

Sun and sunburn

This leaflet gives tips on how to protect your skin from the harmful effects of sunlight, like sunburn.

In particular, it is very important to protect children from the sun. The delicate skin of a child is more sensitive to sun damage than the skin of an adult. Sun damage can lead to skin cancer in later life.

Sunlight in the right amount is good for our health too. It is important to know how to enjoy sunshine safely so it can do you good and not harm.

Understanding sunlight and the skin

Too much exposure to sunlight is harmful and can damage the skin. Some of this damage is short-term (temporary), such as sunburn. However, allowing your skin to burn can lead to future problems, such as [skin cancer](#).

There are two main types of damaging ultraviolet (UV) sunlight: UVA and UVB.

- UVA rays penetrate deeper into the skin, damaging the middle layer (the dermis). The dermis contains the elastic tissues that keep the skin stretchy. UVA rays therefore have the effect of ageing the skin and causing wrinkles.
- UVB rays are absorbed by the top layer of skin (the epidermis). This causes suntanning but also burning.

Both UVA and UVB rays increase your risk of developing skin cancer. Getting sunburnt is therefore a warning sign that you are putting yourself at risk.

Melanin is the coloured pigment in our skins. When skin is exposed to sunlight, more melanin is produced to help protect the skin against the UV rays. This makes the skin darker – what people refer to as a suntan. Although melanin stops your skin burning so easily, it does not prevent the harmful effects of UV rays.

Who is at risk from the sun?

Everyone is potentially at risk from excessive sun exposure.

People most at risk are those with fair skin, blue eyes, freckles, and red or ginger hair. People with white (Caucasian) skins have less melanin than those with darker skins, so are at more risk of burning. However, anyone can get sunburnt, even those with dark skins and higher levels of melanin.

It is not just people who sunbathe who are at risk. Outdoor workers and people simply being outdoors who do not protect their skin are also at risk. This is particularly the case if you live in a country close to the Equator, if you live or work at high altitude, or if you are outside when the sun's rays are strongest (between 11 am and 3 pm).

Sunburn may also occur from exposure to other UV light sources such as when lying on a sunbed in a tanning salon.

What is sunburn?

Sunburn is the most common problem caused by too much sun.

Short-term overexposure to sun can cause burning. The skin becomes red, hot and painful. After a few days the sunburn may cause peeling skin.

How to treat sunburn

A cool shower or bath will help to soothe red burnt skin. Soothing creams will help. After-sun lotions cool the skin and contain moisturisers (emollients) to counteract skin dryness and tightness. Any plain emollient can be used on unbroken skin to help with comfort. [Paracetamol](#) or [ibuprofen](#) will help with pain, if you are able to take them. You should see a doctor if the sunburn is very severe.

You should never allow babies or young children to develop sunburn. If they do, you should seek medical advice.

Sunburn can also result from exposure to other sources of UV light, such as sunbeds or sunlamps. The treatment is the same.

What other problems are caused by too much sun?

Heat exhaustion

Heat exhaustion occurs when the temperature inside the body (the core temperature) rises to up to 40°C (104°F). A normal temperature is about 37°C (98.6°F).

At these temperatures, you may feel sick and develop headaches, sweat excessively and feel faint. The body is losing water and becoming dehydrated. If untreated, heat exhaustion can progress to heat stroke which can be serious.

The treatment for heat exhaustion is to move swiftly to a cool place, out of direct sunlight, and to drink plenty of cool fluids. Recovery should happen quickly, usually within 30 minutes, and there are no long-term complications. If you have heat exhaustion, or are looking after someone with heat exhaustion, and improvement is not occurring, it is important to seek urgent medical advice.

Heatstroke/sunstroke

Heatstroke occurs when the core body temperature rises above 40°C (104°F). It is potentially very serious. The cells in the body begin to break down, important bodily functions stop working, internal organs can fail (such as the brain) and, in extreme cases, death can occur.

Symptoms include being sick (vomiting), confusion, fast shallow breathing (hyperventilation) and loss of consciousness.

Heatstroke is a medical emergency and you should summon immediate medical help (in the UK, call 999 for an ambulance).

Treatment for heatstroke in a hospital involves cooling the body to lower the core temperature, and using an intravenous drip to replace the fluids lost.

[See also the separate leaflet called Heat Exhaustion and Heatstroke.](#)

What are the effects of long-term sun damage?

Skin damage

Repeated exposure to too much sun over a number of years can cause damage to skin. The effects of sun damage include premature skin ageing and wrinkling, brown spots, non-cancerous (benign) warty growths on the skin ([actinic keratoses](#)), and [skin cancer](#).

Skin cancer

About 8 to 9 of every 10 skin cancers are thought to be caused by excessive exposure to the sun. See the separate leaflets called [Non-melanoma Skin Cancer](#) and [Melanoma Skin Cancer](#) for more information. In particular, episodes of sunburn greatly increase the risk. Skin cells that are damaged are at greater risk of becoming abnormal and cancerous.

People of all ages should [protect their skin](#), but it is even more vital to protect children. Although skin cancer is rare in children, the amount of sun exposure during childhood is thought to increase the risk of developing skin cancer in adult life. Therefore, take extra care with children, and keep babies out of the sun completely.

How can I avoid getting sunburnt?

In short: avoid the sun when it is strong, cover up and use high-factor sunscreen.

Avoid the sun as much as possible when the sun is strong

In the UK, stay in the shade or indoors as much as possible between 11 am and 3 pm in the summer months (May to September). This applies all year round in hotter countries nearer to the equator. This middle time of the day is when the sun's rays are the strongest. Trees, umbrellas and canopies can all provide good shade.

Cover up

Cover up the body as much as possible when you are out in the sunshine:

- Wear wide-brimmed hats with a brim that goes all around the hat to protect the face and neck. These are the areas most commonly result in sunburned skin. Men, in particular, seem most likely to develop skin cancers on their necks, shoulders and backs (women tend to get skin cancers more on their legs and arms). Baseball caps are not as effective, as they shade the face but not the neck, lower face and ears (unless you buy one with a cotton neck protector). Young children should wear hats with neck protectors too.
- Wear loose baggy T-shirts (or even better - long-sleeved tops) and baggy shorts. The material should be tightly woven to block out sunlight.
- Wear wrap-around sunglasses (your eyes can get sun damage too). Make sure the sunglasses conform to the European Standard, indicated by the CE mark (or equivalent) and are labelled as providing protection against UV light.

Use high-factor sunscreen liberally

You should apply sunscreen of at least sun protection factor (SPF) 30 (SPF 50 for children).

SPF gives a guide to how much sun protection is afforded by a particular sunscreen. The higher the SPF, the greater the protection. The SPF label shows the protection against UVB, which leads to sunburn and the damage that can cause skin cancer.

It is also important that your high SPF sunscreen has a high level of UVA protection. UVA can cause ageing effects of the skin and also, potentially, the damage that can cause skin cancer. Sunscreens with high UVA protection will have a high number of stars (these range from 0 to 5).

Be sure to cover areas which are sometimes missed, such as the lips, ears, around the eyes, neck, scalp (particularly if you are bald or have thinning hair), backs of hands and tops of feet.

You should not think of sunscreen as an alternative to avoiding the sun or covering up. It is used in addition. Sunscreens should not be used to allow you to remain in the sun for longer – use them only to give yourself greater protection. No sunscreen is 100% effective and so it provides less protection than clothes or shade.

Ideally:

- Apply sunscreen 20–30 minutes before going out into the sun (it takes a short time to soak into the skin and to work).
- Re-apply frequently, at least every two hours, and always after swimming, towelling yourself dry or excessive sweating (even those that are labelled water-resistant).
- Apply enough sunscreen to cover exposed skin. For most people this is the equivalent of two teaspoons of cream for the head, neck and arms. For the whole body while wearing a swimming suit, this would be around two tablespoons.
- Re-apply to children even more often.

Sunblock is different to sunscreen. Sunblock is opaque and stronger than sunscreen. It is able to block *most* UVA and UVB rays, owing to the ingredients it contains (usually titanium dioxide or zinc oxide). As with sunscreen, you should not consider sunblock as an alternative to other strategies for protecting the skin against the sun's harmful rays.

More tips for protecting skin from sun damage

- Sunscreens with an SPF of less than 15 do not give much protection. Always use factor 15 or above. Consider a much higher factor if you are on holiday in a very hot country.
- Sunscreens can go off and not work after a time. Therefore, do not use out-of-date sunscreen (see the use by date on the bottle). Most have a shelf-life of 2–3 years.
- Being kept in the sun can cause deterioration of the active protective ingredients in sunscreen. Be wary of buying bottles of sunscreen that have been kept on a shelf in direct sunlight or outside in hot countries. Try to keep your sunscreen somewhere cool and shaded.

- Some experts think that the increased use of sunscreen lotions and creams may give a false sense of security. This may encourage people to go into the sun more and, as a result, cause an increase in your risk of developing skin cancers. It has to be emphasised that sunscreen only partially protects your skin. Using sunscreen does not mean that you can sunbathe for long periods without harm. If you tan then you have done some damage to your skin.
- Reflected light can damage too. On sunny days, even if you are in the shade, sun can reflect on to your skin. Sand, water, concrete and snow are good reflectors of sunlight.
- Wet clothes let through more UV light than dry clothes. Take spare clothes with you if you expect to get wet.
- You can burn in the water. Even if you are swimming in a pool or snorkelling in the sea, you can still get burnt.
- Clouds may give a false sense of security. Most of the UV radiation from sunshine still comes through thin cloud. Thick cloud provides some protection but you still need protection when there is thin cloud.
- Many clothes worn in hot weather (such as thin T-shirts) actually allow a lot of sunlight through. You need to wear tightly woven clothes to protect from the sun's rays. If you can see light through a fabric then damaging UV rays can get through too.
- The sun's rays are more powerful at higher altitudes. It may be cooler up a mountain but you will need more skin protection.
- Fair-skinned people who sunburn easily are at particularly high risk of developing skin cancer and should be most careful about protecting their skin.
- There is no such thing as a healthy tan. A tan is the skin's response to the sun's damaging rays and is therefore an indicator of sun damage.
- Artificial tanning from sun-ray lamps and tanning beds is just as damaging as sunshine - so avoid them. Studies have shown that sunbed use can make you much more likely to get all types of skin cancer.

- Fake tan from a bottle is safer than a natural tan because no sun exposure is required. Remember that fake tan is not a sunscreen, and, if you plan to go out in the sun, you will need to apply another product. Some fake tans are bronzers that simply stain the skin and can be washed off. Other products contain a chemical that reacts with the skin to give a tanned colour. The long-term effects of these chemicals are not yet known. However, they seem to be safer than tanning in the sun or under a sunbed.
 - It is not the heat that does the damage but the UV radiation in sunlight, which is present all year. You can get a lot of exposure to UV doing winter sports, such as skiing, as it is often done in sunny weather and at high altitudes. In particular, remember ice and snow reflect a lot of sunlight. So, you should wear a hat, sunscreen, lip balm containing an SPF, and sunglasses.
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The Solar UV Index

The Met Office provides information called the Solar UV Index with their weather forecasts (see under 'Further Reading and References' at the end of this leaflet). The index is given as a figure in a triangle over the maps they use when giving forecasts. Basically, the higher the index (from 1 to 10), the greater the risk from the sun, and the more care you should take of your skin when outside.

It is probably a good idea to use sun protection when the UV index is forecast to be 3 or higher.

Benefits of sunshine: vitamin D

Vitamin D is vital for good health. Vitamin D is made in the skin with the help of sunlight. Sunlight is actually the main source of vitamin D, as there is not enough found in the foods that we eat.

Children with severe vitamin D deficiency may develop a condition known as rickets. Adults with severe vitamin D deficiency may develop a condition known as osteomalacia. [See the separate leaflet called Vitamin D Deficiency for more information.](#)

This means that to be healthy you need a certain amount of sun exposure. There is concern that some people may go to the extreme of avoiding the sun altogether and then become deficient in vitamin D. The aim is to enjoy the sun sensibly, so as to make enough vitamin D, whilst not increasing the risk of skin cancer.

It is estimated that, to prevent deficiency of vitamin D, we need 2-3 sun exposures per week in the summer months (April to September). Each exposure should last 20-30 minutes and be to bare arms and face. Short frequent periods of time in the sun are much more beneficial than long periods of time. It needs to be exposure to direct sunlight and not through a window. It is not the same as suntanning, and sunburn should be avoided at all costs.

It is recommended that fair-skinned people who avoid the sun rigorously to reduce the risk of skin cancer, should consider supplementing their intake of vitamin D. You should discuss this with your doctor to be sure you are not taking too much vitamin D, which may cause harm.

Most people can store enough vitamin D in the summer to last them through the winter months when the sun is not strong enough for the skin to make vitamin D. However, many people spend too much time indoors in the summer, and others do not store vitamin D well enough so they may become deficient in vitamin D through the winter. Since 2016, Public Health England has recommended that everyone consider taking a supplement of 10 micrograms of vitamin D through the winter. Those who have darkly pigmented skin, or whose skin is rarely exposed to the sun, should consider taking a supplement all year round.

Other benefits of sunshine

Sunlight tends to improve our general well-being and make us happier. It does this by causing us to produce more of a 'happy hormone' called serotonin. Physical activities and exercise outdoors are good for us, and we need to balance that against our wish to avoid skin damage and skin cancer. The way to balance the good and bad effects of the sun is to enjoy the sun safely. This means using all the tips above. So enjoy being out in the sun when it is not so strong. Have short times out in the sun, rather than spending a long time exposed to it, especially in the hotter times of the day and year. When you have to be out in the middle of the day, use protection such as sun creams, hats, clothing and seek shade. If you want a tanned skin, consider a fake tan cream. Protecting your skin in this way will keep it young-looking and healthy. Enjoy the sunshine, but keep yourself safe.

Further reading

- [Skin cancer prevention: information, resources and environmental changes](#); NICE Public Health Guideline (January 2011 - last updated February 2016)
- [UV forecast](#); Met Office
- [Mead MN](#); Benefits of sunlight: a bright spot for human health. Environ Health Perspect. 2008 Apr;116(4):A160-7.
- [Sunlight exposure: risks and benefits](#); NICE Guidance (February 2016)
- [Heatwave Plan for England](#); GOV.UK, July 2022
- [Sunburn](#); DermNet.

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