Shedding Safe Light on Sunscreen

Blocking toxic chemicals and nanoparticles, as well as UVA and UVB

BY CAROLYN CHANG, M.D., F.A.C.S.

When I was growing up, my summer days were spent at the pool "working on my tan." Slathering up with oil and frying in the sun was my daily routine. The darker my skin became, the better, and my best tans often came from the worst burns. That was then. Now, as a plastic surgeon, my summer days are spent evaluating the unfortunate aftermath of excessive sun exposure and advising patients on the best preventative skin protection.

Of course, some exposure to the sun is beneficial, as it is an important source of vitamin D, which is essential for calcium absorption and strong, healthy bones. A little sun exposure daily can provide most people with adequate amounts of vitamin D. But too much unprotected exposure to harmful UVA and UVB ultraviolet rays can cause deadly skin cancers or at the very least, premature skin aging and loss of elasticity.

Most experts agree that aside from living in a cave, the best sun protection includes a combination of protective clothing and frequent use of sunscreens. The ideal sunscreen blocks both the UVB rays that cause sunburns and skin cancers, and the equally harmful UVA rays that cause damage deeper in the skin where most skin cancers occur. Unfortunately, though, there are some misconceptions surrounding the proper selection of a sunscreen and in what constitutes adequate protection. And more alarmingly, some recent research is claiming that a large number of the very sunscreens that we use to protect ourselves are actually putting us in danger.

SPF — Not the Only Consideration

SPF, or sun protection factor, is the most common way that a sunscreen's efficacy is measured. The number indicates how long it would take for skin to redden compared to unprotected skin. Thus, a sunscreen with an SPF of 30 means that it would take a person 30 times longer to burn than if the sunscreen were not applied. Unfortunately, SPF indicates a product's effectiveness against only UVB rays. There is currently no FDA-approved rating system for UVA protection, although the organization is working toward a standardization scale. Furthermore, SPF indicates efficacy only if the product is used correctly.

The American Academy of Dermatology recommends use of a broad-spectrum, water-

Resources

The American Academy of Dermatology
aad.org/media/background/factsheets/fact_sunscreen.htm

The Skin Cancer Foundation
skincancer.org/Sunscreen/

The Environmental Working Group Sunscreen Guide
ewg.org/2010sunscreen/

Our Favorites

All-Purpose Mineral Sunscreen
Perfect for every day, my pick is **Obagi Nu-Derm Physical UV Block, SPF 32**. It combines a moisturizer with zinc oxide.

All-Purpose Non-Mineral Sunscreen
Dr. Vic Narurkar, chairman of the department of dermatology, California Pacific Medical Center, likes **La Roche-Posay Anthelios 40 cream**, containing Mexoryl.

All-Natural Sunscreen
Among the top sunscreen solutions that the Environmental Working Group recommends is **Badger, SPF 30**. It's organic and great for kids too.

resistant sunscreen with an SPF of at least 30 that provides protection against both UVB and UVA rays. A generous amount (at least one ounce for an adult) should be applied to all exposed skin 15 to 30 minutes before sun exposure, and it should be reapplied every two hours, more often after swimming or excessive sweating.

Recently, the FDA has drafted regulations prohibiting the labeling of sunscreens as having SPFs greater than 50. The organization is concerned that these high SPFs are misleading to consumers and may actually contribute to increased noncompliance by luring them into a false sense of security. The bottom line is that no sunscreen is effective, no matter how high the SPF, if it is not used properly and if it does not adequately protect against both UVA and UVB rays.

Is Your Sunscreen Safe? The Problem With Nanoparticles and Chemical Offenders

Sunscreens are composed of two main categories of ingredients — those that work by blocking or reflecting UV rays, and those that work by absorbing the rays before they can cause any damage. There are currently 17 active ingredients approved by the FDA for use in sunscreens. They are composed of either minerals or chemicals. In combination, these substances can provide excellent broad-spectrum UVA and UVB protection. Unfortunately, it is some of these very ingredients that have recently come under fire by several environmental advocacy organizations, such as the Environmental Working Group and Friends of the Earth.

These groups report that some sunscreen ingredients can cause detrimental health effects, such as hormonal disruptions, allergic reactions, cell damage, and cancer formation. The problems can occur when the minerals or the chemicals used in sunscreens are absorbed into the skin and break down, sometimes generating free radicals that damage cells. The most common minerals used in sunscreens include zinc oxide and titanium dioxide. Problems can occur when these substances are formulated as tiny nanoparticles to allow for a more cosmetically elegant, "invisible" sunscreen. The result is that the minerals are more easily absorbed into the skin, potentially contributing to increased health concerns. Choosing a mineral-based sunscreen that minimizes the use of micronized nanoparticles may provide a greater degree of safety. Likewise, some of the chemicals used in sunscreens may be objectionable for similar reasons. One of the most maligned ingredients is oxybenzone, a common ingredient found in approximately 60 percent of available sunscreens. On the flip side, the recently FDA-approved ingredient ecamsule (Mexoryl), in combination with avobenzone and octocrylene, has been shown to provide unparalleled broad-spectrum, stable, and presumably safer protection.

The Real Truth

The claims of various health hazards from sunscreen ingredients are as yet not recognized by the FDA or even by many dermatologists. But the consensus among all is that there is no perfect sunscreen, only those that may be better than others, and the benefits of a well-chosen sunscreen, when used as recommended, far outweigh the negatives.

Dr. Carolyn Chang is a Stanford-educated plastic surgeon who specializes in cosmetic and plastic surgery for women. She serves as vice chairman of the department of plastic surgery at California Pacific Medical Center and is one of San Francisco's leading plastic surgeons. She is a perfectionist whose natural approach reflects her commitment to overall health and wellness. **drcarolynchang.com**