

THE SPF FACTOR

Can sunscreen
really damage
your skin?

A recent study by the University of California, Riverside found that filters in sunscreens that help to keep out ultraviolet radiation can generate compounds that attack skin cells.

In this study, researchers found many ingredients in sunscreens penetrate the skin, which is not perceived as healthy. They also found that sunscreens generate Reactive Oxygen Species (ROS), which are harmful compounds.

When we apply sunscreens, UV filters in these products reduce the amount of UV

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radiation that can penetrate the skin. Over time, these filters penetrate into the skin themselves, below the epidermis, leaving the body vulnerable to UV radiation. Many sunscreens also contain nano particles that can also facilitate the penetration of harmful ingredients into the skin.

The aforementioned study led by Kerry M. Hanson, a senior research scientist, found that three UV filters (octylmethoxycinnamate, benzophenone-3 and octocrylene) which are widely used in sunscreens generate naturally produced ROS. Additional ROS are generated only when the UV filters have penetrated into the skin. One must reapply the sunscreens frequently to help prevent this. The study proposes that sunscreens that combine UV filters with antioxidants may well be a good solution as antioxidants have been shown to reduce UV-induced ROS levels in the skin.

Sunscreens Have a Cocktail of Chemicals

Skin exposed to ultraviolet radiation is absorbed by skin molecules that can generate ROS, a harmful compound that can cause oxidative damage. In simple terms, ROS reacts with cell walls, lipid membranes, mitochondria and DNA, leading to skin damage and increasing the signs of extrinsic aging. This recent study is consistent with the finding of a 1999 study in which a British biochemist suggested that the cocktail of chemicals involved in sunscreens could cause cell damage and lead to increased risk of cancer due to the creation of free radicals. Many cosmetic companies and sunscreen manufacturers feel these studies are confusing, not conclusive and send the wrong message.

The SPF Question

There have been many studies on the topic of sunscreens and cancer over the past decade. While the conclusions vary, several prominent researchers believe that using higher SPF-rated products can lead to higher rates of melanoma.

In one of the more widely quoted studies on sunscreen use that dates to the early 1990s, Drs. Cedric and Frank Garland believe that using higher SPF sunscreens leads to individuals staying out in the sun longer via a false sense of security coupled with the fact that UVA rays penetrate into the body and may well have a depressing effect on the body's immune system.

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10 SUN COMMANDMENTS

1. Thou shalt always use an antioxidant sun screen with between 15 spf and 30 spf.
2. Thou shalt avoid being in the sun between the hours of 10 a.m. and 3 p.m.
3. Thou shalt cover up with protective clothing and wide-brimmed hats.
4. Thou shalt avoid tanning booths and sun lamps.
5. Thou shalt not allow children younger than 12 months in the sun and protect all children with sunscreen and proper clothing.
6. Thou shalt use topical Vitamin A and antioxidant skin care products daily.
7. Thou shalt care for sun-damaged skin with professional treatments at your doctor's or skincare therapist's office.
8. Thou shalt use cosmetic bronzers or self-tanners when a "sun-kissed" look is desired.
9. Thou shalt see a dermatologist yearly for a full body screening.
10. Thou shalt share sun safety knowledge with friends and family.

mammogram screening to 50 years old, it's important to stay current with self exams. Make sure that you become familiar with the landscape and check your breasts regularly in the shower and dressing room. Are there any new bumps or painful areas? Do you have any changes around the nipple area? With new tests ranging from estrogen metabolites to SnP testing for estrogen metabolism, HALO and thermography, every woman should be excited that there is more that we can do about checking disease risk.

The way women handle or process their estrogens can be very enlightening in terms of predicting future breast cancer risk. The 2-OH estrone is the 'good' estrogen metabolite and certain nutrients such as high-potency sulforaphanes can actually promote healthy levels of this protective metabolite, so ask your doctor for this all-important test!

Also, some women have a genetic component to their disease risk and obtaining a profile for their SnPs may be very useful. Some patients cannot process their estrogen well towards the healthier 2-OH estrone because they have inherited a sluggish enzyme profile. Checking actively for these SnPs can tell us a lot about our future disease risk. Often, if we had the proper information ahead of time, we would have dodged that bullet of disease!

The new HALO and the well-established thermogram diagnostic tests are also proactive tools in the fight against breast cancer. They can show cancer risk a good five to seven years before the standard mammogram. Inexpensive and easy to do, they involve no squeezing, X-ray exposure or compression. Most women find these tests easy to have done and feel relieved that they have other alternatives. ▼

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If you're inclined to make large gifts

The temporary repeal of the GST tax provides an opportunity to make gifts to skip beneficiaries free from the GST tax. You can make large gifts to grandchildren, subject only to the gift tax (at a 35% tax rate). If you don't want to make a gift directly to your beneficiaries, you can gift to a dynasty trust which directs when beneficiaries are able to access their gifts. However, if the GST tax is imposed retroactively, some of those gifts may be subject to that tax after all. You'll have to weigh this possibility against the potential tax savings of gifting without the GST tax to determine the best course of action for you.

If you've already begun a plan of gifting to grandchildren, either directly or through dynasty trusts, you should review your estate plan. If gifts to your grandchildren are based on your available GST tax exemption, those gifts may not be made if you die in 2010, when the GST tax is repealed. An estate planning professional may be able to amend your documents to include a different formula to account for the possibility that there is no GST tax exemption when allocating gifts to grandchildren.

The tax law changes in 2010 have given rise to much confusion and many issues to consider. Inaction is the least favorable option. Keep abreast of the potential legislative changes that might occur in 2010 and work with your estate planning professional to update your plan documents to best carry out your wishes now and in the future. ▼

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Yet another researcher, Martin Weinstocks, found that when he analyzed better-known studies concerning the use of sunscreens and cancer, he found mixed results, with some showing an increased risk, three others a decreased risk and still others were inconclusive.

One of the largest studies of sunscreens and skin cancer conducted in Australia led to the conclusion that, while products do a better job of protecting against ultraviolet (UVB) and C (UVC) rays, they do little to stop UVA rays that may play a significant role in the formation of melanomas.

Despite popular opinion to the contrary, there is little difference between a SPF of 15 and 60 despite the common belief that there is a major increase in protection. In this case, more may be worse. We also need to remember that SPF rating only measures the sunscreen's ability to filter out UVB rays, not the more dangerous UVA. The federal government is fast at work revising the entire sunscreen-rating system to help better inform us all.

What's Best?

It may be wise to use an SPF of 15 (it gives 90 percent UVB protection) vs. 60 (only slightly more) as the higher rating may lead to staying out in the sun longer, providing a false sense of security and increasing the amount of chemicals that can both penetrate into the skin and exacerbate signs of aging and melanoma development.

The uses of sunscreens that contain physical and chemical blockers, plus antioxidants, are best. It may also be wise to apply an antioxidant cream that contains vitamins E and/or C on top of your sunscreen to help limit free-radical formation and the resulting chemical damage. We should reapply product no less than every two hours, wear protective clothing (shirts, hats, sunglasses) and limit sun exposure during the hours of 10 a.m. and 2 p.m. Never allow yourself to be exposed enough to get a burn. If you are prone to or have had a skin cancer, it is imperative to use a topical, pharmaceutical-grade skin cream or gel with active Vitamin A and an antioxidant. ▼

Robert Trow is an authority in the business of skin care and has been in the skin care field for more than 10 years. He speaks frequently on current and emerging topics at national and international meetings and to medical spas, aestheticians and physicians. He and his wife, Carol, own DermaConcepts USA and are the eastern US distributors of Environ Skin Care.