



# Sun Safety

## Health Effects of UV Radiation

UV Radiation has both positive and negative effects. Positive effects of UV radiation include warmth, light, photosynthesis in plants, and vitamin D synthesis in the body. UV radiation also increases moods in people and kills pathogens. But overexposure to UV radiation has adverse health effects. Overexposure to UV radiation is the primary environmental risk factor in the development of UV-related adverse health effects, which include diseases of the eye, immune suppression, and skin cancers.

Children are most at risk for overexposure to UV radiation. With one in five Americans developing skin cancer, childhood education about sun protection is a vital step toward reducing risk and improving public health. Many studies have concluded that sun exposure, especially sunburn, during childhood appears to increase the risk of melanoma, the most serious form of skin cancer. Just one or two blistering sunburns in childhood can double a person's risk of developing melanoma later in life.

Children are of particular concern because they spend a lot of time outdoors. Perhaps most importantly, skin cancer and other UV-related adverse health effects are largely preventable if sun protection practices are followed early and consistently. Educating school staff and students about sun safety can prevent many health problems related to overexposure to the sun.



## Skin Cancer

Skin cancer is the most common of all cancers. The incidence of skin cancer is greater than the incidence of breast, lung, prostate, colorectal, and kidney cancers combined. In the United States, about 1.3 million new cases of skin cancer are diagnosed each year. More than one million new cases of basal cell and squamous cell carcinoma will be detected in 2001.

- 47,700 new cases of malignant melanoma will be diagnosed in 2001.
- In 2001, skin cancer will claim the lives of approximately 9,800 people, 7,800 of these from melanoma and 2,000 from other skin cancer

Exposure to UV radiation appears to be the most important environmental factor in the development of skin cancer. Scientists believe that the increase in skin cancer has resulted from:

- Increased outdoor leisure time
- Decrease in the amount of clothing worn outdoors
- Decrease in atmospheric ozone levels

Skin cancer is a largely preventable disease. Exposure to UV radiation may be the most important preventable factor in determining a person's risk for skin cancer. Skin color is the most important factor determining a person's risk for skin cancer. There are three major types of skin cancers: basal cell carcinoma, squamous cell carcinoma, and melanoma



## Eye Damage

Sunlight is the primary source of UV radiation that can damage tissues of the eye. Results from dozens of studies suggest that spending long hours in the sun without eye protection increases the chances of developing eye diseases, including cataracts. Even low amounts of sunlight can increase the risk of developing eye disorders.

Excess exposure to UV radiation may increase the incidence of cataracts. Cataracts are a form of eye damage that causes the loss of transparency in the lens, clouding vision. Everyone is at risk for developing cataracts. Another potential effect of UV radiation is a "burning" of the eye surface, called "snow blindness" or photokeratitis from sunlight. The effects usually disappear within a couple of days, but may lead to further complications later in life. UVB damage to the eyes is also cumulative, so it is never too late for people to start protecting their eyes.



## Photoaging/Wrinkling

A very high percentage of age-associated cosmetic skin problems can be attributed to sun (Levine, 1997). Chronic overexposure to the sun changes the texture and weakens the elastic properties of the skin. The epidermis, which is the outer layer of the skin, thickens, becomes leathery, and wrinkles as a result of sun exposure. The difference between skin tone, wrinkles, or pigmentation on the underside of a person's arm and the top side of the same arm illustrate the effects of sun exposure on skin. In most cases, the top side of the arm has had more exposure to the sun and shows greater sun damage. Sun-induced skin damage causes wrinkles and furrows, easy bruising, brown or "liver spots", precancerous lesions, and potentially skin cancer. Because photoaging of the skin is cumulative, it is never too late for a person to start a sun protection program.



# Immune System Suppression

Scientists believe sunburns can alter the distribution and function of disease-fighting white blood cells in humans for up to 24 hours after exposure to the sun. Repeated overexposure to UV radiation can cause more damage to the body's immune system. Mild sunburns can directly suppress the immune functions of human skin where the sunburn occurred, even in people with dark skin.

