Sensible Sun Exposure Can Help Prevent Melanoma, Breast Cancer, and Hundreds of Other Health Problems

By Dr. Mercola

> A growing body of research clearly shows the absolute necessity of vitamin D for good health and disease prevention. However, despite vitamin D's role in keeping your body ticking along like a well-oiled clock, you are likely deficient in the "sunshine vitamin"—because the majority of people are.
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> Our vitamin D levels have dropped as a result of being scared sunless by those spreading misinformation that the sun causes melanoma, a myth that survives by mass promotion but really lacks any factual basis. It has been repeated so many times that most people believe it.
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> Vitamin D affects your biological function by influencing nearly 3,000 of your genes through vitamin D receptors. In fact, vitamin D receptors are found throughout your body, which should come as no surprise, given we humans evolved in the sun.
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> Recent research[1,2] has also revealed yet another benefit of sun exposure beyond the protective benefits of producing vitamin D, namely the production of nitric oxide—a compound that lowers your blood pressure.
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> According to the researchers, the heart-health benefits from this may outweigh the risk of developing skin cancer. Your vitamin D level varies not only with time of day, season, and geographic location, but also with your genetics.
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> For example, if you have dark skin, you may need up to 10 times more sun exposure to maintain an optimal vitamin D level as a person with pale skin. Redheads have to be particularly careful, as they appear to be genetically predisposed to developing melanoma, regardless of whether or not they spend time in the sun.

Sunshine's gifts extend well beyond vitamin D production. As discussed in the featured article by Sayer Ji,[3] five of the many noteworthy properties of sunlight include:

1. Pain-killing (analgesic) properties
2. Increased subcutaneous fat metabolism
3. Regulation of human lifespan (solar cycles appear to be able to directly affect the human genome, thereby influencing lifespan)
4. Daytime sun exposure improves evening alertness
5. Conversion to metabolic energy (i.e. we may "ingest" energy directly from the sun, like plants do)

When it comes to vitamin D production, the benefits are simply immeasurable. In fact, correcting a vitamin D deficiency may cut your risk of dying in half, according to an analysis of more than 10,000 individuals.

According to a January 2013 press release by *Orthomolecular Medicine*[4], 3,600 medical papers with vitamin D in the title or abstract were published in 2012 alone, bringing the grand total to 33,800. Research to date shows vitamin D has far reaching benefits to your physical and mental health, with the following chart representing only the tip of the sunbeam.

Pregnancy outcomes (reduced risk of Cesarean section and pre-eclampsia)	Autism
Childhood language impairment	Cardiovascular disease
Type 1 diabetes	Alzheimer's disease
Type 2 diabetes	Bacterial and viral infections
Falls and bone fractures	16 different types of cancer
Stroke	All-cause mortality

Another Way Sun Exposure Protects Your Heart Health

UVB exposure also improves your mood and energy level, helps regulate melatonin, and, as mentioned earlier, increases nitric oxide production[5], which benefits your cardiovascular system. With regards to the latter:

> *"Richard Weller, Senior Lecturer in Dermatology, and colleagues, say the effect is such that overall, sun exposure could improve health and even prolong life, because the benefits of reducing blood pressure, cutting heart attacks and strokes, far outweigh the risk of getting skin cancer,"* Medical News Today reports[6].
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> *Weller and colleagues found that the body's production of nitric oxide is separate from production of vitamin D... Human skin contains large stores of nitrite (NO2) and nitrate (NO3). The researchers note that while nitrate is "biologically inert", the action of sunlight can reduce it to active nitrite and nitric oxide (NO).They found that circulatory nitrate fell and nitrite rose during UV and heat exposure, but not during exposure to heat only. There was no difference in vitamin D levels.*
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> *Weller says in a statement that: '**We suspect that the benefits to heart health of sunlight will outweigh the risk of skin cancer**. The work we have done provides a mechanism that might account for this, and also explains why dietary vitamin D supplements alone will not be able to compensate for*

lack of sunlight... If this confirms that sunlight reduces the death rate from all causes, we will need to reconsider our advice on sun exposure.'"

Skin Cancer, in Brief

Before we discuss melanoma, you need a basic understanding of the three most common types of skin cancer, each named for the type of cells affected:

1. **Basal cell carcinoma (BCC)**: Begins in the basal cell layer of the skin, typically on the face; the most common form of skin cancer and the most common type of cancer in humans; least likely skin cancer to spread.[7]
2. **Squamous cell carcinoma (SCC):** Begins in the squamous cells, typically on the face, neck, ears, lips, and backs of hands; tends to grow and spread a bit more than BCC.
3. **Melanoma**: Begins in the melanocytes (the cells that produce the pigment melanin, responsible for your tan); melanin protects the deeper layers of your skin from excess radiation. Melanoma is more likely than other types of skin cancer to spread to other parts of your body and causes more deaths than any other type of skin cancer.[8]

Don’t Fall for the Melanoma Myth

If you believe the lure of the sun is equivalent to the siren’s call for melanoma, you’ll be relieved to learn melanoma is not actually caused by sun exposure, unlike the other two types of skin cancer, BCC and SCC. Although the reported number of new cases of melanoma in the US has been reportedly increasing for more than 30 years,[9] a landmark study in the *British Journal of Dermatology*[10] suggests this *apparent increase* is a result of non-cancerous lesions being misclassified as “stage 1 melanoma.” In other words, people are being diagnosed with melanoma even when they have only a minimal, non-cancerous lesion, and these diagnoses are significantly skewing cancer statistics.[11] The sun is nothing more than a scapegoat in this phenomenon of “increased melanoma.”

But this misdiagnosis is doing more than just skewing statistics—it’s causing a mountain of unnecessary melanoma surgeries. A study in the *Journal of the American Academy of Dermatology*[12] found that 90 percent of melanoma excisions end up NOT being melanoma at all. But if the sun doesn’t cause melanoma, then what does?

The REAL Role of the Sun in Melanoma

As with all serious diseases, there are multiple interacting factors that cause your immune system to go awry, such as nutrition, environmental toxins, stress, inadequate sleep, etc. But for melanoma, the sun does appear to have a significant role—melanoma may signify too little of it!

Studies show melanoma mortality actually *decreases* after UV exposure. Additionally, melanoma lesions do not predominate sun-exposed skin, which is why sunscreens have proven ineffective in preventing it. Exposure to sunlight, particularly UVB, is protective against melanoma—or rather, the vitamin D your body produces in response to UVB

radiation is protective. The following passage comes from *The Lancet*:[13]

> *"Paradoxically, outdoor workers have a decreased risk of melanoma compared with indoor workers, suggesting that chronic sunlight exposure can have a protective effect."*

And this from the *British Medical Journal*:[14]

> *"There is solid descriptive, quantitative, and mechanistic proof that ultraviolet rays cause the main skin cancers (basal and squamous). They develop in pale, sun exposed skin, are related to degree of exposure and latitude, are fewer with avoidance and protection, are readily produced experimentally, and are the overwhelmingly predominant tumor in xeroderma pigmentosum, where DNA repair of ultraviolet light damage is impaired. None of these is found with melanoma."*

The bottom line is, by avoiding the sun, your risk for vitamin D deficiency skyrockets, which increases your odds of developing melanoma and a multitude of other diseases. The risks associated with insufficient vitamin D are *far greater* than those posed by basal cell or squamous cell carcinomas, which are fairly benign by comparison, as you'll see by reading on.

Vitamin D Could Prevent 90 Percent of Breast Cancers

Theories linking vitamin D deficiency to cancer have been tested and confirmed in more than 200 epidemiological studies, and understanding of its physiological basis stems from more than 2,500 laboratory studies. In the above interview, GrassrootsHealth founder Carole Baggerly believes 90 percent of ordinary breast cancer is related to vitamin D deficiency. In fact, breast cancer has been described as a "vitamin D deficiency syndrome." The way vitamin D interferes with breast cancer's ability to spread is by affecting the structure of those cells—without adequate vitamin D, they fall apart and are forced to "overmultiply" in order to survive.

Previous research has shown that optimizing your vitamin D levels can reduce your risk for as many as 16 different types of cancer, including pancreatic, lung, ovarian, breast, prostate, and skin cancers. A study of menopausal women showed that maintaining vitamin D serum levels of 40ng/ml lowers overall cancer risk by 77 percent.

Two recent papers in the journal *Science Express*[15] shed light on how cancer might begin. A cancer cell can be created when unusual mutations occur in a small area of its DNA that controls and regulates its genes, as contrasted with mutations in the genes themselves. The mutations spur the cell to make telomerase. One of the functions of telomerase is to prevent telomere shortening, which leads to cell death. According to Harvard researchers, abundant telomerase is so important to cancers that it appears in nine out of ten.

In addition to being a strong cancer preventative, vitamin D is crucial for pregnant women and their babies, lowering the risk for preterm birth, low birth weight, and C-

section. And sadly, 80 percent of pregnant women have inadequate vitamin D levels.

Low Vitamin D in Pregnancy May Increase Your Baby's Risk for Multiple Sclerosis Later in Life

Sunshine is so important to your overall health that science is now finding a connection between the strength of your immune system and your birthday, called the "birth month effect." If you were born in the spring, you are statistically more vulnerable to developing an autoimmune disease such as multiple sclerosis (MS), than if you were born in the fall.[16, 17]

Why would this be?

Some researchers suggest it's related to a pregnant woman's vitamin D levels during her baby's gestation. April and May babies have been gestating during the colder, darker months, as opposed to November and December babies, who've been developing over the spring and summer. Now a study in *JAMA Neurology*[18] shows this hunch may be correct, suggesting a mechanism related to thymic development. Another study suggests sun exposure and vitamin D may play roles in the CNS demyelination associated with MS.[19]

And the sun can lift your mood! New research published in the *American Journal of Preventive Medicine* shows that Google searches for mental health related issues drop by 15 to 42 percent during the summer months, which could very well be related to the boost in vitamin D.[20] Vitamin D deficiency is a known factor in cognitive impairment and dementia.

Safely exposing your bare skin to the sun is the best way to optimize your vitamin D levels, and is therefore the best protection against melanoma. Sunburn should be avoided at all cost. I recommend reading our article about safe sunning guidelines and listening to the video above for detailed instructions about how to do this safely and effectively.

Vitamin D3 is an oil-soluble steroid hormone (the term "vitamin" is a misnomer) that forms when your skin is exposed to UVB radiation from the sun or a safe tanning bed. When UVB strikes the surface of your skin, your skin converts a cholesterol derivative into vitamin D3. It takes up to 48 hours for this D3 to be absorbed into your bloodstream to raise your vitamin D levels. Therefore, it's important to avoid washing your skin with soap for 48 hours after sun exposure. In case you do develop a sunburn, immediately apply raw aloe vera, as it's one of the best skin remedies.

As a general guideline, research by GrassrootsHealth suggests that adults need about 8,000 IU's per day to achieve a serum level of 40 ng/ml. If you opt for a vitamin D supplement, you also need to boost your intake of vitamin K2 through food and/or a supplement. How do you know if your vitamin D level is in the right range? The most important factor is having your vitamin D serum level tested every six months, as people vary widely in their response to ultraviolet exposure or oral D3 supplementation. Your goal is to reach a clinically relevant serum level of 50-70 ng/ml.

Overuse of Sunscreen May Turn You into a Melanoma Magnet

Following the advise of health officials' to slather on sunscreen may *increase* your melanoma risk instead of decreasing it, which is certainly not what you want. Indeed, you never want to let yourself burn. However, if you practice safe sunning, you will avail yourself of all of the sun's health benefits with none of the risk.

If you do use a sunscreen, please be careful about which product you choose as many sunscreen products contain chemicals you don't want absorbed into your body. According to the Environmental Working Group's 2012 Sunscreen Guide,[21] about 75 percent of sunscreens contain potentially harmful ingredients, such as oxybenzone and retinyl palmitate. Avoid products with SPFs higher than 50, and make sure yours offers protection against both UVA and UVB rays.

Keep in mind SPF only protects against UVBs—but it's the UVAs that increase your risk for skin cancer and are responsible for photoaging your skin. Recall that it's the UVBs that stimulate your vitamin D production, so you don't want to block out too many of them.

Using an "internal sunscreen" is an alternative to topical sunblock agents. Astaxanthin—a potent antioxidant—has been found to offer effective protection against sun damage when taken as a daily supplement. It can also be used topically and a number of topical sunscreen products contain it. Some sunscreens are also starting to use astaxanthin as an ingredient to protect your skin from damage. As an alternative, you can cover up with lightweight clothing to protect yourself. Sometimes we forget about the simple things, like simply wearing a hat.