



# UV Radiation & Cancer

## Basic Description

Ultraviolet (UV) radiation from sunlight can damage DNA, the critical genetic material in every cell of every person. When damaged by UV radiation from sunlight or artificial light sources such as sun lamps and tanning booths, DNA loses its power to control how and when cells grow and divide. Sometimes, this DNA damage leads to the formation of skin cancer.

## Strength of Evidence

There are two types of skin cancer: nonmelanoma and melanoma. Nonmelanoma is the most common form of skin cancer. It occurs in either basal or squamous skin cells; these cells are located at the base of the outer layer of skin. Melanoma skin cancers are much less common and develop from melanocytes, the cells that produce skin color.

UV radiation is the primary cause of skin cancer. People who live in areas with year-round bright sunlight are at higher risk for developing skin cancer.

## Cancers Affected

The primary source of UV radiation is sunlight; however, tanning lamps and booths are also sources of UV radiation. People with exposure to light from these sources are at greater risk for skin cancer, including melanoma and nonmelanoma. The degree of risk depends on the amount of UV exposure, the intensity of the light, the length of time the skin was exposed, and whether the skin was protected with clothing and sunscreen. That is why, for example, the risk of skin cancer is twice as high in Arizona as it is in Minnesota.

Additionally, cancers of the lip are linked to the sun's UV rays. People who have outdoor jobs associated with long-term exposure to sunlight are more likely to develop lip cancer.

## Opportunities for Risk Reduction

Because people can control their exposure to the sun, the opportunities for risk reduction for skin cancer are effective and easy to understand. Simple guidelines are as follows:

- Do not use tanning booths or sunlamps since these devices do not provide a "safer way" to tan.
- When outdoors, stay in the shade whenever possible — particularly between 10 a.m. and 4 p.m., when the sun's rays are most intense.
- Clothing provides protection, so wear a long-sleeved shirt and a hat with a wide brim. Wear tight-knit clothes, which also provide very good protection.



- Wrap-around sunglasses with 99% to 100% UV absorption factor provide the best protection for the eyes and surrounding skin.
- Always use sunscreen with an SPF of 15 or higher, even on overcast or hazy days, because UV light penetrates cloud cover. Many sunscreens wear off, especially after swimming, toweling, and perspiring, so they should be reapplied to the skin frequently.

The damage caused by sun exposure builds up over the years. Children and teens often receive intensive UV exposure that may not develop into skin cancer until many years later. The skin of babies and young children is particularly sensitive to the sun, so parents and caregivers should be very careful to protect them against even moderate sunburn. Keep them away from the sun and protected with clothing.

## Emerging Trends

Emerging trends in the area of UV radiation and cancer include:

**Education** Public health education campaigns to promote messages about protection from the sun and the importance of regular self-examinations for warning signs of skin cancer are becoming more frequent.

**Skin damage** Skin damage due to UV radiation is being discovered. These include prematurely aged skin, wrinkles, loss of elasticity, dark patches (age or liver spots), and scaly growths called actinic keratoses (which can develop into skin cancers).

## Additional Resources

To learn more about UV radiation and cancer and the American Cancer Society's programs, please call 1-800-ACS-2345 (toll free) or visit our Internet site at [www.cancer.org](http://www.cancer.org).

Additional information on UV radiation and cancer may be found at:

- **National Cancer Institute**  
Cancer Information Service  
Telephone: 1 (800) 4-CANCER  
Internet Address: [www.nci.nih.gov](http://www.nci.nih.gov)
- **American Academy of Dermatology**  
Telephone: 1-888-462-DERM (toll free)  
Internet Address: [www.aad.org](http://www.aad.org)
- **Skin Cancer Foundation**  
Telephone: 1-800-754-6490 (toll free)  
Internet Address: [www.skincancer.org](http://www.skincancer.org)
- **Environmental Protection Agency**  
Telephone: 202-260-2090  
Internet Address: [www.epa.gov](http://www.epa.gov)

## Bottom Line

Reducing unprotected exposure to the sun's UV rays is the single most important action that can be taken to prevent skin cancers, including melanoma. Everyone, especially fair-skinned people and children, should follow the American Cancer Society's recommendations to avoid the midday sun and seek shade. And when in the sun, slip on a shirt, slop on SPF 15 (or higher) sunscreen, slap on a hat, and wrap on sunglasses.



1.800.ACS.2345  
[www.cancer.org](http://www.cancer.org)

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