



Ultraviolet (UV) Radiation Can Damage Eyes

Although the sun supports life on our planet and we all seem to be in a better mood when the sun is out, the sun does release dangerous ultraviolet light (UV) radiation. Everyone is exposed to UV light radiation because it is a normal component of sun light. Welding equipment, tanning beds, and some high intensity commercial lighting also give off high levels of UV radiation.

Ultraviolet light is the invisible portion of the short wavelength light spectrum between 200 nm and 380 nm. It is divided into three types, UV-A, UV-B, and UV-C.

UV-C has the highest energy level and is mostly filtered out by the earth's ozone layer. Artificial sources of UV-C, like welding lights and tanning lights, can damage the eyes.

UV-B is the invisible light that is absorbed mostly by the skin and the eye's cornea and lens. UV-A is the invisible light closest in wavelength to the visible light spectrum. UV-A light can penetrate

more deeply into the eye also causing cataracts and damage to the retina in the form of macular degeneration.

Short-term exposure to UV light radiation can cause sunburn, red eyes, sensitivity to light, a "gritty" feeling, and tearing. These symptoms are usually temporary but can be very uncomfortable.

Long-term or chronic exposure to UV light radiation can cause permanent damage to the skin and the eye. Cataracts, pterygium (a growth on the white part of the eye), retinal lesions, macular swelling, and macular degeneration can all develop from extensive UV light radiation. In some cases, blindness can result from extensive UV exposure. A cataract is the most prevalent age related eye disease in the world and one of the leading causes of blindness, according to the World Health Organization. It is estimated that as many as 20 million people World wide are blind from cataracts. Long term skin and eyelid exposure can lead to skin cancer.

From the Doctor . . .

"During the longer days of summer, we are likely to be spending more time outdoors. The warm sun can feel particularly refreshing after our long winter season.

Unfortunately, the visible brightness from the sun, as well as the invisible ultraviolet (UV) light rays, can cause significant glare, ocular discomfort, and damage to your eyes. That's why it's important to wear eyeglasses and sunglasses that provide UV protection and can reduce glare. I highly recommend polarized sunglasses with polycarbonate lenses. They provide 100% UV protection, the clearest vision possible, superior glare reduction and the best impact resistance available. Proper outdoor eyewear will allow you to see and enjoy our summer season safely!"

Craig Swanson, O.D.

Ultraviolet Light Poses Additional Health Risks

In addition to damaging the eyes, UV exposure can lead to premature aging of the skin, sunburn, and even skin cancer. Some studies have shown that sun exposure is responsible for causing two-thirds of all melanomas. According to the American Academy of Dermatology (AAD), more than one million new cases of skin cancer are diagnosed each year. Your lifestyle and activity level can determine your risk from ultraviolet (UV) exposure. UV exposure is greatest during mid-day when the sun is the highest. In addition, up to 80% of the sun's rays can penetrate light clouds, fog, and haze. Water, concrete and fresh snow reflects UV rays back at you, thus increasing your exposure risk.

To provide eye protection from these harmful rays, the American Optometric Association (AOA) recommends wearing good quality

sunglasses and protective clothing when spending time outdoors. Children are especially at risk for eye damage, since the eye is most vulnerable to UV radiation during the first 18 years of life. The AOA recommends good quality sunglasses that block out 99 to 100 percent of both UV-A and UV-B. Sunglasses should be free of distortions and dark enough to provide comfortable vision.

To reduce the risk of skin cancer, the American Association of Dermatologists recommends limiting outdoor activities between 10 a.m. and 4 p.m., wearing sunscreen with a Sun Protection Factor (SPF) of 15 or higher and wearing sun-protective clothing and a wide-brimmed hat.

Children's Risk from UV Radiation

Ultraviolet radiation causes accumulative damage to our body and eyes. Children are especially vulnerable. In fact, most kids rack up between 50% and 80% of their lifetime sun exposure before age 18, so it's important that parents teach their children how to enjoy fun in the sun safely. In addition to using sunscreen, all children should wear good quality sunglasses when outdoors. Since UV radiation is around even on overcast days, it is recommended that sunscreen and sunglasses be worn for all outdoor activities. The best sunglasses for kids have grey or brown lenses. Polarized lenses can also increase visual comfort and reduce distracting glare, thus improving performance in sports. Remember to have your child wear sunscreen and sunglasses to keep their peepers peeping for a very long time!!

Why Polarized Sunglasses?

While sunglasses with UV protection will reduce the harmful invisible rays from the sun, they do not always provide protection from the harsh, annoying glare from the sun's visible rays. Reflections off of windshields, bumpers, water, snow, and concrete can be distracting, annoying, uncomfortable, and even dangerous.

Polarized lenses are the only lenses that actually eliminate glare and reflected light that is directed at the eyes resulting in unsurpassed clarity, better color perception, and the best visual comfort available. Photographers have used polarized camera lenses for years to provide the sharpest photos with the most vibrant color reproduction possible.

How do polarized lenses work? Light rays approach our eyes from all different directions. The energy in light actually causes the light rays to vibrate at a high frequency. Reflections distort the vibrations and scatter the light rays resulting in reduced clarity and uncomfortable glare. Regular sunglasses only darken the distorted and scattered light rays. Polarized lenses have special layers designed to filter out the scattered light rays, especially the light being reflected off of horizontal surfaces like water, pavement, snow, and windshields. The result is the clearest and most comfortable vision possible. Scientific studies have shown that polarized lenses can improve driving safety by improving response time and reducing stopping distances by as much as 23 feet (when traveling at 50 mph). Individuals who wear polarized lenses appreciate the reduced glare, improved visibility, and comfort that these lenses provide.

Grey vs. Brown Lenses? Lenses tinted grey or grey-green are popular choices for general wear. Grey uniformly makes things darker on bright days. Brown or copper lenses generally provide the clearest vision, especially while driving. On a bright day, high energy light is present in the atmosphere causing haziness in the air and around objects. Brown/copper lenses selectively filter out this high energy visible light resulting in clearer and more comfortable vision. Most high quality driving glasses and sports performance glasses use a brown or copper tint to provide a "high definition" effect. Additional mirror coatings and non-glare treated lenses can also help improve visual comfort and UV protection.

Photochromic or Transitions® lenses are popular as they darken outdoors and lighten indoors. Unfortunately, they do not darken while inside a car and do not reduce glare as well as polarized lenses. Polarized sun lenses provide the best glare reduction and the clearest vision of all lenses available.

Mirror Coatings on the front surface of the lenses help to block and reflect infrared light away from the eyes. Infrared light also comes from the sun and can cause the eyes to feel warm and uncomfortable.



UV Checklist

If one or more of the following factors fits you, you may be at greater risk for damage to your eyes from UV radiation.

1. Do you spend a lot of time outdoors?
2. Do you spend time skiing, golfing, or at the beach?
3. Do you go to the tanning booth?
4. Are you a welder, lifeguard, construction worker, farmer, or utility worker?
5. Do you take prescription drugs that can increase your sensitivity to UV radiation, like tranquilizers, diuretics, antibiotics, acne medications, anti-diabetic, anti-hypertensive medications, or oral contraceptives?
6. Have you had cataract surgery?