

Five Questions: Susan Swetter on choosing a sunscreen

June 3 2016, by Sara Wykes

With summer just around the corner, a Stanford dermatologist discusses how to think about SPF labels, how to properly apply sunscreen, the differences between UVA and UVB radiation and more. what to consider when choosing a sunscreen and how to use it properly.

In her nearly 20 years as director of the Pigmented Lesion and Melanoma Program at the Stanford Cancer Institute, Susan Swetter, MD, professor of dermatology, has been asked many times about sunscreen. Consumer Reports' recent analysis of 60 sunscreens, labeled as SPF 30 or higher showed that more than 40 percent aren't providing that level of protection. Swetter shared her thoughts with writer Sara Wykes on what to consider when choosing a sunscreen.

Q: Why is SPF important?

Swetter: Sun protection factor, or SPF, was originally designed to measure [sun protection](#) from ultraviolet B rays, the primary cause of sunburn and skin cancer. Only in recent years has research shown that exposure to ultraviolet A rays is equally damaging to the skin, and its harmful effects have been seen in people exposed to high amounts of UVA and UVB radiation in indoor tanning booths. Without the warning signs of sunburn, UVA radiation penetrates the skin more deeply than UVB rays. UVA radiation contributes to skin photoaging—discoloration, wrinkling and sagging of the skin. It also passes through the ozone layer, clouds and window glass. UVA rays are also more plentiful than UVB because they are strong throughout the day and the year. While SPF values are

generally easy for consumers to understand, they are not a good measure of UVA protection. Of even more concern is that of 60 sunscreen products recently tested by Consumer Reports, 28 (43 percent) failed to meet even the UVB protection claims on their labels. Because most consumers don't apply the recommended amount of sunscreen to achieve the advertised SPF rating, much of the sun protection a person thinks they're getting isn't really happening.

Q: What does the broad-spectrum claim on a label tell me about the amount of UVA and UVB protection?

Swetter: "Broad spectrum" is the rating designed by the FDA to ensure that a sunscreen filters both lower-wavelength UVB and higher-wavelength UVA radiation. That term can now only be used if UVA protection reaches a critical wavelength of 370 nanometers. That's a problematic number since the UVA spectrum extends all the way to 400 nanometers. Unfortunately, no sunscreens commercially available in the United States (except for 25 percent [zinc oxide](#), which is totally opaque) provide "far UVA" protection. There are sunscreens available in Europe and Australia that include far more effective UVA-filtering ingredients, namely Tinosorb S and Tinosorb M. In fact, Australia and Europe have the most effective UV filters for sunscreen formulations, while the United States has the least. We have been waiting for a decade for the FDA to incorporate these more effective UV filters into sunscreens, but the process is stalled, despite the 2014 Sunscreen Innovation Act, which enabled quicker time frames for FDA reviews of sunscreen chemicals available outside of the United States.

Q: How much sunscreen is enough?

Swetter: Adults need about two to three tablespoons of sunscreen for the body and one teaspoon for the face. If you use a sunscreen spray, be sure to rub it in to your skin to provide an even layer. Avoid spraying directly to

the face, which is not a safe practice. Remember that sunscreens are part of a sun protection package that should also include clothing, sunglasses and avoidance of exposure during the peak hours of sun. If your sunscreen isn't delivering the degree of protection claimed on its label, make sure you are applying enough of it. Consider using a higher SPF formulation (50+) and reapply after swimming or sweating. You can also reapply sunscreen every two hours or so, but once you feel the prickly sensation of a sunburn, using more sunscreen won't help, and you simply need to get out of the sun.

Q: How effective are sunscreen products labeled as natural?

Swetter: Consumer Reports reported that physical sunscreens (also called "natural," "mineral" or "organic") were the ones most likely to fail the SPF accuracy test. The active UV filtering ingredients for those products are typically micronized titanium dioxide or zinc oxide (or both). These do work to protect against UVB, but have a low SPF in themselves. To improve a sunscreen's filtration of UVB and UVA and to raise its SPF rating, chemicals (usually octinoxate) must be added. Higher-SPF mineral sunscreens need to contain higher levels of zinc oxide (which is generally not cosmetically acceptable) or additional UV-filtering chemicals. A minimum of 10 percent concentration zinc oxide and/or titanium dioxide may be helpful. In general, chemical sunscreens provide UV filtration that is superior to that of physical sunscreens. The most appropriate use of physical sunscreens is for children under age 2 and adults and children who have skin allergies to chemical sunscreens.

Q: What do you consider the most effective ingredients in a sunscreen?

Swetter: In the United States, all broad-spectrum sunscreens contain

avobenzone, which meets the 370-nanometer critical wavelength test for UVA filtration. However, because it breaks down in the sun after 30 minutes or so, it needs to be stabilized with an additional UV filter, called octocrylene. Most dermatologists would prefer to see sunscreens with ingredients that offer protection through the entire UV spectrum and are safe to use. Sunscreens with that more-effective level of protection are available in other countries and will hopefully be approved in the United States soon. In the meantime, use chemical [sunscreens](#) that contain avobenzone and octocrylene. We recommend those with SPF 30 or higher because most people don't put on enough, and we now know that the sunscreen's SPF may be overrated. Apply often. This approach should go a long way to preventing sunburn and skin cancer, including the most deadly form, melanoma.

Provided by Stanford University Medical Center

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