FDA Sunscreen Report Raises Concern Over Chemicals

By Brenda Goodman, MA

Jan. 21, 2020 -- New FDA testing of sunscreens shows that six common active ingredients are absorbed into the body and may linger for days or even weeks, in some cases.

What's more, the testing showed that just a single application of sunscreen -- whether as a lotion or a spray -- increases the blood levels of these active ingredients beyond the FDA's threshold for determining if they need more study to be considered safe for use.

"It's a little bit scary because we just don't know what the biological effect of sunscreen in your blood is," says Alok Vij, MD, a dermatologist at Cleveland Clinic in Ohio. Vij was not involved in the study.

Previous research has shown that some of the ingredients in the FDA study can disrupt hormones and may lead to fertility problems, poor birth outcomes for babies, and perhaps cancer.

How Sunscreens Escaped Safety Testing

Many Americans dutifully rub or spray sunscreen on their skin to protect it from the sun's baking rays.

After decades of public health education, almost anyone who is heading outdoors has heard the message that sunscreen is an important part of protecting skin from sunburns, aging, and skin cancer. In fact, sun care is a nearly $2 billion-a-year industry in the U.S.

The FDA has allowed sunscreen makers to sell their products under an assumption that the active ingredients they use are "GRASE," or generally recognized as safe and effective.

But several decades ago, the FDA began requiring manufacturers to do more safety testing of their products if they could be absorbed into the body at levels above 0.5 nanograms per milliliter. Below that level, there's thought to be minimal risk that an ingredient or drug could cause harm.

"These standards were set in the last couple of decades, but sunscreen has been around for a lot longer than that," says Kanade Shinkai, MD, PhD, a dermatologist at the University of California, San Francisco. Shinkai wrote an editorial on the current study, but she was not involved in the research.

As a result, sunscreen essentially got grandfathered into the FDA's surveillance system without any real safety testing.

The agency has been urging the companies that make sunscreens to do more safety studies of their products, but "for various reasons, it just never happened," Shinkai says.

Finally, the FDA, which has a small research division, decided to take on the question of body absorption of sunscreen ingredients.

Last year, the agency dropped a bit of a bombshell after that testing revealed that four of the most common UV filters in chemical sunscreens -- avobenzone, oxybenzone, octocrylene, and ecamsule -- are absorbed by the body in substantial amounts, and can stay there for days, something that wasn't well-known before.

As a result, the FDA says those four ingredients, along with another eight, need more safety testing before they can be considered GRASE. It has asked sunscreen makers to do that testing. So far, those studies -- which are supposed to look at effects on cancer and reproduction -- haven't been done.

That's despite the fact that the FDA gave sunscreen makers a November 2019 deadline to deliver more information.

Instead, some criticized the FDA's initial testing methods, which had study volunteers reapply their sunscreens every 2 hours for 4 days, saying that most people don't reapply that often and that the conditions tested in the study were unrealistic.

In response, the FDA redid the study, this time including six active ingredients in chemical sunscreens: avobenzone, oxybenzone, octocrylene, homosalate, octisalate, and octinoxate. Those ingredients are the UV filters that screen out the sun's harmful rays.

They tested aerosol and pump lotions and sprays. They had 48 healthy adults -- half were men and half were women -- apply the sunscreens to 75% of their bodies, virtually anywhere a swimsuit wouldn't cover.

On the first day, they applied the sunscreen just once. On days 2, 3, and 4, the men and women in the study took a shower in the morning, then applied the sunscreen every 2 hours for a total of four applications each day. Researchers took 34 blood samples from each study participant, for those first days of sunscreen use, and then later, after a week, 2 weeks, and 3 weeks, to see how long those chemicals might stay elevated in the body.

"What they did in this study very much mimics what it says on the sunscreen tube," Shinkai says. "These are not unrealistic. This is real-world. At least the way it's recommended."

The new study, which is published in *TheJournal of the American Medical Association*, largely confirms the findings of the first study.

It shows that the six active ingredients tested were absorbed into the body. Some continued to be elevated beyond the FDA's threshold of concern for 3 weeks after the people in the study stopped putting them on their skin.

For example, blood concentrations of oxybenzone were more than 180 times the FDA's level of concern after a single application of sunscreen. They soared to more than 500 times the FDA's level of concern after 4 days of regular use. Three weeks later, blood tests continued to show higher levels of oxybenzone, though it was much lower than at the start of the study.

Studies have shown that oxybenzone may affect breast development, infant birth weight, and sperm function. It has also been shown to contribute to the killing of

coral reefs in the ocean. As a result, Hawaii has banned the sale of sunscreens containing oxybenzone and octinoxate starting in 2021.

“The fact that these chemicals are being found at elevated levels in our blood, combined with evidence that they have been linked to adverse health impacts in other studies, is extremely concerning,” says Nneka Leiba, vice president of the Environmental Working Group’s Healthy Living Science program. The Environmental Working Group has been warning consumers for years that ingredients in chemical sunscreens may not be safe.

What Now? The FDA says that while the UV filters in chemical sunscreens can’t be considered safe, that doesn’t mean they’re unsafe. Scientists just don’t know.

So what should you do if you want to protect yourself or your kids from the uncertainties of untested ingredients?

Vij says he reminds his patients that sunscreens are just one part of sun protection.

“Avoid sun if you can between 11 and 4, when UV radiation is at its peak,” he says. “Use mineral-based sunscreens or use clothing that has built-in sun protection.”

Vij tells his patients to look for clothing that has a UPF factor.

“Be smart in the sun. If you know you burn, limit your sun exposure. If you know you have a family history of melanoma, limit your sun exposure,” he says.

One big knowledge gap is kids. There’s very little information about how they might be absorbing sunscreen ingredients or what those ingredients might be doing to a growing body.

For children especially, Shinkai says, it is smart to look for mineral-based sunscreens. Those include sunscreens that contain the ingredients zinc oxide or titanium dioxide. The FDA says both of those ingredients are safe.

She acknowledges that it can be harder to apply and it turns the skin white, which sometimes isn’t acceptable, especially to people with darker skin tones.

“Mineral sunscreen, if formulated correctly and applied correctly, is very effective,” she says.

Shinkai recommends looking for products that combine zinc and titanium.

“A lot of formulations have zinc only. They miss part of the UV spectrum. Mixing them together -- zinc and titanium -- provides broad-spectrum protection that’s very comparable to what you get in a chemical sunscreen,” she says.

“There’s no reason for us to not recommend mineral sunscreen.”

Dr David Buckley adds: For information on our selection of chemical sunscreens made by AlumierMD see: www.kerryskinclinic.ie/shop and use our clinic code F8592074 to order on-line
or phone 066 7125611 to pick up one of the wide range of physical sunblock in our clinic in Tralee