Should Your Patients Avoid Sunscreen?

Barry D. Weiss, MD

Skin cancer is increasing in the United States. In 2023, there were an estimated 187,000 new cases of melanoma, and the incidence of the disease has nearly doubled over the past 15 years.[1,2] Although much of this increase has been attributed to a lower threshold for performing skin biopsies, leading to a marked increase in diagnoses of in situ, rather than invasive, melanoma,[3,4] the large number of cases is nonetheless concerning. The rates of other skin cancers are also increasing, with more than 3 million people diagnosed with squamous or basal cell skin cancers each year in the United States.[5] All three of these increasing cancer types are strongly associated with exposure to UV radiation from the sun.

Of particular concern is the increase in social media posts promoting the notion that sunscreen is harmful because it contains toxic ingredients, blocks natural sun exposure that facilitates vitamin D synthesis, and causes skin cancer.[6] This misinformation has led to an anti-sunscreen movement, with recent surveys showing that 11% to 15% of individuals, particularly young adults, are not using sunscreen.[7,8]

As someone living in sunny southern Arizona, I find this concerning. I have personally had skin cancer, as have numerous patients and friends of mine. But this is not just limited to warm, sunny states. Skin cancer rates are trending upward even in states such as Alaska.[9,10] So, skin cancer is a nationwide problem that will only be worsened by decreasing sunscreen use.

Given the growing anti-sunscreen movement, clinicians should routinely include sun protection in their prevention discussions with patients, particularly those with fair skin types, as recommended by the US Preventive Services Task Force.[11] The question is, how should they approach the issue?

The basic message should be that sun protection is important because it can prevent cancer, decrease photoaging, and prevent painful sunburns. There is also no good evidence that even daily use of sunscreen causes vitamin D deficiency, as sunscreens do not block 100% of UV radiation from reaching the skin.[12] Nonetheless, some patients will still express concerns about sunscreen safety.

BARRY D. WEISS, MD, FAAFP, University of Arizona College of Medicine, Tucson

Author disclosure: No relevant financial relationships.

Address correspondence to Barry D Weiss, MD, FAAFP, at bdweiss@arizona.edu.

This concern does have some validity in relation to chemical sunscreens because some of these chemicals are systemically absorbed through the skin, are detectable in blood for up to 3 weeks after application, and may act as endocrine disruptors. Examples include avobenzone, homosalate, octinoxate, octisalate, octocrylene, and oxybenzone.[13,14]

Although there are no firm data indicating that these chemicals cause adverse health effects in humans, the European Commission limits the amount of these chemicals that can be included in sunscreens.[14] The US Food and Drug Administration, on the other hand, has not yet finalized its proposed order on the limits of these chemicals.[15] There are also concerns that these ingredients are harmful to coral reefs, and several are now banned in Hawaii, Key West, and the US Virgin Islands.[16]

Recent news reports indicate that the US Food and Drug Administration is currently considering approval of bemotrizinol, a chemical sunscreen that has been used for decades in other countries and may have better safety data than the chemical agents mentioned previously. A decision is not expected until sometime in 2026.[17,18]

However, there are safe and effective alternatives to chemical sunscreens. Mineral sunscreens (ie, zinc oxide, titanium dioxide) are effective superficial barriers against UV light exposure, widely recognized as safe, and not absorbed into the skin if non-nano formulations are used.[15] Some individuals do not like using mineral sunscreens because they leave a white color on the skin. If that is of concern, some brands offer tinted mineral sunscreens.

Of course, clothing is a simple barrier to sun exposure. For outdoor activities, options include broad-rimmed sun hats, long pants, long-sleeved shirts, and even lightweight gloves. This protects skin from the sun and leaves only the face, neck, and lips needing sunscreen. Studies show that special UV-protective clothing made of tightly woven nylon, polyester, or cotton may be even more effective than sunscreens.[19]

Indoor tanning devices should be avoided. They emit 10 to 15 times more UV radiation than noontime sun.[20]

Finally, when counseling patients, note that skin cancer risk is related to cumulative lifetime sun exposure, not just exposure at a particular age.[21] Establishing good habits of sun protection in childhood, and keeping them into adulthood and older age, is the optimal approach to skin cancer prevention.

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REFERENCES

1. American Cancer Society. Cancer facts & figures 2023. Accessed October 21, 2024. https://www.cancer.org/content/dam/cancer-org/research/cancer-facts-and-statistics/annual-cancer-facts-and-figures/2023/2023-cancer-facts-and-figures.pdf
2. Aim at Melanoma Foundation. 2024 melanoma facts & statistics. Accessed October 21, 2024. https://www.aimatmelanoma.org/facts-statistics/
3. Welch HG, Mazer BL, Adamson AS. The rapid rise in cutaneous melanoma diagnoses. *N Engl J Med*. 2021;384(1):72-79.
4. Adamson AS, Naik G, Jones MA, et al. Ecological study estimating melanoma overdiagnosis in the USA using the lifetime risk method. *BMJ Evid Based Med*. 2024;29(3):156-161.
5. American Cancer Society. Key statistics for basal and squamous cell skin cancers. Updated October 31, 2023. Accessed October 21, 2024. https://www.cancer.org/cancer/types/basal-and-squamous-cell-skin-cancer/about/key-statistics.html
6. News NBC. Social media influencers promote anti-sunscreen movement. May 2024. Accessed October 21, 2024. https://www.youtube.com/watch?v=55f3OzZ4QfE
7. Orlando Health. Survey finds young adults more likely to believe myths about sun protection and skin cancer prevention. May 1, 2024. Accessed October 21, 2024. https://www.orlandohealth.com/content-hub/survey-finds-young-adults-more-likely-believe-myths-about-sun-protection-and-skin-cancer-prevention
8. Patlola M, Shah AA, Stead T, et al. Sunscreen use amongst US adults: a national survey. *Arch Dermatol Res*. 2023;315(7):2137-2138.
9. Alaska Department of Health. Incidence of cancers associated with screening and modifiable risk factors: Alaska 2015-2019. February 2023. Accessed October 21, 2024. https://health.alaska.gov/dph/VitalStats/Documents/cancerregistry/ACR%20Screening%20Report_20230207.pdf
10. National Cancer Institute. State cancer profiles. Alaska. Accessed October 21, 2024. https://statecancerprofiles.cancer.gov/incidencerates/index.php
11. US Preventive Services Task Force. Final recommendation. Skin cancer prevention: behavioral counseling. March 20, 2018. Accessed October 21, 2024. https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/skin-cancer-counseling
12. Passeron T, Bouillon R, Callender V, et al. Sunscreen photoprotection and vitamin D status. *Br J Dermatol*. 2019;181(5):916-931.
13. Matta MK, Florian J, Zusterzeel R, et al. Effect of sunscreen application on plasma concentration of sunscreen active ingredients: a randomized clinical trial. *JAMA*. 2020;323(3):256-267.
14. Environmental Working Group. EWG's guide to sunscreens. Accessed October 21, 2024. https://www.ewg.org/sunscreen/report/the-trouble-with-sunscreen-chemicals/
15. US Food & Drug Administration. An update on sunscreen requirements: the deemed final order and the proposed order. 2022. Accessed October 21, 2024. https://www.fda.gov/drugs/cder-conversations/update-sunscreen-requirements-deemed-final-order-and-proposed-order
16. Sunscreens. *Med Lett Drugs Ther*. 2021;63(1629):115-120.
17. D'Ruiz CD, Plautz JR, Schuetz R, et al. Preliminary clinical pharmacokinetic evaluation of bemotrizinol - a new sunscreen active ingredient being considered for inclusion under FDA's over-the-counter (OTC) sunscreen monograph. *Regul Toxicol Pharmacol*. 2023:139:105344.
18. Tin A. FDA now weighing approval of first new sunscreen ingredient in decades. Updated October 2, 2024. Accessed October 21, 2014. https://www.cbsnews.com/news/fda-new-sunscreen-ingredient-review-bemotrizinol/
19. Berry EG, Bezecny J, Acton M, et al. Slip versus slop: a head-to-head comparison of UV-protective clothing to sunscreen. *Cancers (Basel)*. 2022;14(3):542.
20. Le Clair MZ, Cockburn MG. Tanning bed use and melanoma: establishing risk and improving prevention interventions. *Prev Med Rep*. 2016;3:139-144.
21. Zhu GA, Raber I, Sakshuwong S, et al. Estimation of individual cumulative ultraviolet exposure using a geographically-adjusted, openly-accessible tool. *BMC Dermatol*. 2016;16:1. ■