

UNIVERSITY STUDENT HEALTH SERVICES • Fact Sheet

A GUIDE TO SUNSCREENS**WHAT IS SUNSCREEN?**

Sunscreens are products that protect the skin from the damaging effects of ultraviolet (UV) radiation. They contain filters that work by reflecting light away from the body (ie. inorganic ingredients) or by absorbing UV radiation before it reaches the skin (ie. organic ingredients).

Two types of UV radiation can cause damage to the skin: UVA and UVB.

- UVB makes up 5% of the UV rays that reach the earth but is more powerful than UVA. It is responsible for sunburns and is a well-known cause of skin cancer.
- UVA makes up 95% of the UV rays that reach the earth's surface. UVA penetrates deeper into the skin and is associated with wrinkles and aging of the skin. It increases the carcinogenic effects of UVB and may be a cause of skin cancer on its own.

WHICH SUNSCREEN IS BEST?

Most sunscreens contain a combination of organic and/or inorganic ingredients that provide protection against both UVA and UVB rays. Sunscreens with the latest FDA-approved ingredients will cost you more but may not offer better sun protection. Generic products are often just as effective as name-brand products. The American Academy of Dermatology recommends choosing a sunscreen that meets ALL of the following criteria:

- **SPF 30 or greater.**
- **Broad-spectrum labeling** (only sunscreens that pass the FDA's test for protection against both UVA and UVB rays can be labeled as "broad spectrum").
- **Water resistance.**

WHAT DOES "SPF" REALLY MEAN?

SPF stands for Sun Protection Factor, which rates how well a sunscreen can protect you from UVB rays.

- SPF 15 filters out 93% of UVB, while SPF 30 filters out 97% and SPF 50 filters out 98%.
- NO sunscreen can block all UV rays. Very high-SPF products (50+) do not offer significantly more sun protection and are more likely to cause skin irritation.
- NO sunscreen can protect you for more than 2 HOURS without reapplication. SPF does NOT indicate the amount of time that you can stay in the sun without a sunburn. The duration of protection depends on multiple factors, such as time of day, cloud cover, amount of sunscreen applied, etc.

ARE SUNSCREENS WATERPROOF?

No sunscreen is truly waterproof. All sunscreens need to be reapplied regularly after exposure to water.

The FDA defines a sunscreen as:

- Water resistant if the SPF level remains effective after 40 minutes in the water.
- Very water resistant if the SPF level remains effective after 80 minutes in the water.

DO SUNSCREENS EXPIRE?

- If your sunscreen does not have an expiration date, write your purchase date on it and toss it in about 2 years.
- Throw away any sunscreen with obvious changes in color or consistency.
- Don't store your sunscreen in a hot environment, like your car. High heat exposure can cause your sunscreen to degrade faster.
- If you ski or snowboard, frozen sunscreen can also lose its effectiveness.

ARE SUNSCREENS SAFE?

Sunscreens are generally very safe and are minimally absorbed by the skin. Dermatologists agree that preventing skin cancer far outweighs any unproven concerns for toxicity from sunscreen ingredients.

However, keep the following in mind:

- **Nanoparticles of titanium dioxide and zinc oxide.** Titanium dioxide and zinc oxide are inorganic ingredients often found in sunscreens for sensitive skin or children. Because they are not absorbed by the skin, these ingredients tend to leave a classic white film on the skin. To improve cosmetic results, nanotechnology has produced much smaller particle sizes, which has raised concerns about the potential for skin penetration/toxicity and decreased effectiveness. Research is ongoing, and a 2013 literature review concluded that nanoparticles in sunscreens are unlikely to cause harm.

- **Retinoids.** It's probably best for pregnant women to avoid sunscreens that contain retinol or retinyl palmitate, which are marketed to reduce wrinkles. These ingredients are similar to retinoids used in acne treatment, which are known to increase the risk of birth defects in pregnant women.
- **Irritant and allergic reactions.** Skin reactions to sunscreen ingredients are uncommon but can occur. Inorganic ingredients like titanium dioxide and zinc oxide are less likely to irritate the skin.
 - PABA and benzophenone-10 are organic ingredients that are now rarely used due to an increased risk of skin reactions.
 - Benzophenone-3 (or oxybenzone), the most widely used UVA filter, can cause an allergic reaction in some individuals, but the overall risk is very low.
 - Fragrances and DL-alpha-tocopherol have also been identified as common allergens.

HOW TO GET THE MOST OUT OF YOUR SUNSCREEN

The best sunscreen in the world won't work well if you don't use it correctly. To get full SPF protection, apply your sunscreen generously and often:

- Use 1.5 oz (about a shot glass full) of sunscreen to cover the entire body. This means:
 - 1 teaspoon to your face and neck.
 - 1 teaspoon to each arm and hand.
 - 2 teaspoons to your torso.
 - 2 teaspoons to each leg and foot.
- Apply sunscreen 15-30 minutes before sun or water exposure so it has time to bind to the skin.
- Reapply the same amount at least every 2 hours and immediately after water exposure (eg. after swimming, sweating a lot, toweling off, etc.) even if the sunscreen is water-resistant.
- **For spray sunscreen:**
 - Because it's hard to know how well you're applying spray, use as much as can be rubbed into the skin, then repeat.
 - Do not spray directly onto the face to avoid inhalation. Spray sunscreen onto your hands, then apply it to your face.
 - Spray sunscreens are flammable! Do not apply them near an open flame or while smoking. Allow spray sunscreens to dry before going near an open flame or smoking.

DAILY-WEAR SUNSCREENS

- Daily-wear sunscreens with SPF 15 are recommended for everyday activities with incidental sun exposure (either indoors through windows or during brief periods of time outdoors). Many moisturizers and cosmetics come with SPF 15 or 30 sunscreen but may or may not be labeled as broad spectrum. These types of sunscreens are also not water or sweat resistant.
- Broad spectrum products with SPF 30 or higher are recommended for individuals performing outdoor work or recreational activities.

OTHER SUN PROTECTION MEASURES

Sunscreen is not the only defense against UV rays. Be sun-smart and:

- **Wear protective clothing**, such as broad-brimmed hats, long-sleeved shirts, and pants.
 - Clothes that are dark and tightly woven provide better UV protection. If you can see the sun through the fabric, it is not protective. Choose loose-fitting clothes to stay cool.
 - Change out of wet clothing, which is less effective at blocking UV rays.
 - Consider wearing clothing that is UPF (UV protection factor) labeled. A rating of UPF 15 to 24 means good protection, 25-39 very good protection, and 40-50 excellent protection.
- **Protect your lips** with a lip balm or lipstick that contains sunscreen with SPF 30 or higher.
- **Wear sunglasses** that are rated to block at least 99% of UVA and UVB (look at the product labeling). Sunglasses that do not have sufficient UV protection can actually increase UV exposure to the eyes from increased pupil dilation. This can lead to cataracts and other eye damage.
- **Stay in the shade.** The sun is strongest between 10am and 4pm. If your shadow is shorter than you are, stay inside or seek shade.
- **Use extra caution near water, sand, and snow** (even if you're in the shade) because they reflect the sun's rays, increasing your chance of sun damage.
- **Don't trust cloudy days** to protect you from the sun. Up to 80% of the sun's UV rays can still reach the earth, leading to some of the worst sunburns because people don't use sun protection.

A WARNING ABOUT TANNING BEDS

There is no such thing as safe tanning. Remember, any tan indicates skin damage and a "base" tan is not protective. The amount of UV radiation produced during indoor tanning is similar to that of the sun (and is sometimes stronger). Indoor tanning is associated with a 75% increase in the risk of malignant melanoma. It also causes premature aging of the skin. If you want to look tan, use rub-on or spray tanning instead (and don't forget sunscreen).

ONLINE RESOURCES: www.aad.org, www.epa.gov, www.ewg.org