



## *Protecting Our Eyes and Skin from Too Much Sun*

# Health Effects of Ultraviolet Radiation

## *Information for Older Adults and Their Caregivers*

**U**ltraviolet (UV) radiation is released by the sun or artificial sources such as tanning beds or sun lamps. This fact sheet provides an overview of the major health problems linked to overexposure to UV radiation.

Since the benefits of sunlight cannot be separated from its damaging effects, it is important to understand the risks of overexposure, and take simple precautions to protect yourself. UV rays cannot be seen or felt but can cause skin and eye damage any season of the year—even on cool or cloudy days.

### **Harmful Effects of UV Radiation on Eyes**

Exposure to UV rays can cause severe damage to our eyes. The following are examples of eye disorders caused by too much exposure to UV rays:

#### ***Cataracts***

Exposure to UV rays increases the risk of developing cataracts, a

disorder in which the lens of the eye loses transparency resulting in impaired vision. Signs of cataracts include:

- Blurred or cloudy vision;
- Colors that appear faded;
- Glare that makes lights seem too bright;
- Halos around lights;
- Reduced vision at night, and
- Double vision<sup>1</sup>.

Exposure to low levels of UV radiation places older adults at a greater risk of cataracts, a major cause of blindness. Adequate eye protection from sun exposure is an important way to lower your risk of developing cataracts.

#### ***Skin Cancer around the Eyelids***

Basal cell carcinoma is the most common type of skin cancer to affect the eyelids. In most cases, lesions occur on the lower lid, but they can occur anywhere on the eyelids, in the corners of the eye, under the eyebrows, and on adjacent areas of the face.

*Ultraviolet radiation plays a role in the development of age-related macular degeneration and skin cancer. We can take precautions to avoid over exposure to the sun's rays and protect our eyes and skin.*

## Age-Related Macular Degeneration (AMD)

AMD is a disease that affects the macula, the part of the eye that lets you see details. Indicators of macular degeneration include blurred central vision, trouble recognizing faces, and a need for more light when reading<sup>2</sup>. Solar radiation plays a role in the development of AMD<sup>3</sup>.

AMD, which occurs in two forms—wet and dry—is found most often in people

over age 55. Most cases in the U.S. are of the dry type, which develops gradually and results in blurred central vision. Wet AMD occurs more rapidly and results in greater vision loss. Macular degeneration cannot be cured. However, early diagnosis and treatment help lessen its impact, another reason to visit your eye doctor regularly.

## Snow Blindness (Photokeratitis)

This temporary less-severe disorder results from over exposure to UV rays while at the beach or on the snow. Symptoms include tearing, pain, swollen eyelids, a feeling of sand in the eyes, hazy or decreased vision. It heals spontaneously, generally within a few days.

## Protect Your Eyes

UV-related damage to the eyes can be prevented. To protect your eyes, wear sunglasses that block 99-100% of UV rays. Wrap-around sunglasses are best at protecting your eyes because they block harmful rays coming from the side. Additionally, a wide-brimmed hat offers some degree of eye protection, blocking UV rays from entering the eyes from the sides or above the sunglasses.

## Harmful Effects of UV Radiation on the Skin

Skin cancer is the most common form of cancer in the U.S.<sup>4</sup> More people were

diagnosed with skin cancer in 2008 than with breast, prostate, lung, and colon cancer combined. About one-in-five Americans will develop skin cancer during their lifetime. Common skin cancers<sup>5</sup> often can be cured relatively easily. Melanoma, a type of skin cancer, is more dangerous and difficult to treat. However, it is almost always curable if caught early and before it spreads to other parts of the body<sup>6</sup>. Early detection of melanoma can save your life.

UV radiation promotes the body's production of vitamin D, which is essential for proper use of calcium to maintain bones. As we age, our skin is less able to synthesize vitamin D and our kidneys are less able to convert vitamin D to its active hormone form.

## Premature Aging

Over time, exposure to the sun's rays causes skin to thicken, wrinkle, form dark spots and become leathery. Proper protection from the sun minimizes these effects. Up to 90% of visible changes to the skin commonly thought to be caused by aging are actually caused by sun exposure.



## Signs of Skin Cancer

Check your entire body (from the top of your head and scalp the soles of your feet) once a month using full-length and hand mirrors. Learn what is normal for your body so you will notice any changes. The American Academy of Dermatology has a body mole map that makes it easy for you to detect and notice changes in moles that could be significant.

Remember the ABCDEs of melanoma detection by examining the moles on your body. Contact your health care provider if you find moles with any of these characteristics. Or if a mole changes, itches, bleeds, or appears different from others.

- **A**symmetry—one half of the mole doesn't look like the other half.
- **B**order—the border is irregular, scalloped, or poorly defined.
- **C**olor—the color of the mole varies.
- **D**iameter—the mole is bigger than a pencil eraser.
- **E**volving—a mole or skin lesion that looks different from the others or is changing in size shape or color.

## Who Is At risk?

The following are some major factors that determine the risk of suffering damage to the eyes or skin from exposure to UV radiation:

- Everyone, regardless of their coloring, is at risk of eye damage from UV radiation.
- People with fair skin that burns or freckles easily, with blue or green eyes and blond or red hair have greater risk of developing skin cancer. In people whose skin is naturally dark, when melanomas develop they occur usually on the palms, soles of feet or under fingernails<sup>7</sup>.
- People with a family history of skin cancer or who have experienced severe sunburn in the past and people who have large numbers of moles (over 50) are more likely to have skin cancer. Those who are exposed to sunlight at work must also be wary of skin cancer.

- Some medications such as certain antibiotics, antihistamines and herbal preparations increase sensitivity of the skin and the eyes to UV radiation. Check with your health care provider to see if medications you take increase sensitivity to sunlight.

## Prevention

- Do not burn—overexposure to the sun is the most preventable risk factor for skin cancer
- Seek shade and limit your time outdoors, especially between 10:00 AM and 4:00 PM when UV radiation is most intense.
- Cover as much skin as possible with a wide brim hat and tightly woven clothing.
- Use sunscreen with an SPF of at least 15 that blocks rays on all exposed skin.
- Check the UV Index, a daily forecast of the amount of UV radiation to reach the Earth's surface.
- Stay away from tanning booths and sun lamps.

### Where Can I Go to Learn More?

#### Aging Adults and Environmental Health Issues

EPA's Aging Initiative is working to protect the health of older adults from environmental hazards through risk management and prevention strategies, education, and research. For more information about EPA's Aging Initiative, visit [www.epa.gov/aging](http://www.epa.gov/aging)

Printed copies of this fact sheet can be ordered at:

[www.epa.gov/aging/resources/factsheets/order.htm](http://www.epa.gov/aging/resources/factsheets/order.htm)

## Additional Resources

### U.S. Environmental Protection Agency

*Community-Based UV Risk Education: The SunWise Program Handbook*

[www.epa.gov/nrmrl/pubs/625r02008/625r02008.htm](http://www.epa.gov/nrmrl/pubs/625r02008/625r02008.htm)

[www.epa.gov/sunwise](http://www.epa.gov/sunwise)

### Centers for Disease Control and Prevention

*Protect Yourself from the Sun*

[www.cdc.gov/cancer/skin/basic\\_info/howto.htm](http://www.cdc.gov/cancer/skin/basic_info/howto.htm)

### National Institutes of Health

*The National Cancer Institute*

What You Need to Know about Skin Cancer

[www.cancer.gov/cancertopics/wyntk/skin](http://www.cancer.gov/cancertopics/wyntk/skin)

*The National Eye Institute*

Cataract

[www.nei.nih.gov/health/cataract/cataract\\_facts.asp](http://www.nei.nih.gov/health/cataract/cataract_facts.asp)

*Macular Degeneration*

[www.nei.nih.gov/health/maculardegen/armd\\_facts.asp](http://www.nei.nih.gov/health/maculardegen/armd_facts.asp)

### American Academy of Dermatology

Body Mole Map

[www.melanomamonday.org/documents/08\\_96%20Melanoma%20Monday%20Mole%20Map.pdf](http://www.melanomamonday.org/documents/08_96%20Melanoma%20Monday%20Mole%20Map.pdf)

### American Cancer Society

[www.cancer.org](http://www.cancer.org)

or 1-800-ACS-2345 (1-800-227-2345)

### Test your Sun Safety IQ

[www.cancer.org/docroot/PED/content/PED\\_7\\_1x\\_Take\\_the\\_Sun\\_Safety\\_Quiz.asp?sitearea=&level](http://www.cancer.org/docroot/PED/content/PED_7_1x_Take_the_Sun_Safety_Quiz.asp?sitearea=&level)

### American Optometric Association

Sunglasses shopping guide:

[www.aoa.org/documents/SunglassShoppingGuide0805.pdf](http://www.aoa.org/documents/SunglassShoppingGuide0805.pdf)

## Endnotes

- 1 National Institutes of Health, National Eye Institute.  
Cataract: [www.nei.nih.gov/health/cataract/cataract\\_facts.asp](http://www.nei.nih.gov/health/cataract/cataract_facts.asp)
- 2 U. S. Environmental Protection Agency.  
*Community-Based UV Risk Education: The Sunwise Program Handbook*. pp. 36, 37
- 3 American Optometric Association. Statement on Ocular Ultraviolet Radiation Hazards in Sunlight. [www.aoa.org/Documents/OcularUltraviolet.pdf](http://www.aoa.org/Documents/OcularUltraviolet.pdf)
- 4 Centers for Disease Control and Prevention.  
Skin Cancer. [www.cdc.gov/cancer/skin/basic\\_info](http://www.cdc.gov/cancer/skin/basic_info)
- 5 Ibid.
- 6 American Cancer Society. Skin Cancer Facts. [www.cancer.org/docroot/PED/content/ped\\_7\\_1\\_What\\_You\\_Need\\_To\\_Know\\_About\\_Skin\\_Cancer.asp?sitearea=&level](http://www.cancer.org/docroot/PED/content/ped_7_1_What_You_Need_To_Know_About_Skin_Cancer.asp?sitearea=&level)
- 7 National Institutes of Health, National Cancer Institute, "What You Need to Know About Melanoma: Melanoma: Who's at Risk" [www.cancer.gov/cancertopics/wyntk/melanoma/page7](http://www.cancer.gov/cancertopics/wyntk/melanoma/page7)



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