EYE-Q

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Coatings and Mirrors and Tinting, Oh My!

This is the second article on outdoor vision protection in recognition of May as National Sight Saving and UV Awareness month. Last week I explained many of the common problems that may befall the unprotected eye from UV radiation. Today I will start to clear-up some of the misconceptions about sunglasses and the wide variety of coatings and tinting that goes along with them.

Polarized Lenses

Light reflected off of certain surfaces such as flat surfaces of water, reflected light off beach sand and road surfaces comes toward the eye in a horizontal orientation called horizontal polarization. Polarized lenses have vertically arranged filters in them to block the reflected light rays and therefore reduce or eliminate glare. This is why they are so popular among fishermen and water sports enthusiasts. On the downside most LCD screens such as GPS units, fish finders, ATMs and the dashboards of some cars may be adversely affected by polarized lenses. The screen may appear to have rainbow colored distortions or may be blank when viewed at certain angles. Overall, polarized lenses create a much more comfortable visual environment for the outdoor enthusiast.

Photochromic Lenses

These are the lenses that change from light to dark and back again when you go from indoors to outdoors and vice versa. They have a variety of trade names with the most well known being Transitions™ and LA™ brands of light adapting lenses. These lenses maximize optical clarity especially for prescription lens wearers without having to change glasses when going from outside to inside. The biggest problem with photochromic lenses in the past has been their inability to darken adequately when driving due to the fact that the light rays necessary to activate the silver halide crystals embedded in the lens are partially blocked by the windows of the car. In addition, they would darken differently based on the prescription in the lens. Today's photochromics are much more sensitive to changes in light and adapt more quickly to changing light conditions providing the wearer with much better comfort in varying light conditions.

Mirrors

Mirror coatings (also called flash coatings) are purely a cosmetic addition to sunglasses. There is no difference in the vision seen through the mirrors or in equivalent sunglasses without the mirrors regardless of the color of the mirror. Regardless of the color of the mirror the only ones who will appreciate that color are the people checking for spinach between their teeth by looking into the mirrors on your sunglasses. Obviously, a highly reflective flash coating such as a mirror will prevent someone from seeing your eyes

while you wear them. So if you're trying to stay out of trouble with your girlfriend while at the beach, a mirror coating will hide your wandering eyes from detection.

Anti-reflective Coatings (AR coating)

As opposed to mirror coatings, AR coatings, as the name implies, are designed to greatly reduce the reflection of light from the lens both internally and externally. When applied to the backside of the lens in sunglasses they are very effective at reducing the reflected light that comes in from the side so that it is not reflected into your eyes. These coatings are generally clear but may have a slight green or purple tint in clear lenses. It is always best to apply the coating to the backside of the sunglass lens to avoid the smeared appearance caused by the dark lenses. Sunglass lenses with AR coating the back side of the lens are far more comfortable than those with no AR coating.

Next week I'll talk about the advantages and disadvantages of the various colors of lenses and give some points on frame design for the active and inactive lifestyles of the readers.

If you have questions about your eye health e-mail Dr. Barowsky at doctom@tdkj.com and we'll try to answer your questions here at Eye-Q.