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Sun and Skin

The Dark Side of Sun Exposure

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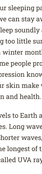


Our bodies were built to make good use of the sun. Sunlight helps keep our sleeping patterns on track so we can stay awake by day and sleep soundly at night. Getting too little sun, especially in winter months, can leave some people prone to a form of depression known as seasonal affective disorder. Sunlight also helps our skin make vitamin D, which is needed for normal bone function and health. Yet sunlight can also cause damage.

Sunlight travels to Earth as a mixture of both visible and invisible rays, or waves. Long waves, like radio waves, are harmless to people. But shorter waves, like ultraviolet (UV) light, can cause problems. The longest of these UV rays that reach the Earth's surface are called UVA rays. The shorter ones are called UVB rays.

Too much exposure to UVB rays can lead to sunburn. UVA rays can travel more deeply into the skin than UVB rays, but both can affect your skin's health. When UV rays enter skin cells, they upset delicate processes that affect the skin's growth and appearance.

Over time, exposure to these rays can make the skin less elastic. Skin may even become thickened and leathery, wrinkled, or thinned like tissue paper. "The more sun exposure you have, the earlier your skin ages," says Dr. Barnett S. Kramer, a cancer prevention expert at NIH.

Your skin does have ways to prevent or repair such damage. The outermost layer of skin constantly sheds dead skin cells and replaces them. You might have noticed this type of skin repair if you've ever had a bad sunburn. Your skin may peel, but it usually looks normal in a week or 2.

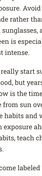
"When you're exposed to ultraviolet radiation, there's a repair process that goes on constantly in each one of your exposed cells," says Dr. Stephen I. Katz, director of NIH's National Institute of Arthritis and Musculoskeletal and Skin Diseases. Still, long-term damage to your skin can remain.

As you get older, it becomes harder for skin to repair itself. Over time, UV damage can take a toll on your skin and its underlying connective tissue. As a result, your skin may develop more wrinkles and lines.

Too much sun exposure can also raise your risk for skin cancer, the most common type of cancer in the United States. When UV light enters skin cells, it can harm the genetic material (called DNA) within.

DNA damage can cause changes to cells that make them rapidly grow and divide. This growth can lead to clumps of extra cells called a tumor, or lesion. These may be cancerous (malignant) or harmless (benign).

Skin cancer may first appear as a small spot on the skin. Some cancers reach deep into surrounding tissue. They may also spread from the skin to other organs of the body.



Each year, more than 2 million people are treated for 2 types of skin cancer: basal cell and squamous cell carcinoma. These cancers are seen in both older and younger people, and they're rarely life-threatening.

Melanoma is a less common but more serious type of skin cancer that's diagnosed in more than 68,000 Americans each year. Another 48,000 are diagnosed with an early form of the disease that involves only the top layer of skin. Melanomas arise from the cells that provide pigment (color) to the skin.

Your risk for melanoma is higher if members of your family have had skin cancer or if you've already had melanoma or other skin cancers. A major risk factor for melanoma is having a large number of moles, or having large flat moles with irregular shapes. Sunburns, especially during childhood, may also raise your risk for melanoma.

"If you've had skin cancers in the past, then you're at a particularly high risk for developing another skin cancer," Kramer says. "Over the long run, there is a high rate of new lesions developing."

"One of the major factors affecting skin health is genetics, which determines the pigment content of your skin. This affects how much protection you have from natural sunlight," explains Katz. Although darker-skinned people have a lower risk for sun-related damage and disease, people of all races and skin color can still get skin cancer.

"Certain genetic mutations contribute to melanoma onset in certain people. You find much less non-melanoma skin cancer in African Americans, people from the Middle East, or even Asians from the Near East," Katz says.

The best way to protect skin health and prevent skin cancer is to limit sun exposure. Avoid prolonged time in the sun, and choose to be in the shade rather than in direct sunlight. Wear protective clothing and sunglasses, and use sunscreen between 10 a.m. and 4 p.m. Sunscreen is especially important at that time, when the sun's rays are most intense.

"The time to really start sun protective behavior is not when you reach adulthood, but years before," Kramer says. "The message to parents is, now is the time to start protecting your child against skin damage from sun overexposure, when your child is developing sun exposure habits and when they have many more years of potential sun exposure ahead of them." Among other skin-protecting habits, teach children and teens to avoid the use of tanning beds.

Sunscreens come labeled with a sun protection factor (SPF), such as 15, 30, or 50. A sunscreen labeled SPF 15 means it will take you 15 times as long to get a sunburn as it would if you had no sunscreen on. A sunscreen labeled SPF 30 means it would take you 30 times as long to burn.

The effectiveness of sunscreens is affected by several factors. A sunscreen's active ingredients can break down over time, so be sure to check the expiration date on the container. The amount of sunscreen you use and how often you use it affects your protection from the sun. Perspiration and time spent in the water can also reduce sunscreen effectiveness.

Some people look to the sun as a source of vitamin D, but it takes just a brief time in the sun to do the trick. "You need very little exposure—something like 10 to 15 minutes a day to the backs of your hands, arms, and face—to get enough," Katz says.

Several factors—like cloudy days or having dark-colored skin—can reduce the amount of vitamin D your skin makes. But you can also get vitamin D from foods or dietary supplements. Check with your health care provider about whether you should be taking vitamin D supplements.

Limit time in the sun to protect your skin against early wrinkles, damage, and disease. "Being sun smart is a good thing," Katz says. And if you spot a suspicious mark on your skin, Kramer advises, be sure to get it checked out.

Wise Choices

Block Sun Damage

- **Stay in the shade.** Limit sun exposure, especially between 10 a.m. and 4 p.m., when sunlight is most intense.
- **Use sunscreen.** Get sun protection factor (SPF) 15 or higher with both UVA and UVB protection. If you have very light skin, use SPF 30 or higher. Apply sunscreen 20-30 minutes before going outside. Reapply often, at least every 2 hours. Don't skimp.
- **Protect your eyes.** Choose sunglasses that protect the sides of your eyes and that are labeled to guard against both UVA and UVB.
- **Cover your skin.** Protective clothing and a wide-brimmed hat can help reduce sun exposure.
- **Avoid indoor tanning.** Tanning beds and sun lamps use special light bulbs that speed up tanning but also deliver harmful UV rays, increasing your risk for skin damage and cancer.

Links

- Sun: NIH Health Information
- Healthy Skin Matters
- Skin Care and Aging
- Recognizing Cataracts
- Vitamin D
- Skin Cancer (Including Melanoma)
- Learning About Skin Cancer
- Anyone Can Get Skin Cancer

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