

*Note: This document contains Dr. Epstein's 2014 update on sun protection followed by the original 2013 article*

## SUN FACTS 2014 IMPORTANT UPDATE

I found an informative and very useful resource to help us decide which sun protection products are the most effective, safest, and why. **The Environmental Working Group (EWG)** is an American, Washington, D.C. based non-profit organization whose mission is "to use the power of public information to protect public health and the environment."

**Their website is:** <http://www.ewg.org/2014sunscreen/sun-safety-gets-easier/>



You can download this free app to your phone (go to their homepage--see above), and it will allow you to check sun protection products (and thousands of other skin care products) while you shop by using your phone to scan the barcode on the sun protection product. The FDA has, for the first time, set a minimum performance standard for sunscreens that use the term "broad spectrum" to denote that they provide a measure of protection from ultraviolet-A rays as well as ultraviolet-B rays. Check to see if the cream you are purchasing has broad spectrum (UVA and UVB),

whether it is water-resistant, and if it contains any potentially toxic chemicals.

I prefer to use a product containing Titanium and or Zinc Oxide, a non-chemical sun protection, on my face because it has broad spectrum protection (UVA and UVB) and won't irritate my skin or eyes the way chemical sun protection can. There is some discussion about the risks of absorption of these products, but I believe the benefits outweigh the risks. **Apply 1 ounce (2 tablespoons)** of sun protecting product to your entire body. If you are using a chemical sun protection product, apply 30 minutes before going outside because it has to absorb into the skin to work (unlike Titanium or Zinc Oxide, non-chemical sun protections which are immediately protective). Reapply every two hours or immediately after swimming or excessive sweating.

The following updates are taken directly from the EWG's website:

### Update #1

#### Potentially toxic ingredients in currently available sunscreens:

- **Vitamin A**, also known as retinyl palmitate and retinol - Vitamin A is an antioxidant added to skin products because manufacturers believe it slows skin aging. They may be right in the case of lotions and night creams used indoors, but the federal study raised the possibility that it may speed the growth of cancerous tumors when used on skin exposed to sunlight. This ingredient is in about 20 percent of the beach and sport sunscreens and 12 percent of SPF moisturizers in this year's database. It is used in regular makeup as an anti-aging ingredient. **It has been shown to hasten the development of skin tumors and lesions on sun-exposed skin.** Data on the potential skin cancer risk of retinyl palmitate have been public since 2010, but most sunscreen makers have not abandoned this chemical as they should. EWG recommends against using sunscreen and cosmetics whose labels disclose the presence of vitamin A, retinyl palmitate or retinol until this chemical's safety **on sun-exposed skin** is proven. If you are undergoing skin treatments with any form of vitamin A for medical purposes, you should do so in consultation with a dermatologist, apply treatments at night if possible, and always practice strict sun avoidance when using these powerful ingredients on your skin.
- **Oxybenzone** - This common chemical sunscreen filter shows up in nearly half of the beach and sport sunscreens in **EWG's database** this year. It has

several disadvantages: it soaks through skin, triggers allergic skin reactions in sensitive individuals and may disrupt the hormone system (Krause 2012). Despite evidence that oxybenzone is a hormone disruptor, the FDA has not yet investigated it rigorously. The agency should give oxybenzone top priority because it has been detected in urine and breast milk samples and could affect the development of the fetus and the health of children and adults (Schlumpf 2010, Calafat 2008).

### Update #2

- **FDA has banned loose powder products from claiming SPF protection:**

**The FDA has issued a rule barring sunscreen and makeups in loose powder form from claiming SPF protection.** But several powders are still on the market. These contain zinc or titanium nanoparticles that should not be inhaled. Powders also have a practical drawback; users cannot tell if they are applying a thick, even coating essential for UV protection. Therefore, I am no longer recommending that my patients use powders for sun-protection.

### Update #3

- **Moisturizers with SPF** - Daily-use moisturizers with SPF claims should offer lasting protection from both UVA rays and UVB rays. UVA rays are especially insidious because they bombard us year round, in contrast to UVB rays, which are more intense in the summer. **Most moisturizers with SFP don't fill the bill.** This year EWG examined the product labels of 246 moisturizers with SPF and found that only one in four offered strong and lasting sun protection. This is a critical shortcoming, because moisturizers are generally designed to be applied just once a day."

**What can we do to reduce our risk of both skin cancer and aging effects of the sun?** Sunscreens are not perfect in protecting us from the harmful effects of the sun. Therefore, EWG suggests that we adjust our attitude about sun exposure. **The Skin Cancer Foundation and the Environmental Working Group recommend:**

Do not use sunscreen as a tool to prolong your time in the sun as this will increase your exposure to harmful UVA rays; although you won't burn your skin, you still are being exposed to harmful effects of UVA.

- **Seek the shade**, especially between 10 AM and 4 PM.
- **Covering up** with sun protective clothing is the best protection, including a broad-brimmed hat and UV-blocking sunglasses.
- **Avoid sunburn!**
- **Do not use a tanning bed or sunbathe.**
- **Protect kids! Keep newborns out of the sun.** Early life sunburns are more risky for causing skin cancer, so keep little ones out of the hot sun.
- Sunscreens should be used on babies over the age of six months
- **Use a broad spectrum (UVA/UVB) sun protection product** with an SPF of 15 or higher every day. For extended outdoor activity, use a water-resistant, broad spectrum (both UVA/UVB) sun protection with an SPF of 30 or higher up to 50. (Remember SPF relates only to UVB efficacy)
- **Vitamin D.** Commit to getting screened for vitamin D deficiency.
- There is speculation, but not proof, that adequate levels of vitamin D can reduce the risk of melanoma. Vitamin D might be good for combatting other types of cancer, but certainly adequate Vitamin D levels help prevent bone loss.
- **Examine your skin.** Check your skin regularly for new moles that are tender or growing. Ask your primary care doctor how often you should see a dermatologist for an expert skin cancer screening. Have yearly eye exams with your ophthalmologist.

### Other Excellent Resources:

1. The Skin Cancer Foundation website: [www.skincancer.org/](http://www.skincancer.org/)

- Explains SPF
  - Advises on sun protection for babies and young children
  - Explains harmful effects of sun on the eyes, and how to protect the eyes by wearing proper sunglasses.
  - Gives photographs and descriptions to detect early skin cancers.
2. Sun protective clothing for adults and children that I have had personal experience with:
- Sun Precautions: <http://www.sunprecautions.com/>
  - Coolibar : <http://www.coolibar.com/home.jsp>
  - Sunday Afternoons: <http://www.sundayafternoons.com/>

3. To check your medications that potentially could sensitive you to the sun, visit this link:

<http://emedicine.medscape.com/article/1049648-overview>

4. Addition reasons to minimize sun exposure:

- If you have medical conditions (such as lupus) that require you to avoid sun exposure [www.skincancer.org/](http://www.skincancer.org/)
- If you have already had a skin cancer
- If you have a fair complexion and red hair
- If you smoke, be forewarned that it can compound damage of the sun on your skin. This is yet one more good reason to quit.

# Dr. Wendy Epstein's Sun Facts 2013

## Part One: The Basics

Sun exposure is not in itself bad for you. Excessive sun exposure is. It prematurely ages your skin causing wrinkling and loss of elasticity; and it is the main cause of skin cancer. Modern science has found effective ways to protect you. The first line of defense is a good sun protection product or sunblock; the next most important thing is covering up with clothing that blocks the sun.

Sunlight contains three types of ultraviolet light called UVA, UVB, and UVC. Since UVC is absorbed high in the atmosphere before it reaches us, we don't concern ourselves with it. We used to think that UVA caused aging and UVB caused cancer, but that is changing. Science now better understands that UVA contributes to skin cancer. The thing to remember about UVA is that it goes through clouds and glass, so don't think you are safe on an overcast day or sitting in your sunroom or, for that matter driving in your car. UVB causes sunburn and is a major factor in skin cancer. It does its most damage between 10AM and 4PM. You can't take a vacation from UVB because it is worse at high altitudes and bouncing off of sand or snow.

You want to buy a “broad spectrum” sun protection product because it absorbs or partially blocks both UVA and UVB. We measure how effective they are with a number called SPF for Sun Protection Factor. SPF is also used in clothing, and we’ll get to that soon. A SPF of 30 means that a sun protection product reduces UVA and UVB absorption to the equivalent of 1/30<sup>th</sup> of the time you spend in the sun. For example, if you spend 90 minutes in the sun with a SPF 30 sun protection product on, it’s the same as spending only 3 minutes with no sun protection product at all. Another way of looking at it is that if your skin can take 20 minutes of direct sun exposure before you start to turn pink, using a SPF 30 would give you 600 minutes—ten hours—of protection, only if used as recommended. **The actual protection you will get from a particular sun protection product requires that you follow the manufacturer's directions as to amount to be applied, timing and frequency of application, and reapplication when exposed to water, sweating or toweling off.**

Remember this: if you want to avoid skin cancer, block or screen the sun. The two main things in your life that affect how your skin ages are genetics and sun exposure. You can’t do anything about the first, but can do a great deal about the second. Scientists now believe that 90% of the visible changes we call aging—wrinkles, brown spots, and sagging—can be attributed to sun damage.

## Part II: Screening and Blocking

Think carefully about this statement: I use a sun protection product on my face every day of the year. I recommend you do as well. I also wear sunglasses with UV protection and am never without a broad brimmed hat when outdoors from early Spring to late Fall.

Let’s deal with clothing first. Solumbra Corporation ([www.sunprecautions.com](http://www.sunprecautions.com)) pioneered making clothing with an SPF of 100+. Since then many manufacturers and designers have entered the field. Coolibar, LL Bean, and REI are three others. Sometimes clothing manufacturers use the term UPF (Ultraviolet Protection Factor) instead of SPF but the calculation is the same. Check out their websites. I wear Solumbra long sleeve shirts or their equivalent whenever I am outdoors for an extended time. They are very lightweight and don’t trap the heat (see photo at end of this article).

Hats are the most essential sun protection garment. They not only protect your face, but the oft overlooked scalp as well. Peaked caps give you some face protection, but expose your ears and the back of your neck. Visors are even worse offering no protection for the scalp. You want a broad brim—at least four inches--a high SPF, and a chin cord. There are so many good looking hats out there for both men and women. Google it.

If you are headed to the beach or pool, consider buying a “dive skin.” Scuba divers and snorkelers use “skins” that are very lightweight and cover you from wrist to ankle. They used to be either black or black, but now you can get in touch with your wild side at sites with beautiful and occasionally outrageous dive skins.

I highly recommend full coverage swimwear for children. From Solumbra, here is what a toddler swimsuit looks like(see left sidebar).

You should only buy sunglasses with UV protection. These protect the delicate skin around your eyes, the eyelid, and most importantly your vision. UV exposure to the eyes causes cataracts. Rarely melanomas can occur on the inside of the eye. Fortunately, UV protection in sunglasses is becoming very common. You can get it in off-the-rack glasses or prescription lenses. Read labels carefully. Remember, the bigger the glasses the more of you face you are protecting. Wider sides afford more protection.

### **Part III: Everything you always wanted to know about “Sunscreens” and “Sunblocks”**

Soon the new FDA regulations about labeling of sun protection products are going into effect. Currently **Sunblock** refers to a physical blocking of the sun’s ultraviolet rays. Sunblocks are made out of metals like titanium oxide and zinc oxide. The tiny particles of these metals are suspended in a cream or lotion that is applied to the surface of your skin.

Currently **Sunscreen** refers to a chemical or combination of several chemicals that are able to absorb some of the ultraviolet radiation of the sun so that your skin cells absorb less. The ultraviolet light of the sun

actually causes a physical change in the structure of the chemical sun protection product, thereby “absorbing” the ultraviolet radiation so that the energy of the ultraviolet radiation will not damage the DNA of the cells of your skin. The concentration and combination of the various available chemicals used determines the effectiveness of the particular sun protection product. The FDA will soon require that all sun protection products be broad spectrum covering both UVA and UVB, and the SPF number will reflect the degree of protection, specify whether they are water resistant to forty minutes or eighty minutes instead of using the term “waterproof.”

***The American Academy of Dermatology recommends everyone use sun protection product that offers the following:***

- Broad-spectrum protection (protects against UVA and UVB rays).
- Sun Protection Factor (SPF) 30 or greater.
- Water resistance. The FDA is banning the use of the words “waterproof” and “sweatproof.” Water resistant means it still works after 40 to 80 minutes in the water or sweating heavily.

***When should you use sun protection product?***

- Every day. The sun emits harmful ultraviolet (UV) rays year round. Even on cloudy days, harmful UVA rays can penetrate your skin. On a cloudy day, up to 80 percent of the sun’s UV rays can pass through the clouds.
- Snow and sand increase the need for sun protection product. Snow reflects 80 percent of the sun’s rays, and sand reflects 25 percent of the sun’s rays.

***How much sun protection product should you use, and how often should you apply it?***

- Use enough sun protection product to generously coat all skin that will be not be covered by clothing that is known to be sun protective (you can burn though a wet cotton t-shirt). Ask yourself, “Will my face, ears, arms, feet or hands be covered by clothing?” If not, apply sun protection product.



■ Most people only apply 25-50 percent of the recommended amount of sun protection product To be sure you use enough, follow this guideline:

■ One ounce, enough to fill a shot glass, is considered the amount needed to cover the exposed areas of the body. Adjust the amount of sun protection product applied depending on your body size.

■ Apply the sun protection product to dry skin 15 minutes BEFORE going outdoors.

■ Skin cancer also can occur on the lips, especially on the lower lip. To protect your lips, apply a lip balm or lipstick that contains sun protection product with an SPF of 30 or higher.

■ Re-apply sun protection product approximately every two hours or after swimming or sweating heavily according to the directions on the bottle.

### *What type of sun protection product should you use?*

■ The best type of sun protection product is the one you will use again and again. Just make sure it offers UVA and UVB protection, a SPF of 30 or greater and is water resistant.

■ The kind of sun protection product you choose is a matter of personal choice, and may vary depending on the area of the body to be protected. Available sun protection product options include lotions, creams, gels, ointments, wax sticks and sprays.

■ Creams are best for dry skin and the face.

■ Gels are good for hairy areas, such as the scalp or male chest.

■ On the face and around the eyes it is better to use the non-chemical sun protection products that contain zinc oxide or titanium oxide (like Cotz 58 or Banana Boat for Babies #50).

■ Sprays are sometimes preferred by parents since they are easy to apply to children. I don't recommend this. The FDA is just beginning to investigate the effects of inhaling sun protection product sprays. Remember not to spray near open flames.

- There also are sun protection products made for sensitive skin and babies. Be sure the product is recommended for children and infants before using it.

***Can you use the sun protection product you bought last summer, or do you need to purchase a new bottle each year? Does it lose its strength?***

- If you are using sun protection product every day and in the correct amount, a bottle should not last long. If you find a bottle of sun protection product that you have not used for some time, here are some guidelines you can follow:
  - The FDA requires that all sun protection products retain their original strength for at least three years.
  - Some sun protection products include an expiration date. If the expiration date has passed, throw out the sun protection product.
  - If you buy a sun protection product that does not have an expiration date, write the date you bought the sun protection product on the bottle with a waterproof marking pen. That way you'll know when to throw it out.

***Will using sun protection product limit the amount of vitamin D you get?***

- Using sun protection product may decrease your skin's production of vitamin D. If you are concerned that you are not getting enough vitamin D, you should discuss your options for getting vitamin D with your doctor.
- Many people can get the vitamin D they need from foods and/or vitamin supplements. This approach gives you the vitamin D you need without increasing your risk for skin cancer.

## **In Conclusion**

There is no safe way to tan. Tanning is the body's response to injury. Every time you tan, you damage your skin. As this damage builds, you speed up the aging of your skin and increase your risk for all types of skin cancer. Keep your skin out of the sun and your body out of the tanning booth. If you must look tan, spray it on.

Find yourself a few high SPF hats you love. Make your partner wear one too. Wear long sleeves.

Regarding sun protection products remember this: Broad Spectrum, SPF of at least 30, water resistant. Apply generously and often, starting 15 minutes before you go outside. Don't forget the tops of your feet. If you are putting sun protection product by yourself, you might want to have a spray to get those hard-to-reach parts of your back.

Pay careful attention to the amount of sun your children are getting: they won't. Scientists are increasingly concerned about the long term effects of childhood skin damage. The kids will fight you on everything from hats to tanning booths, so be firm. Tell them it's for their own good. That always works, right?