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How Do I Protect Myself from Ultraviolet (UV) Rays?

Most skin cancers are caused by too much exposure to ultraviolet (UV) rays. Most of this exposure comes from the sun, but some can come from man-made sources, such as indoor tanning beds and sun lamps. People who get a lot of exposure to UV rays are at greater risk for skin cancer.

The main types of UV rays that can affect your skin include UVA rays and UVB rays. UVB rays have more energy and are a more potent cause of at least some skin cancers, **but both UVA and UVB rays can damage skin and cause skin cancer. There are no safe UV rays.** (To learn more about the different types of UV rays, see [Ultraviolet \(UV\) Radiation¹](#).)

What affects UV exposure?

The strength of the sun's UV rays reaching the ground depends on a number of factors, such as:

- **Time of day:** UV rays are strongest in the middle of the day, between 10 am and 4 pm.
- **Season of the year:** UV rays are stronger during spring and summer months. This is less of a factor near the equator.
- **Distance from the equator (latitude):** UV exposure goes down as you get further from the equator.
- **Altitude:** More UV rays reach the ground at higher elevations.
- **Cloud cover:** The effect of clouds can vary, but it's important to know that UV rays can get through to the ground, even on a cloudy day.
- **Reflection off surfaces:** UV rays can bounce off surfaces like water, sand, snow,

or pavement, leading to an increase in UV exposure.

The UV Index

The US National Weather Service and the Environmental Protection Agency (EPA) have developed the **UV Index**, which gives you an idea of how strong the UV light is in your area on any given day, on a scale from 1 to 11+. A higher number means greater risk of exposure to UV rays and a higher chance of sunburn and skin damage that could ultimately lead to skin cancer. The UV Index is part of many weather forecasts throughout the country. Further information about the UV Index, as well as your local UV Index forecast, can be found on the EPA's website at www.epa.gov/sunsafety/uv-index-1².

Other factors affecting UV exposure

Along with the strength of the rays, the amount of UV exposure you get also depends on the length of time your skin is exposed, and if your skin is protected with clothing or sunscreen.

People who live in areas with year-round, bright sunlight have a higher risk of skin cancer. Spending a lot of time outdoors for work or recreation without protective clothing and sunscreen increases your risk.

The pattern of exposure may also affect your skin cancer risk. For example, frequent sunburns in childhood may increase the risk for some types of skin cancer many years or even decades later.

It's also important to understand that [some people are more likely to get skin damage from the sun](#)³, for a variety of reasons.

Protect yourself from the sun

Some people think about sun protection only when they spend a day at the lake, beach, or pool. But sun exposure adds up day after day, and it happens every time you are in the sun. Even though sunlight is the main source of UV rays, you don't have to avoid the sun completely. And it would be unwise to stay inside if it would keep you from being active, because physical activity is important for good health. But getting too much sun can be harmful. There are some simple steps you can take to limit your exposure to UV rays.

Simply **staying in the shade** is one of the best ways to limit your UV exposure. If you are going to be in the sun, “Slip! Slop! Slap!® and Wrap” is a catchphrase that can help you remember some of the key steps you can take to protect yourself from UV rays:

- **Slip on a shirt.**
- **Slop on sunscreen.**
- **Slap on a hat.**
- **Wrap on sunglasses** to protect the eyes and skin around them.

Seek shade

An obvious but very important way to limit your exposure to UV light is to avoid being outdoors in direct sunlight too long. This is particularly important between the hours of 10 am and 4 pm, when UV light is strongest. If you aren't sure how strong the sun's rays are, use the shadow test: if your shadow is shorter than you are, the sun's rays are the strongest, and it's important to protect yourself.

UV rays reach the ground all year, even on cloudy or hazy days, but the strength of UV rays can vary, based on many factors (see above). Be especially careful on the beach or in areas with snow because sand, water, and snow reflect sunlight, increasing the amount of UV radiation you get. UV rays can also reach below the water's surface, so you can still get a burn even if you're in the water and feeling cool.

Some UV rays can also pass through windows. Typical car, home, and office windows block most UVB rays but a smaller portion of UVA rays, so even if you don't feel you're getting burned your skin may still get some damage. Tinted windows help block more UVA rays, but this depends on the type of tinting. (If you do have your car windows tinted, check local laws, as some states regulate this.) UV radiation that comes through windows probably doesn't pose a great risk to most people unless they spend long periods of time close to a window that gets direct sunlight.

Protect your skin with clothing

When you are out in the sun, wear clothing to cover your skin. Clothes provide different levels of UV protection. Long-sleeved shirts, long pants, or long skirts cover the most skin and are the most protective. Dark colors generally provide more protection than light colors. A tightly woven fabric protects better than loosely woven clothing. Dry fabric is generally more protective than wet fabric.

Be aware that covering up doesn't block out all UV rays. If you can see light through a

fabric, UV rays can get through, too.

Many companies now make clothing that's lightweight, comfortable, and protects against UV rays even when wet. It tends to be more tightly woven, and some have special coatings to help absorb UV rays. These sun-protective clothes may have a label listing the **UV protection factor (UPF)** value (the level of protection the garment provides from the sun's UV rays, on a scale from 15 to 50+). The higher the UPF, the higher the protection from UV rays.

Some products, which are used like laundry detergents in a washing machine, can increase the UPF value of clothes you already own. They add a layer of UV protection to your clothes without changing the color or texture. This can be useful, but it's not exactly clear how much it adds to protecting you from UV rays, so it's still important to follow the other steps listed here.

Use sunscreen

Sunscreen is a product that you put on your skin to protect it from the sun's UV rays. But it's important to know that **sunscreen is just a filter – it does not block all UV rays**. Sunscreen should not be used as a way to prolong your time in the sun. Even with proper sunscreen use, some UV rays still get through. Because of this, sunscreen should not be thought of as your first line of defense. Consider sunscreen as one part of your skin cancer protection plan, especially if staying in the shade and wearing protective clothing aren't available as your first options.

Sunscreens are available in many forms – lotions, creams, ointments, gels, sprays, wipes, and lip balms, to name a few.

Some cosmetics, such as moisturizers, lipsticks, and foundations, are considered sunscreen products if they have sunscreen. Some makeup contains sunscreen, but you have to check the label – makeup, including lipstick, without sunscreen does not provide sun protection.

Read the labels

When choosing a sunscreen, be sure to read the label. Sunscreens with broad spectrum protection (against both UVA and UVB rays) and with sun protection factor (SPF) values of 30 or higher are recommended.

Sun protection factor (SPF): The SPF number is the level of protection the sunscreen provides against UVB rays, which are the main cause of sunburn. A higher SPF number

means more UVB protection (although it says nothing about UVA protection). For example, when applying an SPF 30 sunscreen correctly, you get the equivalent of 1 minute of UVB rays for each 30 minutes you spend in the sun. So, 1 hour in the sun wearing SPF 30 sunscreen is the same as spending 2 minutes totally unprotected. People often do not apply enough sunscreen, so they get less actual protection.

Sunscreens labeled with SPFs as high as 100+ are available. Higher numbers do mean more protection, but many people don't understand the SPF scale. SPF 15 sunscreens filter out about 93% of UVB rays, while SPF 30 sunscreens filter out about 97%, SPF 50 sunscreens about 98%, and SPF 100 about 99%. The higher you go, the smaller the difference becomes. **No sunscreen protects you completely.**

In the US, sunscreens with an SPF lower than 15 must now include a warning on the label stating that the product has been shown only to help prevent sunburn, not skin cancer or early skin aging.

Broad spectrum sunscreen: Sunscreen products can only be labeled "broad spectrum" if they have been tested and shown to protect against both UVA and UVB rays. Some of the ingredients in sunscreens that help protect against UVA rays include avobenzone (Parsol 1789), zinc oxide, and titanium dioxide.

Only broad spectrum sunscreen products with an SPF of 15 or higher can state that they help protect against skin cancer and early skin aging if used as directed with other sun protection measures.

Water resistant sunscreen: Sunscreens cannot be labeled as "waterproof" or "sweatproof" because these terms can be misleading. Sunscreens can claim to be "water resistant," but they have to state whether they protect the skin for 40 or 80 minutes of swimming or sweating, based on testing.

Expiration dates: Check the expiration date on the sunscreen to be sure it's still effective. Most sunscreen products are good for at least 2 to 3 years, but you may need to shake the bottle to remix the sunscreen ingredients. Sunscreens that have been exposed to heat for long periods, such as if they were kept in a glove box or car trunk through the summer, may be less effective.

Be sure to apply the sunscreen properly

Always follow the label directions. Most experts recommend applying sunscreen generously. When putting it on, pay close attention to your face, ears, neck, arms, and any other areas not covered by clothing. And don't forget your lips; lip balm with sunscreen is also available. If you're going to wear insect repellent or makeup, put the

sunscreen on first.

Ideally, about 1 ounce of sunscreen (about a shot glass or palmful) should be used to cover the arms, legs, neck, and face of the average adult. Sunscreen needs to be reapplied at least every 2 hours to maintain protection. Sunscreens can wash off when you sweat or swim and then wipe off with a towel, so they might need to be reapplied more often.

Some people might think that if they use a sunscreen with a very high SPF, they don't need to be as careful about how they use it, but this isn't true. If you choose to use a sunscreen with a very high SPF, keep in mind that this doesn't mean you can stay out in the sun longer, use less sunscreen, or apply it less often. **Always be sure to read the label.**

Some sunscreen products can irritate your skin. Many products claim to be hypoallergenic or dermatologist tested, but the only way to know for sure if a product will irritate your skin is to try it. One common recommendation is to apply a small amount to the soft skin on the inside of your elbow every day for 3 days. If your skin does not turn red or become itchy, the product is probably OK for you.

Wear a hat

A hat with at least a 2- to 3-inch brim all around is ideal because it protects areas that are often exposed to intense sun, such as the ears, eyes, forehead, nose, and scalp. A dark, non-reflective underside to the brim can also help lower the amount of UV rays reaching the face from reflective surfaces such as water. A shade cap (which looks like a baseball cap with about 7 inches of fabric draping down the sides and back) also is good, and will provide more protection for the neck. These are often sold in sporting goods and outdoor supply stores. If you don't have a shade cap (or another good hat) available, you can make one by wearing a large handkerchief or bandana under a baseball cap.

A baseball cap protects the front and top of the head but not the neck or the ears, where skin cancers commonly develop. Straw hats are not as protective as hats made of tightly woven fabric.

Wear sunglasses that block UV rays

UV-blocking sunglasses are important for protecting the delicate skin around the eyes, as well as the eyes themselves. Research has shown that long hours in the sun without protecting your eyes increase your chances of developing certain eye diseases.

The ideal sunglasses should block 99% to 100% of UVA and UVB rays. Before you buy, check the label to make sure they do. Labels that say “UV absorption up to 400 nm” or “Meets ANSI UV Requirements” mean the glasses block at least 99% of UV rays. Those labeled “cosmetic” block about 70% of UV rays. If there is no label, don’t assume the sunglasses provide any UV protection.

Darker glasses are not necessarily better because UV protection comes from an invisible chemical in or applied to the lenses, not from the color or darkness of the lenses. Look for an ANSI label.

Large-framed and wraparound sunglasses are more likely to protect your eyes from light coming in from different angles. Children need smaller versions of real, protective adult sunglasses – not toy sunglasses.

Some brands of eyeglasses and contact lenses now offer protection against UV rays as well. But don’t assume this is true for lenses you wear unless it’s clearly stated on the product label or you confirm this with your eye care professional. Of course, glasses come in many shapes and sizes, and smaller lenses will cover and protect smaller areas. Contact lenses don’t cover the whole eye and surrounding areas, so they are not sufficient eye protection when used alone.

Protect children from the sun

Children need special attention. They tend to spend more time outdoors, can burn more easily, and may not be aware of the dangers. Parents and other caregivers should protect children from excess sun exposure by using the steps above. It’s important, particularly in sunnier parts of the world, to cover your children as fully as is reasonable. You should develop the habit of using sunscreen on exposed skin for yourself and your children whenever you go outdoors and may be exposed to large amounts of sunlight. Children need to be taught about the dangers of too much sun exposure as they become more independent. If you or your child burns easily, be extra careful to cover up, limit exposure, and apply sunscreen.

Babies younger than 6 months should be kept out of direct sunlight and protected from the sun using hats and protective clothing. Sunscreen may be used on small areas of exposed skin only if adequate clothing and shade are not available.

Avoid tanning beds and sun lamps

Many people believe the UV rays of tanning beds are harmless. This is not true. Tanning lamps give out UVA and usually UVB rays as well. Both UVA and UVB rays

can cause long-term skin damage, and can contribute to skin cancer. Tanning bed use has been linked with an increased risk of melanoma, especially if it's started before age 30. Most skin doctors and health organizations recommend not using tanning beds and sun lamps.

If you want a tan, one option is to use a sunless tanning lotion, which can provide a darker look without the danger. See [Are Tanning Pills and Other Tanning Products Safe?](#)⁴

Small UV lamps are also used in nail salons (or at home) to dry some types of nail polish. These lamps give off UVA rays. The amount given off is much lower than from tanning beds, and the risk of skin cancer from these lamps is thought to be low. Still, to be safe, some expert groups recommend applying sunscreen to the hands before using one of these lamps.

Sun exposure and vitamin D

Vitamin D has many health benefits. It might even help lower the risk for some cancers. Your skin makes vitamin D naturally when you are in the sun. How much vitamin D you make depends on many things, including how old you are, how dark your skin is, and how strong the sunlight is where you live.

At this time, doctors aren't sure what the optimal level of vitamin D is. A lot of research is being done in this area. Whenever possible, it's better to get vitamin D from your diet or vitamin supplements rather than from sun exposure because dietary sources and vitamin supplements do not increase skin cancer risk, and are typically more reliable ways to get the amount you need.

Hyperlinks

1. www.cancer.org/cancer/cancer-causes/radiation-exposure/uv-radiation.html
2. <http://www.epa.gov/sunsafety/uv-index-1>
3. www.cancer.org/healthy/be-safe-in-sun/sun-damage.html
4. www.cancer.org/healthy/be-safe-in-sun/tanning-pills-and-products.html

References

American Academy of Dermatology. Sunscreen FAQs. 2018. Accessed at <https://www.aad.org/media/stats/prevention-and-care/sunscreen-faqs> on May 21, 2019.

International Agency for Research on Cancer (IARC). IARC Monographs on the Evaluation of Carcinogenic Risks to Humans. Vol. 100D: Solar and Ultraviolet Radiation. 2012. Accessed at: <https://monographs.iarc.fr/wp-content/uploads/2018/06/mono100D-6.pdf> on May 21, 2019.

US Food and Drug Administration. Should You Put Sunscreen on Infants? Not Usually. 2016. Accessed at <https://www.fda.gov/consumers/consumer-updates/should-you-put-sunscreen-infants-not-usually> on May 21, 2019.

US Food and Drug Administration. Sunscreen: How to Help Protect Your Skin from the Sun. 2019. Accessed at <https://www.fda.gov/drugs/understanding-over-counter-medicines/sunscreen-how-help-protect-your-skin-sun> on May 21, 2019.

US National Toxicology Program (NTP). Report on Carcinogens, Fourteenth Edition: Ultraviolet-Radiation-Related Exposures. 2016. Research Triangle Park, NC: US Department of Health and Human Services, Public Health Service. Accessed at <https://ntp.niehs.nih.gov/ntp/roc/content/profiles/ultravioletradiationrelatedexposures.pdf> on May 21, 2019.

References

American Academy of Dermatology. Sunscreen FAQs. 2018. Accessed at <https://www.aad.org/media/stats/prevention-and-care/sunscreen-faqs> on May 21, 2019.

International Agency for Research on Cancer (IARC). IARC Monographs on the Evaluation of Carcinogenic Risks to Humans. Vol. 100D: Solar and Ultraviolet Radiation. 2012. Accessed at: <https://monographs.iarc.fr/wp-content/uploads/2018/06/mono100D-6.pdf> on May 21, 2019.

US Food and Drug Administration. Should You Put Sunscreen on Infants? Not Usually. 2016. Accessed at <https://www.fda.gov/consumers/consumer-updates/should-you-put-sunscreen-infants-not-usually> on May 21, 2019.

US Food and Drug Administration. Sunscreen: How to Help Protect Your Skin from the Sun. 2019. Accessed at <https://www.fda.gov/drugs/understanding-over-counter-medicines/sunscreen-how-help-protect-your-skin-sun> on May 21, 2019.

US National Toxicology Program (NTP). Report on Carcinogens, Fourteenth Edition: Ultraviolet-Radiation-Related Exposures. 2016. Research Triangle Park, NC: US Department of Health and Human Services, Public Health Service. Accessed at <https://ntp.niehs.nih.gov/ntp/roc/content/profiles/ultravioletradiationrelatedexposures.pdf> on May 21, 2019.

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