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Literature List Sebumeter®

H. Schaefer, Kuhn-Bussius, Methodik zur quantitativen Bestimmung der menschlichen Talgsekretion, Arch. klin. exp. Derm. 238/1970, 429-435

Bei Milchglas nimmt die Lichtdurchlässigkeit durch Aufdruck kleiner Fettmengen stark zu. Diese Transmissionszunahme kann photometrisch erfaßt und durch Wägung des abgenommenen Fettes auf der Mikrowaage geeicht werden. Sie ist daher zur quantitativen Bestimmung des Hautüberflächenfettes geeignet. Durch vergleichende Messung mit bekannten, auf die Stirn aufgetragenen Vaseline-mengen sind Rückschlüsse auf den Fettfilm und damit die Talgdrüsenfunktion menschlicher Haut möglich. Eine ins Einzelne gehende Testbeschreibung wird am Schluß der Arbeit gegeben.

M. Gloor, U. Schulz, G. Wieland, I. Wieland, H.C. Friedrich, Beitrag zur quantitativen Bestimmung der Hautoberflächenlipide in der Praxis, Dermatologica 27.12.71

Es wird über Bestimmungen der Menge der Hautoberflächenlipide (casual level und replacement sum) mit Hilfe des Osmiumsäuretest nach Brun et al. an 33 Versuchspersonen und mit Hilfe des Milchglastests nach Schäfer und Kuhn-Bussius an 14 Versuchspersonen berichtet. An der symmetrischen Körperstelle wurden jeweils exakte gravimetrische Lipidbestimmungen nach der Methode von Honsig vorgenommen. Zusätzlich wurde die Zusammensetzung der Hautoberflächenlipide dünnschichtchromatographisch analysiert. Im Gegensatz zum Milchglastest erwies sich der Osmiumsäuretest als aussagekräftig. Die Zusammensetzung der Hautoberflächenlipide beeinflusst das Ergebnis beider Methoden nur wenig.

J.P. Pavlichko, A.M. Fleichner, A. Selner, Improvement in critical properties of emollience and crack reduction via direct additives, Toilet Soaps in Skin Care – Part I

The recent study by the authors sought to achieve such improvements by simple, direct addition of compatible chemicals.

H. Tronnier, Brunn, Vergleichsuntersuchungen des Hautoberflächenfettes Hautgesunder und Aknekranker, Berufsdermatosen, 79-88, 1972

Mit Hilfe einer aus Säulen-, Dünnschicht und Gaschromatographie sowie IR-Spektroskopie kombinierten Methode wurde eine Vollanalyse der Hautoberflächenlipide bei Aknekranken im Vergleich zu hautgesunden Kontrollpersonen durchgeführt. Aus den Mittelwerten von je 5 Probanden ergab sich: 1. Die Menge der Oberflächenlipide ist bei der Akne gering erhöht. 2. Bei der Auftrennung in die einzelnen Fraktionen waren in der Kontrollgruppe u.a. die Triglyzeride, bei der Akne dagegen die freien Fettsäuren vermindert. 3. Die Verteilungen im Übrigen entsprachen unter Berücksichtigung methodischer Unterschiede den Angaben in der Literatur. 4. Die möglichen Auswirkungen der gefundenen Differenzen auf die Pathogenese der Akne bezüglich der Gesamtverteilung auf die Fraktionen (z.B. Spreitung) und der Kettenlänge (z.B. Reizwirkung) werden erwähnt.

H. Tronnier, Methodisches zum Nachweis des Hauttalgs unter besonderer Berücksichtigung der Akne, Vortrag anlässlich der Tagung der Gesellschaft Deutscher Kosmetik-Chemiker e.V., 14.16-03.74

Die Problematik der Hautfettbestimmung wird beschrieben, die in der uneinheitlichen Zusammensetzung, in der unterschiedlichen Lokalisation und in der verschiedenen vollständigen Gewinnung des Hauttalgs begründet ist. Vor- und Nachteile der verschiedenen Methoden werden, teilweise unter Heranziehung eigener Versuche, dargestellt. Von den drei für die Seborrhoe und die Erkrankungen des seborrhoischen Formenkreises in Frage kommenden Störungen im Hauttalgsystem, nämlich in der Menge, in der Zusammensetzung und im physikalischen Verhalten des Talgfilms auf der Hautoberfläche, scheint letzterem die wesentlichste Rolle zuzukommen. Dies konnte aus zahlreichen Untersuchungen einerseits bei der Akne und andererseits bei der Seborrhoe abgeleitet werden. Auf die Bedeutung des Verhältnisses von Talgmenge zur Spreitungsfähigkeit für die Ausbildung von Comedonen bei Akne wird anhand vergleichender Talguntersuchungen mit verschiedenen Methoden und unter Glucocorticoid-Medikation hingewiesen. Die bei Akne vorliegende Störung in dieser Relation wird an weiteren experimentellen Befunden erörtert.

H. Tronnier, H. Kuhn-Bussius, Zur Brauchbarkeit optischer Methoden für die Bestimmung des Hautoberflächenfettes, Hautklinik Dortmund, Kosmetologie 06/1974

Im Rahmen hautphysiologischer Untersuchungen und bei der Überprüfung therapeutischer und kosmetischer Anwendungen wird mit unterschiedlichen Methoden versucht, den Lipidgehalt der Haut zu bestimmen.

F. Greiter, S. Doskoczil, Forschung in der Kosmetik, Österreichische Chemie-Zeitschrift, Juni 1976

Diese Arbeit ist ein Versuch, sinnvolle Forschung in der Kosmetik zu beschreiben und zu begründen. Nur neuere Methoden werden beschrieben. Bekannte Prüfungsverfahren einschließlich Spektralphotometrie und Gaschromatographie dürfen als üblich vorausgesetzt werden. Spezieller Wert wird auf das Gebiet des Sonnenschutzes gelegt. Auch die Notwendigkeit besonderer Emulsionsformen wird behandelt. Es wird daran erinnert, daß die Kosmetik nicht nur die Aufgabe des Schmückens (Kosmein), sondern vor allem auch der Reinigung, der Pflege und des Schutzes der Haut hat. Es wird ausgeführt, daß kosmetische Präparate, die zum Teil im Grenzbereich Kosmetik-Pharmazie liegen, einen Beitrag zur Fitneßbewegung leisten können. Es wird allerdings auch unmißverständlich dargelegt, daß Irreführung in der Kosmetik abzulehnen ist und eine weit gehende Deklaration der Kosmetikpräparate notwendig erscheint.

Nur die Werbung geht glatt unter die Haut, "Test" 01/1978

Mehr als die Hälfte aller Frauen – so die Umfrage des Magazins – benutzen täglich eine Universal- oder Spezial-Hautcreme.

D. St. Léger, J.-L. Leveque, Les méthodes quantitatives des lipides de surface chez l'homme, International journal of cosmetic science, 1980

Three main methods to measure quantitatively surface lipids in man have been used. A comparison of the information they produce and their routine practicabilities are given. Adaptation and standardization of the Schaeffer and Kuhn-Bussius method, using a photoelectric absorptiometer and ground glass plates are described. This procedure, applied to thirty-two adults, demonstrated the quantitative nature of the sampling mechanism. A mathematical approach gives the precise definition of the casual-level. This procedure shows that casual-level values appear to be correlated with skin types.

H. Tronnier, Meßmethoden zur Prüfung kosmetischer Präparate und Grundstoffe, Parfümerie + Kosmetik 61, 1980, p. 421 - 433

Unsere Kenntnisse über Reaktionsabläufe in der menschlichen Haut, insbesondere auch über die, die Schutz- und Abwehrfunktionen des Hautorgans bedingen, sind dem Dermatologen zum Teil aus pathologischen Störungen, also dermatologischen Krankheitsbildern, geläufig.

S. Dikstein, Instrumental Analysis in Individual Cosmetic Consultation, Cosmetics & Toiletries, Vol. 98, Nov. 1983

Satisfaction from the the medical service is a complex phenomenon involving the art of skin care (i.e., skill of the provider), assessability (convenience), cost, the physical environment in which the care is given, availability, continuity, and last but not least, the efficacy of the care.

K. Zeller, H. Huben, Sebumetrische Messungen des "Casual Level" der Hautoberflächenlipide bei einem studentischen und einem geriatrischen Kollektiv hautgesunder Probanden, Aktuelle Dermatologie, Juni 1983

Für dermatologische Reihenuntersuchungen wäre es wünschenswert, die in der Regel makroskopische Einschätzung des "seborrhoischen" oder "sebostatischen" Hautstatus mittels eines einfachen, leicht transportablen Meßgerätes objektivieren zu können. Es wurde daher an zwei altersunterschiedlichen Probandengruppen (223 Junioren, 116 Senioren) untersucht, ob mit einem neuen reflexphotometrischen sog. Sebumeter eine quantitative Untersuchung bezüglich des Hautoberflächenfettfilmes möglich ist. Das Gerät erwies sich vor allem im Hinblick auf eine semiquantitative Objektivierung des exsikkativen oder sebostatischen Hornschichtstatus brauchbar. Darüber hinaus wurden auch Geschlechtsunterschiede ermittelt. Anwendungsmöglichkeiten bestehen bei Einstellungsuntersuchungen für ekzemgefährdete Feuchtbetriebe (z.W. Friseure, Maurer, Stukkateure) sowie zur Früherkennung der sog. Alterssebostase.

S. Dikstein, A. Hartzshtark, R. Bercovici, A. Orgad, Distribution of sebum measurement in normal adult women, 4th International Symposium on Bioengineering and the Skin, 09/83

The Sebumeter measures the amount of fats on the skin by absorbing it onto a thin plastic strip and measuring its transparency. The method is not sensitive to water. The instrument is calibrated so that in the range of 20-200 the readings are equal within 10% to the concentration of the sebum on the skin in $\mu\text{g}/\text{cm}^2$.

U. Huschka, A. Schulewsky, Hauttalgsekretion und Haarshampoos, Ärztliche Kosmetologie, 1984

Mit insgesamt 1520 Messungen wurde an 20 Probanden der Einfluß von vier Haarshampoos, die unterschiedliche Antischuppenwirkstoffe enthielten, auf die Rückfettung der behaarten Kopfhaut und der Stirn sebumetrisch mit der Kunststoffbandmethode untersucht. Im Gegensatz zu anderen Berichten war bei 85% unserer Probanden der Ausgangsfettspiegel auf der behaarten Kopfhaut nach der Wäsche innerhalb von 24 Stunden wieder erreicht; die vollständige Rückfettung der Stirn erfolgte bei 90% der Probanden zwischen 2 und 5 Stunden. Die Änderung der Rückfettung war durch Fettmessungen im kinetischen Bereich nach 2, nach 5 und 24 Stunden wesentlich empfindlicher bestimmbar als im Steady-state nach 72 Stunden. Die nach den ersten Haarwäschen einsetzende Änderung der Rückfettungsgeschwindigkeit verstärkte sich über mindestens 3 Wochen und war erst nach diesem Zeitpunkt eindeutig bewertbar. 0,6% Pyrithiondisulfid führte zu leicht verstärkter Rückfettung, 0,2% Pyrithiondisulfid mit 7% Dinatriumundecylensäuremonoäthanolamidosulfosuccinat war neutral, eher sebostatisch wirksam, 0,5% Octopirox führte zur Verstärkung der Rückfettung. Am behaarten Kopf und an der Stirn war die Wirkung der Inhaltsstoffe in der Regel gleichgerichtet.

S. Dikstein, W. Courage, Verteilung von Talgspiegelmessungen bei gesunden erwachsenen Frauen, Ärztliche Kosmetologie, 15, 41-44, 1985

The sebumeter measures the amount of fats on the skin by absorbing it onto a thin plastic strip and measuring its transparency. The range of values relevant to medicocosmetics was established by asking experienced cosmeticians to define and classify the skin of over 150 women according to "Dry" (insufficient sebum level), "Normal" or "Oily". The skin was then measured by Sebumeter. 70-80 % agreement is present between the cosmetician's definition of "Dry" or "Oily" skin at the extremes, but in the middle the definition is casual. Tabulating the data into histograms permits in finding the best balance between the subjective cosmetic definition and the instrumental reading. On the forehead, Sebumetric

readings of less than 90, and on the cheek and neck readings of less than 60 mean "Dry" skin. Sebumetric readings of more than 200 on the forehead, more than 160 on the cheek, and more than 100 on the neck, mean "Oily" skin. The advantage of using objective instrumental readings in place of observational methods is the prevention of misdiagnoses.

M.P. DePadova, A. Tosti, S. Veronesi, Gelatin-Cystine in Seborrheic Alopecia, J. Appl. Cosmetol. 04-06/1986

The gelatin-cystine spherules seem to be able to affect the regulation of sebum genesis. In the order to demonstrate the sebum normalizing property performed by this product, a study was carried out on 60 subjects affected by seborrheic alopecia. A significant reduction of seborrhea was observed in 30% of the subjects taking the gelatin-cystine spherules for the period established. It was also observed a significant reduction of serine, proline, glycine, alanine, 1/2 cystine, valine, leucine and methionine is always found and a parallel increase of glutamin acid, phenilalanine and argine.

A.O. Barel, P. Clarys, B. Wessels, R. van Straat, Quantitative Biophysical Measurements of the Mildness Properties of Cleaning and Detergent Products in Hand Immersion Test, Algemene en Biologische Scheikunde, Vrije Univerteit Brussel, Belgium

P. Thune, T. Gustavsen, Comparison of two photoelectric techniques for quantitative measurement of skin surface lipids, Acta Derm. Venerol. 1987

A method for quantitative assessment of skin surface lipid by means of extraction with solvents, was first developed by Kligman & Shelley.

H. Tronnier, Dermatologische Bewertung von Kosmetika und Körperpflegemitteln, Ärztliche Kosmetologie, 374-398, 1987

The practicing dermatologist is interested in body care products and cosmetics because of their potential side-effects which may be allergic or primarily toxic. In view of skin physiology also cosmetics and body care products having special effects, such as light and skin protective preparations, deodorants and antiperspirants, dandruff and hair removing products, washing products and preparations which are supposed to have an anti-wrinkle effect on the skin, are of interest to the dermatologist. These preparations claiming a certain effect are opposed to the series of cosmetics which to some extent also make this claim, but on the whole have general effects such as improvement of the hydration of the horny layer and influence on the pH-value of the skin effects which, however, are also assigned to some special products. These preparations contain a number of active substances the effects of which are at least controversial and often difficult to prove. So, it is pointed out to the fact that just in case of body care products and cosmetics the effect of the basic substances used is essentially responsible for the effects of care.

S. Dikstein, Comparison of the Sebumeter and the Lipometer, Bioeng. Skin, 197 - 207, 3, 1987

Die Instrumente Lipometer und Sebumeter wurden durch gleichzeitige Messungen der zufälligen Lipidwerte an nebeneinander liegenden Stellen derselben Person verglichen. Der Koeffizient der Bestimmung zwischen den Instrumenten ist 92%. Das Sebumeter ist geeigneter für die Messungen eines raschen Screenings.

P. Muti, E. Gelentano, S. Panico, F. Berino, Measurement of cutaneous sebum: reproducibility at different cleansing conditions, J. Appl. Cosmetol. 07-09/1987

Within the feasibility stage of ORDET (Prospective Study on Hormons and Diet in Breast Cancer Etiology) a representative study on the measuring of the cutaneous sebum has been carried out.

*H.I. Maibach, E. Patrick, **Sampling Multiple Skin Sites Delineated by a Template Increase the Reliability of Surface Sebum Measurement Units Using the Sebumeter**, 7th International Symposium of Bioengineering and the Skin, 1988*

The variance of data collected by most techniques used to measure surface sebum level is large.

*L. Nogueira, D. Gabrielle, **New techniques to assay skin care products**, D & CI 09/88*

The skin is a complex organ with numerous functions, some remarkable subtle. Cosmetic products play an important role in maintaining the integrity of the skin, including restoration of the skin's slightly acidic pH (average 5 to 5.5).

*P. Morganti, S.D. Randazzo, **Gli indici di idratazione e di emolienza per la verifica dello stato cutaneo**, Incontri di Cosmetologia No. 3, 07/89*

Per la misurazione sia del sebo di superficie che dell'idratazione cutanea ci si è serviti di un sistema computerizzato denominato Dermotest Hytech dato dall'unione del Sebumeter SM 810 PC et del CORNEOMETER CM 820 PC, opportunamente collegati ad un PC mediante un adeguato programma di utilizzazione. Utilizzando il Dermotest Hytech è possibile ottenere direttamente sia i valori sebometrici espressi in mg/cm² che i valori della idratazione cutanea espressi in CV (corneometer values).

*J.L. Antoine, J.L. Contreras, D. van Neste, **pH Influence on surfactant-induced skin irritation**, Dermatosen in Beruf und Umwelt, Band 37, 1989, 3, 96 - 100*

Even though various experimental methods have been proposed for in vitro testing of detergents such as SLS (sodium laurylsulfate) no absolutely relevant clinical information can be inferred from them as to the irritancy of a given compound. In particular the relative importance of pH needs further assessment. This study reports on in vivo evaluation of skin function changes under given experimental conditions with SLS applied at 3 different pH values. There is a dramatic increase of transepidermal water loss (TEWL), i.e. a substantial reduction in the barrier function of the skin, when SLS is applied under occlusion for 48 H. The alkaline control solution (NaOH pH 9) induced low-grade, but significant TEWL increases, as compared to the other controls (distilled water pH7; HCl pH5), which had no influence on TEWL. The changes obtained with the controls were much lower than those observed with SLS. The barrier-function changes induced by the surfactant SLS could, however, promote transepidermal passage of acid and/or alkaline molecules, hence increasing toxic damage of the skin; yet no such effects could be observed, indicating that the main effects are due to detergency. Assessment of cutaneous blood flow values (CBFV) by laser Doppler velocimetry showed increased values after SLS. When pH-adjusted SLS solutions were compared, there was neither a difference in relation to pH nor did the control solutions induce any significant CBFV change. This study reveals that TEWL and CBFV are probably the most reliable methods to investigate acute irritancy by SLS. Accordingly, pH cannot be considered as a major contributive factor of irritancy when SLS solutions are applied under occlusion (48H). The current level of sebaceous secretion and the electrical properties of the skin surface were not parameters to evaluate acute SLS-induced skin damage, but longitudinal studies are presently being conducted in order to assess their significance in monitoring epidermal repair after SLS insults.

*P. Morganti, S.D. Randazzo, **L'utilizzazione degli indici di correzione per il trattamento cosmetico della cute secca e desidratata**, Il Prodotto Chimico, April 1989*

La normale funzione protettiva della cute è strettamente legata all'azione protettiva svolta dal film lipidico di superficie che la ricopre come una barriera, difendendola dalle aggressioni dell'ambiente esterno, e dal suo contenuto di acqua, indispensabile per mantenerla morbida elastica e idratata.

Solaroli, Manifestazioni seborroiche e desquamative del capillizio, trattate con un nuovo preparato a base di urea e acido salicilico, La Medicina Estetica, 13.04.1989

Seborrhea and desquamation of the scalp treated with a new preparation based on urea and salicylic acid. The activity of salicylic acid and urea from particular lotions was studied in vivo by measuring the possible antiseborrheic effect. We used the modified photometric technique (Sebumeter SM 810) which permits measurement of casual levels (CL) or sebometric index (SI); although this is less accurate than a sebum excretion rate (SER) assessment, but there is some correlation between (SER) and (CL). In the study of 30 patients we have employed the method described to assess the bioavailability of Keratolytic and Keratoplastic agents incorporated in topical formulations; in this way we have shown the benefit of these preparations.

C. Torresani, D. Rastelli, M. E. Berioli, G. De Panfilis, Valutazione dell'efficacia di un'emulsione cosmetica a base di acqua termale sulfurea, Incontri di Cosmetologia, 07/89

Lo studio è stato condotto su un gruppo di 20 pazienti, 13 femmine e 7 maschi, di età compresa tra 21 e 43 anni. Il trattamento è consistito in due applicazioni giornaliere di una emulsione O/A contenente per il 79% acqua termale sulfureo-solfato-calcica, per un periodo di quattro settimane. Durante tale periodo è stato escluso qualsiasi altro trattamento ed i pazienti sono stati invitati ad effettuare la detersione del viso esclusivamente con acqua. I pazienti sono stati controllati prima dell'inizio del trattamento, nonché al 7°, 14°, 21° e 28° giorno del trattamento stesso. La valutazione quantitativa della seborrea è stata effettuata mediante sebometro riflettometrico Sebumeter SM 410 della ditta Schwarzhaupt. Come gruppo di controllo, è stato scelto un gruppo di 10 pazienti, omogeneo per sesso, età e patologia. Tali pazienti sono stati trattati, secondo le stesse modalità, con una emulsione placebo contenente i soli eccipienti e priva del principio attivo.

K. Klein, H.-W. Voss, M. Voss, Untersuchungen zur Oberflächencharakteristik der menschlichen Haut – Teil 1, Umwelt & Gesundheit aktuell

In der Kosmetik begnügt man sich häufig bei der Beurteilung des Charakters der menschlichen Haut bzw. der Zuordnung zu bestimmten Hauttypen zumeist nur mit einer (subjektiven) visuellen Begutachtung.

L. Celleno, Valutazione dermatologica dei prodotti per la detersione della cute, Cosmesi Dermatologica, 30/1990

The authors report the results and the methods of the dermatological and cosmetological evaluation of 16 solid products for cleaning the skin (traditional soaps, neutral soaps, syndets). There is a growing need for valid and reliable tests to evaluate the cosmetic properties and the safety of cosmetics. Data obtained in this field will contribute to the protection of both the consumer and the cosmetic industry.

G. Campagnoli, L. Celleno, S. Grifeo, A.G. Nume, C. Ronchi, Valutazione dell'attività sebonormalizzante di un'emulsione a base di lipoaminoacidi, Cosmesi Dermatologica 39/1990

Aim of the present study is to investigate thoroughly a new class of compounds, the lipoaminoacids. These are molecules with sebum-normalizing and antimicrobial activity, useful in the cosmetologic treatment of seborrheic and preacneic skin. The experience is based on the instrumental measurement of sebumetry and pH-metry in 21 subjects, selected according to sebometric parameters above the physiologic limits (group A), and on the evaluation of the onset of allergic symptoms in 20 different subjects (group B) following 27 day treatment with a suitable preparation. Results show a sebum-normalizing activity also following 7 day treatment, with no case of intolerance and/or sensitization.

C. Torresani, Utilizzo del fango termale sulfureo nel trattamento della cute seborroica, *Cosmesi Dermatologica*, 1990

In the present study the efficacy of mud containing sulphurous thermal water, in the treatment of the face seborrheic skin was evaluated. The results provided evidence for effectiveness as well as tolerability of the treatment. Mechanism by which sulfur and, in particular, sulphurous thermal mud operate in the sebaceous secretion are discussed with regard to literature data.

R. Mehl, La cosmétologie active arrive à l'officine, *Le quotidien du Pharmacien*, 08.10.1990

I.-M. Bergbrant, J. Faergemann, The role of Pityrosporum ovale in Seborrheic Dermatitis, *Seminars in Dermatology*, 12/90

This paper discusses the relation between the lipophilic dimorphic yeast Pityrosporum ovale and seborrheic dermatitis. A review of studies concerning the microbiology in seborrheic dermatitis and immune reactions to P. ovale are given. In our own studies with quantitative cultures, no significant difference was found in the number of P. ovale in patients compared with controls, or between healthy and lesional skin in the patient group. IgG serum antibodies against P. ovale cells estimated with indirect immunofluorescence did not show any difference between patients and controls, but a significant difference was found when a P. Ovale protein extract and ELISA were used. Immunological investigation on serum samples were done on 30 patients with seborrheic dermatitis. Defects were found in their T-cell function. The number of P. ovale is of importance in those individuals who are susceptible to seborrheic dermatitis and the development of the disease depends on the way their immune system reacts to the antigens derived from P. Ovale.

W.O. Seiler, Rückfettung: Balsam für die Altershaut, *Moderne Geriatrie*, 03/91

Ältere Patienten schätzen oft Wasser und Seife wenig. Sie ahnen vielleicht besser als wir Ärzte: Wasser, Scheuern und waschaktive Substanzen (Seife, Tenside) zur Hautreinigung entfernen die physiologischen Hautoberflächentenside.

Vittel continue d'innover: création d'un Espace Beauté et d'une Centre de Dermo-Cosmétologie, *Vittel Magazine*, N° 29, 1991

Sous la galene thermale à quelques pas griffon de la Grande Source dans le prolongement des Thermes dont la restructuration a été réalisée.

A. del Pozo, C. Cosa, Dispensacion dermofarmaceutica: Apoyo tecnologico al rol del Farmaceutico, *Departemento de farmacia, Unidad docente de Farmacia Galenica, Universidad de Barcelona*, 1991

El concepto "dermofarmacia" resulta en ocasiones, poco preciso, resultando a veces difícil delimitar su contenido y ámbito de actuación en relación, por un lado, al de la "dermatología", y por estrictamente el extremo opuesto, al de la "cosmología".

Check-up Cosmetologique et Biometrologie Cutanee, *Actualités Pharmaceutiques*, Jul. 1991, *Special Dermo-cosmétologie*, No. 289

La notion de "Check-Up" cutane a toujours exprime un souci de rigueur pour definir des besoins cutanes et des reponses performantes. Une logique, aujourd'hui scientifique, qui s'assue sur des connaissances precises de la physiologie cutanee pour interpreter les differents etats de la peau et proposer de veritables methodes de correction; c'est l'avenement d'une cosmetologie de soins, rigoureuse.

P. Elsner, H.I. Maibach, AT-based Data Acquisition and Analysis System for the Skin Bioengineering Laboratory, *Dermatosen* 39, Heft 4 1991

In recent years, bioengineering instruments have found wide application for the non-invasive evaluation of functional properties of human skin. These devices measure transepidermal water loss (evaporimetry), skin hydration (methods based on conduction, impedance, and capacitance), skin blood flow (laser Doppler velocimetry, photoplethysmography), friction (friction meter), and mechanical properties (e.g. twistometer, suction devices), and allow the investigator to generate considerable data which requires documentation and analysis. Although some instruments meanwhile offer interfaces for the transfer of data into personal computers, integrated data acquisition systems supporting the whole spectrum of instruments used in the laboratory are lacking. We have developed an inexpensive data acquisition and analysis system for our skin bioengineering laboratory which allows the acquisition of data from several instruments simultaneously or in sequence. The data are fed into a spreadsheet on a personal computer and conversions and basic statistics are computed automatically. The system consists of an AT-compatible PC with two serial interfaces and an analog-digital conversion board. The software is an industry-standard spreadsheet (Lotus 1-2-3) with an instrument set (Lotus Measure). Using this system, we considerably improved the precision of our measurements and the scientific productivity in our skin bioengineering laboratory.

J.P. Marty, C.M. Vincent, E. Fiquet, Études des propriétés hydratante de la Crème Hydratante Visage Neutrogena, *Réalités Thérapeutiques en Dermato-Vénérologie* N. 15, Feb. 1992

La crème Hydratante Visage Neutrogena est une émulsion huile/eau dont les propriétés hydratantes peuvent être liées d'une part à un effet occlusif et d'autre part à une action humectante directe sur les cellules cornées.

E. Fiquet, C.M. Vincent, A. Cohen-Letessier, J.P. Marty, Evaluation des propriétés de la crème hydrophile lipophile (Effadiane™), *Nouv. Dertol.* 1992: 11 p. 429-431

Effadiane™ is a water/oil emulsion, its effect on the skin hydration has been investigated in human volunteers by non-invasive techniques: the transepidermal water loss to verify occlusive effects, the corneometric measurement to demonstrate a direct water uptake by the horny layer.

R. Wolf, E. Tur, D. Wolf, M. Landau, The effect of smoking on skin moisture and on surface lipids, *International Journal of Cosmetic Science* 14/92

In the present retrospective study we investigated the effect of smoking on the moisture and surface lipid levels of the skin. We analysed data from the files of 576 female clients treated in a Tel-Aviv cosmetic parlour. Measurements have been conducted by the same cosmetician, by commercially available equipment, on every client receiving cosmetic treatment, regardless of the nature of the treatment. Results demonstrated a significant difference of skin moisture in the various smoking groups: women who smoked 11-20 cigarettes per day showed significantly lower mean values than the non-smoker group, as expected. Moreover, women before or after menopause showed no significant differences in their moisture measurements. The surface lipid variables showed no significant differences in mean over the four smoking groups. We believe that the objective of the study was achieved, and that the results, indicating decreased skin moisture in smokers, will serve well in anti-smoking campaigns. We also believe that the present study will stimulate other investigators to conduct similar studies that will provide answers to many questions which still remain open.

Quantitative evaluation of sebaceous secretion on the forehead: comparison between the Sebumeter® and a microporous film (Sebutape™), 9th international symposium "Bioengineering and the skin", Sendai / Japan, 19.-20. October 1992

The Sebutape technique seems to be a reliable and as fast procedure to obtain numerical values concerning the amount of skin surface lipids. The technique with the Sebutape is more time consuming

but has the advantage to examine a greater surface of the skin, to protect the evaluated region and the Sebutape leaves the possibility for further quantitative lipid determination. Direct scanning of the Sebutape instead of scanning of an enlarged picture of the Sebutape results in a more standardised method with a greater surface that can be used for evaluation. The correlation between the Sebumeter and between the Sebutape technique increased from $r=0,73$ to $r=0,94$ when using direct scanning of the Sebutape instead of indirect scanning of the Sebutape.

V. Bousquet, D. Redoules, I. Raynal, G. Dahlem, Y. Gall, Les principales techniques d'objectivation des effets des dermo-cosmétiques, Cosmétologie, 1993

La mise au point de produits dermo-cosmétiques de plus en plus performants grâce aux progrès de la galénique a entraîné le développement d'un ensemble de méthodes d'évaluation visant à mesurer leurs effets directement sur la peau et de la manière la plus objective.

S. La Mendola, F. Rinaldi, M.C. Salvadori, F. Clemente, Competence and satisfaction. A Study of the Hair and Shampoo of 1.000 Users of a Trichology Service, 18th International IFSCC-Congress, Venice, October 1994

The awareness which 1.000 users of the medical trichology service at the San Raffaele Hospital of Milan have of the conditions of their scalps is first issue tackled in this study. The self-assessment that each person makes of their own hair conditions is compared to data measured by means of sebumetric instruments. A high degree of incompetence is recorded and correlation with some personality traits of the subjects illustrate this. Some aspects of the impact of different competence levels on behaviour are evaluated. In addition, the level of satisfaction expressed by these users about the shampoo used are examined, taking into account the relationship with some subjective variables.

C. Münzberger, U.F. Haustein, U. Elefant, Effects of UVA- and UVB-radiation on transepidermal water loss, water content of the horny layer and skin surface lipids, Second International Symposium on Irritant Contact Dermatitis (ISICD), Zurich, April 14-16, 1994

In the last year many studies have provided important new knowledge concerning the benefits and risks of skin exposure to sunlight and ultraviolet radiation, among them the acute and chronic effects on damage of the skin barrier. We examined the transepidermal water loss, the water content of the horny layer and the amount of skin surface lipids in relation to low dose UV-radiation. The transepidermal water loss was measured with the TEWAMETER TM 210, the water content of the horny layer with the CORNEOMETER CM 820 and the skin surface lipids with the SEBUMETER SM 810 PC (all from Courage and Khazaka GmbH). The ultraviolet radiation of 25 healthy adults was performed with UVA (Philips TL-K 40W/09N) and UVB (Philips TL 20W/01).

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 spectrophotometry).

A.M. Grunewald, M. Gloor, Value of barrier creams against skin damage due to repeated washings, Second International Symposium on Irritant Contact Dermatitis (ISICD), Zurich, April 14-16, 1994

The aim of our study was to evaluate the protective effect of barrier creams onto irritant contact dermatitis. Therefore the following skin function parameters were evaluated: corneal lipids (sebumetry), water content of the corneal layer (corneometry), transepidermal water loss (TEWL), pH of the skin, skin reddening (colorimetry) and skin blood flow (laser doppler flow). We did standardized washings of both arms on the first and the 8th day. The subjects were asked to wash 5 times daily for one week. In a first study we evaluated the irritating effect of repeated washings with 0.01 mol/l sodium lauryl sulphate solution on 20 subjects. We were able to show that there is a more than 12 hours lasting change in skin function parameters after one week of repeated washings. Concerning corneometry, corneal lipids, tewl, pH and laser doppler flow there were highly significant differences before and after repeated washings ($p < 0.01$). In a second study we evaluated the irritation reducing effect of 3 barrier creams on 15 subjects for each cream. Using the same method as in our first study, one selected arm was additionally treated with a barrier cream 5 times daily. Barrier creams had a highly significant ($p < 0.01$) effect on laser doppler flow, corneometry and tewl. Nevertheless they were not able to offer complete protection. The different barrier creams showed significant differently positive effects onto skin function parameters.

J. Bettinger, M. Gloor, W. Gehring, Influence of a pretreatment with emulsions on the dehydration of the skin by surfactants, Int.Journal of Cosmetic Science 16, 53-50, 1994

Improving the water content of the horny layer of the skin is of great importance in dermatology (atopic dermatitis, ichthyosis etc.) and in cosmetics (to soften the skin surface [1]). It is believed that emulsion bases lead to hydration of the stratum corneum [2]. The hydration is believed to last a few minutes if an o/w-emulsion is used [3] and a few hours in the case of w/o-emulsions [4]. The present study addresses whether the hydrating effect really does last for such a short time. Literature also proposes an increase in water content by using urea, which is a component of many dermatological skin-care ointments [3, 5-8].

M. Lodén, M. Lindberg, Product Testing-Testing of Moisturizers, Bioengineering of the Skin: Water and the Stratum Corneum, 275-288, 1994

Moisturizers are used to restore and/or to maintain a normal function of the stratum corneum (SC). Mostly they are used on the indication of so-called dry skin. When performing product testing of moisturizers, bioengineering devices are used for evaluating how these products affect the function of SC, the main diffusion barrier in the skin. Biophysical measurements of dry skin need to be carefully evaluated. A number of highly developed noninvasive methods for the study of skin physiology have appeared during recent years and a number of papers on the use of these methods are now being published.

P. Clarys, C. Eeckhout, J. Taeymans, P. Gross, A.O. Barel, Influence of short daily exposure to thermal water on the hydration state of the skin, Threat to the Skin, 333-337, 1994

The thermal Kurzentrum of Lenk (Switzerland) is one of the spas recognized by the Department of Health of Switzerland as a centre specialized in the treatment of rheumatic patients. Part of the typical 3-week cure in the centre consist of daily bathing in hot thermal water containing high concentrations of salts and sulphur (sulphates and hydrogen sulphide). According to recent data from balneo-therapeutic treatments, the sulphur which penetrates the skin is oxidized and provokes various physiological responses in the skin: vasodilatation in the microcirculation, an analgesic influence on the pain receptors and inhibition of the immune response.

R. Bimczok, A. Ansmann, S. Bielfeldt, D. Billek, H. Driller, G. Feistkorn, F. Heinze, R. Huttinger, B. Komp, H. Lautenschläger, M.-C. Leneveeu-Duchemin, L. Motitschke, L. Pohl, A. Reng, H.-J. Schulze, B. Thomaskamp, K. Tolkiehn, H. Tronnier, H.-U. Wekel, K.P. Wittern, **A multicenter comparison of different test methods for the assessment of the efficacy of skin care products with 368 human volunteers**, J. Soc. Cosmet. Chem., 45, 1-19 (January/February 1994)

In a multicenter study, commonly used objective and subjective methods for the assessment of the efficacy of skin care products were compared. The study was performed with two different all-purpose skin care creams at eleven centers in Germany, with a total of 368 healthy female volunteers. Measurement of skin hydration with the comeometer demonstrates a fundamental improvement of skin condition and correlates with subjective assessment by the volunteers. Results are statistically highly significant, and there is a fair correlation between the different centers. The methylene blue method, surfometry, and image analysis are also suitable for performance measurements, but show broader standard deviations and lower statistical significance. Under the chosen conditions, results for TEWL and skin surface lipid measurements were not significant at the $p < 0.05$ level.

L. Celleno, A. Vasselli, M.V. Tolaini, A. Mastroianni, F. Macchia, **Verifica di tollerabilità ed accettabilità cosmetica di detergenti cutanei: confronto di metodiche**, Cosmesi Dermatologica 45, 1995

La detersione cutanea è un atto igienico ma rappresenta altresì un importante momento cosmetologico e dermatologico. Infatti solamente se il prodotto utilizzato è cosmetologicamente ben accettato essa risulta un atto gradevole. Inoltre spesso l'uso di tensioattivi o saponi tradizionali si traduce in un'alterazione del film idrolipidico superficiale. Se a questo fa seguito l'esposizione e il danneggiamento della strato corneo, può innescarsi quel meccanismo che conduce alla comparsa della dermatite irritativa da contatto, facilitando anche l'insorgenza della dermatite allergica da contatto (1,2).

L. Zissova, H. Dobrev, **Quantitative Investigation of Sebum Excretion in Seborrhoeic Dermatitis of the Scalp Treated with Ketoconazole 2% Shampoo**, 2nd Congress of the ECMM, Brussels, April 27-29, 1995

The quantity of sebum excretion before, during and after treatment with Ketoconazole 2% shampoo / Nizoral®, Janssen Pharmaceutica, Belgium / in 20 patients with seborrhoeic dermatitis of the scalp, aged 16-40 years, was studied.

P. Elsner, **Nichtinvasive Techniken in der Hautphysiologie**, 38. Tagung der Deutschen Dermatologen Gesellschaft, Berlin, 29. April - 03. Mai 1995

Nichtinvasive Techniken (Synonyma: Bioengineering-Verfahren, biophysikalische Meßverfahren) haben in den vergangenen Jahren in verschiedenen dermatologischen Forschungsgebieten Eingang gefunden. Dazu zählen insbesondere die Hautphysiologie, die Dermatopharmakologie und Dermatotoxikologie, die Allergologie und die Berufsdermatologie, aber auch die Erforschung der Kollagenosen, der Veränderungen der Altershaut (dermatologische Gerontologie) und die Onkologie.

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. Dermometry 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 dermometry are behind us. Ingenious researches pioneered methods that may now look crude, time-consuming, and sometimes lacking in reproducibility.

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

While the epidermal barrier function depends largely on intercellular lipids in the stratum corneum, skin surface lipids are mainly from sebum. Sebum is an oily mixture of lipids, keratin, and cellular membrane structures excreted by the sebaceous glands.

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

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

*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.

*K.P. Wilhelm, **Client-Server based On-Line Data Acquisition for Skin Bioinstrumentation Devices***, proDERM Institut for applied Dermatological Research GmbH. Schenfeld, Germany

During dermatological safety and efficacy studies, huge amounts of data- both instrumental data as well as evaluator scores may accumulate. We have developed an integrational data with on-line data acquisition capability. The program runs in a Macintosh network. A graphical interface facilitates data entry. A multilevel password system secures unauthorised use. In order to comply with GCP/GLP requirements all data entries and any possible changes relating to experimental studies- both scores and instrumental values -are secured in a log file together with date, time, and initials of the person entering the data. The program can at present acquire data from: Chromameter (Minolta), Tewameter, Corneometer, pH-Meter, Sebumeter, Mexameter, (all Courage and Khazaka). However, the open architecture would easily allow to incorporate more instruments with a serial interface. Data can be exported in DOS, windows or Macintosh format for easy import into any spreadsheet or statistics programs. The program has been completely validated and successfully used in a contract research organisation for over 12 months. Automatic data acquisition has proven to be very useful tool to facilitate and speed up data analysis and to enhance the quality and reliability of test results.

*D.R. Black, J.M. Lagarde, C.M. Auzoux, Y. Gall, **An Improved Method for the Measurement of Scalp Sebum***, Skin Research and Technology, Vol.2, No.4, Nov 1996.

An improved photometric technique for scalp sebum measurement is presented based on a previously reported method (Saint Leger et al. 1979 Arch Dermatol Res 265).

*D.A. Comes, E.J. Fendler, M.J. Dolan, R.A. Williams, **Bioengineering Instrumentation: Automation and Use***, Skin Research and Technology, Vol. 2, No. 4, Nov. 1996

Objective: The increasing complexity and use of bioengineering skin test instrumentation has created a critical need for unified software that controls the instruments, collects and stores data, performs analysis, and generates reports. In this study, user-friendly software programs were developed and applied to perform panel testing on a large number of test subjects utilising bioengineering skin test instrumentation. Methods/Results: Generic software programs were developed to integrate and automate operation, data storage, and data analysis of multiple bioengineering skin instruments. The software was applied to the following instruments:- Courage and Khazaka - Sebumeter SM810, Corneometer CM 820, skin pH-meter 900, Tewameter TM210; Minolta Chromameter CR300, and NOVA DPM 9003. Conclusions: Automation of skin bioengineering instrumentation allows evaluation studies to be

performed using a large number of test subjects (with multiple variables). This greatly increases the statistical validity of data and overall efficiency, whilst negating the historical constraints which required a large commitment of resources.

*P.M. Clarys, A.O. Barel, **Sebumetry: A comparison between Lipid Collection Techniques**, Skin Research and Technology, Vol.2, No.4, Nov.1996*

Recently, several methods have been developed for the collection of skin surface lipids. We compared 3 of those measurement techniques: the Sebutape, the Sebufix, and the Sebumeter. Lipid sampling with the Sebufix and with the Sebumeter takes only 30 seconds while lipid sampling with the Sebutape takes 1 hour. As demonstrated by several authors application of a film on the skin surface may interfere with several skin properties such as skin temperature, skin hydration, and skin surface water loss. Our experimental set was designed in order to make a comparison between the 3 measurement techniques and in order to evaluate the effect of Sebutape application on the above skin parameters. Comparison of the lipid quantification with the 3 techniques delivered a good correlation. The Sebutape seems to have no or only a minor influence on skin temperature and TEWL. The hydration state of the stratum corneum increased significantly during the Sebutape application.

*M.A. Francomano, K. Mantovani, P. Pepe, A. Di Nardo and S. Seidenari, **Baseline Biophysical Skin Parameters in Subjects with Sensitive Skin**, Skin Research and Technology, Vol. 2, No. 4, Nov 1996.*

Aim of the study: to assess the baseline biophysical parameters in subjects with sensitive skin.

*R. Wolf, M. Friedman, **Measurement of the skin-cleaning effects of soaps**, Int J Dermatol. 1996 Aug; 35(8): p. 598-600*

Background: In the past 30 years, many tests for assessing the irritancy of soaps have been introduced, but only very few tests for evaluating their cleaning properties. The urgent need for such a method is obvious. Method: The method is based on the principles developed by Schrader, with substantial modifications. As in Schrader's method, we used a fat-based ointment to emulate "dirt." The washing process was performed by placing the examined hand in a rotating soap solution for 5 minutes. The capacity of various soaps to remove the "dirt" was assessed by comparing the sebumeter readings before and after the washing process. The difference between the two readings provided a quantitative estimate of the percentage of "dirt" (ointment) that was washed off during the process. Results: The cleansing capacity of two soaps was compared to that of water. Soap 1 showed a cleansing of 81.7 +/- 2.4%, soap 2 a cleansing of 75.3 +/- 2.9%, as compared to water of 29.7 +/- 3.4%. The curve representing the distribution of the data was very smooth, bell-shaped and symmetric about its mean. The difference between the cleaning activity of the two soaps tested was statistically significant ($P < 0.0001$). We have presented a new method for testing the cleansing capacity of soaps. Conclusions: We believe, that our method gives better results than that of Schrader; in particular, it enables us to discriminate more effectively among the various soaps. Our results indicate that the method is reliable and reproducible. It is also practical, easy to perform, does not require an expensive and complex washing machine, and can be carried out in every laboratory.

*H. Gerny, **IV Medizinische und Kosmetische Behandlungen**, Kosmetik und Dermatologie, Krause & Pachernegg Verlag GmbH, Wien.*

Die Langzeitwirkung einer Pflege kann nur dann einigermaßen beurteilt werden, wenn ein klar definierter Ausgangspunkt bezüglich des aktuellen Hautzustandes und Hauttypes gegeben ist. Die Bestimmung des Hauttypes ist ein sehr komplexer Vorgang, da viele äusserliche Einflüsse auf unser Hautbild einwirken. Auch ist die Haut hormonell empfindlich und stellt ein Bild unseres Innenlebens dar. Da der Zustand der inneren Schichten ohne chirurgische Maßnahmen nicht definitiv beurteilbar ist, kann nur die Summe aller Beobachtungen durch Auge, Lupe, und Woodlampe sowie Apparativer Hilfsmittel einen approximativen Anhaltspunkt über den Zustand der Haut geben. Es ist empfehlenswert, nach dem 35. Altersjahr von Zeit zu Zeit eine Hautbeurteilung durchführen zu lassen, um die Pflege nach dem aktuellen Hautbedürfnis anzupassen.

J.W. Wiechers, A Supplier's contribution to performance testing of personal care ingredients. SÖFW-Journal, 123. Jahrgang 14/97

Current cosmetic formulations address a wide variety of customer needs. This variety requires a plethora of personal care ingredients. In order to create excellent new products, it is essential that the formulator not only knows the physical properties of the components (s)he chooses, but also the skin performance that these products may have. In order to facilitate the selection process for the formulator, we have investigated the effect of our products against some of the most prominent claim areas of cosmetic products: skin moisturisation, elasticity, substantivity, and mildness.

J.W. Wiechers, Relative performance testing: Introducing a tool to facilitate cosmetic ingredient selection, Cosmetics and Toiletries, 112 (9) 1997, p. 79-84.

H. Dobrev, L. Zissova, Effect of Ketoconazole 2% Shampoo on Scalp Sebum Level in Patients with Seborrhoeic Dermatitis, Acta Derm Venereal, Stockholm 1997

Twenty patients with scalp seborrhoeic dermatitis were treated twice weekly with ketoconazole 2% shampoo for 4 weeks. Clinical assessment, culture for *P. ovale* on Dixon broth and lipid measurement at two places were made before treatment and after 2 and 4 weeks. Significant improvement of the severity of seborrhoeic dermatitis ($p < 0.001$) and negative mycological tests by 19 (95%) of patients were observed. The scalp lipid content remained unaltered in 11 patients with an initial lipid value over $220 \mu\text{g}/\text{cm}^2$ but increased those with lower initial values.

D.A. Comes, M.J. Dolan, E.J. Fender, R.A. Williams, Treatment of contact dermatitis in the health care and automotive occupations, Australian Journal of Dermatology: Abstracts 19th World Congress of Dermatology, Sydney, June 1997

Irritant and allergic contact dermatitis is a serious problem in many occupations. Among those with the most severe problems are automotive and body shop technicians and health care professionals. However, there is a dearth of studies which objectively characterize the extent of contact dermatitis in these occupations.

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

Alkaliseifen-freie Syndets, d.h. Waschpräparate mit neutralem oder einem sogenannten haut-neutralen pH-Wert, haben sich als milde Reinigungsmittel für den generellen Gebrauch bewährt. Speziell für Personen mit erhöhter Hautirritabilität, mit Hautproblemen angeborener oder erworbener Art, bietet diese Entwicklung die Möglichkeit einer schonenden Hautreinigung: Durch den neutralen bis leicht sauer eingestellten pH-Wert wird eine alkalische Quellung der Haut, mit all ihren möglichen Folgen, vermieden. Deshalb werden Syndets auch von Dermatologen als Adjuvans therapeutischer Maßnahmen empfohlen (z.B. EUBOS flüssig). Trotz der Vorteile der modernen seifenfreien Körperreinigungsprodukte kann es bei trockener und sehr trockener Haut, jedoch insbesondere auch bei vorgeschädigter Haut, zu einer weiteren Exsiccation kommen. In Verbindung mit den Waschgewohnheiten (z.B. tägliches Duschen) ist eine Austrocknung der Haut, Schuppung und Jucken vor allem bei Personen mit Hautproblemen, welche den Dermatologen aufsuchen, ein belastendes Problem.

T. Fischer, C. Greif, W. Wigger-Alberti, P. Elsner, Instrumentelle Methoden zur Bewertung 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 variiert werden. Zur Messung der Vergleichbarkeit dieser unterschiedlichen Funktionsparameter sind standardisierte Meßbedingungen erforderlich.

*R. Ward, **The Human Factor**, SPC March 1998*

With the proposed ban on animal testing on the horizon, Dr. Rachel Ward looks at the ethical aspects of human volunteer testing.

*M. Arens-Corell, J. Welzel, H.H. Wolff, **Beurteilung von Hautreinigungsmitteln für trockene und empfindliche Haut**. Kosmetische Medizin 1/1998.*

Die zunehmende Problematik trockener und empfindlicher Haut in der Bevölkerung macht die Entwicklung geeigneter Reinigungsmittel notwendig. Ihre Hautverträglichkeit und minimierte Austrocknungswirkung kann in dermatologisch kontrollierten Anwendungsbeobachtungen unter Einbeziehung der Messung hautphysiologischer Parameter objektiv geprüft werden. Das Beispiel eines Duschöls und einer Waschemulsion für trockene und empfindliche Haut zeigt, daß durch einen hohen Ölanteil ebenso wie durch die Auswahl milder Syndetsubstanzen bei Anpassung des pH-Wertes im Hautphysiologischen, leicht sauren Bereich die Hautreinigung unter Praxisbedingungen ohne Austrocknung und Irritationen möglich ist.

*W.D. Becker, J.S. Bajor, K. Hoyberg, S. Hillmer, D. Thiboutot, H. Knaggs, **Measurement Of Human Surface Sebum Levels**, The Journal of Investigative Dermatology, Vol. 110, No. 4, April 1998*

High facial levels of sebum have been shown to be cosmetically undesirable.

*J. Gottfreund, T. Meyer, **Die Bedeutung des pH-Wertes 5,5 in Emulsionen**, Kosmetische Medizin Nr. 3, 1998.*

Es wird die Bedeutung des pH-Wertes 5.5 in Emulsionen dargestellt. In einer W/O-Emulsion wurde der pH-Wert der Wasserphase auf einen Wert von 5,5 eingestellt. Es ließ sich zeigen, daß der durch Umwelteinflüsse tiefe pH-Wert der Haut sich an 5,5 anpaßt. Bei der Auswahl der Rohstoffe für den Fettkörper einer Emulsion müssen die speziellen Bedingungen, die durch den pH-Wert bedingt sind, berücksichtigt werden.

*I. Le Fur, S. Lopez, F. Morizot, M. Dubourgeat, C. Guinot, E. Tschachler, **Comparison of Malar and Frontal Zones by Bioengineering Methods for Different Cosmetic Skin Type Groups of Women**, Poster - 20th IFSCC Congress Cannes, 09/1998*

During the past decades the in vivo study of physiological parameters of the skin by non invasive methods has considerably developed.

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

*F. Morizot, I. Le Fur, E. Tschachler, **Sensitive Skin**, Cosmetics & Toiletries Vol. 113, November 1998*

Studies on skin reactions to irritant substances and topical preparations have a long history. Clinical signs and symptoms of irritant reactions in the dermatological sense are well defined and are synonymous with skin inflammatory reactions.

*U. Bornschein, **Der Schuß ins Waschwasser...** Die Schwester/Der Pfleger 12/98*

Die Ganzkörperwaschung der Patienten durch Pflegende ist im Krankenhaus eine täglich wiederkehrende Verrichtung. In vielen Einrichtungen ist dafür ein Pflegestandard geschaffen worden. Dabei kommt es oft zu einer Diskussion um en Waschwasserwechsel, und dies nicht nur aus hygienischen Gesichtspunkten.

J.S. Koh, K.S. Chae, H.O. Kim, Skin Characteristics of Normal Korean Subjects According to Sex and Site using Non-Invasive Bioengineering Methods, Korean J Dermatol., 1998 Oct; 36(5): p. 855-864

Background: During the last few years, the in vivo study of the physiological parameters of the skin by non-invasive methods has been considerably developed. So far, there have been some reports on the skin characteristics only in parts, but there has not been any criteria to classify those of normal subjects. Objective: The aim of the present study was to investigate the skin characteristics of healthy Korean subjects according to sex and sites using non-invasive methods. Methods: To determine normal levels of sebum, skin hydration, transepidermal water loss (TEWL), skin elasticity and skin color according to sex, 163 subjects (male; 124, female; 39) were used to investigate 5 different anatomical sites. 6 different instruments were used: The Sebumeter SM 410, Corneometer CM 820, Evaporimeter EP1, Cutometer SEM 474, Chromameter CR-121, and Mexameter MX 16, for evaluating sebum excretion rate, capacitance, TEWL, mechanical property and skin color respectively. Results: Differences were noticed depending on the anatomical sites and sex. Most of the measuring parameters were significantly different according to sites and sex. The values of sebum levels, capacitance and TEWL were higher in the males on the cheek, forehead and crows foot, whereas in the females, higher values were observed on the dorsum of the hand. The skin elasticity varied considerably among the nine-parameters but, for the elastic ratio (R2, R5), the females showed significantly higher values than the males in all sites except the forehead. Skin lightness (L* value) was higher in the females, whereas the males showed higher values in the category of redness (a* value) and yellowness (b* value). The values of the erythema index (EI) and melanin index (MI) were also higher in the males on all sites. Correlations between the skin parameters mentioned above were calculated. A negative, correlation between capacitance and TEWL was observed only on the cheek (male/female, $r = -0.2 / r = -0.4$, $p < 0.05$). The L* value correlated negatively with MI. Moreover the values between a* and EI also showed significant correlations in the male (cheek and dorsum of hand, $r = 0.2$, forehead and crows foot, $r = 0.3$, $p < 0.05$). There were considerably significant correlations between the visual pigmentation score and instrumental skin parameters in the males (visual pigmentation score vs. L* value measured by Chromameter ; cheek/crows foot, $r = -0.3 / r = -0.4$, visual pigmentation score vs. MI by Mexameter ; cheek/crows foot, $r = -0.2 / r = 0.4$, visual winkle score vs. sebum excretion rate measured by Sebumeter ; cheek, $r = 0.2$, visual winkle score vs. elasticity parameters measured by Cutometer ; cheek, R2/R5/R7, $r = -0.3 / r = -0.2 / r = -0.3$, $p < 0.05$). Conclusion: Skin physiological parameters can be evaluated by non-invasive skin bioengineering methods which show quantitative modifications in physiological conditions in relation to sites and sex.

H. Knaggs, J. Bajor, W. Becker, The Sebumeter® and Its Use, Mediscript 12/98

The Sebumeter is a quick and easy tool to use in measuring skin surface lipids. The type of lipids sampled largely depends on the body site at which the measurement is taken. The Sebumeter has most commonly been used to measure skin lipids on the forehead which consist predominantly of sebaceous gland-derived lipids or sebum.

B. Chadoutaud, L. Curtil, C. Veret, F. Alais-Gallou, Evaluation objective en double aveugle de la performance hydratante et de la rémanence de deux émoullients corporels E/H et H/E dans le traitement des peaux sèches et très sèches. Les Nouvelles Dermatologiques, Vol. 18 No. 2 – Feb.99

Cette étude en double aveugle randomisée chez 20 volontaires à peau sèche et très sèche, concerne l'analyse contrôlée de l'activité hydratante de deux émulsions

K. Lanzerath, Eine Notwendigkeit für die dermatologische Praxis? Die apparative Bestimmung von Hautparametern, H+G Band 74, Heft 6, 1999

Transepidermaler Wasserverlust (TEWL), Corneometrie, Sebumetrie, Melanin- und Erythembestimmung – Schlagworte, die in der dermatologischen Forschung und Praxis immer mehr an Bedeutung gewinnen.

W.D. Becker, S. Hillmer, M.A. Presser, A Clinical Model for Surface Sebum Measurement, Poster Arbois 1999

Accurate and reproducible measurements of skin surface sebum level is important to establish the efficacy of compounds which could play a role in controlling oily skin.

P. Muti, M. Stanulla, A. Micheli, V. Krogh, J.L. Freudenheim, J. Yang, H.J. Schünemann, M. Trevisan, F. Berrino, Markers of Insulin Resistance and Sex Steroid Hormone Activity in Relation to Breast Cancer Risk: A Prospective Analysis of Abdominal Adiposity, sebum production, and hirsutism (Italy). Pediatric Research April 1999

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.

M. Maruno, F.C. Facco, P.A. Rocha Filho, Hydration, Oily and PH of Skin In Vivo Evaluation After Application of Both Simple and Complex Emulsions Containing Hydrolyzed Proteins, IFSCC Chile May 1999

Cosmetic industry considers skin treatment as a market which is increasing and spreading through cosmetic products as well.

R.G. Azzini, L. Licursi, P.A. Rocha-Filho, Colour Evaluation „In Vitro“ Method of Facial Powders, IFSCC Chile May 1999

The work speaks about the evaluation of the colouration of facial powders inside the own packing and the resulting colour that is obtained when the same is put to the skin.

S.H. Perez Damonte, G.M. Cuomo, R.L. Galimberti, Evaluacion Instrumental de la Piel Sensible, IFSCC Chile May 1999

Numerosos pacientes se hacen a la consulta cosmética...

A. Fendl, Einzelheiten der Hautdiagnose. Natürlich schön/Grundlagen der Ganzheitskosmetik, Handwerk und Technik – 1999

Wie ein Mantel schützt der eigene fettige Film die Haut gegen negative Einflüsse von aussen und Wasserverluste von innen.

I. Le Fur, S. Lopez, F. Morizot, C. Guinot, E. Tschachler, Comparison of cheek and forehead regions by bioengineering methods in women with different self-reported “cosmetic skin types”, Skin Research and Technology, Vol. 5, No. 4, August 1999

Understanding structural and functional differences between facial areas is necessary for the formulation of cosmetics and dermatological preparations well tailored to the skin's biophysical characteristics.

C. Piérard-Franchimont, O. Martalo, A. Richard, A. Rougier, G.E. Piérard, Sebum rheology evaluated by two methods in vivo. Split-face study of the effect of a cosmetic formulation, European Journal of Dermatology. Volume 9, Number 6, 455-7, September 1999

Modulation of the rheological characteristics of sebum at the surface of the skin might represent a valuable strategy for the treatment of seborrhea. In this field, only a small number of studies have addressed sebum diffusion within the stratum corneum. In an open, split-face study conducted on 20

men, we measured the sebosuppressive effect of Effidrate® cream which is based on a glycerol alkyl-ether. Measurements were made in the morning at three-week intervals for a total period of 3 months. Sebum casual levels and sebum excretion rates were measured using a SM810® Sebumeter. Lipid-absorbent Sebutape® was also used to collect all the sebum released from infundibular reservoirs over a four-hour period. Clinical assessments were relatively uninformative but the photometric measurements showed that Effidrate® cream had a sebosuppressive action. The underlying biological mechanism remains unclear but a hypothesis based on enhanced sebum absorption by the stratum corneum is discussed

M.M. Jiménez Soriano, M.J. Fresno Contreras, E. Sellés Flores, **Pharmacotechnical characterization and effectiveness study of a dermatopharmaceutical form: Rosemary honey contributions as a moisturizing active**, Bollettino chimico farmaceutico 138(8): p. 401-417, October 1999

We have designed, elaborated and studied a dermatopharmaceutical form formulated on the basis of a modern self-emulsifying excipient and rosemary honey (known as Miel de La Alcarria--Spain--according to the Governing Council), in order to obtain a high degree of cutaneous hydration. The formulation is typified and characterized from a pharmacotechnical and rheological points of view. In this sense, the experimental protocol has emphasized rheological essays which give relevant practical information. Also, we have performed a complete study of its physical and structural stability, and, lastly, we evaluated the dermatopharmaceutical effectiveness. The work plan included the following tests: 1) Pharmacotechnical Essays--organoleptic characteristics, photomicrograph study, type of interposition, pH-determination, rheological and thixotropic study and physical stability tests; 2) Dermatopharmaceutical Effectiveness Assays--Corneometric and Sebumetric measurements. From the results, we have deduced that the emulsified binary system that is proposed, stable from a physical and structural points of view, presents confirmed properties and a very good cosmetological adequation. In this sense, our emulsion presents a high degree of moisturizing/emollient power that qualifies it not only as a magnificent eudermic dermatopharmaceutical form, but also as a very appropriate vehicle for Dermatopharmaceutical and/or Dermatological Formulation.

*I. Le Fur, C. Guinot, S. Lopez, F. Morizot, V. Lambert, E. Tschachler, **Age-Related Reference Ranges for Skin Biophysical Parameters in Healthy Caucasian Women***, 13th ISBS Jerusalem, March 2000 and 13th ISBS Jerusalem, March 2000 and Skin Research and Technology, Vol. 6, No. 3, August 2000

Knowledge about the variations of skin biophysical parameters is a prerequisite for the interpretation of results of the skin bioengineering studies.

*S. Lopez, I. Le Fur, F. Morizot, G. Heuvin, C. Guinot, E. Tschachler, **Transepidermal Water Loss, Temperature and Sebum Levels on Women's Facial Skin Follow Characteristic Patterns***, Skin Research and Technology, Vol. 6 No. 1, February 2000.

The aim of this study was to compare the biophysical properties of different facial zones.

*G. Gacic-Vukavljak, **Sebum Control Performance with Powdered Silicone Elastomers***, Personal Care Ingredient Asia Conference, Bangkok, March 2000

E-powders (Treffil®) are elastomeric silicone powders comprised of spherical particles which show good characteristics of elastomers in general.

*V. Lambert, I. Le Fur, C. Guinot, F. Morizot, S. Lopez, E. Tschachler, **Comparaison des Paramètres Biophysiques Cutanés en Hiver et en Été chez des Femmes Caucasiennes***, 11^{ème} Congrès de la Société D'Ingénierie Cutanée, Juin 2000

Les modifications environnementales au cours des saisons favorisant la survenue de pathologies cutanées mais sont aussi citées par les femmes comme favorisant l'apparition des signes de sensibilité cutanée.

B. Rode, U. Ivens, J. Serup, Degreasing method for the seborrheic areas with respect to regaining sebum excretion rate to casual level, Skin Research and Technology, Vol. 6, No. 2, May 2000

Insulin resistance and increased levels of serum steroids have been hypothesized to be relevant etiological factors for breast cancer. The present study analyzed the association of breast cancer with markers of insulin resistance and elevated serum sex steroids, abdominal adiposity, increase in sebum production and hirsutism in a case-control study nested in a prospective cohort study.

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

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

W. van Es-Spiekman, G.W. Lucassen, Skin Characterization: Human Skin Water Content Versus Lipid Content Measured by Corneometer, Sebumeter and ATR-FTIR Spectroscopy, XXIst IFSCC Congress 2000, Berlin

Skin characterization methods are important for the cosmetic industry, personal care industry, in pharmacology and dermatology. Water content and lipid content are of special importance because of their crucial role in the barrier function of the skin.

A. Zlotogorski, S. Dikstein, Skin Surface Sebum on the Forehead and Cheek of Adults, Skin Research and Technology, Vol. 6, No. 3, August 2000

The casual level of skin surface sebum and the rate of replacement after 30 min. was measured by the SM-401 Sebumeter on the forehead (of 270 men and 382 women) and the cheek (of 183 men and 196 women) aged 20-95.

S.M. John, W. Uter, H.J. Schwanitz, Relevance of Multiparametric Skin Bioengineering in a Prospectively-followed Cohort of Junior Hairdressers, Contact Dermatitis, Vol. 43, No. 3, September 2000

There is conflicting evidence concerning predictors of individual susceptibility to develop irritant contact dermatitis in wet work. A cohort of initially 92 hairdresser apprentices was prospectively followed for 3 years.

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

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

I. Gemende, M. Fisher, Begleitende Hauterkrankungen bei Morbus Parkinson - Besonderheiten in der Hautpflege (nur Anfang des Kapitels), in Horst Przuntek & Thomas Müller (Editors), Adjuvante nichtmedikamentöse Therapieansätze bei Morbus Parkinson, Springer, 2000, P. 21-27

Das Erscheinungsbild der vegetativen Störungen bei der Parkinsonerkrankung ist vielgestaltig. Als Zeichen der Hautbeteiligung sind Hyperhidrose und Seborrhoe regelmäßig angeführt, die Frage der

veränderten Sebumproduktion wird jedoch sehr selten untersucht. Bei der Beschreibung der Parkinsonerkrankung ist das Salbengesicht ein prägnantes Zeichen.

A. Castro, A. Vargas, Formulacao de Sabonete Liquido com Productos Naturais: Medida de sua Efectividade, *Cosmetics & Toiletries* (Portugese), Vol. 13 No 6, p. 93, 2001

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

K. Mijyajimoto, Quantitative comparison of the differences in facial skin aging and Skin Biophysical Properties in Japanese femals living in south and north part of Japan, and global research expansion on Caucasians, East Asians, Indian Asian and Latinos, 5th ASCS, March 2001

Avoidance of sun exposure has been clearly recognized as the best way to prevent premature skin aging (e.g. wrinkling and age spots) and more severe neoplastic disease (squamous and basal cell carcinoma and malignant melanoma).

D. Iliiev, U. Hinnen, P. Elsner, Skin Bioengineering Methods in Occupational Dermatology, *Skin Bioengineering* Vol. 26, March 2001

Measuring 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.

H. Lambers, H. Pronk, Biophysical Methods for Stratum Corneum Characterization, in T. Förster (Editor): *Cosmetic Lipids and the Skin Barrier*, 2001 by Marcel Dekker

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

F. di Pierro, G. Gugliemini, Cosmetic evaluation of Cucurbita pepo and Zanthoxylum alatum supercritical CO₂ extract, 5th ASCS March 2001

Cucurbita pepo L. (English name: pumpkin) is an herbaceous annual plant of the *Cucurbitaceae* family.

P.-G. Sator, J.B. Schmidt, M.O. Sator, J.C. Huber, H. Hönigsmann, The influence of hormone replacement therapy on skin ageing. A pilot study, *Maturitas* 39 (2001) 43-55

We studied the effect of hormonal treatment on skin ageing in menopausal women. Twenty-four patients without hormone treatment for at least 6 months were included. Patients were assigned to three therapy groups: 1, oestrogen only 2. transdermal oestrogen and progesterone. One group without therapy was included as a control group. Treatment was continued for 6 months. Three patients, one from group 2 and two from group 3, discontinued therapy before the study endpoint. The following skin parameters were measured at monthly intervals during treatment.

G.G. Hillebrand, B. Schnell, K. Miyamoto, M. Ichihashi, R. Shinkura, S. Akiba, The Age-Dependent Changes in Skin Condition in Japanese Females Living in Northern Versus Southern Japan, *IFSCC Magazine*, Vol. 4, No. 2, April/June 2001

Image analysis and biophysical methods used to compare skin conditions of a group of females ranging in age from 5-65 years who have lived all of their life in either Kagoshima prefecture (n=300) located in southern Japan or Akita prefecture (n=302), located in Northern Japan.

*K.-D. Neander, F. Hesse, **The role of cream mousses in the treatment of dry skin in patients with diabetes mellitus***, Podology, LII, Issue 10/2001, p. 19-21

Diabetics are well known for their frequent struggles with the problem of “dry skin”. The diverse and unpleasant effects to which these patients are exposed range from pruritus to skin inflammations, particularly in the interdigital spaces of the feet. As has been demonstrated in a variety of studies, lack of moisture is at the heart of this problem.

*G. G. Hillebrand, M. J. Levine, K. Miyamoto, **The Age-Dependent Changes in Skin Condition in African Americans, Asian Indians, Caucasians, East Asians, and Latinos***, IFSCC Magazine, October/December 2001, Vol. 4, No. 4

Understanding the similarities and differences in skin characteristics as a function of age, race and geography should aid in the development of skin care products that better meet consumers’ skin care needs around the world.

*I. Le Fur, F. Morizot, S. Lopez, C. Guinot, J. Latreille, E. Tschachler, **Seasonal changes in skin biophysical properties in healthy Caucasian women***, Congress Stratum Corneum III, Basel, September 2001 and The Essential Stratum Corneum, chapter 60, edited by R. Marks, J.-L. Lévêque, R. Voegeli, Martin Danitz Ltd., London, 2002

The human skin surface has to adapt constantly to changing environmental conditions, such as temperature and relative humidity. Several studies have demonstrated the detrimental effects of winter weather in our countries on the skin and seasonal changes in certain biophysical parameters. The work presented here examines seasonal variations of biophysical parameters on facial skin in Caucasian women in France.

*C. Piérard-Franchimont, G.E. Piérard, **Postmenopausal Aging of the Sebaceous Follicle: A Comparison between Women Receiving Hormone Replacement Therapy or Not***, Dermatology 07/2002

The endocrine control of sebaceous follicles is complex in women. During aging, a decline in sebum output is often experienced. However, some women report increased seborrhoea after the menopause.

*G. Maramba, 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.

*J. Djordjevic, G. Vuleta, J. Milic, H. Zhai, H. Maibach, **O/W Emulsions Enriched with Vitamin E***, Cosmetics & Toiletries 2002 April, Vol. 117, Nr. 4

Vitamin E has an important protective function for the entire organism. It is believed that the broad biological activities of vitamin E are due to its ability to inhibit lipid peroxidation and stabilize biological membranes.

*I. Le Fur, S. Lopez, F. Morizot, J. Latreille, C. Guinot, E. Tschachler, **Age-Related Reference Ranges for Skin Biophysical Parameters in Healthy Women***, 20th World Congress of Dermatology, Paris 2002

Purpose: The aim of this study was to establish age-related reference ranges in healthy Caucasian women for some widely used skin biophysical parameters.

*I. Le Fur, A. Reinberg, S. Lopez, F. Morizot, E. Tschachler, **Facial Skin Circadian Rhythms of Healthy Women Investigated Using Non-Invasive Methods***, 20th World Congress of Dermatology, Paris 2002

Purpose: The aim of this study was to document around the clock changes in a set of skin biophysical parameters.

U. Uksal, C. Atasavun, B. Özcelik, S. Utas, A. Ferahbas, The effects of hormone replacement therapy on the skin of postmenopausal women (abstract), 11th Congress of the European Academy of Dermatology and Venereology, Prag 2002

The study was performed to compare skin pH, transepidermal water loss (TEWL), skin surface lipids and hydration in postmenopausal women receiving hormone replacement therapy (HRT) and those who not. Two parallel age-matched groups (each 24) of 48 postmenopausal women evaluated by tewameter, sebumeter, pHmeter and corneometer.

R. Korichi, Video Imaging in the Measurement of Makeup Efficacy and Performance, Cosmetics & Toiletries October 2002, Vol. 117 No. 10

Video imaging techniques add quantitative data about the visual effects of makeup when evaluating efficacy and performance of products such as mascaras, lip colorants, facial foundations and nail enamels.

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.

S. Haug, Feuchtigkeit, Fettgehalt und pH-Wert der Haut im Gesicht – Eine Untersuchung zur Festlegung von Normalwerten an definierten Punkten im Gesicht und am Hals, Dissertation an der Technischen Universität München 2002

Das größte Organ des menschlichen Körpers, die Haut, besitzt eine Gesamtfläche von 1,5-2,0 m², die von Körpergröße und Gewicht abhängig ist [1]. Die Haut ist in mehreren Schichten aufgebaut. Das 6-20µm, an Handinnenfläche und Fußsohle zwischen 200-600 µm [54,86], dicke kernlose Stratum corneum (Hornhaut) ist die oberste Schicht der Haut. Es besteht aus 13 Zellschichten [76]. Der Aufbau des Stratum corneum ist dabei ähnlich einer Mauer aus Ziegelsteinen und Mörtel (bricks and mortar-Modell). Die Ziegelsteine entsprechen in dieser Modellvorstellung proteinreichen Korneozyten, die hauptsächlich aus seiner starren Zellhülle [6], Keratinfilamenten [107] und dem interfilamentären Matrixprotein [28] bestehen.

MegaSun beauty & care, Sonnen ohne Risiko, Kosmetische Medizin, 4/2002, 23. Jahrgang

Sonne gilt für große Bevölkerungsteile als die Universal-Arznei aus der „Himmelsapotheke“. Doch der Dermatologe rät: Was für die Risiken und Wirkungen von Arzneimitteln gilt, gilt auch für die Solarien-Besonnung: Die Dosis ist entscheidend. Auf der Pressekonferenz am 16.10.2002 in Hamburg präsentierte die KBL-Solarien AG den Medien sowie dem Fachhandel ein auf streng wissenschaftlicher Basis entwickeltes Gerät zur individuellen Hauttypbestimmung, um Solarstrahlen für gesunde und natürliche Bräune optimal zu dosieren – das megaSun care Terminal.

P.G. Sator, J.B. Schmidt, M.O. Sator, J.C. Huber, H. Hönigsmann, Parameters of skin aging during hormone replacement therapy, EADV 7th Congress, 2002, Abstract

All patients with HRT showed an increase in skin hydration, elasticity and thickness, as well as subjective and clinical improvement.

*I. Uhoda, N. Faska, C. Robert, G. Cauwenbergh, G.E. Pierard, **Split face study on the cutaneous tensile effect of 2-dimethylaminoethanol (deanol) gel***, Skin Research and Technology, Vol. 8, No. 3, August 2002

Large interindividual variations precluded any significant finding in the first study. The DMAE formulation showed, however, a significant effect characterized by increased shear wave velocity in the direction where the mechanical anisotropy of skin showed looseness. The DMAE formulation under investigation increased skin firmness.

*S.W. Youn, S.J. Kim, I.A. Hwang, K.C. Park, **Evaluation of facial skin type by sebum secretion: Discrepancies between subjective description and sebum secretion***, Skin Research and Technology, Vol. 8, No. 3, August 2002

People secrete varying amounts of sebum at different skin sites. Reclassification of skin type based on sebum secretion revealed that most participants underestimated the amount of facial sebum excretion. When sebum secretion amounts were compared, a statistically significant difference was apparent between the oily and dry skin types. However, there were no statistical differences between oily and normal, and normal and dry skin.

*J. Willms, S. Dolphin, S. Albiston, L. Parmar, P. Westgate, G.J. Harrap, **Free internal lipids in hair from pre- and post-menopausal women***, Posters of the 22nd IFSCC Congress, Edinburgh 23.-26. Sep. 2002

Little is known about changes in hair lipids during life and their effects on hair properties.

*N. Muizzuddin, K. Marenus, M. Sullivan, S. Schnittger, D. Maes, **Effects on normal female monthly hormonal cycles on skin functions***, Posters of the 22nd IFSCC Congress, Edinburgh 23.-26. Sep. 2002

Menstrual cyclicity is a major biological process for women during their reproductive years and is associated with significant changes in hormonal status and behaviour.

*L. Ambrosine, C. Guinot, J. Latreille, E. Mauger, M. Tenenhaus, I. Le Fur, S. Lopez, F. Morizot, E. Tschachler, **Relationship between visual and tactile skin characteristics and skin biophysical parameters***, Posters of the 22nd IFSCC Congress, Edinburgh 23.-26. Sep. 2002

The skin does more than simply encase the human body.

*A. Kramer, T. Bernig, G. Kampf, **Clinical double-blind trial on the dermal tolerance and user acceptability of six alcohol-based hand disinfectants for hygienic hand disinfection***, Journal of Hospital Infection, 2002, 51: 114-120

Six commercially available alcohol-based hand rubs (AHD 2000, Desderma, Muscasept A, Manorapid (Poly-Alkohol, Spitacid, and Sterillium)) were investigated in a clinical double-blind trial involving 10 participants who had no previous experience of using hand rubs (Group 1) and seven who had substantial professional experience of using hand rubs (Group 2, viro laboratory staff).

*D. Swatschek, W. Schatton, J. Kellermann, W.E. Müller, J. Kreuter, **Marine sponge collagen: isolation, characterization and effects on the skin parameters surface-pH, moisture and sebum***, Eur J Pharm Biopharm, 2002 Jan;53(1): p. 107-113

A previously described isolation procedure for collagen of the marine sponge *Chondrosia reniformis* Nardo was modified for scaling-up reasons yielding 30% of collagen (freeze-dried collagen in relation to freeze-dried sponge). Light microscope observations showed fibrous structures. Transmission electron microscopy studies proved the collagenous nature of this material: high magnifications showed the typical periodic banding-pattern of collagen fibres. However, the results of the amino acid

analysis differed from most publications, presumably due to impurities that still were present. In agreement with earlier studies, sponge collagen was insoluble in dilute acid mediums and all solvents investigated. Dispersion of collagen was facilitated when dilute basic mediums were employed. The acid-base properties of the material were investigated by titration. Furthermore, a sponge extract was incorporated in two different formulations and compared with their extract-free analogues and a commercially available collagen containing product with respect to their effects on biophysical skin parameters. None of the preparations had a noticeable influence on the physiological skin surface pH. Skin hydration increased only slightly. However, all tested formulations showed a significant increase of lipids measured by sebumetry.

*M.M. Jiménez Soriano, M.J. Fresno Contreras, E. Sellés Flores, **Pharmacotechnical characterization and effectiveness testing of a proposed emulsion for the treatment of dry skin**, Boll Chim Farm. 2002 Sep-Oct; 141(5): p. 333-342*

One of the most important objectives of the Pharmaceutical Industry is the development of new excipients as well as the optimization of other more traditional ones. Also, the investigation of new active substances able to prevent, palliate or treat the cutaneous dehydration is another of the most important of their objectives. Both tendencies are implanted in this experimental work: we propose an emulsion formulated with the base--Neo PCL' (25%), NMF (Lactil', 5%) and a peculiar active--Honey of Rosemary (15%). The working scheme is as follows: 1) Pharmacotechnical Characterization--organoleptic characteristics, Photomicrograph Study, Type of Emulsion, pH, Rheology; 2) Stability Study by means of accelerated tests based on temperature and centrifugation; 3) Effectiveness Study by applying of non-invasive assessment techniques. An emulsified dermatopharmaceutical form is obtained (O/W) with a satisfactory organoleptic characteristics and eudermic pH (5.2), attributable to the acid character of Honey. From the rheological study, a very good results are obtained: viscosity ($T = 408.8.D0.549$), structural recuperation (30%) and thixotropy ($AD1/AD2 = 1.36$). On the other hand, from the effectiveness results (corneometric--P.I.120 = 43.2%- and sebumetric--E.I. = 33-144 mg/cm²-), a high level of moisturizing is deduced, which is attributable to the synergic action of both Lactil' and Honey. Finally, the proposed emulsion would serve as a treatment for all type of dry skin.

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

In zahlreichen Ländern (z.B. Belgien, Dänemark, Deutschland, Finnland, Schweden, Schweiz und allen osteuropäischen Ländern) sind Hände-Desinfektionsmittel Arzneimitteln gleichgestellt und zulassungspflichtig.

*D. Lautenschläger, **Hautanalyse – Moderne Geräte helfen**, Ki-Magazin 3/2003*

Die Hautanalyse ist ein zentraler Bestandteil der kosmetischen Behandlung. Sie schafft die Grundlage für für erfolgreiche hautspezifische Konzepte. Ein großes Angebot an Geräten kann die Hautbestimmung erleichtern. Was können diese Instrumente genau.

*J.S. Dosik, T. Plott, R.D. Gilbert, **Efficacy and Tolerability of Sodium Sulfacetamide 10% and Sulfur 5% Short-Contact Therapy for the Treatment of Acne Vulgaris**, 61st Annual Meeting, San Francisco, March 2003*

A short-contact acne therapy containing sodium sulfacetamide 10% and sulfur 5% was investigated for its efficacy and tolerability in the treatment of acne vulgaris. Poster at the American Academy of Dermatology,

*G. Gasic-Vukovljak, I. Li, A. Vagt, **Beyond superior feel in skin care**, Personal Care 2003, p. 45*

Silicones have a long history in personal care products where they are recognized for their smooth, silky and nonoilyfeel, spreadability, lubrication properties, substantivity, and lack of harm to the environment.

H.K. Lee, S.Y. Bae, S.J. Moon, I.S. Chang, Comparisons of skin characteristics between men and women using non-invasive methods in young healthy Asians, Skin Research and Technology, Vol. 9, No. 2, May 2003

Skin has different properties depending on intrinsic effects such as inherent factors, race, gender and so on. Besides, it has been known that skin may change because of the environmental stress such as UV, climate and life style. We would like to know the differences of skin characteristics between male and female. The results of this study might be applicate the depart of dermatology and cosmetology.

R. Huei Chen, W. Yuu Chen, Skin hydration effects, film formation time, and physicochemical properties of a moisture mask containing Monostroma nitidium water-soluble mucilage, Journal of Cosmetic Science, Vol. 54, No. 1, Jan./Feb. 2003

The objectives of the study were to explore the effects of using the water-soluble mucilage of Monostroma nitidium to replace the humectant and half of the thickening agent on the rheological properties, color, storage stability, water-holding capacity, and film formation time of moisture masks thus prepared. Results showed that moisture masks containing water-soluble mucilage were pseudoplastic fluids.

P.-G. Sator, J.B. Schmidt, H. Hönigsmann, Comparison of epidermal hydration and skin surface lipids in healthy individuals and in patients with atopic dermatitis, J Am Acad Dermatol, March 2003

The water content of the stratum corneum and the skin surface lipids form a balance that is important for the appearance and function of the skin. Nevertheless, the water content of the stratum corneum and the skin lipids, the water-binding substances from the hydro-lipid film of the skin, act together as a barrier to the environment.

M. Setaro, A. Sparavigna, It is possible to define a "biological age" of the skin?, Skin Research and Technology, Vol. 9, No. 2, May 2003

The evaluation of global skin performance as compared to anagraphical age of the subject is until today dependent on clinical evaluation. By doing so, "pre-clinic" alterations of skin aging, are often missed, loosing the possibility to set up adequate strategies of prevention and treatment. Non-invasive evaluations based on the measurements of skin parameters allow to monitor functional alterations of the skin with age in objective, sensitive specific and reproducible way.

A. Castro, Evaluation of the moisturizing effectivity of different materials (ES), Colamiq Congress in Cartagena, 2003

La resequedad de la piel tiene diversos origenes: disminucion de lipidos, perdida de agua transepidermal, factores hormonales, geneticos, medicamentosos, ambientales. Durante muchos anos se han buscado medicamento o procedimientos que puedan revertir o detener los danos de la piel que se presntan a traves del curso de la vida, inducidos por factores externos o internos. La condicion de piel seca que afecta a un amplio universo de la poblacion, viendose mas marcada en la poblacion adulta, aunque tambien se presenta en la poblacion joven, juega un papel determinante en el proceso de envejecimiento de la piel.

L.C. de Ramayo, A. Castro, L. A. Castro Sader, Medida de la efectividad de reguladores de grasa de origen natural, Colamiq Congress in Cartagena, 2003

En la actualidad existe un numero considerable de consumidores que presentan una piel con una apariencia aceitosa, grasosa, brillante, untuosa al tacto que desde todo punto de vista resulta desagradable. Hoy en día, se habla mas de un problema de calidad de sebo en la superficie de la piel que de aumento de la oleosidad y la piel grasosa se ha convertido en un problema serio de la piel.

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 self-reported subjective evaluations of skin condition and objective measurements of skin conditions, and then looked for correlations between the subjective and objective skin measures.

B.A. Green, B.L. Edison, R.H. Wildnauer, R. Hwu, Cosmetic uses of benzilic acid – a lipophilic Alpha-Hydroxyacid (AHA), 12th European Academy of Dermatology and Venereology, Barcelona 2003 October 15.-18.

The alpha-hydroxyacids (AHAs) are used extensively to enhance skin smoothness and clarity, while promoting overall skin health and normalcy. They are also used adjunctively with topical medications for the treatment of skin conditions including acne and hyperpigmentation. Commonly used AHAs, including glycolic acid and lactic acid, are highly hydrophilic and less lipophilic.

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 particularly 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.

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 mercadológico dos produtos destinados aos cuidados com a pele e com os cabelos tem-se baseado cada vez mais em evidências científicas e técnicas sensíveis, precisas e validadas, ao invés de serem fundamentadas em especulações.

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.

P.-G. Sator, J.B. Schmidt, H. Hönigsmann, Clinical Evidence of the Endocrinological Influence of a Triphasic Oral Contraceptive Containing norgestimate and Ethinyl Estradiol in Treating Women with Acne vulgaris, *Dermatology* 2003;206: 241-248

Acne vulgaris is a multifactorial inflammatory follicular skin disorder occurring in pilosebaceous units, especially on the face and the trunk. The major etiological factors are increased sebum production, hypercornification of the pilosebaceous duct, abnormal microbial flora and inflammation. There are many different faces of acne. Acne and acneiform eruptions affect persons of all ages, beginning with neonatal acne and progressing to include rosacea in older persons. Acne vulgaris is the most common skin disorder, affecting close to 80% of people at least once between 11 and 30 years of age.

H. Ranc, A. Elkhyat, C. Servais, B. Launay, P. Humbert, Coefficient de friction et mouillabilité de la muqueuse linguale: influence d'une couche de mucus salivaire, Nestlé Research Center, Nestec Ltd., Lausanne, Suisse

Les aliments, une fois en bouche, sont cisailés et comprimés entre la langue et des surfaces telles que les dents et le palais. La tribologie appliquée aux surfaces interagissant en bouche devrait permettre d'expliquer certains phénomènes physio-chimique qui régissent la perception orale de la structure des aliments.

E. Camel, L. Arnaud-Boissel, L. Basset, S.K. Tan, J.-P. Guillot, Do Skin Moisturization, pH Colour, Water Loss, Lipids or Age, Phototype and Racial Origin (Asian/Caucasian) Affect S.P.F.?, Personal Care Ingredients Asia, Guangzhou, March 2004

The aim of these studies was first to investigate the possible reasons inducing S.P.F. variations during clinical testing, as regards specific cutaneous parameters (skin colour, hydration, barrier function, pH, surface lipids ...), and secondly to assess the effect of racial origin (Asian/Caucasian) in a large range of sunscreen products (S.P.F. 4 to 30).

H. Dobrev, R. Iankova, L. Zissova, Study of therapeutic effectiveness of four antidandruff shampoos, 12th Congress of the European Academy of Dermatology & Venereology, Oct. 15-18, 2003, Barcelona, Spain and Dermatol Venerol (Bulgaria), 2004

Dandruff and scalp seborrhoeic can be successfully treated with shampoos containing different active substances. In patients with dry seborrhoea an increase in scalp lipid level occurs due to the elimination of follicular occlusion and improvement of sebum delivery.

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

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

J. J. Wille, Corneotherapy: skin hydration and occlusivity of some commercial skin moisturizers and skin protectants, Skin Research and Technology 10, Abstracts, 2004.

Corneotherapy is defined here as a topical treatment that improves the condition of the stratum corneum. In this respect, cosmetic and dermatological vehicles play an important role independent of their capacity to deliver drugs or cosmetic actives, in formulating an optimal topical treatment for skin diseases such as atopic dermatitis.

S. Savic, S. Tamburic, M. Savic, N. Cekic, J. Milic, G. Valuta, Vehicle-controlled effect of urea on normal and SLS-irritated skin, International Journal of Pharmaceutics, Okt. 2004.

It is known that, depending on the concentration, treatment with urea could improve skin barrier function, despite its penetration-enhancing properties. This controversial skin effect of urea has been explored systematically in this study in terms of the effect of vehicle on the performance of urea. In the first part, a series of four semi-solid emulsions with 5% (w/w) urea, varying in the type of emulsion, nature of emulsifier and polarity of oil ingredients, have been evaluated with regard to their skin hydrating and transepidermal water loss (TEWL)-modifying properties.

K. Wanatabe, M. Masuda, K. Nakamura, T. Inaba, T. Yanagida, T. Yanaki, A. Noda, A new makeup remover prepared with a system comprising dual continuous channels (bicontinuous phase) of silicone oil and water, IFSCC Magazine, Vol. 7, No. 4, Oct.-Dec. 2004

Removing makeup is considered to be the first step in the skincare process. Makeup that has served its purpose is a kind of impurity that should ideally be removed completely to maximize the effects of skincare products applied afterwards. However, the use of silicone resins has significantly improved the long-lasting property of makeup with the result that makeup can hardly be removed efficiently either with surfactant-type cleansers like soaps or with oil-based cleansers like liquid crystalline cleansers.

R. Rudolph, E. Kownatzki, Corneometric, sebumetric and TEWL measurements following the cleaning of atopic skin with a urea emulsion versus a detergent cleanser, Contact Dermatitis, 2004 Jun;50(6): p. 354-358

A non-detergent urea emulsion cleanser and a detergent cleanser with added moisturizers were compared for their effects on stratum corneum moisture, surface lipids and transepidermal water loss (TEWL) of atopic skin. Following a single wash with either cleanser, low corneometry and sebumetry values increased and elevated TEWL values decreased. Over the course of more than 6 h, all induced changes gradually returned to their starting points. In all instances, the changes induced by the urea emulsion lasted significantly longer than those caused by the detergent cleanser. The sebumetry increase after a wash with the lipid-free detergent cleanser indicated that this method recognized not only true lipids but also the lipid-derived and skin lipid-depleting detergents. The transient TEWL normalization with either cleanser could not be attributed to a passing barrier restoration nor to an occlusion. It is speculated that the TEWL changes were related to stratum corneum water binding capacity.

R. Debowska, K. Rogiewicz, T. Iwanenko, M. Kruszewski, I. Eris, Folic Acid (Folacin) – New Application of a Cosmetic Ingredient, Kosmetische Medizin 3/2005, p. 16-22

Many years of trials and research tests proved that a lot of well-known vitamins could be successfully used in cosmetology. The available data indicate that one of them – folic acid plays an important role in life process of mitotically active tissues and its deficiency increases background level of DNA damage.

G. Varju, G. Garay, Surface Evaluation of Living Skin (SELS) during Microdermabrasion Treatment Course, Poster Presentation, Dr. Derm Laser Center of Dermatology, Budapest Hungary, 2005

Microdermabrasion has become a popular method of skin rejuvenation for treating photo-damage, fine rhytides, age spots, dyschromia, enlarged pores and mild acne. This procedure is one of the newest skin rejuvenating techniques employed to help improve the texture and appearance of the skin.

C. Vincent, M. Szubert, K. Rogiewicz, I. Eris, The assessment of efficacy, tolerability and cosmetic features of Diosperin K 1% PROLONGATUM cream containing complex of diosmine, hesperidine and vitamin K, Poster Presentation, Centre for Science and Research Dr. Irena Eris, 2005

Face redness and couperoses can cause very negative visual effect and influent on patients' quality of life. Such type of skin requires special regime. Application of very gentle cleaners, sun protective products and appropriate cosmetic creams can improve the skin condition and minimize the red face effect.

T. Tsuchiya, S. Haze, T. Hirao, J. Hosoi, A. Kikuchi, K. Shoji, M. Tanida, T. Tsuda, Odorant Inhalation Lowered Stress Levels Systemically, Subsequently Resulting in the Improvement of Cutaneous Functions: Linkage Between Olfactory Sensation and Skin, Presentation at the IFSCC Florence 2005

Our research conducted over several years has demonstrated that odorant inhalation produces

an effect on cutaneous functions by inducing changes in the neuroendocrinological system. For example, inhalation of the natural sedative component of the rose flower, DMMB (1,3-dimethoxy-5-methylbenzene), inhibited an increase in plasma cortisol levels and barrier recovery delay or an increase in forehead sebum, which was induced by stress. These findings were obtained using authentic experimental patterned stress and short-period odorant inhalation.

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 abgestimmt.

D. Kowatzki, C. Machold, K. Krull, P. Elsner, J.W. Fluhr, **Regeneration kinetic of sweating, Stratum Corneum hydration, Surface pH, Sebum production and mechanical properties is not altered by regular sauna bathing**, Presentation on the ISBS Meeting 2005 in Philadelphia and Skin Research and Technology 2005, 11 (abstracts)

Wellness and especially sauna bathing are of growing interest in modern health care. The positive effect of sauna for general health is well documented. However, to our knowledge no controlled studies have been published on the effect of sauna on skin physiology.

Y. Sunwoo, C. Chou, J. Takeshita, M. Murakami, Y. Tochihara, **Physiological and Subjective Responses to Low Relative Humidity**, Journal of Physiological Anthropology 2005; p. 7-14

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

H. Dobrev, **Clinical and instrumental study of the sebum regulation efficacy of REGU®-SEB**, Poster Presentation at the EADV in London, October 2005

Excessively oily facial skin is due to overactive sebaceous glands and can occur in both males and females. The skin is greasy and shiny, with large open pores, feels unpleasant and may be a serious cosmetic problem. Moreover, this type of skin is sensitive and much more prone to acne and seborrhoeic dermatitis. That is why the control over the excessive oiliness is very important.

J.W. Fluhr, C. Uhl, **Hautphysiologische Messungen in der täglichen Praxis: Corneometrie und Sebometrie bei physiologischen und krankhaften Hautveränderungen**, Diagnostische Verfahren, Kap. Nr. 37, 2005, p. 321-345

Grundlagen der Methoden: Bei der Corneometrie handelt es sich um eine nicht-invasive Messung der Hautoberfläche zur Bestimmung des Feuchtigkeitsgehalts im Stratum corneum. Die Messung erfolgt auf kapazitivem Weg und beruht auf der Tatsache, dass Wasser eine von anderen Stoffen sehr unterschiedliche Dielektrizitätskonstante besitzt.

S.W. Youn, J.I. Na, S.Y. Choi, C.H. Huh, K.C. Park, **Regional and seasonal variations in facial sebum secretions: a proposal for the definition of combination skin type**, Skin Res Technol. 2005 Aug;11(3): p. 189-95

Background/Aims: Facial sebum secretions are known to change under various circumstances. Facial skin types have been categorized as oily, normal, dry, and combination types. However, these have been evaluated subjectively by individuals to date, and no objective accepted standard measurement method exists. The combination skin type is most common, but its definition is vaguer than the

definitions of the other skin types. **Methods:** We measured facial sebum secretions with Sebumeter. Sebum secretions were measured at five sites of the face seasonally for a year, in the same volunteers. Using the data obtained we developed a set of rules to define the combination skin type. **Results:** Regional differences in sebum secretion were confirmed. Sebum secretions on forehead, nose, and chin were higher than on both cheeks. Summer was found to be the highest sebum-secreting season, and seasonal variations were found in the T- and U-zones. A mismatch of skin type in the T and U-zones in more than two seasons appears to be close to subjective ratings of what is described as the 'combination' skin type. **Conclusion:** We showed that the face shows definitive regional and seasonal variations in sebum secretion. To define the combination skin type, seasonal variations in sebum secretion should be considered in addition to regional variations.

C. Uhl, Neue Wege in der Hautdiagnostik, Kosmetische Praxis, Juni 2005

Der Einstieg in die professionelle Hautberatung ist stets das persönliche Gespräch mit dem Kunden. Dabei ist es entscheidend, neben der Beurteilung des optischen Eindrucks der Haut herauszufinden, welche individuellen Lebensgewohnheiten vorliegen. Genetische Disposition, Ernährung, Risikofaktoren wie Rauchen, Stress oder hoher Alkoholkonsum, sportliche Aktivitäten, Schlafverhalten und Alter beeinflussen entscheidend den Hautzustand und müssen daher in die Beratung mit einbezogen werden. Basis einer qualitativen und auf die Bedürfnisse des Kunden zugeschnittenen Körperkosmetik ist die Bestimmung des individuellen Hautzustands.

Diese Information ist unentbehrlich, um eine fundierte Hautberatung durchzuführen. Auf dieser Diagnose soll der gesamte Pflegeplan aufgebaut werden, der essentiell für den Erfolg der Behandlung und damit für die Zufriedenheit der Kunden ist. Lesen Sie, welche Methoden es gibt und wie man vorgeht.

R. Osborne, A. Matsubara, K. Biedermann, G.G. Hillebrand, B. Schnell, K. Miyamoto, Improvement in Facial Surface Sebum and Pore Appearance with Niacinamide, (Poster)

Introduction: One of the signs of aging facial skin is the appearance of enlarged pores. Previous studies have suggested a link between excessive sebum secretion and enlarged pores. To explore this link further, two types of studies were conducted: surveys comparing surface sebum and pores in Asian and Caucasian women, and studies evaluating the effects of use of a 2% niacinamide-containing facial moisturizer. Niacinamide has been shown to reduce sebum production in an *in vitro* human skin model, and the appearance of surface sebum *in vivo*. In the present studies, the effects of a niacinamide-containing facial moisturizer on both surface sebum and pore appearance are established.

M.R. Pena Ferreira, P. Costa, M.F. Bahia, Study of Efficacy Comparison of 20 Anti-Oily Hair Shampoos Using Sebumeter SM 810, Presentation at the IFSCC in Florence 2005

Summary: There are many different types of shampoos available to the consumer to control greasy hair. In our study we compare the efficacy of 20 shampoos in the treatment of oiliness using a non-invasive method (Sebumeter SM 810). A sample of 400 male and female volunteers with greasy hair or tendency to oily (ages 18 - 65) was tested. All products reduced the sebum excretion rate after the 10 application of the tested shampoo. No significant differences were found between the results of the shampoos.

H. Dobrev, Treatment of Acne with a new topical preparation. A clinical and instrumental study, EADV, October 2006, Rhodes, Greece (abstract).

Background: Sepicontrol A5 is a cosmetic active ingredient designated to improve the appearance of oily, acne prone facial skin. **Aim:** To evaluate the sebum regulation activity, clinical efficacy and safety of a 3% and 4% Sepicontrol A5 containing cream and gel in subjects with mild to moderate acne.*

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

Medical pressure-sensitive adhesive tapes are applied to various regions of the human body for many purposes. Although some adhesive tapes are designed for a specific purpose and applied to a

single region, such as first-aid bandages for the fingers and a variety of adhesive pads for foot-care, a large number of adhesive tapes are applied to various regions.

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.

U. Wollina, J. Kubicki, Dexpanthenol supports healing of superficial wounds and injuries, Kosmetische Medizin 5+6/2006, p. 240-249

Oberflächliche Hautverletzungen und Wunden sind häufig. Unter Einsatz eines Spektrums verschiedener In-vivo-Modelle der epidermalen Barrierestörung und der Wundsetzung untersuchten wir das Potential der topischen Dexpanthenol-Anwendung in der Förderung der epidermalen Regeneration und der Wundheilung.

B.-I. Bettzüge-Pfaff, H. Prieur, Nutzen einer adjuvanten Basiscreme bei trockener, atopischer Haut, Kosmetische Medizin 5+6/2006, p. 261-263

Im Rahmen eines dermatologisch kontrollierten Anwendungstests und hautphysiologischer Messungen an Patienten mit atopischem Ekzem hat sich eine lipidreiche Basiscreme auch bei Kindern als effektive und gut verträgliche Formulierung erwiesen. Nach Anwendung der Creme wurde eine Steigerung der Hautfeuchtigkeit und Hautfettung sowie eine Verbesserung der Hautbarrierefunktionen erreicht.

C. Lenaers, D. Brunet, K. Ladegaillerie, M. Pinel, B. Closs, Influencing the Equilibrium of the Cutaneous Ecosystem to Improve the Properties of Skin Prone to Acne, IFSCC Magazine, Vol. 9, No. 4/2006, p. 305-310

The skin is colonized by a variety of microorganisms such as *Propionibacterium acnes*, *Staphylococcus epidermidis* and *Malassezia furfur* that are in a stable balance and form the resident skin flora. The homeostasis of this ecosystem is of fundamental importance since it plays a barrier role by limiting the invasion and growth of pathogenic bacteria on the skin surface.

M.K. Kim, S.Y. Choi, H.J. Byun, C.H. Huh, K.C. Park, R.A. Patel, A.H. Shinn, S.W. Youn, Comparison of sebum secretion, skin type, pH in humans with and without acne, Arch Dermatol Res. 2006 Aug; 298(3): p. 113-9

Differences of skin type and pH between subjects with and without acne have not been investigated. In addition, the relationship between sebum secretion and pH in these populations has not been determined. This study assessed the differences in objective and subjective skin types between these two groups. Secondly, this study evaluated the difference in pH on five facial areas (forehead, nose, chin, right and left cheeks) between the two populations. Lastly, the relationship between pH and sebum secretion was analyzed in each population. Sebum casual levels (CL) of the five facial areas in 36 Koreans with acne and 47 Koreans without acne were measured by using a Sebumeter SM 815 and subjects were classified into objective skin types by CL. Subjects reported the type of skin they believed they had, which determined the subjective skin type. The pH levels of the five facial areas were measured by the Skin-pH-Meter PH 905. Data were assessed with adequate statistical tests depending on data type and distribution. Among the five areas, the nose of the subjects with acne showed a significantly higher CL, compared to the subjects without acne. This difference in CL on the nose resulted in the difference in CL on the T-zone and mean facial sebum excretions (MFSE). Although CL differed, objective skin types did not differ between the two groups ($P > 0.05$), but the subjective skin types differed significantly ($P = 0.001$). In addition, the objective skin types were significantly different than the subjective skin types in subjects with acne ($P = 0.001$), whereas the two skin types did not differ in

subjects without acne. Subjects with acne actually overestimated their skin types and stated their skin types were "oilier" than they were. In respect to pH, none of the five areas differed significantly between the two groups. Among the five sites in subjects with acne, CL showed a significant negative correlation with pH on the left ($r(2)=0.12$) and right ($r(2)=0.15$) cheeks, which resulted in a significant negative correlation on the U-zone ($r(2)=0.14$). In contrast, in subjects without acne, there was a significant negative correlation between CL and pH on the forehead ($r(2)=0.10$) and chin ($r(2)=0.16$), which led to a significant negative correlation on the T-zone ($r(2)=0.14$).

M. Roh, M. Han, D. Kim, K. Chung, Sebum output as a factor contributing to the size of facial pores, Br J Dermatol. 2006 Nov; 155(5): p. 890-4

Background: Many endogenous and exogenous factors are known to cause enlarged pilosebaceous pores. Such factors include sex, genetic predisposition, ageing, chronic ultraviolet light exposure, comedogenic xenobiotics, acne and seborrhoea. This study was an attempt to determine the factors related to enlarged pores. **Objectives:** To assess the relationship of sebum output, age, sex, hormonal factors and severity of acne with pore size. **Methods:** A prospective, randomized, controlled study was designed. A total of 60 volunteers, 30 males and 30 females, were recruited for this study. Magnified images of pores were taken using a dermoscopic video camera and measured using an image analysis program. The sebum output level was measured with a Sebumeter. **Results:** Using multiple linear regression analysis, increased pore size was significantly associated with increased sebum output level, sex and age. Among the variables, sebum output level correlated most with the pore size followed by male sex. In comparing male and female participants, males had higher correlation between the sebum output level and the pore size (male: $r = 0.47$, female: $r = 0.38$). Thus, additional factors seem to influence pore size in females. Pore size was significantly increased during the ovulation phase ($P = 0.008$), but severity of acne was not significantly associated with the pore size. **Conclusions:** Enlarged pore sizes are associated with increased sebum output level, age and male sex. In female patients, additional hormonal factors, such as those of the menstrual cycle, affect the pore size.

S.H. Lee, C.H. Huh, K.C. Park, S.W. Youn, Effects of repetitive superficial chemical peels on facial sebum secretion in acne patients, J Eur Acad Dermatol Venereol, 2006 Sep;20(8): p. 964-968

Background: Glycolic acid and Jessner's solution are popular superficial chemical peel agents for the treatment of facial acne, and increased sebum secretion is one of the major aetiological factors of acne. **Objective:** To compare the effects of 30% glycolic acid peels and Jessner's solution peels on sebum secretion in facial acne patients. **Methods:** Thirty-eight patients with mild to moderate facial acne were included. Twenty-seven patients were treated with 30% glycolic acid peels and 11 patients with Jessner's solution peels. Each peel was performed twice with an interval of 2 weeks. Before and 2 weeks after each peel, sebum levels of forehead, nose, chin and cheeks were measured by using a Sebumeter (SM810 Courage & Khazaka, Cologne, Germany). **Results:** The sebum levels were not significantly changed by two peels treatments of 30% glycolic acid peels or Jessner's solution peels on the facial skins of patients with facial acne. **Conclusions:** The two types of peels, 30% glycolic acid peels and Jessner's solution peels, did not affect sebum secretion of the facial skins of patients with facial acne after the two peels treatments. The accumulative effects of more than two peels treatments using these modalities need further evaluation.

R. Rizer, N. Trookman, J. Herndon, T. Stephens, A 4-week, randomized, double-blind, parallel group trial evaluating the efficacy and tolerability of sebum control, AB14 J. Am. Acad. Dermatol.

Excessive production of sebum on acne prone individuals often leaves skin with an undesirable appearance that emphasizes facial shine, acne lesions, and enlarged pores. The factors that often contribute to this appearance include family history, hormonal activity changes, stress and the use of certain types of birth control pills.

M. Fox, It's true – Stress Makes Teens Break Out, 2007 ABC News Internet Ventures

Teen-Agers who claim that stress makes them break out are telling the truth: The stress of taking an exam can make pimples worse, researchers reported on Tuesday. And surprisingly, inflammation may be to blame and not greasy skin, said Dr. Gil Yosipovitch, a professor of dermatology at Wake Forest University School of Medicine.

G. Yosipovitch, M. Tang, A.G. Dawn, M. Chen, C.L. Goh, Y.H. Chang, L.F. Seng, Study of Psychological Stress, Sebum Production and Acne Vulgaris in Adolescents, Acta Dermato-Venereologica, Volume 87, Issue 2, March 2007, p. 135-139

Sebum production is thought to play a major role in acne vulgaris in adolescents. Psychological stress may exacerbate acne; however, it is not known whether the perceived association between stress and acne exacerbation is due to increased sebum production.

A. Firooz, F. Gorouhi, P. Davari, M. Atarod, S. Hekmat, M. Rashighi-Firoozabadi, A. Solhpour, Comparison of hydration, sebum and pH values in clinically normal skin of patients with atopic dermatitis and healthy controls, 2007, Clinical and Experimental Dermatology 32, Journal compilation, p. 320-334

The water content of the stratum corneum and skin surface lipids forms a balance that is important for the appearance and function of the skin. An impaired balance may lead to the clinical manifestations known as "dry skin", which is particularly seen in patients with atopic dermatitis (AD).

L. Ambroisine, K. Ezzedine, A. Elfakir, S. Gardinier, J. Latreille, E. Mauger, Mi. Tenenhaus, C. Guinot, Relationships between visual and tactile features and biophysical parameters in human facial skin, Skin Research and Technology 2007; 13: p. 176 – 183

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

W. Pratchyapruit, K. Kikuchi, P. Gritiyarangsana, S. Aiba, H. Tagami, Functional analyses of the eyelid skin constituting the most soft and smooth area on the face: contribution of its remarkably large superficial corneocytes to effective water-holding capacity of the stratum corneum, Skin Research and Technology 2007, 13, pp. 169 – 175

The eyelid constitutes a unique area on the face because of its soft, smooth and thin skin distinct from that of other facial portions. Its softness facilitates their easy compliance to blinking movement, which is indispensable to protect the wet surface of the eyeball. Moreover, the skin of the eyelid does not show any prominent follicular orifices of an oily appearance even in adults.

M. Kerscher, T. Reuther, G. Schramm, Chlormadinonacetat enthaltende Mikropille verbessert unreine Haut, Frauenarzt 48 (2007), Nr. 4, S. 373-378

Moderne Mikropillen zeichnen sich besonders durch eine Reihe von Zusatznutzen aus. Den wichtigsten stellt die Verbesserung des Hautbildes dar. Für die Chlormadinonacetat-haltige Mikropille Belara wurde in klinischen, kontrollierten Studien bei leichter bis mittelschwerer Akne die Überlegenheit im Vergleich zu einer Levonorgestrel-haltigen Mikropille und zu Placebo nachgewiesen

S. Marrakchi, H.I. Maibach, Biophysical parameters of skin: map of human face, regional, and age-related differences, Contact Dermatitis 2007; 57, p. 28-34

The face showed anatomical variation on reaction to chemicals, which could be related to differences in biophysical parameters. 10 young human volunteers (24-34 years) and 10 old volunteers (66-

83 years) were studied to prepare a map of the human face based on regional variations and age-related differences by measuring various biophysical parameters.

S. An, E. Lee, S. Kim, G. Nam, H. Lee, S. Moon, I. Chang, Comparison and correlation between stinging responses to lactic acid and bioengineering parameters, Contact Dermatitis 2007; 57; p. 158-162

Sensitive skin has been described as a skin type showing higher reactivity than normal skin. By our consumer surveys, approximately 30% of the subjects believe that they have sensitive skin. However, consumer-perceived cutaneous reactions are usually scientifically unconfirmed.

A. Firooz, F. Gorouhi, P. Davari, S. Hekmat, M. Atarod, M. Rashighi Firoozabadi, A. Solhpour, Comparison of hydration, sebum and pH values in clinically normal skin of patients with atopic dermatitis and healthy controls, Clinical and Experimental Dermatology 2007; 32, p. 321-322;

The water content of the stratum corneum and skin surface lipids forms a balance that is important for the appearance and function of the skin. An impaired balance may lead to the clinical manifestations known as "dry skin", which is particularly seen in patients with atopic dermatitis (AD).

G. Feller-Heppt, C. Wagner, S. Ugurel, Wirksamkeit und Patientenzufriedenheit verschiedener Pflegecremes bei Atopikern und Neurodermitispatienten im erscheinungsfreien Intervall, Kosmetische Medizin 5/2007, S. 28-34

Bei Neurodermitispatienten stehen vor allem die Symptome trockene Haut und ausgeprägter Juckreiz im Vordergrund. Hierdurch kommt es zu vermehrtem Kratzen und nachfolgend möglicherweise zum Eintritt infektiöser Erreger bei gestörter Hautbarrierefunktion und gestörter zellulärer Immunität. Ein neuer Ekzemschub kann entstehen und den Juckreiz noch verstärken.

G. Maaß, Anwendungsstudie der sebamed TROCKENE HAUT Produkte bei Kindern mit atopischem Ekzem, Kosmetische Medizin 6/2007, S. 288-290

Es erfolgte in einer vierwöchigen Anwendungsuntersuchung eine klinische Überprüfung der sebamed TROCKENE HAUT Pflegeprodukte – Waschlotion, Pflegelotion, Tagescreme und Nachtcreme – bei Kindern mit atopischem Ekzem anhand von quantitativen Meßgrößen, von klinischen Befundurteilen sowie von qualitativen Beurteilungen der Pflegewirkungen.

K. Völkening, Hautpflege für Diabetiker, www.wohlundwehe.de

Täglich sieben Einstiche in die Hautoberfläche für Blutzuckermessungen und Injektionen sind bei insulinabhängigen Diabetikern für eine gute Zuckereinstellung mindestens notwendig.

R. Debowska, C. Vincent, K. Bazela, M. Kruszewski, B. Winkler-Spytkowska, A. Maciejczyk, K. Rogiewicz, I. Eris, The repair effect of Folacin on skin damage due to radiotherapy, Kosmetische Medizin 2/2007

Zusammenfassung Obwohl medizinische und pharmakologische Fortschritte unübersehbar sind, ist die Behandlung bösartiger Tumore nach wie vor mit einem hohen Risiko unerwünschter Nebenwirkungen verbunden. Insbesondere bei der Strahlentherapie sind allgemeine Nebenwirkungen (Krankheitsgefühl und Unwohlsein) und lokale Nebenwirkungen wie kutane Strahlenschäden zu beobachten. Kutane Strahlenschäden bedürfen einer entsprechenden Behandlung und Pflege sowohl während der Radiatio als auch nach Beendigung der Strahlentherapie. Viele Patienten greifen dabei nach kosmetischen Produkten, die die vorher geschädigte wieder in eine gesunde Haut zurückführen sollen. Ziel dieser Studie war es, Wirksamkeit, Tolerabilität und kosmetische Qualität einer Folacin-haltigen Creme während und nach Strahlentherapie zu untersuchen. In vitro wurden Experimente an primären Fibroblastenkulturen vorgenommen: Der Alkalinimet-Assay wurde verwendet, um die Reparaturwirkungen von Folacin auf Röntgenstrahlen-induzierte DNA-Schaden zu erfassen. Bei 41 Patienten mit Strahlentherapie führten wir in vivo Untersuchungen durch. Über nichtinvasive Verfahren wurden

die Parameter Erythem, Feuchtigkeit der Haut und Talgbildung an den bestrahlten Körperregionen (Wangen, Hals oder Brust) jeweils 2, 4 und 8 Wochen nach Behandlung mit der Creme erfasst. Die Reparaturrate von DANN Schäden war nach 15–30 min post radiationem höher bei Folat-behandelten primären Fibroblastenkulturen als bei Kontrollen. Unsere Daten sprechen für eine Folsäure-modulierte Reparatur der DANN mit einer rascheren Verknüpfung der Strangbrüche. Wir stellten eine wirksame Verbesserung der Hautparameter durch Folin-haltige Creme unter Radiotherapie fest. Die Anwendung des Verums verminderte i. Vgl. zu Kontrollen Rötung und Couperose, verbesserte aber auch Hautfeuchte und Sebumgehalt. Die Creme wurde sehr gut durch die Patienten toleriert und ihre kosmetischen Eigenschaften waren überzeugend.

H. Fujita, T. Hirao, M. Takahashi, A Simple and non-invasive visualization for assessment of carbonylated protein in the stratum corneum, Skin Research and Technology 2007, p. 84-90

Stratum corneum (SC) is the interface of body and environment and is continuously exposed to oxidative stress, resulting in oxidative modification of proteins. Consequent carbonylated proteins (CPs) have so far been labelled with 2,4-dinitrophenyl (DNP) hydrazine and subsequently detected with anti-DNP antibody.

S. Soost, I. Graupner, A. Morch-Röder, U. Pohrt, M. Worm, 7-step consultation plan for health care workers and hairdressers, J Dtsch Dermatol Ges, 2007 Sep;5(9): p. 756-760

Background: Skin diseases are among the most common occupational disorders in health care workers and hairdressers. Optimal prevention methods make it possible for more individuals to remain active in their profession. We devised a 7-step consultation plan which was employed in a standard fashion and then evaluated. Patients and Methods: 264 employees were evaluated in the Education and Support Center of the German Accident Prevention and Insurance Association in the Health and Welfare Services (BGW schu.ber.z Berlin) from 2003 to 2005 in a standardized manner. Included were detailed history, physical examination, skin physiology measurements (transepidermal water loss, corneometry, sebumetry) and then making a diagnosis and therapeutic recommendations. Results: Within the study group of 264 employees the most frequent diagnosis were toxic-irritant hand eczema (28.4%), allergic contact eczema (19.7%), atopic eczema (15.5%) and irritant contact eczema with atopic diathesis (13.6%). The frequency of contact sensitivity was high in the study group (80.7%). The skin physiological parameters were not remarkably altered and did not differ between individuals with an atopic diathesis versus without an atopic diathesis. Conclusions: This standardized protocol for a "7-step consultation plan" when applied in a standardized manner offers quality-controlled but also individually-adapted support considering dermatological, educational and occupational aspects. Skin physiology parameters did not provide any further information indicating the need of the development of novel techniques to measure skin barrier function.

V. Delvigne, E. Segot, D. Compan-Zaouati, P. Wolkenstein, S. Consoli, C. Rodary, V. Guillou, F. Poll, Development and Validation of a Questionnaire to Evaluate How a Cosmetic Product for Oily Skin is Able to Improve Well Being in Women, 21st World Congress of Dermatology, Buenos Aires, Argentina, 2008

Purpose of the study: To develop and validate a questionnaire to assess the psychological and psychosocial effects of oily skin condition in women and the outcome of a targeted cosmetic skin care treatment. Methods: We developed a concise 18-item questionnaire (OSSIQ), including 2 dimensional scales (emotional state and social behaviour), to assess the impact on self image and confidence of oily skin condition.

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, 2008

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 performed in 59 patients, between 50 and 65 years of age (average 55 years old), with hormonal aging in order to evaluate the action of a formulation with -xylane, isobioline and phyto-complex.

N. Garcia Bartels, A. Mieczko, H. Proquitté, R. Wauer, T. Schink, U. Blume-Peytavi, Influence of Bathing in Newborns: A Prospective, Randomized Clinical Study on Skin Barrier During the First Four Weeks of Life, 21st World Congress of Dermatology, Buenos Aires, Argentina, 2008

Background: The adapting process of skin barrier to extra-uterine life and the influence of bathing on term neonates's skin is not completely understood. Thus, we investigated the effect of bathing on skin barrier during the first four weeks of life. Methods: Monocenter, prospective, randomised study with 57 healthy full-term newborns (32 boys and 25 girls).

J.W. Fluhr, M. Miteva, G. Primavera, M. Ziemer, P. Elsner, E. Berardesca, Functional Assessment of an Acidic Skin Care System in Patients under Chemotherapy, 21st World Congress of Dermatology, Buenos Aires, Argentina, 2008

Background: Cancer patients undergoing chemotherapy frequently experience skin problems e.g. xerosis. The aim of this study was to verify whether a concomitant treatment with an acidic washing and emollient products (pH 5.5) can significantly improve the quality of the skin in such patients

N. Akhtar, G. Ahmed, M. Ahmed, N. Ranjha, A. Mahmood, Grapefruit Extract Cream: Effects on Melanin and Skin, Cosmetics and Toiletries Magazine, Vol. 123, No. 1/January 2008, p. 55-68

Emulsions are thermodynamically unstable systems defined as microscopic dispersions of liquid droplets contained within another liquid, with a diameter ranging from 0.5 to 100 µm. Emulsions usually consist of mixtures of an aqueous phase with various oils or waxes.

M.O. Ferreira, M.H. Amaral, P.C. Costa, M.F. Bahia, Assessment of Age-Related Differences in Skin Surface, Hydration, Sebum and pH, IFSCC Barcelona 2008

Skin is the body's largest organ and constitutes a formidable physical barrier that protects us from the environment [1]. It is composed of two main layers: the epidermis and the dermis. The stratum corneum is the outermost layer of the epidermis and is the most important in terms of protection against damage and aesthetic appearance of the skin. The hydrolipidic film of the stratum corneum, which consists mainly of sebum excreted by the sebaceous glands and moisture components excreted with sweat, protects the skin from drying out, keeps it supple and due to the natural acid protection barrier it prevents the penetration of harmful external substances.

M.O. Ferreira, M.H. Amaral, P.C. Costa, M.F. Bahia, Study of the Inter-Relations between Skin Surface Parameters, Hydration, Sebum and pH, IFSCC Barcelona 2008

Skin is the body's largest organ and constitutes a formidable physical barrier that protects us from the environment [1]. Several biophysical techniques are commonly used to study the skin properties and to measure the in vivo skin effects of cosmetics, topical medicaments and chemical irritants [2,3]. The Corneometer® (a capacitance method) measures skin hydration, the Sebumeter® (a photometric method) measures the sebum of the skin and the Skin-pH Meter® (a potentiometric method) measures the pH of the skin [4]. The Visioscan® VC98 connected to the software SELS (Surface Evaluation of the Living Skin) can measure several skin surface parameters [5]. This apparatus consists of a special b/w video sensor chip with very high resolution, an objective and an UVA-light source.

S. Sisalli, N. Voisin, A. Adao, M. Lebel, D. Mougín, Effect of an acute psychological stress on sebum assessed by SKINSPACE Sorbent Tape method, IFSCC Barcelona 2008

Responsible for skin shininess and enlarged pores, the excess of sebum could cause inconveniences at all ages of a woman life. Among other biological and environmental factors, the stress is often mentioned as a parameter influencing the sebum hyperproduction. As the data available in literature

are mainly related to young people suffering from acne, the objective of the present study is to evaluate the impact of an acute psychological stress on sebum secretion of 18 female volunteers, with healthy and normal skin, from 18 to 65 years old.

*C. Heusèle, C Derome, D. Kanchankoti, R. Mohile, A. Bernois, S. Schnebert, **Clinical and Instrumental Evaluation of the Facial Photoageing on Indian Women**, IFSCC Barcelona 2008*

Daily exposure to the sun leads to skin photodamage. Clinical signs of photoageing due to biological and structural alteration of the epidermis and dermis will be function of level of UV exposure and individual protection capacities. The influence of ethnic origin on skin structure and function is more and more investigated but few instrumental or clinical studies describe the characteristics of healthy skin and their evolution with age on Indian women living in India [1]. Previous clinical, instrumental or biological studies were carried on Indian subjects living in South Africa or England.

*J.-H. Hyun, H.-C. Gyu, J.-K. Young, J.-S. Kim, B.-J. Park, **Anti-acne activity of Thyme oil and its applications for cosmeceutical acne care: An innovative Anti-acne challenger**, IFSCC Barcelona 2008*

The skin disease which acne occurs in papule, pustule, cystoma and tuber for teenagers and young generation. The origin of acne takes part in various factors. The main factors are 1) increased Sebum 2) cornification of sebaceous glands 3) Propionibacterium 4) inflammation.

*P. Davari, F. Gorouhi, S. Jafarian, Y. Dowlati, A. Firooz, **A randomized investigator-blind trial of different passes of microdermabrasion therapy and their effects on skin biophysical characteristics**, International Journal of Dermatology 2008, 47, p. 508-513*

Microdermabrasion (MDA) was developed in 1980s, and rapidly became a popular modality in superficial skin resurfacing. Its safety, simplicity, no need for anesthesia, prompt recovery and modest equipment costs hold a wide appeal for both physicians and patients. This non-invasive mechanical technique is used in management of fine rhytides, mottled pigmentation, clogged pores, acne, acne scars, and stretch marks.

*S. Davoudi, B. Sadr, A. Firooz, S. Keshavarz, M. Naghizadeh, **Comparative study of skin sebum and elasticity levels in patients with sulfur mustard-induced dermatitis and healthy controls**, Abstract, EADV Paris 09/2008*

Background: Sulfur mustard –a chemical agent- has numerous proven acute and chronic effects on skin. Xerosis which might be due to damage of hydrolipidic barrier of skin is the most common complaint of veterans. Objective: This study was designed to evaluate skin sebum and elasticity in veterans with a history of sulfur mustard contact.

*J. An, K. Kim, H. Eun, **The efficacy of liposome encapsulated 0.5% 5-ALA for the treatment of acne in Asian skin**, Abstract, EADV Paris 09/2008;*

Background and objectives Photodynamic therapy using topical 5 aminolevulinic acid (5-ALA) has been proposed as a treatment option in acne vulgaris, but at least 48-hour sun avoidance after treatment was strongly recommended due to the risk of post-treatment photosensitivity. Recently, lower concentration form of 5-ALA was introduced to minimize the risk. The aim of this study was to evaluate the efficacy and safety of liposome encapsulated 0.5% of 5-ALA (PhotoSpray[®], DDD, Denmark) in photodynamic therapy of inflammatory acne and its effects on sebum secretion in Asian skin

*J. Nasarre, G. de la Cruz, M. León, M. Espadas, C. Trullás, **Effectiveness of a cleansing gel and a cream gel containing ZINCAMIDA[®] as adjuvant treatment and as single treatment for inflammatory acne**, Abstract, EADV Paris 09/2008*

Background: The appearance of bacterial resistance to antibiotic treatment for acne presents a serious problem. Using combined therapies, or alternating treatment with other anti-bacterial and anti-

inflammatory products that do not induce bacteria resistance, such as Zincamida® may offer a solution. Objectives: To assess the effectiveness of a cleansing gel and a gel cream containing Zincamida® as adjuvant treatment and as an alternative treatment to antibiotics in the resolution of inflammatory acne.

*T. Chen, T.J. Stephens, J.H. Herndon, F. Forster, Y. Appa, **Skin clearing benefits of a clay-based cleanser mask containing salicylic acid and a novel microgel complex**, Abstract, EADV Paris 09/2008*

The ease and simplicity of being able to use an acne cleanser on a daily basis to treat and control acne is highly desirable for many acne sufferers. A daily acne cleanser with salicylic acid that can also be used as a mask further provides the additional benefits of softness, freshness and deep pore cleanliness that are much sought by people with acne prone skin. This dual purpose cleanser mask is now upgraded with a novel microgel complex that contains an antimicrobial, sebum solvers and skin conditioning agents.

*J. Zoldan, **Botulinum Toxin for Treatment of Seborrhc Dermatitis in Parkinsonian Patients**, Rabin Medical Center, October 2008*

There's high incidence of seborrhc dermatitis among patients suffering from Parkinson's disease. Seborrhc dermatitis is caused by increased exertion of sebaceous glands. Previous studies have shown an increase of sebum excretion rate in parkinsonian pateints. Other studies demonstrated improvement in seborrhc dermatitis after anticholinergic treatment. From these studies we concluded that there might be hyperactivity of the parasympathetic system among PD patients that cause increased exertion of sebum, therefore local injection of botulinium toxin, which inhibitis acetyl choline realese, might improve the rash of seborrhc dermatitis. 40 patients suffering from Parkinson disease or other parkinsonian disorders will participate in this study. Before treating the patients with botulinium toxin, we will measure the sebum exertion with the sebumeter device and make clinical evaluation of the rash. We will also take a picture of the rash. Then Botulinium toxin (60- 100 units) will be locally injected to the rash area. Two weeks after the injection the patients will be called and evaluated clinicly and by the sebumeter. Then they will be checked again after 3 weeks, after a month and after two, three and four month's.

*H. Seirafi, K. Farsinejad, A. Firooz, S.M. Davoudi, R.M. Robati, M.S. Hoseini, A.H. Ehsani, B Sadr, **Biophysical characteristics of skin in diabetes: a controlled study**, JEADV 2008, 23, p. 146-149*

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

*H. Dobrev, **Clinical and instrumental study of the efficacy of a new sebum control cream**, Journal of Cosmetic Dermatology, 6; 113-118;*

Some botanical compounds are considered useful to reduce sebum production. To evaluate the efficacy of a sebum control cream containing polyphenol-rich extract from saw palmetto, sesame seeds, and argan oil in subjects with oily facial skin. The study was carried out during the winter months (January and February).

*H. Dobrev, **Treatment of acne with a new topical product. A clinical and instrumental study**, Journal Household and Personal Care Today*

We studied the efficacy of a new topical product containing a combination of lipoaminoacid capryloyl glycine, sarcosinde, and Cinnamon zeylanicum bark extract in 19 subjects with mild to moderate acne after twice daily application for a 7-week treatment period. Determination of efficacy included clinical assessment using acne lesion counting and desease severity scoring, bioengineering measurements of sebum on the facial skin using a photometric device and sebum collector foils.

S. Gong, C. Lv, K.R. Feingold, X. Zhang, S. Xin, C. Tu, L. Dui, P.M. Elias, M. Man, Variation of skin surface pH, sebum content and stratum corneum hydration with age and gender in Chinese population, Journal of Investigative Dermatology (2009), Volume 129

Evidence suggests the importance of skin biophysical properties in predicting diseases and in developing appropriate skin care. The results to date of studies on skin surface pH, stratum corneum (SC) hydration, and sebum content in various gender and ages have been inconclusive in part due to small sample size. Additionally, little is known about skin physical properties of Asian, especially Chinese, subjects.

M. Yamaguchi, Y. Tahare, T. Makino, T. Shimizu, A. Date, Comparison of Cathepsin L activity in cheek and forearm stratum corneum in young female adults, Skin Research and Technology 2009; 15; 370-375

Noninvasive determination of skin surface proteolytic activity may be useful for the diagnosis of human disease and the potential of skin. The cathepsin family is one of the metabolizing enzymes of the skin cell and it includes aspartic protease cathepsin D and cysteine proteases cathepsin B, H, and L. Cathepsin L is a lysosomal cysteine protease with a major role in intercellular protein catabolism.

N. Ismaili, Y. Afifi, B. Hassam, T. Lihoreau, A. Elkhyat, A. Jeudy, P. Humbert, Typology of maghreb skins, ISBS Besancon, 2009

To study the biometric characteristics of maghreb skin using common cutaneous exploration techniques and by comparing the results by age bracket and by sex. This prospective, randomised monocentre study was carried out on the forehead, the cheeks and the forearm of healthy volunteers giving informed written consent. Healthy volunteers were included of both sexes and of maghreb origin who agreed to apply nothing to the face and arms 24 hours before the study and not to participate in any other test during the study period.

A. Bigouret, F. de Oliveira, C. Gehin, Objectivation of the individual sensory state by the assessment of specific biophysical properties of the skin in different climatic conditions, ISBS Besancon, 2009

The CSTB in Nantes is specialized in the study on the climate effects on buildings and on human comfort. To improve human comfort in different climatic conditions, the CSTB must understand the interactions between the environment, the human body and individual perception. As the skin is a sensory organ and the first barrier between the environment and the human interior, some CSTB researchers have choice to study the biophysical properties of the skin to objectify human perception.

A. Elkhyat, Y. Afifi, B. Hassam, P. Humbert, Human skin wettability cartography, ISBS Besancon, 2009

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

W. Siyu, L. Li, Effect of sweating by exercise on stratum corneum hydration, skin surface sebum content and pH value, ISBS Besancon, 2009

The physiological indexes of skin include stratum corneum hydration, skin surface sebum content and pH value, which could reflect physiological state of the local and systematic organism, and also could be affected by many factors from internal or external changes. Many studies have been put on these physiological indexes, but there is no report of studying on effect of sweating by exercise on

sebum, hydration and pH value of face skin. To observe the effect of sweating by exercise on stratum corneum hydration, skin surface sebum content and pH value of forehead and pars zygomatica of healthy individuals of different ages in order to collect the numerical data as the reference for exterior use drugs and before / after sports' cosmetics.

P.M. Campos, G.M. Goncalves, L.R. Gaspar, In vitro antioxidants activity and in vivo efficacy of topical formulations containing vitamin C and its derivatives studied by non-invasive methods, NCBI 2009

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

L.R. Gaspar, F.B. Camargo Jr., M.D. Gianeti, P.M. Maia Campos, 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 were analysed after 3h, 15 and 30 days of application.

S. Gardinier, S. Guéhenneux, J. Latreille, C. Guinot, E. Tschachler, Variations of skin biophysical properties after recreational swimming, Skin Research and Technology 2009; 15; pp. 427-432

Sensations of itching and skin tightness are frequently reported after recreational swimming in pool water. Our objective was to measure the potential changes occurring at the skin surface under such conditions. Nine women participated in this study, which consisted of two periods. During a 4-day control period, basal biophysical skin parameters were assessed every morning. On the first day, measurements were also performed in the afternoon. The second study period followed the same study design as for the control period, except that, on the first day, women swam for 1 h in a public pool, between the measurements performed in the morning and the afternoon.

S.W. Youn, J.H. Kim, J.E. Lee, S.O. Kim, K.C. Park, The facial red fluorescence of ultraviolet photography: is this color due to Propionibacterium acnes or the unknown content of secreted sebum?, Skin Research and Technology 2009; 15; p.230-236

Red fluorescence of the face induced by ultraviolet light is thought to be due to Propionibacterium acnes. However, recently there are reports correlating this red fluorescence with the amount of facial sebum secretion. This study was performed to investigate the relationship between the areas of facial red fluorescence with culture results of P. acnes and the amount of sebum secretion. Nineteen patients with acne were included. P. acnes cultures were done on specimens obtained from areas with red fluorescence.

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

The mechanical properties of human skin are known to change with ageing, rendering skin less resistant to friction and shear forces, as well as more vulnerable to wounds. Until now, only few and

contradictory results on the age-dependent friction properties of skin have been reported. This study has investigated in detail the influence of age on the friction of human skin against textiles. In vivo skin-friction measurements on a force plate were combined with skin analyses concerning elasticity, hydration, pH value and sebum content.

*F. Morizot, J. Latreille, S. Gardinier, L. Staner, C. Guinot, A. Porcheron, E. Tschachler, **Effects of partial sleep deprivation on face appearance and skin properties**, ISBS Besancon, 2009 and Skin Research and Technology 2010; 16; p. 473-474*

A reduction of sleep time on a chronic basis is a hallmark of life in modern society ("modern 24h-society"). Sleep has important homeostatic functions and sleep deprivation has effects on brain plasticity, energy conservation, tissue restoration, immune response and thermoregulatory function. Our objective was to investigate the effect of partial sleep deprivation on facial appearance and on skin functions (skin barrier, skin hydration, skin temperature, sebaceous secretions and skin sensitivity).

*S. Masoud Davoudi, B. Sadr, M.R. Hayatbaksh, S. Keshavarz, M. Shohrati, M.M. Naghizadeh, S. Babakoochi, M. Rashighi-Firouzabadi, A. Firooz, **Comparative study of skin sebum and elasticity level in patients with sulfur mustard-induced dermatitis and healthy controls**, Skin Research and Technology 2010; 16: p. 237-242*

Sulfur Mustard is the protagonist of vesicant (blistering) agents that was widely used during the World War I and in the Iran-Iraq war between 1983 and 1988. Although the exact mechanism of SM damage is not clearly understood, this cytotoxic agent is able to alkylate nucleic acids and proteins, degrades cell structure and adducts DNA – its most critical lesion. SM has a predilection for eyes, skin and respiratory tract to induce its local toxic effects. After several hours of intracellular interactions, acute phase symptoms including erythema, itching, burning sensation and vesicles appear.

*H. Dobrev, **Flourescence diagnostic imaging in patients with acne**, Photodermatology, Photoimmunology & Photomedicine 2010; p. 1-5*

Acne is a chronic inflammatory disorder of the pilosebaceous follicles with a multifactorial etiology and pathogenesis. It typically begins in adolescence when androgen hormones stimulate the production of sebum and proliferation of follicular epidermids. In consequence, the openings of hair follicles become plugged with oil secretion and corneocytes. The follicular impactions develop into initially invisible lesions (microcomedones) and then into clinically evident comedones. Microcomedones and comedones are a suitable microenvironment for colonization by cutaneous bacteria, especially *Propionibacterium acnes*.

*Y. Gozu, M. Moriyama, K. Sakai, S.-I. Haze, **Elucidation of Menstrual Cycle-Related Discomfort in Everyday Life and Efficacy of a "Rescue Fragrance"**, IFSCC Magaine 2/2010*

The body maintains homeostasis in the face of environmental changes through its endocrine system and autonomic nervous system. The autonomic nervous system can operate at a subconscious level and controls many functions of the internal organs. The endocrine system includes eight major endocrine glands that secrete hormones. After delivery through the bloodstream, hormones reach different parts of the body and help to regulate cellular function. Therefore hormones are thought to be a regulatory system that complements the nervous system. In women, the secretion of sex hormones fluctuates dramatically over the course of the menstrual cycle, causing psychosomatic changes.

*A. Mieczko, **Investigation of skin physiological parameters in term neonates and evaluation of the influence of bathing on skin barrier function in newborns during the first four weeks of life**, 2010 Universitätsbibliothek der Freien Universität Berlin*

Ultrastructural studies have shown that the epidermis of full-term infants born after 40 weeks of gestation is morphologically indistinguishable from that of adults. It was therefore assumed that the

biophysical properties are similar as well. The present study investigated skin physiology in neonates, especially the barrier function during the first 4 weeks of life and the influence of bathing and washing.

*T. Lihoreau, C. Vidal, A. Jeudy, A. Elkhyat, S. Mac-Mary, J.M. Sainthillier, J. lung, H. Bourdin, P. Humbert, **Skin Sebum Excretion and Sleep Apnea***, ISBS 2010 Buenos Aires, Argentina

The sleeping apnea syndrome is a common disorder that affects 5% of the population, but its diagnosis is underestimated because physicians forget to ask key questions, and the establishment of polysomnography is cumbersome. But given the relationship between excretion of sweat and some brain dysfunctions (eg Parkinson's disease ...), we wanted to evaluate sebaceous excretion in a population suffering from sleeping troubles, particularly sleep apnea, compared to a control group. Methodology: A preliminary study was then carried out on 26 volunteers (11 women, 15 men, average age = 46.2 years +/-14.8, average Body Mass Index (BMI) = 26.4 kg/m³+/-5.6); they were sorted in two different populations (apnea versus, n=14, and no apnea syndrom, n=12). Skin and apnea parameters were compared between both groups: a polysomnographic record was done during the night; concerning the skin parameters, the records -realized on the wakening of the patient- concerned sebum excretion (Sebumeter SM 810, Courage & Khazaka), hydration index (Corneometer CM820, Courage & Khazaka), pH (Skin-pH-meter pH900, Courage & Khazaka).

*W. Siyu, L. Li, **Effect of sweating by exercise on stratum corneum hydration, skin surface sebum content and pH value***, Skin Research and Technology 2010, 16, p. 489

The physiological indexes of skin include stratum corneum hydration, skin surface sebum content and pH value, which could reflect physiological state of the local and systematic organism, and also could be affected by many factors from internal or external changes. Many studies have been put on these physiological indexes, but there is no report of studying on effect of sweating by exercise on sebum, hydration and pH value of face skin. To observe the effect of sweating by exercise on stratum corneum hydration, skin surface sebum content and pH value of forehead and pars zygomatica of healthy individuals of different ages in order to collect the numerical data as the reference for exterior use drugs and before/after sports' cosmetics.

*L. Colomb, G. Francois, C. Gevrey-Renaux, F. Flament, L. Bissey, J. Senée, **Innovative combination of in vivo methods to assess pores characteristics in surface and volume***, Skin Research and Technology 2010; 16

Sebaceous activity, through the number off active sebaceous gland (Sebutape) or sebum excretion (Sebumeter) is known to be highly dependant from age, gender , hormonal status, diet and many other parameters. Nevertheless, pores features, which could be also linked to sebaceous activity, was not often studied. This paper attempts to characterize age differences in skin pores features (visible size, density and volume etimation) using two *in vivo* systems. The efficacy of a cosmetic product on pore characteristics will also be presented. Two *in vivo* imaging systems were used to detect and characterize skin pores

*E. Kim, G. Cho, S. Yu, H. Rho, D. Min, D. Kim, H. Kim, **The elasticity, depth of wrinkles, and skin color on the neck determine your neck age and shape***, IFSCC 2010 Buenos Aires, Argentina

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

winkles and elasticity for the key parameters to determine the neck age or neck shape. As the elasticity was reduced, the sagging of the neck skin increased. The neck wrinkles increased age-dependently and changed to “U” shape because the neck skin was sagged.

M.D. Gianeti, P.M.B.G Maia Campos, Effects in tactile sensitivity and in skin moisturizing of cosmetic formulations containing vitamins and botanical extracts, IFSCC 2010 Buenos Aires, Argentina

Skin is a sense organ with sensory nerve endings and receptors, which behaves like a body wrap with its protection and regulation functions. Sensorial informations are originated at the sensory receptors and it makes possible body representation, mediating physical world exploration. Experimental studies have shown that many factors may affect tactile sensations. For this purpose it was measured the current perception threshold (CPT) sensory nerve fibers by using an electric current sine wave stimulator (Neurometer™) in 20 healthy women volunteers, aged from 25 to 35 years, before and after 2 hours of a single application of a formulation containing an association of vitamins A, C, E, *Ginkgo biloba* and *Phorphyra umbilicalis* extracts. The CPT for 5Hz, 250Hz and 2000Hz frequency current are reported to enable a selective quantification of the sensory thresholds of C, Ad, and Ab fibers respectively. In parallel, the stratum corneum hydration, the sebum content and the TEWL were measured using Corneometer™ CM285, Sebumeter™ SM810 and Tewameter™ TM210, respectively. Skin water and sebum content were significantly increased after 2 hours of the formulation application. The test group showed significantly decreased in the TEWL and in the CPT of 2000Hz, while the control group did not demonstrate any change on those parameters.

H.-U. Jabs, Aquaporation – ein neues Verfahren zur Verbesserung der Elastizität und Feuchtigkeit der Haut, Ästhet. Dermatologie 5/2010; p. 6-12

Als Aquaporine (AQP) werden Proteine bezeichnet, die Kanäle in der Zellmembran – auch in der Haut – bilden, um den Durchtritt von Wasser und einigen weiteren Molekülen zu erleichtern (Membrantransport). Sie werden daher auch Wasserkanäle genannt. Bei der Aquaporation gelingt der Transport von dermato-kosmetischen Substanzen, z.B. Natürlicher Feuchtigkeitsfaktor (NMF) und Hyaluronsäure in liposomaler Formulierung (Koko GmbH & Co.KG, Leichlingen) durch die Barriere der Haut mit Hilfe von hochfrequenten Strömen (radioSURG 2200, Fa. Meyer-Haake GmbH), wodurch die Feuchtigkeit und Elastizität der Haut erhöht wird. Es wird angenommen, dass die Radiowellen die Transportkapazität der Aquaporine für Wasser durch Konformationsänderungen der Proteine im Kanal und durch Lockerung der Wasserstoffbrückenbindungen vergrößern.

T. Ilknur, M.Ü. Biçak, P. Eker, H. Ellidokuz, S. Özkan, Effects of the 810-nm diode laser on hair and on the biophysical properties of skin, Journal of Cosmetic and Laser Therapy, 2010; 12: 269–275

Introduction: Laser therapy is clinically effective in hair removal; however, despite the development of various strategies, laser procedures still present a risk of adverse effects due to the overheating of the skin. *Objective* : To investigate the effects of 810-nm diode laser treatment on hair and on the biophysical properties of skin by using various non-invasive techniques on various parameters, including hair analysis, surface color changes, integrity of skin barrier, sebum production rate and pH level. *Methods*: In this randomized, right – left comparison study, 35 women with axillary hair received single-session diode laser therapy. Hair analysis and biophysical properties of the skin were assessed before treatment and at weeks 2, 4 and 6 after the therapy. *Results*: Hair density and thicknesses statistically significantly decreased after the first post-treatment evaluation. Regarding comparison of the biophysical properties of the skin, there was no statistically significant difference in the assessments, except for the increase determined during the second week in the erythema index in the laser-treated areas. *Conclusion*: The findings of this study showed that the diode laser can perform a significant reduction in the hair amount without significant epidermal damage, at least for a short period.

S. Hibino, U. Hamada, H. Takahashi, M. Watanabe, N. Nozato, Y. Yonei, Effects of Dried Brewer's Yeast on Skin and QOL: A Single-Blind Placebo-Controlled Clinical Study of 8-Week Treatment, Anti-Aging Medicine 2010

Objective: Brewer's yeast contains vitamins, minerals, amino acids and other nutrients, and has been reported to control intestinal function as well as to exert anti-ulceration, anti-tumor and anti-allergy effects. The present study evaluated the effects of oral treatment with dried brewer's yeast tablets (study product) on skin in a single-blind placebo-controlled design in humans. Methods: Thirty-two healthy volunteer women (37.0 ± 4.8 years) were allocated as follows: Group E-30 ($n=11$) were treated with 30 tablets/day of the study product (containing 7,125mg/day of dried brewer's yeast), Group E-9 ($n=10$) were given 9 tablets/day of the study product, and the control group ($n=11$) were given 30 placebo tablets/day. The treatment period was 8 weeks. Two patients prematurely discontinued the study (discontinuation rate: 5.9%) and were excluded from the analyses. The study product (Ebios Tablet®) was provided by Asahi Food & Healthcare Co., Ltd. Before and at 4 and 8 weeks after the study, subjective symptoms were evaluated using the Anti-Aging QOL Common Questionnaire (AAQoL) and checking skin symptoms, skin images were analyzed with SK Info (SKI, Integral Co.) and Aphrodite-III (PSI), and skin color (CM-700d, Konica Minolta Sensing, Inc.) and elasticity (Cutometer MPA580, Courage & Khazaka electronic GmbH) were measured. Results: In Group E-30, the AAQoL physical symptom "cold skin" score was significantly improved at 8 weeks ($p < 0.05$). The skin symptoms "make-up runs easily" and "desiccated and gritty skin," as well as the physical symptom "menstruation-related troubles" were improved in a significant and dose-dependent way from the control group ($p < 0.01$). On skin analysis, SKI demonstrated an increase in moisture content (15.4%, $p=0.010$), decrease in erythema (-18.3% , $p < 0.001$) and increase in elasticity (13.3%, $p=0.003$), while PSI revealed an increase in hydration (Total: 14.5%, T zone: 13.7%, U zone: 18.2%, $p < 0.01$) and decrease in pores (-32.7% , $p=0.022$). Cutometer analysis showed a dose-dependent increase in skin elasticity, while analysis of skin color showed a decrease in hemoglobin (-9.5% , $p=0.016$), improved lightness (-0.7% , $p=0.045$) and decrease in redness (-8.3% , $p=0.013$). During the study period, no serious adverse events were noted. Conclusion: These results suggest that treatment with dried brewer's yeast is useful in improving skin condition, e.g. moisture content and elasticity, and also QOL.

H. Dobrev, Products for Impure, Acne-Like Skin, J. Fluhr (ed.), Practical Aspects of Cosmetic Testing, Springer-Verlag Berlin Heidelberg 2011

Many people suffer from impure, acne-like skin. This type of skin looks greasy and glossy, rough with enlarged pores, and has a tendency to develop comedones, pimples, and pustules. It feels unpleasant and may be a serious cosmetic problem. The effective control over the impure skin requires daily application of multifunctional cosmetic products for cleansing and intensive care of the skin. Market products should have a proven effect. Testing on human volunteers using sensorial self- and expert evaluation, instrumental skin bioengineering techniques, and questionnaires for quality of life assessment are the preferred ways to prove products claims.

R. Darlenski, T. Callaghan, J.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 can 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.

J.W. Shin, D.H. Lee, S.Y. Choi, J.I. Na, K.C. Park, S.W. Youn, C.H. Huh, Objective and non-invasive evaluation of photorejuvenation effect with intense pulsed light treatment in Asian skin, J Eur Acad Dermatol Venereol. 2011 May;25(5): p. 516-22

Background: Intense pulsed light (IPL) has been widely used for photorejuvenation. Although previous literature has shown clinical effectiveness of IPL treatments on cutaneous photoaging, the associated changes in the biophysical properties of the skin following IPL treatments have not been fully elucidated. Objective: The aim of this study was to evaluate changes in skin biophysical properties in patients with photoaging after IPL treatments, using non-invasive, objective skin measuring devices. Patients and Methods: A total of 26 Korean women with facial dyschromias underwent three sessions of IPL treatment at 4-week intervals. Outcome assessments included standardized photography, global evaluation by blinded investigators, patients' self-assessment and objective measurements of colour (Mexameter MX18, Chromatometer), elasticity (Cutometer), roughness (Visiometer), sebum (Sebumeter) and skin hydration (Corneometer). Results Intense pulsed light treatments produced a 15% decrease in the size of representative pigmented lesions ($P < 0.05$). Conclusions: Patients' self-assessment revealed that 84% and 58% of subjects considered their pigmented lesions and wrinkles were improved respectively. Objective colorimetric measurement demonstrated significant improvements following IPL treatments that were most remarkable after one session of IPL. Moreover, skin elasticity showed significant improvements at the end of the study. Skin wrinkles as measured using Visiometer showed a mild improvement without statistical significance. Sebum secretion and water content of skin remained unchanged. Intense pulsed light provided significant improvement in the appearance of facial pigmented lesions in Korean patients. These effects appeared to be more remarkable in improving pigmentation, skin tone and elasticity.

N. Arnejo, O. Carballo, F. Svarc, A. Branca, A renewable, biodegradable substitute for petrolatum, Personal Care, March 2011, p. 120-122

The usage of petrolatum in cosmetics has been under scrutiny recently, particularly within the EC, due to the potential carcinogen and mutagenic effects attributed to traces of impurities generated during its manufacturing process. Even though these questions have been around for a while, its unsurpassable properties as an occlusive have made difficult its replacement in hydrating and moisturising products. But the enforcement of REACH in Europa has accelerated the process, which is the reason why we have focused on searching for (and finding) a viable substitute. The objective of this study was to test a possible substitute to solid Vaseline (petrolatum) to replace it advantageously in treatment creams with a natural, renewable non-toxic and ecologically sound product.

L. Rigano, C. Andolfatto, L. Stucchi, M. Bosco, Hyaluronic Acid Butyric Esters for the Improvement of Skin Functionality, Cosmetic & Toiletries Vol. 126, No. 2/February 2011, p. 104-111

The word hyaluronic is derived from the Greek hyalos meaning "glass" or "transparent" and refers to the vitreous humor, the ocular tissue from which it was first isolated by Karl Meyer and colleagues in 1934. It was later located in many other animal tissues, i.e. synovial fluid, cartilage and the umbilical cord, where it has the same structure and biological activities, described in this article. Hyaluronic acid (HA) is a linear polysaccharide of thigh molecular weight that belongs to the family 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.

M. Minguet, R. Barcelona, E. Casas, M. Beltrán, J. Seguer, Ethyl Lauroyl Arginate HCL for Natural Preservation, Cosmetics & Toiletries magazine, Vol. 126, N0.12/December 2011, p. 876-883

In recent years, several preservatives either have been banned or their use strongly limited, which is the case for formaldehyde, its releasers and isothiazolinones. In addition, some studies have misleadingly related parabens with a higher risk of cancer; so although parabens are the most commonly used preservatives in skin care due to their low sensitizing potential and good efficacy, with continued scrutiny

from the market, many manufacturers are omitting them and promoting their cosmetics as “paraben-free”. Currently, the ideal antimicrobial must show high antibacterial activity yet remain safe for human use and for the environment – and if possible, be based on naturally occurring substances

J. Herfs, Sinn und Zweck der kosmetischen Hautanalyse; Manuell oder apparativ?, Beauty Forum 09/2011 p. 68-70

Was ist Diagnose? Aus dem Griechischen übersetzt, bedeutet das Wort „Beurteilung“. Der ebenfalls griechische Begriff Analyse bedeutet: Bestimmung, Untersuchung, Zergliederung und Auflösung – man möchte also den Dingen auf den Grund gehen. Der sich daraus ergebende Befund ist die Arbeitsgrundlage für die Kosmetikerin. Doch was ist für eine erfolgreiche und nutzbringende Hautanalyse wichtig? Sind es die vielen kostspieligen Geräte, die notwendig sind, um eine professionelle Beurteilung durchzuführen? Oder ist es das geschulte Auge oder gar die feinfühligste Hand der Kosmetikerin, die vieles über das Hautgeschehen wahrnimmt? Auf keinen Fall fehlen dürfen Erfahrung und kompetentes Wissen, um negative Hautveränderungen detektivisch aufzuspüren.

M. Mateu, Aknehaut – Ein Tripeptid für die Abwehrkräfte der Haut, COSSMA 12/2011; p. 14-15

Die Haut ist ständig Verletzungsrisiken und Mikroorganismen der Umwelt ausgesetzt und das Stratum Corneum (SC) stellt die erste Schutzbarriere der Haut gegen externe Aggressionen dar. Normale Humanhaut ist von einer grossen Zahl von Mikroorganismen besiedelt, von denen die meisten harmlose Kommensalen sind, die keine Krankheiten verursachen. Physiologische, biochemische, mechanische, immunologische und Umweltvariablen tragen zu einer gesunden Balance zwischen der Haut und ihrer normalen Flora bei. Die Haut ist ständig pathogenen Keimen ausgesetzt. Die physikalische Barriere der Epidermis ist essenziell, aber viele Mikroben haben effektive Strategien entwickelt, die Epidermis zu überwinden. Dennoch wird gesunde Haut nur selten infiziert.

C. Schrammek-Drusio, Fachfrau in Sachen Haut – die Kosmetikerin als Hautpflegetherapeutin, natur & kosmetik, service, S. 39

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

C. Schrammek-Drusio, Haut- und Gesichtsdiaognosen – eine Kernkompetenz jeder Kosmetikerin, dermatologie S. 32-33

Neben dem Dermatologen ist eine kompetente Kosmetikerin die Expertin in Sachen Hautpflege. Doch wodurch zeichnet sie sich aus? Selbstverständlich ist ein umfassendes theoretisches und praktisches Fachwissen erforderlich, komplettiert durch stetige Weiterbildung. Doch wenn Kunden ins Institut kommen, möchten sie auch schnelle Analyseergebnisse und Behandlungspläne erfahren. Grundlage hierfür ist die professionelle Hautdiagnose. Denn alle sich anschliessenden Fragen, etwa welche Produkte und Behandlungen in der Kabine angewendet werden, wie das individuelle Pflegekonzept aussehen soll und welche Präparate sich für die Heimpflege empfehlen, hängen von dem Ergebnis der Hautanalyse ab. Für die kosmetische Praxis bedeutet dies das Erkennen und Einordnen des Hautgrundbildes, des Hautzustandes und der Anomalien bzw. unerwünschten Hautveränderungen.

A. Wojcik, E. Budzisz, H. Rotsztejn, Skin surface lipids and their measurements, Post Dermatol Alergol 2011; XXVIII, 6: 498-505,

On the surface of the corneal layer there is a skin lipid coat, which is a mixture of sebum secreted by sebaceous glands and epidermal lipids synthesized by keratinocytes. The mixture of these sub-

stances mixed with the secretion of sweat glands makes up water in oil (W/O) emulsion, called a hydrolipid coat. It acts as a barrier and regulates processes of absorption and skin penetration of substances soluble in water and fats [1, 2].

*C. Deep Kaur, S. Sasraf, **Skin care assessment on the basis of skin hydration, melanin, erythema and sebum at various body sites**, Academic Science, International Journal of Pharmacy and Pharmaceutical Sciences, Vol 3, Suppl 4, 2011*

The aim of this work was to study skin parameters like melanin, erythema, skin hydration, and sebum score of six body sites namely volar forearm, cheek, chin, forehead, neck and post auricular skin of Asian (Indian) population with different skin colour and types to depict the formulation to be used for taking care. Initially skin colour of various volunteers was assessed by the reference of colour chart numbers and three groups each of 80 human volunteers were made. Group I was named fair which corresponded with Colour chart number 19, 20, 21; group II (medium) (22, 23, 24); group III (dark) (25, 26, 27). The measurements were taken using Mexameter (erythema and melanin), Corneometer (skin hydration) and Sebumeter (sebum score). Results depicted that facial skin had more melanin content than volar forearm; the sebum score was highest in the forehead and lowest at volar forearm, skin hydration was more in periauricular space and forehead and lowest in cheek. The volunteers of group I had high sebum and skin hydration values than group II and III. In the face, cheeks need more care and are more prone to dryness. People with darker skin, require formulations having more humectants, while people with fairer skin need to protect more from tanning and redness. Hence these studies will be helpful for deciding the criteria for type of skin and selection of formulation to people of various skin types at various body sites.

*B.H. Oh, Y.J. Hwang, Y.W. Lee, Y.B. Choe, K.J. Ahn, **Skin Characteristics after Fractional Photothermolysis**, Ann Dermatol Vol. 23, No. 4, 2011, p. 448-454*

Background: Fractional photothermolysis makes thousands of minute areas called microthermal treatment zones on the skin surface and transmits thermal injury to facilitate heat shock protein formation around the dermis. Potential side effects include acneiform eruption, herpes simplex virus outbreak, erythema, and post-inflammatory hyperpigmentation. Objective: To investigate and compare the changes in the skin of Asian patients after two different fractional photothermolysis systems (FPS) on a split face. Methods: A half-split face study was performed with 10,600 nm carbon dioxide FPS on the left and 1,550 nm erbium-doped FPS on the right side of the face. Only one session of laser irradiation and several biophysical measurements were done. Results: Although both FPS proved to be effective in treating acne scar and wrinkle patients, a slightly higher satisfaction rating was seen with the 10,600 nm FPS treatment. Both types of FPS showed a significant increase in transepidermal water loss which decreased gradually after treatment and returned to pre-treatment level after 1 week. A decreased reviscometer score was sustained for a longer period in wrinkle areas treated with 10,600 nm FPS. Conclusion: Even though the changes in skin varied according to different FPS wavelength, adverse outcomes, such as increased erythema and TEWL were entirely subdued within 3 months of treatment.

*T. Knor, A. Meholjić-Fetahović, A. Mehmedagić, **Stratum corneum hydration and skin surface pH in patients with atopic dermatitis**, Acta Dermatovenerol Croat. 2011;19(4): p. 242-247*

Atopic dermatitis (AD) is a chronically relapsing skin disease with genetic predisposition, which occurs most frequently in preschool children. It is considered that dryness and pruritus, which are always present in AD, are in correlation with degradation of the skin barrier function. Measurement of hydration and pH value of the stratum corneum is one of the noninvasive methods for evaluation of skin barrier function. The aim of the study was to assess skin barrier function by measuring stratum corneum hydration and skin surface pH of the skin with lesions, perilesional skin and uninvolved skin in AD patients, and skin in a healthy control group. Forty-two patients were included in the study: 21 young and adult AD patients and 21 age-matched healthy controls. Capacitance, which is correlated with hydration of stratum corneum and skin surface pH were measured on the forearm in the above areas by

SM810/CM820/pH900 combined units (Courage AND Khazaka, Germany). The mean value of water capacitance measured in AD patients was 44.1 ± 11.6 AU (arbitrary units) on the lesions, 60.2 ± 12.4 AU on perilesional skin and 67.2 ± 8.8 AU on uninvolved skin. In healthy controls, the mean value was 74.1 ± 9.2 AU. The mean pH value measured in AD patients was 6.13 ± 0.52 on the lesions, 5.80 ± 0.41 on perilesional skin, and 5.54 ± 0.49 on uninvolved skin. In control group, the mean pH of the skin surface was 5.24 ± 0.40 . The values of both parameters measured on lesional skin were significantly different (capacitance decreased and pH increased) from the values recorded on perilesional skin and uninvolved skin. The same held for the relation between perilesional and uninvolved skin. According to study results, the uninvolved skin of AD patients had significantly worse values of the measured parameters as compared with control group. The results of this study suggested the skin barrier function to be degraded in AD patients, which is specifically expressed in lesional skin.

S. Hyodo, S. Yamana, Fullerene: topical application for acne treatment, Personal Care, March 2012, p. 30-33

Acne vulgaris is one of the most common diseases of the skin and has increased in frequency over the last 50 years. Skin diseases, such as acne, may not be life threatening but have been associated with depression, anxiety, and serious psychological damage in sufferers. Acne is characterised by the formation of non-inflammatory comedos and inflammatory papules, pustules, nodules, and cysts. Generally, the major pathogenic factors involved in acne are sebum overproduction, follicular hyperkeratinisation, and bacterial hypercolonisation, as well as immune reactions and inflammation. Androgens, microbes, and other pathogenic influences may also lead to acne, this the disease has a complex pathogenesis. Sebum produced by sebaceous glands, altered follicular contents, and reactive oxygen species (ROS) may release from serious damaged follicular walls.

M. Borlu, Z. Karaca, H. Yildiz, F. Tanriverdi, B. Demirel, G. Elbuken, I. Cakir, H.S. Dokmetas, R. Colak, K. Unluhizarci, F. Kelestimur, Acromegaly is associated with decreased skin transepidermal water loss and temperature, and increased skin pH and sebum secretion partially reversible after treatment, Growth Horm IGF Res. 2012 Apr;22(2): p. 82-6

Background: Acromegaly is characterized by an acquired progressive somatic disfigurement, mainly involving the face and extremities, besides many other organ involvement. Wet and oily skin was described in acromegaly patients and it was attributed to hyperhidrosis and increased sebum production but this suggestion has not been evaluated with reliable methods. Objective: The aim of this study was to examine the skin parameters of patients with acromegaly using measurements of skin hydration, sebum content, transepidermal water loss, pH and temperature and particularly the effects of 12 months of treatment on these parameters. Methods: 52 patients with acromegaly and 24 healthy control subjects were included in this two blinded prospective study. Skin properties were measured on forehead and forearm by Corneometer CM825, Sebumeter SM810, Tewameter TM210 and Phmeter PH900 as non-invasive reliable measuring methods. Serum GH, IGF-1 and all measurements of skin properties on forehead and forearm were repeated at the end of the 3, and 6 months of therapy in 20 cases. Patients were treated with appropriate replacement therapy for deficient pituitary hormones. Results: The sebum content and pH of the skin of acromegalic patients were significantly higher and transepidermal water loss and skin temperature were found to be significantly lower in acromegalic patients when compared to the control group both on forehead and forearm. GH and IGF-1 levels were positively correlated with sebum levels and negatively correlated with skin temperature on both forehead and forearm. The sebum levels of the patients were significantly decreased both on forehead and forearm at 3rd and 6th months of treatment. Conclusion: The present study demonstrated increased sebum secretion, decreased transepidermal water loss, alkali and hypothermic skin surface in patients with acromegaly by reliable methods for the first time. These data suggest that GH and/or IGF-I may have a modulatory role on several skin characteristics which can be at least partially reversible with treatment.

A.-E. Craciun, M. Moldovan, A. Rusu, C. Nita, C. Craciun, A. Tataru, Predictors of changes in physical properties of skin in patients with diabetes mellitus, Rom J Diabetes Nutr Metab Dis. 19(1):33-40; 2012

Introduction: The skin, the largest human organ, is often affected by diabetes mellitus (DM). We know that DM affects the hydration of stratum corneum (SC), the sebum content of the skin and to some extent, the barrier function of the epidermis and elasticity, but we do not know the factors leading to these changes. Objectives: The objectives of this study were to determine the factors associated with changes in physical properties of the skin (skin hydration degree, sebumetry, transepidermal water loss and skin elasticity) in patients with diabetes. Materials and methods: The physical properties of the skin were assessed using the Multi Probe Adapter Systems MPA (Courage-Khazaka, Germany) in 57 patients with diabetes and 46 non-diabetic.

T.H. Sakuma, H.I. Maibach, Oily Skin: An overview, Skin Pharmacology and Physiology 2012; 25: p. 227-235

Abstract : Oily skin (seborrhea) is a common cosmetic problem that occurs when oversized sebaceous glands produce excessive amounts of sebum giving the appearance shiny and greasy skin. This paper overviews the main concepts of sebaceous gland anatomy and physiology, including the biosynthesis, storage and release of sebum, as well as its relationship to skin hydration and water barrier function. We also address how skin oiliness may vary according to diet, age, gender, ethnicity and hot humid climates. The deeper understanding of this skin type provides the opportunity to better guide patients regarding skin care and also assist in the development of sebosuppressive agents.

S. Mac-Mary, A. Elkhyat, J.M. Sainthillier, A. Jeudy, K. Perrot, S. Lafond, O. Predine, P. Mermet, C. Tarrit, P. Humbert, Specific cosmetic for children: an in vivo randomized single-blind study of efficacy in 7- to 12-year-old children, IFSCC 2012, 15-18 Oct. 2012, Sandton, South Africa

Few cosmetics are dedicated to the skin of children: most of them have been developed for babies or the acneic skin of adolescents. However, literature seems to indicate that the children's sebum levels are very low. The aim of this study was to assess the acceptability and efficacy of a cosmetic specifically formulated for the skin of prepubertal children.

S. Hitzel, R. Graf, M. Lefort, G. Witte, S. Daehnhardt-Pfeiffer, H. Tronnier, U. Heinrich, Acne prevention based on a specific antioxidant, IFSCC 2012, 15-18 Oct. 2012, Sandton, South Africa

The sun as the center of our solar system is essential for all life on earth. Yet, excessive exposure to the sun's rays can have negative effects, among which are many potentially damaging consequences to the human body which have been attributed to free radicals. There is also evidence that radical induced peroxidation of squalene in the sebum is one of the conditions for the occurrence of impure skin or acne. Skin tending to acne is a frequent appearance especially in juveniles and young adults and often results from oily skin. It is understood as a complex condition with skin subject to an increased formation of sebum lipids, a bacterial population and an inflammatory alteration.

W. Voss, I. Bunge, Dermatological Reports on Cosmetics: Intensions and Possibilities, IFSCC 2012, 15-18 Oct. 2012, Sandton, South Africa

Dermatological reports and claims in accordance with scientific criteria are of decisive value for the safety and efficacy of cosmetics. Whether a cosmetic product is well tolerated or causes irritations or allergic reactions must be proven by dermatological tests. The value of dermatological reports directly depends on the respectability of the commissioned dermatologists. Pitfalls occur, whenever non qualified scientific results are generously used for advertising campaigns 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.

A. Barel, R. Divisova, P. Clarys, Determination of the sebum capitation factor of the sebumeter method: effect of application pressure, ISBS Copenhagen 2012

The determination of the sebum casual level can be carried out using the photometric method (Sebumeter). The Sebumeter measuring probe (cassette) is applied with a constant pressure on the skin surface using a spring system. In the literature values ranging from 6.6 to 10N are reported. The measured quantity of sebum is only a fraction of the real quantity of sebum present (captation factor). Reported captation factor vary from 0.40 to 0.60. It is the purpose of this work to evaluate the captation factor as a function of the applied probe pressure.

N. Muizzuddin, M. Matsui, D. Yarosh, R. Sparacio, T. Mammone, Topical 5-alpha reductase inhibitors may effectively reduce skin surface sebum production, ISBS Copenhagen 2012

Many individuals are distressed about having excessively oily skin and seek topical remedies for this condition. Skin having a high water content and low sebum secretion is considered to be highly desirable (moisturized and hydrated but without visible sheen). Sebum lipids are primarily a product of follicular sebocytes, and synthesis is believed to be positively modulated by androgens. The transformation of precursors to androgens such as testosterone is dependent on the enzyme 5-alpha reductase.

M. Estanqueiro, G. Bossolani, M.H. Amaral, J. Conceicao, D. Santos, J.M. Sousa Lobo, J.B. Silva, C.S.F. Gomes, Characterizing and Evaluating the Effectiveness of Volcanic Pumice Exfoliants, Cosmetics & Toiletries magazine Vol. 127, No. 11 November 2012

Human skin, more specifically facial skin, periodically needs a deep cleansing to remove not only the oily particles resulting from secretions, but also dead skin caused by desquamation of the epidermis. Cleansers are designed to remove dirt, sweat, sebum and oils from the skin, which helps to promote normal exfoliation and thereby rejuvenates the skin. However, the use of cleansers can lead to a reduction in the level of the natural moisturizing factor (NMF) of skin. Factors that reduce the water content can lead to changes in skin's viscoelasticity. Further, harsh cleansers such as soaps can induce dryness, leading to scaly and rough skin. These effects may be much more severe during winter months when the air is cold and dry.

S.Y Huh, J-I Na, C-H Huh, K-C Park, The Effect of Photodynamic Therapy Using Indole-3-Acetic Acid and Green Light on Acne Vulgaris, Ann Dermatol 24(1) p. 56-60, 2012

Background: Photodynamic therapy (PDT) using topicalaminolevulinic acid (ALA) has increasingly been used for the treatment of acne vulgaris and several studies have shown its clinical efficacy. However, ALA-PDT needs a relatively long incubation period and is frequently associated with adverse effects. Indole-3-acetic acid (IAA) has been introduced as a new photosensitizer for the treatment of acne in recent study. IAA-PDT requires only a short incubation period and the procedure is relatively painless in contrast to ALA-PDT. Objective: To investigate the efficacy and safety of IAA- PDT in the treatment of acne. Methods: Twenty-five patients with facial acne lesions were enrolled in this study. IAA-PDT was performed for five sessions at 1-week intervals (week 0~4). IAA was treated with 15 minute occlusion, and green light was given for 15 minutes. Clinical efficacy was determined by evaluating acne lesion counts, severity grading, and the Dermatology Life Quality Index (DLQI) at week 0, 2, 4, and 5. Sebum secretion and erythema index was measured by Sebumeter and Mexameter, respectively, at baseline and one week after each treatment session (week 1~5). Histopathological examination was performed at baseline and week 5. Adverse effects were recorded throughout the study. Results: All the patients completed the study. Numbers of both inflammatory and non-inflammatory acne lesions were significantly decreased. Acne severity grade and the DLQI showed significant reduction. Sebum secretion and erythema were also reduced. Histopathological examination showed a reduction in inflammatory reactions. No adverse effects were observed except for transient pruritus in one patient. **Conclusion:** PDT using IAA and green light was an effective, simple and safe treatment for acne.

A. Firooz, B. Sadr, S. Babakoohi, M. Sarraf-Yazdy, F. Fanian, A. Kazerouni-Timsar, M. Nassiri-Kashani, M.M. Naghizadeh, Y. Dowlati, **Variation of Biophysical Parameters of the Skin with Age, Gender, and Body Region**, The Scientific World Journal, Volume 2012

Background: Understanding the physiological, chemical, and biophysical characteristics of the skin helps us to arrange a proper approach to the management of skin diseases. Objective: The aim of this study was to measure 6 biophysical characteristics of normal skin (sebum content, hydration, trans-epidermal water loss (TEWL), erythema index, melanin index, and elasticity) in a normal population and assess the effect of sex, age, and body location on them. Methods: Fifty healthy volunteers in 5 age groups (5 males and females in each) were enrolled in this study. A multifunctional skin physiology monitor (Courage & Khazaka electronic GmbH, Germany) was used to measure skin sebum content, hydration, TEWL, erythema index, melanin index, and elasticity in 8 different locations of the body. Results: There were significant differences between the hydration, melanin index, and elasticity of different age groups. Regarding the locations, forehead had the highest melanin index, where as palm had the lowest value. The mean values of erythema index and melanin index and TEWL were significantly higher in males and anatomic location was a significant independent factor for all of 6 measured parameters. Conclusion: Several biophysical properties of the skin vary among different gender, age groups, and body locations.

K. Fritz, **Skin physiologic changes before and after laser treatment**, IMCAS, Congress of Plastic Surgery and Dermatoloy, Lecture number: 5462

The aim of the study was to compare the changes of the biophysical properties and to objectify the effects of treatments with various lasers on skin physiology. Few studies have been reported to compare the effects of various lasers on the skin physiology which could result in a customized skin care post treatment recommendation. The recent development of various biophysical devices has made it possible to have more accurate and objective assessment methods. The functional properties of the skin are measured by utilizing non invasive techniques, including the assessments for, skin color, trans-epidermal water loss (TEWL) and skin hydration and pH (Courage and Khazaka).

A. Costa, L. Lindmark, L.H. Fávoro Arruda, E. Cancio Assumpção, F. Sayuri Ota, M. de Oliveira Pereira, S.S. Barros Langen, **Clinical, biometric and ultrasound assessment of the effects of daily use of a nutraceutical composed of lycopene, acerola extract, grape seed extract and Biomarine Complex in photoaged human skin**, An Bras Dermatol. 2012; 87(1): p. 52-61

Background: The use of nutraceuticals has become frequent in the cutaneous approach to photoaging. Objectives: To assess the clinical efficacy of a nutraceutical product composed of lycopene, acerola extract, grape seed extract and Biomarine ComplexT in photoaged human skin. Methods: 50 women, from 35 to 60 years of age, phototypes I to III, were assessed. For 120 days, they associated the nutraceutical product with the use of a sunscreen FPS15. On days 0 (D0), 30 (D30), 60 (D60), 90 (D90) and 120 (D120) they were evaluated and underwent Medical Assessments and Self-Assessment and cutaneous biometric analyses (corneometry, sebumetry and pH-metry) in the skin of the left zygomatic region and the upper medial side region of the left arm; on days 0 (D0), 30 (D30) and 120 (D120) the skin of the same regions was analyzed by ultrasound. On days 0 (D0) and 120 (D120) skin biopsies were performed in the areas where instrumental evaluation was performed (to evaluate collagen and elastic fibers). Results: There was an improvement of the general status of the skin of all volunteers by the Medical and Volunteer Self- Assessments; increased parameters of cutaneous hydration, reduction of pH, increasing of ultrasound density and a histological increment of collagen and elastic fibers (both on the face and arm); there was a reduction of seborrhea (only on the face). Conclusions: The daily use of a nutraceutical product containing lycopene, acerola extract, grape seed extract and Biomarine ComplexT showed an important adjuvant effect to counteract skin photoaging.

H.J. Park, Y.W. Lee, Y.B. Choe, K.J. Ahn, **Skin Characteristics in Patients with Pityriasis Versicolor Using Non-Invasive Method, MPA5**, Ann Dermatol Vol. 24, No. 4, 2012

Background: Skin pigmentary changes of pityriasis versicolor may occur as either hyperpigmented or hypopigmented lesions, depending on the outcome of interactions between *Malassezia* yeasts and the skin, such as lipoperoxidation process, stimulus of inflammatory cell to melanocytes, and increased thickness of keratin layer. Objective: To investigate skin characteristic factors that enhance the susceptibility to *Malassezia* yeasts and provoke different color changes of pityriasis versicolor patients. Methods: To clarify these factors, we investigated the skin characteristics of pityriasis versicolor patients, using a non-invasive method known as MPA 5[®] (Courage and Khazaka, Germany). A total of 90 normal healthy subjects and 30 pityriasis versicolor patients were included in this study. Results: Both hyperpigmented and hypopigmented pityriasis versicolor skin lesions showed higher humidity, increased sebum excretion rate and increased transepidermal water loss (TEWL) values than normal healthy subjects. But no significant difference of specific *Malassezia* yeasts species between hyperpigmented and hypopigmented skin lesions was evident. Conclusion: These results indicate that higher humidity and increased sebum level provide a better growing environment of *Malassezia* yeasts in the skin, leading to the assumption that interaction between *Malassezia* yeasts and skin barrier materials makes disruption of skin barrier causing increased TEWL.

C. Uhl, D. Khazaka, **Techniques for globally approved skin testing**, Personal Care April 2013

In efficacy testing and claim support for cosmetic products, objective measurement systems became indispensable long ago, especially since subjective clinical assessments are often prone to bias and inter-observer variation. Without suitable instrumentation it is close to impossible to determine what a product is really doing for the skin. Those objective measurement methods and subjective evaluations are mutually dependent. No measurement can be performed without the subjective evaluation of the results by the user of such instrumentation. However, a pure subjective evaluation of the skin without appropriate measurement techniques is not able to achieve accurate results either. This relationship becomes clearer when looking for example at skin colour measurements. Subjectively, the human brain cannot process slight changes in colour, especially when the colours are not viewed side by side, but at different points in time. Instrumental measurement however will clearly detect such slight changes. The achieved result must then be interpreted in context with the expected outcome or the hypothesis. For this, you will always need a knowledgeable and experienced person because 'a fool with a tool is still a fool', as the late Albert Kligman used to say. This relationship between objective measurement and subjective evaluation is not only true for the determination of differences in skin colour, but also for all other skin measurement parameters important for the cosmetic industry.

A.B. Stefaniak, J. du Plessis, S.M. John, F. Eloff, T. Agner, T.-C. Chou, R. Nixon, M.F.C. Steiner, I. Kudla, D.L. Holness, **International guidelines for the in vivo assessment of skin properties in non-clinical settings: part 1. pH**, Skin Research and Technology 2013; 19: 59-68

Background: Skin surface pH is known to influence the dissolution and partitioning of chemicals and may influence exposures that lead to skin diseases. Non-clinical environments (e.g. workplaces) are highly variable, thereby presenting unique measurements challenges that are not typically encountered in clinical settings. Hence, guidelines are needed for consistent measurement of skin surface pH in environments that are difficult to control. Methods: An expert workshop was convened at the 5th International Conference on Occupational and Environmental Exposure of Skin to Chemicals to review available data on factors that could influence the determination of skin surface pH in non-clinical settings with emphasis on the workplace as a worst case scenario.

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

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

C.W. Choi, J.W. Choi, S.W. Youn, Subjective facial skin type, based on the sebum related symptoms, can reflect the objective casual sebum level in acne patients, Skin Research and Technology 2013; 19: 176-182

Background: The relationship between the subjective skin type and the casual sebum level was not fully clarified. Objectives: To investigate the characteristics of subjective skin type and to find the relationship between the subjective skin types and the skin type-related symptoms, casual sebum level, along with the objective skin type. Methods: Seven hundred and nine patients, clinically diagnosed with acne, were included. The questionnaire and the casual sebum level measurement were performed. The determining symptoms of each subjective skin type were investigated. The 95% confidence interval of casual sebum level of each subjective skin type was calculated.

R.S. Teixeira, L.A. Araújo, D.G. Mercúrio, P.M.B.G. Maia Campos, Application of biophysical techniques to evaluate the efficacy of a gel with zinc pca, University of Sao Paulo, 2013

The biophysical and skin imaging techniques are effective tools to help characterize the skin type and to evaluate the clinical efficacy of products cosmetics because they are non-invasive methods and enable to evaluate the products directly in human skin.

T. Sugawara, N. Nakagawa, N. Shimizu, N. Hirai, Y. Saijo, S. Sakai, Non-invasive analysis using three-dimensional ultrasound tomography demonstrates gender- and age-wise differences in facial sebaceous glands, ISBS, Milan 15-16.10.2013

Summary Facial skin is rich in large sebaceous glands (SGs). Although age and gender related differences in SG activity and sebum levels have been reported, changes in SG morphology remain inconclusive. Three dimensional ultrasound microscopy with a central frequency of 120 MHz allows, with a spatial resolution of 20 μm , non-invasive visualization of the structure of skin appendages such as SGs. To explore the differences in SG morphology by age or gender, we measured facial skin using a high-frequency 3D ultrasound microscope. SG images of the cheek of young male, young female and elderly female subjects were obtained using 3D ultrasound microscopy over an area of 4.8 mm \times 4.8 mm and to a depth of 1.5 mm. Then, 150 consecutive B mode images were reconstructed to obtain volume data, and en face images were processed at 700 or 900- μm beneath the skin surface to measure the SG area. In young male subjects, the areas of the low-intensity circular regions, which represent SG morphology, at 900- μm beneath the skin surface were significantly larger than at 700 μm . In contrast to the male subjects, in young female subjects the areas of low-density circular regions at 900 μm did not differ from those at 700 μm .

L. Rigano, A. Bonfigli, S. Cherel, R. Walther, Quillaja saponin normalises dermal sebaceous imbalance, Personal Care November 2013

Abstract: Saponin rich extracts of the Chilean soapbark tree *Quillaja saponaria* were traditionally used by the Mapuche Indians for washing and for medical practices. Intense research in recent decades has further proven the applicability of quillaja extracts in food, feedstock and pharma. Due to their exceptional ability as a non-irritant tensioactive, quillaja extracts are widely used in cosmetics as a cleanser, foaming agent, emulsifier and dispersing agent, but its objective efficacy as a bioactive in skin treatment

was never studied. Thus the aim of this study was to confirm the property of quillaja saponins to improve the condition of sensitive, greasy and acne-prone skin.

*H. Ohno, N. Nishimura, K. Yamada, Y. Shimizu, S. Iwase, J. Sugeno, 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 trans-epidermal 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.

*F. Pouradier, C. Cornillon, M.F. D'arras, F. Flament, S. Panhard, S. Diridollou, G. Loussouarn, **Functional and structural age-related changes in the scalp skin of Caucasian women**, Skin Research and Technology 2013;19;384-393*

Background: Ageing of the skin, being chronological or sun induced is highly documented. Scalp, as a specific skin site, has, however, received little attention. This work attempted to describe functional and structural alterations that occur in scalp skin with ageing. Methods: Two different age groups (N=15 each; 30 ± 3 and 62 ± 2 y.o. respectively) of Caucasian women participated in the study. Some functional parameters (TEWL, Sebum level, Hydration, T°) were recorded on the vertex part of the scalp, after having cut the hair flat on the scalp surface. Imaging of some structural criteria was carried out using high-frequency ultrasound technique and optical coherence tomography on the same scalp site and on the mid-forehead, as a close control skin site.

*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 facial 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.

*Y. Wu, Y. Niu, S. Zhong, H. Liu, Y. Zhen, D. Saint-Leger, M. Verschoore, **A preliminary investigation of the impact of oily skin on quality of life and concordance of self-perceived skin oiliness and skin surface lipids (sebum)**, Abstracts from the Member Society Journals, IFSCC Magazine Volume 16, Number 4 2013*

Objectives: This preliminary study investigated both the impact of oily skin on quality of life (QoL) and the agreement between subjective oily skin self-assessment and objective skin surface sebum measurement in young to middle-aged Chinese women in Beijing. Methods: A 18-item Chinese version of the Oily Skin Self-Image Questionnaire (QSSIQ) was used to assess the impact of oily skin on QoL in 300 healthy female subjects (age groups: 20-25; 26-30; 31-35). The subjects were divided equally into the oily skin group and the non-oily skin group based on their self-perception of skin oiliness. The level of skin surface lipids (SSL) was measured on the middle of the forehead, and both cheeks using

the Sebumeter. In order to assess the agreement between self-perceived skin oiliness and measured SSL, we tentatively used the SSL median value as a dividing point to regroup all subjects.

*S. Luebberding, N. Krueger, M. Kerscher, **Skin physiology in men and women: in vivo evaluation of 300 people including TEWL, SC hydration, sebum content and skin surface pH***, IFSCC Magazine Volume 16, Number 4 2013

Objectives: Evidence is given that differences in skin physiological properties exist between men and women. However, despite an assessable number of available publications, the results are still inconsistent. Therefore, the aim of this clinical study is the first systematic assessment of gender-related differences in skin physiology in men and women, with a special focus on changed over lifetime.

*S. Luebberding, N. Krueger, M. Kerscher, **Age-related changes in skin barrier function – Quantitative evaluation of 150 female subjects***, International Journal of Cosmetic Science, 2013, 35, 183–190

Synopsis: The protection against water loss and the prevention of substances and bacteria penetrating into the body rank as the most important functions of the skin. This so-called 'skin barrier function' is the natural frontier between the inner organism and the environment, and is primarily formed by the epidermis. An impairment of the skin barrier function is often found in diseased and damaged skin. An influence of ageing on skin barrier function is widely accepted, but has not been conclusively evaluated yet. Therefore, the aim of this clinical study was to assess the potential influence of ageing on skin barrier function, including transepidermal water loss (TEWL), stratum corneum hydration, sebum content and pH value. One hundred and fifty healthy women aged 18–80, divided into five age groups with 30 subjects each, were evaluated in this study. TEWL, hydration level, sebum secretion and pH value of hydro-lipid acid film were measured with worldwide acknowledged biophysical measuring methods at cheek, neck, décolleté, volar forearm and dorsum of hand. Whereas TEWL and stratum corneum hydration showed only very low correlation with subject's age, the sebum production decreased significantly with age, resulting in the lowest skin surface lipids levels measured in subjects older than 70 years. The highest skin surface pH was measured in subjects between 50 and 60 years, whereas the eldest age group had the lowest mean pH. The dorsum of the hand was the location with the highest TEWL and lowest stratum corneum hydration in all age groups. The results show that only some parameters related to skin barrier function are influenced by ageing. Whereas sebum production decreases significantly over lifetime and skin surface pH is significantly increased in menopausal woman, TEWL and stratum corneum hydration show only minor variations with ageing.

*B.Y. Kim, J.W. Choi, K.C. Park, S.W. Youn, **Sebum, acne, skin elasticity, and gender difference - which is the major influencing factor for facial pores?***, Skin Res Technol. 2013 Feb;19(1): e45-53

Background: Enlarged facial pores have been esthetic problems and have become a matter of cosmetic concern. Several factors are supposed to be related to the enlargement of facial pores, although scientific evaluations were not performed yet. Objective: To assess the correlation between facial pores and possible relating factors such as age, gender, sebum secretion, skin elasticity, and the presence of acne, using objective bioengineering instruments. Methods: Sixty volunteers, 30 males and 30 females, participated in this study. Various parameters of facial pores were assessed using the Robo Skin Analyzer. The facial sebum secretion and skin elasticity were measured using the Sebumeter and the Cutometer, respectively. These data were compared and correlated to examine the possible relationship between facial pores and age, sebum secretion and skin elasticity, according to gender and the presence of acne. Male gender and the existence of acne were correlated with higher number of facial pores. Sebum secretion levels showed positive correlation with facial pores. Results: The R7 parameter of skin elasticity was negatively correlated with facial pores, suggesting increased facial pores with decreased skin elasticity. However, the age and the severity of acne did not show a definite relationship with facial pores. Male, increased sebum and decreased skin elasticity were mostly correlated with facial pore development. Conclusion: Further studies on population with various demographic profiles and

more severe acne may be helpful to elucidate the potential effect of aging and acne severity on facial pores.

C.W. Choi, J.W. Choi, K.C. Park, S.W. Youn, Facial sebum affects the development of acne, especially the distribution of inflammatory acne, J Eur Acad Dermatol Venereol. 2013 Mar; 27 (3): p. 301-6

Background: The increased sebum secretion has been considered as one of the pathogenic factors of acne. **Objective:** The goal of this study was to assess the correlation between the casual sebum level and the severity of acne using objective measuring methods in a large acne patients group. We also investigated the influence of age or gender on the correlation. **Methods:** A total number of 914 acne patients were recruited. The standard digital photographs were taken, and the acne lesions were counted as comedones or inflammatory lesions. The casual sebum level was measured using the Sebumeter SM 815®. The correlation analysis was performed. **Results:** The casual sebum level showed positive correlation with the number of acne lesions. The casual sebum level markedly influenced the number of inflammatory lesions and the acne lesions located in the U-zone. In the young acne patients, the casual sebum level showed significant correlations in the U-zone, whereas in the old acne patients, there were significant correlations in the T-zone. The male acne patients were more influenced by the casual sebum level. **Conclusion:** This was the first study to report the significant correlations between the casual sebum level and the number, proportion and location of acne lesions in a large acne patients group, using an objective, bioengineering method. Moreover, we also found that the influence of sebum was prominent on the inflammatory lesions. In addition, both age and gender influenced the correlation between the casual sebum level and the acne.

M.L. Kmieć, A. Pajor, G. Broniarczyk-Dyła, Evaluation of biophysical skin parameters and assessment of hair growth in patients with acne treated with isotretinoin, Postep Derm Alergol 2013; XXX, 6: p. 343–349

Introduction: Treatment of the severe forms of acne vulgaris remains a challenge. Isotretinoin is a drug often used in these cases. Retinoids affect the mechanisms that play a role in the pathogenesis of acne, reduce the production of sebum and sizes of the sebaceous glands. However, isotretinoin appears to have undesirable side effects in the skin, mucous membranes and hair. **Aim:** The aim of this study was to assess the effect of acne vulgaris treatment with isotretinoin on biophysical skin parameters: skin sebum and stratum corneum hydration levels, transepidermal water loss values, pH, erythema and hair growth parameters: total number, density and proportion of anagen hair. **Material and methods:** The study included thirty patients with acne types: papulopustular, conglobata and phlegmonosa. Patients were treated with isotretinoin at a dose of 0.5–1.0 mg/kg/day for a period of 4–7 months. The measurements of skin biophysical parameters were performed before and after the treatment using Sebumeter SM815, Corneometer CM825, Tewameter TM300, MX Mexameter MX18 and Skin-pH-Meter PH908. Hair growth parameters were evaluated with FotoFinder Dermoscope using the TrichoScan Professional V3.0.8.76 software. **Results:** The results of biophysical skin parameter measurements after the treatment showed a reduction in the severity of seborrhea. However, the skin was dry, which confirmed a lowered degree of stratum corneum hydration and an increase in transepidermal water loss values. Moreover, severity of erythema, an increase in pH value, and variations in selected hair growth parameters: decrease in total count, density and proportion of anagen hair were demonstrated. **Conclusions:** The reduction in the skin sebum levels was observed after the treatment. There was dryness of the skin, which was confirmed by biophysical skin parameter measurements. Changes in the hair growth parameters showed telogen efluvium hair loss.

T. Mahmood, N. Akhtar, C. Moldovan, A comparison of the effects of topical green tea and lotus on facial sebum control in healthy humans, Hippokratia 2013, 17, 1: p. 64-67

Background and aim: Green tea and lotus hold several synergistic antioxidant compounds. This investigation aimed to assess the efficacy of green tea and green tea plus lotus vs. placebo multiple emulsions in healthy adults for controlling casual sebum secretions. **Participants and Methods:** After

signing informed consents, twenty-two participants were registered in a single-blinded, placebo-controlled, split-face comparative study. Group 1 participants applied a multiple emulsion formulation with green tea extract while group 2 applied a multiple emulsion with green tea plus lotus extract in a 60 days treatment course. A non-invasive photometric device (Sebumeter®) has been used for the measurement of casual sebum secretions on both sides of the face. Results: Steady and statistically significant reductions in sebum secretions were noted for mono (green tea) and combined treatments (green tea plus lotus) compared to placebo treatment. However, irrespective of the concentration of extracts in active formulations, green tea plus lotus combined treatment produced statistically more sound results (two-tailed p value = 0.0002) than green tea alone (two-tailed p value = 0.0060) in a 60-days treatment course. Conclusions: Results suggest that synergistic compounds in green tea and lotus could be a promising choice for cutaneous disorders where elevated sebum levels are involved in the pathophysiology of these disorders.

A. Wójcik, M. Kubiak, H. Rotsztein, Influence of azelaic and mandelic acid peels on sebum secretion in ageing women, *Postep Derm Alergol* 2013; XXX, 3: p. 140–145

Introduction: Azelaic acid and mandelic acid are superficial peels commonly applied in people of various age groups. As they are mild and do not cause any side effects, they are also often used in elderly people. Aim: To compare the influence of azelaic and mandelic acid peels on facial sebum secretion in mature women aged 49-71 years. Material and methods: The level of secreted sebum was measured in 28 women. Eleven women were treated with azelaic acid peel and 17 with mandelic acid peel. Each of the peels was applied five times with 2-week intervals. The measurements were made on the cheeks and chin with the use of Sebumeter SM 15 (Courage & Khazaka, Germany). The last measurement, i.e. the sixth one, was made 2 weeks after the treatment. Results: We observed a significant increase in sebum secretion in the U-zone after the application of 20% azelaic peel and 40% mandelic peel. Neither peel significantly affected sebum secretion in the T-zone. Conclusions: Peels with 20% azelaic acid and 40% mandelic acid might be considered treatments which contribute to an increase in sebum secretion in ageing women.

J. Kurpiewska, J. Liwkowicz, K. Padlewska, Prevention of hand dermatoses in small catering enterprises (Abstract – Article in Polish), *Med Pr* 2013;64(4): p. 521-525

Background: Work in catering and food processing is mostly performed by hands. Mechanical, thermal and chemical agents, as well as damp working conditions and frequent hand washing aggravate skin irritation. The aim of the study was to test the efficacy of hydrophobic skin protection measure at these workplaces. Materials and Methods: We recommended the prevention of contact skin disorders by using hydrophobic skin protection measure. The study was conducted in a group of 20 food service sector workers. They were interviewed about skin problems and skin protection measures. To assess the effect of the protective preparation on the skin dermatological test procedures, corneometry and sebumetry, were applied, as well as the level of transepidermal water loss (TEWL) was measured. The same survey was performed in the control group composed of 10 workers who used and 10 who did not use barrier preparation. Results: The respondents declared dryness, roughness, peeling, burning, redness, erythema of the skin. All who had applied barrier cream observed a significant improvement of the skin - hydration increased by about 30%, and lubrication of the skin - by 11 times on average. Also the level of TEWL decreased by about 25%. Conclusions: The improvement of skin conditions and reduction of skin disorders were observed confirming the effectiveness of the protection of the skin from exposure to harmful factors. Knowledge about prevention of skin diseases should be promoted among employees of catering enterprises.

G. Munvalli, A single-center, prospective study on the efficacy and safety of microfocused ultrasound for the noninvasive treatment of moderate to severe facial acne, *JAAD*, April 2013, Volume 68, Issue 4, Supplement 1, p. AB12

Acne is a very prevalent skin disorder affecting ≥ 85 % of adolescents and often continuing into adulthood.

J. Kottner, L. Ludriksone, N.G. Bartels, U. Blume-Peytavi, Do Repeated Skin Barrier Measurements Influence Each Other's Results? An Explorative Study, Skin Pharmacology and Physiology 2014; 27:90-96

Background: Biophysical skin measurement techniques are widely used to quantify the skin barrier function. In clinical research usually several parameters are subsequently measured in the same skin areas. In this study, possible interfering effects of subsequent measurement procedures on trans-epidermal water loss (TEWL), stratum corneum hydration (SCH) and skin surface pH were investigated. Methods: An exploratory study was conducted. Twelve young (mean age 32.9 ± 7.2 years) and 12 elderly (mean age 68.3 ± 2.5 years) subjects without any skin diseases were enrolled. The parameters TEWL, skin surface pH, SCH, sebum content, and surface evaluation of living skin were obtained successively in pairs from 4 contralateral volar forearm skin areas.

S. Rösler, Hautphysiologie im Säuglingsalter: Einfluss von Babyschwimmen mit und ohne anschließender Anwendung einer Pflegelotion auf die Hautbarriere von Säuglingen im Alter von 3 bis 6 Lebensmonaten, Dissertation zur Erlangung der Doktorwürde der Charité Universitätsklinik Berlin, 2014

C. Soica, C. Oprean, F. Borcan, C. Danciu, C. Trandafirescu, D. Coricovac, Z. Crăiniceanu, C.A. Dehelean, M. Munteanu, The Synergistic Biologic Activity of Oleanolic and Ursolic Acids in Complex with Hydroxypropyl- γ -Cyclodextrin, Molecules 2014, 19, 4924-4940

Abstract: Oleanolic and ursolic acids are natural triterpenic compounds with pentacyclic cholesterol-like structures which gives them very low water solubility, a significant disadvantage in terms of bioavailability. We previously reported the synthesis of inclusion complexes between these acids and cyclodextrins, as well as their in vivo evaluation on chemically induced skin cancer experimental models. In this study the synergistic activity of the acid mixture included inside hydroxypropyl-gamma-cyclodextrin (HPGCD) was monitored using in vitro tests and in vivo skin cancer models. The coefficient of drug interaction (CDI) was used to characterize the interactions as synergism, additivity or antagonism. Our results revealed an increased antitumor activity for the mixture of the two triterpenic acids, both single and in complex with cyclodextrin, thus proving their complementary biologic activities.

B. Gabard, A.O. Barel, P. Clarys, Sebumetry and Sebumtape, Non Invasive Diagnostic Techniques in Clinical Dermatology; Springer Berlin Heidelberg 2014; ISBN 978-3-642-32108-5

Introduction: Sebum is the general term defining the lipids excreted by the sebaceous glands and spreading on the surface of the skin. These skin surface lipids (SSL) are in fact a mixture of the epidermal lipids and lipids from the sebaceous glands (sebaceous lipids). The quantity and the composition of SSL are not the same on different areas of the human body. Epidermal lipids are found on the whole body and are the sole component of SSL in anatomical regions where no or only few sebaceous glands are present. High quantities of SSL are present on cutaneous areas with many sebaceous glands such as the face (forehead, nose and cheeks), the scalp and the upper parts of the trunk and of the back. Here the proportion of sebaceous lipids may be important (up to 95-97%) and the one of epidermal lipids negligible (3-5%).

X. Li, C. Galzote, X. Yan, L. Li, X. Wang, Characterization of Chinese body skin through in vivo instrument assessments, visual evaluations, and questionnaire: influences of body area, inter-generation, season, sex, and skin care habits, Skin Research and Technology 2014; 20: 14-22

Background/Purpose: The varying influence of multiple factors (e.g., aging, sex, season, skin care habits) on skin structure and function necessitates study within ethnic groups to fully characterize their skin. Methods: Men and women aged 40-50 years ($n=43$) and their consanguineous same sex-children, aged 18-25 years ($n=43$), living in Chengdu, China were enrolled in this single center, non-interventional study. Volunteers attended two study visits (summer, 2010 and winter, 2011) at which

dermatologists measured transepidermal water loss (TEWL), skin hydration, sebum secretion, fine lines/roughness, melanin/erythema, temperature, and color, and clinically graded participants' skin.

S.H. Youn, C.W. Choi, J.W. Choi, B.R. Kim, S.Y. Byun, S.W. Youn, Novel facial cosmetic area ,O zone' shows unique characteristics in sebum excretion and acne lesion distribution, Skin Research and Technology 2014; 20: 164-169

Background: We usually divided cosmetic facial zone into the T zone und U zone by the level of sebum secretion. Our recent studies suggested that the perioral area showed different characteristics in the aspect of acne development. **Objective:** To investigate the unique characteristics of the O zone (perioral area) among the three facial areas. **Methods:** A total of 102 patients clinically diagnosed as acne vulgaris were included. The acne lesions were counted from the clinical digital photographs by facial areas. The sebum level was measured using Sebumeter. Area-weighted (AW) sebum and AW density of three areas of face were calculated. Statistical analysis was performed according to age and gender.

S. Luebberding, N. Krueger, M. Kerscher, Age-Related Changes in Male Skin: Quantitative Evaluation of One Hundred and Fifty Male Subjects, Skin Pharmacol Physiol 2014;27:9–17

Background/Purpose: Modern men have changed their beauty and grooming habits, which has resulted in an increasing demand for cosmetics for men. However, very little information is available about the dermatological needs of male skin. Therefore, the aim of this present clinical study was to conduct the first systematic assessment of the skin physiology of men with special attention to lifetime changes. **Methods:** A total of 150 healthy male subjects (aged 20– 70 years) were selected following strict criteria, including age, sun behavior and smoking habits. Transepidermal water loss (TEWL), hydration level, sebum production and pH values were measured with worldwide-acknowledged biophysical measuring methods at the forehead, cheek, neck, volar forearm and dorsum of hand. **Results:** TEWL and sebum production vary by localization, but generally not with increasing age, whereas stratum corneum (SC) hydration decreases significantly at the face and neck. The greatest decrease was assessed at the forehead. Skin surface pH significantly increases with aging in the face.

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

Background: There are ethnic differences in the skin characteristics, also the skin is susceptible to be influenced by the external environment such as UV radiation and the climates. It can be shown that the skin in same race or twins varies by the environment. **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 A α -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.

L. Gallego, Pore refining and control of sebum production, Household and Personal Care Today, Vol. 9 No. 3 May/June 2014

Introduction: Oily skin is a prevalent problem affecting men and women of all ages and ethnic groups. Although, generally speaking, an oily skin does not have serious consequences on body functions, a chronically oily skin can lead to obvious aesthetic problems (a greasy shiny skin with enlarged pores, acne...) and it can cause negative psychological effects (1). Several studies claim that between 66 percent and 75 percent of young people from 15 to 20 years are affected by this problem. However, it does not affect only young people, since it has been seen that half of women between 20 and 30 years old and also 70 percent of Asiatic women from 40 to 60 years complain about problems related to oily skin such as enlarged pores (2). Pores are conically shaped holes, full of nucleated cells, located in the skin furrows. Nowadays, pore size is known to be related to the size and activity of sebaceous gland, thus if we reduce this activity we will also obtain narrower pores (3).

Y.S. Cho, J.H. Jeon, A. Hong, H.T. Yang, H. Yim, Y.S. Cho, D.H. Kim, J. Hur, J.H. Kim, W. Chun, B.C. Lee, C.H. Seo, The effect of burn rehabilitation massage therapy on hypertrophic scar after burn: a randomized controlled trial, Burns. 2014 Dec;40(8): p. 1513-20

Background: To evaluate the effect of burn rehabilitation massage therapy on hypertrophic scar after burn. Method: One hundred and forty-six burn patients with hypertrophic scar(s) were randomly divided into an experimental group and a control group. All patients received standard rehabilitation therapy for hypertrophic scars and 76 patients (massage group) additionally received burn scar rehabilitation massage therapy. Both before and after the treatment, we determined the scores of visual analog scale (VAS) and itching scale and assessed the scar characteristics of thickness, melanin, erythema, transepidermal water loss (TEWL), sebum, and elasticity by using ultrasonography, Mexameter[®], Tewameter[®], Sebumeter[®], and Cutometer[®], respectively. Results: The scores of both VAS and itching scale decreased significantly in both groups, indicating a significant intragroup difference. With regard to the scar characteristics, the massage group showed a significant decrease after treatment in scar thickness, melanin, erythema, TEWL and a significant intergroup difference. In terms of scar elasticity, a significant intergroup difference was noted in immediate distension and gross skin elasticity, while the massage group significant improvement in skin distensibility, immediate distension, immediate retraction, and delayed distension. Conclusion: Our results suggest that burn rehabilitation massage therapy is effective in improving pain, pruritus, and scar characteristics in hypertrophic scars after burn.

O. Freis, G.Perie, A. Rathjens, Correlating Aging with Skin's Mechanical and Optical Properties, www.cosmeticsandtoiletries.com, April 2014

The evolution of skin's biomechanical and optical properties as a function of aging and/or photoaging is one of the main targets of cosmetic and dermatological research. Many noninvasive devices to measure skin's biomechanical properties have been developed using alternative methods such as stretching, torsion, indentation and suction. Measurements of skin deformation after suction or torsion are the most widely used techniques in cosmetic research.

B.A. Khan, N. Akhtar, Clinical and sebumetric evaluation of topical emulsions in the treatment of acne vulgaris, *Postep Derm Alergol* 2014; XXXI, 4: p. 229–234

Introduction: Numerous plant products described in the scientific literature show distinct activities on the skin, such as moisturizing, antioxidant, sunscreen, anti-acne and depigmentation. Aim: The main objective of this study was to compare the effectiveness of emulsion formulations containing plant extracts (*Hippophae rhamnoides* and *Cassia fistula*) and placebo (without plant extracts) on acne patients. Material and methods: A single-blind, randomized, placebo-controlled, split-face study was designed. Two groups of 25 patients each (aged 18–37 years) with grade I and grade II acne vulgaris received active formulations on the left side of their cheeks and placebo on the right side of their cheeks twice daily for 12 weeks. Prior to the study, signed consent was obtained from each patient. The anti-bacterial activity of the extracts and formulations was tested *in vitro*. The skin sebum contents of patients were evaluated by the sebumeter® and subjectively using a clinical evaluation before and after treatment of 12 weeks. One way ANOVA and Kruskal-Wallis tests were used in the statistical analysis. Results: A significant ($p \leq 0.05$) decrease in the level of sebum contents was observed in both groups who used formulations (F1 and F2) containing the plant extract. The difference between pre- and post-treatment levels of sebum contents was statistically significant ($p \leq 0.05$). Formulations containing plant extracts were found effective in the reduction of skin sebum contents (anti-acne effects) sebumetrically as well as clinically when compared to placebo (F3). Conclusions: Formulations with 5% plant extracts could be effective, safe, and well-tolerated topical medications for grade I and grade II acne vulgaris.

G.W. Nam, E.J. Kim, Y.C. Jung, C.B. Jeong, K.H. Shin, H. K. Lee, Differences in Skin Properties of Korean Women at the Initial Aging Phase, *Journal of Cosmetics, Dermatological Sciences and Applications*, 2014, 4, p. 44-52

Many studies on aging have focused on evaluating differences between older and younger people, but only a few have focused on differences in skin properties among subjects from the same age group according to their skin aging status. In this study, we evaluated the facial skin condition and life style factors in 110 Korean women aged 25 to 35 in an attempt to evaluate factors which may affect the skin aging status in the initial aging phase. The facial skin condition of 110 healthy Korean women was assessed over two successive 6-month periods, summer and winter. Using clinical assessments including aging, wrinkles and skin's elasticity values, the subjects were divided into 7 groups. Then, various facial skin conditions and life style factors were examined between a severe aging group and mild aging group. In the severe aging group, the mean value pH was lower and the mean value of water content was slightly lower than that of women in the mild aging group. Also, the seasonal site variation in water content and sebum secretion level were significantly higher in the severe aging group than in the mild aging group. Topical sunscreen using percentage was not significantly different between the two groups. However, the number of cosmetic subject use was slightly higher in the mild aging group than in the severe aging group. The study suggested that there were several differences in skin characteristics between women in the severe aging group and in the mild aging group at the initial aging phase. Seasonal site variation between cheek and forehead was the most dominant differences. We also considered that life style factors such as cosmetic use could affect skin aging status.

B. Marczyk, P. Mucha, E. Budzisz, H. Rotsztejn, Comparative study of the effect of 50% pyruvic and 30% salicylic peels on the skin lipid film in patients with acne vulgaris, *J Cosmet Dermatol*, 2014 Mar; 13(1): p. 15-21

Pyruvic (alfa-keto acid) and salicylic (beta-hydroxy acid) acids are superficial peels frequently used in patients with acne vulgaris. Aim: The aim of the study was to compare the effect of 50% pyruvic and 30% salicylic peels on facial sebum secretion in patients with acne vulgaris, aged 13-30. Material and Methods: The level of secreted sebum was determined in 20 men and women. Ten patients were treated with 50% pyruvic acid and the remaining 10 with 30% salicylic acid. Each peel was applied five times at 2-week intervals. The sebum measurements were taken in the T- and U-zones using a Sebumeter SM 815 (Courage & Khazaka, Germany). The last, sixth measurement was taken 2 weeks after

the treatment. Results: A statistically significant decrease in the level of secreted sebum in both U- and T- zones was observed in the patients studied after the third application of 50% pyruvic peel and the second application of 30% salicylic peel. Two weeks following the completion of therapy, sebumetric measurements demonstrated a greater reduction in the facial skin lipid film among the patients treated with salicylic peel. Conclusions: Peels with 50% pyruvic acid and 30% salicylic acid are the procedures that significantly contributed to a decrease in the level of secreted sebum on the facial skin surface in the group of patients studied. A greater therapeutic effect was observed following 30% salicylic peel, which might be associated with its high lipophilic properties and easier penetration through the lipid barriers of the epidermis.

G.W. Nam, J.H. Baek, J.S. Koh, J.K. Hwang, The seasonal variation in skin hydration, sebum, scaliness, brightness and elasticity in Korean females, Skin Research and Technology 2015; 21: 1-8

Background/purpose: Age, gender, regional, and ethnic differences influence skin conditions. The purpose of this study was to observe the effects of environments, especially the air temperature, relative humidity, air pressure, duration of sunshine, and precipitation on skin and the seasonal variation in skin hydration, sebum, scales, brightness, and elasticity in Korean females.

K. Isoda, Y. Takagi, K. Endo, M. Miyaki, K. Matsuo, K. Umeda, K. Umeda-Togami, H. Mizutani, Effects of washing of the face with a mild facial cleanser formulated with sodium laureth carboxylate and alkyl carboxylates on acne in Japanese adult males, Skin Research and Technology 2015; 21: 247-253

Background/purpose: Washing the face with a mild cleanser is generally recommended for acne care. Occasionally, the general public has the misconception that acne is exacerbated by cleansers and furthermore it has concerns about inducing skin irritation and xerosis by intensive washing. Recently, we developed a new cleanser based on sodium laureth carboxylate and alkyl carboxylates (AEC/soap) that cleans sebum well without penetrating the stratum corneum.

H. Chajra, F. Lefevre, P. Salmassinia, Multifunctional actives for oily skin and scalp disorders, Personal Care, May 2015

Though the conventional hair care market is a mature one, there are still many opportunities to innovate and radicalise this sector. As the needs of consumers are becoming more complex, the corresponding products evolve towards more sophisticated and solution-oriented concepts by default. Just in the first half of 2014, 72% of global hair care launched had a "beauty enhancing" claim. Between 2009 and 2014, there were almost 10,000 product launches that addressed oily skin and oily hair concerns.

Y. Takagi, N. Tanaka, M. Miyaki, K. Takeuchi, K. Matsuo, An effective novel facial cleanser for mild acne: Cleanser formulated with Sodium Laureth Sulfate and Alkyl Ether Carboxylates, H&PC Vol. 10 (2) March/April 2015

Abstract: Many people suffer from acne. Washing the face with cleansers is generally recommended for acne care and cleansers containing salicylic acid are frequently used in the United States. However, salicylic acid has many side effects such as inducing dryness and irritation. Here we demonstrate that a facial cleanser based on alkyl ether carboxylates (AEC) and sodium laureth sulfate (SLES), which does not contain anti-acne ingredients including salicylic acid, improved the acne more quickly than general cleansers containing salicylic acid (■ 1.5%). No side effects were observed and a favorability rating was obtained from the subjects in a questionnaire. These results suggest that the skin cleanser formulated with AEC and SLES is an effective cleanser for the care of mild acne.

C. Uhl, D. Khazaka, **Claims and measurement methods for hair and scalp**, Personal Care March 2015

Hair diversity (style, shape, growth pattern or colour) is one of the most important features to define us physically. Therefore it is no surprise that the market of hair care products with a value of US\$39 billion is one of the most important sectors in the complete area of cosmetic products. Hair care products for women are the most frequently bought and used cosmetic products of all. Shampoos and conditioners are leading in the field. For men, hair care is the most important and favoured sector of all cosmetics.

A. Tuzuner, S. Akdagli, T. Sen, et al., **An objective analysis of sebum, pH and moisture levels of the external ear canal skin**, American Journal of Otolaryngology (2015) 424-428

Abstract: Objective: To determine sebum, pH and moisture levels of external ear canal skin, and compare the patients who complain of ear itching and the normal population for these parameters. And evaluate the improvement subjectively in the ones given dexamethasone sodium phosphate (DSP) cream or placebo-water in oil emulsion type cream, and to determine the changes in sebum, pH and moisture levels after the treatment. Methods: 32 females with the complaint of isolated external ear canal itching and 42 healthy women were included in this randomized prospective controlled study. The sebum, pH and moisture levels of ear skin of the patients and the controls were determined from baseline and following treatment. Patients used DSP in their right and the placebo in their left ears for 15 days. Subjective analysis of itching level was measured at baseline, and on 15th and 30th days using visual analog scale (VAS).

C.S.C. Pereira, A. R. Baby, MV R. Velasco, M.T. Scotti, **Correlação Instrumental e Sensorial de Composição Aromática no Ciclo Menstrual**, Cosmetics & Toiletries (Brasil) Vol 27, set-out 2015

In order to know the variables that may influence the fragrance-substrate interface and consumer perception in the menstrual cycle, and contribute to the development of fragrances, there was a study correlating the sensory analysis and instrumental (biochemical and chromatographic measurements) as a function of the cycle menstrual. (Article in Portuguese)

D. Mahrhauser, C. Nagelreiter, A. Baiertl, J. Skapiol, C. Valenta, **Influence of a multiple emulsion, liposomes and a microemulsion gel on sebum, skin hydration and TEWL**, Int J Cosmet Sci. 2015 Apr;37(2): p. 181-6

Objective: In this study, the influence of three cosmetically relevant, priorly characterized vehicles on skin hydration, sebum content and transepidermal water loss was investigated. Methods; The chosen vehicles included a liposomal pre-formulation, a multiple W/O/W emulsion and a microemulsion gel. The in vivo effects of these vehicles were demonstrated and compared among them. The stability of the prepared vehicles was determined visually, microscopically, rheologically by pH measurements and particle size. Interactions with skin were assessed by non-invasive biophysical techniques using the Corneometer[®], Aqua Flux[®] and Sebumeter, measuring skin hydration, TEWL and skin sebum content, respectively. Results: All vehicles remained stable over an observation period of 6 weeks. The multiple emulsion increased sebum content and skin hydration. In case of the liposomes, each monitored parameter remained almost constant. In contrast, the microemulsion gel lowered skin hydration and increased TEWL values, but even 1 week after termination of the treatment TEWL decreased almost close to control levels. Conclusion: All produced vehicles were proven to remain physically stable over the duration of this study. The used multiple emulsion showed very skin-friendly properties by increasing sebum and skin hydration. Likewise, the liposomal pre-formulation exhibited no negative effects. On the contrary, the investigated microemulsion gel seemed to have skin dehydrating and TEWL increasing features. However, the multiple emulsion as well as liposomes was identified to be well-tolerated vehicles for skin which might qualify them for the use in cosmetic formulations.

O. Bilaic, C. Altinvazar, H. Hira, M. Doadu, Investigation of the Association of the Second-to-Fourth Digit Ratio with Skin Sebum Levels in Females with Acne Vulgaris, Am J Clin Dermatol. 2015 Dec; 16 (6): p. 559~64

Background: A relationship between acne vulgaris (AV) and the masculinized (lower) second-to-fourth digit (2D:4D) ratio in females was demonstrated in our previous study. Development of the digits and the sebaceous glands both occur during the same gestational period; therefore, the association between the 2D:4D ratios and AV may result from the effects of the prenatal endocrine environment on the sebaceous glands. **Objective:** The aim of this study was to evaluate the relationship between the 2D:4D ratio and sebum levels in the skin of females with AV. **Methods:** In total, 215 female AV patients and 92 healthy controls, aged 18-35 years, were enrolled in this study. Finger-length measurements were made using a digital Vernier caliper, and the sebum levels of five facial areas were measured using a Sebumeter SM 815. Acne severity was assessed using the International Consensus Conference on Acne Classification System. **Results:** The 2D:4D ratios of the AV patients were significantly lower than those of the controls, for both hands. The mean sebum levels in the T-zone, U-zone and whole face were significantly higher for AV patients compared with controls. The 2D:4D ratio in the left hand showed significant negative correlations with the sebum levels in the U-zone; however, no association was found between the 2D:4D ratios and sebum levels in the T-zone and whole face. While acne severity was positively correlated with skin sebum levels, no correlation between acne severity and 2D:4D ratios was observed. **Conclusions:** This study provides preliminary evidence regarding the association between lower 2D:4D ratios and higher rates of sebum secretion in the U-zone for females with AV. The 2D:4D ratio might be a predictor of sebum levels, as well as acne development, in females.

L. Pouran, M. Masoud, R.M. Seyed, Y. Hadis, M. Akram, S. Golmohammadzadeh, M. Balali-Mood, Epidermal hydration and skin surface lipids in patients with long-term complications of sulfur mustard poisoning, J Res Med Sci. 2015 Jul; 20(7): p. 640-645

Background: Despite almost the three decades passed since the chemical attacks of Iraqi's army against the Iranian troops, some veterans are still suffering from long-term complications of sulfur mustard (SM) poisoning, including certain skin complaints specially dryness, burning, and pruritus. We thus aimed to evaluate the skin's water and lipid content in patients with a disability of >25% due to complications of SM poisoning and compare them with a matched control group. **Materials and Methods:** Sixty-nine male participants were included in this study; 43 SM-exposed patients, and 26 normal controls from their close relatives. The water and lipid content was measured in four different locations: Extensor and flexor sides of forearms and lateral and medial sides of legs by the Comeometer CM 820/Sebumeter SM 810. Collected data was analyzed and $P < 0.05$ was considered as statistically significant. **Results:** The mean age of the patients and controls was 49.53 ± 11.34 (ranges: 40-71) and 29.08 ± 8.836 (ranges: 15- 49 years), respectively. In the veterans group, the main cutaneous complaint was itching and skin dryness. Cherry angioma, dry skin, and pruritus were significantly more common in the SM-exposed cases than in the controls. ($P = 0.01, 0.05, \text{ and } 0.04$, respectively). The moisture and lipid content of all areas were lower in the SM-exposed group, but it was only significant in skin sebum of lateral sides of legs ($P = 0.02$). **Conclusion:** Exposure to SM could decrease the function of stratum comeum and lipid production as a barrier, even after several years of its exposure.

T. Nakahara, Y. Moroi, K. Takayama, E. Itoh, M. Kido-Nakahara, Y. Nakanishi, M. Furue, Changes in sebum levels and the development of acneiform rash in patients with non-small cell lung cancer after treatment with egFr inhibitors, OncoTargets and Therapy 2015:8 p. 259–263

Background: It has recently been shown that patients treated with epidermal growth factor receptor (EGFR) inhibitors often develop various cutaneous adverse events. While the pathogenesis underlying these events remains unclear, the relationship between skin toxicity induced by EGFR inhibitors and the sebaceous glands that express EGFR has been previously reported. **Objectives:** The primary aim of this study was to determine the relationship between cutaneous sebum levels and acneiform rash, a typical skin toxicity of EGFR inhibitors, by measuring the sebum levels before and after EGFR inhibitor treatment. **Methods:** Eight patients diagnosed with non-small cell lung cancer (NSCLC) (three

men and five women with an average age of 69.3 years) who were initiated on treatment with EGFR inhibitors (either gefitinib [Iressa®] or erlotinib [Tarceva®]) were enrolled. Using a Sebumeter®, sebum levels in the face, chest, and back of each patient were measured before and after EGFR inhibitor treatment. The development of acneiform rash in each skin region was also assessed. Results: Changes in sebum level along with the development of an acneiform rash were observed after patients were started on EGFR inhibitor treatment. Patients who developed an EGFR inhibitor-induced acneiform rash tended to have higher pretreatment sebum levels (baseline) than did patients who did not experience an acneiform rash. At each time point measurement, sebum levels were found to be significantly higher in patients who had developed an acneiform rash at that time. Patients who developed rash during treatment showed greater differences in sebum level compared with pretreatment baseline. Conclusion: Patients who had increased levels of sebum or whose sebum levels showed greater change from pretreatment baseline developed an acneiform rash, suggesting that sebaceous gland activity may be involved in the mechanism underlying the development of acneiform rash, in patients treated with EGFR inhibitors.

M. Mehrbani, R. Choopani, A. Fekri, M. Mehrbani, M. Mosaddegh, M. Mehrbani, The efficacy of whey associated with dodder seed extract on moderate-to-severe atopic dermatitis in adults: A randomized, double-blind, placebo-controlled clinical trial, J Ethnopharmacol, 2015 Aug 22;172: p. 325-32

Ethnopharmacological Relevance: Atopic dermatitis is a common chronic inflammatory skin condition that is on the rise and adversely affects quality of life of the affected individual. Dry skin and pruritus, major characteristics of this disease, are associated with the dysfunction of the skin barrier. Though mild cases of the disease can be controlled with antihistamines and topical corticosteroids, moderate-to-severe cases often require treatment with immunomodulatory drugs, which have many side effects. It is now more common to use complementary and alternative medicines in the treatment of atopic dermatitis. In traditional Iranian medicine, the use of whey with the aqueous extract of field dodder (*Cuscuta campestris* Yunck.) seeds in severe and refractory cases of atopic dermatitis is common and has no side effects. The aim of this study was to assess the efficacy and safety of whey associated with dodder seed extract in the treatment of moderate-to-severe atopic dermatitis in adults. Materials and Methods: The study was a randomized, double-blind placebo control trial that was conducted on 52 patients with moderate-to-severe atopic dermatitis for 30 days. In this study patients received freeze dried whey powder with spray dried water extract of field dodder or the placebo for 15 days. At baseline (week zero), after the end of the 15 day treatment period (week three) and 15 days after stopping the drug or placebo (follow-up/week five), patients were evaluated in terms of skin moisture, elasticity, pigmentation, surface pH and sebum content on the forearm with Multi Skin Test Center® MC1000 (Courage & Khazaka, Germany) and the degree of pruritus and sleep disturbance in patients were also recorded. Results: 42 patients completed 30 days of treatment with the medicine and the follow-up period. At the end of the follow-up period a significant increase in skin moisture and elasticity in the group receiving whey with dodder was observed compared with the placebo group ($p < 0.001$). There was a significant difference between the two groups regarding the pruritus after 15 days of receiving treatment or the placebo ($p < 0.05$), and at the end of the 30-day study period the difference was clearly significant ($p < 0.001$). Sleep disturbance showed significant changes at the end of follow-up period ($p < 0.05$). There was no significant difference between the two groups concerning changes in skin pigmentation, however, a significant decrease was observed in the group receiving whey associated with dodder seed extract over time ($p < 0.001$). There were no significant alterations in skin surface pH and the amount of sebum between the two groups. Temporary side effects were reported including anorexia and mild gastrointestinal problems in drug use. It is noteworthy that in this study despite the fact that patients received whey with dodder for just 15 days, moisture and elasticity of the skin continued to increase in the second half of the study (follow-up period). This shows that the effect of whey with dodder is not transient and this drug really helped skin barrier reconstruction and accelerated the healing process of skin. This positively influenced the skin parameters and consequently the improvement of pruritus and sleep disturbance. Conclusions: The results indicate that whey associated with dodder seed

extract can serve as a promising alternative for the treatment of moderate-to-severe atopic dermatitis.

*P. Min, W. Xi, L. Grassetti, A. Trisliana Perdanasari, M. Torresetti, S. Feng, W. Su, Z. Pu, Y. Zhang, S. Han, Y.X. Zhang, G. Di Benedetto, D. Lazzeri, **Sebum Production Alteration after Botulinum Toxin Type A Injections for the Treatment of Forehead Rhytides. A Prospective Randomized Double-Blind Dose-Comparative Clinical Investigation**, Aesthet Surg J, 2015 Jul, 35(5): p. 600-610*

Background: Research has investigated the decrease in human skin sebum after the application of botulinum toxin. Few studies of the mechanism and objective assessments of this phenomenon have been conducted and the correlation between the sebum production and injection dosages or techniques remains unclear. Objectives: We prospectively investigated the sebum regulation and its gradient around the injection site in patients who received intramuscular injections of botulinum toxin A (BTX-A) for forehead rhytides, comparing two injection doses. Methods: Forty-two female volunteers with rhytides on the forehead region were randomly assigned to receive 10 or 20 units of BTX-A, which was administered in five standard injection sites. The baseline and post-treatment sebum production was measured using a Sebumeter. Results: Treatment with BTX-A exhibited significant sebum alteration at the injection site of both groups, with a sebum gradient surrounding the injection point. The efficacy did not improve at higher injection doses, with the four-unit regimen generally not being more potent than the two-unit regimen. The sebum production recovered to normal levels at the 16 week follow-up for both treatment groups, indicating that a higher dosage (four units) did not result in a longer duration until relapse compared with the two-unit dose. Conclusions: We determined that the sebum production has a positive correlation with the distance away from the injection point. Intramuscular injection of BTX-A significantly reduces sebum production at the injection site but increases the sebum production of the surrounding skin at a radius of 2.5 cm at the 2, 4, and 8 week follow-ups.

*B.R. Kim, M.Y. Chun, S.A. Kim, S.W. Youn, **Sebum Secretion of the Trunk and the Development of Truncal Acne in Women: Do Truncal Acne and Sebum Affect Each Other?**, Dermatology, 2015;231(1): p. 87-93*

Background: There are few published data on truncal acne because most studies have focused on facial acne. Aims: The objective of this study was to investigate truncal sebum secretion levels in patients with acne vulgaris and to evaluate the relationship between sebum secretion and the development of acne lesions. Methods: The sebum casual levels at five different facial sites and ten truncal sites were measured in 35 Korean females with acne using a Sebumeter®. We performed an analysis of the correlation between sebum excretion and acne lesion number. Results: We found that all of the truncal sites analyzed had lower sebum secretion levels than the facial sites. There was no significant correlation between sebum secretion and acne lesions on the trunk. Conclusion: Pathogenic factors other than sebum may have a predominant role in the development of truncal acne.

*A. Ali, N. Akhtar, **The safety and efficacy of 3% Cannabis seeds extract cream for reduction of human cheek skin sebum and erythema content**, Pak J Pharm Sci, 2015 Jul;28(4): p. 1389-1395*

Escalated sebum fabrication is seen with an unattractive look and adds to the growth of acne. We aimed to investigate the efficacy and safety of 3% Cannabis seeds extract cream on human cheek skin sebum and erythema content. For this purpose, base plus 3% Cannabis seeds extract and base (control) were prepared for single blinded and comparative study. Healthy males were instructed to apply the base plus 3% Cannabis seeds extract and base twice a day to their cheeks for 12 weeks. Adverse events were observed to determine skin irritation. Measurements for sebum and erythema content were recorded at baseline, 2nd, 4th, 6th, 8th, 10th and 12th week in a control room with Sebumeter and Mexameter. Base plus 3% Cannabis seeds extract was found to be safe in volunteers. Measurements demonstrated that skin sebum and erythema content of base plus 3% Cannabis seeds extract treated side showed significant decrease ($p < 0.05$) compared with base treated side. Base plus 3% Cannabis seeds extract showed safety. It was well tolerated for the reduction of skin sebum and erythema content. Its improved efficacy could be suggested for treatment of acne vulgaris, seborrhea, papules and pustules to get attractive facial appearance.

A. Wójcik, E. Bartnicka, P. Namieciński, H. Rotsztein, Influence of the complex of retinol-vitamin C on skin surface lipids, J Cosmet Dermatol, 2015 Jun;14(2): p. 92-99

Background: Retinol is used to reduce symptoms of skin aging. It affects surface lipids and increases skin regeneration ability. Aim: The aim of our study was to investigate the effect of retinol peel on the face and neck skin lipids in women, aged 50-69. Materials and Methods: The level of secreted sebum was measured using Sebumeter SM15 (Courage & Khazaka, Germany) on the forehead, cheeks, nose, chin, and neck. The measurements were carried out before each of the 3 retinol peel treatments applied at 3-week interval and 3 weeks after the last treatment. Results: A statistically significant increase of lipid film in both U-zone and T-zone and on the neck was observed in the study group. Conclusion: Retinol peel treatments can help to increase the amount of skin surface lipids in women during menopause.

N. Srivastava, S. Gehlot, S. Singh, B.M. Singh, Application of different parameters for selecting normal and abnormal skin characteristics in determination of Prakriti in infants, Int. J. Res. Ayurveda Pharm. 6(2), Mar - Apr 2015

Prakriti (Basic physical constitution) of an individual is decided at the time of conception and subsequently during intra-uterine life, as a result of overall effect of dominant Dosha of Shukra (Sperm), Shonit (Ovum), Ahara (diet) and Vihara (regimen) of Garbhini (pregnant women), Kaalgarbhashaya (in-utero duration and condition of uterus) and Mahabhautic components. Assessment of Prakriti and Vikriti in children is essential and enables the pediatrician to evaluate metabolic imprinting, individual physiology and susceptibility to specific disease, its diagnosis, prevention, treatment as well as the prognosis after illness. There are many subjective criteria to determine the Prakriti in adults, but as far as infants are concerned, no detail description is available in Ayurvedic classics. Individual Prakriti can be determined as per the characteristics specified in Brihatrayi and Laghutrayi, which include the examination of skin, hair, nails, eyes, palm, sole and other physical and psychological features, and may be used in children for Prakriti determination. However, it can be better understood and differentiated each other by considering various methods and modern technology. Out of various characteristics of body parts, skin characteristics such as texture (roughness or smoothness, elasticity and thickness), color and temperature of skin significantly contribute in Prakriti determination. Use of objective parameters such as RGB and HSV method, Fitzpatrick Scale method and derma spectrometer for the skin color differentiation; skin-pH, stratum corneum hydration, TEWL, sebum content, cutometer and ultrasonography for skin texture as well as thermometer, thermister via pulse oxymeter for skin temperature may be very useful tools to differentiate individual Prakriti under controlled conditions. The aim of this conceptual study was to explore importance of various methodologies for differentiating Prakriti skin characteristics from the Vaikrita skin characteristics more precisely and scientifically in infants.

E.O. Okoro, N. Gadzama Bulus, C.C. Zouboulis, Study of Facial Sebum Levels and Follicular Red Fluorescence in Patients with Acne Vulgaris in Nigeria, Dermatology 2016; 232: p. 156–161

Background: Increased sebum levels are triggering factors of acne vulgaris. No studies on sebum levels exist among acne patients in Africa. Aims/Methods: Cross-sectional study to determine facial sebum levels, acne lesions and red fluorescence among adolescents (n = 80) with acne vulgaris in Nigeria, who were interviewed and clinically examined. Results: Facial sebum levels were higher among adolescents with acne than among those without. There was a positive correlation between sebum levels and acne lesions in the U zone but not in the T zone. There was also a positive correlation between the size of red fluorescence and acne lesions and mean sebum levels. Both correlations were highly significant in the U zone but not in the T zone. Conclusion: Facial sebum levels are higher among black African acne patients. Sebum is responsible for facial red fluorescence. The U zone may serve as a more reliable site than the T zone for measurements of sebum levels in black African acne patients.

S. Eisenberg, H. Hanau, D. Kleefeld, V. Bicard-Benhamou, H. Driller, 3R regulation of oily skin and microflora balance, Personal Care April 2016

There is something many of us remember from our teenage years but only a few associate with adulthood: oily skin. Oily skin is a major issue, because it affects those areas that are the most exposed, like the chin, forehead and nose. Oily and impure skin causes a real aesthetic problem and may lead to higher acne susceptibility. Even in adults, a healthy facial skin and complexion play an important role. Consumers around the world have become very self-conscious of their appearance.

C. Richter, C. Trojahn, G. Dobos, U. Blume-Peytavi, J. Kottner, Follicular fluorescence quantity to characterize acne severity: a validation study, Skin Research and Technology 2016; 0: 1-9

Background: Porphyrins are native fluorophores in the follicle openings, visible under ultraviolet-A light. Acne severity might be associated with increased Propionibacterium acnes colonization and porphyrin production. Aim of this study was to investigate whether the parameter fluorescence quantity can be used to measure acne severity. Methods: A validation study was conducted in 24 patients with acne using split-face design. Acne severity was measured using Investigator Static Global Assessment scores and lesion counts. Reliability, construct validity and sensitivity to change in fluorescence quantity were investigated. Results: Mean baseline Investigator Static Global Assessment score was 2.7 (SD 0.1). Mean baseline fluorescence quantities were 24.8 (SD 4.0) on the cheek and 20.3 (SD 4.6) on the chin. On day 25, values ranged from 6.0 (SD 6.0) to 18.1 (SD 18.4) on the cheek and from 2.6 (SD 4.4) to 14.7 (SD 16.2) on the chin. The intraclass correlation coefficients of fluorescence quantity ranged from 0.513 to 0.987. Effect sizes for fluorescence measurements were highest on the chin and cheek ranging from 0.24 to 0.77 and 0.32 to 0.75, respectively. Conclusion: Fluorescence quantity indicates acne severity, especially on the inner cheek and chin areas. Fluorescence quantity is reliable but is not as sensitive as manual lesion counting.

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

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

J.H. Baek, S.M. Ahn, K.M. Choi, M.K. Jung, M.K. Shin, J.S. Koh, Analysis of comedone, sebum and porphyrin on the face and body for comedogenicity assay, Skin Research and Technology 2016; 22: 164-169

Background/Purpose: Many ingredients used in cosmetics evoke a comedogenic response. Rabbit ear model (REM) is a useful method that can replace human in examining materials and products in early developmental stage. However, a number of studies pointed out its disadvantage that it overreacts to comedogenic materials. The purpose of this study was to find the most appropriate region for evaluating comedogenicity in human skin.

B. Moncada, C. Castillo-Martinez, E. Arenas, F. Leon-Bejarano, M. G. Ramirez-Elias, F. J. Gonzalez, Raman spectroscopy analysis of the skin of patients with melasma before standard treatment with topical corticosteroids, retinoic acid, and hydroquinone mixture, Skin Research and Technology 2016; 22: 170-173

Background: Melasma is an abnormal acquired hyperpigmentation of the face of unknown origin, it is considered a single disease and very little has been found regarding its pathogenesis. It is usually assumed that melasma is due to excessive melanin production, but previous work using Raman spectroscopy showed degraded molecules of melanin in some melasma subjects, which may help to explain the success or failure of the standard therapy.

L. Agren, E. Nilsson, **The effect of Nordicseed oil on dry, irritated scalp**, PERSONAL CARE EUROPE, September 2016, p. 32-34

Many experience difficulty finding something that helps to reduce scalp problems even though there is a wide range of products available on the market - shampoos, creams, gels and liniment. The unique combination of valuable nutrients and fatty acid composition make blackcurrant seed oil and sea buckthorn oil interesting for an irritated scalp. We aimed to investigate whether Q for Skin's concept based on blackcurrant seed oil and sea buckthorn pulp/seed oil can help people with a dry, irritated scalp.

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

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

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

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

H.J. Youn, S.Y. Kim, M. Park, W.H. Jung, Y.W. Lee, Y.B. Choe, K.J. Ahn, **Efficacy and Safety of**

Cream Containing Climbazole/Piroctone Olamine for Facial Seborrheic Dermatitis: A Single-Center, Open-Label Split-Face Clinical Study, Ann Dermatol Vol. 28, No. 6, 2016, p. 733-739

Background: Seborrheic dermatitis (SD) is a multifactorial disease; Malassezia species play an important role in its pathogenesis. Objective: We aimed to determine whether a cream containing climbazole/piroctone olamine (C/P cream), antifungal agents with expected efficacy against Malassezia species, could improve SD symptoms. Methods: We instructed 24 patients with mild-to-moderate SD to apply the C/P cream and emollient cream on the right and left sides of the face, respectively, every morning and evening for 4 weeks. The casual sebum level (measured with Sebumeter[®]; Courage & Khazaka Electronic GmbH, Germany) and the extent of erythema (measured with Mexameter[®]; Courage & Khazaka Electronic GmbH) on the face were measured at baseline and after 4 weeks. The minimal inhibitory concentration (MIC) was determined to demonstrate the antifungal activity of the C/P cream. Results: The casual sebum level and erythema were measured at week 4, and the median values demonstrated a quantitative improvement on the C/P cream-treated right side of the face compared to the emollient cream-treated left side. For the C/P cream, the MICs were 0.625, 5, 0.625, and 2.5 mg/ml for Malassezia restricta, M. globosa, M. sympodialis, and M. slooffiae, respectively. Conclusion: Based on the reduced casual sebum level and extent of erythema, the antifungal activity of C/P cream against Malassezia species seems useful for the treatment of mild to moderate SD.

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

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

A.I. Arshad, S.H. Khan, N. Akhtar, A. Mahmood, R.M. Sarfraz, **In vivo evaluation of skin irritation potential, melasma and sebum content following long-term application of skin care cream in healthy adults using non-invasive biometrological techniques**, Acta Pol Pharm. 2016 Jan-Feb;73(1): p. 219-27

The present investigation was conducted to evaluate non-invasively, various functional skin parameters i.e. irritation potential, melasma and sebum contents following long term application of topical cream (w/o) loaded with 2% methanolic extract of Ananas comosus L. versus placebo control (base) in healthy adults. Healthy human volunteers ($n = 11$, aged 20-30 years) were recruited for investigation and written informed consent was taken from each volunteer. In this single blinded study every volunteer applied formulation on one side of face and placebo on the other side of face twice daily for a period of 12 weeks (three months). Different skin parameters i.e., skin irritancy, melasma, and sebum contents were measured on both sides of face at baseline and after two weeks interval, using photometric device Mexameter and Sebumeter in a draught free room with modulated conditions of temperature (22-25°C) and humidity (55-60%). It was evident from the results that no primary skin irritancy was observed with

patch test. Besides, statistical interpretation indicates that treatment with formulation is superior to placebo because it significantly ($p < 0.05$) reduced the skin irritancy, melasma and sebum secretions throughout the study and reaching maximum -20.76 ± 0.89 , -54.2 ± 0.37 and $-40.71 \pm 0.75\%$, respectively, at the end of study period. Antioxidant activity of extract was 92% compared to standard antioxidant. Conclusively, active cream loaded with fruit extract was well tolerated by all the volunteers and suitable to treat contact dermatitis, greasy skin, acne and seborrheic dermatitis and augmenting beauty and attraction by depigmentation of human skin. So, in the future, there is need to clinically evaluate these formulations in patients with compromised skin functions i.e., contact dermatitis, melasma, and acne vulgaris in order to explore the actual potential of this fruit.

H. Khan, N. Akhtar, A. Ali, Assessment of Combined Ascorbyl Palmitate (AP) and Sodium Ascorbyl Phosphate (SAP) on Facial Skin Sebum Control in Female Healthy Volunteers, Drug Res (Stuttg) 2016 Oct 18

The skin is fortified with a setup of lipophilic and hydrophilic, enzymatic and non-enzymatic antioxidant systems. Ascorbyl palmitate (AP) and sodium ascorbyl phosphate (SAP) are reported as lipophilic and hydrophilic antioxidants, respectively used for skin care. Present study was aimed to assess the combined AP (in oil phase) and SAP (in aqueous phase) via multiple emulsion (MEi) for controlling sebum secretions in healthy human females. FTIR analysis of AP and SAP was performed for identification. Multiple emulsions (MEi and control) were prepared and analyzed for physical stability. Antioxidant activities of AP, SAP as well as MEi (with combination of these compounds) were determined by DPPH method. 11 female volunteers were included in a single-blinded, placebo-controlled, split-face comparative study. Volunteers were instructed to apply MEi on left cheek while control (without AP and SAP) on right cheek, for a period of 90 days. A non-invasive photometric device (Sebumeter) was used for the measurement of sebum secretions on both sides of the face with subsequent time intervals. A good antioxidant activity of MEi was observed. MEi treatments reduced significant facial sebum secretions as compared with control/placebo treatments. It was concluded that combined AP and SAP supplementations to skin proved a promising choice for controlling facial sebum secretions and could be evaluated for undesired oily skin and acne reductions for beautifying the facial appearance.

S.A. Kim, B.R. Kim, M.Y. Chun, S.W. Youn, Relation between pH in the Trunk and Face: Truncal pH Can Be Easily Predicted from Facial pH, Ann Dermatol 28(2) p. 216-221, 2016

Background: The clinical symptoms of facial and truncal acne differ. Skin surface acidity (pH), which is affected by sebum secretions, reflects the different clinical characteristics of the face and trunk. However, no studies have been conducted on truncal sebum production and skin pH. Objective: We evaluated the differences and relationship between pH values of the face and trunk. We also evaluated the relationship between pH and the quantity of sebum produced in the trunk. Methods: A total of 35 female patients clinically diagnosed with truncal acne were included. We measured pH on the face and truncal area using the Skin-pH-Meter PH 905[®]. We measured truncal sebum secretions using the Sebumeter SM 815[®]. Statistical analysis was performed to evaluate the correlations and differences between pH and sebum. Results: Facial pH was significantly higher than chest and back pH values. The correlation between pH on the trunk and the face was significant. We used linear regression equations to estimate truncal pH using only measured pH from the chin. There was no significant relationship between truncal sebum secretion and pH. Conclusion: This was the first study that evaluated the differences and correlations between facial and truncal pH. We found that facial pH can predict truncal pH. In addition, we conclude that differences in pH and sebum secretion between the face and trunk are one of the reasons for differences in acne symptom at those sites.

Z. Xu, Z. Wang, C. Yuan, X. Liu, F. Yang, T. Wang, J. Wang, K.i Manabe, O. Qin, X. Wang, Y. Zhang, M. Zhang, **Dandruff is associated with the conjoined interactions between host and microorganisms**, Scientific Reports, 6:24877, 2016

Dandruff is an unpleasant scalp disorder common to human populations. In this study, we systematically investigated the intra- and inter-associations among dandruff, physiological conditions such as sebum of the scalp, host demographics such as gender, age and the region of the scalp, and the microorganisms on the scalp. We found that the physiological conditions were highly relevant to the host age and varied in different regions of the same scalp. The sebum quantity and water content were negatively correlated with the formation of dandruff and had significant relationships with the two dominant but reciprocally inhibited bacteria on the scalp (*Propionibacterium* and *Staphylococcus*). The dominant fungus (*Malassezia* species) displayed contrary roles in its contribution to the healthy scalp micro-environment. Bacteria and fungi didn't show a close association with each other, but the intramembers were tightly linked. Bacteria had a stronger relationship with the severity of dandruff than fungi. Our results indicated that the severity of dandruff was closely associated with the interactions between the host and microorganisms. This study suggests that adjusting the balance of the bacteria on the scalp, particularly by enhancing *Propionibacterium* and suppressing *Staphylococcus*, might be a potential solution to lessen dandruff.

G. Stinco, F. Piccirillo, F. Valent, E. Errichetti, N. Di Meo, G. Trevisan, P. Patrone, **Efficacy, tolerability, impact on quality of life and sebostatic activity of three topical preparations for the treatment of mild to moderate facial acne vulgaris**, G Ital Dermatol Venereol, 2016 Jun;151(3): p. 230-238

Background: Acne is treated according to the clinical observations and pathophysiologically relevant mechanisms, such as hyper-keratinization, seborrhea and bacterial proliferation. In mild and moderate forms of inflammatory acne, topical antimicrobials are recommended as a monotherapy or in combination with topical retinoids. The aim of this study was to compare the clinical effectiveness, tolerability, impact on quality of life and effect on sebum excretion of three antimicrobial preparations: clindamycin phosphate, benzoyl peroxide and a combination of clindamycin phosphate plus benzoyl peroxide. Methods: In total, 240 patients were randomized into treatment groups for an 8-week study. Every two weeks the patients were evaluated using the following methods: photography, the Global Acne Grading System, sebumetric evaluation, and the Acne-Specific Quality of Life questionnaire. In addition, 80 healthy controls were enrolled for the sebumetric evaluation. Results: A significant improvement in acne and the quality of life was observed for all three therapies at the end of the study. The sebum excretion results for the three treatment groups displayed significant and unpredictable variation, whereas the controls groups exhibited no significant variation. The three treatments were well tolerated. Conclusions: The efficacy of the three antimicrobial preparations likely results from their anti-inflammatory and bacteriostatic activities. In contrast, seborrhoea seems to be minimally impacted.

C. Nualsri, N. Lourith, M. Kanlayavattanakul, **Development and clinical evaluation of green tea hair tonic for greasy scalp treatment**, J Cosmet Sci, 2016 May-Jun;67(3): p. 161-166

Green tea has cosmetic benefits that include activities against androgen disorders. A hair tonic containing green tea for reduction of scalp sebum was developed and clinically evaluated. Stable green tea hair tonics were closed-patch tested and clinically evaluated in 20 volunteers for 28 days by using a Sebumeter®. Hair tonic base with glycerin and butylene glycol (total 4%) gained the highest consumers' preference was incorporated with green tea extract. All of the products were stable and none caused skin irritation. Green tea hair tonic (2%) significantly ($p \leq 0.024$) lowered scalp sebum for 21 and 28 days following the application, suggesting that this topical therapy of scalp greasiness is safe and efficient.

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

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

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

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

J. M. Crowther, **Method for quantification of oils and sebum levels on skin using the Sebumeter**, *International Journal of Cosmetic Science*, Volume 38, Issue 2, p. 210-216

Objective: The Sebumeter® is widely used in both cosmetic and medical research, for measuring changes in sebum levels on skin. It is commonly reported that the units correlated to a mass of sebum on the skin in $\mu\text{g cm}^{-2}$; however, validation for this has not been published. Also, its use for assessing the presence of other oily materials which are widely utilized in topical skincare products on skin has not been widely discussed. Determining a calibration scale and whether the response of the device is linear with the level of oils present enables quantification of the output of the device, and would validate the device for claims substantiation.

M. Mangier, D. Boudier, L. Mariaud, M. Rouy, M. Quillet, L. Marchand, M. LeGuillou, S. Bordes, B. Closs, **Natural anti-seborrhoea active for multi-ethnic skin**, *PERSONAL CARE ASIA PACIFIC*, January 2017, p. 41-43

The cosmetics industry continually seeks innovation and effective molecules to treat oily skin and hair regardless of ethnicity. This cosmetic problem results from excessive sebum secretion. Based on recent progress in sebocyte biology, silab is now proposing its sebum regulating cosmetic active ingredient that can improve the comfort of Caucasian, South American and Asian skins. Sebocytine® is rich in flavonoids from wild rose berries and returns sebum in facial skin and the scalp to normal levels. The skin is matte rather than shiny, radiant and refined, and hair regains its lost suppleness and shine.

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

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

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

Pressure injury (PI) prevention has become a key nursing priority that requires clear identification of visual cues representative of PI risk. There is generalized agreement that erythema and skin wetness

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

F. Tabri, I. Patellongi, S. Wahab, K. Djawad, Analysis of Nutritional Status and Levels of Sebum on Various Age Groups, American Journal of Clinical and Experimental Medicine, 2017; 5(1): 26-29

The effects of aging on skin physiology have been reported previously. In this study we tried to elucidate the correlation of skin types with age and nutritional status. There is a correlation between the age groups with nutritional status, correlation between age groups with the sebum levels on the forehead, and also there is a correlation between nutritional status and sebum level on forehead.

V. Bicard-Benhamou, J. zur Lage, L. Heider, D. Kleefeld, S. Eisenberg, F. Pfluecker, Evaluation of the potential of a cyclohexyloxyl derivative targeting impure skins, 42th SICC National Congress & 1st IPCE Conference June 2017, Stresa, Italy

Butyl hydroxycyclohexane carboxylate (BHCC, structure shown on Figure 1, a cyclohexyloxyl derivative is an adequate innovative solution to an issue well-known from our teenage years and yet more rarely associated with adulthood: oily skin and its impact on the appearance of acne formation. At all ages impure skin issues may lead to a real aesthetic problem considering that in nowadays life, image resulting from own appearance matters more and more and because it appears on body parts most exposed to view like for instance forehead, nose and chin. Oily skin may result in skin especially prone to open pores, blackheads, spots and pimples, skin appearing greasy and coarse and skin looking uneven. Most people associate oily skin with teenage years, but oily skin can persist long beyond adolescence and for some people it might last a lifetime. Nevertheless, acne most often begins in puberty when androgens level increases causing sebaceous glands to become more active resulting in increased sebum production. *Propionibacterium acnes* (*P. acnes*), mainly colonized in the pilosebaceous unit, plays a crucial role in the development of acne. Acne patients demonstrate marked increases of this microorganism (1), *P. acnes* and its metabolites, the porphyrins, are also associated with inflammation processes in the skin. The perception of the skin as an ecosystem can advance our understanding of the delicate balance between host and microorganism. Disruptions in the balance on either side of the equation can result in skin disorders or infections (2) and non-beneficial bacteria are associated with them. On the other way beneficial bacteria helps preventing pathogenic microorganisms from colonizing the surface of the skin and preserving them is essential. A healthy and balanced microflora is therefore crucial. BHCC helps relieving skin from susceptibility to acne development and supporting skin health. BHCC provides a triple effect: it Regulates Sebum, it Reduces inflammation, and finally it Rebalances skin's microflora and all the results shown here provide a scientific demonstration of these claims.

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

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

J. Kitsongsermthon, K. Duangweang, J. Kreepoke, A. Tansirikongkol, In vivo cleansing efficacy of biodegradable exfoliating beads assessed by skin bioengineering techniques, Skin Research and Technology 2017; 23: p. 525-530

Background/purpose: The plastic microbeads, used in many cleansers, will be banned in cosmetic and personal care products within 2017 since they are non-degradable and can disturb the living organisms in water reservoirs. Various choices of biodegradable beads are commercially available, but their efficacy has not been proven yet. This study aimed to compare the cleansing efficacy in dirt and sebum removal aspects of three types of exfoliating beads. Methods: The gel scrubs with polyethylene (PE) beads, mannan beads or wax beads, were formulated and evaluated for their stability. The in vivo evaluation was done in 38 healthy volunteers and the skin irritation, efficacy for dirt and sebum removal were measured by Mexameter®, Colorimeter®, and Sebumeter®, respectively. Results: The selected gel scrubs did not cause an irritation in any volunteers. The differences in dirt residues between before and after scrubbing were not statistically significant among three gel scrubs and the similar result was also reported in the sebum removal study. Conclusion: All gel scrubs demonstrated the comparable cleansing efficacy in term of dirt and sebum removal. Thus, mannan beads and wax beads may be replaced nonbiodegradable PE beads to achieve the similar cleansing effect.

J. Novoseletsy, A Hint of Peppermint for the Hair and Scalp (Abstract), www.cosmeticsandtoiletries.com, November 2017

During SCS Formulate 2017, Naolys launched EtHAIRReal Peppermint (INCI: *Mentha Piperita* (Peppermint) Leaf Cell Extract), a new active plant cell developed to rebalance and enhance the appearance of oily hair and improve the overall scalp. Tests were carried at concentrations of 0.5% (20% cells; 80% glycerin). The clinical study showed, after 28 days of treatment: A 44% decrease in sebum via Sebumeter measurements; A 71% decrease in irritation, reported by self-scoring of subjects; and An increase in hair shine, as indicated by a 62% reduction in dullness (also self-scored by subjects). These results complement the outcome of the in vitro test, which showed a reduction of the enzyme 5 α -reductase combined with a reduction in the release of inflammation mediators and in the development of free radicals at the level of hair bulb and scalp. EtHAIRReal Peppermint is not allergenic, is preservative free and can be used in any type of hair care formulation, including shampoos, masks, serums and long-term hair treatments.

B. Algiert-Zielińska, M. Batory, J. Skubalski, H. Rotsztejn, Evaluation of the relation between lipid coat, transepidermal water loss, and skin pH, International Journal of Dermatology, Volume 56, Issue 11, November 2017, p. 1192-1197

Objective: The epidermis is an epidermal barrier which accumulates lipid substances and participates in skin moisturizing. An evaluation of the epidermal barrier efficiency can be made, among others, by the measurement of the following values: the lipid coat, the transepidermal water loss (TEWL) index, and pH. Materials: The study involved 50 Caucasian, healthy women aged 19–35 years (mean 20.56). Methods: Measurements were made using Courage & Khazaka Multi Probe Adapter MPA 580: Tewameter TM 300, pH-Meter PH 905, Sebumeter SM 815. The areas of measurements included forehead, nose, left cheek, right cheek, chin, and thigh. Results: In the T-zone, the lipid coat was in the range between 0 and 270 $\mu\text{g}/\text{cm}^2$ (mean 128 $\mu\text{g}/\text{cm}^2$), TEWL between 1 and 55 $\text{g}/\text{m}^2/\text{h}$ (mean 11.1 $\text{g}/\text{m}^2/\text{h}$), and pH 4.0–5.6 (mean 5.39). Lower values of the lipid coat up to 100 $\mu\text{g}/\text{cm}^2$ were accompanied by TEWL greater than 30 $\text{g}/\text{m}^2/\text{h}$ and less acidic pH of 5.6–9.0. In the U-zone the range of lipid coat was up to 200 $\mu\text{g}/\text{cm}^2$ (mean 65.2 $\mu\text{g}/\text{cm}^2$), the skin pH remained 4.0–5.6 (mean 5.47), and TEWL was in the range between 1 and 20 $\text{g}/\text{m}^2/\text{h}$ (mean 8.7 $\text{g}/\text{m}^2/\text{h}$). Lower values of the lipid coat up to 100 $\mu\text{g}/\text{cm}^2$ were accompanied by TEWL between 1 and 20 $\text{g}/\text{m}^2/\text{h}$ and less acidic pH of 5.6–9.0. High values of the lipid coat between 180 and 200 $\mu\text{g}/\text{cm}^2$ were connected with TEWL of 1–15 $\text{g}/\text{m}^2/\text{h}$. On the skin of the thigh, we observed a very thin lipid coat – 35 $\mu\text{g}/\text{cm}^2$ (mean 5.6 $\mu\text{g}/\text{cm}^2$), pH (mean 5.37), and TEWL (mean 8.5 $\text{g}/\text{m}^2/\text{h}$) were considered by us to be within regular limits. Conclusions: In the T-zone, a thinner lipid coat resulted in relatively high TEWL and pH levels changing toward alkaline. In the U-zone, thinner lipid coat was accompanied by lower TEWL and pH changing toward alkaline. We also observed that lower values of lipid coat up to 100 $\mu\text{g}/\text{cm}^2$ were associated with higher pH values ranging toward the basic character pH 5.6–9.0).

U. Wölfle, B. Haarhaus, J. Seiwerth, A. Cawelius, K. Schwabe, K.-W. Quirin, C.M. Schempp, **The Herbal Bitter Drug *Gentiana lutea* Modulates Lipid Synthesis in Human Keratinocytes In Vitro and In Vivo**, *Int. J. Mol. Sci.*, 2017, 18, 1814

Gentiana lutea is a herbal bitter drug that is used to enhance gastrointestinal motility and secretion. Recently we have shown that amarogentin, a characteristic bitter compound of *Gentiana lutea* extract (GE), binds to the bitter taste receptors TAS2R1 and TAS2R38 in human keratinocytes, and stimulates the synthesis of epidermal barrier proteins. Here, we wondered if GE also modulates lipid synthesis in human keratinocytes. To address this issue, human primary keratinocytes were incubated for 6 days with GE. Nile Red labeling revealed that GE significantly increased lipid synthesis in keratinocytes. Similarly, gas chromatography with flame ionization detector indicated that GE increases the amount of triglycerides in keratinocytes. GE induced the expression of epidermal ceramide synthase 3, but not sphingomyelinase. Lipid synthesis, as well as ceramide synthase 3 expression, could be specifically blocked by inhibitors of the p38 MAPK and PPAR γ signaling pathway. To assess if GE also modulates lipid synthesis in vivo, we performed a proof of concept half side comparison on the volar forearms of 33 volunteers. In comparison to placebo, GE significantly increased the lipid content of the treated skin areas, as measured with a sebumeter. Thus, GE enhances lipid synthesis in human keratinocytes that is essential for building an intact epidermal barrier. Therefore, GE might be used to improve skin disorders with an impaired epidermal barrier, e.g., very dry skin and atopic eczema.

F. Pouradier, C. Liu, J. Wares, E. Yokoyama, C. Collaudin, S. Panhard, D. Saint-Léger, G. Loussouarn, **The worldwide diversity of scalp seborrhoea, as daily experienced by seven human ethnic groups**, *Int J Cosmet Sci*, 2017 Dec;39(6): p. 629-636

Objective: The re-greasing process and kinetics of the human scalp, post-shampooing, have been previously documented, in vivo, on a few Caucasian subjects. The objective of the presented research was to extend such knowledge over seven different ethnic groups. Methods: The post-shampooing re-greasing kinetics of the scalp was studied on 1325 subjects (women and men of two distinct age classes) from seven different ethnic groups in their residential and native country. Sebum amounts were determined onto small shaved scalp areas at various times post-shampooing, using the Sebumeter[®] technique. Results: As previously published on Caucasian subjects, scalp re-greasing process follows a hyperbolic-like kinetics over days. However, amounts of collected sebum highly vary with ethnicity. As recorded through the casual level (CL) at the equilibrium phase, 2-3 days post-shampooing, the highest amount of sebum was found in African American subjects, followed in descending order by Caucasian American, Japanese, Chinese, Thai, Caucasian European and Indian subjects, the latter showing very low values. Lower amounts of sebum were recorded in the older age class in all ethnics, as compared to the younger one, and male subjects were found higher sebum producers than women, irrespective of ethnicity. Conclusion: The kinetics and slopes of the re-greasing process of the human scalp appear similar in all ethnic groups studied. However, striking quantitative differences are found between the seven ethnic groups, resulting from different sebaceous production levels and scalp hygiene routines.

E. Loing, E. Lamarque, M. Borel, **New targets in the battle against dandruff**, *J Cosmet Sci*, 2017 Jan/Feb;68(1): p. 107-113

Dandruff is a scalp disorder characterized by flaking skin and itch of an excessive oily scalp skin. It affects 55% of the global youth and adult population. Seborrheic dermatitis is a similar scalp skin disorder with aggravated itchy rashes and flaking. Different factors are identified in the dandruff development: increased sebum production, uncontrolled fungal growth of *Malassezia* strains and individual reaction to pro-inflammatory environment, and the susceptibility to trigger an immunological response. Using *in vitro* and *ex vivo* models, we show that an *Epilobium angustifolium* extract dose dependently reduces lipid synthesis in sebocytes to a maximum of -43% (1% extract), and protects the epidermis from *Malassezia*-induced morphological changes. *Epilobium angustifolium* extract also acts through innovative mechanisms involving regulations of defensins (human beta-defensins [hBD2] and hBD3) and

toll-like receptor 2 involved in the immunological response of the skin. The anti-dandruff and sebum-regulating efficacy of *E. angustifolium* extract (1.5%) was confirmed in a clinical study that mobilized 24 volunteers with dandruff and greasy scalp for 30 days. At the end of the study, nonadherent and adherent dandruffs were significantly ($p < 0.0001$) reduced in average by -54% and -48%, respectively. Using Sebumeter® measurements, scalp sebum production was inhibited by -67% ($p < 0.0001$) in average over baseline. In conclusion, *E. angustifolium* extract offers a new innovative approach to dandruff reduction through immunomodulation of the skin response to *Malassezia* invasion.

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

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

N. Singh, D. Deflorio, Taking the rough with the smooth: aging effects on tactile surface texture perception, University of Birmingham, UK

Over the course of the day most of us handle different items. We grasp them and also run our fingers over the surface. Our current project is a collaboration of expertise from academia and industry to understand how information from multiple sources and senses are combined in surface texture perception, and how does it changes with age. The current project is a collaboration of University of Birmingham, University of Nottingham and Proctor & Gamble Brussels Innovation Center.

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

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

P = 0.022), and tended to have lower rates of body skin problems between 1 and 3 months (42.1% vs 55.2%, P = 0.064). Moisturizing skincare was effective for improving skin barrier function and preventing newborns' diaper dermatitis. The results of our study may help parents make informed decisions about newborn skincare.

B. Walzel, B. Senti, S. Banziger, U. Batz, The natural solution to pollution, PERSONAL CARE ASIA PACIFIC, January 2018

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

S. Léglise, Rebalancing for lighter, less oily hair, PERSONAL CARE ASIA PACIFIC, March 2018 and PERSONAL CARE EUROPE, April 2018, p. 158-159

Because oily hair comes from a functional imbalance in the hair bulb, this needs to be corrected through targeted action on the production of oily substances, and also on the general protection of the hair.

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

Introduction: Clinical manifestations of skin aging like xerosis, wrinkles and slackness are related to underlying complex molecular phenomena in the different layers of the skin. The combinations of classical biometric measurements with more complex and informative techniques like *in vivo* Raman spectroscopy can provide interesting information on the organization of lipids in the *Stratum Corneum* (SC), their barrier function and on water content and mobility, in order to better characterize the skin aging. Methodology: Biometric information (TEWL, corneometry, sebumetry, skin pH, mechanical stress) and Raman spectra and in-depth profiles were collected from the forehead of twenty-two young women (18- 24 years old) and eighteen elderly women (70-75 years old). Results and Conclusions: Important modifications on biometric skin parameters, structure of the SC and water mobility can be observed for elderly. Our results show a good association between biometric parameters and *in vivo* Raman descriptors. Interestingly, higher compacity of lipids, higher total water content and lower unbound water content are observed for elderly.

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

Introduction: Dull skin is a major concern for senior women but even though some parameters such as optical parameters seem to be involved in the perception of skin radiance, there is a lack of objective assessments, and it remains difficult to assess. A typological study was conducted in order to characterize the drivers of lack of facial skin radiance in senior women using a holistic and cartographic approach. Knowing this, the change level required for each key driver was determined to improve overall skin radiance then confirmed through a validation study. Methodology: In a first step, a typological study

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

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

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

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

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

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

Introduction: Excess of oiliness can cause skin changes such as acne and compromise the cutaneous physiology, affecting of both skin and hair. Thus, the aim of this study was to evaluate skin and hair alterations due to excessive amount of sebum using biophysical and imaging techniques. Methodology: 100 participants (18 - 49 years), with oily skin and hair, were recruited. Skin was evaluated in terms of stratum corneum water content, TEWL, activity of the sebaceous glands, amount of porphyrins and pores. Scalp was evaluated in terms of sebum content. Results and Conclusions: Participants were divided 4 groups: 1- Oily skin and hair (45,23%), 2- Oily skin and normal hair (10,71%), 3- Normal skin and oily hair (34,52%) and 4- Normal skin and hair (9,52%). The participants with oily skin presented activity of the sebaceous glands of 9.1 ± 1.1 surface (%), high amount of pores and presence of porphyrins, and scalp amount of sebum of $330,6 \pm 9,8$ $\mu\text{g}/\text{cm}^2$. Although all the panelists considered their hair and skin oily, they were classified differently, showing that the tropical weather can influence the self-perception and lead to a wrong treatment without the correct evaluation.

M.L. Vazquez-Gonzalez, M. Cocerra, J. Nestor, G. Rodriguez, R. Saldana, L. Barbosa-Barros, Innovative approach to control acne-prone skin, PERSONAL CARE EUROPE, April 2018, p. 153-156

Excessive sebum production can give rise to oily skin, shiny appearance, enlarged pores and favour the development of acne lesions. The care of acne-prone skin involves the use of harsh molecules, wash out and multi-step products that irritate the skin and limit user compliance. This study describes the development of a bicosome system that targets the epidermis and follicles to effectively deliver a sebostatic active compound and potentiate its effects on sebum production and acne lesion prevention. This is an alternative approach to that offered by current products, which can be included in the daily care of acne-prone skin.

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

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

J. Attia-Vigneau, M. Shortt, R. Seguin, I. Lacasse, E. Loing, Safeguarding Squalene: Lemon Myrtle Antioxidant for Pollution Protection and Oleostasis, C & T online May 2018

Sebum, the lipid film produced by sebaceous glands in the skin, has important functions including reducing water loss from the skin surface, serving as a vehicle for lipophilic antioxidants, protecting against harmful microorganisms and shielding against environmental aggressors.¹ Human sebum is a complex mixture of lipids consisting of triglycerides, diacylglycerols and fatty acids (50–60% altogether); wax esters (20–30%); squalene (10–16%); and cholesterol esters (2–4%).

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

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

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

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

A. Desnos, D. Gely, D. Chollet, C. Soleau, The Skin Balancing Effect of Polygonum bistorta, IFSCC Congress, Munich, September 2018

Sebaceous glands produce and secrete sebum that coats and protects the skin against bacteria and keeps it hydrated. Through the pore of the hair follicle, sebum reaches the surface of the skin. It is composed of triglycerides and fatty acid breakdown products (55-60%), wax esters (25%), squalene (12%), cholesterol esters and cholesterol (<5%) (1). However, sebum synthesis can be dysregulated and influenced by multiple molecular pathways and stimulus including oxidation and inflammation (2).

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

People with oily skin often complain that their skin feels unclean and is shiny. Oily skin is not only an aesthetic concern, but can also contribute to acne development. The main origin of oily skin is the hyperactivity of sebocytes, which results in an excessive secretion of sebum from sebaceous glands. Sebaceous glands are mostly found on scalp, face, and trunk in association with hair follicles forming the pilosebaceous unit. The secretion of sebum is carried out through a holocrine breakdown of mature sebocytes characterized by a high density of cytoplasmic lipid droplets. Sebum is a unique complex mixture of lipids with triglycerides (30- 50%), free fatty acids (15-30%), wax esters (26-30%) and squalene (12-20%). However, sebum is beneficial as it helps to protect and moisturize the skin and hair,

keeping them healthy. Therefore, managing or treating oily skin is always a challenge to retain an appropriate moisturization. Sebaceous glands also support the growth of facultative anaerobes such as *Propionibacterium acnes* (*P. acnes*), a common skin commensal bacterium. Encoding lipases of *P. acnes* degrade skin lipids of sebum, they especially hydrolyses the triglycerides present in sebum, releasing irritant free fatty acids onto the skin. Managing the lipase activity may contribute to decrease *P. acnes* virulence and related skin impact.

G. Dell'Acqua, C. Heusele, S. Schnebert, Clinical evaluation of hyperpigmentation on skin phototype IV and V, IFSCC Congress, Munich, September 2018

Increased production of melanin can lead to pigmentation disorders characterized by hyperpigmentation and uneven melanin distribution, especially in darker skin individuals. This phenomenon can have different causes: inflammation due to a wound, an acne lesion, or a chronic and prolonged sun exposure. These clinical features can be visible for a variable period of time, causing serious psychological discomfort. To identify pigmentation disorders and their manifestation, a clinical study was performed in the United States on 61 healthy women (30 aged 20-30 years old and 31 aged 54-65 years old), phototype Fitzpatrick IV-V, mostly African Americans or Hispanics, presenting nonpathological hyperpigmentation on the cheeks. A board-certified dermatologist classified lesions as post-inflammatory hyperpigmentation (PIH), melasma, solar lentigo/age spot, maturational dyschromia and assigned scores based on lesion's intensity, size and distribution. In particular, PAHPI – Postacne Hyperpigmentation Index and MASI - Melasma Area and Severity Index were scored. Pigmented areas were instrumentally quantified by image analysis (VISIA, Vaestro, Canfield). Pores number and size were also measured (VISIA, Vaestro, Canfield). Sebum output was quantified on the forehead using a Sebumeter (Courage & Khazaka). A Skindex-16 questionnaire was used to evaluate skin-related quality of life. Type and intensity of skin dyspigmentation was studied according to subject's age, phototype, ethnic origin, sebum output, pore size and pore number. Results show that PIH was mostly carried by the younger group with a prevalence in phototype V (African American). Melasma and maturational dyschromia were mostly common in the older group with melasma lesions number more prevalent in phototype V and more evident on the malar region of the face. When analyzed by imaging, the older group presented a statistically significant higher hyperpigmentation than the younger group. The older group also presented more and larger pores than the younger group. The Skindex-16 questionnaire evidenced significant concern and discomfort about the condition specifically in the younger group. This study highlights in details age-related skin pigmentation differences on a specific dark skin phototype targeting an African American and a Hispanic population.

P. Sewraj, A. Laurent, Kinetics of sebum excretion on the scalps of Black South African Women, IFSCC Congress, Munich, September 2018

Background: Several studies that include instrumental evaluation of sebum production on the scalp showed that sebum levels on the scalp differ among populations living in different parts of the world. This study completes the picture with data on Black South African women. Methods: Two groups of 15 black women differently aged (18- 35y) and (45- 65y) were enrolled in the study. Inclusion criterion specified that no relaxer was used in the 4 weeks prior to the test. The study was conducted over a 72 hour period (0, 24, 48 and 72h) and measurements were made on the scalp and forehead using a Sebumeter[®] (sebum score). Kinetics of sebum production were studied, in particular the time needed to reach a plateau, as well as the age impact on that kinetics. Results: The basal scalp sebum level of South African women was found of much lower value than that of African American scalps and the lowest of all populations, when referring to a previous work of our Research group (1). For the kinetics of sebum production (Sebum Excretion Rate), black South African women present a much lower sebum production on the scalp. It takes longer to reconstitute the scalp sebum at 48 hours when compared to women of other countries, globally.

M. Hisama, A. Kishita, N. Yamaguchi, C. Takeuchi, S. Matsuda, K. Yoshio, H. Kanayama, K. Masui, T.

Miyazawa, R. Takimi, Age Related Changes of Human Skin Investigated on Biophysical, Physiological and Histological Characteristics, IFSCC Congress, Munich, September 2018

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

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

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

N. Zacula Juárez, A. Galvan, Gerardo, L. Gómez, Evaluation of the recovery of the biomechanical

properties in hypertrophic burn scar: Looking for a suitable treatment and Care, IFSCC Congress, Munich, September 2018

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

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

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

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

M. Fak, H. Rotsztejn, A. Erkiert-Polguj, The early effect of microdermabrasion on hydration and sebum level, Skin Res Technol. 2018; 24, p. 650-855

Background: Microdermabrasion is a popular form of mechanical peel, used for many aesthetic purposes. Because it removes the superficial epidermal layer, it has an impact on hydrolipid skin coat. Objective: The aim of the study was to examine the changes taking place in the hydrolipid coat of the skin after microdermabrasion measured by skin hydration and sebum level. Methods: Sixteen healthy women were included in the study, and the aluminium oxide crystal microdermabrasion device was used over the entire face of each patient. Measurements of stratum corneum hydration and sebum level were taken at baseline, just after the treatment, and 30 and 60 minutes later. Results: A statistically significant difference in stratum corneum hydration was found on the cheeks 30 minutes after treatment and in the T-zone immediately after the procedure. Sebum reduction was observed immediately after the procedure irrespective of skin type and face area. In addition, sebum value was found to return to baseline 1 hour after the procedure. Conclusions: The observed changes in epidermal barrier function may be responsible for the clinical improvement following microdermabrasion.

D. Blasi, C. Paratore, A bright 'star' in the anti-acne universe, PERSONAL CARE ASIA PACIFIC, September 2018, p. 69 – 71

Among all the dermatoses, *Acne vulgaris* is the most common multifactorial disease in patients between 11 and 30 years old, as it affects up to 80% of people belonging to this age segment. Moreover, due to its high diffusion in the population and to its significant morbidity, it causes both physically and psychologically side-effects on patients, in terms of scarring, depression, anxiety and low self-esteem. *Acne vulgaris* is an inflammatory disorder in which many agents can act as triggers: androgens, drugs, genetic factors, regulating neuropeptides and environmental factors, such as pollution and UV radiation.

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

Background: Contact dermatitis is a common skin condition observed by dermatologists, presenting a burden on healthcare systems. Recently, there has been a trend in producing skin-identical topical preparations for the repair of skin. However, there is a limited number of experimental studies to assess the safety and efficacy of this products. Objective: This study assessed the clinical efficacy and safety of a skin-identical ceramide complex cream (Dermalex Repair Contact Eczema; Omega Pharma, Nazareth, Belgium) in the treatment of contact dermatitis. Design: This was a Phase II, before-after trial. Setting: This study was conducted at the Center for Research and Training in Skin Diseases and Leprosy (CRTSDL) at Tehran University of Medical Sciences in Tehran, Iran. Participants: Fifteen patients with contact dermatitis (8 men and 7 women) between the ages of 25 and 62 years (median age: 36.4 years) were enrolled in this study. Measurements: Changes were assessed using six skin biophysical

parameters (transepidermal water loss [TEWL], stratum corneum [SC] hydration, melanin index, erythema index, skin pH, and skin friction), Physician Global Assessment (PGA) score, and Three-Item Severity (TIS) score at baseline, Week 2, and Week 4 of the study. Results: Skin hydration and TIS showed a statistically significant improvement after treatment with study cream ($p=0.023$ and $p=0.007$, respectively). Although the reduction in TEWL was not significant, a slight decrease was observed at Week 4. Conclusions: The skin-identical ceramide complex cream improved contact dermatitis with a decrease in TIS and an increase in skin hydration, implying a repair of the skin barrier.

*C. Uhl, G. Lanzendörfer-Yu, **How effective is your anti-acne product?**, SPC December 2018*

For assessing, treatment analysis and documentation, acne has to be either graded or lesion scoring has to be done. Both methods strongly depend on the skills of the examiner and bear high inter-individual deviations. Biophysical measurements using sebumetry, porphyrin fluorescence, and standardized photographic images of the face can overcome these disadvantages. Additionally, they can be used for comprehensive evaluation of the treatment protocol.

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

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

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

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

*D. Blasi, C Paratore, **A bright 'star' in the anti-acne universe**, PERSONAL CARE EUROPE, April 2019, p. 79-81*

Among all the dermatoses, *Acne vulgaris* is the most common multifactorial disease in patients between 11 and 30 years old, as it affects up to 80% of people belonging to this age segment. Moreover, due to its high diffusion in the population and to its significant morbidity, it causes both physically and psychologically side-effects on patients, in terms of scarring, depression, anxiety and low self-esteem.

*X. Lin, A. Nomachi, J. Yang, **Rise to the top - Decylene Glycol for Scalp Health and Care**, Cosmetics & Toiletries, June 2019, p. 64-70*

Scalp care products have, in the past, primarily focused on controlling dandruff and itching. However, a recent trend is moving toward scalp health maintenance and the prevention of inflammation.

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

Background: Facial skin exhibits unique biophysical properties, which are influenced by anatomical regions and genders. The aim of this study was to comprehensively assess the regional and gender differences in facial skin biophysical parameters among Chinese population. Materials and Methods: The 12 skin biophysical parameters at four distinct facial skin sites (forehead, cheek, canthus and chin) were measured in a normal population (n = 212) with 42 males and 141 females aged 18-29 years living in Beijing. These parameters consisted of skin hydration, transepidermal water loss, sebum content, erythema/melanin indices, L*a*b* color, skin gloss and elasticity, all quantifying with non-invasive instruments. Results: The results demonstrated that the characteristics of the facial skin were significantly different between the regions and genders. The forehead had weaker skin barrier function but secreted the most sebum content, while the cheek was the driest and brightest region on the face. The canthus was the most hydrated area and the chin displayed higher sebum secretion, darker skin color and less elastic. The females showed more hydrated, less oil, lighter and more elastic facial skin compared with males. Conclusion: This study indicates that the young Chinese facial skin significantly varies with face anatomical regions and differs between genders.

T. Sugawara, N. Nakagawa, N. Shimizu, N. Hirai, Y. Saijo, S. Sakai, **Gender- and age-related differences in facial sebaceous glands in Asian skin, as observed by non-invasive analysis using three dimensional ultrasound microscopy**, *Skin Res Technol.* 2019;25: p. 347-354

Background: While determining sebaceous gland morphology is useful in the treatment of skin disorders such as acne, a non-invasive assessment method has not been developed. Since age and gender affect sebum level, differences in sebaceous gland morphology according to these factors were investigated. Methods: Facial skin was measured using a high-frequency three-dimensional ultrasound microscope. First, the ultrasound images were compared with skin sections. Next, we assessed sebaceous gland morphology. Images of sebaceous gland in the cheeks of young male, young female and elderly female subjects were obtained using ultrasound microscopy, and *en face* images were processed to measure the sebaceous gland area. Results: In the ultrasound images, sebaceous glands and also thin collagen fibers, which surrounded the glands, could be detected as low-intensity regions. We called them sebaceous units. In young male subjects, the sebaceous unit areas 900- μ m beneath the skin surface were larger than those at 700 μ m. In contrast, depth-dependent differences in sebaceous unit area were not observed in young female subjects, indicating that males had cauliflower-shaped sebaceous glands while young females had somewhat more cylindrical and smaller sebaceous glands than the young males. Regarding age, the areas of sebaceous units at 900 μ m were diminished and the depth of maximum area was shallower in elderly female subjects compared to young female subjects. Hence, sebaceous glands are considered to shrink with age. Conclusion: Differences in facial sebaceous unit morphology between genders as well as by age groups could be observed using high-frequency ultrasound microscopy.

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

Introduction: During sleep, the skin is exposed to various environments for example low or high humidity and temperature. And the average of 7-8 hours of sleeping in those situations can affect skin condition. Therefore, the objective of this study was to determine skin characteristics according to humidity during sleep. Method: Eleven healthy women in their ages of 20s and 30s were controlled. They slept more than 7 hours at lower than 30% relative humidity (RH) environment on the first day and at higher than 70% on the second day. The room temperature was controlled to $22 \pm 5^\circ\text{C}$. Three measurement points were (a) before for sleep (after wash), (b) after 7 hours sleep (morning), and (c) after wash. Skin hydration, sebum secretion, and trans-epidermal water loss (TEWL) were measured. The statistical significance was determined at $P < 0.05$. Result: After 7 hours of sleep in 30% RH condition,

skin hydration decreased by 24.23% significantly, but there was no significant difference after sleeping in 70% RH. The sebum level was increased after sleep at 30% RH. The TEWL did not show differences according to the humidity during sleep but significantly increased after facial cleansing in 30% RH sleeping condition. Discussion: In this study, we confirmed that the changes in skin characteristics may be affected by humidity during sleep. When sleeping in dry environment, skin hydration decreases but the amount of sebum increases to compensate for skin dryness. Therefore, this study might suggest how to care the skin before sleep depending on the room humidity.

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

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

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

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