

Spotlight on Sunscreen Science FAQs

1. When do you choose a chemical vs mineral sunscreen for a patient?

Choosing between sunscreens must be individualized based on an understanding of the patients' skin type, environmental exposures and where and how they use sunscreens. Overall, the American Academy of Dermatology (AAD) recommends to use a broad-spectrum, SPF 30 or higher sunscreen.¹ Chemical and mineral sunscreens differ in their active ingredients and mechanism of action—chemical sunscreens work by absorbing UV rays, while mineral sunscreens absorb, deflect, and block UV rays. Dermatologists recommend mineral sunscreens for people with sensitive skin to minimize potential irritation.² Chemical sunscreens can have aesthetic benefits including translucency and a lighter consistency for ease of application. Ultimately, the best sunscreen for any given patient is the one they like and will use.

2. What advice do you give for pregnant women and young children?

Research on sunscreen use during pregnancy is limited. AAD and the American College of Obstetricians and Gynecologists do not have recommendations for sunscreens specific to pregnant women or those who are nursing.³

Parents of toddlers and infants aged 6 months or older may apply a broad-spectrum, water-resistant sunscreen with an SPF of 30 or higher to all skin not covered by clothing, according to the instructions on the product label. Even when using sunscreen, children should be kept in the shade and dressed in clothing that will protect their skin from the sun, i.e., long-sleeved shirts, pants, and wide-brimmed hats.

For infants younger than 6 months old, AAD recommends to avoid sun exposure and sunscreen use if possible. However, if shade and adequate clothing are not available, the AAD suggests caretakers apply a minimal amount of broad-spectrum, water-resistant sunscreen with an SPF of at least 30 to their children's skin.⁵ As sunburn prevention, the American Academy of Pediatrics also advises that "sunscreen may be applied to babies younger than 6 months to small areas of skin uncovered by clothing and hats".⁴

Note that a sunscreen that contains zinc oxide or titanium dioxide or is specially formulated for infants/toddlers may be more appropriate for their sensitive skin, according to the AAD.⁵

3. What is more effective, an SPF 30 or SPF 100?

SPF is a measurement of how much protection a sunscreen provides from the sun's burning rays. For example, SPF 15 blocks 93% of UVB rays, SPF 30 blocks 97%, SPF 50 blocks 98%, and SPF 100 blocks 99% of UVB rays.⁶ The science is very clear that higher SPF makes a positive practical difference in the real-world setting.⁷ Research consistently shows that consumers apply sunscreens at densities lower than are used to clinically determine SPF.⁸ Application of high-SPF sunscreens helps to compensate for this under-application.⁹ Remind patients that high-number SPFs last the same amount of time as low-number SPFs. Sunscreen should be reapplied approximately every two hours when outdoors, even on cloudy days, and after swimming or sweating.¹

4. How do you quantify the quality of UVA protection since it is not yet consistently labeled in the US?

To be labeled as broad spectrum, the FDA currently (as of August 2024) requires that the sunscreen (mineral or chemical) has an SPF over 15 and a critical wavelength equal to or greater than 370 nm.¹⁰ Sunscreens that are not broad spectrum or lack an SPF of at least 15 must carry a skin cancer/skin aging warning due to the lack of UVA protection.¹¹

While products may satisfy the requirement for broad spectrum protection, they may differ in the level of overall UVA protection they provide.

5. In what ways does formulation affect the quality of sun protection if two sunscreens have the same SPF?

Though two sunscreens may have the same SPF, they may not provide the same protection in actual patient use. How the sunscreen feels on the skin, how well it spreads, and other formulation benefits such as water-resistance, tinted or translucent finish, and oil-free appearance can impact proper application which in turn can impact the SPF provided. An aesthetically pleasing formulation encourages increased use, and therefore increased protection.¹²

6. How do we choose an appropriate SPF for different Fitzpatrick skin types?

Darker skin may be naturally better protected against UVB but is more prone to hyperpigmentation induced by visible light (VL) and UVA.¹³ For all skin phototypes, protection against UVA, VL and infrared A can be helpful as these wavelengths penetrate deeply and cause photoaging.¹³ To minimize white cast after application, which can be more noticeable on darker skin tones, we recommend a sunscreen that is formulated to be transparent or tinted to match the skin tone.

7. If sunscreen is used as directed, how does one maintain vitamin D levels?

Studies support routine usage of sunscreen is not associated with vitamin D deficiency.^{14,15} Due to the risk of skin cancer from sun exposure, the AAD recommends healthy adults should obtain adequate vitamin D from a diet that includes foods naturally rich in vitamin D and/or foods/beverages fortified with vitamin D.¹

8. What is the significance of sunscreen absorption?

Some data suggests that very low amounts of some chemical sunscreen filter ingredients may be systemically absorbed by the skin, but there is currently no evidence to suggest the clinical relevance of absorption¹⁵, and absorption of a sunscreen filter does not suggest or equate to a health risk.¹⁶ Each sunscreen filter has an established safety profile, and each has been used for decades with FDA approval. While the FDA is asking for more data on some sunscreen filters, FDA still permits these sunscreen filters to be used. Sunscreens help save lives – millions of consumers and patients around the world use these products to protect their skin and help prevent skin cancer.

9. How do you appropriately apply sunscreen lotion, stick, and spray?

While practicing sun-safe measures such as wearing protective clothing, sunglasses, and seeking shade when the sun's rays are strongest from 10am-2pm is the best protection from the sun, none of these measures completely block UV rays so sunscreen is still needed. Experts recommend applying approximately two milligrams of sunscreen per square centimeter of skin.¹⁷ That's essentially two tablespoons of sunscreen cream or lotion to the exposed areas of the face and body – a nickel-sized dollop for the face alone.¹⁷

For **stick** sunscreens, it's best to apply four or more passes back and forth, massaging it to create an even layer of coverage. For **spray** sunscreens, recommend holding the product 4-6 inches away from the skin, applying enough to make the skin glisten, and rubbing it in to minimize missed spots. Instruct patients not to inhale spray sunscreen, and never spray sunscreen around or near the face or mouth. Instead, recommend they spray the sunscreen on their hands first and then apply it to their face. Spray sunscreen should never be applied near heat or open flame, or while smoking.¹⁸

Whether **lotion, stick or spray**, recommend applying generously and evenly 15 minutes before sun exposure to allow the sunscreen film to set. Stress the importance of often missed areas such as above the lip, the nose, the tops of the ears, the back of the neck and top of head/scalp. No matter what type of sunscreen is used, reapplication is recommended every two hours when outdoors or immediately after swimming or sweating.¹⁸

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