

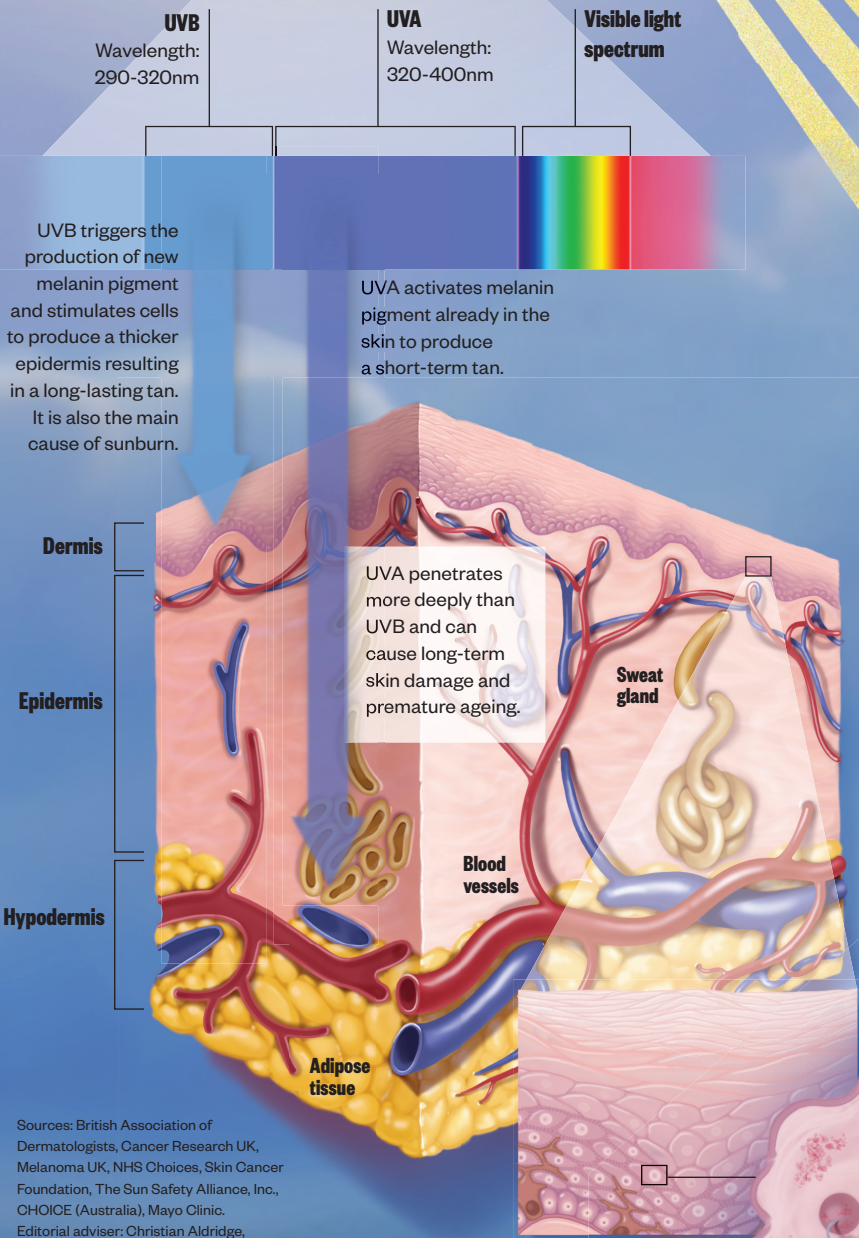
SCIENCE OF SUNSCREEN

Sun exposure is the primary cause of skin cancer. According to Cancer Research UK, more than 8 in 10 cases of melanoma could be prevented through better knowledge of sun damage and how to protect against it.

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UVA vs UVB

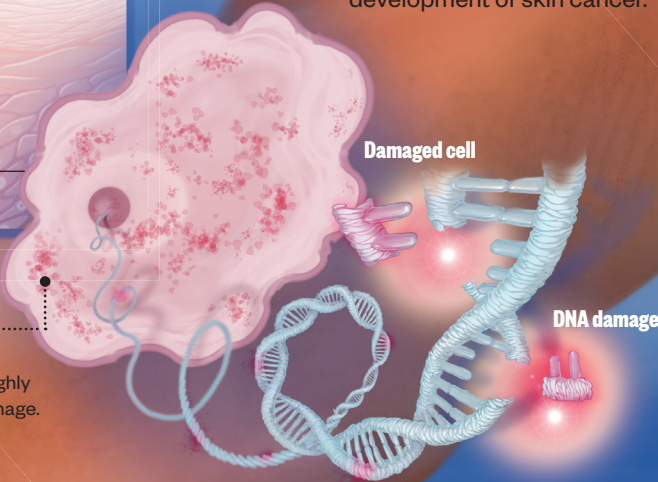
There are two main types of ultraviolet (UV) radiation.



Sources: British Association of Dermatologists, Cancer Research UK, Melanoma UK, NHS Choices, Skin Cancer Foundation, The Sun Safety Alliance, Inc., CHOICE (Australia), Mayo Clinic. Editorial adviser: Christian Aldridge, dermatologist and medical adviser to Melanoma UK.

Free radicals
Free radicals are cellular waste products formed when oxygen reacts with certain molecules. They are highly reactive and, when they accumulate, can cause cell damage.

DNA MUTATIONS
UV light reacts with skin cells to generate free radicals, which can indirectly cause DNA mutations that may lead to the development of skin cancer.



TYPES OF SUNSCREEN

There are a number of different formulations of sunscreen available and choice will depend on individual requirements.

● Dry skin ● Hairy skin ● Face ● Children

Type	Advantages	Disadvantages	Good for
Lotions and milks	Cheap, easy to apply	Sticky, greasy	●
Creams	Thick and moisturising	More difficult to apply	●
Gels	Non-sticky/greasy	Can be drying to skin	●
Sprays	Non-sticky/greasy	Difficult to know how much you're applying	● ●
Roll-ons	Easy to apply to small areas/portable	Difficult to apply to large areas	●
Sticks	Easy to apply to small areas/portable	Sticky	●
Oils	Easy to apply/locks in moisture	Need to reapply frequently	●
SPF makeup and skincare	Provides everyday basic protection	Usually low SPF, with no UVA protection	●

CHEMICAL vs MINERAL

There are two main types of sunscreen available — chemical and mineral. Many new products use a combination of the two.

Chemical sunscreens

Chemical sunscreens absorb UV radiation and convert it to heat, which is then released from the skin. Common examples include octisalate and avobenzone.

Mineral sunscreens

Mineral sunscreens act as a screen and reflect and scatter UV radiation in order to protect the skin. Common examples include zinc oxide and titanium oxide.

A CLOSER LOOK AT SUNSCREENS

There are several key terms that are used on sunscreen packaging. For advice on how to apply sunscreen, see p362.

Sun protection factor (SPF)

SPF is a measure of a sunscreen's ability to prevent UVB from damaging the skin. It does not measure protection against UVA radiation.

Proportion of UVB rays penetrating the skin and percentage blocked



Above SPF 30, the amount of UVB protection increases minimally.

UVA star system

The star system indicates the percentage of UVA radiation absorbed by the sunscreen in comparison with UVB. It is important to choose a sunscreen with a high SPF and a high star rating to be protected against UVA and UVB.

Sunscreen absorbs this percentage of UVA rays compared with UVB



Water resistant

Maintains sunburn protection 40 minutes after water exposure.

Broad spectrum protection

Protects the skin from both UVA and UVB rays.

Once-a-day protection

Although some sunscreens claim to provide all day protection, Cancer Research UK and the British Association of Dermatologists advise against relying on any sunscreen for extended periods of time.

Expiry date

Most sunscreens have a shelf life of between 12 and 18 months after opening — storing sun cream at high temperatures or in direct sunlight can decrease its shelf life.

