

HOW CAN I HELP PROTECT MY EYES

FROM THE
TRANSMISSION
OF UV RAYS?



ACUVUE®



EYE HEALTH
ADVISOR®

UV-BLOCKING

CONTACT LENSES*

Nowadays, most people know that prolonged exposure to the sun can have damaging effects on the skin. But extended exposure to the same harmful ultraviolet (UV) rays that affect the skin can also increase the risk of developing UV-related eye disorders. This can happen whether you are playing tennis or beach volleyball in July, or skiing or snowboarding in January.

What exactly are UV RAYS?

Ultraviolet light rays are components of sunlight and are categorised as UVA, UVB or UVC rays according to their wavelength.

The shorter the wavelength, the greater the light's energy level – and the greater the potential harm exposure can inflict.

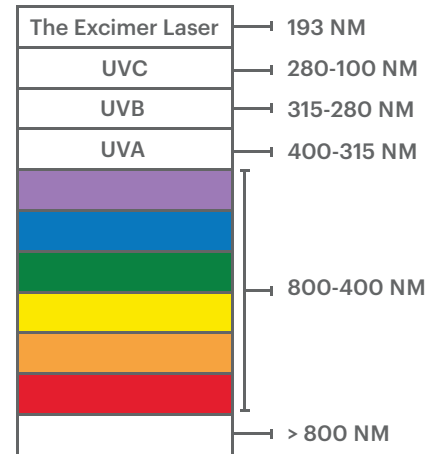


Figure 1 | The light spectrum, broken down by wave length

- **UVA rays**, the UV rays with the longest wave length, are responsible for tanning and are associated with **premature skin ageing**
- **UVB rays** cause sunburn and are most often associated with **skin cancer** and vision problems such as **cataracts**
- **UVC rays** have the shortest wavelength and are the most dangerous. Fortunately, they are blocked by the ozone layer in the Earth's atmosphere and do not reach the surface of the Earth



UV RAYS ARE INVISIBLE BUT EVERYWHERE

THEY CAN DAMAGE
YOUR EYES

We are used to protecting ourselves when the sun is brightest overhead, but unlike skin, the eyes are more directly in line with the sun earlier and later in the day.¹ This is due to the fact that the **sun is lower on the horizon in the morning and the evening so we are more likely to look straight into it.**

Long-term exposure to UV rays can damage the eyelids, conjunctiva, cornea and internal parts of the eye. Acute exposure to UV light can cause damage of the front surface of the eye, very much like sunburn (photokeratitis). This may result in temporary symptoms including pain, red eyes, gritty feeling in the eyes, extreme sensitivity to light, and excessive tearing.

The effects caused by **long-term UV radiation** are cumulative and more serious, although often asymptomatic. The more exposure your eyes have to UV radiation, the greater the risk of developing eye disorders and age-related eye diseases. This includes development of **cataracts, damage to the retina, skin cancer around the eyelids, and other chronic eye disorders**, such as pterygium or corneal and conjunctival changes.

UV radiation levels vary throughout the day; in general, it can be said that the higher the sun in the sky, the higher the UV radiation.

However, this is not true for UV eye exposure. Hence, UV eye exposure is greater mid-morning and mid-afternoon rather than midday that occurs with skin exposure. Also, the risk of UV-rays affecting the eyes is more likely in the spring and autumn.

UV protection is especially important for children and teenagers as they have larger pupils and clearer lenses inside the eye than adults, meaning their eyes are more vulnerable to the UV rays. They also typically spend more time outdoors in the sun and are less likely to wear sunglasses than adults.²

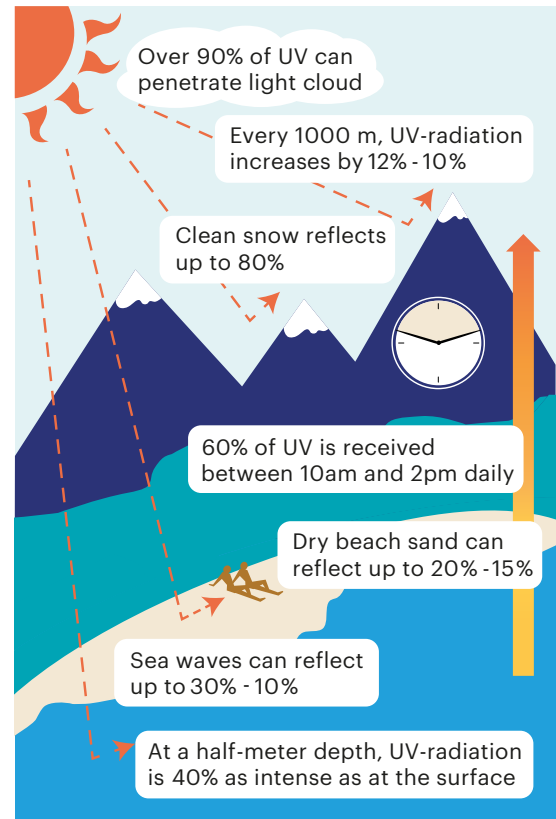


Figure 2 | Environmental factors influence UV-radiation intensity³

WHY UV-BLOCKING CONTACT LENSES?

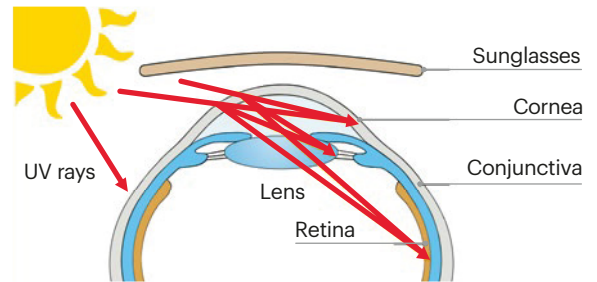
UV rays that are reflected by pavements, grass, snow, sand or water can leak around the sides of standard, non-wrap around sunglasses.

The peripheral UV rays can penetrate around the sunglasses and are concentrated when they enter the cornea (Figure 3).

Remember though that UV-blocking contact lenses are not substitutes for UV-blocking sunglasses. They should always be worn together with high quality UV-blocking sunglasses.

UV-blocking contact lenses worn together with UV-blocking sunglasses provide protection against the transmission of harmful UV radiation.

With sunglasses and **WITHOUT** a UV-blocking contact lens.



With sunglasses and **WITH** a UV-blocking contact lens.

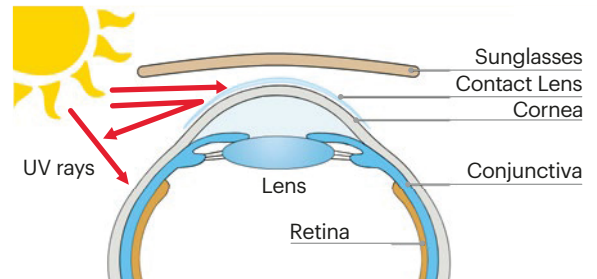


Figure 3 Illustration of the entry of sunrays to the eye's inner structures.



BENEFITS OF ACUVUE®

CONTACT LENSES WITH UV BLOCKING*

All ACUVUE Brand contact lenses contain high levels of UV-blocking making them sunglasses', perfect partner to help block the transmission of harmful UV radiation.*^

- They help protect the eye's internal structures and external parts that they cover from the transmission of UV rays
- They block peripheral and reflected rays not blocked by non-wrap around sunglasses or hats
- They might be the only available UV blocker for the eyes in situations when sunglasses and hats have been forgotten or are impractical to wear, for example, when playing contact sports like football and basketball
- UV-blocking contact lenses help to protect your eyes from the transmission of UV all day long. The UV-blocking ingredient is incorporated into the ACUVUE® contact lens material permanently

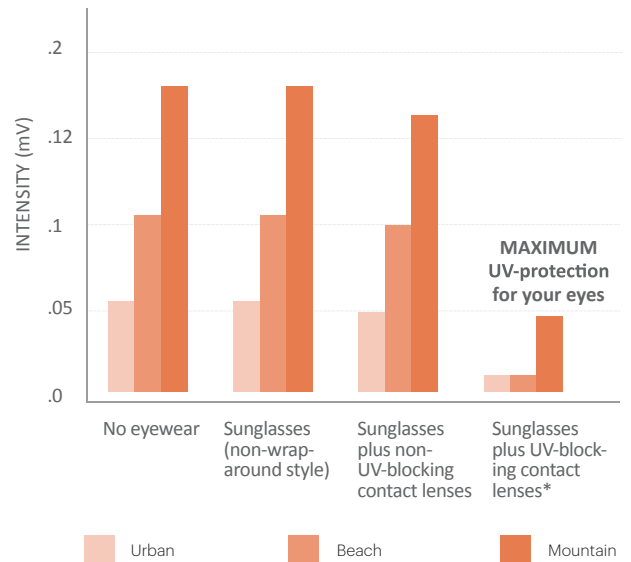


Figure 4 Intensity of peripherally focused UV-B radiation with different types of eyewear & environments⁴



SHARE THE KNOWLEDGE

If you have learned something
by reading this leaflet, there's a good
chance that a family member or a friend
could also benefit, so spread the word
to the people you care about,
it's worth it!

ACUVUE®

References:

1. Sasaki H. UV exposure to eyes greater in morning, late afternoon Proc. 111th Ann. Meeting, Japanese Ophthalmologic Soc., Osaka, Japan, April, 2007.
2. INTERSUN, The Global UV Project, A Guide and Compendium, Radiation and Environmental Health Unit; Protection of the Human Environment, World Health Organization, Geneva, 2003. <http://www.who.int/uv/en/>.
3. Godar DE, Urbach F, Gasparro FP, van der Leun JC. UV doses of young adults. Photochem Photobiol 2003;77(4):453-7.
4. Kwok LS, Daszynski DC, Kuznetsov VA, Pham T, Ho A, Coroneo MT. Peripheral light focusing as a potential mechanism for phakic dysphotopsia and lens phototoxicity. Ophthalmic Physiol Opt 2004;24(2):119-29.
5. Schneider C. UV-Blocking Contact Lenses Play Unique Role in Protecting Patients' Eyes. Refractive Eyecare. 2005; 9(12).

*Helps protect against transmission of harmful UV radiation to the cornea and into the eye.

^WARNING: UV-absorbing contact lenses are NOT substitutes for protective UV-absorbing eyewear such as UV-absorbing goggles or sunglasses because they do not completely cover the eye and surrounding area. You should continue to use UV-absorbing eyewear as directed. **NOTE:** Long-term exposure to UV radiation is one of the risk factors associated with cataracts. Exposure is based on a number of factors such as environmental conditions (altitude, geography, cloud cover) and personal factors (extent and nature of outdoor activities). UV-blocking contact lenses help provide protection against harmful UV radiation. However, clinical studies have not been done to demonstrate that wearing UV-blocking contact lenses reduces the risk of developing cataracts or other eye disorders. Consult your eye care practitioner for more information.

ACUVUE® Contact Lenses can be used for vision correction. An Eye Care Professional will determine whether contact lenses are right for you. Although rare, serious eye problems can develop while wearing contact lenses. To help avoid these problems, follow the wear and replacement schedule and instructions on proper lens care. Do not wear contact lenses if you have an eye infection or experience other eye problems or if you are allergic to any ingredient. For more information, including warnings and precautions, read the Instructions for use available on the ACUVUE® website www.acuvue.com/en-me/terms-of-use/. If you experience eye discomfort or if any condition occurs, remove the lens and contact your Eye Care Professional immediately.

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For more information on proper wear, care and safety, talk to your Eye Care Professional and read the Instructions for Use available on the ACUVUE® website www.acuvue.com/en-me

ACUVUE®

ACUVUE® contact lenses are available for short-sighted, long-sighted, astigmatism and presbyopia (multifocal) vision needs.

Find out more at
www.acuvue.com/en-me

