



SUNGLASSES

The Issue

It is important to protect your eyes against damage from the sun. For most people, an inexpensive pair of sunglasses will do the job.

Background

The sun produces many different kinds of light. The kinds most likely to injure the eye are:

- Ultraviolet (UV) radiation, which is invisible and is often referred to as UV rays
- Bright or intense light
- Blue light

About UV Light and Blue Light

UV rays carry more energy than visible light rays, so the eye is at greater risk of damage from absorbing UV radiation than from absorbing other kinds of light. There are two types of UV rays that reach the earth's surface, UV-A and UV-B rays can cause, or speed up the progress of several diseases of the eye or its supporting structures. UV-B rays have also been linked to skin cancer. Most of the damage caused to eyes by UV-B and UV-A rays happens over a long period of time and cannot be reversed. Sensitivity to ultraviolet radiation varies from one person to the next.

Blue light is visible light in the blue portion of the colour spectrum. For example, the intense glare of light reflecting off snow or water contains blue light. Our eyes cannot focus clearly in blue light. Some scientists believe that routine exposure to blue light after a long period of time may age the retina and increase the risk of blindness in some people over the age of sixty.

How Light Can Damage Our Eyes

All light is a form of energy. When our eyes absorb light, the process creates heat or chemical reactions in eye tissue. These reactions can cause permanent damage if the eye's natural ability to heal itself is overwhelmed.

Different parts of the eye absorb different kinds of light. For example

- The surface layers of the outer part of the eyeball (the cornea and the conjunctiva) absorb UV-B rays
- The lens absorbs mainly UV-A rays
- The retina (the light-sensitive lining at the back of the inner eyeball) absorbs visible light

If eyes are overexposed to ultraviolet radiation, the front portion of the eyes may be damaged. If visible light is too bright or intense, or if someone stares directly at the sun, even briefly, the retina can be damaged, causing permanent loss of vision.

UV radiation, along with wind and drying of the eye, may cause snow blindness, an uncomfortable but temporary condition. There is some evidence that daily exposure to UV radiation in very bright sunlight over many years may increase the risk of developing cataracts. Cataracts cause a gradual clouding of the natural lens of the eye.

Wear Sunglasses to Protect Your Eyes

Wearing sunglasses makes sense. Properly chosen sunglasses will protect your eyes against damage from UV rays, bright light, and blue light. It is safer to drive while wearing sunglasses, as they reduce glare and improve contrast in bright sunlight.

Choosing the Right Sunglasses

Choose sunglasses with lenses that are dark enough to keep your eyes comfortable, but not so dark that they reduce your vision. If you spend a lot of time outdoors in intense glare from sunlight bouncing off snow or water, you should wear sunglasses that block blue light. Medium to dark lenses with a grey, or a slightly brown or a green tint, will filter out most blue light.

Most sunglasses have plastic lenses. These lenses are tougher than glass and less likely to shatter. If you buy plastic lenses, look for a pair with a scratch-resistant coating. Check the lenses for distortion by putting the sunglasses on and looking at a rectangular pattern, such as floor tiles. If the lines stay straight when you move your head up and down,

and side-to-side, then the amount of distortion is acceptable.

Sunglasses are made with different kinds of lenses to meet different needs:

- Regular lenses reduce the brightness of everything evenly
- Polarizing lenses are designed to cut glare due to reflection, this means they are good for driving and outdoor activities in the snow or on water
- Photochromic lenses change with the intensity of UV light by turning darker when outdoors and lighter when indoors. If you wear these for driving, choose sunglasses that are fairly dark
- “Flash” or mirror lenses reflect all or part of the light instead of absorbing it. They offer no performance advantage as they scratch easily. You should choose a pair with a scratch-resistant coating

Standards for UV Protection

You can not tell how much UV protection a pair of sunglasses will provide for you by their price, by their color, or by the darkness of their lenses. Look for a label that lists the type and amount of protection. Manufacturers follow voluntary industry standards when labeling these products. Sunglasses that comply with industry standards are grouped in three categories:

- Cosmetic sunglasses have lightly tinted lenses for use in sunlight that is not harsh. They block from 0 to 60 percent of visible light and UV-A rays and between 87.5 and 95 percent of UV-B rays. These glasses are not usually recommended for daylight driving
- General purpose sunglasses block from 60 to 92 percent of visible light and UV-A rays and between 95 and 99 percent of UV-B rays. These sunglasses are good for driving, and are recommended whenever sunlight is harsh enough to make you squint
- Special purpose sunglasses block up to 97 percent of visible light and up to 98.5 percent of UV-A rays. They also block at least 99 percent of UV-B rays, and are suitable for prolonged sun exposure. These sunglasses are not recommended for driving

Need More Info?

For related information about UV protection, visit:

Ultraviolet Radiation
(<http://www.hc-sc.gc.ca/english/iyh/environment/ultraviolet.html>)

Preventing Skin Cancer
(<http://www.hc-sc.gc.ca/english/iyh/diseases/cancer.html>)

Sunscreens
(<http://www.hc-sc.gc.ca/english/iyh/lifestyles/sunscreen.html>)

Health Canada
Healthy Environments and
Consumer Safety Branch
Consumer and Clinical Radiation
Protection
<http://www.hc-sc.gc.ca/hecs-sesc/ccrpb/index.htm>