

Ultraviolet Light

What is ultraviolet light?

Sunlight travels through space as waves, which have different wavelengths. Ultraviolet rays have wavelengths shorter than visible rays - so short that they are not part of the visible light spectrum.

Ultraviolet rays are not warm, and we can neither see nor feel them. These invisible rays are called radiation not light. Another characteristic of ultraviolet radiation (UVR) is its ability to cause harm to living cells.

The sun's ultraviolet radiation can cause sunburn and other harmful effects to your health.

How damaging is ultraviolet radiation?

In the last few years, people have become more aware that UVR from the sun can cause injury to the skin. It can cause skin burns, skin cancers, suppression of the immune system, and tumors. UVR can also cause eye injury.

Since UVR is invisible, it's difficult to be aware of it or judge how strong it can be. Brief and intense exposure can cause damage to parts of the eye, including the conjunctiva (inner surface of the eyelids) and cornea. These injuries are known as welder's flash or snow blindness. A lifetime of exposure to sunlight may cause lens damage, such as cataracts.

Direct sunlight is the strongest in the summer months, with 80 per cent of the UVR occurring between 10 a.m. and 4 p.m. (daylight saving time). Ultraviolet radiation

is also stronger at high altitudes and closer to the equator.

These rays are reflected by snow, sand, open water, and glass and concrete on buildings. This can result in increased exposure of the eyes and face to UVR, causing damage in less time. Artificial sources, such as welding arcs and sunlamps, can cause damage to the eyes and skin.

How can I protect myself?

Following a high rate of skin cancer, Australians have been covering up their skin for many years now and have recently shown an 11 per cent decrease in the rates of common skin cancers.

Plan your outdoor activity before 10 a.m. or after 4 p.m., when the sun's UVR is the weakest. When you are outside look for shade, such as from buildings, trees and beach umbrellas.

Protection from clothing and fabric is strongly related to the tightness of the weave – the tighter the weave the better the protection. Wear clothing to cover exposed skin on your arms and legs, as well as your body. Wear a hat with a large brim (7cm or more) to completely shade your face, head and neck.

Avoid tanning lamps and beds – remember, there is no such thing as a safe tan.

What about sunscreens?

Sunscreens reduce the amount of UVR that reaches the skin. Sunscreen also allows you

to spend more time in the sun without getting sunburn.

The Sun Protection Factor or SPF number shown on the sunscreen container is simply how much you can be exposed to sunlight before sunburn occurs. For example, if a person whose unprotected skin would burn after 20 minutes of sun exposure uses a sunscreen of SPF 15. This person could now be exposed for up to 15 times longer (i.e. 20 minutes x 15 = 300 minutes or 5 hours) before the sun would cause a burn, provided the person had applied sunscreen correctly to the skin.

How much sunscreen should I apply?

To achieve the amount of protection listed on the sunscreen container, you must apply two mg of sunscreen evenly on each square centimetre of the skin surface (i.e. 2 mg/cm²). This means a 120 ml bottle or 24 teaspoons will cover an adult body's skin surface about four times.

People with sensitive skin should select a SPF of 30 or higher, and apply the sunscreen completely covering any exposed skin. Apply sunscreen before exposure and then apply it again to maintain coverage.

How can I protect my eyes?

Most sunglasses are effective at screening or reflecting ultraviolet radiation. Wear eye protection that absorbs both types of ultraviolet radiation- both UVA and UVB.

Look for stickers that say the lenses provide a minimum of 90 per cent protection from UVA and 95 per cent from UVB radiation.

Lenses tinted dark grey or dark green offer the best results. Eye protection does not always mean sunglasses. Eyewear

containing clear polycarbonate ophthalmic lenses, for example, absorbs most UVR wavelengths. Protective eyewear should be chosen to stop radiation from all directions that could contact the eye (e.g. wrap-around design).

Price has almost no bearing on how well a pair of sunglasses will protect you from UV radiation, so check the label.

For information on UVR protection of your prescription eyewear or sunglasses, consult your optometrist.

For more information, see BC HealthFile [#26 Sun Smart Your Kids](#).



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