What Factors Affect UV Risk?

The main types of UV rays[1] 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.**

Everyone's skin reacts differently to UV (ultraviolet) rays, but anyone can get skin cancer. Most skin cancers are caused by too much exposure to UV rays, mostly from the sun, but from artificial 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, so it's important to understand what affects how much UV you are exposed to and how your skin might respond.

- What affects the strength of UV rays from the sun?
- When do I need to be most careful in the sun?
- Do windows provide protection from UV rays?
- Does getting a tan or having darker skin protect from UV rays?
- What other factors affect my risk of damage from UV rays?

What affects the strength of UV rays from the sun?

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, and in early fall. This is less of a factor near the equator.
- **Distance from the equator (latitude):** UV strength and exposure goes down as

you get further from the equator. People who live in areas with year-round, bright sunlight have a higher risk of skin cancer.
- **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 and even on a cold 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.** Knowing the expected UV Index gives you an idea of how strong the UV light is in your area on any given day.

The UV Index reports the intensity (strength) of UV rays a scale from 1 to 11+. A higher number means there is a 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 and is reported on many weather apps that can be downloaded.

- UV rays can affect skin during any season of the year.
- Check the UV Index by watching or listening to a weather forecast for the day, or by checking a weather app for your location.
- If you aren't sure of the UV Index in your area or at a time when you will be exposed to direct sunlight, you can do the shadow test. If your shadow is shorter than you are, this tells you the sun's rays are the strongest.
- Avoid the sun between the hours of 10 am and 4 pm, when UV light is strongest.
- Be especially careful on the beach or in areas with snow because sand, water, and snow reflect sunlight. This increases the amount of UV radiation you get. UV rays can also reach below the water's surface, so you can still get a sunburn even if you're in the water and feeling cool.

Do windows provide protection from UV rays?

Some UV rays can pass through windows. This means even if you don't feel you're getting burned, your skin may still get some damage. 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.

- Typical car, home, and office windows block most UVB rays, but they block fewer UVA rays.
- 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.)
- There are solar shades, blinds, and coverings that you can buy and use in your car, home, or workplace. Many are made with ultraviolet protection factor (UPF) fabric to help limit exposure.

Does getting a tan or having darker skin protect from UV rays?

Anyone who spends time outdoors in the sun is at risk for skin damage from UV radiation. People with light skin are much more likely to have their skin damaged by UV rays (and to get skin cancer), but darker-skinned people, including people of any ethnicity, can also be affected.

For some people with certain skin tones, their skin tans when it absorbs UV rays. The tan color is caused by an increase in the activity and number of melanocytes.

Melanocytes are the cells that make a brown pigment called **melanin**. Melanin helps

medicines that could increase your sensitivity to sunlight.

Hyperlinks

1. www.cancer.org/cancer/risk-prevention/sun-and-uv/uv-radiation.html
2. www.cancer.org/cancer/risk-prevention/infections/hiv-infection-aids.html
3. www.cancer.org/cancer/risk-prevention/sun-and-uv/uv-protection.html

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