

# The Greatest Public Health Mistake of the 20th Century

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February 17, 2024

## STORY AT-A-GLANCE

- › The recommendation to avoid sun exposure and always use sunblock when outdoors may be the greatest public health mistake of the 20th century
- › Previous research has found vitamin D may prevent 30 deaths for each death caused by skin cancer
- › For every skin cancer death in northern Europe, 60 to 100 people die from stroke or heart disease related to hypertension — a health problem associated with vitamin D deficiency, and lack of sun exposure in particular

***Editor's Note: This article is a reprint. It was originally published May 16, 2017.***

Vitamin D received its name because scientists initially assumed it was a vitamin, but further research showed it had been incorrectly categorized. It's actually a prohormone, produced by your body from cholesterol in response to sunlight striking your bare skin.

As a prohormone, vitamin D has enormous influence on your health, and it's the only known substrate for a powerful repair-and-maintenance steroid hormone.<sup>1</sup> Receptors that respond to vitamin D have been found in almost every type of human cell.

So, far from being a mere aid in bone formation, vitamin D is involved in a wide range of repair and maintenance functions, influences genetic expression, helps regulate immune function and more. Unfortunately, dermatologists have spent decades promoting sun avoidance<sup>2,3</sup> and urging people to wear sunblock before venturing

outside. As a result of this misguided advice, the field of dermatology has done tremendous harm to public health.

## **Sun Exposure Does Your Body Good**

It was long thought that sun exposure was the primary cause of melanoma, the most lethal form of skin cancer. However, mounting evidence now tells us sun avoidance actually raises your risk of skin cancer while higher vitamin D levels from UVB exposure are protective.<sup>4</sup>

Vitamin D also improves survival outcomes for melanoma patients.<sup>5,6</sup> It's the burning as a result of intermittent overexposure that primarily impacts your skin cancer risk.<sup>7</sup>

While reports show that rates of melanoma have been rising for at least the last three decades, and that the increases are due to ultraviolet exposure from the sun, research<sup>8</sup> published in the British Journal of Dermatology in 2009 suggests the sun is likely nothing more than a scapegoat. According to this study, the rise in melanoma appears to be "an artifact caused by diagnostic drift."

Diagnostic drift, according to the study, refers to a hefty increase in disease diagnoses fueled by detection and misclassification of benign lesions as stage 1 melanoma.

Sun avoidance also increases your risk of a number of other health problems stemming from vitamin D deficiency, including internal cancers<sup>9,10</sup> that claim far more lives than skin cancer, as well as heart disease,<sup>11</sup> multiple sclerosis,<sup>12</sup> infertility<sup>13</sup> and all-cause mortality.<sup>14,15,16</sup>

## **Studies Show Higher Sun Exposure Protects Health and Increases Longevity**

One 2005 study<sup>17</sup> found that vitamin D may prevent 30 deaths for each death caused by skin cancer. According to lead author Dr. Edward Giovannucci, a Harvard professor of nutrition and epidemiology:

*"I would challenge anyone to find an area or nutrient or any factor that has such consistent anticancer benefits as vitamin D. The data are really quite remarkable."*

Another 2013 study<sup>18</sup> found that for every skin cancer death in northern Europe, between 60 and 100 people die from stroke or heart disease related to hypertension — a health problem associated with vitamin D deficiency, and lack of sun exposure in particular.

Research<sup>19</sup> published in 2012 also concluded that, "The overall health benefit of an improved vitamin D status may be more important than the possibly increased cutaneous malignant melanoma risk resulting from carefully increasing UV exposure."

Indeed, a two-decades-long Swedish study published in 2016<sup>20</sup> found that while women who got regular sun exposure had a higher risk for melanoma compared to sun avoiders, they also had a lower all-cause mortality. The authors concluded that sun avoidance is "a risk factor for death of a similar magnitude as smoking." Aside from vitamin D, ultraviolet (UV) light from the sun also has a long list of other health benefits, including:<sup>21,22</sup>

- Enhancing mood through the release of endorphins and reducing your risk of depression<sup>23</sup>
- Lowering blood pressure through nitric oxide release<sup>24</sup>
- Synchronizing important biorhythms
- Treating many skin diseases
- Preventing and curing tuberculosis (TB)<sup>25,26,27</sup> — a disease that alone kills more people than melanoma each year<sup>28</sup> — including antibiotic-resistant TB<sup>29</sup>

## **The Cure for Vitamin D Deficiency Is Right Outside Your Door**

According to a 2017 study,<sup>30</sup> vitamin D deficiency now affects nearly 1 billion people worldwide. The reason for such widespread deficiency? Lack of sun exposure caused by overuse of sunscreen.<sup>31</sup> As reported by Daily News:<sup>32</sup>

*"The Journal of the American Osteopathic Association says people are staying inside too much and putting on too much sunscreen for fear of skin cancer. 'SPF 15 or greater decreases vitamin D3 production by 99 percent,' the American Osteopathic Association (AOA) says.*

*The study, led by Dr. Kim Pfothenauer, a doctor of osteopathic medicine and assistant professor at Touro University, says that recommended levels of vitamin D should be about 6,000 international units (IU) per day ... [which] equals about '5 [to] 30 minutes in midday sun twice per week. However, it is important to forgo sunscreen during these sessions.'"*

Darker-skinned individuals need far more time in the sun to optimize their vitamin D levels. Pfothenauer notes African-Americans likely need about 30 minutes of sun exposure, depending on their location, whereas a light-skinned person might only need five minutes. This is a crucial piece of information that dermatologists completely ignore.

## **Dermatologists Make No Allowances for Skin Color**

The American Academy of Dermatology issues the same recommendations for everyone, without regard for skin type. Despite overwhelming evidence to the contrary, they view all sun exposure as all risk and no gain, regardless of who or where you are.

According to their advice, even if you have the deepest black skin and find it impossible to sunburn, you should always seek shade and wear protective clothing and/or sunscreen when outdoors. This stance is both nonsensical and unscientific.

The Skin Cancer Foundation issues the same advice. When asked why the recommendations fail to take skin type and color into account, Dr. Henry Lim, who sits on the Skin Cancer Foundation's photobiology committee, replied that such information is irrelevant because vitamin D supplements can address deficiency.

Lim has also stated that adding recommendations based on skin tone would make the public health message "too complicated." But by oversimplifying the matter,

dermatologists place many at grave risk for vitamin D deficiency. Adding to the problem is that once vitamin D-related health problems become apparent, doctors will typically fail to link it back to a deficiency problem, instead resorting to drug treatment.

## **Dermatologists Fail to Understand Sun Exposure Is About Far More Than Vitamin D**

There is no question in my mind that the best way to obtain vitamin D is from the sun, and that supplements are an inferior – necessary but far less than ideal – choice for a number of reasons. Most fail to appreciate that vitamin D is a biomarker for UVB exposure. When you take artificial vitamin D supplements your body believes it has received UVB exposure when it actually hasn't, which confuses many vital biologic processes.

Additionally, sunlight is not just UVB but has all visible and important non-visible wavelengths like infrared, which may be every bit as important as UVB. Red and near-infrared energize cytochrome c oxidase in your mitochondria to facilitate cellular energy production.

So, aside from ignorance, why are dermatologists so reluctant to admit sun exposure is a vital component of optimal health? Sure, many are probably blinded by specialization – their focus is on skin, not internal health or all-cause mortality.

Yet the resistance to finding a reasonable middle ground, where a limited amount of sun exposure can be promoted to ensure overall health and disease prevention raises suspicions. Surely they don't actually want their patients to become ill and die from problems unrelated to skin cancer?

Could part of the problem be rooted in conflicts of interest? A paper<sup>33</sup> in JAMA Dermatology found that dermatologists "received substantial payments from the pharmaceutical industry," but that the impact on patient care was still unclear.

## **Dermatologists Have a Lot of Catching Up to Do**

Whatever the reason for the resistance, what seems clear is that most dermatologists have abandoned reading the medical literature on vitamin D over the past two decades. Bizarre statements made by Dr. Barbara A. Gilchrest, acting president and vice chair of the American Skin Association, and Dr. Susan Roper, at the American Academy of Dermatology's annual meeting offer a case in point.

To quote Dr. Marc Micozzi, who has degrees in both medical anthropology and epidemiology, dermatologists "have spotty, 'skin deep' understanding of vitamin D"<sup>34</sup> — a comment referring to Gilchrest's comments<sup>35</sup> specifically, which include the following:

*"This preoccupation with vitamin D status has led to an enormous amount of testing, which is expensive and not as reliable or consistent as we might like ... [I]f you have a level of 20 ng/mL, you have a 97.5 percent chance that you're getting all the vitamin D you need ...*

*[F]or many people, 16 or 12 ng/mL is adequate. Half the population is believed to have totally adequate vitamin D at a level of 16 ng/mL ... [A] supplement of 1,000 IU/ day for adults is safe and sufficient."*

You might be aware that this deluded statement is in conflict with virtually every knowledgeable vitamin D researcher in the world, as levels below 20 ng/mL are a sign of severe deficiency leading to enormous pathology.

Roper, a dermatologist with Countryside Dermatology and Laser Center in Clearwater, Florida, expressed similar concerns with overtesting, saying many elderly patients are "put on toxic levels of vitamin D, sometimes 4,000 to 10,000 IU a day. A lot of my patients already have arthritis, and that high level of vitamin D makes it worse."

Roper's profound ignorance in this area is beyond shocking as what she describes as a toxic dose is actually the recommended dose for the 80% of Americans or more that are vitamin D deficient and are unable to normalize their levels due to inability to obtain sensible sun exposure.

## **What Does the Science Say?**

If you've been following the vitamin D research that has emerged over the past several years, in this newsletter or elsewhere, you will have no trouble spotting the fallacies in Gilcrest's and Roper's statements. Again, to suggest that a vitamin D level of 12 ng/mL is adequate is reprehensibly medically negligent.

Studies have very clearly determined 40 ng/mL is the cutoff point for sufficiency to prevent a wide range of diseases, including cancer. As just one example among many, once you reach a serum vitamin D level of 40 ng/mL, your risk for cancer diminishes by 67% compared to having a level of 20 ng/ml or less.<sup>36,37,38,39,40,41,42</sup>

Studies have also shown vitamin D deficiency is rampant in those with rheumatoid arthritis (RA) and other autoimmune diseases. From my perspective, it is inexcusably negligent to treat a person with RA and not aggressively monitor their vitamin D levels to confirm that they are in a therapeutic range of 40 to 65 ng/mL.

As for dosage when you're taking a supplement, the National Academy of Medicine, formerly the Institute of Medicine (IOM) recommends 600 IUs of vitamin D per day for adults. However, the IOM underestimates the need by a factor of 10 due to a mathematical error<sup>43</sup> that has never been corrected.

GrassrootsHealth has created a petition for the IOM and Health Canada to re-evaluate its vitamin D guidelines and correct this mathematical error.<sup>44</sup> You can further this important cause by signing the petition on [ipetitions.com](https://www.ipetitions.com). More recent research<sup>45</sup> suggests 9,600 IUs of vitamin D per day would be required to get a majority (97.5%) of the population to reach 40 ng/mL.

Such levels, by the way, are not toxic. Studies have found no toxic effects up to 50,000 IUs.<sup>46</sup> To be clear, such high amounts are typically only taken as a bolus (a large single dose) on a weekly, biweekly or monthly basis for a short amount of time, NOT daily.

## **Your Body Is Designed to Optimize Health From Sun Exposure**

The recommendation to address vitamin D deficiency with supplementation rather than sensible sun exposure really has no solid base in science. While there's overwhelming

evidence that your body knows how to process UV exposure to maximize health benefits, there's no solid evidence supporting the notion that supplements are equivalent to sunshine.

In fact, there's evidence suggesting the opposite: Supplements cannot provide the same benefits. For starters, while your body has built-in feedback systems that prevent sun exposure from causing unhealthy vitamin D levels, the same cannot be said for vitamin D supplements.

And, while vitamin D appears to be quite safe even at megadoses up to 50,000 IUs, vitamin D works in tandem with several other nutrients, including magnesium, calcium and vitamin K2; when using a supplement, you can easily force an imbalance between these nutrients.

The vitamin D produced by your body in response to UVB exposure also helps counteract the skin damage caused by UVA. There's no evidence supplements have the same effect. Research<sup>47</sup> even suggests the impact of vitamin D supplementation can be affected by gender, type of vitamin D (D2 versus D3, the former of which I do not recommend), dosing frequency and body mass index (BMI). In summary, the study found that:

- Taking a biweekly bolus of vitamin D3 produced the greatest increase in 25-hydroxy levels, followed by the monthly bolus
- Vitamin D3 was consistently more effective than D2 supplements when taken biweekly or monthly, whereas D2 was more effective when taken daily (I still would not recommend vitamin D2 supplements as they're associated with other adverse effects)
- Increases in vitamin D levels were inversely related to baseline levels, meaning those with the lowest levels saw greater increases compared to those with higher starting levels
- Women also increased their vitamin D levels in response to supplementation to a greater degree than men



- There appears to be a complex relationship between BMI, type of vitamin D used and the dosing schedule

What we know for sure is that your body was not designed to get its vitamin D from supplements, which are a modern invention. This alone suggests that sun exposure is the ideal way to raise your vitamin D level. For these and other reasons, vitamin D experts such as William Grant, Ph.D., and Dr. Michael F. Holick believe sensible sun exposure is far preferable to vitamin D supplementation.

## **Sunscreens May Sabotage Health in More Ways Than One**

The scientific basis for the dermatologists' advice to use sunscreen is also lacking. For starters, an analysis<sup>48</sup> by epidemiologist Marianne Berwick, Ph.D., shows there's very little evidence to suggest that sunscreen use will prevent skin cancer. After analyzing a dozen studies on basal cell carcinoma (which is typically non-lethal) and melanoma, Berwick found that people who use sunscreen are more likely to develop both of these conditions.

Only two of 10 melanoma studies found that sunscreen was protective against this condition; three found no association either way. None found sunscreen use protected against basal cell carcinoma.

The safety of the ingredients used in sunscreens is also a significant concern. Clinical laboratory scientist Elizabeth Plourde, Ph.D., warns many chemical sunscreens, especially those containing vitamin A and/or its derivatives, have been linked to an increased risk of skin cancer.<sup>49</sup>

At least nine of the sunscreen ingredients the U.S. Food and Drug Administration has approved are also known endocrine disruptors.<sup>50</sup> Oxybenzone, found in 70% of sunscreens, is one of them. This chemical has been linked to reduced sperm count in men and endometriosis in women.<sup>51</sup>

## **How Much Sun Do You Need?**

Safe exposure to sunshine is possible by understanding your skin type, the UV strength at the time of exposure and your duration of exposure. To determine the current strength of the sun's rays, different calculators have been created. The late Dr. Robert Heaney, who studied vitamin D for more than 40 years and was one of the most prominent leaders in the field, helped develop the D Minder app.<sup>52</sup>

There's a Goldilocks zone in which you reap maximum rewards with minimal risk. A key guideline is to always avoid sunburn. That said, discerning just how much vitamin D you're actually getting when you are outside is a complex formula that requires taking multiple factors into account.

It's impossible to say that a specific number of minutes will give you a certain amount of vitamin D. The variables are just too varied, and they change from day to day, season to season. This is why it's so important to get your vitamin D level tested, ideally twice a year, in the peak of summer and winter. There's no other way to determine the impact your sun exposure and/or supplementation is having.

According to Heaney, your body requires 4,000 IUs daily just to maintain its current vitamin D level.<sup>53</sup> So to actually raise your level, you'd have to increase either your exposure to sunshine or supplement with oral vitamin D3.

If you opt for a supplement, GrassrootsHealth has a helpful [chart](#) showing the average adult dose required to reach healthy vitamin D levels based on your measured starting point. Many experts agree that 35 IUs of vitamin D per pound of body weight can be used as an estimate for your ideal dose.

As for how much vitamin D you might create from sun exposure, results from a Spanish study suggests Spaniards can normalize their vitamin D level without risk to their health by spending 10 to 20 minutes per day, around mid-day, in the sun during spring and summer. As reported by News Medical Life Sciences:<sup>54</sup>

*"In July, an individual with skin type III (the most common one among the population of Spain) must not spend more than 29 minutes in the sun if they*

*wish to avoid erythema. However, in January, the same individual can remain in the sun for 150 minutes."*

## **General Guidelines for Sensible Sun Exposure to Optimize Vitamin D**

The results above would apply to people living in Spain, not necessarily people living in Alaska or New England. As a general rule, the best time to get sun exposure to optimize your vitamin D levels is between 11 a.m. and 1 p.m., on solar noon.

So, in the summer in most of the U.S. that is 1 p.m., not noon. You must be careful to arrange the timing to optimize your UVB exposure. If you live in Florida like I do, it is not necessary to go out at solar noon in the summer as you may overdose. Remember, the key is sensible sun exposure.

However, in the winter, when there is far less UVB, then going out around solar noon makes perfect sense. Again, the only way to determine how much vitamin D you need, either from sun exposure or supplements, is to get tested. The level you're aiming for is 40 to 60 ng/mL. Following are more general guidelines that may still help you maximize benefits from sun exposure while mitigating the risks:

- Know your skin type based on the Fitzpatrick skin type classification system.<sup>55</sup> The lighter your skin, the less exposure to UV light is necessary. Lighter skin is also more vulnerable to damage from overexposure. For very fair skinned individuals and those with photodermatitis, any sun exposure may be unwanted and they should carefully measure vitamin D levels while ensuring they have an adequate intake of vitamin D, vitamin K2, magnesium and calcium
- Always avoid sunburn. Be particularly careful if you have not been in the sun for some time. Your first exposures of the year are the most sensitive, so limit your initial time in the sun
- Build up your tolerance by starting early in the spring and gradually increase the time you spend in the sun to avoid getting burned. Once your tolerance has been

built up, aim for enough sun exposure to keep your vitamin D level around 40 to 60 ng/mL

- Expose as much skin as you can, not just your arms and face. As soon as your skin starts to turn pink, discontinue exposure and cover up your skin to avoid burning
- Boost your "internal sunscreen" by eating antioxidant-rich foods and healthy fats. Astaxanthin can be a helpful supplement

## Sources and References

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- <sup>1</sup> [Exp Mol Med. 2018 Apr; 50\(4\): 20](#)
- <sup>2</sup> [Surgeon General's Call to Action to Prevent Skin Cancer \(Archived\)](#)
- <sup>3</sup> [CNN July 30, 2014](#)
- <sup>4</sup> [The Lancet February 28, 2004: 363\(9410\); 728-730](#)
- <sup>5</sup> [Cancer Therapy Advisor March 23, 2016](#)
- <sup>6</sup> [Eur J Cancer Prev. 2017 Nov; 26\(6\): 532–541](#)
- <sup>7</sup> [Skin Cancer Foundation. Sunburn & Your Skin](#)
- <sup>8</sup> [British Journal of Dermatology 2009 Sep;161\(3\):630-4](#)
- <sup>9</sup> [Daily Mail March 2, 2016](#)
- <sup>10</sup> [Renal and Urology News February 25, 2016](#)
- <sup>11</sup> [Sunlight Institute January 18, 2016](#)
- <sup>12</sup> [Neurology April 19, 2011;76\(16\):1410-4](#)
- <sup>13</sup> [Journal of Nutrition 1980;110\(8\):1573-1580](#)
- <sup>14</sup> [Journal of Internal Medicine 2014 Jul;276\(1\):77-86](#)
- <sup>15</sup> [Business Insider May 7, 2014](#)
- <sup>16</sup> [J Clin Endocrinol Metab 2013;98:2160-2167](#)
- <sup>17</sup> [Cancer Causes and Control 2005 Mar;16\(2\):83-95](#)
- <sup>18, 24</sup> [Medical News Today May 8, 2013](#)
- <sup>19</sup> [Public Health Nutrition 2012 Apr;15\(4\):711-5](#)
- <sup>20</sup> [Journal of Internal Medicine March 16, 2016 DOI: 10.1111/joim.12496](#)
- <sup>21</sup> [Blood Purification 2016 Jan 15;41\(1-3\):130-134](#)
- <sup>22</sup> [TED.com Richard Weller](#)
- <sup>23</sup> [Journal of Clinical Psychiatry 1991 May;52\(5\):213-6](#)
- <sup>25</sup> [Science Daily March 17, 2009](#)
- <sup>26</sup> [Imperial College London March 17, 2009](#)
- <sup>27</sup> [Acta Med Indones. 2006 Jan-Mar;38\(1\):3-5](#)
- <sup>28</sup> [Huffington Post March 24, 2016](#)
- <sup>29</sup> [Econotimes March 23, 2016](#)
- <sup>30</sup> [The Journal of the American Osteopathic Association May 2017; 117: 301-305 \(Archived\)](#)

- <sup>31</sup> WLWT5 May 3, 2017
- <sup>32</sup> Daily News May 2, 2017
- <sup>33</sup> JAMA Dermatology 2016;152(12):1307-1313
- <sup>34</sup> Drmicozzi.com April 11, 2017
- <sup>35</sup> Medscape March 4, 2017 (Free membership sign-up may be required to read the reference.)
- <sup>36</sup> PLOS ONE 2016; 11 (4): e0152441
- <sup>37</sup> PR Web April 6, 2016
- <sup>38</sup> UC San Diego Health April 6, 2016 (Archived)
- <sup>39</sup> Science World Report April 13, 2016
- <sup>40</sup> Oncology Nurse Advisor April 22, 2016
- <sup>41</sup> Tech Times April 11, 2016
- <sup>42</sup> Chrisbeatcancer.com, Vitamin D
- <sup>43</sup> Nutrients 2014; 6(10): 4472-4475
- <sup>44</sup> ipetitions.com
- <sup>45, 46</sup> Anticancer Research 2011 Feb;31(2):607-11
- <sup>47</sup> Medical News Bulletin May 3, 2017
- <sup>48</sup> Cancer Epidemiol Biomarkers Prev. 2011 Dec; 20(12): 2583–2593
- <sup>49</sup> Sunscreensbiohazard.com
- <sup>50</sup> Dr. Oz May 7, 2013 (Archived)
- <sup>51</sup> Environmental Working Group, “The Trouble With Ingredients in Sunscreens”
- <sup>52</sup> D Minder
- <sup>53</sup> Better Bones July 11, 2014 A New Understanding of Vitamin D
- <sup>54</sup> News Medical Life Sciences March 8, 2017
- <sup>55</sup> Fitzpatrick Skin Type (PDF)