

## UV protection sunglasses can promote healthier eyes

Written by meg sibal, m.d.  
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ALTHOUGH many individuals choose sunglasses by how they look and feel, the most important feature to consider is how well they shield your eyes from the ultraviolet rays (high-frequency invisible energy emitted by the sun), as well as blue light (high-frequency visible light) - the good news is that it's not hard to find affordable sunglasses that are fashion-forward and protective, says the August 2013 issue of the University of California, *Berkeley Wellness Letter*.

Sun damage is cumulative - so the more time you spend outdoors with your eyes unprotected, the greater your lifetime risk, warns the health letter.

Chronic ultraviolet (UV) exposure is implicated in a range of eye conditions, including cataracts, benign growths on the surface of the eye, skin cancer on the eyelid and around the eyes, and even melanoma of the eye itself.

On the other hand, blue light is particularly damaging to internal eye tissues and over time may permanently damage the retina, leading to macular degeneration.

Everyone who spends time outside should wear eyeglasses, particularly:

- Children - their eyes are especially vulnerable to UV

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- Individuals who wear contacts - even if contacts are UV-treated, they don't cover the whole eye
- For those who are sun-sensitive due to medications (such as tetracycline) or other reasons - sunglasses are a necessity
- Individuals who have had cataract surgery, especially if they have an older intraocular lens that provides no UV protection
- Light-colored eyes are especially vulnerable to UV - even on overcast and hazy days, your eyes can be exposed to significant UV radiation

Other valid reasons for wearing sunglasses include:

- 1) Very bright sunlight can irritate the eyes;
- 2) Bright sunlight can even burn the cornea - a temporary but painful condition called photokeratitis or "snow blindness";
- 3) Sunglasses shield the eyes from wind, dust and drying, and help reduce glare, which can be hazardous when driving, hiking or playing sports.

Unfortunately, there are no federal standards for sunglasses - and labels are inconsistent and confusing.

For instance, a tag or sticker that simply says "blocks UV" or "UV-absorbent" is meaningless

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because it doesn't tell you how much UV is blocked.

Better choices are sunglasses that claim to block most or all UV ("UV 400," for example), though there is no independent verification for this.

In addition, "while the American National Standard Institute (ANSI) sets voluntary standards (Z80.3 codes) for UV protection of sunglasses, you're not likely to see these labels, and they don't guarantee that the glasses have actually been inspected," says the health letter.

However, one sure way to be certain that your sunglasses are blocking most or all UV is to have an optician test them using a photo spectrometer (often called a UV meter).

Also, it's a good idea to have old sunglasses tested, since some of the UV coating, if one was applied, can be lost over time through scratches and abrasions - an optician can also coat sunglasses, if necessary.

The health letter offers general pointers when choosing sunglasses:

- Maximal UV protection comes from clear chemicals that are incorporated into the lens during manufacture or applied as coating - although both clear glass and plastic lenses naturally filter out some UV light (polycarbonate plastic, in particular, blocks nearly all UV)
- Darker lenses don't mean greater UV protection - In fact, unless darker lenses are fabricated to block UV, they can be more harmful than wearing no sunglasses, because they can cause pupils to dilate, allowing more UV to enter your eyes, warns the letter. However, darker lenses do block more visible light and minimize glare - they should be dark enough so you don't see your eyes when you look in the mirror, but light enough so you can see curbs, stoplights and stairs.
- Colored lenses reduce visible light, but has nothing to do with UV protection - Yellow, amber

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and orange lenses block the most blue light and enhance contrast, but can distort colors. While brown blocks significant blue light, gray and brown lenses produce the least color distortion and are good for all-around wear and driving. Green distorts minimally; avoid blue-tinted glasses, which let in more blue light.

- The larger the frames, the better - but while wrap-around glasses block light coming from the side, they may cause distortion.
- More expensive sunglasses are not necessarily better, but cheap ones (less than \$10) are more likely to have optical imperfections. You should be able to find an adequate pair of sunglasses for \$20 to \$60.
- To check lens quality, hold the glass at arm's length and look at a straight line in the distance - when you move the glasses across that line, the line should not bend.
- If you wear prescription glasses, you can buy prescription sunglasses or glasses with photochromic lenses (automatically darken in 30 seconds and fully lighten when you go inside in about five minutes, depending on the ambient light). You can also get sunglass "clip-ons" for your regular frames - or "click-ons" that attach magnetically. At a minimum, your regular glasses should have added UV protection.

Some sunglasses have all kinds of extra features not related to UV protection - just make sure they are UV treated - they include:

- Polarized lenses - While they cut down on glare, which is good if you are driving, boating, fishing or skiing, they make it harder to see cell phone, ATM and dashboard display.
- Mirrored lenses - They can be helpful in very bright conditions, though they scratch easily. The tint of the color coating doesn't affect color perception.

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- Photochromic lenses - These lenses automatically darken and lighten depending on the ambient light - it takes about 30 seconds for them to darken in bright light, but about five minutes to fully lighten when you go inside.
  
- Gradient lenses - These are shaded darker at the top and lighter at the bottom, which cuts light from the sky but allows you to see the car dashboard and horizon as well. They also let you see your step as you enter an area with less light. Double-gradient lenses are dark at the top and bottom and are good for skiing, boating and water sports.
  
- Ultra-impact-resistant lenses - They are good for certain sports and occupations - the FDA requires all eyeglasses to be impact-resistant, but polycarbonate lenses are the most shatterproof. However, they scratch easily, so look for ones with scratch-resistant coatings, concludes the health letter.