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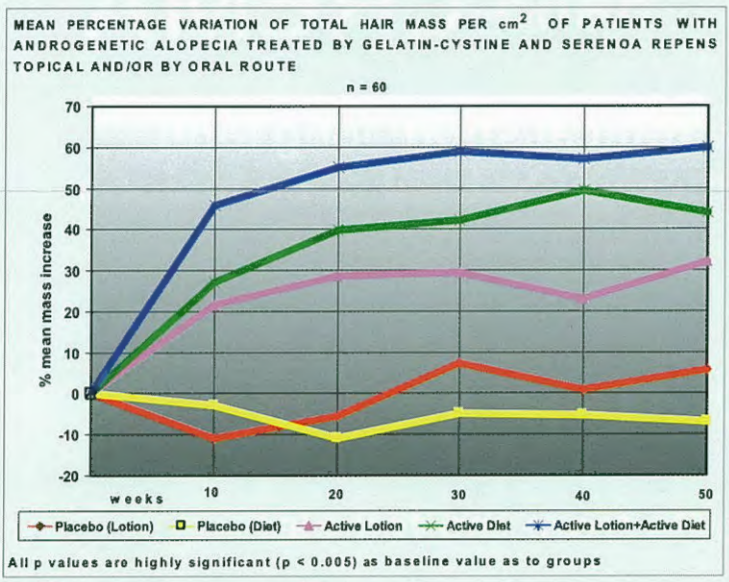
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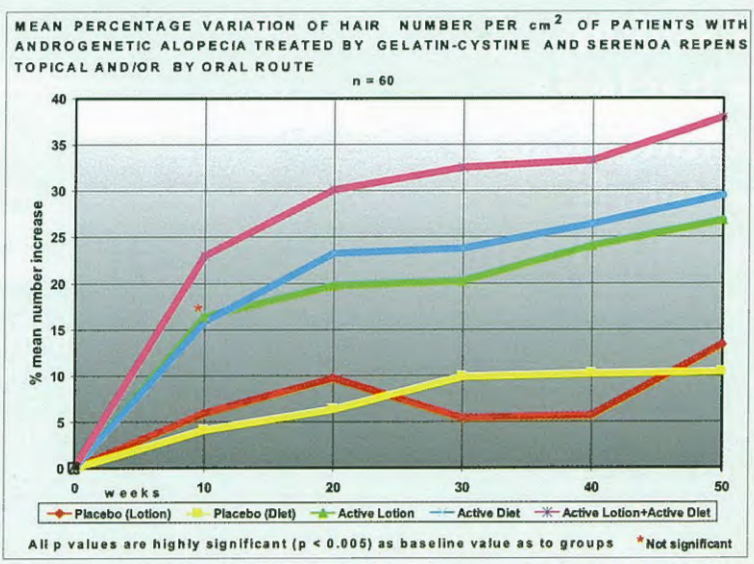
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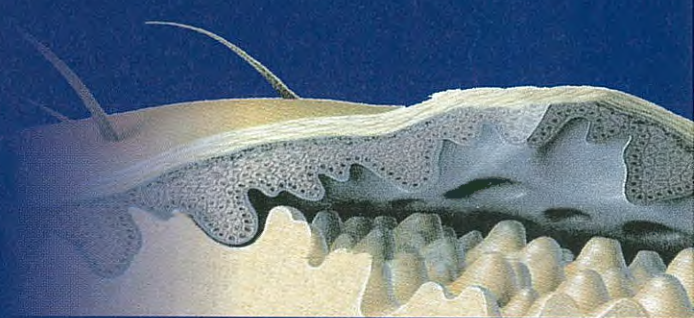
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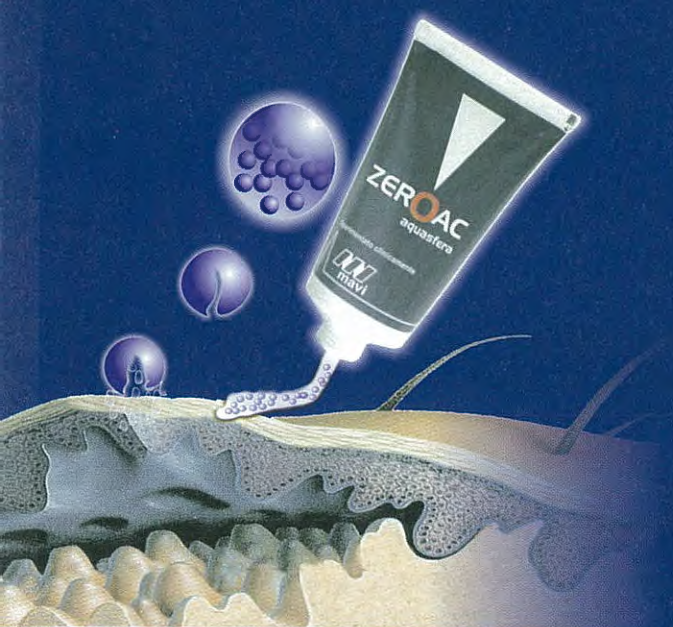
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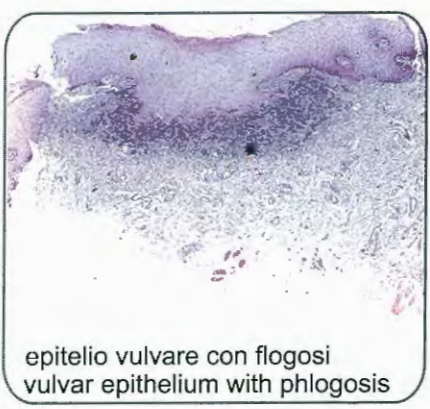
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J. Appl. Cosmetol. **24,** 139-147 (October/December 2006)

NEW APPROACHES FOR UV-INDUCED PHOTODAMAGE PROTECTION

Elka Touitou and Biana Godin
Department of Pharmaceutics, School of Pharmacy, Faculty of Medicine, The Hebrew University of Jerusalem, Israel

Received: *August 2006*

Key words: *Sunscreens; Jojoba derivatives; Ethosomes; Alpha-tocopherol; Skin photodamage;*

Summary

This paper describes a dual approach for efficient protection from UV-induced skin damage: (1) use of a new generation of chemical sunscreens acting on the skin surface and lacking transdermal absorption followed by (2) use of ethosomes for enhanced dermal and intracellular delivery of free radical scavengers.

The basic concept behind the design of Skin Non-Permeating SUNscreens (NPSUN) was to immobilize UV absorbing moieties in the structure of a jojoba oil backbone. NPSUNs containing two or four methoxycinnamic UV absorbing groups (MC-NPSUNs) were synthesized and characterized. No permeation of MC-NPSUNs across the skin was observed in 24 hour *in vitro* permeation experiments either following application of neat compounds or after application of MC-NPSUNs formulated in o/w cream, in o/w cream or in jojoba oil. An additional valuable feature of NPSUNs is their high skin substantivity which could minimize the need for repetitive applications.

Ethosomes, specially designed carriers for enhanced dermal and intracellular delivery, were used to improve uptake of alpha-tocopherol into the skin cells for prevention of malignant processes induced by solar radiation. The results show that alpha-tocopherol was efficiently delivered into the skin and across the cellular membranes from ethosomal systems.

Impediment of sunscreen systemic absorption diminishes the potential of sunscreens to cause systemic adverse reactions, while the efficient delivery of alpha-tocopherol to the site of its action within the skin cells increases the agent's efficiency in inhibiting sun related carcinogenic processes.

Riassunto

Questo studio riporta il duplice approccio possibile per ottenere una efficiente protezione nei confronti dei danni cutanei provocati dagli UV (1). L'utilizzazione di una nuova generazione di filtri in grado di migliorare il rilascio di attivi capaci di neutralizzare i radicali liberi.

Il concetto base per impedire la penetrazione dei filtri solari (NPSUN) è quello di adsorbirli nella struttura base dell'olio di jojoba (NPSUN). Così sono stati sintetizzati e caratterizzati NPSUN con-

tenenti 2 o 4 gruppi metossicinnamici (filtri UV). E' stato così visto che questo particolare veicolo (NPSUN) dopo 24 ore non penetra attraverso la cute se inserito sia in emulsioni o/a che a/o o in olio di jojoba. Inoltre ne è stato anche valutato il grado di sostantività (affinità per la pelle) in modo da evitare la ripetuta applicazione del prodotto. Al contrario, per facilitare la penetrazione dell'a-tocoferolo (vit. E) attraverso la pelle in modo da prevenire i danni da UV, sono stati utilizzati gli etosomi. Dai risultati ottenuti si desumono chiaramente come gli etosomi siano in grado di penetrare facilmente attraverso gli strati cutanei e le membrane cellulari.
L'impedita penetrazione dei filtri solari ne impedisce gli effetti negativi sistemici, mentre la penetrazione degli etosomi con la vit. E inibisce l'instaurarsi dei fenomeni carcinogenetici legati all'azione degli UV:

INTRODUCTION

It is well accepted that there is a high need to protect our skin from UV induced photodamage and photocarcinogenesis [1, 2]. This paper presents a dual approach for efficient skin photoprotection by proposing sunscreens that do not permeate the skin on the one hand, and a carrier for enhanced skin penetration of free- radical-scavengers on the other hand (Figure 1).

New Skin Non-Permeating Sunscreens (NPSUN)

Chemical sunscreens are prophylactic agents that absorb UV radiation on the surface of the skin. Until now, sunscreen manufacturers have convinced regulators, formulators, and consumers that protection from UV-induced skin photodamages outweighs any supposed risk from the sunscreen agents. However, for many years researchers have been aware of the possible toxicity caused by percutaneous absorption of chemical sunscreens topically applied to the skin. More recent reports support this concern [3, 4]. Widely used sunscreens, such as octylmethoxycinnamate (OMC) and benzophenone-3, were reported to have an estrogenic effect in laboratory tests, causing cancer cells to grow more rapidly and triggering developmental abnormalities in rats [5, 6].

The currently used chemical sunscreens are generally small organic lipophilic molecules, which due to their physico-chemical characteristics possess a good potential to penetrate into the deep strata of the skin and to be systemically absorbed. Unfortunately, the *in vitro* skin permeation tests often use inadequate experimental conditions, e.g. receiver medium, that do not allow clearance of the lipophilic sunscreen from the skin layers into the receiver diffusion cell.

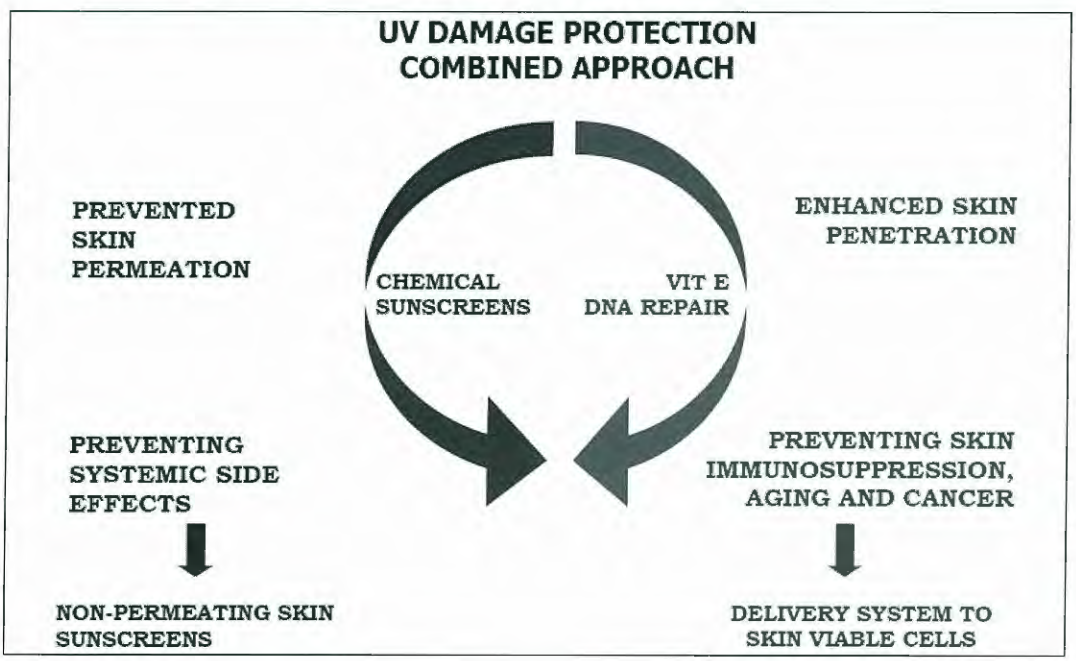


Fig. 1 Combined approach for efficient protection from UV induced skin damage.

This can explain why many reports in the literature support the claim that sunscreen molecules do not penetrate the skin. On the other hand, when an appropriate receiver vehicle was used 9% of the applied dose (10mg) of the widely used sunscreen OMC permeated across the skin with a flux 27μg/cm^{2}h (Figure 2).

It is important to keep in mind that sunscreens are applied to a large skin area (≥1 m^2) and for a long period of time, producing a constant and significant absorption of the sunscreen into the systemic circulation. Thus there is a critical need for the development of new products based on skin non-penetrating photoprotectors.

With the aim of introducing new sunscreen molecules that have an advantage over currently marketed ones, we designed skin Non-Permeating SUNscreens (NPSUN). The basic concept behind these molecules was to immobilize UV absorbing moieties in the structure of a jojoba oil backbone [7]. For this purpose NPSUN jojoba oil-UV sunscreens were designed and investigated. Jojoba oil is an ester of fatty acids (C18-22) with fatty alcohols (C18-22), which is widely used as an ingredient in cosmetic and pharmaceutical products [8]. This oil was chosen to serve as a backbone for the new derivatives for two main reasons: it has a sufficiently high molecular weight (~600-700) and a high lipophilicity. These physico-chemical characteristics cause jojoba oil and its derivatives to accumulate within the upper skin layer, the stratum corneum, the site of action of the sunscreen molecule. Each jojoba oil molecule could be linked by ester bonds to two-four UV absorbing units and UVA, UVB or UVA-UVB NPSUNs could be designed (Figure 3).

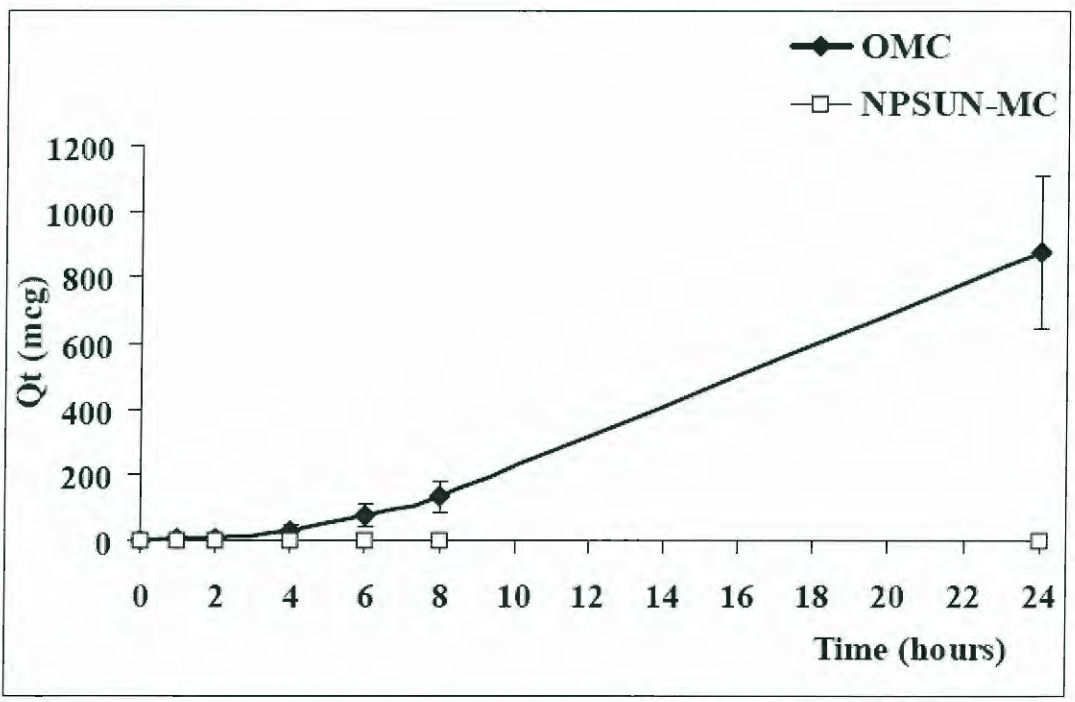


Fig. 2 Permeation profile of OMC and MC-NPSUN containing two UV absorbing units across nude mice skin following application of 10mg of the sunscreens on skin surface.

NPSUNs containing two or four methoxycinnamic UV absorbing groups (MC-NPSUN) were synthesized and characterized by various physico-chemical methods including ^{1}H-NMR, UV spectroscopy, mass spectroscopy, FTIR and elemental analysis. The results confirmed the structure of new sunscreen derivatives, showing that jojoba oil backbone was linked to UV absorbing methoxicinnamate units. It is noteworthy that MC-NPSUNs were found to possess a UV absorption spectrum similar to OMC and could be easily formulated in standard cosmeceutical and pharmaceutical topical products. Moreover, absolutely no permeation of MC-NPSUN across the skin was observed in 24 hours *in vitro* permeation experiments either following application of neat compounds (Figure 2) or after application of MC-NPSUNs formulated in o/w cream, in o/w cream or in jojoba oil. Another beneficial characteristic of NPSUNs is their high skin substantivity which could minimize the need for repetitive applications.

These results point toward a high applicability of new sunscreens based on jojoba oil with an advantage of skin non-penetrability. The non-penetrating characteristics of NPSUN new compounds are not only an important improvement over the currently used sunscreens but also are seen as meeting the future requirements of sunscreens. The use of NPSUNs will generate new improved cosmetic and pharmaceutical products as demanded by the market and health care needs.

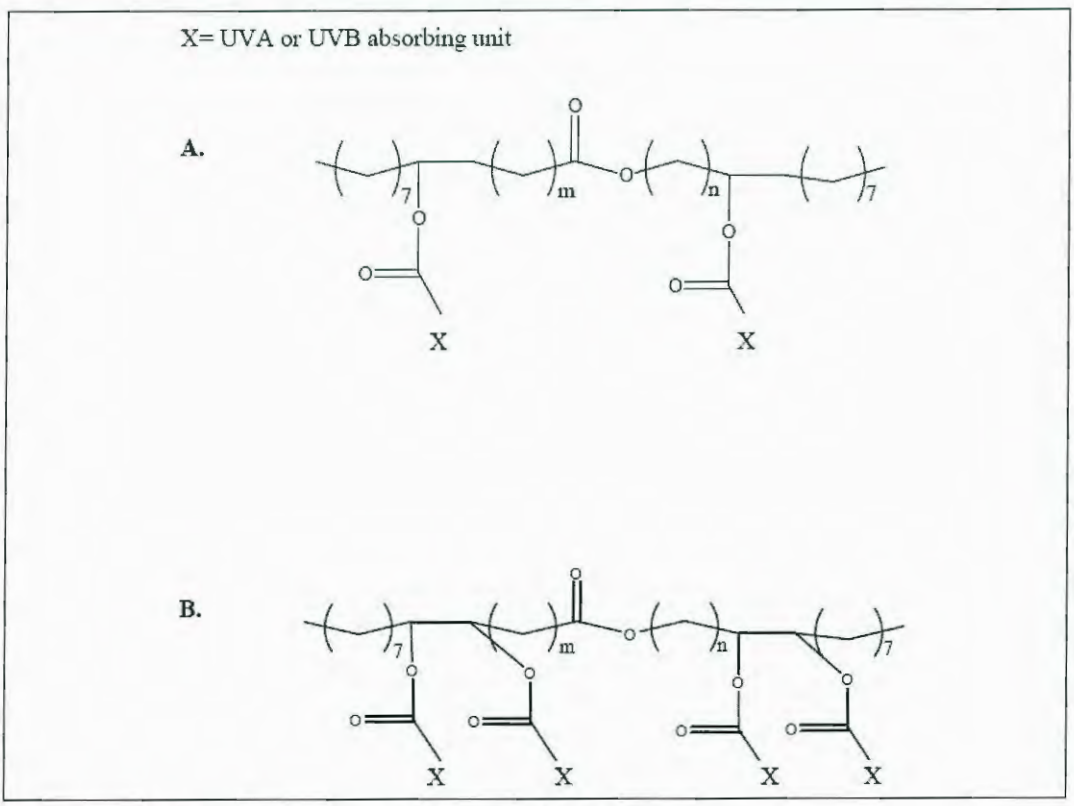


Fig. 3 Structure of NPSUN derivatives with two (A) and four (B) UV absorbing units.

Ethosomes for Efficient Intracellular and Dermal Delivery of Vitamin E to Prevent Damages Associated with UV Exposure

Previous studies have demonstrated that intracellular uptake of tocopherol is necessary for optimal photoprotection effect and prevention of malignant processes [9, 10].

For this reason we investigated Vitamin E skin and intracellular accumulation from a novel delivery carrier, ethosomes, aiming at enhanced penetration for inhibition of UV-induced photocarcinogenesis. Ethosomes are soft phospholipid vesicles containing ethanol tailored for enhanced delivery of active agents into the skin and across the cellular membranes [11, 12]. Due to their unique structure, ethosomes are able to encapsulate and deliver into the skin cells highly lipophilic molecules, such as alpha-tocopherol.

Tocopherol ethosomes were prepared and characterized for their physico-chemical characteristics [13]. Transmission electron (TE) microscopical visualization of alpha-tocopherol ethosomes was performed following negative staining with a 1% aqueous solution of phosphotungustic acid. TE micrographs of ethosomes containing alpha-tocopherol showed multilamellar vesicles with the bilayers extended to the core. The entrapment ability of ethosomes for vitamin E as determined by ultracentrifugation was 85-99% for systems possessing various compositions. This very good encapsulation ability could be explained by the high lamellarity of ethosomal vesicles as well as by the presence of ethanol in the system.

Skin and intracellular accumulation of alpha-tocopherol from ethosomes was further evaluated. In skin penetration experiments following 24 hours of non-occlusive application of alpha-tocopherol, 53.7±17.5% of the vitamin was accumulated in full thickness skin. In Confocal Laser Scanning Microscopy (CLSM) experiments cellular uptake of alpha-tocopherol ethosomes was followed by including rhodamine red labeled phospholipids (RR) in the lipid phase of the vesicles. CLS micrographs (Figure 4) following one hour incubation of 3T3 fibroblasts show that fluorescent phospholipid from ethosomes was evenly distributed throughout the cytoplasm. In contrast, when delivered from classic liposomes, the phospholipid was mainly seen on the surface of fibroblast and not within cells.

These results indicate that ethosomes efficiently delivered their contents into skin cells, while liposomes were attached to the cellular membrane with no cytoplasmatic uptake. In a following experiment, to quantify intracellular delivery of alpha-tocopherol into the skin cells, the vitamin was extracted from 3T3 dermal fibroblasts after one and four hours incubation with ethosomes and classic liposomes and assayed by HPLC with fluorescent detector. Intracellular concentrations of 731±189 and 1736±181 ng/mL alpha-tocopherol were measured following incubation of fibroblasts with ethosomes for one and four hours, respectively (Figure 5). Accumulation of alpha-tocopherol in fibroblasts after application from liposomes was significantly lower and not affected by the incubation time (470±23 and 508±44 ng/mL, respectively). These results correspond well with the CLSM data, showing that liposomes were attached to the cell surface and did not permeate into the cytoplasm [13]. The lack of toxicity of ethosomal carrier was evidenced from live/dead viability/cytotoxicity assay used to determine intracellular esterase activity and cell membrane integrity of 3T3 dermal fibroblasts following treatment with ethosomal system. These results are supported by data from a clinical study on human volunteers, which revealed that ethosomes are safe to skin and do not cause skin erythema [14].

The main targets of Vitamin E protective effect

are located in the intracellular compartments. Ethosomes caused efficient accumulation of alpha-tocopherol within the skin and dermal cells, pointing toward a high potential of this delivery system to enhance skin photoprotective effects of the antioxidant.

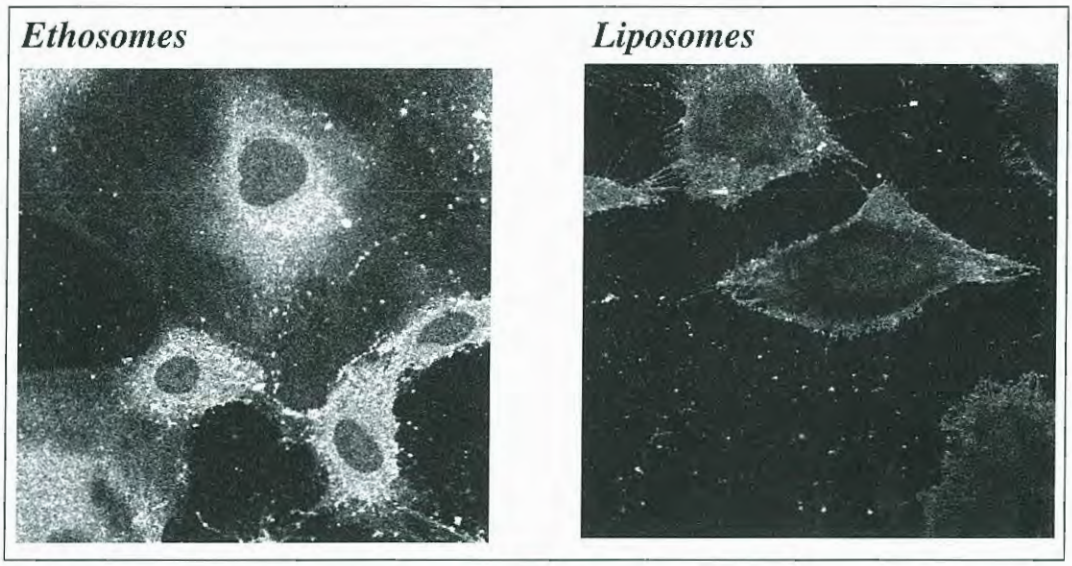


Fig. 4 CLS micrograph of rhodamin red labeled phospholipid (RR) intracellular accumulation from alpha-tocopherol ethosomes vs. liposomes.

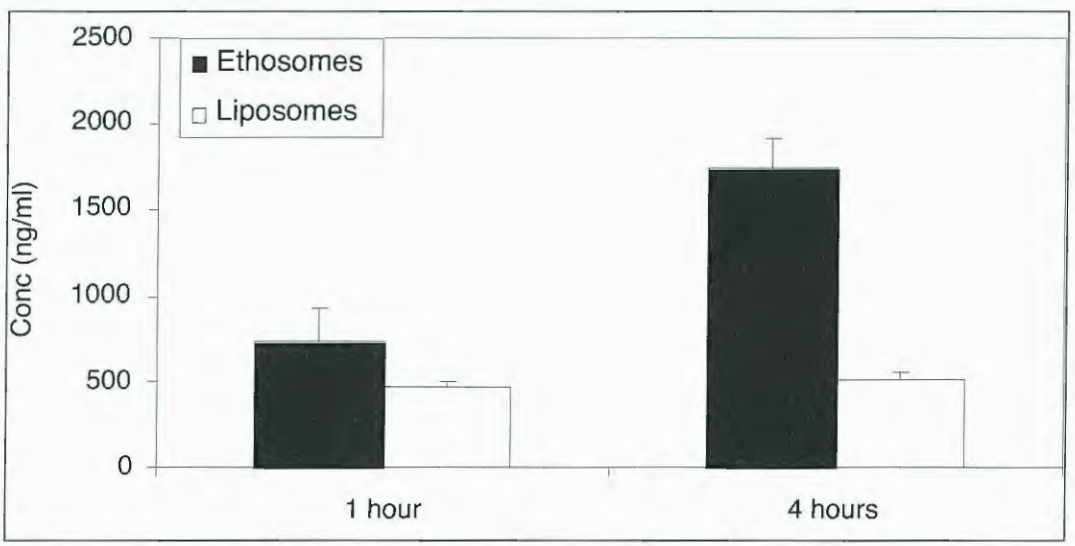


Fig. 5 Quantification of intracellular delivery of alpha-tocopherol from ethosomes vs. liposomes.

CONCLUSIONS

To summarize, this paper describes a combined approach for efficient protection from UV-induced photodamage: (1) use of NPSUNs, a new generation of chemical sunscreen derivatives of jojoba acting on the skin surface and lacking transdermal absorption, followed by (2) the use of ethosomes for enhanced skin and intracellular delivery of radical scavengers (Figure 1). Prevention of sunscreen systemic absorption will diminish the potential of sunprotectors to cause general side effects, while powerful delivery of alpha-tocopherol to the site of its action will increase its efficiency in inhibiting sun related carcinogenic processes. From a practical point of view, we propose the use of NPSUN based products during direct UV-exposure and the application of ethosomal alpha-tocopherol formulations after short or long term contact with solar radiation.

References

1) **Kraemer KH. (1997)** Sunlight and skin cancer: Another link revealed. *Proc. Natl. Acad. Sci. USA,* **94:** 11-14.
2) **Armstrong BK, Kricker A. (1993)** How much melanoma is caused by sun exposure? *Melanoma Res,* **3**: 395-401.
3) **Chatelain E, Gabard B, Surber C. (2003)** Skin penetration and sun protection factor of filters: effect of the vehicle. *Skin Pharmacol. Appl. Skin Physiol.,* **16:** 28-35.
4) **Gustavsson Gonzalez H, Farbort A, Larko O. (2002)** Percutaneous absorption of benzophenone-3, a common component of topical sunscreen. *Clin. Exp. Dermatol.,* **27:** 691-694.
5) **Schlumpf M, Cotton B, Conscience M, Haller V, Steinmann B, Lichtensteiger W. (2001)** *In vitro* and in vivo estrogenicity of UV screens. *Environ. Health Perspect,* **109:** 239-244.
6) **Schlumpf M, Schmid P, Durrer S, Conscience M, Maerkel K, Henseler M, Gruetter M, Herzog I, Reolon S, Ceccatelli R, Faass O, Stutz E, Jarry H, Wuttke W, Lichtensteiger W. (2004)** Endocrine activity and developmental toxicity of cosmetic UV filters--an update. *Toxicology,* **205:** 113-22.
7) **Touitou E, Bergelson L. (2002)** Products for preventing penetration into the skin. Patent pending.
8) **Miwa TK (1971)** Jojoba oil wax esters and derived fatty acids and alcohols. *J Am Oil Chem Soc* **48:** 299-306.
9) **McVean M, Liebler DC. (1999)** Prevention of DNA photodamage by vitamin E compounds and sunscreens: roles of ultraviolet absorbance and cellular uptake. *Mol Carcinog* **24:** 169-76.
10) **Trevithick JR, Xiong H, Lee S, Shum DT, Sanford SE, Karlik SJ, Norley C, Dilworth GR. (1992)** Topical tocopherol acetate reduces post-UVB, sunburn-associated erythema, edema, and skin sensitivity in hairless mice. *Arch. Biochem. Biophys.,* **296:** 575-82.
11) **Touitou E, Dayan N, Bergelson L, Godin B, Eliaz M (2000)** Ethosomes- novel vesicular carriers for enhanced delivery: characterization and skin penetration properties. *J. Control Release,* **65:** 403-418.
12) **Godin B, Touitou E (2004)** Mechanism of bacitracin permeation enhancement through the skin and cellular membranes from an ethosomal carrier. *J. Control Release,* **94:** 365-379.
13) **Lavy S (2002)** Ethosomes for enhancement of skin penetration of alpha-tocopherol, M.Sc. Thesis, The Hebrew University of Jerusalem, Jerusalem, Israel.
14) **Paolino D, Lucania G, Mardente D, Alhaique F, Fresta M (2005)** Ethosomes for skin delivery of ammonium glycyrrhizinate: *in vitro* percutaneous permeation through human skin and in vivo anti-inflammatory activity on human volunteers. *J. Control Release,* **106:** 99-110.

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ASSESSMENT OF DRY SKIN USING DYNAMIC METHODS

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Summary

The quantitative assessment of xerosis has been mainly based on the superficial and instantaneous measurements of skin capacitance and transepidermal water loss, or in subjective scoring systems. Modelling the transepidermal water loss curves obtained after occlusion is a versatile methodology to assess the stratum corneum water holding-capacity. On the other hand, laser Doppler velocimetry has often been employed to study the vasodilatory effect of nicotinates on the cutaneous microcirculation and investigate the penetration enhancing/retarding potential of permeants. Since dry skin presents alterations in the water accumulation dynamics and an impaired barrier function , the previous methodologies can potentially be employed in the study of xerosis. This work aims to test the ability of the two dynamic tests to quantitatively assess differences between normal and dry skin.
Twenty volunteers participated in this study. Volunteers were submitted to a plastic occlusion stress test, after which the TEWL curves were recorded. A mathematical model was adjusted to the data points, and the evaporation half-life and dynamic water mass were calculated. In the second part of the study, a solution of methyl nicotinate was applied to the skin and the subsequent increase in the blood flow was measured. Time for onset and maximum response were determined.
Results indicate that in normal skin, the decrease in TEWL after occlusion is rapid and pronounced, but when dry skin is occluded, TEWL decreases at a slower pace. These results are translated in a higher $t_{1/2evap}$ for dry skin, almost double of that obtained in normal skin. Studies with methyl nicotinate reveal differences between the onset of action observed in the two skin types.
These findings confirm that the dynamic methodologies employed can detect differences in the water dynamics and barrier function of normal and dry skin. This suggests their potential application to the area of efficacy testing of products that are used to re-establish skin hydration.

Riassunto

La valutazione quantitativa per verificare il grado di xerosi cutanea si basa principalmente sulla misurazione della capacitanza (idratazione) e della perdita d'acqua attraverso la traspirazione (TEWL) o su un sistema soggettivo basato sul punteggio. Poter portare su un modello le curve di

TEWL ottenibili attraverso l'occlusione della pelle, rappresenta una metodologia semplice e versatile per misurare la capacità dello strato corneo nel trattenere e legare l'acqua.
Vista da un'altra angolazione la velocimetria Laser-Doppler è stata impiegata per valutare l'effetto vasodilatatorio provocato dai nicotinati a livello del microcircolo cutaneo controllando così la minore o maggiore potenzialità penetrativa di eventuali permeati.
Dato che la pelle secca presenta una evidente alterazione sia nella dinamica di accumulo dell'acqua che nella funzionalità della barriera cutanea, si pensa che queste metodologie possano essere utili per la valutazione della cute xerotica.
Sono state quindi utilizzate per valutarne l'efficacia su cute normale e cute xerotica, su venti volontari che hanno partecipato allo studio. Sottoposti ad uno stress-test mediante un cerotto occlusivo ne sono stati determinati le curve di TEWL utilizzando modelli matematici che pemettono di calcolare sia il tempo di evaporazione che la quantità di *acqua dinamica*.
Nella seconda parte dello studio è stata applicata sulla pelle una soluzione di nicotildimetile che ha permesso di determinare le variazioni del flusso sanguigno.
I risultati ottenuti dimostrano come, nella cute normale, la diminuzione della TEWL dopo occlusione sia rapida e pronunciata mentre nella cute secca decresca molto lentamente rivelando una minore intensità.
Risultati analoghi si ottengono anche con il test al nicotinato dimetile.
Questi risultati dimostrano come i due test possano essere utilizzati per determinare l'efficacia di prodotti cosmetici quando, in presenza delle alterazioni della barriera cutanea, si voglia dimostrare come sia possibile ricondurla alla norma reidratando al contempo la pelle mediante l'uso di prodotti cosmetici.

INTRODUCTION

Dry skin, or xerosis, is perhaps the most widely occurring skin disorder. It is more prevalent in the geriatric population, but the presence of areas of the body with xerotic skin in children and adults is also common. Despite such high incidence, the characterization and definition of dry skin has only recently been completed (1,2). Dry skin can be described as presenting a rough, scaly and flaky surface, often associated with sensations of loss of elasticity and itch, and that worsens in low humidity conditions (3). It was initially considered to be a consequence of reduced sebum secretion, but it is in fact the result of a range of environmental and pathological factors that affect epidermal proliferation and differentiation (4). The rate of proliferation of epidermal cells is increased, but the desquamation of corneocytes is impaired, which contributes to epidermal thickening (5). The stratum corneum lipid bilayers and the epidermal components are altered, which results in a decrease in the water content and barrier function (6). Alterations also take place in the multiple metabolical processes that normally occur in the upper layers of the epidermis.

The most commonly employed strategy to quantitatively assess xerosis has been mainly measurements of skin capacitance and/or transepidermal water loss (TEWL). These methods are valid and useful in the characterization of dry skin, however, they are at the same time insufficient, since the first technique only detects superficial hydration and both are limited by providing instantaneous data. Additionally, in the clinical practice, xerosis is commonly evaluated by subjective visual scoring systems (7,8).

Alternative tests have been developed to overcome such difficulties. These are based on a dynamical assessment of cutaneous bioengineering variables, where the response of the skin to certain stimuli is evaluated and the factors that influence the cutaneous water content in the deeper layers and the barrier function can be investigated.

The mathematical modelling of the transepidermal water loss curves that result from a plastic occlusion stress test (POST) is a versatile dynamic methodology that enables the measurement of the stratum corneum water holding-capacity. Previous studies have indicated that inflicted damage to the skin barrier (such as tape stripping or application of lipid extracting solvents) can be detected by this method (9). The objective of the present study is to extend the test of the discriminative capacity of the model to the quantitative assessment of differences between normal and dry skin.

Laser Doppler velocimetry (LDV) has been extensively employed to study the vasodilatory effects of various nicotinates on the cutaneous microcirculation and, in turn, investigate the penetration enhancing/retarding potential of several substances (10). Topical application of methyl nicotinate induces a rapid local vasodilatation which is clinically expressed as a cutaneous erythema (contact urticaria type). Since xerotic skin is characterized by alterations in the skin barrier function (11), the permeation of methyl nicotinate should be facilitated, and the erythema should appear sooner than in normal skin. It is therefore reasonable to assume that this dynamic methodology can also be applied to the study of xerosis.

MATERIAL AND METHODS

Healthy female volunteers participated in this study, aged between 20 and 55 (mean 30.4±13.4), and were fully informed of the nature of the study and the procedures involved. The work was developed in accordance with the Declaration of Helsinki and its subsequent amendments. The skin type was evaluated by

self assessment and clinical scoring systems (7). Since xerosis is generally more severe in the frontal aspect of the leg, the entire study was conducted on this anatomical site.

The subjects were allowed to rest 15 minutes before the experiments. The skin at the measuring site was left uncovered, the subjects remained in an air-conditioned room, under constant temperature (22 ±2∞C) and humidity (30-50%) and were kept relaxed throughout the measurements. Heat sources and air draughts were avoided.

In the first part of the protocol, 20 volunteers (10 with normal skin and the remaining with dry skin) were submitted to a POST, involving the application of an occlusive patch for 24 hours. After this period the patch was removed and TEWL was recorded for 30 minutes. The patch consisted of a layer of cling film "sandwiched" between Parafilm™ (Pechiney Plastic Packaging, Chicago, IL, USA) and covered with gauze, which was then applied to the skin using surgical adhesive (Leukoplast, Beiersdorf S.A., Hamburg, Germany). TEWL measurements were performed with an evaporimeter (Tewameter TM300, Courage and Khazaka, Germany) following published guidelines (12,13). Data points were continuously registered for 30 minutes. The mathematical model was adjusted to the data points using a specially modified simplex routine and the software ADAPT written in Fortran. Calculated parameters considered relevant to the study were $t_{1/2evap}$ (evaporation half-life) and DWM (dynamic water mass) (14,15).

In the second part of the work, another panel of 20 volunteers was used, where 10 presented dry skin and the remaining normal skin. Two sites were marked in the frontal aspect of the leg: one was used as the control and in the other a 0.1M aqueous solution of methyl nicotinate (Aldrich, Dorset, UK) was applied for exactly 60 seconds using a saturated filter paper disc. Immediately after removal of the paper disc, the alterations in the blood flow in both sites were measured for 1 hour using a two-probe laser Doppler perfusion monitor (PF5010, Perimed, Järfälla, Sweden), following published guidelines (16). Time for onset (t_0) and time for maximum response (t_{max}) were the parameters considered more relevant for data analysis.

Non parametric comparative analysis (Wilcoxon sign rank test) was used in this study. A 0.05 significance level was adopted.

RESULTS

The desorption curves obtained after removal of the occlusive patch applied for 24 hours are represented in figure 1. It can be readily appreciated that dry and normal skin present different profiles. In normal skin, the decrease in TEWL after occlusion is rapid and pronounced. On the other hand, when dry skin is occluded, TEWL decreases at a slower pace. These results are translated in a higher $t_{1/2evap}$ for dry skin, almost double of that obtained in normal skin, and in a more elevated DWM (table I). There is a marked statistical difference between the $t_{1/2evap}$ results ($p=0.018$), which is less pronounced for DWM ($p=0.059$).

Studies with methyl nicotinate also reveal differences between the two skin types. Two typical outputs provided by volunteers with normal skin and xerosis are presented in figure 2. It can be readily seen that the blood flow does not increase immediately after drug application. Most responses from volunteers with normal skin occur after 150 to 300 seconds. After this onset time a rapid increase is followed by a plateau and subsequent decay. It can be clearly appreciated that the increase in blood perfusion, the vasodilation induced by methyl nicotinate, occurs earlier in volunteers with dry skin. The

profiles provided by the control sites are not included in the figure, since, as expected, there was no significant variation in the blood flow throughout the 60 minutes. The parameters used in this study were onset time t0 and maximum response time t_{max} (table II). t_0 is markedly lower in the group with dry skin and these results are statistically different from the group with normal skin (p=0.002). The differences in t_{max} are less marked (p=0.07), however, as can be seen from figure 2, t_{max} is far more difficult to assess with precision.

Tab. I

Evaporation half-life ($t_{1/2evap}$) and dynamic water mass (DWM) values (mean (DWM) values (mean ± SD, n=10)

	$t_{1/2evap}$ (min)		DWM (g/m^2)	
Normal skin	2.03±0.91	p=0.018	497.46±80.87	p=0.059
Dry skin	3.95±1.90		613.58±130.99	

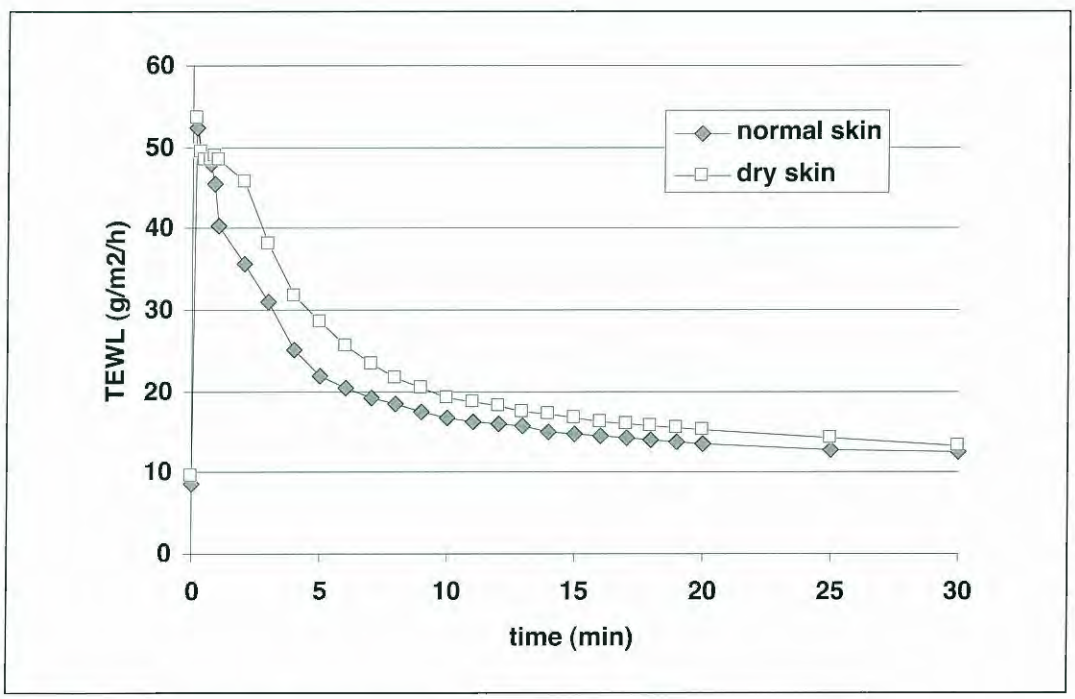


Fig. 1 *Desorption profiles obtained after removal of the occlusive patch (mean, n=10).*

Tab. II

Onset time (t_0) and time for maximum response (t_{max}) values (mean ± SD, n=10)

	t_0 (seconds)		t_{max} (seconds)	
Normal skin	309.6±199.7	p=0.002	600.4±243.1	p=0.07
Dry skin	103.7±13.4		409.0±189.5	

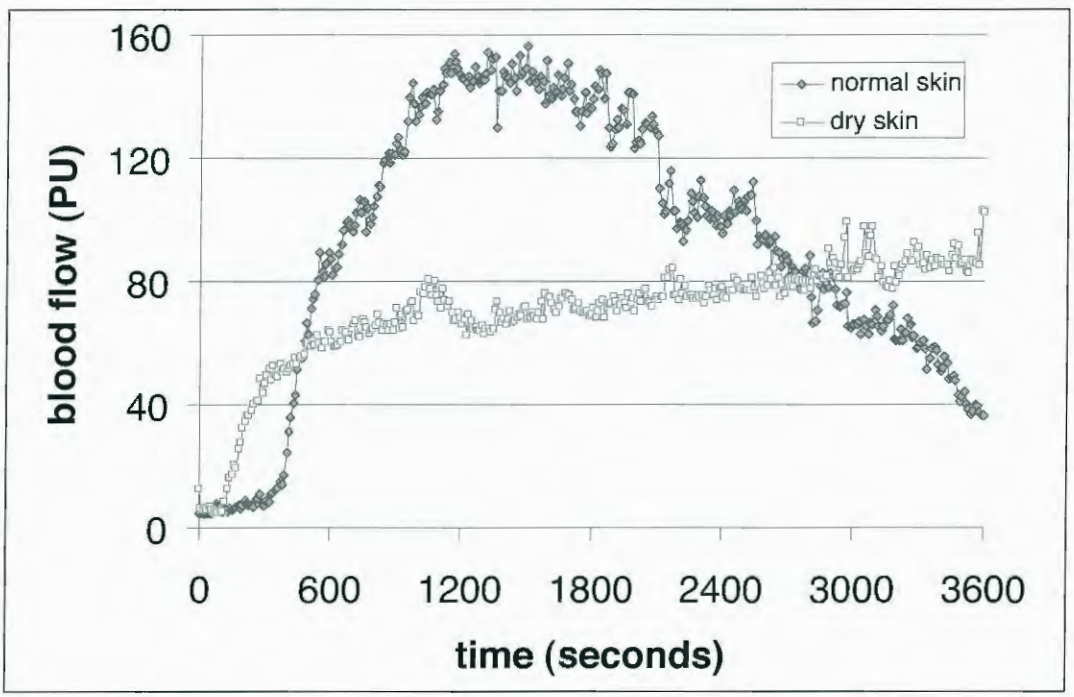


Fig. 2 Two different blood perfusion profiles, obtained after application of methyl nicotinate.

DISCUSSION

The first attempts to quantify skin dryness were essentially based in the visual observation and grading of parameters such as flake size, roughness and colour (7,8). This approach is evidently subjective, but nevertheless, in the clinical perception of dry skin there is an evident need for the integration of different parameters, which can only be perceived through the human intervention (17). The development of noninvasive bioengineering methods has undoubtedly contributed to a better characterization of xerosis. Multiple devices have been developed over the last three decades with applications in this area.

Some of the most commonly employed are based in the direct measurement of the hydric content of the stratum corneum, using electrical properties (18) or photothermal/acoustic techniques (19,20). Others are indirect, that is, they are based in the evaluation of changes in a certain property of the skin that is dependent of the presence of water in the tissue (21). The assessment of the mechanical properties of the skin (22), the analysis of skin surface appearance (by squametry or profilometry (23,24)); and the assessment of the stratum corneum barrier function by measurements of the TEWL (25) are examples of indirect methodologies.

The previously mentioned static tests are very useful to study stratum corneum function and competence in moisture content and retention. However, dynamic tests are in general more informative, mainly because they are not reliant in single measurements.

Previous studies confirmed that the mathematical modelling of TEWL curves obtained after prolonged occlusion was able to detect inflicted damage to the skin barrier (tape stripping or application of lipid extracting solvents) (9). The present study aimed to extend the test of the discriminative capacity of the model to the quantitative assessment of differences between normal and dry skin.

The marked differences observed in the results confirm the applicability of this methodology. Subjects with dry skin presented a greater water accumulation capacity and different water dynamics. The higher DWM can be explained by two factors. First, the weakened barrier function, since it causes a higher loss of water through the skin. Additionally, dry skin has an increased rate of proliferation of epidermal cells, but the desquamation of corneocytes is impaired, which contributes to epidermal thickening. This leads to a greater capacity to accumulate water and, therefore, to the higher amount of water released after occlusion. The $t_{1/2evap}$ is extended because the mass of water being released is greater.

Studies with laser Doppler velocimetry provided differences between the onset of action after application of methyl nicotinate, which can be attributed to an impaired barrier function in the group with dry skin. Some authors advise caution when correlating these two variables, because of the multiple factors involved in the response to nicotinates (26), but valid extrapolations have previously been established (27, 28, 29).

These findings confirm that the modelling of the TEWL curves resulting from a POST and the study of the vasodilatory action of methyl nicotinate are sensitive methodologies, able to detect differences in the water dynamics and barrier function of normal and dry skin. This shows that the methods are valid for the objectives proposed and suggests its potential application to the area of efficacy testing of products that are used to re-establish skin hydration.

References

1) **Pierard GE. (1987)** What does dry skin mean?. *Int. J. Dermatol.*, **23:**167-168
2) **Rawlings AV, Harding CR, Watkinson A, Scott IR. (2002)** Dry and xerotic skin conditions. In: Skin Moisturization. Marcel Dekker, New York, p. 119-143
3) **Rudikoff D (1998)** The effect of dryness on skin. *Clin. Dermatol.*, **16:**99-107
4) **Engelke M, Jensen JM, Ekanayake-Mudiyanselage S, Proksch E. (1997)** Effects of xerosis and ageing on epidermal proliferation and differentiation. *Br. J. Dermatol.*, **137(2):**219-225
5) **Rawlings AV, Watkinson A, Rogers J, Mayo AM, Hope J, Scott IR. (1994)** Abnormalities in stratum corneum structure, lipid composition and desmosome degradation in soap induced winter xerosis. *J. Cosmet. Chem.*, **45:**203-220
6) **Rogers J, Harding C, Mayo A, Banks J, Rawlings A. (1996)** Stratum corneum lipids: the effect of ageing and the seasons. *Arch. Dermatol. Res.*, **288(12):**765-70
7) **Kligman A. (1978)** Regression method for assessing the efficacy of moisturizers. *Cosmet. Toil.*, **93:**27-35
8) **Serup J. (1996)** EEMCO guidance for the assessment of dry skin (xerosis) and ichthyosis: clinical scoring systems. *Skin Res Technol.*, **1:**109-114
9) **Rosado C, Pinto P, Rodrigues LM. (2005)** Modeling TEWL-desorption curves: a new practical approach for the quantitative in vivo assessment of skin barrier. *Exp. Dermatol.*, **14(5):**386-390
10) **Tanojo H, Boelsma E, Junginger HE, Ponec M, Bodde H. (1998)** In vivo human skin barrier modulation by topical application of fatty acids. Skin Pharmacol. *Appl. Skin Physiol.*, **11:**87-97
11) **Lévêque J-L, Corcuff P, Rigal J de, Agache P. (1984)** In vivo studies of the evolution of physical properties of human skin with age. *Int. J. Dermatol.*, **23:**322-329
12) **Pinnagoda J, Tupker RA, Agner T, Serup J. (1990)** Guidelines for transepidermal water loss (TEWL) measurement: A report from the standardisation group of the European Society of Contact Dermatitis. *Contact Derm.*, **22:**164-172
13) **Rogiers V. (2001)** EEMCO guidance for the assessment of transepidermal water loss in cosmetic sciences. *Skin Pharmacol. Appl. Skin Physiol.*, **14(2):**117-128
14) **Rodrigues LM, Pinto P, Galego N, da Silva PA, Pereira LM. (1999)** Transepidermal water loss kinetic modeling approach for the parameterization of skin water dynamics. *Skin Res Technol.*, **5:**72-82.
15) **Rosado C, Pinto P, Rodrigues LM. (2005)** Modelling TEWL-desorption curves: a new practical approach for the quantitative in vivo assessment of skin barrier. *Experimental Dermatology,* **14(5):**386-390
16) **Bircher AJ, de Boer EM, Agner T, Walhberg JE, Serum J. (1990)** Guidelines for measurement of cutaneous blood flow by laser Doppler flowmetry: A report from the Standardization Group of the European Society of Contact Dermatitis. *Contact Dermatitis,* **30:**65-72
17) **Grove GL, Zerweck C, Pierce E. (2002)** Noninvasive Instrumental Methods for Assessing Moisturizers, In Skin Moisturization, Marcel Dekker, New York, p. 499-528
18) **Lévêque JL, de Rigal J. (1983)** Impedance methods for studying skin moisturization. *J, Soc, Cosmet, Chem.*, **34:**419-423
19) **Imhof RE, Whitters CJ, Birch DJS (1990)** Opto-thermal in vivo monitoring of structural break-down of an emulsion sunscreen on skin. *Clinical Materials,* **5:**271-278

20) **Pines E, Cunningham T. (1981)** Dermatological photoacoustic spectroscopy. In: Bioengineering and the skin, MTP Press, Lancaster. p.283-290
21) **Bernengo JC, de Rigal J. (2004)** Physical methods for measuring stratum corneum water content in vivo, In Measuring the skin, Springer, Berlin, p.112-152
22) **Grahame R. (1970)** A method for measuring human skin elasticity in vivo with observation of the effects of age, sex, and pregnancy. *Clin. Scien.*, **39:**223-238
23) **Serup J, Winther A, Blichmann C. (1989)** A simple method for the study of scale pattern and effect of a moisturizer. Qualitative and quantitative evaluation by D-Squame tape compared with parameters of epidermal hydration. *Clin. Exp. Dermatol.*, **14:**277-282
24) **Mignot J, Zahouani H, Rondot D, Nardin P. (1987)** Morphological study of human skin topography. *Int. J. Bioeng. Skin,* **3:**177-196
25) **Pinnagoda J, Tupker RA. (1995)** Measurements of transepidermal water loss. In: Handbook of Non-invasive Methods and the Skin, CRC Press, London, p.173-179.
26) **Treffel P, Gabard B. (2004)** Biological and pharmacological tests for the exploration of skin barrier function, In Measuring the skin, Springer, Berlin, p.549-552
27) **Duval C, Lindberg M, Boman A, Johnsson S, Edlund F, Loden M. (2003)** Differences among moisturizers in affecting skin susceptibility to hexyl nicotinate, measured as time to increase skin blood flow. *Skin Res Technol.*, **9(1):**59-63.
28) **Guessant C, Marty JP, Dnpont Ch. (1993)** Evaluation de la barriére cutanée chez l'homme par deux méthodes non-invasives (vélocimetrie laser Doppler et chromamétrie). *Int. J. Cosmet.*, **15:**89-99
29) **Rosado C (2000)** Formulation strategies in transdermal delivery, Cardiff University

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Injectable fillers in Aesthetic Medicine

By Maurizio de Maio and Berthold Rzany
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Over the years, in contrast to the United States, in most countries in Europe and South America many injectable fillers agents have been promulgated to cosmetically improve soft-tissue defects and deficiencies.

Some of these agents, such as adulterated silicones and impure paraffines, frequently resulted in cosmetic disasters. Doing to the great variety and availability of distributed product for novices it can be quite difficult to decide which filler to use for which indications.

However for a substance or device to be amenable for soft-tissue augmentation by the general medical community, it must meet certain criteria.

It has to have both a high use potential producing pleasing cosmetic results with a minimum of undesirable reactions, and a low abuse potential, in that widespread and possibly incorrect or indiscriminate use would not result in significant morbidity.

It must be non-teratogenic, non-carcinogenic, and non-migratory. In addition, the material must provide predictable, persistent correction through reproducible implantation techniques. Finally, if not autologous, the substance, agent, or device must be EU and/or FDA approved.

To clarify the use of all the fillers sold worldwide this book, divided in 7 chapters, gives an overview of the most common biodegradable and non- biodegradable fillers, their way of using and the most common indications in aesthetic medicine.

Injectable fillers may be grouped according to the degree of degradability as: biodegradable and non-biodegradable.

Their relative advantages and disadvantage are described and discussed on **chapter 1.**

What is important to underline is that no clinical data on efficacy and safety exist for most of the new injectable fillers. Marketing approaches tend to include claims of durability and safety for biodegradable and non- biodegradable products that may not stand the scrutiny of a clinical trial or post-marketing safety studies.

This is because the CE certification doesn't require clinical trials for new filler when comparable substances are already on the market.

Technical ability is fundamental for good medical practice, but the correct selection of patients is mandatory. Thus the risk of dissatisfaction in the cosmetic dermatology patient can be minimized with the correct approach during the initial evaluation.

Patients are prone to ask for procedures that they have heard or read about in lay magazines. During the consultation, the physician should careful not to downplay the extent of risks of neither the pro-

cedure, nor the patient's responsibilities after surgery.
Thus the first consultation is very important, as it gives the physician the opportunity to establish the kind of patient he will be treating. *How can I help you?* Is a good initial question.
The selection of patients is focused on **chapter 2.**
To ensure a safe and efficient procedure, several requirements have to be met. Thus a through documentation of all treatment-related data is highly recommended.
This will help to improve ones own performance, the patient's satisfaction and however, will be advisable for legal and billing reasons.
At this purpose all the general and technical requirements are reported and described by the use of some photos also on **chapter 3.**
Pain is one of the most fearful experiences for human being. Topical anaesthetics, infiltration, and nerve blocking have been found helpful in making cosmetic procedures more pleasant and tolerable for the patient.
Local anaesthesia is defined as the pharmacologic induction of sensory loss in a regional anatomic site, which may be achieved by injectable or topical indications.
It has, of course, many advantages over general anaesthesia and is especially desirable in dermatologic and cosmetic surgery, where procedures are typically minimally invasive. Local anaesthesia enables cosmetic procedures to occur in an outpatient selling with not only less morbidity and first recovery but also substantially less expense.
However, for a variety of reasons, the vast majority of dermal filler injections are undertaken under insufficient topical or no anaesthesia at all. The preoperative evaluation and the different anaesthetic procedures and relative techniques are focused on **chapter 4.**
Soft-tissue augmentation has become increasingly important because more individuals seek aesthetic improvement without major surgical procedures. Naturally, the most common reasons for patients to seek cosmetic surgery include the aging face and treatment of facial rhytides. It is the part of the body most visible to others and typically, next to the hands it is the most reliable way to determine a person's age.
The difficulty of treatments comes in choosing the proper treatments techniques and meeting patient expectations.
The patient evaluation, the relative selection and the treatments of choice are reported on **chapter 5** together with many explicative photographic examples of different procedures.
Although most injectable fillers are usually considered to be safe, adverse reactions do occur.
These reactions vary from persistent erythema and oedema to granulomatous reactions on even ulcerations. Thus the goal should be to reduce the visible impact of the adverse reaction, as amply reported in **chapter 6.**
Efforts to develop the perfect soft-tissue augmentation material and methodologies continue. This is way the today tendency to use combined therapies. As a matter of fact, single therapies have proven to be inefficient in dealing with all the signs that appear with time.
Therefore, as finally focused on **chapter 7**, patients should be educated to understand that the most natural appearance obtainable involves the use of multiple treatments.
With this chapter ends this interesting and agile book, reporting all the last, truthful and practical information for all the clinicians involved in aesthetic medicine.

Its easy reading and the reported material and patient selection, preparations, anaesthesia, regional injections including techniques, combination therapy and complications with treatment, give it an indispensable mean of work not only for the novice clinician beginning a filler practice, but also for those with long experience.

P. Morganti
Editor-in-Chief

Oxidative Stress and Age-related Neurodegeneration

by Yuan Luo and Lester Packer
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Oxygen is critical for all living aerobic organism but is dangerous friend also.
Hyperoxia or the inappropriate metabolism of oxygen is, in fact, a well- known cause of toxicity in biological systems.
On the other hand, oxygen-derived free radicals, generated during oxidative metabolism and energy production in body, are involved in regulation of signal transduction and gene expression, activation of receptors and nuclear transcription factors, and in other metabolic activities.
However the balance between cellular production and catabolism of all the reactive oxygen species (ROS) is critical for the maintenance of tissue homeostasis, being involved in both human health and disease.
In addition to ROS, reactive nitrogen species (RNS) increase the like hood of tissue injury, being involved in the same way, in the redox regulation of cell functions.
However in most cases, free radicals are secondary to the disease process but in some instance they are causal.
Thus, a proper balance between oxidants and antioxidants ensures a healthy aging: the redox status is dependent on the degree to which cell's components are in the oxidative state. The reducing environment inside cells helps prevent oxidative damage, being maintained by the action of antioxidant enzymes and substances. Therefore numerous experimental and clinical studies do support the hypothesis that *oxidative stress* is one of the major determinant in the pathogenesis of certain diseases and a secondary complication in many disorders. More evidence indicates, that a proper balance between oxidants and antioxidants is involved in maintaining health and longevity, and that altering this balance in favour of oxidants may result in patho-physiological responses that cause functional disorders and disease.
This book throughout 26 chapters tries to define and delucidate, at the cellular and molecular level, the relationship that ties degenerative disorders to oxidative stress. It covers many of the recent scientific developments known in age-related neuro-degeneration present especially in Alzheimer's disease (AD) trying also to understand how the micronntrients, antioxidants and way of living may result in such patho-physiological responses. Oxidative stress in fact, is a key factor involved in the development and progression of AD, and it is well documented that free-radical oxidative damage is extensive in the brains of AD patients.

Consequently, antioxidants present in food and beverage, preventing the detrimental consequences of oxidative stress, are considered to offer a promising approach to neuroprotection and clinical benefits. This is because antioxidant constitute a major part of the panel of clinical and experimental drugs that are currently considered for AD prevention and therapy.

But what Alzheimer disease is? It is a progressive neurodegenerative disorder affecting the elderly and is characterized by a slow insidious decline in learning ability, memory and behaviour, with a deadly outcome. And the prevalence of the disease is expected to quadruple by the year 2047 owing to increased survival of the aged to other causes of death. Therefore the quantity of studies and researches in progress to better understand the mechanisms of action of antioxidants in maintaining health and longevity.

As a matter of fact, oxidative stress is highly relevant in the brain for several reasons since the brain (1) is a postmitotic tissue with a high-energy demand; (2) is exposed to high oxygen concentration, utilizing about one fifth of basal oxygen consumption; (3) contains relatively poor concentrations of the classic antioxidants and related enzymes; (4) is rich in polyunsaturated fatty acids, which are prone to oxidation; and (5) is enriched in iron, which accumulates in the brain as function of age and can be a potent catalyst for oxidative species formation.

Thus the possibility that oxidative stress may be the primary event in AD has led and will led to research exploring how antioxidants in foods and supplements can prevent and delay onset of AD. Owing to their low toxicity, low cost, and their ability to target the earliest sources of oxidative stress in AD and other neurodegenerative diseases, antioxidant therapies are particularly attractive for their prophylactic role, also because in aged populations the diagnosis often does not occur until late in diseases progression.

There are, however, different types of antioxidant compounds: direct and indirect. Moreover metabolic antioxidants are involved in cellular energy production and as co-factor of several metabolic enzymes. On the other hand direct antioxidant have the potential to interact directly with ROS meanwhile indirect antioxidant are compounds that do not have antioxidant capacity itself but help to prevent or reduce free radical formation.

Numerous studies examined the cellular , biochemical, and molecular changes that occur as result of AD pathology. Some studies have, for example, reviewed the formation and metabolism of lipid –derived carbonyls, other the damaged and aggregated protein accumulation. However the brain consumes 20% of the body's oxygen, which results in the normal production of free radicals capable to damage lipids, proteins, and nucleotides. Thus progressive oxidative damage occurs in the brain with age in humans and animals. Determining the conditions and possible treatments promoting the elimination of toxic protein and oxidated lipids and nucleotides contribute to the development of new therapeutic interventions and to all the neurodegenerative diseases. Moreover natural foods possessing antioxidant components (vitamins and phenolic compounds) have received a great deal of attention because they are considered to be safe and non medicinal; some of them are known to function as chemo preventive agents against oxidative damage. Hence, natural food-derived antioxidants would be more useful. But the major questions still remain.

Which chemical constituents are responsible for physiological benefits, and what kinds of guidelines are needed for consumers in selecting and consuming the beneficial plant foods? The nutritional value and health-related biological activity of various fruits and vegetable depend not only on the concentration of certain nutrients and bioactive phytochemicals, but also on the amount of such

foods consumed in the diet. Thus diets rich in antioxidants such as green tea, apples, ginkgo-biloba, blue berries or red wine appear to be a promising approach to fortify the physiologic antioxidant defense system and help protect against the aging process and chronic diseases.
The multifunctional nature of neurodegenerative diseases makes the use of compounds with polypharmacological activities or cocktail of drugs as a promising therapeutic approach for the treatments of these disorders.
In conclusion, neurodegenerative diseases are increasing as life expectancy increases. Thus searching for approaches to prevent or delay age-related cognitive decline and age-related diseases has become more and more important and urgent.
Neurodegenerative disorders such as Parkinson's and Alzheimer's are the most common. While the genesis of aging and AD still remains unclear, multiple lines of evidence demonstrate a role for dietary factors in extending life span, delaying age-related cognitive decline, and increasing the resistance of neurons to degeneration. For example, brain aging antioxidant nutrients, such as vitamins E and C, carotenoids, selenium and melatonin, have been found to comprise an important aspect of the antioxidant defense system and may have the specific protective influence on brain functions.
Furthermore, dietary folate and vitamins B_{12} and B_6 might help prevent cardiovascular disease, cognitive decline, and dementia including AD, by regulating the metabolism of homocysteine. Finally, fish oil rich in DHA, is suggested to lower the risk of middle-aged memory loss and AD. In addition to these essential nutrients, recent studies have suggested that some nonessential nutrients in diet, such as isoflavones, may have beneficial effects in preventing brain aging and AD.
We are what we eat!
Therefore we can eat or/and take dietary supplements to *protect ourselves* from diseases as well as to possibly treat disease.
With these statements ends this interesting book, especially focused on AD.
By all the well written chapters is well documented how oxidative stress may results in ROS generation and inflammation. The brain plays a pivotal role in neurodegenerative diseases, supporting the implementation of radical scavengers, antioxidants, transition metal, chelators and monoamine oxidase inhibitors.
Well documented also in bibliography, this book represents a valuable reference text for both the medical and chemical communities willing to know in depth the antioxidant compounds involved in keep our body healthy and capable also to prevent neurodegenerative disorders as AD.
Written by expert scientists, this interesting publication could be useful also for people involved in marketing, and for university researchers wishing to share their theoretic knowledge with the industries in order to enter in all the aspect connected with the knowledge on *oxidative stress*.

P. Morganti
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SUNSCREENS: Regulations and Commercial Development. Third Edition

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Sunlight and ultraviolet radiation (UVB) from artificial sources (290 to 400 nm) can be tonic or toxic to human skin.

Thus there has been increasing awareness of the damage caused to skin by cumulative sun exposure. As known, UVR is responsible for most of the deleterious skin conditions as the appearance of *sun spots*, the appearance and accentuation of wrinkles and *sagging* skin, enlargement of blood capillaries.

On the other side sunlight is a part of our everyday life, promoting the synthesis of vitamin D, and stimulating the production of melanin in the form of healthy looking tan capable to exert photoprotection to our skin against the damaging effects of UVR.

To prevent or ameliorate these light-induced reactions, effective sunscreens and photo protective measures are essential.

This book, divided in nine parts and 48 chapters, is designed to provide the state-of-the-art research in the fascinating field of photoprotection.

The Introductory part (**First Part**) reports an overview characterizing the *Sunscreen Evolution*. The cosmetic industry and dermatologists face major challenges in the future to educate the public about the dangers of excessive exposure to sunlight and to formulate new products and strategies to address the spiralling incidence of skin cancer and signs of premature aging.

Thus the necessity to formulate safer and more effective products that reduce significantly the dangers of overexposure to harmful UV radiation; and the need to more easy and harmonized international regulation to permit the speedier introduction of new and improved ultraviolet filters and sunscreen products worldwide.

Finally the marketers, the press and the specialized organizations and professional societies has to better communicate to the consumer both the damaging effects of sunrays and the anticipated new discoveries leading to better products and protection.

However, despite to all the possible precautions, it is inevitable that some UV radiation will penetrate and cause DNA damage and immuno-suppression if we cannot avoid or block it out. Other options include development of enzyme repair systems, antioxidants used in the correct ratios and balance either topically or systematically or both, and blocking of enzyme systems responsible for increased cellular proliferation, inflammation, and ultimately carcinogenesis.

Moreover the todays need to deeply study all the other unknown harmful spectrum radiation. For example it is well known that the edge of violet light is harmful to the retina, and that blue light impairs catalase. Specific wavelengths in the visible spectrum inhibit the synthesis of melatonin. Excess infrared might enhance an inflammatory response.

However in spite to the above, a reasonable amount of controlled exposure to the sun may have certain advantages of which the medical profession may not be fully aware.

Thus, for example, being in a well-lit environment (where one is exposed in the visible range) improves one's mood. This is used in psychiatry, in the treatment of depression.

Furthermore some reports have appeared in the medical literature suggesting that controlled exposure to the sun may prevent, to some extent, the onset of various malignant diseases.

In conclusion we have been living with visible and infrared radiation for millennia and we will continue to live under the umbrella of the sun for the future.

There is no reason to panic but learning more about the solar spectrum might be helpful to the progress of science and beneficial for general health.

Part 2 of the book (composed of 7 chapters) is focused on the *Regulatory Aspects* of sunscreens which are regulated throughout the world either as cosmetics that do not require a governmental pre-approval, or as over-the-counter (OTC) drugs, that require a pre-approval before they are placed on the market.

Each country has a pre-approved list of permitted UV filters, an accepted method for running efficacy of SPF determination, and regulated labels. Some countries have approved methods for UV-A claims and water –resistance testing. These chapters cover the approved UV filters in the USA, UE, Japan and Australia, their maximum use level correct ingredient designation, and how new filters are approved. Moreover the different testing strategies and methods are reported along with the formulations of reference standards, current approved UV-A methods water-resistant testing and labelling requirements.

The reported tests and descriptions especially aim at guiding the industrial formulators and the skin scientists to design their own protocols based on reasonable scientific considerations.

On **Parts 3** (5 chapters) and **4** (8 chapters) are described respectively the UV filters and cosmetic formulations, the electromagnetic spectrum and, the UV rays responsible for most of the skin and its associated disease and discomfort.

A limiting menu of UV filters for incorporating into sunscreen products is available to the formulation chemist, depending on regulatory requirements in an individual country or jurisdiction, as previously described.

With the demand of higher SPFs, recent research in sunscreen efficacy has emphasized the need products protecting against the full UV spectrum with a limited number of organic and inorganic screens. However the sunscreen efficacy remains dependent on vehicle formulation.

It is known, in fact, as solvents and emollients have a profound effect on the strength of UV absorbance by the active ingredients and at which wavelengths they absorb. Moreover for maximum efficacy of actives, what is required is for the product to deposit a film on the skin which is of even thickness, following the contours of the skin and containing a homogenous distribution of UV filters(s) (dissolved molecules of organic sunscreen or dispersed particles of physical sunscreen).

Thus film formers and emulsifiers determine the uniformity and thickness of the film formed on the skin surface, which in turn determines SPF level, durability and water resistance.

Consumers now expect the products they purchase, that have Sun Protection Factor (SPF) of 15 or higher, or to be very water resistant.
Lastly, product aesthetics play a large role in product acceptances, particularly with sunscreens being incorporated into daily use cosmetics. If the sunscreen gives a greasy, occlusive feel, or leaves opaque residue, then the purchaser will probably look elsewhere.
And as dermatologists have found the more the patient wants to use the product the greater the likelihood of patient *compliance*.
Thus the demands of the modern sun care market means that the formulator must be able to achieve high efficacy from the actives used in order to meet ever-increasing SPF targets. All these constraints provide the sunscreen formulator with significant challenges in developing new and improved formulations, as surfactant –free sun care products well described and reported on **Part 4**.
Surfactant-free formulations have for example many advantages. The time of development from concept to market place, is dramatically reduced and there is no longer a need for the preparation of multiple, redundant formulations. Laboratory efficiency can be increased dramatically. The aesthetic and rheological properties of the product can be evaluated immediately, thereby creating more elegant systems that heighten the enjoyment of using the preparation. Since the quality of the product can be maintained so tightly, the consumer will experience the same benefits and enjoyment from purchase to purchase and from application to application.
Part 5 (5 chapters) focuses on particularly interesting topics as *recreational sunscreens*.
Generally, new marketing concepts will necessitate a change in composition from the prior art. Also different aesthetic properties are frequently requested by marketing in order to generate new products with compelling claims. Therefore recreational *sunscreens* are a diverse category of products that offer robust UV protection as the primary benefit under a variety of consumer habits and practices and use conditions.
Water and sweat resistance, resistance to rub-off, and duration and amount of UV energy exposure are the primary areas of differences between recreational and other types of sunscreens, both of which can and do deliver a multitude of other skin care benefits.
Products are developed to meet a consumer demand. Thus marketing strategies must address the wants and needs of two divergent consumers: parents and children. Moms and dads will be influenced by gentleness, durability, and convenience. Kids want fun and minimal intrusion on their life.
Successful products in this market have found unique ways to appeal to both groups and this is focused on another interesting chapter: *Valuable Properties for Baby and Kids Segments*.
What is the biggest problem in skin photoprotection? Probably an inadequate usage of the sunscreens.
Study after study show, in fact, that consumers do not use adequate quantities of the product to obtain the labelled SPF value. Baby and kids products simply must be formulated and packaged to attract purchase and encourage adequate usage.
Fabrics as UV Radiation Filters is another interesting chapter of **Part 5**.
As a matter of fact, clothing has the ability to protect the skin from incident solar radiation because the fabric and scatter solar wavelengths.
Fabrics differ in their ability to alternate light in this way because they differ in fiber composition and moisture content as well as in type and concentration of dye optical whiteners, or UV-absorbing fibers.

Fabrics are manufactured assemblages of fibers or yarns that have substantial surface area in relation to thickness and sufficient mechanical strength to give this assembly inherent cohesion.
The fundamental unit of all fabrics is therefore fiber, a unit of matter with an extremely small diameter and a length at least 100 times longer than its width. Thus the ways in which fabric can be enhanced to improve its UV-filtering capability is described.
Given the continued research that demonstrates the harmful effects of sun exposure, more and more people will turn to cosmetic science for that just back from vacation look.
Thus the use of products that facilitate pigmentation of the skin shows a continuous sales growth. Therefore the future of the tanning industry should be in the hands of the self-tanner. And this topic is focused on *chapter 6* of this **Part 5** of the book.
As previously seen, sun is great initiator of photochemical reactions, which provides energy sustaining and maintaining human health. But the effect of UVR can induce or exacerbate oxidative attack leading to generation of reactive oxygen species (ROS) and other free radicals. As a consequence of their high reactivity, ROS react non specifically with nearly every cellular target and may damage DNA, protein, lipids, and carbohydrates.
To counteract this oxidative injury of structural lipids and protein, human skin is equipped with a network of enzymatic and non enzymatic antioxidant systems. This network is no more sufficient to protect ourselves from the continuous assault of UV rays and pollutants present in the environment today. This inherent antioxidant system of the skin is in fact, rapidly overwhelmed by the amount of sun exposure we stress it with in today's lifestyle.
Thus it would seem reasonable to assume that sunscreens in combination with antioxidant applied topically and taken by oral route will continue to be the major weapon as preventive agents. In order to function as photo protective agents, antioxidants have to be present at the right place in the right concentrations at the right time. Topical and systemic antioxidants should supplement the natural antioxidant protection present in skin and provide supplemental reserves as oxidative stress depletes antioxidant stores.
With the *Role of Antioxidants in Sun Care Products* starts the **Part 6** (4 chapters), where are also described and explained the photoprotective activity of *Green Tea Polyphenols, Botanicals* and the use of *Antiaging Actives in Sunscreens*.
All these compounds may be considered new complement constituents which incorporated into sunscreens, may effectively decrease the UV-damaging effects. Polyphenolic extracts of green tea as natural compounds can complement, in fact, and enhance the photoprotective effect currently available sunscreens. At the same time, health-conscious consumers are creating a proving demand for *natural and functionally based* botanicals.
This is because consumers desire innovative sun care products that continue to provide additional benefits. And phyto derived compounds serve various functions that include, emollients, tanning agents, sunscreens and of course antioxidants.
Nevertheless an increasing number of ingredients of plant origin are offered, used and positioned as *antiaging* actives. The reputation of the plant kingdom is one of almost unlimited source of potential healing activities, thousands of substances yet undiscovered.
However a few broad categories suffice to describe the benefits obtained from plant extracts for cosmetic claims as: *antioxidant* activity (polyphenols, vitamins, flavonoids), *anti-inflammatory* properties (non-steroidal enzyme inhibitors), tissue repair molecules (di-and triterpenes).

All of these activities can be employed for *antiage* claims, all of them make sense in the context of sunscreen formulation.

Another antiaging strategy is offered by the discovery of *matrikines*, protein fragments (peptides) of small size. Certain peptide sequences, in fact, possess mediator or messenger function: they act on nearby cells (fibroblasts) to stimulate them into neosynthesis of the tissue macromolecules, or to attract them to the damaged tissue (clemotaxis). Like all mediator or signal molecules, these peptides of specific amino acid sequence, act at very low (nano-to micromolecolar) concentration, but achieve dramatic effects in the rapid regeneration of tissue, becoming *functional ingredients* for antiaging and photoprotective products. As known, for example, cell signalling serves to regulate gene expression and other cellular functions in response to external stimuli in the environment. Thus the study of cell signalling pathways and gene expression resulting in protein interactions connected to the genetic expression is becoming an integral part of an emerging field known as *systems biology*.

The ability to apply this emerging science to the study of botanical interaction will provide future opportunities to formulate sun care products with *functional* specific active compounds of natural origin.

The book ends by **3** others **Parts** composed of 15 Chapters: *Production and Quality Control* (4 Chapters), *Analytical Testing Procedures* (7 Chapters) and, *Marketing and Information* (4 Chapters).

For the average private label, contract, or name brand manufacturer, suntan/ sunscreen products usually represent between 16 and 35% of their production. With so much production devoted to this category, it is especially important to be aware of any processing techniques that would enable one to bring the production from the initial pre-weigh to filling as quickly and as efficiently as possible. Moreover, of the product is not manufactured efficiently and according to specification, both quality and marketing problems may arise.

Therefore it is important to strictly control the product analysis, stability studies, process validation, etc, manufacturing at a low enough cost possible to be able to compete in a world of products. Testing for microbiological content is another critical release parameter for most product formulations. Moreover, because of the new actives and UV filters incorporated into the photoprotective products, it has become necessary for the quality control chemist to know much more about analytical procedure, the chemical structure of sunscreens and their potential interaction with other actives used, solvents, impurities, the environment, and other UV filters. This poses a serious challenge to the quality control chemist who has to acquire the additional skills and techniques as well as the advanced instrumentation to properly analyze the multitude of active and functional ingredients present in the new sun care products.

Finally it is important to consider the efficacy of a sunscreen product as part of product development and control. Efficacy testing for both ultraviolet-A (UV-A) and ultraviolet-B (UV-B), while valuable to ensure that the final product meets the customer's expectations would not be used as release criterion for production.

The increased activity in the sunscreen industry has increased the burden on the analytical research, and quality control chemists to meet the new challenges of purity, consistency, accuracy, and more importantly, claims substantiation.

On the final part of this book, are reported the advanced analytical techniques and instrumentation employed to analyze UV fillers and formulations incorporating different kind sunscreens and a mul-

titude of other cosmetic active compounds.
To control and measure the efficacy of sunscreen products against UV-B and UV-A radiations, the different methodologies and protocols used worldwide are reported and discussed in different chapters. Thus the international SPF method is now the method of choice throughout Europe and the last FDA protocol for USA has now been pnblished.
But for now, at least Europe has an SPF test method that is harmonized across a large proportion of the world and which is similar enough to the others SPF methods of the world to enable a single test to be conduced, which satisfies all national requirements.
Moreover, there is widespread desire in Europe but in the worldwide cosmetic industry also that an *in vitro* UV-A technique be adopted, which would remove the need to subject human volunteers to yet more exposure to ultraviolet light.
With the continuous increase in the variety of cosmetic products proposed to consumers over the last years, it has become more and more difficult for them to decide what the most appropriate products are for their needs.
Thus the success of a photoprotective product today is not only a question of performance and efficacy but also a question of how it is promoted to the potential buyer. Therefore claims on sunscreens are extremely varied and often depend on the product, the market and the current trends. Whenever the nature of the effect or the products justifies it, the claims on cosmetic products must be shown. But any kind of support could be acceptable at the condition it can be scientifically and reasonably justified.
At this purpose scientific publications bring the reader the most current information.
In conclusion advances in technology, the impact of the new regulations, and the publication of new statistics and research on the developing dangers of the sun' UV rays has gradually maturing the sunscreen industry. Thus in the next future the sunscreen products will be always more effective safe, and natural –oriented, addressing both the concern of the medical community and consumers.
Photoprotection require more than merely protecting against erythema and burning. It has also help to preserve the immune system that plays an important role in photoaging and carcinogenesis. The immunosuppressive state is in fact, a permissive state for the outgrowth of skin cancers. Therefore it is important to protect the skin against the damaging effects of UV rays, restricting UV exposure time and using effective sunscreen products with broadband UV-B and UV-A protection and antioxidants able to reduce the amount of free radicals.
Thanks to the quantity and quality of topics and references reported, this book provides the reader with the latest insight in the role of UVR in skin aging and carcinogenesis and, in the use of sunscreens as photoprotectants.
For these reasons it may be considered the most up-to-date reference guide in sun care for cosmetic chemists, dermatologists, plastic surgeons and all the medical and chemical community who want to know in depth how are basically formulated and controlled the new sunscreens and how make use of them in the prevention and treatment of the dermatological diseases, which need photoprotection. Nevertheless the book may be a supporting test for medical, chemical and postgraduate students who want to know better all the problems connected with sunscreens and photoprotection.

P. Morganti
Editor-in-Chief

Hair Care: An Illustrated Dermatologic Handbook

by Zoe Diana Draelos
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The social, psychological, and sexual significance of the scalp and body hair is immense.
Hair seems to be a fascination and thus any hair loss is a very common problem and a significant source of people distress.
Everyone " cut it, style it, curl it, straighten it, lighten it, darken it, comb it, wash it, dry it, and cry about it". Therefore any change in the pattern of the hair – too much hair, too little hair, change of color – may have emotional consequences for the person involved.
Hair is the topic of this interesting book divided into 12 chapters where recommendations for consumers are also reported.
Hair physiology is focused on **chapter 1.**
Hair is the only body structure completely renewable, that grows on a cyclic basis. During the hair cycle, the middle and upper portions of the hair follicle are the *permanent* segment of the hair follicle, while the lower portion is *non-permanent*. Hair growth occurs during three cycles. The first cycle, known as *anagen* (growth phase – 1° cycle) lasts approximately 1000 days, and the transitional phase (2°cycle), or catogen, about 2 weeks. The resting phase, or *telogen* (3°cycle), lasts approximately 100 days.
Scalp hair is characterized by a relatively long anagen and a relatively short telogen with a ratio of anagen to telogen hairs of 90 to 10. Only 1% or less of the follicles are in catagen at any given time. Hair fiber is produced during anagen at a rate of approximately 1 cm/month or 0,35 mm/day. The average number hairs for a normal scalp is 250 per square cm and healthy individual loses 100 hairs per day.
There is ethnic variation, with fewer hairs per square cm in Blacks and Orientals, but however, the scalp consists of almost 90% hairs in anagen, 1% in catagen and 10% in telogen.
The hair is composed of three layers: an inner layer called the medulla; a middle layer called the cortex, which contains the pigments that provide hair color; and the outer layer called the cuticle.
The only growing, or live portion of the hair is hair root (papilla), found at the base of the follicle. As soon as the cells that make up hair are produced, they die and become cornified to form the hair shaft. And just the physical properties of the hair shaft are related to its geometric shape and the organization of its constituents. On the other side the cortex is largely responsible for the strength of the

hair shaft, but an intact cuticle is necessary to resist against the externally applied mechanical stresses.

There are a number of international diseases and external cosmetic causes that contribute to hair shaft structural abnormalities. All of these conditions predispose the hair to breakage, which can become magnified by extensive grooming, chemical waving procedures or permanent dyeing.

Hair Grooming is the topic of **chapters 2** and **3.**

Beautiful hair is a question of texture! Healthy hair should be manageable and beautifully, silky and soft, just like skin, but hair texture can deteriorate. The main problems are dryness or oilness caused by internal physiological factors or ageing, or by external problems such as dry atmosphere, wind, sun, or pollution.

Whatever the cause, the result is the same: rough, dry or excessively oily and lifeless hair.

Hair is subject, to physical and chemical treatments which can sometimes be quite rough. Damage can be caused by constant styling, hair-dryers which are too hot, colorants which are too harsh, too many perms or a wrong way of eating. As a result, it may appear a deterioration of the cuticle. Examining a damaged hair through a microscope, it is possible to see some changes in its surface shaft: the normally smooth scales are modified, making the hair's surface extremely rough.

As a result, the scale engage those of other hairs causing tangling.

The hair loses its shine and softness and the ends split easily. Delicate and lifeless, the hair becomes difficult to style.

At this stage it is necessary to treat the dry or oily hair just as it is generally done for the skin.

First of all, cleansing the hair taking care its lipidic surface film.

It is known that sebum, produced by the sebaceous glands, reaches the surface of the epidermis via the pylosebaceous duct. Once it reaches its destination it emulsifies with sweat forming a thin coating known as the hydrolipidic surface film. The equilibrium between sebum and the surface is of basic importance for the protection both of skin and hair from aggressive external agents, be these chemical-physical, bacterial or mycotic, and for the maintenance of normal acidity, an optimum state of hydration and the elasticity and plasticity of the skin.

The surface skin lipids film, which is naturally present on the scalp, covers the hair shaft, making it soft, shiny and combable. The excessive presence of this hydrolipidic film on the scalp, but especially on the hair shaft, makes the hair difficult to comb and causes opacity and a *feeling of dirtiness*, which significantly reduces the basic function which hair plays as an important factor in sexual attraction.

Thus the main function of the shampoo is to remove the surface grease, the skin debris, the dirt accumulated from the environment and the residue of hair-grooming, cosmetics from hair shaft and scalp, leaving the hair soft, lustrous and manageable. Of course this cleaning activity has to have no side effects for the health of the user.

Unfortunately, the trauma caused by shampooing, and other aesthetic treatments damages the hair , marking it harsh, brittle, and difficult to disentangle. Thus, hair conditioners has been developed in attempt to supply hair with the positive attributes of sebum while avoiding the greasy appearance indicative of excessive sebum and dirty hair. In addition to decreasing static electricity, hair conditioners also improve hair manageability. Moreover these products increase hair gloss and improve hair flexibility.

Lastly they can also improve the health of the hair by temporary repairing damage at the distal hair

shaft, a condition known as split ends.
Hairstyling is one of the biggest modern preoccupations of both men and women. Everyone is searching for the perfect hair cut that will accentrate positive features, create the appearance of abundant hair, and complement an overall attractive appearance. Thus hairstyles are in part dictated by the available technology in hairstyling products.
Therefore the use of hairspray products to maintain the hair in the desired position. They employ copolymers, such as polyvinylpyrrolidone (PVP), which add stiffness to the individual hairs and create temporary bonds between the hair shafts.
Hair coloring techniques are reported on **chapter 4.**
Hair coloring is a technique used by both men and women for altering the natural hair color or camouflaging the presence of gray hair. This invention has added a whole new dimension to hair cosmetics and created a huge at-home hair dye and salon industry. Among the different techniques permanent hair dyes are the most damaging to the hair because the dye alters the internal hair shaft structure, resulting in decreased tensile strength. Moreover the allergic potential of hair dyes due to the presence of *paraphenylendiamine* is well known to the dermatologists.
The next frontier in hair color will be the prevention of grey hair trough melanocyte stimulating factors and the natural alteration of hair color through the use of melanin modulators.
Million of people waves its hair on an annual basis.
The *chemistry of the permanent waving* process is based on the 16% cystine incorporated into disulfide linkages between polypeptide chains in the hair keratin filament. This is the topic focused on **chapter 5.**
Factors affecting permanent wave efficacy are directly connected with the chemical processing time, temperature, concentration of reducing agent, ratio of lotion to hair quality, lotion penetration, pH and, of course, condition of hair. Thus permanent wave is an involved process of chemically and mechanically reforming the hair to obtain a newly curled hair designed to last 3-4 months. Hairdresser will therefore select a curl tighter than the customer desires with this fact in mind protecting its hands with gloves during the whole operation. This is why both irritant and allergic contact dermatitis to thioglycolate containing waving lotions have been reported for the hairdresser and customer. Thus permanent wave products and methods are continuously developed taking into consideration the most precise chemical, physical, biological and dermatological data available. Much progress remains to be made but better safe products are the essential requirement for success.
Hair straightening, like permanent waving is an operation in which a permanent deformation, of hair is the objective. And this common practice is well described on **chapter 6.**
Permanent waving effects a lasting transformation of straight hair into waved hair. Hair straightening does just the opposite, taking naturally curly or kinky hair and making it more or less straight. Hair relaxing is a chemical process whereby extremely curly hair is straightened through the use of metal hydroxides to change about 35% of the cysteine contents of the hair to lanthionine along with minor hydrolisis of the peptide bonds. Chemical relaxing can be accomplished with lye-based, lye-free ammonium thioglycolate, or bisulfite creams.
More frequently, straightening gels or emulsions containing varying proportions of strong bases such as sodium hydroxide are used. These very effective products can be irritant to the scalp and careless handling may cause hair damage. Their use is therefore often preceded by the application of a fatty material to protect the scalp. This is why hair straightening should be performed in a salon by trai-

ned professional to avoid adverse reactions.
But the hair may be damaged by all these aesthetic and cosmetic manipulations? And hair loss may be determined from an excessive hair breakage?
Cosmetic-induced hair loss is the topic of **chapter 7.**
As previously reported, healthy hair has high shine representing an intact cuticle closely overlapping cuticular scales. It is the smoothness of the overlapping scales that promotes light reflection, interpreted by the eye as shine. Normal grooming processes such as combing and brushing result in loss of cuticle scales, which is more pronounced at the distal hair shaft. This process is know as *weathering* and is accelerated by overly aggressive grooming and chemical processing. Hair that has a disrupted cuticle not only appears dull and peels harsh, but is also subject to the effect of static electricity. The primary reaction in the weathering of human scale involves degradation of cystine following a C-S fission pathway different from the chemical oxidation which passes through the S-S fission route.
Progressive deterioration of the cuticular layer from root to tip, characterized by jagged scale edges, scale lifting, scale cracking, partial scale erosion, complete scale erosion and fibre splitting have also been observed. These damages to the pro-tective cuticle layer allow the splitting of the cortex and facilitate further damage from usual grooming, such as combing, brushing; it also makes the hair more sus-ceptible to chemical attack by shampooing, waving, bleaching or coloring. Changes in the sorption characteristics, e.g. copper sorption or dye sorption are used to assess light damage to hair. Significant increases in alkaline solubility and a decrease in the amount of proteins extractable by a reducing medium have also been noted.
Styling aids can cover some of the cuticle damages reported? Surely they can restore shine, add softness, and decrease static electricity but the damaged to hair may also be increase by some cosmetic procedures, such as bleaching and permanent waving.
For all these reasons the entirely **chapter 10** is dedicated to: *Tips to maintain healthy hair* as longer as possible. Thus many information are reported for customers who wish to minimize the hair damages. It is not true the belief that the more you do to the hair, the healthier it becomes. On the contrary, it is known that the more you dye or perm the hair, the weaker it becomes.
Thus *weathering* is basically the sum of chemical and physical environmental insults on the hair shaft, which can be minimized through reduced manipulation. Therefore on this chapter are reported the author's top 100 *Hair Longevity Tips* given to the patients: manipulate the hairs as little as possible; select a wide-tootled comb with Teflon-coated tips; select a vented ball-tipped styling brush; do not comb wet hair; allow hair to air-dry avoiding heated drying appliances; avoid scratching the hair and scalp; select a conditioning shampoo; apply an instant conditioner after each shampooing; consider use of a deep conditioner once weekly; cut away damaged hair shafts.
Other interesting topics are reported on **chapters 8** and **9** where all the today *Methods for Camouflaging hair and Non-laser hair removal techniques* are well focused and discussed.
As a matter of fact, to camouflage hair loss or increase hair volume, or eliminate hair from undesired body areas are two important required problems.
On the last **chapters,** the **11**th and **12**th are summarized and listed all the texts that may be helpful as reading for consumers, together with the author's comments.
In this way ends the book reporting all the observation of a well known dermatologist on hair care. It is interesting not only for all the descriptions and figures reported on all the problems regarding

this fascinating topic, but also for the comments useful to better understand the psychological reasons that accompanies all the hair baldness.
Being full of interesting news and techniques used today, the book can be indispensable for all the scientists of the cosmetic and pharmaceutical industry, but can be also useful for dermatologists, plastic surgeons, cosmetic chemists, general practitioners and marketing managers who want better understand the variety of problems surrounding scalp and body hair.

P. Morganti
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Botulinum toxin in clinical dermatology

By A.V. Benedetto
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The skin is an organ in which aging changes are easily observed and the degree of change varies greatly among individuals exposed and non exposed to sunlight.
This is because *photoaging*, caused by UV rays, overlaps to intrinsic aging due to the normal reduction of many cellular functions.
Both photo-aging and intrinsic aging occur in facial skin, starting to appear wrinkles on forehead, around the eyes (crown's feet) and mouth, and on the nape of the neck. Therefore linear wrinkles are thought to be formed by the loss of tension and elasticity through interactions between reduced water content of the *stratum corneum* (SC), thickening of SC, atrophy of the epidermis, change in the amount and quality of dermal collagen and elastic fibers, and other changes resulting from external (environmental stresses) and internal factors (stress and diseases).
In conclusion, at the first glance skin aging looks like a morphological phenomenon, a change in outer aspect and facial aging is perceived to be an inevitable outward sign of the aging process. Thus the popular and expanded demand of facial rejuvenation and the increase of non surgical cosmetic procedures.
Nobody wants to age, and everyone desires to curtail the signs of aging or improve her/his appearance. As a consequence, the top five non-surgical facial cosmetic procedures conduced today worldwide are botulinum toxin type A (BTX-A) injection, laser hair removal, hyaluronic acid filler injection, microdermabrasion, and chemically peels.
In particular, the use of botulinum toxin type A injection has expanded beyond the face (upper, mid and lower face) and neck proving to be a valuable therapy for focal hyperhidrosis also.
The use of Botulinum toxin is the topic of this book consisting of **10 chapters** and **5** interesting **appendices.**
"Currently the only FDA approved botulinum toxin A for cosmetic use in the USA is BOTOX®Cosmetic".
This is the statement reported on the *preface* of the book from the author and it is not to be forgotten.
The efficacy and safety of all the cosmetic procedures and products are in fact, directly connected with the warranty of the disposable studies on the raw material used, active compounds and vehicle. And the FDA control and approval is one of the most important warranties of efficacy and safety of elsewhere distributed drug (not only in USA!).
What BTX-A is?

Botulinum neurotoxins are complex biologic products that must be manufacturing according to strict regulatory requirements in order to be approved for clinical use worldwide.
The method of manufacture determines not only the purity of the final product but also the reproducibility of labeled units.
The process used to stabilize the neurotoxin protein can also affect the product's chemical pharmacology, as can excipients added during the manufacturing process.
Botulinum toxin (BTX-A) manufactured under the trade name BOTOX® is the most powerful, neurotoxin known to humans, capable to reduce activity at target neuromuscular junctions. It blocks the exocytosis of acetylcholine from the presynaptic neurone after it first binds to the neurone membrane.
As primary effect BOTOX® controls the muscular relaxation for several months, until existing reactivate or are newly formed. However botulinum neurotoxin exerts its activity through a multi-step process that involves binding to nerve terminals, internalization, and inhibition of calcium-dependent neurotransmitter release. Evidence suggest that the clinical benefits of BTX-A may not only be due its inhibition of acetylcholine release from motor efferent fibers, but also due to an indirect reduction in sensory feedback through the inhibition of acetylcholine release from gamma motor neurons. Moreover this neurotoxin seems also to inhibit release of neurotransmitters involved in the generation of pain, such as glutamate, substance P, and calcitonin gene-related peptide, which may form the basis for its beneficial effects in migraine and other painful conditions. *Pharmacology, Immunology, and Current Developments* is the topic of **chapter 1** meanwhile **chapter 2** is focused on *Facial Anatomy and the Use of Botulinum Toxin*.
Thus physicians may treat all the problems characterized by hyper functional muscle and the understanding of the muscular anatomy of the face, reported on this chapter is necessary for the judicious use of botulinum toxin.
Functional anatomy is, in fact, emphasized because the only way to utilize properly any type of BTX is to have an in depth understanding of how to modify the normal movements of the mimetic muscles of the face. When injections of BOTOX® Cosmetic are appropriately performed, desirable and reproducible results without adverse sequelae are created.
Hence in **chapters 3, 4** and **5** its dermatological uses are presented in a systematic fashion, first by identifying the anatomical basis of different aesthetic changes acquired by men and women as they age and wrinkle. Next normal functional anatomy is discussed to elucidate the reasons for these aesthetic changes so that a suitable plan of correction with BOTOX® Cosmetic can be started.
Different injection techniques are discussed and emphasis is placed on what to do and what not to do when injecting BOTOX®. Thus the use of this neurotoxin is amply reported together with its role in the treatment of lines and wrinkles in the upper, mid and lower face, neck and upper chest. By explicitly presenting the different techniques, the text provides both the neophyte and experienced physician the rationale for why and how a patient should be treated with a particular amount of BOTOX® in one area or another for a distinct outcome. All the techniques reported are discussed and well documented by the use of color-photos and figures. On the other hand it is reminded to the reader the fact that every single individual patient is different and should never be treated in an identical way.
In the majority of cosmetic indications for botulinum toxin discussed in the previous chapters, objectionable rhytides and asymmetries are created by the activity of superficial skeletal muscles upon the

overlying skin.
Partial paralysis of carefully selected muscles may result in the several of these undesirable features, creating more relaxed, youthful appearance. However the cosmetic significance of muscles is not, limited to their functional activity.
In man large biceps brachial, pectorals, quadriceps and gastrocnemius muscles project an image of strength and vitality and are seen as desirable. Firm but gently curving quadriceps and gluteal muscles are more frequently seen as the female ideal. *Muscle Contouring* is the topic of **chapter 6**, where jaw line recontouring by masseteric atrophy and cuff reduction with BOTOX® injections into the gastrocnemius are reviewed and discussed.
In many cultures, in fact, the ideal female face is perceived as delicate and smoothly contoured. Asian women in particular prefer an almond – shaped or oval appearance. A square jaw line, on the other hand, widens the lower face and is considered masculine.
The use of BTX-A in dermatology for the treatment of pain and to improve the appearance and presentation of female breasts is focused on **chapter 7**: *Other Dermatological Uses of Botulinum Toxin*.
About the pain the maximum analgesic effect of BTX-A treatment, for example, for post herpetic neurologia (PHV) occurs at around 3-4 weeks. For this reason patients are asked to return for reassessment and possibly additional treatment every 3-4 weeks until they are pain free.
For the use of BOTOX® in breast lift issues, which remain to be resolved, include optimization of patient selection, BOTOX® dosing and the placement of BOTOX® doses, and the issue of placebo effect versus biomedical effect, and elucidation of the mechanism of action if indeed there is this biomedical effect.
As known, there are seven serotypes of *botulinum* neurotoxins (A,B,C,D,E,F, and G) produced by different strains of C. *Botilunum* with serotype C being cytotoxic and not neurotoxic. All the botulinum neurotoxins are synthesized as a single-chain proteins of approximately 150 Kda that must be nicked or cleaved by proteases into di-chain molecules of approximately 100-Kda and 50-Kda subunits in order to be active.
Botulinum toxin type B (BTX-B) was cleared in year 2000 for treating the abnormal head position and related pain of cervical dystonia and is currently being investigated in a variety of other disorders, as well as in the setting of cosmetic dermatology.
The BTX-A complex has a total molecular weight of approximately 900 KDa, whereas BTX-B is approximately 700 Kda. *Botulinum Toxin* B is the topic of **chapter 9**.
The bulk of existing chemical data due to over 20 years of chemical BTX-A use in the US market place versus 2 years with BTX-B, confirms the effectiveness of BTX-A in the treatment of facial wrinkles. Preliminary data with BTX-B show that it is too effective in this regard. In these preliminary studies, BTX-B as compared with BTX-A, appears to have a faster onset of effect and potentially a more even, and smoother paralysis.
The last part of the book, **chapter 10**, is dedicated to the problem of focal hyperhidrosis.
Sweating is an important mechanism in the regulation of body temperature. Hyperhidrosis, defined as the production of excess sweat, can be divided into primary and secondary forms.
Primary hyperhidrosis located in the axillae, the palm of hands, the sole of feet, or the forehead, typically occurs in young individuals experiencing mental stress, without other pathogenic factors. Secondary hyperhidrosis is caused by an underlying neurological or endocrinologic disease or malignancy.

About 1-2% of the population suffering from hyperhidrosis is not aware that it is a disease and has learned to live with their symptoms.
The most widely used products for hyperhidrosis of axillae and foot are the antiperspirant cosmetics based on aluminium salts.
Tap-water iontophoresis is also used especially for palmar hyperhidrosis of hands. About the use of BOTOX® for hyperhidrosis the potential side effects of this therapy, contraindications, and the alternative treatments has to be explained to the patient.
It is also recommended that the patient understands the mechanism of action of BOTOX®, in particular the need for re-injection after 6-9 months. All the different therapeutic modalities available have to be also explained to the patient.
The books ends with this chapter and the appendices, were preparation, handling, storage side effects, contraindication and mode of injection of BOTOX® are reported and described.
As focused on the book, a detailed analysis of the patient's facial lines and skin condition need to be performed to allow for the optimum treatment and treatment sequence.
The hyperfunctional muscle lines are best treated with Botulinum Toxin injections and BOTOX® gives a safe, effective, localized treatment for skin lines and wrinkling, also if a complete patient's facial line therapy requires a combination of different techniques. In particular, the use of botulinum toxin type A injection has expended beyond the upper face; efficacy has been demonstrated in the mid face, lower face, and neck. In addition, botulinum toxin has proven to be a valuable therapy for focal hyperhydrosis.
This high quality and well-illustrated book written by a friend of mine, Anthony V. Benedetto, gives an interesting overview of the different possible treatments and procedures to use BOTOX® and other Botulinum Toxins. Reporting also all its contraindications and possible side effects, together with an up-to-date list of the last references on this subject, this publication represents a real guide for all Dermatologists and Plastic Surgeons who wish to know better how to use the last innovative methodologies for a better face and general rejuvenation of the whole body.
Efficacy and safety are today considered the most important outcome of patient satisfaction and this book represents, at this purpose, a precious guideline.

P. Morganti
Editor-in-Chief

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PROGRAMME

Sunday afternoon and evening

Tired of travelling all the way to the conference only to be stuck in the bar or hotel room waiting for Monday - then this is a new idea. All late afternoon and most of the evening we will be holding a cabaret style series of presentations. Sit together in a dinner style ambience, chill out from your journey and listen while some of the country's top experts tell you how to formulate a natural product, debunk some of the misinformation on parabens and other vital issues and concepts.

You order a drink and a bar meal or even a club sandwich with cup of tea and join colleagues in a casual and relaxed atmosphere to set the scene for the forthcoming conference. No formality, just a great warm up and stimulation for the action packed days ahead.

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This conference is designed to do the work for you. All talks will be supplied on the CD ROM and a hard copy will be available for those who like to make notes on the slides they see. We will not allow trade names to be used during the talk, but at the end of the paper, the supplier or speaker will give out a 'goodie' bag that contains samples and literature on the latest materials they are offering.

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