The truth about sunscreen

Saving your skin means getting the facts straight

When you shop for sunscreen, what do you look for? If you’re like half of the sunscreen wearers in a recent survey of 1,000 adults in the U.S. by the Consumer Reports National Research Center, SPF (sun protection factor) is the feature that influences your decision most. You can’t always rely on that claim, however. We tested 20 sunscreens, and though we found seven to recommend, only two—BullFrog WaterArmor Sport InstaCool SPF 50+ and Coppertone Sensitive Skin SPF 50—provided the SPF protection promised on their packages after water immersion. Beyond Coastal Natural SPF 30 came in at less than half of its claimed SPF, and we weren’t able to get a reading on Banana Boat Kids SPF 50. The others came in 4 to 40 percent below their claims. That doesn’t mean the sunscreens aren’t protective. Even an SPF 30 sunscreen that comes in, say, 40 percent below its claim gives you an SPF of 18. And we can’t say why our test results differ from the manufacturers’ claims, but they show that SPF isn’t always carved in stone. That’s just one of many misconceptions people have about sunscreen. Our report debunks some other commonly held myths.

Myth The FDA tests sunscreens before they hit store shelves.
The Food and Drug Administration requires sunscreen manufacturers to test their products, but it doesn’t verify the testing, require manufacturers to report results, or do premarket testing itself. “If the FDA suspects a problem with a certain manufacturer, they can ask for their results,” says David C. Steinberg, president of Steinberg & Associates, a personal-care-products consulting company in Plainsboro, N.J. “But for the most part, it’s a self-regulated industry.”

The FDA does require sunscreen manufacturers to meet certain standards for the use of three terms on labels: SPF, broad spectrum, and water-resistant. SPF refers to a sunscreen’s ability to shield you from ultraviolet B (UVB) rays, which can cause sunburn and skin cancer. Sunscreens that protect against both UVB rays and the more deeply penetrating UVA rays—which can cause skin aging and contribute to skin cancer, including melanoma, the most deadly type—are called broad spectrum. In our tests, we found a wide variability of effectiveness against UVA rays (see Ratings, on page 23). The FDA says that a sunscreen must have a critical wavelength of at least 370 nanometers to be labeled broad spectrum. Alba Botanica Very Emollient Sport SPF 45 and Up & Up (Target) Kids SPF 50 came in slightly below that in our tests. Although we can’t say that the products we tested are incorrectly labeled, we’re submitting our critical-wavelength and SPF results to the FDA.

Our findings underscore the importance of choosing from our seven recommended sunscreens. If none are available, a product rated Good will provide adequate protection. Using any sunscreen is better than using none, but it’s just one part of a smart sunprotection strategy. “We tend to rely too much on sunscreen,” says Sophie J. Balk, M.D., a professor of clinical pediatrics at the Albert Einstein College of Medicine in New York. 

Photos: Catherine Ledner; Prop Styling: Britney Wood
The protection provided by an SPF 15 and SPF 50 is very small. No sunscreen blocks in the sun longer without reapplying it. As the illustration shows, the difference in mean you’re getting twice the benefit of an SPF 30 or 50—or that you can stay.

Skin Protect SPF 110 and Neutrogena Ultimate Sport SPF 70+.

But that doesn’t highest-rated sunscreens have very high SPFs—Banana Boat Ultra Defense Max.

In our survey, almost one-third of adults and almost 60 percent of children used bought kids’ sunscreen did so because a doctor recommended it. And some products carry such claims as “#1 pediatrician recommended brand” (Coppertone) and “pediatrician tested” (Banana Boat) that imply an extra level of safety. Those terms aren’t regulated by the FDA, however, and they aren’t necessarily meaningful in terms of safety. Coppertone surveys pediatricians to ask which brand they recommend, and they recommend Coppertone products most, according to Patricia Agin, Ph.D., director of scientific affairs and research and development leader for Merck, Coppertone’s manufacturer. But many sunscreen manufacturers market heavily to dermatologists and pediatricians. “They give them samples, take them to events, and set up displays at medical conferences,” Steinberg says.

As for “pediatrician tested,” a doctor may be involved, but he doesn’t conduct the study. “Our testing is monitored by clinical professionals, such as dermatologists, pediatricians, and ophthalmologists,” says Grace Riccardi, a manager in Sun Care R & D at Energizer in St. Louis, the company that makes Banana Boat. “They are part of the team making the conclusion that products are mild, sting-free, and tear-free.”

Some sunscreens for children (and adult sunscreens for sensitive skin) contain only the minerals zinc oxide and/or titanium dioxide as the active ingredients, because they may be less irritating to skin than sunscreens containing chemicals, such as avobenzone. Some kids’ products do, however, contain chemical sunscreens.

Myth A little goes a long way.
It takes an ounce (about 2 tablespoons) to cover your face and body adequately. Most people apply about half that much. According to our tests, using half the sunscreen gives you half the SPF. Timing matters, too. Our survey found that 29 percent of people using sunscreen waited until they were in the sun to slather it on. But you should apply it 15 to 30 minutes before then for full protection and reapply it every 2 hours.

Myth ‘Natural’ sunscreens are safer than ‘chemical’ sunscreens.
As it is on food packaging, “natural” is meaningless on sunscreen labels. Generally, it’s used when a product’s only active ingredients are titanium dioxide and/or zinc oxide (though some also contain chemical sunscreens, such as octinoxate). But those minerals aren’t pulled out of the earth, ground into a powder, and mixed into a lotion. They’re refined and sometimes coated with compounds in processing. “There’s nothing natural about them,” Steinberg says. “If manufacturers used zinc or titanium in their natural form, they’d be pitch black and contain high amounts of lead.”

People think that mineral-based sunscreens are safer because they sit on the surface of the skin and aren’t absorbed the way chemical sunscreens are. But that’s not always true. Titanium dioxide and zinc oxide are often broken down into nanoparticles so that they go on clear instead of as the thick, white paste you used to see on lifeguards’ noses, and nanoparticles may be absorbed. Some experts are concerned about the health effects of those compounds.

When it comes to sun protection, minerals are no better than chemicals. In fact, in some cases they perform less effectively. “Sometimes the particles of titanium dioxide and/or zinc oxide clump together,” Steinberg says. “That can lower their SPF.” Beyond Coastal Natural SPF 30 and Banana Boat Kids SPF 50, which each contain zinc oxide and titanium dioxide, received Fair and Poor Ratings, respectively, in our tests. California Baby Super Sensitive 30+ with titanium dioxide was rated Good.

Myth Spray sunscreens provide the best coverage.
They’re protective if used correctly; four sprays are at the top of our Ratings. But it can be hard to judge the amount of sunscreen you’re using, and that could lead to much less protection. Spray pattern makes...
3 sunscreen fixes we need now

When it comes to sunscreen, there’s room for improvement. On our wish list:

There are ingredients used in European countries and elsewhere that aren't available in the U.S. The FDA has received applications for many of them. In 2006 it approved one, ecamsule (used only by L’Oréal). Recently, the agency requested more information about the safety and effectiveness of two sunscreens, and it is reviewing other applications.

2. Information on spray safety.
In 2011 the FDA requested additional information regarding the safety and effectiveness of sprays. It has received new information about them and is currently evaluating it.

3. Answers about high-SPF products.
In 2011 the FDA proposed limiting the maximum SPF to 50+. The agency has received numerous comments on the proposal, but it hasn’t yet made a determination. Consumers continue to perceive high-SPF sunscreens as more effective than lower ones.

In our tests, Banana Boat Ultra Defense Max Skin Protect SPF 110 and Banana Boat Sport Performance CoolZone SPF 30 covered the most targeted area, so they would be best for specific body parts, such as arms or legs. Products with a wide spray pattern—such as Up & Up (Target) Sport SPF 50, Coppertone Sport High Performance SPF 30, and Well at Walgreens Sport SPF 50—might be better for your back, but they’re more likely to disperse into the air, especially if it’s windy. To make sure you’re getting good coverage, hold the nozzle 4 to 6 inches away from your body, spray, then rub the product into your skin. Spray each body part twice in case you miss an area. Better yet, spray the sunscreen into your hand, then rub it onto your body. Inhaling spray sunscreen could cause lung irritation and, when inhaled, titanium dioxide is a possible carcinogen. Flamability is another danger; last year, more than 20 sunscreen sprays were recalled because of reports of people being burned while wearing it when they got close to an open flame—such as a grill—before the product dried. The FDA is investigating the potential risks of spray sunscreens, but because of the concerns, we don’t recommend sprays for children. The products might not be cost-effective anyway, because you should spray yourself twice—and some of it might escape into the air.

How we test sunscreens
To check for UVB protection, a standard amount of each sunscreen being tested is applied to small areas of our panelists’ backs. Then they soak in a tub of water. Afterward, each of those areas are exposed to six intensities of UVB light from a sun simulator for a set time. About a day later, the six spots are examined for redness. The resulting UVB ratings reflect each product’s actual effectiveness after water immersion. (All of the tested sunscreens carry a claim of water resistance for 80 minutes.) Measured SPF, not how close a sunscreen comes to meeting its SPF claim, is used to calculate our UVB scores. To test for UVA protection, we use different panelists and check for tanning instead of redness. And we conduct a critical wavelength test similar to the one required by the Food and Drug Administration for sunscreens with broad-spectrum claims. It assesses how well UV rays are absorbed by clear plastic plates treated with sunscreen. (Results can vary depending on the nature of the plates used.) The critical wavelength results are not used in the UVB ratings. Overall scores are based on the results of our UVB and UVA tests.