

# Press Release

## Sunscreens Exposed: 9 Surprising Truths

Sunscreens prevent sunburns, but beyond that simple fact surprisingly little is known about the safety and efficacy of these ubiquitous creams and sprays. FDA's failure to finalize its 1978 sunscreen safety standards both epitomizes and perpetuates this state of confusion. EWG's review of the latest research unearthed troubling facts that might tempt you to give up on sunscreens altogether. That's not the right answer – despite the unknowns about their efficacy, public health agencies still recommend using sunscreens, just not as your first line of defense against the sun. At EWG we use sunscreens, but we look for shade, wear protective clothing and avoid the noontime sun before we smear on the cream. Here are the surprising facts:

### **1. There's no consensus on whether sunscreens prevent skin cancer.**

The Food and Drug Administration's 2007 draft sunscreen safety regulations say: "FDA is not aware of data demonstrating that sunscreen use alone helps prevent skin cancer" (FDA 2007). The International Agency for Research on Cancer agrees. IARC recommends clothing, hats and shade as primary barriers to UV radiation and writes that "sunscreens should not be the first choice for skin cancer prevention and should not be used as the sole agent for protection against the sun" (IARC 2001a). [Read more.](#)

[<http://www.ewg.org/2010sunscreen/full-report/health-agencies-question-sunscreen-efficacy/>](http://www.ewg.org/2010sunscreen/full-report/health-agencies-question-sunscreen-efficacy/)

### **2. There's some evidence that sunscreens might increase the risk of the deadliest form of skin cancer for some people.**

Some researchers have detected an increased risk of melanoma among sunscreen users. No one knows the cause, but scientists speculate that sunscreen users stay out in the sun longer and absorb more radiation overall, or that free radicals released as sunscreen chemicals break down in sunlight may play a role. One other hunch: Inferior sunscreens with poor UVA protection that have dominated the market for 30 years may have led to this surprising outcome. All major public health agencies still advise using sunscreens, but they also stress the importance of shade, clothing and timing.

[Read more.](#) [<http://www.ewg.org/2010sunscreen/full-report/epidemiology-studies-of-sunscreens-efficacy-for-cancer-protection/>](http://www.ewg.org/2010sunscreen/full-report/epidemiology-studies-of-sunscreens-efficacy-for-cancer-protection/)

### **3. There are more high SPF products than ever before, but no proof that they're better.**

In 2007 the FDA published draft regulations that would prohibit companies from labeling sunscreens with an SPF (sun protection factor) higher than "SPF 50+." The agency wrote that higher values were "inherently misleading," given that "there is no assurance that the specific values themselves are in fact truthful..." (FDA 2007). Scientists are also worried that high-SPF products may tempt people to stay in the sun too long, suppressing sunburns (a late, key

warning of overexposure) while upping the risks of other kinds of skin damage.

Flaunting FDA's proposed regulation, companies substantially increased their high-SPF offerings in 2010. Nearly one in six products now lists SPF values higher than 50, compared to only one in eight the year before, according to EWG's analysis of nearly 500 beach and sport sunscreens. Neutrogena, with six products labeled "SPF 100," and Banana Boat, with four, stand out among the offenders. [Read more.](#)

<http://www.ewg.org/2010sunscreens/full-report/high-spf-and-other-misleading-claims/>

#### **4. Too little sun might be harmful, reducing the body's vitamin D levels.**

Adding to the confusion is the fact that sunshine serves a critical function in the body that sunscreen appears to inhibit — production of vitamin D. The main source of vitamin D in the body is sunshine, and the compound is enormously important to health — it strengthens bones and the immune system, reduces the risk of various cancers (including breast, colon, kidney, and ovarian cancers) and regulates at least 1,000 different genes governing virtually every tissue in the body. (Mead 2008) Over the last two decades, vitamin D levels in the U.S. population have been decreasing steadily, creating a "growing epidemic of vitamin D insufficiency" (Ginde 2009a). Seven of every 10 U.S. children now have low levels. Those most likely to be deficient include children who are obese or who spend more than four hours daily in front of the TV, computer or video games (Kumar 2009).

Experts disagree on the solution. The American Medical Association has recommended 10 minutes of direct sun (without sunscreen) several times a week (AMA 2008), while the American Academy of Dermatology holds that "there is no scientifically validated, safe threshold level of UV exposure from the sun that allows for maximal vitamin D synthesis without increasing skin cancer risk" (AAD 2009). Vitamin D supplements are the alternative, but there is debate over the proper amount. The Institute of Medicine has launched new research to reassess the current guidelines. In the meantime, your doctor can test your vitamin D levels and give advice on sunshine versus supplements. [Read more.](#) <http://www.ewg.org/2010sunscreens/full-report/getting-enough-vitamin-d/>

#### **5. The common sunscreen ingredient vitamin A may speed the development of cancer.**

Recently available data from an FDA study indicate that a form of vitamin A, retinyl palmitate, when applied to the skin in the presence of sunlight, may speed the development of skin tumors and lesions (NTP 2009). This evidence is troubling because the sunscreen industry adds vitamin A to 41 percent of all sunscreens.

The industry puts vitamin A in its formulations because it is an anti-oxidant that slows skin aging. That may be true for lotions and night creams used indoors, but FDA recently conducted a study of vitamin A's photocarcinogenic properties, the possibility that it results in cancerous tumors when used on skin exposed to sunlight. Scientists have known for some time that vitamin A can spur excess skin growth (hyperplasia), and that in sunlight it can form free radicals that damage DNA (NTP 2000).

In FDA's one-year study, tumors and lesions developed up to 21 percent sooner in lab animals coated in a vitamin A-laced cream (at a concentration of 0.5%) than animals treated with a vitamin-free cream. Both groups were exposed to the equivalent of just nine minutes of maximum intensity sunlight each day.

It's an ironic twist for an industry already battling studies on whether their products protect against skin cancer. The FDA data are preliminary, but if they hold up in the final assessment, the sunscreen industry has a big problem. In the meantime, EWG recommends that consumers avoid sunscreens with vitamin A (look for "retinyl palmitate" or "retinol" on the label). [Read more.](http://www.ewg.org/2010sunscreen/full-report/new-fda-study-sunscreen-additive-may-speed-cancer-growth/)  
<<http://www.ewg.org/2010sunscreen/full-report/new-fda-study-sunscreen-additive-may-speed-cancer-growth/>>

## **6. Free radicals and other skin-damaging byproducts of sunscreen.**

Both UV radiation and many common sunscreen ingredients generate free radicals that damage DNA and skin cells, accelerate skin aging and cause skin cancer. An effective sunscreen prevents more damage than it causes, but sunscreens are far better at preventing sunburn than at limiting free radical damage. While typical SPF ratings for sunburn protection range from 15 to 50, equivalent "free radical protection factors" fall at only about 2. When consumers apply too little sunscreen or reapply it infrequently, behaviors that are more common than not, sunscreens can cause more free radical damage than UV rays on bare skin. [Read more.](http://www.ewg.org/2010sunscreen/full-report/does-sunscreen-damage-the-skin/)  
<<http://www.ewg.org/2010sunscreen/full-report/does-sunscreen-damage-the-skin/>>

## **7. Pick your sunscreen: nanomaterials or potential hormone disruptors.**

The ideal sunscreen would completely block the UV rays that cause sunburn, immune suppression and damaging free radicals. It would remain effective on the skin for several hours and not form harmful ingredients when degraded by UV light. It would smell and feel pleasant so that people use it in the right amount and frequency.

Unsurprisingly, there is currently no sunscreen that meets all of these criteria. The major choice in the U.S. is between "chemical" sunscreens, which have inferior stability, penetrate the skin and may disrupt the body's hormone systems, and "mineral" sunscreens (zinc and titanium), which often contain micronized- or nano-scale particles of those minerals.

After reviewing the evidence, EWG determined that mineral sunscreens have the best safety profile of today's choices. They are stable in sunlight and do not appear to penetrate the skin. They offer UVA protection, which is sorely lacking in most of today's sunscreen products. Mexoryl SX (ecamsule) is another good option, but it's sold in very few formulations. Tinosorb S and M could be great solutions but are not yet available in the U.S. For consumers who don't like mineral products, we recommend sunscreens with avobenzone (3 percent for the best UVA protection) and without the notorious hormone disruptors oxybenzone or 4-MBC. Scientists have called for parents to avoid using oxybenzone on children due to penetration and toxicity concerns. [Read](#)

more. <http://www.ewg.org/2010sunscreen/full-report/nanomaterials-and-hormone-disruptors-in-sunscreens/>

## **8. Europe's better sunscreens.**

Sunscreen makers and users in Europe have more options than in the United States. In Europe, sunscreen makers can select from among 27 chemicals for their formulations, compared to 17 in the U.S. Companies selling in Europe can add any of seven UVA filters to their products, but have a choice of only three when they market in the U.S. European sunscreens could earn FDA's proposed four-star top rating for UVA protection, while the best U.S. products would earn only three stars. Sunscreen chemicals approved in Europe but not by the FDA provide up to five times more UVA protection; U.S. companies have been waiting five years for FDA approval to use the same compounds. Last but not least, Europeans will find many sunscreens with strong (mandatory) UVA protection if proposed regulations in Europe are finalized. Under FDA's current proposal, Americans will not. [Read more.](http://www.ewg.org/2010sunscreen/full-report/europe-s-better-sunscreens/)

## **9. The 33rd summer in a row without final U.S. sunscreen safety regulations.**

In the United States, consumer protection has stalled because of the FDA's 32-year effort to set enforceable guidelines for consumer protection. EWG has found a number of serious problems with existing products, including overstated claims about their performance and inadequate UVA protection. Many of these will be remedied when the FDA's proposed sunscreen rule takes effect. But even after the rule is enacted, gaps will remain. FDA does not consider serious toxicity concerns such as hormone disruption when approving new sun filters, and the new rules would fail to measure sunscreen stability despite ample evidence that many products break down quickly in sunlight.