Study finds the UVA protection of most sunscreens is only a quarter of touted SPF

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Many sunscreens offer just a quarter of their stated SPF protection against ultraviolet A rays that increase the risk of skin cancer, a new Environmental Working Group study finds.

For the study, EWG scientists tested 51 sunscreens with SPF between 15 and 110.

"Most of the products we tested reduced UV radiation only by half of what would be expected from looking at the SPF on the label," said David Andrews, Ph.D., a senior scientist at EWG and the lead author of the study unveiled today.

The new research, published in the peer-reviewed journal *Photodermatology, Photoimmunology & Photomedicine*, used laboratory tests and computer modeling to assess UV ray absorption.

EWG scientists found that sunscreens often fell far short of the claims of protection against UVA rays that cause aging, immune harms and greater cancer risks. Most sunscreens also failed to live up to boasts of protection related to UVB rays, which are largely responsible for sunburn.

On average, sunscreens tested in a laboratory but not on people provided a meager 24 percent of UVA protection, compared to the labeled SPF value. That's much lower than what's required of sunscreens sold in Europe.

Sunscreen broad spectrum protection often missing

EWG's research found that most sunscreens provided just 42 to 59 percent of the labeled SPF. Consumers are left without protection against both UVA and UVB.

"Even more concerning is the lack of adequate broad spectrum protection, and that's a public health problem," Andrews said. "Broad spectrum products provide protection from UVA rays that are associated with skin cancer, free radical generation and immune harm.

"The sunscreen industry has for too long focused on advertising higher and higher SPF values and UVB rays, not on providing products with stronger UVA protection," he said.

The findings echo a study released by Food and Drug Administration scientists in 2019 that conceded current sunscreen standards are inadequate. They said switching to sunscreens with higher UVA protection instead of higher SPFs might reduce skin cancer risks.

"Most sunscreen products sold in the U.S. don't offer adequate protection against both UVA and UVB rays," said Carla Burns, senior director of cosmetic science at EWG and one of the new study's coauthors.

"For years, EWG has warned consumers about the safety and efficacy of sunscreens. U.S. store shelves have products that overstate their sun protection claims based on UVB, or sunburn, reduction—without providing similar UVA protection," Burns said.

"Balanced protection of ultraviolet radiation is important because of the long-term health issues linked to UV exposure—especially harmful UVA rays, which are linked to immunotoxicity and skin cancers," she added.

Consumers are getting burned by misleading sunscreens

Most evaluations of sunscreen efficacy focus primarily on skin redness, or sunburn, caused by UVB rays. Current U.S. regulations ignore the relationship between the labeled SPF and measured UVA protection.

EWG decided to test 51 sunscreens sold in the U.S. with SPF values

from 15 to 110 to assess their broad spectrum protection against both types of UV rays. Scientists used UV-absorption testing and compared those results with computer-modeled protection and the SPF values on product labels.

The findings mean consumers are not only being burned because of misleading sunscreen labels but may also be increasing their risk of skin cancer.

According to the National Cancer Institute, the rate of new melanoma cases among U.S. adults has tripled since the 1970s, from 7.9 per 100,000 people in 1975 to 22.4 per 100,000 in 2018. Although the reasons are unclear, scientists have established that risk factors include family history, indoor tanning, fair skin, freckles, moles, UV radiation and severe sunburns. Growing evidence links UVA exposure to skin cancer.

Skin cancer is one of the most common types of cancer worldwide and the most diagnosed cancer in the U.S. The three most common forms of skin cancer are basal cell carcinoma, with 4.3 million cases in the U.S. annually; squamous cell carcinoma, with 1.1 million cases annually; and melanoma, with an estimated 106,000 cases annually. But melanoma is the deadliest form of skin cancer, so it warrants particular attention.

"Sunscreen products must be effective, and the ingredients should not cause health harm. Our study shows that sunscreens are not adequately effective, especially at reducing UVA radiation, and the ingredients used in these products have not been fully vetted for safety," said Andrews.

"An overhaul of sunscreen products and how they are regulated is long overdue. But sunscreens are still important tools in reducing UV exposure—it's just that some products are better than others," he added.

FDA renews call for data from sunscreen makers

In September, the FDA released its proposed order detailing lingering concerns about sunscreens. Because of safety uncertainties about the active ingredients in their products, including oxybenzone, the agency also renewed a call for data from manufacturers. Oxybenzone is a potential hormone-disrupting chemical that is readily absorbed by the body

Sunscreen makers failed to answer the FDA's 2019 call to conduct studies on the health effects of sunscreens, including the extent chemicals in the products can enter the bloodstream. The FDA says two new studies on the absorption of sunscreen chemicals reinforce the need for the data the agency has sought for more than two years.

"Sunscreen chemicals like oxybenzone pose significant health concerns, but the sunscreen industry continues to bury its head in the sand," said Scott Faber, EWG's senior vice president for government affairs. "We're grateful the FDA continues to demand basic data on the health effects of these chemicals."

EWG guide identifies sufficiently protective sunscreens

In May 2021, EWG researchers rated the safety and efficacy of more than 1,800 products that advertise sun protection—including recreational sunscreens, daily-use SPF products and lip balms with SPF. They found that only a quarter of the products reviewed offer adequate protection and do not contain worrisome ingredients like oxybenzone.

"The sunscreen market is flooded with products that provide poor UVA protection," said Faber. "Sunscreen sales have increased dramatically, so

sunscreen companies can certainly afford to conduct the studies needed to ensure their customers are safe."

Current regulations and the U.S. marketplace promote SPF products that reduce sunburn instead of sunscreens that provide better broad spectrum protection. So consumers should make sun safety a daily habit by covering up with clothing, seeking shade, planning around the sun, and using sunscreen when needed.

EWG's Guide to Sunscreens is one of the only tools available to help consumers find sufficiently protective products made without ingredients that may pose health concerns.

Shoppers can also download EWG's Healthy Living App to get ratings and safety information on sunscreens and other personal care products right at their fingertips. EWG's sunscreen label decoder can also help consumers looking for safer sunscreens.

More information: David Q. Andrews et al, Laboratory testing of sunscreens on the U.S. market finds lower in vitro SPF values than on labels and even less UVA protection, *Photodermatology, Photoimmunology & Photomedicine* (2021). DOI: 10.1111/phpp.12738

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