

Melanoma: Prevention and Risk Factors (leaflet 1 of 7)



Patient information from the British Association of Dermatologists

Produced for National Cancer Patient Information Pathways, National Cancer Action Team

Melanoma leaflets in this series, produced by the British Association of Dermatologists:

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Melanin, the skin's brown pigment or colour, is made in the skin by pigment cells called melanocytes. When our skin is exposed to sunlight, the melanocytes are stimulated to make more melanin, and the skin becomes darker. It is the skin's way of defending itself against further ultraviolet (UV) damage.

Melanocytes sometimes grow together in harmless groups or clusters, which are known as 'moles'. Most people have between 10 and 50 moles and often they are darker than the surrounding skin.

Melanomas can grow in or near to a mole, but can also appear on skin that looks quite normal. They develop when the melanocytes become cancerous and multiply in an uncontrolled way.

The most important cause that we can prevent is exposure to too much sunshine. This is because the sun produces ultraviolet (UV) light which can damage the skin.

The use of artificial sources of ultraviolet light, such as sun beds, also raises the risk of getting a skin cancer.

Risk factors:

Some people are more likely to get a melanoma than others:

- People who burn easily in the sun are particularly at risk. Melanoma occurs most often in fair-skinned people who tan poorly. Often they have blond or red hair, blue or green eyes, and freckle easily. Melanomas are less common in dark-skinned people because

they have naturally higher levels of melanin production and therefore better UV protection.

- Past cases of severe sunburn, especially with blisters, and particularly in childhood, increase the risk of developing a melanoma. However, not all melanomas are due to sun exposure, and some appear in areas that are normally kept covered.
- People with many (more than 50) ordinary moles have a higher than average chance of developing a melanoma.
- People with a very large birthmark have a raised chance of developing a melanoma within the birthmark.
- Some people have many unusual (atypical) moles, known as 'dysplastic naevi'. They tend to be larger than ordinary moles and to have irregular edges or colour patterns. The tendency to have these 'dysplastic naevi' can run in families and carries an increased risk of developing a melanoma.
- The risk is also raised if another family member has had a melanoma. About 1 in 10 people with a melanoma have family members who have also had one. There are several reasons for this. Fair skin is inherited and dysplastic naevi can run in families, as can a tendency to have large numbers of ordinary moles.
- People who have already had one melanoma are at an increased risk of developing another.
- People with a damaged immune system (e.g. as a result of an HIV infection or taking immunosuppressive drugs, perhaps after an organ transplant) have an increased chance of developing a melanoma.

Knowing your skin type:

Not everyone's skin gives the same level of protection in the sun. That's why you need to know your 'skin type'. It can help give you an idea of how much care you need to take in the sun. Your skin type cannot be changed and does not vary according to how tanned you are – it is determined by your genes. It affects how your skin will react in the sun and how likely you are to develop skin cancer.

- Type 1: pale skin, burn very easily and rarely tan. Generally have light coloured or red hair and freckles.
- Type 2: usually burn but may gradually tan. Likely to have light hair, and blue or brown eyes. Some may have dark hair but still have fair skin.
- Type 3: burn with long exposure to the sun but generally tan quite easily. Usually have a light olive skin with dark hair and brown or green eyes.
- Type 4: burn with very lengthy exposures but always tan easily as well. They usually have brown eyes and dark hair.
- Type 5: have a naturally brown skin, with brown eyes and dark hair. Burn only with excessive exposure to the sun and skin easily darkens further.
- Type 6: have black skin with dark brown eyes and black hair. Burn only with extreme exposure to the sun and skin very easily darkens further.

Skin types 1 and 2 are at the greatest risk of developing skin cancer. These skin types sunburn rapidly and therefore need to protect the skin with clothing. Skin types 3 and 4 should protect themselves in strong sunshine. Types 5 and 6 generally need only protect themselves when outdoors in the sun for a long time.

Prevention:

The best way to protect against melanoma is to avoid getting too much sun. This does not mean that you can't ever go out in the sun again, it just means that you need to be careful to avoid burning. You can do this by covering yourself up, spending time in the shade and using sun protection products. Skin types 1 and 2 in particular need to take extra care. Don't forget that you can burn in the UK as well as abroad.

Top tips to protect your skin

Protect the skin with clothing, including a hat, T shirt and UV protective sunglasses:

- Wear long sleeves, use a hat when out in the sun, and wear long trousers rather than shorts. Use clothing with a tight weave that will block ultraviolet light. Hold the garment up to the light to see how much light the fabric's weave is letting through – this helps you to check how much protection from the sun it will give you.
- Spend time in the shade between 11am and 3pm when it's sunny.

- Use a sunscreen of at least SPF 30 which also has high UVA protection. Put it on as per the instructions on the label, half an hour before going out and reapply it at least every 2 hours if out in the sun, but don't use sunscreen as an excuse to stay out in the sun. Sunscreens should not be used instead of clothing and shade, rather they offer extra protection. No sunscreen will provide 100% protection.
- Keep babies and young children out of direct sunlight.
- Protect your eyes with sunglasses – choose ones with the 'CE Mark' and British Standard (BS EN 1836:1997) or a UV 400 label.

Choosing a sunscreen

Different types of UV protection

Two types of ultraviolet (UV) light damage the skin, UVA and UVB.

UVA can penetrate window glass and penetrates the skin more deeply than UVB. UVA protection in a sunscreen will help protect the skin against photo ageing (skin ageing caused by ultraviolet, e.g. wrinkles caused by the sun) and potentially also skin cancer.

UVB in particular causes sunburn, which has strong links to malignant melanoma and also to another, more common type of skin cancer called 'basal cell carcinoma', so a sunscreen with a high SPF (sun protection factor) will help prevent the skin from burning and the damage that can cause skin cancer.

To get adequate protection against both types of UV, you should look for the following on the label:

- 'high protection' of SPF 30 (or more)
- 4 or 5 UVA stars or the UVA circle logo

UVB protection: Sunscreens in the UK are labelled with an 'SPF'. This stands for 'sun protection factor', and mostly indicates the level of protection against UVB, not the protection against UVA. As well as the SPF number, the SPFs are now categorised as providing low to very high protection, to make the SPF guide easier to understand. The below table illustrates this:

Protection level	SPF
Low protection	6 to 14 (i.e. SPF 6 and 10)
Medium protection	15 to 29 (i.e. SPF 15, 20 and 25)
High protection	30 to 50 (i.e. SPF 30 and 50)
Very high protection	50 + (i.e. SPF 50+)

UVA protection: Many sunscreens have a UVA star rating on the packaging. The stars range from 0 to 5 and indicate the percentage of UVA radiation absorbed by the sunscreen in comparison to UVB, in other words the ratio between the UVB protection and the UVA protection. This can be confusing so be aware that if you opt for a low SPF, it may have a high level of stars, not because it is providing high UVA protection, but because the ratio between the UVA and UVB protection is about the same. That's why it's important to choose a high SPF as well as a high UVA protection (e.g. high number of stars). Sunscreens that offer both UVA and UVB protection are called 'broad spectrum'.

According to a new EU Recommendation, the UVA protection for each sunscreen should be at least a third of the UVB protection (the SPF). A product that achieves this requirement will be labelled with a UVA logo, the letters "UVA" printed in a circle:



'Photostability' means that the filters in the sunscreen that give it the UV protection do not break down in the sun.

Applying sunscreen:

Studies have found that most people apply less than half of the amount required to provide the level of protection indicated on the packaging. Areas such as the back and sides of the neck, temples and ears are commonly missed, so you need to apply it generously and be careful not to miss patches.

Nowadays there is a vast range of different product types available, including lotions, mousses, sprays and gels. Because of this variation, it is not possible to give a set amount that you should apply that is the same for all products. Individual manufacturers can provide further details specific to the application of their particular sunscreens. When using lotions, as the bare minimum you should to apply at least six full teaspoons (approximately 36 grams) to cover the body of an average adult, 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 is the amount used when products are tested for their SPF (it equates to 2 mg /cm²).

Applying less will reduce the protection to a higher degree than is proportionate – for example, only applying half the required amount can actually reduce the protection by as much as two-thirds. The overall message in terms of sunscreen use is “more is better.” It is also easy to forget to reapply sunscreen as often as necessary. Apply sunscreen 15 to 30 minutes before going out in the sun to allow it to dry, and then again shortly after heading outdoors to cover any missed patches and to make sure you’re wearing a sufficient layer. Reapply it at least every 2 hours, and immediately after swimming, perspiring and towel drying or if it has rubbed off.

‘Water resistance’ is tested by the ability of a sunscreen to retain its sun protection properties following two 20 minute intervals (40 minutes total) of moderate activity in water. However, up to 85 percent of a product can be removed by towel drying, so you should reapply after swimming, sweating, or any other vigorous or abrasive activity.

Another important factor is the reflection of the sun’s rays, which can greatly increase the power of the radiation, by the following percentages: snow up to 85% increase, sand up to 17% increase, water up to 5% increase.

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