



Ultraviolet Radiation

What is ultraviolet radiation?

Sunlight travels through space as waves, which have different wavelengths. Ultraviolet rays have wavelengths shorter than visible rays, and these are not part of the visible light spectrum. This means that we can neither see nor feel them. These invisible rays are called radiation. The sun's ultraviolet radiation or UVR can cause sunburn and other harmful effects to your health.

How damaging is ultraviolet radiation?

Since UVR is invisible, it is difficult to judge its strength.

- Exposure can cause a tan, sunburn, skin cancers, and wrinkles after many years of exposure.
- It can also cause damage to the eyes, including to the conjunctiva (inner surface of the eyelids) and cornea. These injuries may be called welder's flash or snow blindness. Repeated exposure to sunlight over many years may cause lens damage, such as cataracts.
- As well, there is increasing evidence of a suppression of the immune response from both acute and low-dose UV radiation exposure.

Direct sunlight is the strongest in the summer months, with approximately 80 per cent of the UVR occurring between 10 a.m. and 4 p.m.

UVR is stronger at higher altitudes and closer to the equator. These rays are reflected strongly by fresh snow and, to a lesser extent, by sand, water, glass and concrete on buildings. The direct light together with the reflected exposures cause increased UVR exposure, resulting in damage to the eyes and face in less time.

Artificial sources, such as welding arcs and sunlamps, can cause damage to the eyes and skin.

How can I protect myself?

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 provided by buildings, trees and other objects. Bring an umbrella to the beach or park.

Cover up with appropriate clothes. Closely-woven material offers natural protection from the sun. If you can see through the clothing easily, then UVR can get through too. A long-sleeve shirt and pants are the best clothes to protect the skin. A broad-brimmed hat is highly recommended. Avoid baseball caps that do not shade the ears or back of the neck.

Avoid tanning lamps and beds. The International Agency for Research on Cancer (IARC) states that tanning beds and ultraviolet radiation cause cancer in humans. Experts conducted a comprehensive analysis of studies and concluded that the risk of skin melanoma increased by 75 per cent when people started using tanning beds before age 30.

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 on the sunscreen container shows how long you can be exposed to sunlight before sunburn occurs. For example, if a person uses a sunscreen with SPF 15, he/she could be exposed for up to 15 times longer when the sunscreen is applied correctly.

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 exposed skin (i.e. 2 mg/cm²). This means about 30 ml or 6 teaspoons will cover an adult's body one time.

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 protection.

How can I protect my eyes?

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

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 good protection. Eye protection does not always mean sunglasses. For example, eyewear with clear polycarbonate ophthalmic lenses absorbs most UVR wavelengths. Protective eyewear should stop radiation from all directions (e.g. wrap-around design).

Price does not indicate 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 HealthLink BC File [#26 Sun Smart Your Kids](#).



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