

## **A healthy tan: Excess exposure may be hard on the skin, but the healthful effects of UV outweigh skin cancer and melanoma risks**

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The most basic dogma of dermatology has been that there is "no such thing as a safe tan." In Canada, right now is the best part of the year to get ultraviolet light from summer sunshine. Unfortunately, we keep hearing the same message every year: Before you enjoy the outdoors, make sure that you and your loved ones slather on the sunscreen. Rarely mentioned in the sun message is that, like many things in life, we have to balance the good with the bad.

First the bad news: Yes, indeed, the same summer sunshine that contains ultraviolet light contributes to various forms of skin cancer, and more ominously to melanoma. Furthermore, sunshine does cause photoaging of the skin (mottling, wrinkling and sagging). If your age is beyond 50, you can see the evidence for yourself by comparing the skin on the back of your hand with the skin on the top of your foot. The hand and the foot are anatomically similar, so their skin should have identical characteristics. They are comparable. When you do the difficult manoeuvre of placing your hand and foot side by side, you should see clearly that the skin on your UV-protected foot (most people keep feet covered) hardly looks like it has aged at all. But a close look at the skin on the hand shows a far more wrinkly sight, one we would rather ignore.

The good news about sunshine is that, in the grand scheme of our life, sun exposure is probably doing more good than harm. Yes, there is always the problem of overdosing with sunshine and ending up with a burn or worse, so caution is advised here. However, I would invite you as a reader to check the evidence for yourself. You can do this by typing the words "cancer maps" into Google and clicking on the first item on the list.

This will bring you to the Web site of the National Cancer Institute, where you can produce your own mortality maps that show death rates from various cancers across the United States. Cancer mortality is presented there as the annual cost in lives per 100,000 population in various regions. As expected, mortality from melanoma and skin cancer goes up as one heads south through the United States, with a total average mortality rate of about four people per 100,000 population. This number pales in comparison with other cancers whose mortality rates change in the opposite direction. As you head north from Florida toward Canada, there is a striking increase in the death rates from each one of prostate, breast and colorectal cancers. And for these, the mortality rate totals about 70 per 100,000 population -- 10 times higher than from skin cancer and melanoma.

Bear in mind that the quality of sunshine varies, and it is only when the sun is high in the sky that we get enough ultraviolet light that we should worry about the UV index. When

the sun is high, it can burn our skin, but this is also when it can produce vitamin D in the skin. Our northern Canadian latitudes mean the sun is often too low in the sky to be of much use, or harm, to us. By the time late October rolls around, our skin cannot make vitamin D any more through natural sunlight. By March, we start to receive small but meaningful amounts of ultraviolet light again. Window glass completely blocks UV light.

When I read or hear the dermatology message about sun protection, the first thing I wonder is whether they have seriously thought about human skin and its role in our biology. In terms of anthropology and evolution, our species is, after all, the naked ape. This makes our skin uniquely exposed and adaptable to sunshine.

Surely, human biology developed through natural selection and evolution. This has acclimatized us to the sun. We, the species *Homo sapiens*, originated near the equator, in the Horn of Africa. In the context of all other primates, modern human life is unnatural. Without our basic technologies of clothing and housing, as primates without even a coat of fur, we could not even survive in Florida. The frost that kills off oranges would have killed off our ancestors too. The parts of the world that are natural habitats for all other primate species are south of Florida, yet we consider it perfectly normal to be living in Canada. Statistics readily available now about sunshine and risk of various diseases show there may be health consequences for our sun-deprived way of life.

As just one example, Bill Grant, a former NASA scientist, has combined data for cancer mortality rates with actual satellite measurements of ultraviolet light hitting regions of the United States. The graphs he published are striking. They show that as you move from less summery areas such as Canada toward the ultraviolet-light-rich areas of the southern and mountainous states, the decline in breast, prostate and colon cancer deaths is about 30%. The price of this is a modest rise in skin cancer and melanoma death rates of about one person per 100,000 people per year. I, for one, consider it a good investment to save 20 lives from breast, colon, prostate and other cancers at the cost of one extra death from skin cancer.

In the past, the dermatology profession and the marketing of sunscreen products have focused their sun message on just the one organ they are interested in: the skin. The classic message has been to avoid the sun. In the rare instance that purveyors of this dogma address the nutritional issue of vitamin D, they say that to compensate for the lack of sunshine all you need to do to serve your vitamin D requirements is to take a multivitamin, eat fish or drink milk.

If the sun-protection lobby does acknowledge a need for some sun exposure, they claim that people can get enough just by exposing the face and hands to sunlight through casual exposure, such as walking to the bus stop. If there is such a thing as "junk science," the preceding statements are prime examples of it. Outdated dogma is being repeated without awareness of the facts.

Last month, the American Academy of Dermatology published the results of a conference it held to address the question of "Sunlight, tanning booths, and vitamin D."

They have finally seen the light and realized that the amount of vitamin D produced when you go into the sun is proportional to the amount of skin you expose to it.

Therefore, the health message does not just focus on how much time you spend in the sun but on how much skin you expose. This is good to know because for the skin of a white person, most of the benefit happens within 10 minutes. More time in the sun breaks down as much vitamin D as it makes, and it delivers no additional benefit, just harm.

No one should feel guilty about putting on a bathing suit and lying down in a sunny spot. Spend 10 minutes on one side, flip over, spend 10 minutes on the other side, and you're done. This pleasant activity will provide you with the equivalent of 10,000 IU of vitamin D, equivalent to the vitamin D in 100 glasses of milk, or in 250 multivitamin pills.

People with darker skin colour will need more time in the sun to generate the same amount of vitamin D. For example, a very black person requires six times more exposure than a white person to achieve the same goal. This leads to me to another frustration about current sun protection guidelines: They have been designed for white people.

For example, at Hospital for Sick Children in Toronto, there has been a resurgence in the number of cases of rickets presenting there (soft, bent bones of infants and children). These cases don't involve white children of northern European origin. They involve the children of recent immigrants suffering from a preventable, environmental disease -- the lack of sunshine.

The benefits of abundant sun exposure for health include the long list of diseases that become more common as populations live farther away from the equator. In Australia, multiple sclerosis increases with distance from the equator and risk of the disease becomes less as the incidence of melanoma goes up. For patients in Germany with multiple sclerosis, the number of lesions seen on brain scans fluctuates in an annual cycle, with the fewest lesions during summer when vitamin D levels are highest.

For people diagnosed with a variety of cancers, research in both Scandinavia and the United States shows that if diagnosis and treatment are during summer, the number who survive for five years is at least 20% higher than for people diagnosed and treated during winter. In Toronto, in monitoring men for rising levels of the cancer marker, prostate-specific antigen (PSA), we found that PSA tends not to increase from spring into summer while it rises steadily for the rest of the year.

Tanning is just one sign that a person has been exposed to ultraviolet light. I don't want to open the can of worms in the semantic argument that a tan is an injury response to the effect sunshine. A tan is a sign that the human body is designed to adapt to sunshine. What all of us must do in life is make wise decisions about complicated issues. The dogmatic approach to avoid the sun is wrong because it goes to an extreme.

Sun avoidance has on its side the pretense of safety - albeit, a narrow definition of safety because it addresses only the skin. Nonetheless, the evidence about the health benefits of

sun exposure has been building the past decade. Science has taken away the guilt of spending 10 minutes in a bathing suit in the sun without sunscreen.

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