Health Canada Santé Canada

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Sunglasses

Updated:

June 2010

IT'S YOUR HEALTH

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 the job.

Background

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

- ultraviolet radiation, which is invisible and is often called "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: UVA and UVB. These rays can cause, or speed up the progress of, several diseases that affect the eye or its supporting structures. UVB rays have also been linked to skin cancer. Most of the damage caused to eyes by UVB and UVA 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. The intense glare of light reflecting off snow or water contains blue light. Your eyes cannot focus clearly in blue light. Some scientists believe that routine exposure to blue light over many years may age the retina and increase the risk of blindness in some people over the age of sixty.

How Light Can Damage Eyes

All light is a form of energy. When your 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.

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Different parts of the eye absorb different kinds of UV radiation and light. For example:

- The surface layers of the outer part of the eyeball (the cornea and the conjunctiva) absorb UVB rays
- The lens absorbs mainly UVA 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 you stare 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.

Minimizing Your Risk

Wearing sunglasses makes sense. Properly chosen sunglasses will protect your eyes against damage from UV rays, bright light, and blue light. There are also other safety factors to consider. For example, if you are driving a vehicle in bright sunlight, it is safer to wear sunglasses, because they reduce glare and improve contrast.

You can also help protect your eyes by wearing a wide-brimmed hat or visor when you are out in bright sunlight, and by avoiding exposure to bright sunlight, especially in the summer between 11:00 a.m. and 4:00 p.m., when the sun's rays are strongest.

Choosing Sunglasses

Make sure the lenses 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 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 cannot tell how much UV protection a pair of sunglasses will provide by their price, colour, or by the darkness of the lenses. Look for a label that lists the type and amount of protection. Manufacturers follow voluntary industry standards when labelling 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 UVA rays, and between 87.5 and 95 percent of UVB rays. These glasses are not usually recommended for daylight driving.
- General purpose sunglasses block from 60 to 92 percent of visible light and UVA rays, and between 95 and 99 percent of UVB 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 UVA rays. They also block at least 99 percent of UVB rays, and are suitable for prolonged sun exposure. These sunglasses are not recommended for driving.

Health Canada's Role

Health Canada's role is to help Canadians maintain and improve their heath. As part of this work, Health Canada promotes public awareness about sun safety and the harmful effects of UV radiation.

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Need More Info?

Consumer and Clinical Radiation Protection Bureau
www.hc-sc.gc.ca/ahc-asc/branch-dirgen/hecs-dgsesc/psp-psp/ccrpb-bpcrpcc-eng.php
Health Canada
775 Brookfield Road
Ottawa, ON K1A 1C1
Telephone: 613-954-6699
Email: ccrpb-pcrpcc@hc-sc.gc.ca

Or, visit the following websites:

- Health Canada's web section on **Ultraviolet Radiation** at: www.hc-sc.gc.ca/ewh- semt/radiation/ultraviolet/index_e.html
- Health Canada's **UV Index Sun Awareness Program** at: www.hc-sc.gc.ca/hl-vs/sun- sol/uv-prog/index-eng.php
- Health Canada's **Safe Summer Fun** web section at: www.hc-sc.gc.ca/hl- vs/securit/season-saison/summer-ete/index-eng.php
- Health Canada – **Sun Safety section** at: www.hc-sc.gc.ca/hl-vs/sun-sol/index-eng.php
- The Canadian Association of Optometrists **Eye Health Library** at: www.opto.ca/en/eye-health-info/eye-health-library/eye-diseases-conditions.html
- Visit Health Canada's **Consumer Safety Portal** for safety information about food, health and consumer products at: www.health.gc.ca/consumer
- For additional articles on health and safety issues, go to the ***It's Your Health*** web section at: www.healthcanada.gc.ca/iyh

You can also call toll free at 1-866-225-0709 or TTY at 1-800-267-1245*.

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