



The sun

Blessing or curse?



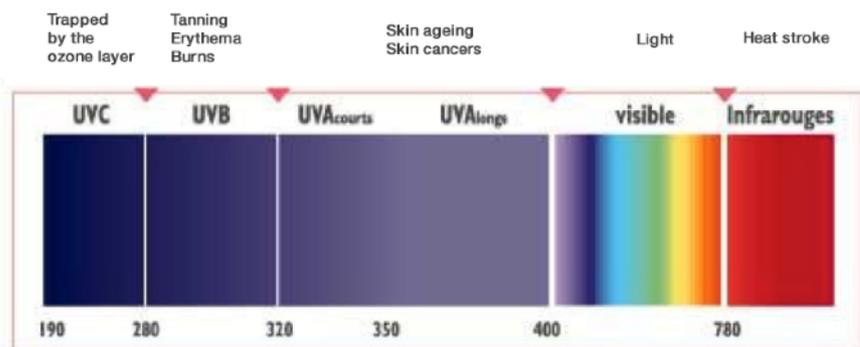
Tanning

For decades, a suntan has been regarded as a sign of good health. In medical terms, the opposite is in fact true.

The sun emits a spectrum of radiation ranging from infrared to ultraviolet with the visible spectrum in between. The effect of radiation differs depending on the wavelength:

- infrared rays generate heat;
- the visible spectrum has an antidepressant effect;
- UVBs activate vitamin D.

Tanning is another effect of UV radiation. It is in fact essentially a defence mechanism of our skin against UV rays which cause mutations, immunosuppression and collagen destruction. Tanning is therefore in a sense a “scar” caused by exposure to sunlight. Under the effect of UV radiation, the melanocytes located in the skin synthesize melanin, a skin pigment which filters out UVs and protects our skin against their harmful effects. In parallel, the skin



thickens under the impact of UVs, so amplifying the protective effect.

The better the tan, the greater the protection against UV radiation. People with a very light skin have practically no protection against the sun and should therefore never be exposed to strong sunlight. Moreover, 75% of malignant skin cancers (melanoma) occur in persons with that skin type.

For a long time, UVB radiation was thought to be the sole cause of skin cancer; hence the belief that

sunbeds are less harmful than the sun itself. But that is far from the truth.

UVAs emitted by sunbeds and by the sun itself are just as carcinogenic as UVBs and moreover act more deeply on the skin, causing it to age prematurely. In addition, the tan obtained in this way gives poor protection because the skin does not thicken under the influence of UVAs alone and will therefore be more vulnerable under the real sun.

Sun resistance

Protection against sun

The length of time for which we can safely expose ourselves to the sun depends on several factors: our skin type, sun resistance and the UV index. In every case, good protection is essential!

Sun “capital” or sun resistance means the total amount of time for which we can be exposed to the sun in our lifetime without suffering irreparable damage. It is a fact that we are most exposed during childhood. Not only is the child’s skin finer and therefore less well protected against UVs, it is also during childhood that most of us spend the greatest amount of time outdoors. That is why the child’s skin must be fully protected. Babies must not be exposed at all and should always stay in the shade. A small child will be best protected by clothing, a hat and an SPF 40 sunscreen. A warning about bathing: 40% of UVs pass through water down to a depth of 40 cm. A tee-shirt alone will not be enough to provide protection against sunburn during lengthy bathing under a blazing sun. Special garments with a very dense mesh are on sale to permit completely safe bathing.

Sun resistance also depends on our skin type.

The lighter the skin, the lower will be the degree of resistance. We are estimated to have already used up one-half of our sun “capital” by the age of 20! That makes effective protection vital whenever we spend days outdoors. A warning about clouds: not all of them block UVs. Thin clouds at very high altitude let most UVs through. So much so that you may easily suffer sunburn on an overcast day!

Skin type is another factor which affects sun resistance. The following table enables the reader to determine his or her skin type and the appropriate protection. A warning about sunscreens: they simply extend the length of safe exposure, but do not do so indefinitely. The rules of good protection must still be followed.

The UV index is the last important factor. This depends on clouds, reflection from the ground, altitude, latitude and of course the season.

In our countries, UV radiation peaks during the summer solstice. In other words, sunshine is the same in the month of May as in July but because the temperature is generally lower in May we pay less attention to this fact; so much so that the risk of sunburn is much greater than in the month of July.

The radiation intensity also rises with altitude at the rate of 4% per 300 metres. If you wish to bathe in a sheltered spot, your best choice will be the Dead Sea which is 300 metres below sea level.

The closer the latitude is to the equator, the greater the intensity of sunlight which rises by 3% per degree of latitude. The UV index is therefore the same in Naples as in New York because those towns are located on the same latitude.

Skin	 very light	 light	 Slightly brown	 Brown	 Dark brown	 Black
Freckles	Always	Sometimes	No	No	No	No
Hair colour	Blond or red	Light or chestnut	Brown	Dark brown or black	Black	Black
Eye colour	Light	Light	Light or brown	brown	Black	Black
Tan	Never, severe sunburn	Very little, severe sunburn	Progressive tanning, average sunburn	Fast and deep tanning, seldom sunburn	Always, very seldom sunburn	Sunburn never occurs
Skin type	I or very Northern	II or Nordic	III or European	IV or Mediterranean	V or mixed	VI or black
Self-protection time	5-10 minutes	10-20 minutes	20-30 minutes	30-45 minutes	45-60 minutes	60-90 minutes
Protection against the sun	Shade, clothing which covers the body, hat, sunglasses UV 400	Shade, clothing which covers the body, hat, sunglasses UV 400	Shade, hat, sunglasses UV 400	Hat, sunglasses, UV 400	Hat, sunglasses, UV 400	Hat, sunglasses UV 400 at the seaside or in the mountains
Sun protection factor	SPF \geq 30	SPF \geq 25	SPF \geq 15	SPF \geq 15	At the seaside or in the mountains SPF \geq 30	After a long period without exposure to the sun SPF \geq 15



Reflection of UV radiation is an important factor to bear in mind. Snow reflects 80% of UV, sand 20% and water just 5%.

Take care therefore when skiing because the altitude factor is added to that of reflection! Also, beware of the paradise beaches

in the Caribbean where the latitude factor is added to reflection from the sand and sea and where sunburn can even occur in the shade!

Sunscreens

Sunscreens mainly provide protection against UVB radiation. When buying a screen, you must make sure that it also contains protection against UVAs

and is water-resistant or waterproof. In principle, the SPF sun protection factor shows for how long you can stay in the sun wearing the cream without burning.

For a normal skin with 15 minutes exposure, an SPF 20 means that the person can in theory remain in the sun for $15 \times 20 = 300$ minutes without harm.

UV index

The UV index indicates the intensity of solar radiation and depends on the meteorological conditions, altitude, latitude

latitude and the thickness of the ozone layer. The UV index can be found on many weather forecasting sites, such as

*www.alertes-meteo.com/cartes/index-uv.php
The following table shows the precautions to be taken depending on the UV index.*

UV index	Intensity	Protection
1-2	low	Not necessary
3-5	average	Hat, sunglasses, tee-shirt, SPF 15
6-7	high	Hat, sunglasses, tee-shirt, SPF 30
8-10	very high	Hat, sunglasses, tee-shirt, SPF 30, shade
≥11	extreme	Preferably stay indoors or use maximum protection