

Preventing Skin Cancer

We all enjoy being outside on sunny days; it makes us feel good. However, that same sun exposure increases the risk of developing skin cancer. Sunburn, and excessive exposure to the sun, or even using sunlamps and tanning salons, all raise the chances of developing skin cancers such as melanoma, squamous cell cancer, and basal cell cancer. In fact, **around 150,000 new cases of skin cancer occur in the UK every year and are linked to sun exposure.**

In this leaflet, we will describe how sun exposure is harmful, and then steps to reduce risks of damaging exposure and the development of skin cancer. This leaflet does not discuss how to spot skin cancer; please see the end for links to this.

Understanding sun exposure

All light derives from either the sun or an energy source, such as the fluorescent tubes used in tanning salon sunbeds and sunlamps. Light consists of visible light, allowing us to see, and invisible light. Invisible light consists of ultraviolet light, and infra-red light.

Ultraviolet light is needed to develop vitamin D but too much ultraviolet is responsible for the development of skin cancer. Infra-red light is responsible for the warm feeling one gets on their skin when facing the sun; it is not as important for the development of common skin cancer.

Ultraviolet light is further divided into several types. The important ones to note are Ultraviolet A (also known as UVA) and ultraviolet B (UVB). Both are responsible, to different degrees, for the development of skin cancer. Crudely speaking, UVA is also responsible for wrinkling and making us look older (think of the A in UVA as 'ageing') and UVB is responsible for sunburn (think of the B in UVA as 'burning'). Both UVA and UVB penetrate the skin and cause permanent damage that leads to skin cancer. Some cancers, such as squamous cell cancer, are linked to excessive lifetime sun exposure.

Others, such as melanoma, are linked to short episodes of excessive sun exposure, such as using sunlamps and tanning salons.

If we are to protect ourselves against the sun, we need to think about UVA and UVB protection.

Sun exposure does not mean we are at only risk from ultraviolet when abroad on a beach holiday. The same risks apply in the UK, in any place, or in any country, whether Winter or Summer. Though ultraviolet radiation comes from the (above) sun, all light travels in rays. This means that even if one is sitting in the shade, light bounces off surfaces and ground; this is how we can still see in the shade. Light, and ultraviolet light bounces off sand, sea, pale pavements, or ice and snow to 'attack' from below. Ultraviolet penetrates through water and swimming pools and reflects off the water surface or the bottom of the pool.

But isn't a tan healthy?

We all see images of people enjoying being outdoors with 'sun-kissed', tanned, skin. Tanning is a normal reaction of the body to excessive ultraviolet exposure and actually is a way of the skin showing that it is getting too much ultraviolet and is being damaged. Tanning occurs to protect the skin from too much ultraviolet; but it is not perfect and over time changes will occur such as developing moles and freckles, 'age spots', bruising of the skin, wrinkling, and developing skin cancers. Not only is the number of skin cancers rising, annually, but more and more younger people are developing skin cancers.

If one does wish to develop a tanned look, a self-tanning product, such as fake tan or spray-on tan, will give that same appearance but without the skin cancer risk. Of course, having fake tan offers no protection at all against skin cancer if one then goes outdoors and lies in the sun or uses a sunlamp.

What about vitamin D?

Vitamin D is very important for health. The main source of the body is derived from the action of ultraviolet light on our skin that causes vitamin D to develop and be available for our bodies to use.

Preventing skin cancer is about preventing excessive sun exposure. Studies show that our bodies produce enough vitamin D in much lesser time than it takes to get sun burnt. However, a word of caution is that it is impossible to know what safe level of sun exposure is required for an individual person to make adequate levels of vitamin D, without risking skin cancer. We would advise 'safe sun exposure' for most people would be approximately 15 minutes and achieved by exposing arms and the face (without using sun-cream); if you are prone to burning quicker, for example, if one were fair-skinned, this time will be shorter. For darker skin-types, this time limit is not known.

Do remember that spending more time in the sun does not mean one gets more vitamin D; mechanisms in the body exist to remove excessive vitamin D.

If you have limited exposure to the sun it is worth supplementing your diet with foods rich in vitamin D such as fatty fish (such as salmon, tuna, and mackerel) or cod liver oil capsules. Only small amounts of vitamin D are found in beef liver, cheese, and egg yolks. Some types of milk are fortified with vitamin D (check the label). If your exposure to sunlight is very limited, or you are at a particular risk of low vitamin D, such as being pregnant and or are breastfeeding, are older (greater than 65) or are a young child, have darker skin, wear whole-body coverings or live in institutions, then the Government currently recommends to take a 10 microgram (400 iu) vitamin D supplement a day (7 micrograms a day for children 6 months - 5 years) a day, year-round. Your doctor will be able to tell you if you are in an at-risk group.

If you are in a particularly very vulnerable group, such as suffering with conditions that worsen with sun exposure (for example, lupus), or have had previous skin cancer such

as melanoma, or are at risk of skin cancers due to an inherited tendency, then your doctor may perform a blood test to check your vitamin D level and prescribe higher strength supplements.

How to prevent skin cancer

It is paramount to reduce sun exposure, or in other words, reduce exposure to ultraviolet light, to prevent the development of skin cancer. This should be done from as early an age as possible. Do remember protecting against sun exposure is year-round and not just for the Summer months and apply if going abroad. There is no one way which is perfect, and a combination approach will work best to reduce risks. These are and then detailed further:

- Limiting sun exposure such as never using sunlamps or tanning salons, or avoiding when the sun is at its peak in the day (between 11am-3pm)
- Wearing ultraviolet protective clothing and eyewear and keeping exposed skin to a minimum.
- Babies until 6 months should be kept out of the sun (suitable sun-creams are available from 6 months onwards; however, babies older than 6 month and small children should have their sun exposure limited)
- Use of sunscreens and sun-blocks to reduce the amount of ultraviolet penetrating into the skin and causing damage.

Using shade

Peak ultraviolet exposure occurs between the hours of 11am to 3pm; these times may be different in more Northern countries. A handy rule is that If your shadow is shorter than you are, seek shade. Try to limit sun exposure during these times.

If sitting in the shade, do remember that ultraviolet radiation can still get to exposed skin; hence, use a combination of methods to reduce your risk. Sitting under a parasol next to sand, the sea or snow will not reduce your exposure significantly and you are still at risk.

Cloud cover does not mean one is protected from ultraviolet light. The best way to think about any sun exposure is if one can see, then that must mean there is visible light. If there is visible light, there must also be invisible light, such as ultraviolet, and therefore one is at risk. The degree of risk may be reduced, but it is not zero.

What should I wear?

In general, try to minimize how much of your skin is exposed to the sun. Unless you have specially labelled clothing that certifies ultraviolet protection (these are more important for people with skin conditions made worse by the sun or those at particular risk of developing skin cancer such as those with inherited tendencies), general advice would be to:

- Wear a wide-brimmed hat that also covers the back of the neck and ears, as these areas are prone to burning and can develop skin cancer just as easily as anywhere else. A wide-brimmed hat is where the brim is greater than 7.5cm (3 inches).
- Wear sunglasses that protect against ultraviolet light. Glasses or lenses with a CE mark offer protection in line with European standards.
- Dark clothing offers more sun protection than bright colours
- Choose fabrics that are lightweight but dense, rather than those with a loose or open weave. If wearing these, then wear sun protection cream underneath.
- Wear long sleeve shirts and trousers.
- If wearing sandals or flip-flops, remember to apply sun protection cream to any exposed skin of the feet.
- Wet clothes greatly lose their ability to protect against ultraviolet. A dry denim t-shirt has a SPF rating of over a thousand; a wet cotton t-shirt has a SPF of 7.

Sun protection creams (sunscreens)

Sunscreens are creams that are applied to the skin to either reduce the amount of ultraviolet getting through into the skin (also known as organic filters, chemical sunscreens, or sun creams) or stay as a layer on the skin and cause ultraviolet light to

bounce off the skin (also known as inorganic filters, physical sunscreens or sun creams, reflectors, or sunblocks). Which is used depends on preference of look and feel, or, to put simply, the best type is the one you will use again and again.

Sunscreens can come as gels, lotions, or creams. Lotions are good for greasier skin or the face and easier to apply, but more may be needed; creams are good for dry skin; gels are good for more hairy areas. Sunscreen sticks can be useful around eyes, and sunscreen lip balms are good to protect the lips. Remember to apply sunscreen to the tops of ears and the head, and to feet, if exposed.

A good sunscreen will provide protection against both UVA and UVA. Generally, such a product will state it has 'broad-spectrum' protection or will indicate what it protects against. For UVA protection, one should look for high protection, which is sometimes indicated by a Star rating. This should be a rating of 4 stars and above. SPF is related to UVB protection. A minimal SPF should be 30; though some specialists will advise at least 50 (your doctor will guide you). A broad-spectrum sunscreen will therefore have a UVA rating at 4 or more stars and at least SPF 30.

Sunscreen should be applied liberally, and often. In general terms, it should be applied to exposed skin, at least every 2 hours. Products that state they are 'all day' or last for more than 2 hours should also be applied regularly as these often do not take into account activities such as swimming, sweating, rubbing or toweling skin. Equally, several cosmetic products such as moisturizers or insect repellants have SPF labels; often the SPF number is too low to be very protective and such creams are often rubbed into skin too thinly; they therefore may only protect from walking from door to car or car to office and are not adequate for serious sun protection.

In terms of amounts, studies show that people generally tend to apply less sunscreen than is recommended. Different guides exist to precise amounts, but in general, for the average adult, two shot-glass full, or 6 whole teaspoons, would be adequate (which is

more than half a teaspoon of sunscreen to each arm and the face/neck (including ears), and just over one teaspoon to each leg, front of body and back of body. This should be the minimum.

Sunscreens should be applied at least 15-30 minutes before sun exposure, to allow time to dry. They should be applied after swimming or getting wet; remember, for each 20 minutes in the water, more sunscreen will come off, even if labelled as water-resistant. Even more will come off when toweling dry!

Finally, we hear reports of sunscreens being damaging to the environment such as coral reefs. At present, research has not shown any link between the sunscreen used and any environmental risks, though research is still ongoing. Some studies that have shown sunscreen can damage coral reefs have only shown such damage in laboratories and with concentrations of sunscreen that are nowhere near what people actually use. The damage to coral reefs is most likely to be caused by many other factors together.

What about children?

It is thought that a single sunburn during childhood or adolescence can double the risk of developing melanoma; children need to be protected against too much sun.

For babies, less than 6 months, they should be kept out of direct sunlight. Many sun creams are available from 6 months onwards; these should be used. Some can irritate the skin, particularly those who may have eczema, and finding the right product is sometimes a matter of trial-and-error. Creams should be applied similarly to adults; copiously and regularly. Remember, try to seek the shade; wear appropriate eyewear and clothing.

It is important that your child does not overheat and drinks plenty of fluids. If they show signs of being irritable, fussy, crying excessively or has redness on any exposed skin, then take them indoors immediately.

What about sun protection in dark skin?

Dark skin is still at risk of burning, premature ageing, and developing skin cancer, but compared to light skin, but risks are lesser. This risk is not zero though, and the type of skin cancers that may develop in dark skin are slightly different to light skin. In addition, dark skin takes longer to develop vitamin D; how much longer is unknown and varies with shade-to-shade of dark skin.

Less research has been performed with regards to sun protection for dark skin. What is known though is that all the same measures apply. Finding the right sun protection cream is sometimes more of a challenge as mineral sun-blocks may leave a whitish residue on skin that some may find unappealing. Sun-blocks containing titanium oxide and zinc oxide often are tinted and these may be more cosmetically suitable; or micro-ionized titanium oxide or zinc oxide leave much less of a residue.

Can I still enjoy the sun?

Yes! The sun provides so much benefit; we feel warm, it makes us feel good and we need it for vitamin D, along with many other benefits. But excessive sun exposure is harmful. By keeping the measures stated in mind, there is no reason to not enjoy being out in the sun, and also protecting oneself and their family.

Links:

The following is a link for skin examination and looking out for one's skin:

<http://www.pcds.org.uk/p/self-examination-of-moles>