

## Sunscreen Myths And Misconceptions

Written by Dr. Karen Stollznow  
Friday, 24 August 2012 09:00

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There are some frightening statistics about skin cancer. In the United States today, it is the most common form of cancer. Annually, there are more than 3.5 million cases diagnosed in more than 2 million people.<sup>1</sup> One in five Americans will develop skin cancer in the course of a lifetime,<sup>2</sup>

and every hour, one American dies from skin cancer.<sup>3</sup>

There are three main types of skin cancer; basal cell carcinomas, squamous cell carcinomas and melanomas. Melanomas also have a genetic component, but skin cancers are caused by repeated, unprotected sun exposure, sunburn and tanning. These factors cause DNA damage that triggers skin cells to mutate. Over time, these mutations turn into skin cancers.

Fortunately, skin cancer is recognizable and if caught early enough, most cases are curable. Moreover, skin cancer is preventable. Our best protection against skin cancer is sunscreen, but this important defense is often demonized by pseudoscientific sources. Like the anti-vaccination movement, there is an anti-sunscreen movement and the inaccurate, conflicting and misleading claims about sunscreen can be fatal.

This article investigates a few persistent claims about skin cancer, sunscreen and the sun, and sorts the facts from the myths and misconceptions.

### Is sunscreen toxic?

Many online sources purport to reveal the “truth” about sunscreen. These include claims that sunscreen doesn’t work, that sunscreen is poisonous, and that sunscreen actually causes cancer. The underlying premise seems to be that the chemicals used in sunscreens are more harmful than the sun’s rays.

About to release her own line of beauty products, Brazilian supermodel Gisele Bundchen said about sunscreen, “I cannot put this poison on my skin. I do not use anything synthetic.”<sup>4</sup> She has since claimed that her comments were misconstrued, but the spurious sound bite

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“sunscreen is poison” was already public.

Natural doesn't necessarily equal good, and synthetic doesn't equal bad.

Like other skin care products we use every day, sunscreens contain chemicals, but these products are tested for safety before they become available to the public. Formulations containing titanium oxide and zinc oxide are gentle enough for babies, children and people suffering from sensitive or rosacea-affected skin. With normal use, these chemicals are so safe that zinc oxide is a food additive that appears in many breakfast cereals, while titanium dioxide is used in food coloring, medicine and toothpaste.

The US National Institutes of Health explains that sunscreens are nontoxic, while “sunscreen poisoning” “occurs when someone accidentally or intentionally swallows sunscreen.”<sup>5</sup> Not when we slather it on our skin.

*Sadly, “sunscreen” and “sunblock” has all been a scam. They do not protect us from the Sun. But they do disrupt our hormones (feminizing men and disrupting female physiology and body chemistry).*<sup>6</sup>

This belief is based on a small body of research indicating that the ingredient oxybenzone found in some sunscreens may mimic the effects of estrogen in the body. This occurred in rats that were fed high doses of the chemical. However, an independent report examined all the evidence and concluded that the animal studies relied on unrealistically high doses of oxybenzone. They found that only small doses of the chemical are absorbed through normal sunscreen use (chemical absorption is a common occurrence with skin care products), that there was no evidence of toxicity, and no evidence that the chemical set off hormonal changes in humans.<sup>7</sup>

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*Did you know that most sunscreen products may actually help promote cancer rather than prevent it? That being the case, you should think twice before you marinate yourself in all those chemicals that can be found in any commercially made sunscreen products.<sup>8</sup>*

Questions have been raised about the safety of sunscreens containing nanoparticles, a form of zinc oxide and titanium dioxide that reduces the white color of these chemicals on the skin. The fear is that nanoparticles of these chemicals can be absorbed into the skin and will interact with sunlight to increase the risk of damage to these cells. Scare-mongering sources claim that sunscreens containing nanoparticles cause cancer. However, studies suggest that these nanoparticles don't penetrate the skin.

*There is evidence from isolated cell experiments that zinc oxide and titanium dioxide can induce free radical formation in the presence of light and that this may damage these cells (photo-mutagenicity with zinc oxide). However, this would only be of concern in people using sunscreens if the zinc oxide and titanium dioxide penetrated into viable skin cells. The weight of current evidence is that they remain on the surface of the skin and in the outer dead layer (stratum corneum) of the skin.<sup>9</sup>*

### **Are tanning beds safe?**

Gone are the days of the "healthy tan" where the emphasis was on sun tanning rather than sun protection. The message we've heard again and again is that there is no such thing as a safe suntan. We've also heard that the only safe tan is a fake tan, referring to self-tanners and bronzing powders. Unfortunately, some assume "sunless tanning" also refers to tanning beds and sun lamps, and that these are safe alternatives to tanning in the sun. This is dangerously untrue; ultraviolet radiation is not healthy, whether it comes from a tanning bed or from the sun.

The United States Department of Health and Human Services has declared ultraviolet radiation from artificial sources, such as tanning beds and sun lamps, as a known carcinogen,<sup>10</sup> and people who use these devices have significantly higher rates of skin cancer.

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Ultraviolet rays are the primary cause of skin cancer; they can also lead to eye cancers and other ocular conditions, and weaken the immune system.

From a cosmetic perspective, tanning is actually a sign of skin damage. Tans are created by the production of the pigment melanin, revealing skin cells that have been damaged by ultraviolet radiation. Rather than providing a sun-kissed look, tanning beds provide that prematurely aged look, and result in wrinkles, skin discolorations, dull-looking skin and a loss of skin elasticity. Up to 90 percent of the visible changes commonly attributed to aging are caused by the sun.<sup>12</sup> For all the miraculous claims of the cosmetic industry, there is no better beauty product than simple sunscreen.

Some beauty salons promote false health benefits of tanning beds, claiming that they increase the body's production of Vitamin D. Tanning beds are positioned as the safe alternative to sun tanning, and by this bad logic it is claimed they "prevent cancer". However, UVB rays help the body produce Vitamin D, while tanning beds emit predominately UVA rays, the rays that cause skin cancer.<sup>13</sup>

### The Vitamin D Debate

Speaking of vitamin D, many new age sources claim that sunscreen causes osteoporosis, rickets, and other similar conditions. These concerns are probably borne in the knowledge that vitamin D is produced in the body via the sun, and some studies suggest that sunscreen inhibits the body's ability to create vitamin D.

Vitamin D is an essential nutrient for the body; it ensures bone health, and protects us from immune diseases and some forms of cancer. Vitamin D deficiency is dangerous, and low blood levels of the vitamin have been associated with cardiovascular disease, cognitive impairment and cancer. Vitamin D is produced via the sun, but it can also be acquired from foods containing the vitamin, including salmon and tuna, from fortified products such as breakfast cereals and orange juice, and through supplements. Many physicians recommend patients have their vitamin D levels checked to determine their individual state of health and requirements.<sup>14</sup>

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Various sources recommend 10, 20 or even 30 minutes of unprotected sun exposure daily to produce vitamin D, but this advice is unhelpful given the variances of sunlight across geographic locations. Moreover, unprotected sun exposure is not worth the risk. Again, the message is, don't give up your sunscreen.

Interestingly, one study suggests that we still produce vitamin D even if we use sunscreen.

*In theory, correct usage of sunscreens should significantly reduce vitamin D levels. However, this is not the case in practice. In fact, several studies have demonstrated that sunscreens are rarely applied correctly, in the right dosages and with appropriate frequency. Therefore, under real-world conditions it is likely that the improper use of sunscreen and/or increased exposure time, result in production of vitamin D among sunscreen users.<sup>15</sup>*

### **We are what we eat?**

Various new age sites claim that a diet rich in tomato paste, spinach, soybeans, dark chocolate, cold-water fish, goji berries, green tea and broccoli juice affords better sun protection than sunscreen.

There is a little science behind the sensationalism. For example, tomatoes contain lycopene, a carotenoid that contains antioxidants and antiproliferative properties. Studies show it has been associated with reduced incidence of cancer, cardiovascular disease and macular degeneration. Studies also suggest that leafy green foods could lower the risk of squamous cell carcinoma.<sup>16</sup>

These foods may afford some additional benefits but they are no substitute for sunscreen.

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Various sources offer the bad advice that we eschew sunscreen and chew certain foods instead. One site promotes “going Primal”, a lifestyle advocating diet, supplements and sun exposure to “bolster our natural sunblock”:<sup>17</sup>

*As summer descends upon the world, a young Primal eater’s fancy turns to playful frolicking in the sunshine. And when you’re frolicking, the last thing you want to do is slather a bunch of horrible-smelling, greasy, overpriced sunblock all over your body. It makes you slippery and imbues your countenance with a deathly pallor that is very unbecoming. If you could, you’d love to avoid the nasty practice altogether. You’d love to use more alternative methods. Methods that may not have the support of the medical community, but for which supportive research does exist.*

It is disturbing to read the ignorant testimonials on this site; especially those revealing irresponsible parental behavior:

- *Very interesting post. My wife and I have stopped using sunscreen this year, as my son reacts to every type we’ve ever used on him. We use ourselves as a barometer to know when to cover both him and ourselves up.*
- *My three have great tans too! It is so interesting to see the difference with the diet shift. I often forget to bring sunscreen places like the beach because we rarely need it so it doesn’t cross my mind anymore!*
- *west central florida. plenty of sun, no problem no sun screen. just right eating*
- *Seafood salad with tomatoes – sounds so much tastier than sunblock! Thanks!*
- *I too had several horrific sunburns as a child and your complexion sounds pretty similar to my own. In my case, living primally provided total sun protection. At age 35 my skin is healthier than ever before, despite my blasting it with UV at every opportunity.*
  
- *I have to say that my body’s natural skin protection has been one of the most surprising affects of going Primal. Both in my husband, myself and the kids. We are very fair skin folk and all our lives we have been caking on the sun screen and still getting the two or three time a year peeling skin sunburns.....since going Primal....not one sunburn for any of us!! And we don’t us sunscreen, not even on the kids. We play outside a lot and we all have nice light tans going and have yet to get sunburn, even on the 4th of July when we spent the whole day out in the sun...not one oz of sunscreen used!! Ditch the sunscreen and go Primal!!*

It is inconclusive that diet can prevent skin cancer, but it is conclusive that sunscreen prevents skin cancer.

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### Facts about Sun Factor

Bigger is not always better. Most of us assume that when it comes to sunscreen, the higher the Sun Protection Factor (SPF), the better the protection. However, the SPF represents time, not quality. The number determines how long someone can stay in the sun without burning. The longer a person will be exposed to the sun (either outside or through windows) the higher the SPF that person should use.

Most sources recommend using a sunscreen of SPF 30 or higher, but not too high. Sunscreens that contain a SPF of 70+ are overkill for skin. These products contain sensitizing preservatives that can irritate skin, but moreover, the marketing confuses consumers into thinking that the higher the number, the better the protection.

*Consider that someone with fair skin whose skin turns pink after 20 minutes of unprotected sun exposure would be protected from sunburn for 10 hours if they applied a sunscreen rated SPF 30 ( $30 \times 20 = 600$  minutes or 10 hours). With SPF 110, the protection would be  $110 \times 20$ , or about 36 hours of protection, and there just aren't that many hours of daylight in any part of the world.<sup>18</sup>*

The important considerations are that the sunscreen protects against both UVA and UVB radiation, as not all products do. Furthermore, sunscreen should be applied liberally, and 15-20 minutes before exposure to the sun. It should be reapplied every few hours or after perspiring or contact with water. To be potent, sunscreen should be replaced every year.

Of course, sunscreen should be used in conjunction with protective clothing and sunglasses. Finally, it is vital that we monitor ourselves for moles, marks, bumps and lesions on the skin, and any changes, and that we are monitored by a medical professional.

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### Save your skin

When it comes to skin cancer, prevention is the best cure, and sunscreen is the best prevention.

The anti-sunscreen movement is strong, and there is an abundance of unreliable and potentially hazardous advice online. For trustworthy advice visit the Skin Cancer Foundation<sup>19</sup> and the Food and Drug Administration

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which has recently created a set of sunscreen guidelines for consumers.

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