[IMAGE]

The Sunscreen Dilemma

By Jacob Schor, ND

Wearing sunscreen prevents sunburns, but research suggests it might not reduce your risk of developing cancer; in fact, it might actually *increase* your risk.
That's the sunscreen dilemma.

In Hans Christian Andersen's fairy tale The Emperor's New Clothes, two swindlers convince the emperor that they have made a suit of clothes for him out of special cloth. The cloth is magically invisible to people who are stupid, or so they tell him. The emperor, not wanting to appear stupid, says he can see the cloth and proceeds to parade naked through the city. None of the onlookers admits that he is naked, either, until an innocent child shouts out the obvious. Our reliance on sunscreen as protection against skin cancer is about as effective as the emperor's magic clothing.

Sunblock: Blocking Vitamin D

Experts have encouraged sunscreen use as protection against the skin damage that leads to malignant melanoma. Unfortunately, these sunscreens prevent the skin from making vitamin D from sunlight - and many studies now suggest that vitamin D is protective against cancer. Sunscreen is designed to block UV penetration into the skin. That's precisely why it prevents sunburn. This is also why it prevents production of vitamin D. Even relatively weak sunscreens (as low as SPF-8) will block UV and stop vitamin D production.

Kid and Sunscreen - Copyright â Stock Photo / Register Mark Malignant melanoma is relatively rare. It is responsible for less than 10,000 fatalities a year in the United States. Other cancers cause far more fatalities. Lung cancer causes about 150,000 deaths a year. Breast cancer about 40,000. In all, about half a million people in the U.S. die of cancer each year.

William Grant, a major vitamin D researcher, estimates that vitamin D deficiency causes 100,000 people to develop cancer each year who wouldn't have if they had adequate levels to provide protection, leading to 40,000 deaths per year. Cedric Garland concluded years back that 1,000 IU of vitamin D a day decreases risk of colorectal cancer by half. Giving everyone a moderate dose of vitamin D could, in theory, prevent

28,000 colon cancer deaths a year. Grant calculated that spending a billion dollars to provide 1,000 IU of vitamin D a day to everyone in Europe and North America would save between $16 and $25 billion in cancer care costs.

So, does sunscreen's protective action against skin cancer outweigh the decrease in vitamin D production and loss of protection against other cancers? If we all stopped using sunscreen, what would the trade-off be? How many more cases of skin cancer would we cause by increasing vitamin D production naturally?

Does Sunscreen Help?

Seeking a statistical measurement of sunscreen's benefit yields a great surprise: It doesn't appear to work. In 1999, Martin Weinstock published the results of a meta-analysis of 13 epidemiological studies on the relation of sunscreen use to melanoma risk. Three studies showed a decreased risk of melanoma, but four showed an *increased risk* and six were inconclusive. A 2002 review published in the *British Journal of Dermatology* yielded no more assurance that sunscreen is protective. To quote the authors' abstract: "Two case-control studies show a protective effect of sunscreen use, while three studies showed a significant risk associated with sunscreen use." They found excuses to explain away the results that suggested sunscreen use increased risk.

A 2007 study in the *Annals of Epidemiology* tells us something else we would prefer not to read. Data from 17 different studies on sunscreen use were analyzed based on the latitude at which they were conducted. Of these, 10 studies were conducted at latitudes >40 degrees from the equator and seven at < 40 degrees. When all the data were combined together, *no protective effect was seen* against skin cancer.

Analyzing the data based on latitude yielded another disturbing result. In studies conducted at latitudes more than 40 degrees from the equator, sunscreen useactually *increased risk*. The odds ratio of getting skin cancer increased to 1.6 times the normal rate. In simpler words, people were about one and a half times as likely to get cancer. Below 40 degrees latitude, sunscreen use lowered skin cancer risk ratio, but only slightly.

Does Sunscreen Harm?

Sunscreen Bottle 2 - Copyright â Stock Photo / Register Mark Even if sunscreen doesn't protect against skin cancer, why would it increase risk? The explanation is simple. Most chemical sunscreens block ultraviolet B (UVB), but are transparent to ultraviolet A (UVA). More than 90 percent of the ultraviolet light from the sun is UVA. Sunscreens work very well to prevent your skin from getting red or sunburned. They allow us

to stay out in the sun much longer than we would if we were getting burnt. As a result, the skin ends up *more damaged* than if we hadn't used sunscreen.

The complete explanation may actually be a bit more complex. Kerry Hanson at the University of California exposed human skin samples grown in the lab to UV radiation while supposedly protected with the chemicals commonly used in sunscreens. One hour later, each compound had soaked into the skin, reducing its protective effect. This finding gave rise to the news reports suggesting that you need to reapply sunscreen every two hours. But these news stories missed the important part of the research: The skin samples that were supposedly protected by sunscreen contained more reactive oxygen species (ROS) than skin with no sunscreen on it (presumably caused by the exposure to UV radiation). ROS are free radicals that damage skin cells and increase the risk of skin cancer.

Sunscreen jar - Copyright â Stock Photo / Register Mark If sunscreen doesn't work, why isn't anyone talking more about it? This is where we come back to Hans Christian Andersen's story about the emperor who paraded around town naked. Perhaps everyone is afraid to say anything for fear of looking stupid. Sunscreen probably doesn't work to prevent skin cancer. There's no question that it stops sunburn, though.

One thing's for certain: Sunscreen is definitely no miracle cure to prevent skin cancer. You've got to do something else. The best way to prevent sun damage is to keep skin covered when exposed to bright sunlight, and to protect the skin with antioxidant vitamins and polyphenol plant extracts.

Antioxidant Protection - A Better Way?

Sun damage is oxidative damage, and there are clear studies that show vitamins and plant extracts can reduce oxidative damage due to UV radiation, providing protection against skin cancer. Radiation damage increases the generation of reactive oxygen species in the skin cells. Various phenolic compounds and flavonoids that we are already familiar with will quench these oxidative species and can be used to provide protection.

Lady under beach umbrella - Copyright â Stock Photo / Register Mark The best way to get these compounds to the cells that need them the most is by topical application. A 2004 article in the *Journal of Cosmetic Dermatology* tells us: "There are two great advantages in applying an active formulation of topical antioxidants to the skin. First, the skin attains far higher levels of each antioxidant than can be achieved by only taking these vitamins orally. The level of vitamin C attained in the skin by topical application is 20-40

times that achievable with oral vitamin C. With topical application, the concentration of vitamin E in the skin increases by a factor of 10.6 and selenium by a factor of 1.7. Second, topical application arms the skin with a reservoir of antioxidants that cannot be washed or rubbed off, a protection which stays in the skin for several days after application."

A variety of compounds have already been studied that work. Vitamin C, vitamin E and selenium help heal sun damage to cells. Vitamin E is very protective, especially in combination with selenium. Green tea extracts also prevent damage. Actually, quite a few plant extracts appear to be protective. If you are making a list, add milk thistle, grape seed extracts, pomegranate extracts, caffeine and cat's claw.

Unfortunately, no one seems to be making a product containing actual therapeutic doses of these supplements. No problem; it is actually easy to make your own. Pick a moisturizer or whatever topical cream you like to use, open up a few capsules of any of these vitamins and plant extracts, and mix them in. About 2 to 10 grams added to each ounce of cream should do it. You've created your own topical antioxidant sun protectorant. Apply this fortified skin cream to sun-exposed skin daily, especially before and after intense sun exposure. It won't prevent sunburn, but it may eventually be proven to prevent skin cancer.

Protecting Your Skin From Sun Damage

Is there an easy solution to the sunscreen dilemma? Not necessarily. Applying sunscreen will prevent vitamin D production and result in more skin damage, since it enables you to increase your sun exposure without burning. On the other hand, staying out in the sun for hours without sunscreen certainly won't help you avoid skin cancer, either. Perhaps the morale to this story is that sun exposure for as little as 10 minutes a day will stimulate ample vitamin D production, but is not likely (unless perhaps you are *extremely* fair skinned) to cause any sunburn or skin damage - and that's the best way to reduce your risk while still enjoying the health benefits of vitamin D. Talk to your doctor for more information.

The Warning Signs of Skin Cancer

The **ABCD** rules are key when it comes to identifying skin cancer early:

Lady applying sunscreen - Copyright â Stock Photo / Register Mark **A**symmetry: One side different than the other.

Border: Irregular or poorly defined border.

Color: Inconsistent (various shades) or extremely dark.

Diameter: The size of a pencil eraser (5-6 mm).

Now that you know the ABCDs of skin cancer, here's the **E** to keep in mind: Evolving. Check your moles regularly. If you notice any changes in symmetry, border, color, diameter, make an appointment with your doctor right away. A great way to monitor changes is to take pictures of your moles and store them on your computer. That way, it's easy to compare the way a mole used to look with the way it does now, and you can enlarge the image easily to analyze specific aspects of the mole that may be changing.

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