

Taking Care of your Skin...



Did you know up to 90% of the visible changes commonly attributed to aging skin are caused by the sun?¹ In addition, about 90% of non-melanoma skin cancers are associated with exposure to ultraviolet (UV) radiation from the sun.²

Skin cancer is the most common form of cancer in the United States. According to the American Cancer Society, more than one million skin cancers are diagnosed annually.³ In fact, one in five Americans will develop skin cancer in the course of a lifetime.⁴

Studies show that while people are aware of the risks of exposure to UV radiation (~70%), only 18% use a daily moisturizer with UV protection. Even in summer, when the risk of burning is more obvious, only 58% of women reported using sunscreen daily, and 26% never use a sunscreen.⁵

The ABC's of Solar Radiation ⁶⁻⁸

UV light is described as three wavelengths: UVA, UVB, and UVC.

UVA - About 95% of the UV rays that reach the earth are UVA rays. UVA penetrates deep into the skin causing damage all the way into the dermal layers which research has linked to premature aging and wrinkle formation. (See illustration below.) UVA penetrates cloud cover, light clothing, and untinted glass.

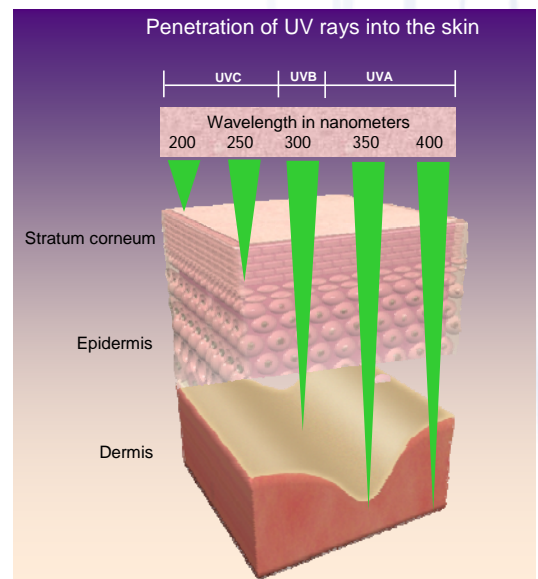
UVB - UVB rays are responsible for causing harmful sunburns as they penetrate just below the skin surface into the epidermal layers of the skin. Transmission of UVB peaks between the hours of 10:00 a.m. - 2:00 p.m., making it less dangerous in the early morning and late evening hours. UVB can be blocked partially by very dense clouds, layers of clothing, and glass.

UVC - UVC is currently absorbed by the ozone layer of the Earth's atmosphere, so nearly all of our concern centers around protection from UVA and UVB rays.

All About Sunscreens ^{10,11}

Sunscreens are chemical agents that help prevent the sun's ultraviolet (UV) radiation from reaching the skin. Sunscreen ingredients absorb, reflect or scatter UV rays, and each sunscreen varies in its ability to protect against UVA and/or UVB. Since each sunscreen ingredient absorbs UV across a specific range, it's important to use a product containing a combination of effective sunscreen ingredients to truly get "broad spectrum" protection.

Broad spectrum sunscreen means the sun protection ingredients absorb UV across the entire range of UV radiation and protect against both UVA and UVB rays.



Understanding SPF (Sun Protection Factor)¹⁰

SPF is a measure of a sunscreen's ability to prevent UVB from damaging the skin. Here's how it works: if it takes 20 minutes for your unprotected skin to start turning red, using an SPF 15 sunscreen theoretically prevents reddening 15 times longer – or about five hours. Another way to look at it is in terms of percentages. SPF 15 blocks approximately 93% of all incoming UVB rays, SPF 30 blocks 97%, and SPF 50 blocks 98%.

But there are problems with the SPF model. First, no sunscreen, regardless of strength should be expected to stay effective longer than two hours without reapplication. Second, reddening of the skin is a reaction to UVB rays alone and tells you little about what UVA damage you may be getting. Plenty of damage can be done without the red flag of sunburn being raised. Currently, in the United States, there is no specific measurement of UVA protection listed on products, only the indication of “broad spectrum protection” for those products that contain both UVA and UVB blockers.

Refer to the chart below which summarizes various levels of SPF protection and how much UVB protection is provided.

<u>SPF</u>	<u>Fraction of Burning UV Transmitted</u>	<u>Time Until Sunburn</u>	<u>Burning UV Blocked</u>
1	1/1 (all of it)	no change	0%
4	1/4	4x	75%
15	1/15	15x	93%
30	1/30	30x	97%
50	1/50	50x	98%



Compounding the Damage⁹

Time of Day - The sun is at its highest in the sky around noon. At this time, the sun's rays have the least distance to travel through the atmosphere and UVB levels are at their highest. In the early morning and late afternoon the sun's rays pass through the atmosphere at an angle so intensity is greatly reduced.

Time of Year - The sun's angle varies with the seasons causing the intensity of UV rays to change. UV intensity tends to be highest during the summer months.

Latitude - The sun's rays are strongest at the equator where the sun is most directly overhead, and UV rays must travel the least distance through the atmosphere. At higher latitudes the sun is lower in the sky, so UV rays must travel a greater distance through ozone-rich portions of the atmosphere where they're exposed to less UV radiation.

Altitude - UV intensity increases with altitude because there is less atmosphere to absorb the damaging rays. Therefore, when you go to higher altitudes such as a mountainous ski resort, your risk of overexposure increases.

Reflection - Some surfaces such as snow, sand, and water can reflect much of the UV radiation that reaches them. Because of this reflection, UV intensity can be deceptively high even in shaded areas.

How much do I need?

The damaging effects of UV exposure are cumulative. Research has shown intermittent use of sunscreen is not enough to protect the skin from sun damage. In a study which examined UV exposed skin after using SPF 15 on a daily basis versus using SPF 29 intermittently, researchers found that skipping sun protection on one day out of four was enough to lower the skin's defense mechanisms and increase endpoints related to skin photoaging.¹²

In addition, a little dab *won't* do. The FDA recommendation for the amount of sunscreen needed to cover the entire body is 2mg/cm² of sunscreen which is on average 1oz. - about a shot glass full.² For the face, the average amount needed is about the size of an almond. These are the amounts needed to get the intended protection from the sunscreen product.

Studies show that most people apply only half to a quarter of that amount, which means the actual SPF they have on their body is lower than advertised. This means applying half of the effective dose of an SPF 30 product will not result in an SPF 15, but more likely only an SPF 7 or 9.¹³



On the other hand, applying two layers of lotion assures more even, continuous coverage, and it more than doubles the SPF on the skin. During a long day at the beach, one person should use around one half to one quarter of an 8 oz. bottle. Sunscreens should be applied 30 minutes before sun exposure to allow the ingredients to fully bind to the skin.

Reapplication of sunscreen is just as important as putting it on in the first place, so reapply the same amount every two hours. Sunscreens should be reapplied immediately after swimming, toweling off, or excessive sweating.¹⁰

The Feel Good Factor

Studies have shown that sunscreens should be aesthetically pleasing to achieve proper dosing and usage among both women and men. Although latest advancements in sunscreen formulation have resulted in products with broad-spectrum UV protection that are light, non-greasy, and have a pleasing scent, many people complain sunscreens are heavy, greasy, and have an unpleasant odor.

Additionally, anti-aging ingredients such as vitamins, peptides, and antioxidants are also able to be successfully added to sunscreens, providing the ability to help fight the appearance of aging and prevent further damage at the same time. We've attached a list of P&G Beauty products that offer broad spectrum UV protection.

Common Myths¹⁰

The Skin Cancer Foundation provides some real truth behind these most common myths associated with sunscreen usage:

Myth #1: Wearing sunscreen can cause vitamin D deficiency.

There is some controversy regarding this issue, but few dermatologists believe (and no studies have shown) that sunscreens cause vitamin D deficiency. Also, vitamin D is available in dietary supplements and foods such as salmon and eggs, as well as enriched milk and orange juice.

Myth #2: If it's cold or cloudy outside, you don't need sunscreen.

This is not true. Up to 40% of the sun's ultraviolet radiation reaches the earth on a completely cloudy day. This misperception often leads to the most serious sunburns because people spend all day outdoors with no protection from the sun.

Myth #3: Eighty percent of your sun exposure comes as a child, so it's too late to do anything now.

It appears this universally promoted idea was based largely on a misinterpretation. A recent multi-center study showed that we get less than 25% of our total sun exposure by age 18. In fact, it's men over the age of 40 who spend the most time outdoors and get the highest annual doses of UV rays. And since adult Americans are living longer and spending more leisure time outdoors, preventing ongoing skin damage will continue to be an important part of a healthy lifestyle.

Spreading the Word!

We know you want what's best for you skin and more importantly, your health. Please share with others the damaging effects of UV exposure and what you've learned about developing a "Safe Sun Strategy" to help protect your skin.

Additional resources for information on UV radiation and sunscreens:

www.skincancer.org

www.aad.org

www.epa.gov



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