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## SUNGLASSES

### Why do I need sunglasses?

Sunglasses can help your eyes in two important ways. They help filter light and they protect against the damaging rays of the sun. Good sunglasses reduce glare and filter out 99 to 100% of ultraviolet (UV) rays. They should be comfortable and protect your eyes without any distortion.

### How does the sun damage the eyes?

Three types of rays come from the sun:

- **Visible:** what you see as color.
- **Infrared:** invisible but felt as heat.
- **Ultraviolet (also called UV radiation):** invisible but often called “sunburn rays.” UV radiation includes two types of rays that normally reach the earth, UV-A rays and UV-B rays.

These invisible UV rays can damage your eyes. Some of the damage can happen right away and some can occur over a lifetime of exposure. Constant exposure to bright sunlight can damage the cornea (the clear outer part of the

eye that allows light through to the retina), the lens (the part of the eye responsible for focusing), and the retina (the innermost layer of the eye that sends an image to the brain).

### How can sunglasses protect my eyes from UV radiation?

All types of eyewear, including prescription and nonprescription glasses, contact lenses and lens implants, should absorb UV-A and UV-B rays. UV protection does not cost a lot of money and does not get in the way of seeing clearly.

Shop for sunglasses that block 99 to 100% of both types of ultraviolet rays: UV-A and UV-B. Sunglasses should also eliminate glare and squinting. Be wary of labels that claim a product blocks harmful UV without specifying exactly what amount of UV rays they block.

### Who is at risk for eye problems caused by UV rays?

Anyone who spends time in the sun is at risk, but those who spend long hours in the sun because of work or sports, have a higher health

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Founded in 1908, Prevent Blindness America is the nation's leading volunteer eye health and safety organization dedicated to fighting blindness and saving sight. Focused on promoting a continuum of vision care, Prevent Blindness America touches the lives of millions of people each year through public and professional education, certified vision screening training, community and patient service programs and research.

risk from UV rays. So may people who have had cataract surgery and/or certain retinal disorders. Some people are more sensitive to UV rays, including those who take certain medications, such as tetracycline, sulfa drugs, birth control pills, tranquilizers, and diuretics, as they increase the eye's sensitivity to light.

## Types of Lenses

**Clip-on lenses:** These are used on top of prescription eyeglasses. They are convenient, but may not fully cover the lens. Together with the lens surfaces of the regular glasses, clip-on lenses may cause reflections. They may scratch prescription lenses or fall off.

**Gradient lenses:** Sunglasses can be of gradient density (dark on the top, tapering to light at the bottom) or double gradient density (dark top and bottom, lighter in the center). They come in handy when sunlight comes from overhead, or is reflected into the eyes from below.

**Mirrored lenses:** Lenses can be coated with a thin metallic film, which looks like a mirror and reflects light rays, further reducing the amount of light that can reach the eye.

**Photochromatic lenses:** This type of lens changes according to the amount of light. They darken in bright light and lighten in dim light. These lenses are helpful under a wide variety of light conditions. The amount of light, lens thickness and temperature all affect how dark the lenses will get. One problem with these lenses is that they may not change quickly enough to adjust to new light situations.

**Polarizing lenses:** These lenses, which reduce glare and “bounce-up” reflections from flat

surfaces, are useful for driving, boating, fishing and other activities where there is glare off the water or the ground.

## Color of Lenses

Neutral gray or “smoke” lenses allow for best color perception. Other good choices are amber or brown tints (which usually block more blue light), or green. Dark lenses may be preferred by those whose eyes are very sensitive to light. Tints such as red, orange, blue or purple are unsuitable because they may interfere with color perception and tend to let in too much light. Since all of the colors we see are made up of visible light, tint is not related to the degree of UV protection provided.

## Quality and Safety of Lenses

Lenses should be inspected for flaws such as scratches, bubbles and distortions. Poorly made glasses will not damage the structure of your eyes. But flaws and distortion in the lenses may cause your eyes to work harder. That can result in squinting, blinking, tearing, and even slight headaches, nausea, and dizziness. The Food and Drug Administration requires that all lenses be impact resistant and made of optical-quality glass or plastic. These are available with or without a corrective prescription. This does not mean the lenses are shatterproof or unbreakable, but that they can withstand moderate impact.

Glasses for ball sports or sports with physical impact should be made of polycarbonate, which is the most shatter-resistant material widely available today. Polycarbonate is also the best choice for children's sunglasses.

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