

Probing Question: What does the SPF rating of sunscreen mean?

June 4 2010, By Chris Tachibana



"Tanned skin is damaged skin." That's the dire message from the Centers for Disease Control (CDC). We need a little sun exposure for vitamin D production, but too much sun increases the risk of skin cancer.

So, if we want to safely spend time in the garden and the pool, we need to first spend time in the [sunscreen](#) aisle of the drugstore. Waterproof, sweatproof, UVA, UVB, SPF 15, 50, or 100...what does it all mean?

SPF stands for sun protection factor, but it specifically indicates protection against the ultraviolet B (UVB) rays that cause sunburn, said Kimberly Mallett, research associate in the Penn State Prevention Research Center. "Imagine that your skin normally begins to burn after 10 minutes in full sun without any protection. A 30 SPF sunscreen would provide 30 times the protection of no sunscreen."

That means 30 times longer before you start to burn, or in this case, 300 minutes. That's five hours, so one application should do it for the day, right? Not so fast, said Mallett. She recommends reapplying sunscreen "every one to two hours when outdoors, especially if swimming or sweating a lot. Even if the sunscreen has a SPF of 100, claims to be sweatproof and waterproof, and provides all-day protection, it needs to be reapplied to provide optimal protection."

An SPF of 100 does not mean twice the protection of SPF 50, Mallett added. Even an SPF 15 sunscreen blocks over 90 percent of UVB rays, so you don't need an SPF of 80 or 100 for adequate protection. Proper and repeated application is more important. Still, "Reapplying sunscreen does not start the clock over," said Mallett. More sunscreen just replaces what has worn off, rather than adding on more hours of protection. And Mallett warns that redheads and blondes might want to be extra careful. "The SPF numbers are not exact, and results vary by individual, since some skin types burn faster than others."

Another factor to consider is protection from UVA rays. These might not cause a visible sunburn, but they can still damage tissue and cause wrinkles, and they penetrate deeper into the skin than UVB rays.

The CDC says that UV rays cause 60-90 percent of melanomas, the most dangerous type of skin cancer. Yet in spite of public health warnings, two-thirds of people between 15 and 29 admit to getting at least one serious sunburn in the previous summer, according to a survey from the Danish Cancer Society. Millions of people use tanning beds every year, even though the CDC says their UV rays are just as dangerous as UV from the sun. To help get the message out about how to reduce [skin cancer](#) risk, Mallett is currently working on a project funded by the National Cancer Institute to train Penn State dermatologists to motivate patients to use sunscreen and other protection against UV rays.

Once you're convinced that your skin is worth protecting, Mallett recommended "a broad-spectrum, water-resistant sunscreen that protects against both UVA and UVB rays with a minimum SPF of 30." Then, she advised, "Apply sunscreen liberally and thoroughly, at least 30 minutes before going out so that it has time to absorb into the skin, and don't miss sensitive spots like the ears and feet."

Finally, remember that sunscreen can do only so much, and a big umbrella and some stylish beachwear might be your best bet. "Seek shade, and wear hats and clothing if out in direct sun for prolonged periods of time," said Mallett. Add a pair of sunglasses (they look cool and can reduce the risk of cataracts), and you're ready for the long, sunny days of summer.

Provided by Pennsylvania State University

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