stage led to better results in terms of viscoelastic properties than autologous split-thickness skin grafts. In ten burn patients we applied composite skin grafts consisting of allogeneic acellular dermis and thin epidermal autologous grafts and followed the quality of the reconstructed skin cover with a special device, Cutometer MPA580, over a period of four years. The cutometric curves demonstrated better viscoelastic properties in composite skin grafts than in conventional split-thickness skin grafts after four years.

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.

A.O. Barel, R. Clysen, P. Clarys; **Evaluation of the elastic properties of the skin using the suction method (Cutometer). Which parameters to use for claims in anti-aging treatments?** Skin Research and Technology 2010; 16; p. 471

In cosmetic claims concerning the efficacy of anti-aging products and treatments, general terms such as elasticity, firmness, tonus, etc. are used. Based on the suction method, the Cutometer (Courage-Khazaka, Germany) evaluates quantitatively the elastic and viscoelastic properties of the skin. In the Strain versus Time mode (which is mostly used) the vertical deformation of the skin due to vacuum, is measured in function of time and various linear skin deformation parameters are recorded (Ue, Uv, Ur, Uf and Ua); these parameters are dependant to skin thickness. From these linear parameters ratio parameters can be computed (general elasticity, elastic recovery and viscoelastic rations.

A. Elkhyat, Y. Afifi, B. Hassam, P. Humbert; **Human skin wettability cartography;** Skin Research Technology 2010, 16: p. 481

For decades the surface hydrophobicity has been reported to play an important role in many biological processes, such as cellular adhesion, contact inhibition, elasticity, functionality of tissue membranes, functioning of intracellular structures, and adhesion of infectious microorganisms. The skin affinity with water is estimated by measuring of its water contact angle. To establish a cartography of skin's wettability by Ow measuring at nine sites. The hydration and lipidic index (HI, LI) and the skin pH are measured. Volunteers: Ten females volunteers took part in this study.

Mac-Mary et al; **Assessment of cumulative exposure to UVA through the study of asymmetrical facial skin aging**; Clinical Interventions in aging; Volume 5, 2010 open access

Background: Published studies assessing whether asymmetrical facial ultraviolet light exposure leads to underlying differences in skin physiology and morphology report only clinical observations. The aim of this study was to assess the visual impact oft he skin of repeated ultraviolet-A (UVA) exposure through a window. Methods: Eight women and two men presenting with asymmetrical signs of photoaging due to overexposure of one side of their face tot he sun through a window over a long period of time were enrolled in the study. Split-face biometrologic assessments were performed (clinical scoring, hydration whit Corneometer, mechanical properties with Cutometer, transepidermal water loss with AquaFlux, skin relief with fringe projection, photography, stripping, and then lipid peroxidation analysis).

M.J. Koelher, M. Kaatz; **Intrinsic, solar and sunbed-induced skin aging measured in vivo by multiphoton laser tomography;** Skin Research and Technology 2010; 16, p. 501

Skin aging is accelerated by extrinsic factors, particularly actinic damage. Over the last decades, both clinical and pathological differences between intrinsic and actinic aging have been characterized. In one work, we aimed at quanti-fying skin aging by non-invasive in vivo methods. Young healthy volun teers using indoor tanningg facilities and aged people were compared with appropriate conrols by measurements of skin elasticity with the Cutometer and the Reviscometer and by semi-quantitative evaluation of the dermal matrix composition by the multiphoton laser tomograph dermaInspect. We found differences between the sun-protected volar forearm and the dorsal side as well as between youn g and old test persons with all three methods.

K.A. Tadini, **Acetil hexapeptide-3 in a cosmetic formulation acts on skin anisotropy – clinical study;** Skin Research and Technology 2010; 16

Acetyl hexapeptide-3 has been used in anti-aging topical formulations since it has demonstrated effects in improving the skin appearance. However, there are few scientific studies about its effects on epidermis and dermis when vehiculated in topical formulations, mainly using objective measurements, which are an important tool in clinical efficacy studies. Thus the aim of this study was to determine the clinical efficacy of the acetyl hexapeptide-3 using biophysical techniques. Formulations with and without acetyl hexapeptide-3 were applied to the ventral forearm and the face area of human volunteers. Skin conditions were evaluated after 2 and 4-week period daily applications, by analyzing the stratum corneum water content (Corneometer SEM 575) and the skin mechanical properties, using two instruments, the cutometer SEM 575 and Reviscometer RV 600 to identify skin changes after the use of the formulations under study.

Castro, Astrid J.; Cordero, Josmelith M.

USE OF ETRADECYLMINOBUTYROYLVALYLAMINOBUTYRIC UREA TRIFLUOROACETATE AS FIRMING IN COSMETIC PRODUCTS AND MEASUREMENT OF ITS EFFECTIVENESS IN THE ENHANCEMENT OF SKIN FIRMING; IFSSC 2010 Buenos Aires, Argentina

The skin aging is due, among other causes moisture loss and reduced strength of the collagen fibers. In this study 60 volunteers were taken with visible signs of sagging skin on face (chin) and

chests, between 55 and 70 years old; 30 of them were told daily applied twice a day at the site indicated a formulation with 2.5 % of tetradecyl aminobutyroylvalylaminobutyric urea trifluoroacetate (labeled Firming "A") for a period of 90 days, and 30 other placebo (labeled Firming "B"). We measured the elasticity and hydration of the skin before and after study, using a Multi Dermascope MDS 800. Elasticity measures showed a maximum increase of elasticity in the chest at 18% and this value for the younger person. And the neck (chin) was observed a maximum increase of elasticity with the active (Firming A) in a 28.89%, yielding an average increase of 25%. There was not a significant increase of % elasticity with the placebo (Firming B). For hydration, It was observed in the neck (chin) a maximum increase of moisturizing with the active (Firming A) in a 42,31%, yielding an average increase of 39%.

Eunjoo Kim; Gayoung Cho; Sunhye Yu; Hosik Rho; Daejin Min; Duckhee Kim; Hankon Kim
The elasticity, depth of wrinkles, and skin color on the neck determine your neck age and shape; IFSSC 2010 Buenos Aires, Argentina

There are many reports on regional variations in skin properties, but few physiological studies have been performed on the neck. The neck is sun-exposed and we stretch or shrink our neck constantly, so the neck skin can be more apt to be aged. The purpose of this study was to find out the biomechanical and physiological parameter on the neck to change age-dependently and make the photographic scale for the neck age or neck shape. The skin properties on the neck of 56 Korean female volunteers in good health (25-64 years old, 43.1±10.5yr) were assessed non-invasively with the skin measuring devices. And we analyzed the correlation of skin physiological parameters with age. The neck skin was changed age-dependently. The elasticity, skin lightness was reduced. The depth of wrinkles and TEWL were increased. Based on the correlation parameter to age, we chose the skin color, winkles and elasticity for the key parameters to determine the neck age or neck shape. As the elasticity was reduced, the sagging of the neck skin increased. The neck wrinkles increased age-dependently and changed to "U" shape because the neck skin was sagged.

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.

Dai Q.A. Nguyen, Tom S. Potokar, Patricia Price, **An objective long-term evaluation of Integra (a dermal skin substitute) and split thickness skin grafts, in acute burns and reconstructive surgery;** Burns 36/2010; pp. 23-28

The field of wound healing and tissue repair has advanced rapidly in the last decade, with this there is an increasing emphasis on the importance of the functional and cosmetic outcomes following injury. Integra artificial skin is the most widely used synthetic skin substitute and is reported to have

better outcomes in relation to the appearance and elasticity when compared to split thickness skin grafting (SSG). A review of the literature reveals very few trials that are based on an objective evaluation of Integra treated scars as compared to SSGs. This research aimed to provide objective data on the long-term outcome of Integra.

Ken Yoshida, Hideya Yamazaki, Tadashi Takenaka, Eiichi Tanaka, Tadayuki Kotsuma, Yuka Fujita, Norikazhu Masuda, Keiko Kuriyama, Mineo Yoshida, Tsunehiko Nishimura; **Objective Assessment of Dermatitis Following Post-operative Radiotherapy in Patients with Breast Cancer Treated with Breast-conserving Treatment;** Stahlenther Onkol 2010 No. 11

Breast cancer is one of the most frequent cancers among women in seeral western countries, and most of these patients are treated post-operatively with radiotherapy. The sensitive target is normal skin with its inherent radiosensitivity and is sometimes severely affected by irradiation. Some studies have suggested that most patients treated with post-operative external radiotherapy for breast cancer will experience some type of skin reaction, such as skin dermatitis. However, there is currently no objective universal skin reaction rating scale, and there is always a risk of subjective factors interfering with the rating. In most previsous studies, the extent of erythema was determined with subjective means, such as visual inspection.

Blanca Martinez **Für alle Fälle;** COSSMA 11/2010

Will man das Fettgewebevolumen und die damit verbundene Cellulite lokal reduzieren, muss man auf die verschiedenen Prozesse (s. Kasten) einwirken, die die Fettakkumulation verursachen. Provislim ist die synergistische Kombination zweier Wirkstoffe, Fisetin und Frambinon, die genau das tun. Fisetin, ein Sirtuinaktivator, ist ein natürliches Lebensmittelflavonoid, das aus dem Buchsbaum Buxus sinica Cheng gewonnen wird, aber auch in Obst und Gemüse, besonders in Erdbeeren, vorkommt. Das Phenos Frambinon ist die Hauptgeruchskomponente in Himbeeren und wird aus der Anispflanze Pimpinella anisum gewwonnen. Aufgrund seines Wirkmechanismus ist Provislim täglich 24 Stunden im Einsatz, um lokales Fett und Cellulite abzubauen, egal ob der Verwender sich ausruht, trainiert, arbeitet, isst oder fernsieht.

Hiroshi Ohshima, Akihiro Tada, Akiko Kanamaru, Hisashi Akamatsu, Yuji Sakai, Masatoshi Itoh, Hiromi Kanto; **Relevance of the directionality of skin elasticity to aging and sagging of the face;** Skin Research and Technology 2011; 17: 101-107

Forces acting in facial skin have been suggested to show directionality. Non-invasive methods of measuring this directionality may thus provide information related to aging processes. The Reviscometer RVM 600 device is capable of measuring directionality of forces on the skin. This device has not been used previously in a published study to evaluate changes in directionality of forces on facial skin with aging. The first objective of this pilot study was to investigate relationships between mechanical directionality using the Reviscometer RVM 600, the Cutometer MPA 580, and aging of the facial skin in a supine position. In addition, the study investigated relationships between mechanical directionality and “skin sagging”, which may be caused by gravity.

Razvigor Darlenski, Theresa Callaghan, Joachim W. Fluhr; **Antiaging and Antiwrinkle Products;** J.W. Fluhr (ed.), Practical Aspects of Cosmetic Testing; Springer-Verlag Berlin Heidelberg 2011

The chronological (intrinsic) and extrinsic aging demonstrate typical macroscopic, histological and functional characteristics. The relative improvement in different parameters characterizing aging skin cann be used in efficacy proof of antiaging and antiwrinkle cosmetic products. Different approaches to investigate the efficacy of antiaging products exist such as clinical evaluation and objective assessment with non-invasive methods and invasive procedures. A multiparametric approach is useful in the assessment of antiaging products efficacy. There is no uniform consensus on the protocol and the design of studies aiming efficacy proof of antiaging cosmetics.

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.

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.

J. Helen Fitton, Vicki-Anne Gardiner; **Bioactive ingredients from marine macroalgae,** Personal Care September 2010, pp. 77-79

Maintaining an organ with direct exposure to the environment is a remarkable achievement. Skin provides a renewable, self-repairing and defensive barrier to externa influences. It is in a continual state of rejuvenation as the new skin cells make their way to the epidermis and also provides immune monitoring and pathogen defence via specialised cells. Seaweed derived products can provide both cosmetic and therapeutic assisistance to this constantly rehabilitated tissue. Brown seaweed contains a remarkable fucose-rich sulphated polysaccharide called “fucoidan” which has marked biological activities. These include a blocking effect on receptors for viruses in addition to an anti-inflammatory effect.

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.

J-M. Sainthillier, S. Mac-Mary, D. Monnier, P. Mermet, C. TZarrit, M. Mudry, C. Mudry, P. Humbert; **Exploratory study of the typology of mature skin at different stages**

Post-menopausal skin aging has intrinsic and extrinsic origins that induce considerable appearance and feeling disparition within a class of age. The aim of this study was to try and identify different stages of maturity of skin of the face of menopausal women.

Dr. Annette Mehling, Ute Griesbach, Valerie Pian; **Sensible solutions for sensitive faces;** September 2011, Personal Care, pp. 41-45

The term “sensitive skin” is commonly used to describe a number of unpleasant sensations of varying intensity and which are transient in nature. People have different sensitive skin types but typically complain about skin tightness, burning, prickling or itchy sensations. These complaints can be accompanied by transient redness or skin dryness. Although these symptoms usually do not involve visible or predictable signs of irritation or immunological reactions, they can cause significant discomfort. Due to the wide variety of possible causes and the subjective nature of the responses associated with sensitive skin, it is extremely difficult to quantify.

Pascale Quatresooz, Frédérique Henry, Philippe Paquet, Gérald E. Piérard, **Photoaging under recreational sunbeds;** Skin Research and Technology 2011, 17; pp. 309-313

Photoaging refers to light-induced changes in the skin that are superimposed to the alterations of intrinsic chronologic aging. Photoaging is induced by non-ionizing electromagnetic radiations, and is recognized by the combination of mottled skin melanoderma (MSM), coarse wrinkles, loss of skin firmness and solar elastosis. These changes are primarily due to chronic solar radiations. In addition, the importance of exposures to artificial sources of restricted light wavelengths is steadily increasing for lifestyle purposes in affluent cultural societies. The tanning bed procedure poses problems particularly in conditions of unsupervised and non-medical use.

Luigi Rigano, Chiara Andolfatto, Luca Stucchi, Marco Bosco; **Hyaluronic Acid Butyric Esters for the Improvement of Skin Functionality;** Cosmetic & Toiletries Vol. 126, No. 2/February 2011, pp. 104-111

The word hyaluronic is derived from the Greek hyalos meaning “glass” or “transparent” and refers to the vitreous humor, the ocular tissue from which it was first isolated by Karl Meyer and colleagues in 1934. It was later located in many other animal tissues, i.e. synovial fluid, cartilage and the umbilical cord, where it has the same structure and biological activities, described in this article. Hyaluronic acid (HA) is a linear polysaccharide of thigh molecular weight that belongs to the fmily of mucopolysaccharides or glycosaminoglycans (GAGs), the physiological constituents of the dermal connective tissue in the extracellular matrix. In adult humans, the total amount of HA is equal to approximately 15g, half of which is found in the skin.

Gilles Pauly, Christine Jeanmaire, Louis Danoux, Vincent Bardey, Olga Freis, Andreas Rathjens; **New Approaches for Collagen and Elastic Tissue to Improve Skin Firmness and Elasticity;** IFSCC Magazine 4/2011

Skin firmness and elasticity are major targets for anti-aging claims in cosmetics. The alteration of these essential functions during skin aging are mainly due to degradation of collagen and elastic tissue at different levels of the extracellular matrix of the dermis and of the dermo-epidermal junction in the skin. A global and multi-level approach to reverse this process is on the one hand to repair the damages by stimulating the synthesis of different collagens and elastic tissue components and on the other hand to preserve these macro-molecules from glycation and excessive proteolysis. Several in vitro experiments showed the capacity of two active ingredients to increase synthesis by fibroblasts of the collagen types I, IV, V, XII, XVI, XVI-II.

Giada Maramaldi, **A highly moisturising active from tamarind seed;** Personal Care November 2011, pp. 101-103

Tamarind is considered as one of the most beautiful trees growing in the South-East of Asia, and is also an edible plant; its young pods are used both for nutrition and to manufacture spices. Traditionally used in the Ayurvedic medicine even today, its use as a laxative dates back to the 1500s even in Western Coutnries. The seed of tamarind has a high content of polysaccharides among which the most abundant is a branched polysaccharide of a cellulose-type backbone carrying xylose and

galactoxylose substituents. This polysaccharide has been extremely well characterised (the polydispersion index being very limited, i.e. the number of molecules largely differing from the fixed molecular weight), and its use in cosmetic formulations has been assessed in terms of skin hydration, elasticity, roughness and densitiy on healthy volunteers.

Tomonobu Ezure, Eiichiro Yagi, Naomi Kunizawa, Tetsuji Hirao, Satoshi Amano, **Comparison of sagging at the cheek and lower eyelid between male and female faces;** Skin Research and Technology 2011; 17 -2011; pp. 510-515

Facial Sagging is a well-known feature of aging. Age-related changes of female faces have been examined thoroughly as regards characteristics and formation mechanism, but relatively little is known about age-related male facial changes. Sagging is thought to be associated with decreased dermal elasticity in female faces, but the dermis is thicker in males and dermal blood flow is more abundant in males than females of the same age. Therefore, the relationship of dermal condition with facial sagging may be different in males and females. However, there is little information about gender differences of dermal elasticity. Therefore, the relationship of dermal condition with sagging in male faces is unclear.

Guiseppe G. Barbarino, Mahmood Jabareen, Edoardo Mazza; **Experimental and numerical study on the mechanical behaviour of the superficial layers of the face,** Skin Research and Technology 2011; 17; pp. 434-444;

Modeling the mechanical behaviour of facial soft tissues has gained importance in recent years due to the development of 3D face models for the computational simulation of surgical intervention. The need for improved simulation accuracy and envisaged applications of these models (e.g. outcome of face lift surgeries) require a distinction between the different soft tissue layers and an accurate representation of their mechanical behaviour. Soft tissues have been investigated in vivo in different studies Specifically for the mechanical characterization of the skin, different non-invasive testing methods were used: suction, indentation, torsion and in situ tensioning devices.

Luis J. Cruz, Carmen Gutierrez, Cristina Caniego, Isabgel M. Ramos; **Peptides build a 3D regenerative matrix;** Personal Care November 2011, pp. 67-70

Skin aging is caused by intrinsic biological factors combined with external effects (environmental impacts like UV or pollutants). Most of the skin ageing macroscopic signs (such as wrinkles, skin thinning or loss of firmness) are related to a reduction either of the quantity or quality of the extracellular matrix (ECM). Hence, the improvement of the structure of ECM is a key goal to minimise the effets of ageing and also for regeneration processes. Wound repair is an essential physiological process that plays a key role for tissue homeostasis. Any regeneration of injured or damaged skin, including damage by environmental factors, requires restoration of ECM.

Nathalie Hirt-Burri, Corinne Scaletta, Wassim Raffoul, Lee Ann Applegate, Anthony de Buys roessingh; **Ten year follow-up of Pediatric Burn Patients Treated With Biological Bandages;** Hospital of Lausanne;

This study presents the skin quality results ten years after treatment of eight children with intermediate to profound 2nd degree burns. They were treated with biological bandages produced from a clinical bank of human fetal skin cells (one organ donation, 1m² fetal skin). Children (age mean = 6 yr) were treated with one to seven bandage changes (mean of 4.1 +/- 2) following the surgeon's evaluation. No auto-graft was necessary. Overall skin quality was evaluated following the Vancouver Scar Scale model and compared with semi-quantitative biomedical devices such as the Cutometer and the Dermatospectrometer.

Monica Bloemen, Martijn Van der Wal, Pauline Baar, Paul Van Zuijlen,Esther Middelkoop; **Clinical Effectiveness of Dermal Substitution in Burns by Topical Negative Pressure: A Multicenter Randomized controlled Trial;**

Previous research has demonstrated clinical effectiveness of dermal substitution, however, in burn wounds only limited effect has been shown. A problem in burn wounds is the reduced take of the autograft, when the substitute and graft are applied in a one-step procedure. In other studies, application of topical negative pressure (TNP) was able to improve the take rate of an autograft. Aim of this study was to investigate if application of a dermal substitute in combination with TNP improves scar quality after burns. In a four-armed multicenter randomized controlled trial (RCT), a split-skin graft with or without dermal substitute Matriderm, and with or without TNP were compared in adult patients with deep dermal or full-thickness burns which required skin transplantation.

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.

Luis J. Cruz, Carmen Gutierrez, Cristina Caniego, Isabel M. Ramos; **Intelligent targeting devices; Target delivery of cosmetic actives to specific skin cells;** Household and Personcal Care TODAY n3/2011; pp. 14-17

Since the first Liposomes were introduced in the cosmetic market products in the 80's, Cosmetic Delivery Systems have been used during the last decades to enhance the properties of Cosmetic Actives. Encapsulation Technologies are a family of Delivery Systems that include a wide range of techniques, that allow isolating the substance of interest from the environment, surrounding it with a shell, or into a matrix made up of the encapsulating material. Just by encapsulating a substance in the right way, we can increase stability, reduce toxicity, increase the biodisponibility, mask taste or odour… or just change the physical appearance. But the most elegant applications of encapsulation involve any kind of modification of the delivery of the encapsulated active material.

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.

Dr. med. C. Schrammek-Drusio; **Haut- und Gesichtsdiagnosen – eine Kernkompetenz jeder Kosmetikerin;** dermatologie pp. 32-33

Neben dem Dermatologen ist eine kompetente Kosmetikerin die Expertin in Sachen Hautpflege. Doch wodurch zeichnet sie sich aus? Selbstverständlich ist ein umfassendes theoretisches und praktisches Fachwissen erforderlich, komplettiert durch stetige Weiterbildung. Doch wenn Kunden ins Institut kommen, möchten sie auch schnelle Analyseergebnisse und

Behandlungspläne erfahren. Grundlage hierfür ist die professionelle Hautdiagnose. Denn alle sich anschliessenden Fragen, etwa welche Produkte und Behandlungen in der Kabine angewendet werden, wie das individuelle Pflegekonzept aussehen soll und welche Präparate sich für die Heimpflege empfehlen, hängen von dem Ergebnis der Hautanalyse ab. Für die kosmetische Praxis bedeutet dies das Erkennen und Einordnen des Hautgrundbildes, des Hautzustandes und der Anomalien bzw. unerwünschten Hautveränderungen.

Dai Qa Nguyen, Tom S Potokar, Patricia Price; **A long term evaluation of Integra and split thickness skin grafts in acute burns and reconstructive surgery;** Journal of Wound Technology, January 2012, No 14, pp. 83-84

The field of wound healing and tissue repair has advanced rapidly in the last decade, with this there is an increasing emphasis on the importance of the functional and cosmetic outcomes following injury. Integra artificial skin is the most widely used synthetic skin substitute and is reported to have better outcomes in relation to the appearance and elasticity when compared to split thickness skin grafting (SSG) A review of the literature reveals very few trials that are based on an objective evaluation of Integra treated scars as compared to SSGs. This research aimed to provide further data on the long term outcome of Integra. All adult patients from the Welsh Burns Centre who had been sucdessfully treated with Integra were invited to attend a clinic for a follow up provided they had been healed for greater Observer scale (POS) were used to evaluate whether Integra was subjectively superior to SSG.

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.

SARISE BIO – Eine 100% natürliche Anti-Aging-Innovation; COSSMA 4/2012

SARISE BIO ist ein innovativer, 100% natürlicher Anti-Aging-Wirkstoff, ECOCERT-zertifiziert und frei von Konservierungsmitteln. Der Phytokomplex wird aus den Stielen der Sauerkirsche und den Blättern des Sommerbohnenkrautes gewonnen. Reduzierter Zellmetabolismus und oxidativer Stress sind die beiden Hauptursachen der Zellalterung. SARISE BIO ist in der Lage, gegen diese beiden Auslöser anzukämpfen. Die Wirkung wurde in klinischen Studien bestätigt. Durch eine spezielle Produktionsmethode enthält SARISE BIO einen hohen Gehalt an aktiven Molekülen wie Triterpenoide (Ursolsäure), Rosmarinsäure und Flavonoide (Quercetin). SARISE BIO neutralisiert direkt reaktive Sauerstoffspezies (ROS). Durch die Stimulation der mitochondrialen Aktivität und die dadurch bedingte Reduktion von intrazellulärem oxidativem Strss, besitzt der Wirkstoff einen zusätzlichen positivien Effekt.

Daniel Schmid, Rikka Sacher, Esther Belser, Fred Zülli; **Stimulation of growth factor communication between epidermis and dermis by Crocus chrysanthus bulb extract;** Household and Personal Care Today n 1/2012, pp. 33-36

Growth factors and cytokines are messenger compounds, in most cases proteins, that allow the communication between cells in our tissues. After binding to specific receptors on cell surfaces, growth factors activate cellular proliferation or differentiation. In the skin, growth factors orchestrate

the wound-healing process and also the continuous regeneration and repair. The repair of skin damaged by a wound or after UV exposure takes place in two phases. Firstly there is an inflammatory reaction. Activation on the NF-kB pathway in the cells of the epidermis leads to the formation of inflammatory cytokines.

Yukiko Matsunaga, Shigeyoshi Fujiwara, Yuichiro Mori, Akiko Miyake, Haruyo Yamanishi, Madoka Kage, Yoshihiro Tokudome, Fumie Hashimoto, Takeshi Hariya; **Development of Self-dissolving Microneedles Consisting of Hyaluronic Acid as an Anti-wrinkle Treatment**

Microneedle technology has recently attracted considerable attention in the medical field as a means of facilitating effective transdermal delivery of vaccines and other pharmaceutical compounds with minimal invasiveness, little pain and a high degree of safety. Generally, microneedles typically consist of multiple micro-projections made of silicon, metal or polymeric materials through which a drug can diffuse in to the skin. Delivery using solid or hollow microneedles can be accomplished by piercing the skin and then applying active agents to the permeabilized skin, coating or encapsulating agents on microneedles for rapid dissolution and release in the skin.

Estelle Loing, Thiery Suere, Elisabeth Lamarque; **Triflouroacetyl-Tripeptide-2 to Target Senescence for Anti-aging Benefits;** Cosmetics & Toiletries, Vol. 127; No.4/April 2012;

Skin aging is characterized by progressive changes in the regulation of cellular processes and miscommunication between cells and their immediate environment, the extracellular matrix (ECM) These malfunctions, which may result from physiological and/or environmental events, are most notably characterized by the increased activities of metalloproteinases (MMPs) and the reduced synthesis of their endogenous inhibitors, i.e. tissue MMP inhibitors (TIMPs), as well as the reduced biosynthesis of major ECM protein. As a result, the extracellular matrix is no longer renewed and the skin shows the effect of aging.

Daniel Whitby, Jennifer Allen, **Facing up to ageing: what makes us apper old,** June 2012 Personal Care

Over many hundreds of years one of the key areas for the application of personal care products has been the face. The human face is exposed to the elements for most of the year, whether it be bright sunshine in the summer or cold, dry winds in the harshest of winters. It also bears the brunt of other environmental exposure from, for example, traffic fumes, cigarette smoke, etc., so suffers from the effects of both intrinsic and extrinsic ageing. Facial skin can also, through its colour and expressions, reflect many emotions and feelings.Blushing for example, resulting from dilation of blood vessels in the skin, can show embarrassment. So the face signals many different things in the way it appears to the casual observer.

Philippe Moussou, Louis Danoux, Florence Henry, **Inflammaging: the new theory in skin ageing,** June 2012 Personal Care

Several research studies on aged people carried out by different research teams have highlighted the existence of a new theory in skin ageing named “inflammaging”. Skin inflammaging results from a combination of several deleterious pathways inducing a vicious cycle of micro-inflammation. A cascade of inflammatory responses results in chronic low level inflammation and leads to accumulation of molecular and cellular damages, well-known sources of skin ageing which can affect the appearance of the skin. Laboratories Sérobiologiques (LS) – now with Beauty Creations – developed the first cosmetic active - a bark extract from Eperua falcate – which targets inflammaging in a comprehensive way, by addressing the consequences of its deleterious effects on the skin in a particulary efficient manner.

P. Moortgat, C. Laifaire MD, **The effects of radial shock wave therapy on water vapor permeability rate and elasticity of burn scars: a case series report,** ISBI congress in Edinburgh

Nowadays, non-invasive or minimally-invasive treatments are preferred for the most burn patients. Burn surgery often leaves important functional and aesthetic sequelae, which can reduce the patients quality of life (1). Research on biomechanics and biophysics in general is introducing new non-invasive therapis.

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. Schild, M. Mentel, U Maczkiewitz, T. Köhler, **Cyanidium caladarium algae extract: a multifunctional anti-aging cosmetic ingredient with profound in vitro activity on epidermal stem cells and dermal fibroblasts,** IFSCC 2012, 15-18 Oct. 2012, Sandton, South Africa

The presented studies show unique and multifunctional anti-aging activity of an aqueous Cyanidium caladarium algae extract enriched in 4 aminobutyric acid (GABA). Activities were demonstrated in different in vitro cell culture models, and further substantiated in an in vivo cosmetic study. In order to elucidate the molecular mechanism of the Cyanidium caladarium extract, several in vitro assays were conducted on different skin cell culture models. The extract proved to be highly effective on all in vitro models employed, including stem cell-like epidermal keratinocyte progenitor cells, human dermal fibroblasts and reconstituted epidermis models. Results from in vitro gene expression experiments suggest that Cyanidium caladarium extract exerts several beneficial nutritional and protective effects on the molecular level, thereby promoting (i) maintenance of the skin's stem cell potential, (ii) overall strengthening of the dermal extracellular matrix architecture, and (iii) protection from UV-induced stress.

J Hosoi, M Ooba, H Miyake, T Hiroi, E Hara, C Matsumoto, S Amano; **New approach to anti-aging skincare by mechanism-based improvement of facial sagging: role of subcutaneous tissues**, IFSCC 2012, 15-18 Oct. 2012, Sandton, South Africa

Many skincare treatments have been developed to improve superficial aging-related changes of facial skin, such as finde wrinkles and pigmentation, but such treatments have hat little impact on more substantial changes of facial morphology, such as sagging, the formation of deep grooves around the mouth (nasolabial folds), loss of sharpness of facial outline, decrease of eye fissure size, fixed deep wrinkles and so on.

O Freis, G Perie, A Rathjens; **Skin mechanical and optical properties in function of aging** , IFSCC 2012, 15-18 Oct. 2012, Sandton, South Africa

The evolution of skin biomechanical and optical properties in function of aging and/or photo-aging is one of the main targets of cosmetic and dermatological research. Many different non-invasive devices using alternative measuring approaches such as stretching, torsion, indentation, and suction have been developed for biomechanical properties evaluation. The measurements of skin deformation after suction of torsion are the most widely used techniques in cosmetic research.

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.

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.

Jasmin Lozza, Daniel Schmid, Esther Belser, Fred Zülli; **Crocus bulb extract prompts epidermis/dermis crosstalk;** Personal Care November 2012

Interactions between growth factors, skin cells and the extra-cellular matrix (ECM) are essential for tissue regeneration in wound healing as well as intrinsic ageing of the skin. Wound healing is a complex process comprising different phases such as inflammation, proliferation and remodelling, all of which require growth factors to regulate the fine balance between the synthesis of extracellular matrix and its degradation by proteases. Intrinsic skin aeging is accompanied by an accumulation of reactive oxygen species (ROS) due to an impaired mitochondrial oxidative metabolism.

Philippe Moussou, Louis Danoux, Florence Henry, **Micro-Inflammatory Vicious Cycle: A new target to delay skin aging;** IFSCC Magazine, No. 3,2012

The age-related chronic low grade upre4gulation of the inflammatory response is a major factor underlying the cutaneous aging process. To fight against micro-inflammation and its visible consequence on skin aging, we developed a cosmetic ingredient able to modulate three key pathways: NF-kB, neuropeptides and plasmin activity. Eperua falcate extract was shown in vitro to 1) decrease the activation of NF-kB and the release of pro-inflammatory cytokine IL-8 in stimulated human keratinocytes, 2) decrease the neuropeptide CGRP release by sensory neurons, and 3) inhibit plasmin protease activity. In addition, it inhibited the release of superoxide anions, the UVA-induced oxidation of fibrolast membrane lipids and cytokine induction in UVB-irradiated keratinocytes, showing its capacity to protect epidermal cells against the environmental and oxidative stresses that aggravate the micro-inflammatory vicious cycle.

M. Rull, C. Davi, E. Canadas, J. Cebrián; **Reversing signs of ageing in mature skin,** Personal Care September 2012

Due to the effect of several internal and external factors across the years, mature skin is physiologically different from its own young predecessor. It is clear that skin continuously suffers aggressions like photoageing, environmental factors, chronological ageing and hormonal deficiency, which end up in skin deep alterations including a loss of elasticity and firmness, an increase of flaccidity and sagginess, and a thicker and atrophic skin.

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.

A Osmola-Mankowska, A Danczak-Pazdrowska, K Olek-Hrab, W Silny, A Polanska; **Hf-usg and cutometer in monitoring of sclerodermoid cgvhd patients with joint contractures**; ISBS Copenhagen 2012

The purpose of this study was to illustrate the skin sclerotic lesions of two chronic sclerodermoid GvHD patients using two noninvasive methods. Two adult patients (23 year-old female and 52 year-old male) suffering from chronic sclerodermoid GvHD (cGvHD) were involved in the study. Typical sclerotic skin lesions affected their upper and lower extremities leading to dermatogenic contracturesand difficulty in walking. Patients were treated with the medium dose regimens of UVA1 up to total dose 1000J/cm² and 1380J/cm² respectively, delivered by GP-24H (Cosmedico, Medical Systems, Germany).

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.

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; **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).

V Zorin, A Zorina, V Cherkasov, R Deev, A Isaev, A Nerobeev, E Krechina, A Alikova, S Donetskaya ; **Application of autologous dermal fibroblasts for correction of age-related changes of skin; the year of clinical observations;** ISBS Copenhagen 2012

Basic molecular mechanisms, associated with the main cell population of the dermis – fibroblasts, are the basis of skin aging. The number of functionally active fibroblasts in the skin and their bio-synthetic activity decreases with age thus augmentation of their population with the synthetically-active cells is accepted as a one of most effective methods. In the common practice of aesthetic medicine only two dermal autofibroblasts-based technologies are allowed : « SPRS-therapy » (Human Stem Cells Institute, Russian Federation ; since July 2010) and LAVIVTM (Fibrocell Science, Inc ; USA ; since July 2011).

G.E. Piérard, T.Hermanns-Lê, C. Piérard-Franchimont; **Scleroderma: skin stiffness assessment using the stress-strain relationship under progressive suction**; 2012 Informa Healthcare UK

In recent decades, various instrumentations were used for assessing the in vivo viscoelasticity of skin [1-3]. The methods relied on various approached including the uniaxial and biaxial stretching, torsion, elevation, indentation, ballistometry, and suction procedures [1,4]. The time-honored suction method aims at measuring the skin deformation caused by and loss of pressure exerted over a defined skin area [5-10]. Skin deformation occurs as a function of the suction force, its time of application, and the surface area opf the stressed skin [11-13]. It is regarded as the in vivo expression of the overall skin viscoelasticity.

I Matejková, J Cheel-Horna, M Moravcová, T Muthný ; **New coffee phytocomplex improves skin elasticity ;** November 2012 Personal Care

Skin, as an outer shell, protects the body from harmful external influences and from water and heat loss. Premature ageing is not only a health issue but also a social problem because of the development of visible changes such as wrinkles, dryness and loss of elasticity. These and other changes in the quality of the skin are partly the result of chronological ageing (i.e. they are intrinsic). Yet external influences (premature/extrinsic ageing) can also have a major impact on skin ageing. These external factors include smoking, pollution, toxic chemicals, and lifestyle (physical activity, diet, etc.)But the most significant factor (at a rate of 80%-90%) of all that contributes to the development of changes typical for premature ageing is UV rays.

Naouri M, Atlan M, Perrodeau E, Georgesco G, Khallouf R, Martin L, Machet L.; **Skin tightening induced by fractional CO(2) laser treatment: quantified assessment of variations in mechanical properties of the skin** J Cosmet Dermatol. 2012 Sep;11(3):201-6

BACKGROUND: Certain authors have reported the efficacy of fractional resurfacing laser treatment in patients with photodamaged skin resulting in skin tightening of treated area. OBJECTIVE: To assess skin tightening after CO(2) fractional resurfacing laser treatment by measuring variations in mechanical properties in treated areas. Dermal elasticity was measured using suction applied with an in vivo skin elasticity meter (Cutometer(®)). METHODS: A prospective observational study was undertaken from January 2007 to August 2009. Laser treatment was performed with the SmartXide Dot(®) (Deka(®), Firenze, Italy) CO (2) fractional resurfacing device. Patients were offered quantified analysis using the Cutometer (®) before and after treatment.

Dr J Bhat on behalf of Dr Sean Lanigan, Dr Colin Whitehurst and Jan Birch. **A Single -Blinded Randomised Controlled Study to Determine the Efficacy of Omnilux Revive Facial Treatment in Skin Rejuvenation**; Lasercare clinics, Birmingham, UK.

The use of light technology in dermatology has grown rapidly in the last decade. There have been many developments in the use of light for the treatment of a wide variety of skin conditions from nonmelanoma skin cancers1, 2,3,4 to facial resurfacing for crows feet and photo damaged skin.5, 6,7 Historically the use of CO2 lasers has been the mainstay for facial resurfacing and skin rejuvenation since the mid 1990s. It is accepted that photoageing and the subsequent visible effects is in part due to the breakdown of collagen by metalloprotinases and oxidative damage induced by exposure to UV light.8 Subsequent treatment with CO2 lasers improves these visible signs through tissue remodelling

after cutaneous injury. However the effectiveness of this technique is limited by prolonged healing times, discomfort during the procedure (requiring local anaesthesia) and the risk of complications such as pigmentary disorders.8 The popularity of laser resurfacing has therefore decreased, while the demand for new procedures that provide optimum results with minimal side effects has continued regardless. Light Emitting Diode (LED) technology has been at the forefront of new light source development in recent years. LED technology offers a new vehicle for the delivery of non-coherent light in arrays of varying shape, suitable for the treatment of large surface areas. Whelan H et al have repeatedly proven the effectiveness of LED technology in delivering an optimum light dose consistently demonstrating the efficacy of LED therapy in tissue regeneration.9, 10.

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.

*P. Larmo, V.-P. D.Tech, A. Bonfigli***; Lingonberry boosts hydration with anti-ageing benefits**; Personal Care April 2013

Lingonberry (Vaccinium vitis-idaea) is a nutritious berry that is widely abundant and harvested in wild form in the Nordic countries. In recent years, it has gained a reputation as a health-promoting superfruit. Lingonberries are used in several ways in Scandinavian cuisine: as a side dish, garnish or components of desserts. Lingonberries are rich in vitamin C and E in polyphenols including anthocyanins, proanthocyanidins and flavonols. Seeds containing ≈30% oil by dry weight, represent about 1.5% of lingonberries' fresh weight.

M. Pflaumbaum, M. Farwick, M. Mentel, T. Köhler, J. Schild; **Red algae delays chronological ageing** ; Personal Care April 2013

Abstract: During the chronological ageing process epidermal skin stem cells become less effective, meaning that the renewing and repairing activity of the epidermis is reduced. Moreover, fewer elastic fibres are synthesised, thereby inducing a progressive loss of skin elasticity. The standardised, COSMOS certified Cyanidium caldarium red algae extract, unique in ist capability to produce gamma aminobutyric acid (GABA) with proven combined activity on epidermal stem cells and elastic fibres, clearly retains youthful skin appearance and reduces the signs of chronological ageing.

L. Marini, G. Crisman, V. Trashlieva, A. Krunic, P. Polizos, A. De Faveri; **Using photobiomodulation to treat premature ageing;** Prime March 2013

Abstract: Background and objective: Facial skin shows signs of ageing earlier than other anatomical areas. Predominantly non-thermal infrared A (IR-A) light emitting diode (LED) photobiomodulation has proven effective in triggering intracellular photobiochemical reactions leading to new collagen synthesis and reduction of matrix metalloproteinase-1- (MMP-1). The objective of this study was to assess the effectiveness, safety, and tolerability of a sequentially combined, continuous (CW) 835 ± 5 nm and pulsed emission (PW) 875 ± 5 nm LED facial mask array in the treatment of facial premature ageing.

Hristo Dobrev; **Novel ideas: The increased skin viscoelasticity – a possible new fifth sign fort he very early diagnosis of systemic sclerosis** ;www.benthamscienorg/crr

Abstract: Introduction: Diagnosis of systemic slerosis (SSc) at very early stage could allow starting an appropriate therapy and improving the patient outcome. Skin involvement is often the first non-Raynaud's phenomenon (RP) symptom. Ist uncovering may play an important role for the initial diagnosis. Objective: To introduce a simplified method for non-invasive evaluation of skin mechanical properties in patients with clinically evident or suspected SSc. Material and Methods: A total of 94 patients and 162 healthy subjects were studied. According to clinical and nailfold videocapillaroscopy findings the patients were divided into four groups: 20 with edematous phase of SSc (group 1), 28 with indurative phase of SSc (group 2), 26 with suspected secondary RP (group 3), and 20 with primary RP (group 4).

K.C. Holley M. S., Dr. H. Knaggs, Ph.D; **Why don't I look younger?;** Euro Cosmetics, 6-2013

The number of individuals over the age of 65 will outnumber those younger than five for the first time in 2020. With this the anti-aging market continues to grow causing more and more individuals to wonder – Can I look younger? This question plagues the anti-aging population and brings skin scientists to ponder:

- Can we quantify someone who looks old or young for his/her age?
- Do Asians, who are known for ageing gracefully, show the same age patterns?
- Can aging appearance or looking old for one's age be changed or improved?

Aging is multi-factorial and cannot be attributet to one cause. The structure of the skin changes in many ways. Transepidermal water loss (TEWL) increases resulting in less skin moisture. Dry skin appears dull and fine lines are more apparent. Cell turnover also decreases. The outer most layer of keratinocytes cling to the surface for longer, adding to dullness of the skin's apperarance. It also contributes to rough skin that refelcts light less uniformly causing a loss of radiance.

E. Kim, G. Cho, N.G. Won, J. Cho; **Age-related changes in skin bio-mechanical properties: the neck skin compared with the cheek and forearm skin in Korean females**; Skin Research and Technology 2013; 19; 236-241

Background: There are many reports on regional variations in skin bio-mechanical properties, but few studies have been performed on the neck. The neck is sun-exposed and continues to move

so the neck skin can be more apt to aging. Methods: The skin porperties oft he neck, cheek, and ventral forearm of 58 Korean female volunteers in good health (25-64 years old, 42.3 ± 11.7) were assessed non-invasively with skin measuring devices, and the correlation with age and wrinkles was analyzed. Results: Neck skin was more extensible, elastic and viscoelastic than the cheek. The dermal layer fort he neck skin was thinner and more intense than the cheek, but the results were opposite when compared with the skin oft he forearm. We could observe that the subcutaneous layer was divided by the fascia with regard tot he neck skin, and this thickness increased BMI-dependently.

Y. Hara, Y. Masuda, T. Hirao, N.Yoshikawa; **The relationship between the Young's moduls of the stratum corneum and age: a pilot study;** Skin Research and Technology 2013; 19; 339-345

Background/purpose: The mechanical porperties of the strum corneum play an important role in protecting the body from external physical stimuli and excessive sensitivity. However, it is difficult to analyze these mechanical properties in vivo. To resolve this problem, we carried out a numerical analysis to calculate the Young's modulus of the stratum corneum. We then investigated the relationship between the Young's modulus of the stratum corneum and age. Methods: We used a Cutometer and a Dermal Torque Meter for measuring skin mechanical parameters, and optical coherence tomography and an ultrasonic imaging system for measuring skin thickness. Based on these non-invasive results, liner elastic analysis was performed by the finite element method, and the Young's moduli of the stratum corneum and the dermis were calculated by solving an inverse problem. Using these techniques, we analyzed the correlation between the Young's modulus of the stratum corneum for the cheeks of seventy-eight Japanese aged from 20 to 68 years.

G.E. Piérard, S. Piérard, P. Delvenne, C.Piérard-Franchimont; **In vivo evaluation of the skin tensile strength by the suction method: pilot study coping with hysteresis and creep extension;** ISRN Dermatology Volume 2013; Article ID 841217, 7 pages

Measurements of a number of physical parameters characterizing human skin have been attempted over the recent decades. A diversity of devices assessing skin viscoelasticity were used both in vitro and in vivo [1,2]. They proved to be useful tools for scientists and medical practitioners [3,4]. Over a large part of the body, the overall viscoelastic behaviour of the skin primaily depends on the skin connective tissue (SCT) structures present in both the dermis and the subcutis, with minimal contribution from the epidermis [5-7]. The suction method is one of the most widely used approach for determining some of the biomechanical characteristics of human skin in health and disease [8-17]. The progressive suction mode with a stress-versus-strain graphic recording is a convenient way in this endeavour [9-11]. In this prodecure, a progressive increase in stress suction for a defined period of time is followed by a symmetrical rate of suction release. During the whole process, skin deformation defined as the strain is recorded. Typically, visoelastic materials exhibit nonlinear stress-versus-strain properties [1,2,9,17]. The hysteresis loop represents the area delimited by the two curves representing the loading and relaxation phases, respectively.

L. Rigano, G. Baratto, A. Portolan, A. Semenzato, M. Meloni, A. Bonfigli, M. Sironi, S. Pieraccini, N. Lionetti; **Development of a Powerful Tool for Investigation of the Structure and Functionality of the Aqueous Phase of Cosmetics**; IFSCC Magazine 3, 2013

Introduction: Among other problems, skin aging is associated with a loss of the capability of skin cells to answer and react to internal and environmental changes. Osmotic pressure and its equilibrium, involving the extracellular matrix and the cell inside, are key factors in maintenance of the homeostasis of living cells. Moreover, osmotic pressure differences between cells and their enviroment lead to the production/release of molecules (osmoprotectants) aimed at keeping the functional equilibrium of cells. Indeed, nature uses mainly such molecular structures for protecting cells, both vegetal and animal, from uncontrolled development of pressure differences between the inside and outside of cell membranes [1, 2]. This economy in the creativity of nature is due to the fact that such protection is exerted on the hydrophilic peptide bonds while different substituents which are lipophilic are not easily exposed to the hydrolytic action of water.

Aksamitova H., Holcova S., Hladicova M; **Anti-Aging Effekt und Hautverträglichkeit einer multivalenten Wirkstoffkombination in einer W/O Emulsion**; Kosmetische Medizin 4.13

In zwei klinischen Modellen wurde der Effekt der zweimal täglichen Anweundung einer Hautcreme mit antioxidativen und biologisch hautaktiven kosmetischen Inhaltsstoffen dokumentiert. In beiden Teilstudien betrug die Anwendungsdauer 25-35 Tage, mit einer Zwischenauswertung nach 12-16 Tagen. Im ersten Teil der Studie wurden die Effekte der Creme auf Hauttrockenheit und Hautrötung an 50 Patienten (88% weiblich) mit allergischer Diathese klinisch dokumentiert. Beide Parameter verbesserten sich hochsignifikant, bei gleichzeitig ausgezeichneter Verträglichkeit und dem Fehlen unerwünschter Effekte. Im zweiten Teil Studie wurde an 20 Probandinnen mittels physikalischer Messverfahren der Effekt auf die Hauthydratation und Hautelastizität objektiviert. Beide Parameter verbesserten sich hochsignifikant und bestätigten damit eindrucksvoll die ärztliche Beobachtung.

Dr. O. Hevia; **An Investigation into the Anti-aging Efficacy of a Serum Containing a Red Mangrove Extract;** SOFW-Journal, 139, 10-2013

Introduction: Rhizophora mangle, more commomly known as the red mangrove, is a woody, salt water-tolerant plant that grows in topical and subtropical coastal areas throughout the world, especially in the Atlantic basin of the Americas and Caribbean. Extracts from the bark of the red mangrove (Rhizophora Mangle) plant have been used in folk medicine for centuries, and numerous studies have demonstrated that the extract prossesses antimicrobial, anti-inflammatory, and potent antioxidant activity. 1-6 Based in these findings, a proprietary extract from the seedlings of the red mangrove was developed and incorporated into a cosmetic formulation and applied topically to determine if it could exhibit any anti-aging efficacy.

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.

J.C. Pittet, PhD, O. Freis, PhD, M.D. Vazquez-Duchêne, PhD, G. Périé, G. Pauly MD; **Evaluation of Elastin/Collagen Content in Human Dermis in-vivo by Multiphoton. Tomography – Variation with the depth and correlation with aging.;** ISBS, Milan 15-16.10.2013

SUMMARY: Problem: Several studies have reported that autofluorescence (AF) and second harmonic generation (SHG) signals generated in the superficial dermis are related with skin photoaging. In this study we have focused on the measurement of AF and SHG at two different depths of dermis and performed the comparison with two other techniques. Method: Multiphoton Confocal Microscopy (MCM) was used to quantify elastin and collagen with SHG-to-AF Aging Index of Dermis (SAAID). A 50MHz ultrasound scanner was used for the calculation of the Sub Epidermal Non Echo-

genic Band (SENEB). The measurements of the skin mechanical properties were performed with a cutometer. All measurements were performed on 2 groups of 30 healthy female volunteers of different ages (“Young”: 28±9 years; “Aged”: 54±11 years).

A.Mitarotonda, F. Johnson, L. Koch; **Clinically proven benefits of organic certified products;** Personal Care November 2013

Abstract: There is a general belief that natural and organic cosmetic products cannot deliver strong benefits and only basic clamis can be achieved. This is due to the limited number of ingredients available to those who are formulating certified products. When transposed to skin care claims, it usually means hydration and moisturisation derived benefits. When it comes to makeup, the absence of truly performing colour cosmetics can lead „green consumers“ to look at more standard brands in order to get their favourite look. With this article the authors would like to demonstrate that it is possible to develop organic certified products that are clinically proven to be effective.

H. Ohno, N. Nishimura, K. Yamada, Y. Shimizu, S. Iwase, J. Sugenoya, M. Sato; **Effects of water nanodroplets on skin moisture and viscoelasticity during air-conditioning**; Skin Research and Technology 2013;19;375-383

Background/purpose: In air-conditioned rooms, dry air exacerbates some skin diseases, for example, senile xerosis, atopic dermatitis, and surface roughness. Humidifiers are used to improve air dryness, which often induces excess humidity and thermal discomfort. To address this issue, we investigated the effects of water nanodroplets (mist) on skin hydration, which may increase skin hydration by penetrating into the interstitial spaces between corneocytes of the stratum corneum (SC) without increasing air humidity. Methods: We examined biophysical parameters, including skin conductance and transepidermal water loss (TEWL), and biomechanical parameters of skin distension/retraction before and after suction at the forehead, lateral canthus, and cheek, with or without mist, in a testing environment (24°C, 35% relative humidity) for 120 min.

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.

P. Neto, M. Ferreira, F. Bahia, P. Costa; **Improvement of the methods for skin mechanical properties evaluation through correlation between different techniques and factor analysis;** Skin Research and Technology 2013;19;405-416

Background: In the past decades, many instruments have been developed to measure skin elasticity and firmness. The offer is extensive and is constantly increasing, becoming difficult to decide which equipment and mechanical property measurement are better to portrait the desired characteristics. The aim of this study was to compare and correlate parameters assessed with different probes, based on different methodologies, to understand which probe characterizes each skin elasticity property. Methods: Measurements were performed in the abdomen region of 34 female volunteers, with three different probes: Cutometer SEM575, Reviscometer RVM600 and Frictiometer FR700. Statistical data analysis was performed by Factor Analysis on IBM SPSS Statistics 17.0.

H. Dobrev; **Cutometer;** Non Invasive Diagnostic Techniques in Clinical Dermatology; Springer Berlin Heidelberg 2014; ISBN 978-3-642-32108-5

Introduction: The human skin prossesses a complex structure and various functions which ensure the entity between the organism and the environment. Mechanical properties of the skin are of major importance for its protective function. They vary in accordance with age, sex and body sites, in some physiological and pathological skin conditions, and change due to different external and therapeutic influences. Considerable progress in the quantification of the skin mechanical functions had been achieved for the past 20 years through the introduction of modern non-invasive bioengineering methods and devices which provide the researchers with objective, quantitative, sensitive and reproducible measurements in vivo.

M. Hayashi, H. Muramatsu, M. Nakano, Y. Tomizuka, M. Inoue, T. Onodera, E. Takahashi, M. Nakamura; **Evaluation of scars treated with autologous cultured epidermis JACE – measurements of the elasticity and flexibility of the graft site using cutometer;** keine Quelle lesbar

We have used cultured epithelial autograft procedures for extensive burn patients at our institute. This case report presents a burn patient who was treated with meshed 6:1 split thickness autografts combined with cultured epithelial autografts. The elasticity and flexibility of the skin were measured using a special device, the Cutometer MPA580. A 19-year.old-woman suffered burn injuries when her clothing caught fire as she approached a kerosene stove. The total body surface area (TBSA) of burn was 37%. After debridement, the recipient bed preparation was managed by using artificial dermis.

S. Rao, F. Muia, S. Bennett, J. V. Gruber; **Improving barrier function to address premature ageing;** Personal Care February 2014

Skin barrier function, principally the stratum corneum, is the primary line of defence against extrinsic stress such as UV-induced photo-damage, insults from microbial infections and physical deterioration resulting from ageing and environmental exposure. Scientific evidence suggests that both intrinsic and environmental factors contribute to „compromised“ skin barrier function.

R. Burgo, Y. He, L. Lampe, E. Mustafa; **Natural polymer for modern colour applications;** Personal Care February 2014

Abstract: Colour cosmetic formulations continue to seek new, novel ingredients that can allow brands to create differentiated products that meet the requirements of that latest trends in the marketplace. Inolex has created and introduces LipFeel Natural, a new, patented polymer suitable for many colour cosmetic applications, particularly lip products. LipFeel Natural is completely derived from renewable and sustainable plant sources, and is produced using green chemistry principles. In this article, Inolex shows the results of various testing to demonstrate how LipFeel Natural can confer many of the benefits sought in modern colour cosmetic applications.

M. Pflaumbaum, M. Farwick, M. Mentel; **Red algae delays chronological ageing;** Personal Care January 2014

Abstract: During the chronological ageing process epidermal skin stem cells become less effective, meaning that the renewing and repairing activity of the epidermis is reduced. Moreover, fewer elastic fibres are synthesised, thereby inducing a progressive loss of skin elasticity. The standardised, COSMOS certified Cyanidium caldarium red algae extract, unique in its capability to produce gamma aminobutyric acid (GABA) with proven combined activity on epidermal stem cells and elastic fibres, clearly retains youthful skin appearance and reduces the signs of chronological ageing.

N. Akhtar, N.S. Malik, B.A. Khan, Gulfishan, H.M.S. Khan; **Lactic Acid Cream: A novel approach to study the effects on skin aging of healthy human volunteers;** SOFW-Journal 140, 3-2014

Introduction: Human skin has good frictional characteristics, supporting locomotion and management by its texture. Skin has elasticity and thus can be streched and compressed (1). As aging takes place, our skin gets more wrinkles, becomes drier and less elastic. Assessment of the skin elasticity is particularly more significant, because it is not as noticeable as other signs of aging such as wrinkles (2). Noninvasive skin elasticity measurements are appropriate for an objective and quantitative evaluation of the complex effect of different dermatological and cosmetic products on epidermal mechanics and water content (3).

M. Kang, L. Dong-Geol; **Dermal Flora and Density Change Using Bifidobacteriaceae-based Re-DerMAX;** SOFW Journal 140, 4-2014

Abstract: Members of the genus Lactobacillus exist as residents in regions of the human body, such as he intestinal canal, mouth, and vagina. In early childhood, infacts are gem-free and are infected by bacteria during birth through the birth canal, vagina, or air. When the number of harmful bacteria increases, children are exposed to different types of diseases. In this study, investigated microorganisms that exist in human feces and further analyzed the effect of Re-DerMAX. Microbiological effects, based on whether a microorganism exhibited mutualism or parasitism, were observed by spreading Re-DerMAX on the feces sample to evaluate this idea, Denaturing Gradient Gel Electrophoresis (DGGE) analysis was used in the D-code system for an applied test and for a test conducted on 2 groups.

S. Luebberding, N. Krueger, M. Kerscher; **Mechanical properties of human skin in vivo: a comparative evaluation in 300 men and women;** Skin Research and Technology 2014; 20: 127-135

Background: Previous studies have shown that the clinical genesis and onset of facial wrinkles as well as the morphology of the extracellular matrix differ between the sexes. The aim of this present clinical study was to do the first systematic assessment of gender-related differences in skin elasticity, with special focus on age-related changes. Material and Methods: 300 healthy male and female subjects (20–74 years) were selected following strict criteria including age, sun behavior or smoking habits. Skin mechanical properties were assessed at the cheek, neck, volar forearm and dorsum of the hand using a non-invasive suction device.

S. Kirkham, S. Lam, C. Nester, F. Hashmi; **The effect of hydration on the risk of friction blister formation on the heel of the foot;** Skin Research and Technology 2014; 20: 246-253

Background: Friction blister research has focused on prevention and treatment approaches rather than exploring the pathophysiology of the friction blister. Increased skin hydration has been purported to be a key risk factor in friction blister development. This studay aimed to test the effect of increased skin surface hydration on the risk of friction blister creation. Methods: The skin on one foot was hydrated by soaking the foot in water. Intermittent loading was carried out until an observable change of 3°C was evident using infrared thermography. The contra latreal foot acted as a control. Skin hydration and elasticity was measured using electrical capacitance and negative pressure respectively.

G. Maramaldi; **Lenitive and antiphotoageing properties of C.asiatica;** Personal Care, June 2014

Plant-derived elements used for pharmacological applications constitute an increasing research field. An interesting study from Italian researchers investigated a new purified extract from Madagascar gotu kola as a novel anti-inflammaging and anti-glycation agent for use against skin wrinkling and for skin protection against UV exposure. The results of this study qualify C.asiatica purified extract as an anti-ageing ingredient, addressing skin damage caused by inflammaging and glycation by relying on the synergy of triterpens and polyphenolics.

R.A. Harper, M. Rencenberger; **Benefits of hydrolysed jojoba esters in face masks;** Personal Care July 2014

Abstract: In a series of double-blind, vehicle-controlled, randomised clinical studies, Floraesters K-20W Jojoba [INCI: Hydrolyzed Jojoba Esters (and) Water (aqua)] was shown to increase skin elasticity, firmness, and hydration; decrease the number of enlarged pores and fine lines; and increase consumer preference when incorporated into nonwoven facemask solution. These data support previous findings, demonstrating the effictiveness of Floraesters K-20W Jojoba in non-woven wipe applications for skin hydration, redness reduction, and enhanced consumer preference.

F. Hacard, L. Machet, A. Caille, V. Tauveron, G. Georgescou, I. Rapeneau, M. Samimi, F. Patat, L. Vaillant; **Measurement of skin thickness and skin elasticity to evaluate the effectiveness of intensive decongestive treatment in patients with lymphoedema: a prospective study;** Skin Research and Technology 2014; 20: 274-281

Background: Complex decongestive physiotherapy (CDP) is used to treat patients with severe lymphoedema. The efficacy of CDP is usually quantified by calculating limb volume from repeated measurements of circumference at least 10 points before and after treatment of an affected limb. Measurement is time-consuming and operator-dependent. Objectives: To determine whether de-creased dermal thickness is correlated with decreased volume after intensive CDP. Methods: A con-secutive series of patients admitted for intensive CDP were studied over a 6-month period. Before and after CDP, we measured circumference, dermal thickness elasticity and finally improvement in quality of life using a visual analogue scale (VAS).

Y. Gabe, O. Osanai, Y. Takema; **The relationship between skin aging and steady state ultraweak photon emission as an indicator of skin oxidative stress in vivo;** Skin Research and Technology 2014; 20: 315-321

Background/purpose: Ultraweak photon emission (UPE) is one potential method to evaluate the oxidative status of the skin in vivo. However, little known about how the daily oxidative stress of the skin is related to skin aging-related alterrations in vivo. We characterized the steady state UPE and performed a skin survey. Methods: We evaluated the skin oxidative status by UPE, skin elasticity, epidermal thickness and skin color on the inner upper arm, the outer forearm, and the buttock of 70 Japanese volunteers.

B. Martínez Teipel, J. Boras, R. Armengol; **Induction of beige adipocytes and activation of thermogenesis as a new body remodeling mechanism;** IFSCC 2014 Paris

Introduction: Adipose tissue is mainly dedicated to the accumulation of lipids that form the energy reservoir, which can be used by our organism in case of necessity, and has also an important role in metabolism regulation. The subcutaneous adipose tissue, owing to its particular location just beneath the dermis, has visible effects on the silhouette and the cellulite appearance. Fatty tissue is formed mainly by adipocytes. Only very recently has become known that the human body harbors three types of adipocytes: the previously known white and brown adipocytes, and also a new kind not described until 2012, the beige adipocytes (Wu *et al*., 2012). White adipocytes store the excess of free fatty acids and glycerol in the form of triglycerides. Brown adipocytes have a completely different origin than the white ones, and are specialized in oxidizing triglycerides to produce heat in the process of thermogenesis.

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.

T. BALDECCHI, L.HEIDER, M. LEFORT, C. CAROLA, C. CARTIGLIANI, A. BONFIGLI, F. PFLÜCKER; **The skin firming "Red-volution": anti-cellulite efficacy of a *Papaver rhoeas* extract**; IFSCC 2014 Paris

Abstract: The intention of this paper is to report about the in vivo efficacy of a natural active ingredient based on the seeds of a special poppy species. This Papaver rhoeas extract can significantly increase skin blood micro-flow and flatten the dermo-hypodermal junction, leading to a visual improvement of cellulite conditions. The study confirms the outcome of several in vitro and ex vivo investigations in which the extract displays both a prevention of lipogenesis and an activation of lipolysis. This set of results demonstrates that this natural ingredient may offer an attractive option to design skin firming, skin shaping, face contouring or anti-cellulite cosmetic products.

A.Giménez, C.Davi, E.Canadas, N.Alminana, R.Delgado; **Nocturnin: The target for a more slender silhouette;** SOFW-Journal 10-2014

Introduction: The relevance of chronobiology; Due to the fact that the movement of the Earth imposes recurrent changes on environmental conditions, physiological processes of living organisms are tightly organized in the form of biological rhythms. This ensures that each process takes place at the right time and repeats with the appropriate frequency. Processes that repeat every 24 hours are known as circadian rhythms, such as the sleep-wakefulness cycle and the changes in body temperature (1).

E.J.Kim, J.Y.Han, H.K.Lee, Q.Q.He, J.C.Cho, L.Wei, X.Wang etc.; **Effect of the regional environment on the skin properties and the early wrinkles in young Chinese women;** Skin Research and Technology 2014; 20: 498-502

Background: There are ethnic differences in the skin characteristics, also the skin is susceptible to be influenced by the external environment such as UV radiation and the climates. It can be shown that the skin in same race or twins varies by the enviroment. Objectives: This study was designed to investigate the skin characteristics and the early wrinkles of young Chinese women from four different regions, and to identify the correlation among the wrinkles, the other skin characteristics, and environmental conditions. Methods: A total of 441 healthy Chinese women aged between 20 and 35 years participated in the study: 110 from Beijing, 110 from Shanghai, 111 from Wuhan, and 110 from Guangzhou. The skin hydration, sebum contents, TEWL, pH, elasticity, and wrinkles were measured on the cow's feet area.

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.

Alicia Giménez, **Mit Chronobiologie gegen Cellulite**; Cossma 12 2014

Lange Arbeitstage, zu wenig Schlaf und der Jetlag auf Urlaubsreisen gehören heutezum modernen Leben dazu. Dass unser Terminkalender meistens nicht mit unseren biologischen Uhr übereinstimmt, kann sich ungünstig auf unsere Gesundheit und unser Aussehen auswirken. Menschen sind wie alle anderen Lebewesen von inneren Prozessen abhängig, die so organisiert sind, dass sie sich an die zyklischen Veränderungen der Umwelt anpassen; diese Tatsache wird unter dem Begriff Biorhytmus zusammengefasst. Solche Prozesse, die sich im 24-Stunden-Takt wiederholen, werden zirkadiane Rhytmen genannt, wie etwa der Schlaf-Wach-Rhythmus.