

Women: blame them for the inadequate sun exposure of future generations!

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Women pay more attention to prevention campaigns than men and are usually better informed about sun exposure risks. Nevertheless, previous studies have shown that they still desire an intense suntan because being tanned is associated with being beautiful, attractive, erotic, and especially being accepted by others of the same group. For women this desire of having a suntan is so great that it prevails over the idea that inadequate sun exposure may be harmful to their health, significantly increasing the risk of skin cancer. In this search of a perfect tan, women are incorrectly exposed to the sun, use inadequate sunscreens and sunblockers, and sometimes even seek tanning lamps for artificial tanning. Besides all this, they will certainly and definitely influence the future behavior of their children in relation to sun exposure, both by the way they educate them and by the example they give.

Women and sun exposure

Most modern woman nowadays, besides being financially independent, is not able to be free of the stigma of the external image equally perfect. She has to look as a beautiful winner, that is well succeeded professionally, but also emotionally; and if not, this woman

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imagines that even her friends, especially men, will not approach her.

She only "lives her work", theoretically not attracting people to her side. Maybe the great need for suntan resides exactly here. It is a form of rapid and subliminal communication saying: "I have a personal life and I love to have fun." They are women who besides using more sun protection than men, get more tanned, exposing themselves for a greater time and with the aim of getting a darker skin.¹

There are women who say that sun exposure increases their self-esteem, even knowing this will damage their health. They report feeling more sexy and to have a more beautiful skin. It is even a paradox, since there are women who say that a tan gives them a fresher air, a more healthy looking skin, that a suntan is the "color of health", and that it also improves their humor. Those who love tanning do not care about risks of UV exposure.^{1, 2}

The New Zealand Cancer Society showed that the majority of people who were questioned about the hazards of UV radiation admitted to know them, but still reported a positive attitude to skin tan and also still exposed themselves to the sun. And the darker the tan, the more satisfied is the individual. Being bronzed was associated with being accepted by people

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from the group. This need of being socially accepted is so intense that even knowing all sun exposure risks to the skin, these people do not stop, and this knowledge promotes very little changes in the desire of being tanned. Moreover, the sun exposure is often inadequately done (between 11 a.m. and 4 p.m.), without any protection (hats, sunglasses and barracks), little or no sunscreen, and often there is an associated bronzer.¹ Skin cancer prevention campaigns do not matter; important is being socially accepted by friends. There is a rush in becoming beautiful and tanned, and if the exposure is done as dermatologists recommend it would take too long to get the desired skin color.

There is a correlation between the attitude towards tanning and weight watching, physical activity and other activities with a high social value, but, on the other hand, it was reported that women showed no particular restraint in smoking, or drinking, or in favoring skin thickening using sunbeds.³

The hazardous effects to the skin caused by sun exposure, producing early skin aging, are also well established and everyone knows about them. The cosmetic market launches every year thousands of new products and procedures, as topical rejuvenating creams, injectables substances, chemical peels, and lasers, among others; all with the same objectives: delay the effects of sun exposure and aging. Women are the great consumers of all this apparatus, spending huge amounts of money to try to obtain a good result; and the same women who submit themselves to the various rejuvenating therapies available to remove the marks of photoaging are the ones that are sun burning the next day or visiting artificial tanning salons.¹ There were attempts in order to verify possible psychological benefits of the direct effect of ultraviolet light. Although artificial light has been successfully used for psychiatric illness, doubt remains whether there is a biological effect of light on the central nervous system. Many people would certainly admit that their morale is higher on blue skied sunny days than on overcast rainy days but the apparent psychological benefits were closely related to the degree of tan that was achieved on the sunbed and it may be that those subjects who obtained the desired tan were naturally satisfied with the outcome.⁴

Tanning lamps

It is estimated that nearly 25 million Americans artificially tan each year, although tanning lamp use has

been associated with nonmelanoma skin cancer and cutaneous melanoma. The social desirability of a tanned skin is obvious, and many people associate a tanned body with good health and a sense of well-being. The public is encouraged to acquire "an attractive tan with no detrimental side-effects from the latest ultraviolet radiation technology", and this has led to the growth of artificial suntan salons in the past years.⁴ Many important Dermatology Societies, as the American Academy of Dermatology, British Photodermatology Group and other organizations, have publicly discouraged the practice of artificial tanning.⁵

Many research centers dealt with clients of artificial tanning salons and concluded that it is the young population, especially around 17 to 22 years, the most frequent users; more likely women. These young women know well all the harmful effect of inadequate sun exposure, nevertheless continue doing it.⁴⁻⁶ In the past, it was also observed that the users were women, but older.⁷

Knight *et al.*,⁵ in a research performed in Indianapolis, at the Indiana University School of Medicine, asked several students about their motivation for using tanning lamp. Of the current users, 92% used sunbeds because they liked a tanned appearance, 71% because they did not have time to tan with natural sunlight, 61% for vacation preparation, and 12% because their friends used them. Only 15% of the current users reported using tanning beds for the treatment of skin disease (defined in their study as psoriasis, acne, or dermatitis). Unfortunately, some youngsters still believe that artificial tanning was less harmful than natural sun light. There were some who believed it would protect the skin because it became darker after the artificial tanning, and that was the reason the 61% used artificial sun tanning for vacation preparation.

Influence of women's habits in infancy and adolescence

Around 50-80% of the solar damage on skin occurs during childhood, when unfortunately sun exposure occurs during the worst possible period of the day, in an intense and intermittent form, greatly increasing the risk of melanoma. Annually a child receives 3 times more UVB radiation than an adult, and the greater amount of exposure occurs exactly during the periods of more solar intensity of summer. Also chil-

dren who use sunscreen stay out under sun exposure longer than those who do not.

Although fathers participate, in general, mothers are the ones to decide for the whole family the time and duration of sun exposure, if it will be with sunscreen or not, its sun protection factor (SPF), areas to be applied, and also intensity of sunburns of their children. In adult life this will most likely be the example to be followed by these children. A pattern of solar damage can usually be noticed in the whole family; and children's sunburn is significantly associated with parents' sunburn.^{6, 8}

Sunscreens: are they correctly used?

Sunscreen cream is the most popular way to prevent sun damage, especially in women.⁹ They inhibit UV radiation transmission into the skin by reflection, absorption, or scattering, and were developed to protect against sunburn and to prevent skin cancer.¹⁰ In general, people only apply sunscreens during risk behavior, that is during the more sunny hours of the day, during summer and/or when they are going to be exposed for many hours. Children do not use more sunscreen than adults and have the same number of unprotected days with a risk behavior. Women use more sunscreen than men but have behaviors of greater risk without sunscreen and more sunburns, which may be influenced by the incorrect application of sunscreen. Studies have shown that people often apply less sunscreen than the recommended amount of 2 mg/cm², thereby achieving a mean SPF of between 20% and 50% of that expected from the product label.¹¹ Unfortunately it is proven that sunscreens are not correctly used.^{6, 8, 10-12}

Thieden *et al.*¹⁰ demonstrated in a prospective investigation in Copenhagen, Denmark, that people have a tendency to overestimate their sunscreen use, especially with regard to children, probably because sunscreen use demonstrates social responsibility and a good parental care. The use of sunscreen may encourage people to stay out longer in the sun, as reported by these authors. Their study showed that people have significantly more sun exposure hours and double the UV dose on days with risk behavior and sunscreen use compared with days without sunscreen use. Sunburns occurred twice as often on "days off" with risk behavior and sunscreen use than with it. This viewpoint is strengthened by the fact that they found no correla-

tion between sunscreen use and days without risk behavior but a strong correlation with days exposing sunbathing with the intention to tan, indicating that sunburn happened when the person knew there was going to be a prolonged sun exposure. Nevertheless the sunscreen application was either inadequate or sloppy, the applied layer insufficient and thus the sunscreen was used as an aid to avoid sunburn.

Tanning and skin cancer

It is estimated that 80% of all skin cancers could be eliminated through sun exposure prevention attitudes.¹³ During the period between 1973 and 1987, there was a great increase in the incidence of basal cell carcinoma and squamous cell carcinoma of the skin in British Columbia, Canada. This also occurred with cutaneous malignant melanoma, although in a lesser extent. It was interesting to notice in this research that the incidence enhancement of basal and squamous cell carcinoma, similarly in both men and women, were on the head and neck areas, followed by the trunk. Differently cutaneous melanoma had its greater increase on the trunk in men, and on the legs in women, although on head and neck it was also significant. This data reinforces the major role of sun light action on skin, in a chronic or an intermittent but intense exposure, as the summer or weekend sun bathing due to the "worship of the sun".¹⁴

Robinson's study⁸ has stressed that people prefer to have a tan although they know that sunscreens protection is useful; and parents apply sunscreens to their children in greater intensity than they do to themselves.

Nowadays, although women and youngsters know well the harmful effects of inadequate sun exposure, they still stay out in the sun, wishing for an intense suntan. Trying to find out why this occurred, Boggild and From¹⁵ performed a study with the objective to qualify the possible barriers which led to a misalignment of current recommendations and sun safety practices. Their data showed that knowledge alone does not predict compliance and that sun awareness campaigns should be evaluated based on their ability to affect behavior.

In summary, the data obtained through the research of Fabbrocini *et al.* reinforces the absolute need to continue stressing out the harmful effects of inadequate sun exposure, to increase sun awareness and skin cancer prevention campaigns and "to do more in

order to increase public awareness about possible UV radiation and sunbed adverse health effects". As Fabbrocini stated "women prefer to be well-tanned and this need is stronger than any fear of skin cancer" and they must change their behavior in this aspect so there can be a beneficial modification in the attitude of future generations.

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