



Sun protection: myths and realities



1. Is it not necessary to apply a sunscreen when already tanned?

The skin naturally produces a pigment, melanin, to protect the DNA of our cells. It is this pigment that colors our skin and gives it a tanned appearance.

Although melanin is the skin's natural defense mechanism, it cannot provide complete protection against sun radiation. According to experts, a base tan is equivalent to using a sunscreen with a sun protection factor (SPF) of only 3 to 4 [Are There Benefits to a "Base" Tan? - Harvard Health]. That is why, even if we are tanned (and have produced more melanin pigment), it is necessary to apply a sufficient amount of sunscreen before sun exposure. This protection helps protect against UV-induced effects, which can be involved in skin cancer.

2. Does applying sunscreen prevent the production of vitamin D ?

The production of vitamin D is very important for many physiological processes, and sun exposure plays a crucial role in its synthesis in the skin.

Studies show that regular sunscreen use does not cause vitamin D deficiency, and that 5 to 30 minutes of sun exposure three times a week is sufficient to produce the necessary vitamin D for the body [What Is All This Commotion about Vitamin D, Kavitha et Gilchrest]. The production of vitamin D may be reduced if we apply a thick layer of sunscreen and if we frequently wear UV-protective clothing and hats. However, since only a short amount of exposure is needed for its synthesis, typical living conditions generally cover this requirement. Let us not forget that overexposure to the sun is a serious health threat, and it is important not to stay in the sun for too long even when using sunscreen.



3. Is it better to let the skin defend itself against the harmful effects of the sun?

When we are tanned, it means that the skin has reacted to an aggression with a first defense mechanism: tanning.

Therefore, when the skin starts producing melanin, it means that there is already a certain degree of damage, and every time the skin feels "attacked," it will react by producing melanin, the pigment for photoprotection.

The use of photoprotective products helps protect against the harmful effects of the sun, including DNA damage that can be involved in the risk of skin cancer, and thus our skin will have less difficulty producing the amount of melanin it needs to protect itself.

In any case, melanin production is an always active natural defense process that works to limit sun-induced damage and cannot be reduced by using sunscreen products.

Depending on where we live, our natural defenses have adapted over time.

For example, polar bears have black skin to protect themselves from UV rays that are not reflected by their white fur. Today, due to globalization and our often mismatched behaviors and lifestyles with our environment, we must ensure that we protect ourselves from sun damage through the use of sunscreen products. Therefore, do not expose yourself during the hottest hours (from 11 am to 4 pm in Europe) and use protective clothing (wide-brimmed hat, sunglasses, T-shirt, etc.).



4. Is it unnecessary to apply sunscreen when swimming?

DNA damage caused by UV rays can occur when exposed to the sun outside of the water as well as when swimming. Although a certain amount of sunscreen is lost during swimming, it still provides partial protection.

Sunscreens labeled as "water-resistant" have been specifically tested under conditions that replicate swimming and are more resistant to water. Like clouds, water does not block UV rays, which are actually necessary for the life of corals. UV rays can penetrate several meters of water, especially if it is clear. Additionally, the reflection of rays on the water's surface increases their intensity. Therefore, to ensure a good level of photoprotection, it is necessary to reapply sunscreen in sufficient quantity before and after each swim, as well as after drying off or sweating.

5. Is it unnecessary to apply sunscreen when the UV index is low or when the sky is cloudy?

Unfortunately, clouds do not block ultraviolet (UV) rays but only filter a small proportion of them. The optical effect of light attenuated by clouds makes us think that we are less exposed and underestimates the danger and risks.

Furthermore, clouds block a high percentage of infrared (IR) rays, which give us the sensation of heat. As we do not perceive the heat, we do not perceive the warning signal. An example? People who get sunburned while sleeping on the beach with a cloudy sky [Experimental determination of cloud influence on the spectral UV irradiance and implications for biological effects - ScienceDirect, Environmental Cues to Ultraviolet Radiation and Personal Sun Protection In Outdoor Winter Recreation - PMC (nih.gov)]. That is why applying sunscreen is essential even on cloudy days.



6. Is it better not to use sunscreen on children?

First and foremost, it is especially recommended not to directly expose babies and young children to the sun. Children's skin is more delicate, thinner, and their skin barrier is not fully developed yet. Sunscreens are not contraindicated for children, but since their skin is more sensitive, it is preferable to choose specific products without fragrance or allergens. However, for younger children, the best sun protection is to keep them in the shade, use UV-resistant clothing and hats, and avoid going out on excessively hot days.

Should mineral filters be preferred for children?

In the past, certain chemical filters have caused real intolerance problems, such as benzophenone 3, and have been banned or restricted [Benzophenone-3, a chemical UV-filter in cosmetics: is it really safe for children and pregnant women? - PMC (nih.gov)]. Indeed, chemical filters, having a certain level of solubility, can potentially reach the living part of the epidermis and cause intolerance or allergic reactions depending on the individual. Mineral filters, on the other hand, are generally completely insoluble and cannot penetrate the living part of the skin, reducing the possibility of skin reactions [Adverse Reactions to Sunscreens - PubMed (nih.gov)]. That is why mineral filters are sometimes preferred for children.

However, let us remember that:

The definition of a cosmetic product [Art3 Sécurité, Règlement (CE) no 1223/2009] specifies that a cosmetic product placed on the market is safe for human health when it is used as intended, is used under normal or reasonably foreseeable conditions of use, unlike drugs, which are based on a risk-benefit assessment. In addition, there is a positive list of authorized chemical and mineral sunscreens [Annexe VI du Règlement cosmétique européen 1223/2009]. Therefore, only sunscreens listed on this list can be used in marketed products.

