

THE NEWEST COSMETIC TECHNOLOGIES

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Synopsis:

We use skin features as indices compared to other surfaces, nor can skin cleansing lather be formulated as a dish-washing product. Moreover in Cosmetic Dermatology specialized "non irritating" cleansing products are used. Using particular cleaning lathers it is possible to verify changes in skin and mucous membranes pH making also evident bacterial or fungal invasion. Topical application of GLA have opened new ways for a scientific treatment of striae distensae cutis, such as a proper topical application of vitamin A seems to ensure the correct functioning of the mucosecreting epithelial cells. New experimental data suggest that PCA (Pirrolidone Carboxylic Acid) level in the skin may be directly affected by oral gelatin-glycine.

These and other cosmetic product, if correctly used, may be very helpful to the Dermatologist the Gynecologist and the Pediatricist by resolving medical-aesthetic problems without their patients taking oral drugs too much.

Riassunto:

La cute è uno dei nostri metri di bellezza e dobbiamo, quindi, adoperarci per detergerla e trattarla nel miglior modo possibile fin dalla prima giovinezza. Per questi motivi nella Dermatologia Cosmetologica vengono utilizzati speciali detergenti con una così elevata tollerabilità da esser considerati "non-irritanti" attraverso l'uso di particolari detergenti, che cambiano colore con il variare del pH cutaneo o delle mucose si può diagnosticare ad esempio la presenza di microrganismi patogeni.

L'applicazione topica dell'acido gamma-linolenico ha aperto nuovi orizzonti per una terapia cosmetica più mirata delle striae distensae cutis, così come l'uso topico dell'etil citrato e dell'etil lattato nell'acne, mentre un appropriato uso topico della Vitamina A può essere di utile ausilio per stimolare le mucose vaginali a secernere la giusta quantità di mucoproteine. Di recente interesse, infine, sono i rapporti riscontrati tra l'assunzione orale di gelatina-glicina e l'idratazione dello strato corneo.

La Dermatologia Cosmetologica, quindi, se correttamente utilizzata può essere di valido aiuto sia per il dermatologo che per il ginecologo per il pediatra per risolvere tutti quei problemi estetico-medici che non possano altrimenti essere affrontati con il solo ausilio dei farmaci.

The skin, with an area of about 2m and an average weight of 6.6 lbs., is the largest and heaviest organ of human body.

We judge age by skin, identify people by their skin, and use skin features as indices of beauty. Traditionally, to take care of the body means to take care of the skin, along with its appendages. Attempting to retard aging and to enhance beauty leads us to take care of the skin much more than any other organ.

Among the important things which we must learn are how to clean the skin well and how to protect it from damaging UV rays. When you are 16 years old your future is already clearly defined.

By that age people who clean too much and who like long exposures to the sun shall have already set the stage for trouble. (1,2,3)

Our skin, moreover, cannot be compared to other surfaces, not can skin cleansing lather be formulated as a dish-washing product.

In Cosmetic Dermatology we use specialized cleansing products possessing such greatly reduced skin irritations as to be considered "non-irritating". (4)

These cleansing products, with protein-simulating chemical structures, have their ideal pH action situated between 5 and 6, as in the normal skin.

New cosmetic compounds leave the skin cleaned and hydrated.

Moreover, using particular cleaning lathers recently introduced into the cosmetic market, it is possible to verify changes in skin and mucous membranes pH. (5,6,7)

Such pH change can document efficacy before, during and after a pharmacogynecological local or systemic therapy against pathogenic organism. Such new cosmetic products, can make evident bacterial or fungal invasion, or the efficacy of a the therapeutic regiment against them, by a simple color change of the cleansing water used.

Cosmetic intervention may also be intended to correct effects deriving from age and illness, and also to slow down or reserve some damage

caused by chronic ambient microtraumas.

By going deeper into the knowledge of cutaneous biological mechanisms we are allowed an approach more clearly aimed at retarding future aesthetic problems.

The cosmetologist, to meet customers requests, developed many new formulae. Keeping his store of knowledge up to date, he is able to use more sophisticated and active raw materials.

As a result, moisturizing and protective creams and gels containing vitamins, collagen and elastin have been prepared.

A proper topical application of vitamin A, in a cosmetic form, seems to ensure the correct functioning of the mucosecreting epithelial cells.

This stimulates or induces the formation of mucoproteins and other mucus substances. (8)

Use of this type of vitamin A gel may provide a beneficial antikeratinizing effect on the oestradiol-induced vaginal keratinization. (9)

More recently, the cosmetic use of alkyl esters, such as ethyl citrate, seems to be useful in acne therapy.

Data from recent studies suggest that these alkylesters, hydrolyzed by lipases of bacterial origin instead of the triacylglycerols, inhibit propionibacterium acnes from liberating the comedogenic free fatty acids from sebum. (10,11)

Growth of aerobic and anaerobic gram-negative organisms is also suppressed.

This harmless cosmetic acne therapy may be used instead of benzoyl peroxide and retinoic acid, both of which are photosensitizing chemical compounds.

Finally, the topical applications of some new organic compounds from silicium (silanols), which are probably precursors of collagen and elastin, coupled with the cosmetic use of gamma-linolenic acid, have opened new ways for a scientific treatment of striae distantes cutis.

Interesting studies have been carried out on linolenic acid, gamma-linolenic acid and beta-carotene indicating that they are very acti-

ve in reducing the inexorable progress of skin aging. (12,13)

As active cosmetic principles employed orally or topically they oppose the development of free radicals.

Ultraviolet rays accelerate the process of skin aging by developing free radicals which interact at the cellular level with proteins, lipids and DNA. (14)

They thereby initiate many different types of damage, some of which often turns into skin cancers. Appropriate cosmetic products can intervene at different levels to slow down, limit and reverse damage deriving from photoaging. Present knowledge allows us to state almost certainly that UV protection has a fundamental part in preventing or, at least, slowing down the process of skin aging. (14,15)

The protective function is mainly performed through the filtering power of organic molecules absorbing UV radiations, or through the reflecting power of organic pigments which the cosmetic cream leaves on the skin. (16,17,18) Aged skin is also dehydrated and alipidic, deprived of natural moisturizing factors (NMF) and of the skin surface lipids which are indispensable in keeping skin smooth and hydrated. (19,20) Other elements deeply associated with aging are increased skin wrinkles and decreased cutaneous immunologic competence.

Hence the cosmetic use of hydrotopes (water co-ordinating agents) such as mucopolysaccharides, PCA (5-pyrrolidonecarboxylic acid) sodium salt, amino acids, such as glycine and proline, and complex mixtures of natural carbohydrates, such as collagen and elastine, is rapidly increasing because all are active compounds for linking water to the stratum corneum. (21,22)

Well formulated cosmetics delay *perspiratio insensibilis*, help to retain water in the stratum corneum and to restore the surface lipid film.

This lipid film is in fact, the indispensable regulator of water exchanges between the dermis and the surface skin layers.

For testing the activity of moisturizing and sebum-normalizing cosmetics specific "hydration" and soothing indices are suggested.

These indices are directly correlated to the individual biotopological conditions of the skin.

The hydration index is the ratio between the water retention in the surface layer of a treated skin area prior to treatment the result is multiplied by a factor 10.

The soothing index is the ratio between the sebum content of surface layer of a treated skin area and of the same skin area prior to treatment the result is multiplied by a factor 4.

These indices may be measured by the use of a computer supported system called Dermotest hytech. (23, 24, 25).

More recent studies carried out on biological collagen sheets, which can improve the degree of hydration of the skin, are also very interesting.

By use of these biological sheets, composed of soluble and insoluble native collagen fibrils, it is possible to obtain restoration of the moisture in the surface layers of the skin, varied in degree according to the quantity of native soluble collagen present in the sheet. (26)

Such sheets may also be very useful as support and active carrier of both biological and chemical materials for pharmaceutical purposes.

In fact, they may be enriched with active compounds, steadily held by fibrils by means of chemico-physical bonds, and therefrom slowly and progressively released to the skin structures.

These collagen sheets, appropriately treated, may provide useful physiological cosmetic therapies in some inflammatory conditions of genital mucosa.

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New experimental data suggest that the Pca level in the skin may be directly affected by oral route of gelatin-glycine. (27, 28, 29).

The improvement in observed hydration and

elasticity of stratum corneum is increased by about 40% after 60/90 days of treatment.

On the basis of these studies treatment by oral gelatin–glycine would seem to be a useful complement to cosmetic use for dry and aged skin.

Severe cuticular damage to the hair, described amongst 120 children engaged in intensive swimming pool training schedules, was probably due to the prolonged exposure to chlorinated water. (30)

Regular use of newer protective hair creams and shampoos may retard such assaults by swimming pool water.

Lastly, permanent waving solutions and depilatory substances should be carefully used.

If not, they may cause the hair to fracture of the skin, especially when depilatories are used on the face and breasts, to be irritated.

These and other products, if correctly used, may be very helpful to the Dermatologist or the Gynecologist by resolving medical–aesthetic problems without their patients taking oral drugs too much.

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