

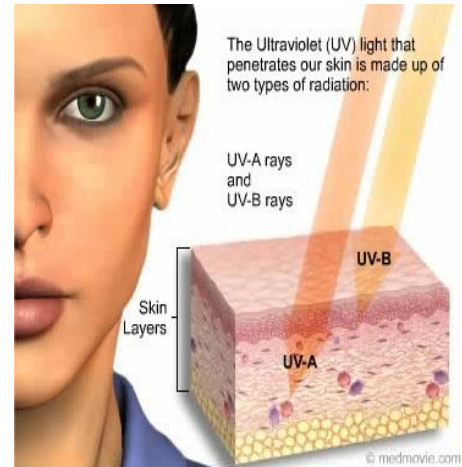
# Ultraviolet radiation and your eyes

Sunglasses are not a fashion fad. They are essential in preventing eye damage caused by the sun's ultraviolet radiation.

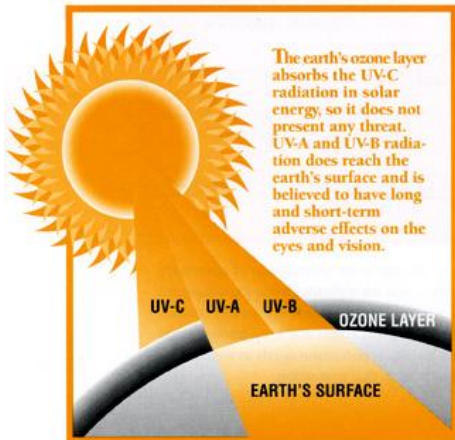
While most of us are aware that sunburn can lead to premature ageing of the skin and, ultimately, skin cancer, medical evidence shows that our eyes too can suffer from 'sunburn', which can lead to cataracts—a leading cause of blindness—as well as other problems outlined below.

The long-term effects of excessive amounts of UV radiation happen slowly and painlessly, yet can impair vision. Short- and long-term damage to the eye includes inflammation of the cornea, cancer, cataracts and pterygium (a fleshy growth on the cornea).

Children and young adults are especially at risk. Parents should make sure their children wear sunglasses, particularly when levels of UV radiation are high, such as on the beach, in water and on snow, where there is additional danger due to reflection.



## What is ultraviolet radiation?



UV radiation is a component of solar energy, as are visible light and infrared radiation (heat). Other sources of UV radiation include welding arcs, high intensity mercury vapour lights and tanning lamps.

UV radiation consists of three main types: UVA, UVB and UVC. You need to be concerned mainly with UVB, which causes sunburn and is largely responsible for causing skin cancer.

Most solar UV radiation striking the Earth is absorbed by the ozone layer but it has been calculated that a one per cent decrease in the amount of atmospheric ozone will increase UVB

levels by about two per cent.

According to predictions of the Australian National Health and Medical Research Council, more than 36,000 additional cases of eye problems a year will occur as a result of ozone depletion. A one per cent rise in UV radiation levels would increase the annual incidence of pterygia in Australia by 26,000 cases.



## Effects of UV radiation on the cornea

Most UV radiation striking the eye is absorbed by the cornea and high UV levels such as those encountered in the snow or on the beach can cause it to become inflamed.

The condition is extremely painful and causes the eye to be highly sensitive to any light source. Although extremely uncomfortable, the condition usually resolves itself in about 48 hours and it is advisable to have an eye examination by an optometrist or ophthalmologist (eye surgeon) to ensure that no other damage has occurred.

## Effects of UV radiation on the conjunctiva

Short-term exposure to UV radiation can damage the conjunctiva, while long-term exposure can cause it to thicken, forming a fleshy growth known as a pterygium. Progress of this condition is usually slow, with the pterygium growing until it starts to cover part of the cornea. When it can interfere with vision and become unsightly.

The only treatment is surgical removal, which is a relatively minor procedure. The eye should be examined by an expert to differentiate between pterygia and other more serious growths.

## Effects of UV radiation on the lens

UV radiation, particularly UVB, is associated with the formation of cataracts. These are opacities that form in the lens of the eye and interfere with vision, as though you were looking through a dirty window.

In severe cases, cataracts can be removed surgically and the old clouded lens replaced by an artificial one. Cataracts have always been more common among elderly people and were thought to be a natural result of ageing.

Recent research suggests that while this may be partly true, they are much more likely to be caused by prolonged exposure to UV radiation. Which can also damage the eye's, retina - the delicate nerve-rich lining of the eye used for seeing. Most forms of retinal damage are irreversible.

## How to avoid the effects of UV radiation

The simplest way of protecting your eyes from UV radiation is to limit your exposure to it. The best ways of doing this are to:

- **Avoid the sun**

In summer, three-quarters of outdoor UV exposure occurs between 10am and 4pm. Staying out of the sun between those times will significantly reduce your UV exposure.

- **Wear a hat**



A broad-brimmed hat will protect your head from sunburn and reduce the amount of UV radiation reaching your eyes by at least half.

- **Wear sunglasses**

A good pair of sunglasses will reduce the amount of UV reaching your eyes and cut the amount of glare.

**Which sunglasses should you choose?**

All sunglasses on sale in Australia must meet an Australian Standard that specifies how much UV radiation the sunglasses must block.

Sunglasses should have a tag stating that they meet AS 1067.

Your Optometrist has access to manufacturers' technical information and, depending on your needs and lifestyle, will be able to advise you on the sunglasses that suit you best. Sunglasses should be close-fitting to prevent radiation getting around the edges of frames. Wrap-around models are excellent.



**Should children wear sunglasses?**



Children are particularly at risk from UV radiation because they spend so much of their time outdoors and are not aware of the danger it poses.

It is up to parents to protect their children's eyes by ensuring the children wear hats and good-quality sunglasses.

Be careful when choosing sunglasses for children. Sometimes models that appear to comply with the Australian Standard.

**Expert advice**

Your optometrist can give you the best advice about prescription and nonprescription sunglasses, based on what is best for your individual needs.

**Ask your optometrist for these related brochures**

- Sunglasses
- Cataracts
- Pterygium