NWHRC Fast Facts FOR YOUR HEALTH

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The Sun & Your Eyes: What You Need to Know

By now you know the message: slather on the sunscreen and protect your skin from the sun's rays. If you don't, you significantly increase your risk of skin cancer. But did you know that it's just as important to protect your eyes from the sun?

Studies find the sun's rays contribute significantly to the risk of cataracts and age-related macular degeneration (AMD). Age-related macular degeneration is one of the most common causes of blindness in this country, and cataracts are one of the leading causes of blindness around the world. In fact, the World Health Organization (WHO) estimates as many as 20 percent of those blinded by cataracts (about 16 million) developed cataracts due to sun exposure.

Understanding Ultraviolet Radiation

The sun's damage occurs through ultraviolet radiation (UVR). The intensity of the light damages sensitive cells in the eyes, eventually affecting vision.

There are three ranges of UVR: UV-C, UV-B and UV-A. The most damaging form is UV-C, but luckily it's absorbed by the Earth's atmosphere and doesn't reach the Earth's surface.

The second kind of UVR is UV-B rays. Exposure to these rays is closely linked with photokeratitis (a kind of sunburn of the cornea and iris), cataracts, pterygium (a white or creamy growth attached to the cornea) and even a form of eye cancer called squamous cell cancer of the conjunctiva (the membrane that covers the outside of the eye), as well as early onset of presbyopia (the reason we need reading glasses as we age) and retinal lesions.

The third type of UVR is UV-A. Although laboratory studies find it can damage the retina (the light-sensitive membrane that covers the back of the eye), very little UV-A reaches your retina because most is absorbed by other parts of the eye. Still, some researchers suspect it may contribute to cataract development.

Just like sunburn in your teens may trigger skin cancer in your fifties, most of the sun's damage to the eyes occurs over the long term, taking years before its effects are felt. However, some of its damaging effects may occur in the short term.

These include photokeratitis and photoconjunctivitis, inflammation of the membrane that lines the outside of the eye (think pink eye). If you've ever come in from a day of skiing, sailing or lying on the beach and your eyes felt tired, sore and gritty, you likely experienced UVR overexposure.

UV Radiation Strength

Although direct sunlight from the sun itself is extremely damaging to eyes, the UV rays reflected off surfaces, such as snow, sand, water or concrete, can be even more dangerous. In fact, most of the major studies conducted on the effects of sunlight on the eyes were done on Chesapeake Bay fishermen, because of the amount of time they spend in the sun and on the water.

While grass, soil and water reflect less than 10 percent of the UV radiation, fresh snow reflects as much as 80 percent, dry sand about 15 percent and sea foam about 25 percent.

This makes a difference in the amount of UVR your eyes receive, because you're more likely to look down than up, so the light reflects directly into your eyes.

Additionally, the higher the altitude, the fewer UV rays are absorbed. That means there are more UV rays to damage your skin and eyes when you're skiing, living in or visiting high-altitude regions or even flying (if you sit near the window).

Finally, the time of day influences the available UVR. At noon, the UVR dose can be as much as 10 times higher than the dose three hours earlier or later.

Protect Your Children's Eyes

Just as significant exposure to the sun in childhood is a leading risk factor for skin cancer in adulthood, so, too, is it a risk factor for later eye damage. In fact,

Questions to Ask About The Sun and Your Health

Take some time to ask your health care professional the following questions about protecting your skin and eyes from the sun:

1. Can I wear contact lenses, and if so, can I wear UV-protectant lenses?
2. What skin changes should I be aware of that might signal a skin cancer?
3. I'm out on the water a lot boating. How can I best protect my eyes and skin?
4. Are there any medications that make me more susceptible to damage from the sun?
5. How do I know if I'm getting enough vitamin D from the sun, and why is this vitamin so important?

Resources

American Academy of Dermatology
1-866-503-7546
www.aad.org
Professional organization for the nation's dermatologists, providing education materials for professionals and consumers

American Academy of Ophthalmology
415-561-8500
www.aao.org
Professional organization for the nation's ophthalmologists. Provides authoritative information about eye health and an ophthalmologist directory service.

American Optometric Association
1-800-365-2219
www.aoa.org
Professional organization for the nation's optometrists. Offers an optometrist locator service and information on eye conditions and concerns.

Prevent Blindness America
1-800-331-2020
www.preventblindness.org
A volunteer organization that provides information on eye diseases and conditions, as well as tips on eye safety, children's eye health and links to news and resources.

Women's Eye Health Task Force
www.womenseyehealth.org
Provides information about women's eye health, eye diseases more common in women and what causes them.

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researchers estimate we receive 80 percent of our lifetime exposure to UVR rays before age 18.

Additionally, children's eyes transmit more UVR rays to the retina than adults', increasing their exposure and risk of later eye damage. That's why it's so important to protect children's eyes.

And forget about sports glasses; they're designed to protect a child's eyes from injuries, not from the sun.

Protecting Your Eyes from Sun Damage

Think sun exposure and eyes and you probably think sunglasses. While sunglasses are definitely a good idea when it comes to eye protection, not all sunglasses are created equal.

Look for sunglasses that transmit no more than 1 percent UVB and 1 percent UVA rays. Sometimes the information on the glasses will say they block at least 99 percent of the UVR. That's OK. Other things to look for:

- Lenses large enough to completely cover the eye and prevent as much light as possible from entering through the edges of the glasses. Wrap-around sunglasses are best.
- Gray lenses, because they provide the greatest protection.
- Darker lenses, particularly if you spend a lot of time exposed to UVR.

If you wear contact lenses, you may be in luck—some contact lenses today provide UVR protection. One benefit of contact lenses over sunglasses is that they provide whole-eye protection, whereas most sunglasses allow UV rays to enter the side.

The level of protection can vary, however.

The U.S. Food and Drug Administration (FDA) classifies contact lenses that protect against UV rays into two categories: Class 1 and Class 2. Class 1 UV-blockers provide the greatest measure of sun protection.

Only Acuvue Advance and Acuvue Oasys brand contact lenses offer Class 1 UV-blocking. Other Acuvue contact lenses and some products in the Biomedics line (CooperVision) contain Class 2 UV-blocking, as do Precision UV soft contact lenses (CIBA Vision) and many rigid gas permeable (GP) lenses.

The American Optometric Association's (AOA) Commission on Ophthalmic Standards, which provides independent evaluation of ophthalmic related products, has determined that the Acuvue Advance and Acuvue Oasys brands meet AOA specifications for ultraviolet-absorbing contact lenses. These specifications are in accordance with published standards of the American National Standards Institute and International Standards Organization. Only products that meet these standards may claim to be UV-blocking.

Even modern-day intraocular lens implants that correct vision after cataract surgery have UV-blocking capabilities. Ask your eye care specialist about this as you are evaluated before the procedure is scheduled.

The best way to protect your eyes from the sun, however, is a combination of quality sunglasses, contact lenses and a wide-brimmed hat.

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