AMERICAN ACADEMY OF OPHTHALMOLOGY
The Eye M.D. Association

P.O. Box 7424
San Francisco
California 94120-7424

655 Beach Street
San Francisco
California 94109-1336

Tel. 415.561.8500
Fax 415.561.8533
http: //www.aao.org

Information From Your Eye M.D.

SUNGLASSES

Sunglasses, often worn as a fashion statement or to shield eyes from the sun's glare, have a function more valuable; protecting your eyes from damage and disease caused by overexposure to Ultraviolet (UV) rays. Ultraviolet (UV) rays are an invisible form of radiation from sunlight.

UV Exposure – You are at Risk
Any factor that increases your exposure to sunlight increases your risk of eye damage. These factors include:

- Environment: UV exposure is greater on the snow, sand and pavement, as well as on the water.
- Altitude: UV radiation levels rise in high altitudes (in the mountains).
- Latitude: UV radiation is higher at low latitudes (near the equator).
- Weather: UV radiation permeates through overcast conditions, such as haze and clouds.
- Length of Time Outdoors: the longer you spend in the sun, the more UV radiation you receive.
- Eye and Skin Color: People with light colored eyes and skin are at greater risk.
- Time of Day: UV radiation is highest between 10 a.m. and 4 p.m.
- Season: UV radiation is most intense in the spring and summer, low in the fall and least intense in the winter.
- Medication: Photosensitizing medication, such as tetracycline, doxycycline, allopurinol, phenothiazine and psoralens increases your skin and eye sensitivity to light.

NOTE:

- Eclipses: Severe and often permanent eye damage can occur from gazing at the sun during a solar eclipse, due to the thermal rather than UV radiation. Sunglasses cannot protect you from this type of radiation.

Damage to Your Eyes
Acute eye damage may be caused from single outings on very bright days. Excessive exposure to ultraviolet light reflected off sand, snow, water or pavement can damage the eye's surface. Similar to a sunburn, eye surface damage usually disappears within a couple of days, but may lead to further complications.

Long-term exposure to UV radiation ("sunburn rays") may contribute to the development of various eye disorders, such as macular degeneration, the leading cause of vision loss among older Americans, and cataracts, a major cause of visual impairment and blindness around the world.

What to Look For in Sunglasses
There are thousands of sunglasses available today. Below are the important features to look for to ensure your eyes are protected.

UV Coating
Plastic and glass lenses absorb some UV light; however, the UV protection in the plastic and glass lenses can be improved by adding a special coating to the lenses. Polycarbonate lenses offer 99 percent UV protection.

Some labels read “UV protection up to 400nm”.This means 100 percent UV absorption. Be wary of purchasing sunglasses that state they “block UV” without saying how much. They need to block 99 to 100 percent of UV rays.

Mirror Coating
Mirror finishes are just thin layers of various metallic coatings on ordinary lenses. Although mirror coating reduces the amount of visible light reaching your eyes, do not assume they will protect your eyes from UV radiation. Check the label to ensure the sunglasses block 99 to 100 percent of UV rays.

Gradient Tint
Gradient lenses are permanently shaded from top to bottom or from top and bottom toward the middle. There are single gradient lenses (dark on top and lighter on the bottom) and double gradient lenses (dark on top and bottom and lighter in the middle). The single gradient lenses are useful for driving because they reduce glare while allowing you to see clearly, but are not good for sports. Double gradient lenses are the opposite – they are better for sports where light reflects up off the water or snow, but not for driving, because they make the dashboard appear dim. Tinting has little to no effect on UV protection.

Color and Darkness
The color and degree of darkness do not tell you anything about the lenses ability to block UV rays. UV coating itself is colorless.

Color choice is a personal decision based on your needs and wants. Each color has different qualities to consider:

- Green: offers some color contrast with little or no color distortion (best for multi-use)
- Gray: flat color offers no contrast, along with no color distortion
- Brown: offers very high contrast and depth perception, but it distorts color - optimum for object definition
- Yellow: optimum for object definition, but creates a harsh visible light
- Vermillion: best on water to define water from other objects, but has the worst color distortion
- Blue: best in snow because it counteracts the white, but distorts other colors
- Red and Pinks: best for computer eyestrain, but causes color distortion

A medium tinted lens is good for day-to-day wear, but if you use the glasses for very bright conditions, select darker tinted lenses. But, don’t be fooled into thinking darker lenses offer more protection. The degree of darkness does not represent the lenses’ abilities to block UV light, so be sure to check the label.

Polarization
Polarized lenses are the best way to reduce reflected glare, such as sunlight that bounces off of smooth surfaces like snow or water. These lenses are useful for skiing, fishing and driving.

Polarization does not have any relation to UV light absorption, but many lenses are now combined with a UV coating. Be sure to check the label before making your purchase.

Blue Blocking
Whether blue light is harmful to the eye is still being debated; however, there is some scientific evidence the retina may be more sensitive to blue visible light. Lenses that block all blue light are tinted amber. This tint allegedly makes distant objects appear more distinct, especially in snow or haze. These lenses are popular with skiers, hunters, boaters and pilots.

Wraparound
Wraparound sunglasses are designed to keep light from shining around the frames and into your eyes, protecting your eyes from all angles.

Photochromic
Depending on the amount of UV exposure, photochromic lens will change from light to dark. Although some photochromic lenses may be good UV-absorbent sunglasses, it takes time for them to adjust to different light conditions. The majority of the darkening takes place in about 30 seconds; however, the lightening takes about five minutes.

Where Can I Get More Information?
Your Eye M.D. can provide information on sunglasses and UV protection, as well as eye health and safety.

If you would like more information on sunglasses and UV safety, please visit the American Academy of Ophthalmology's public information Web site at www.medem.com/eyemd.

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P.O. Box 7424 / San Francisco, CA 94102 / 415.561.8500