

DRINK YOUR D TODAY



FORGET TANNING!



CUT THIS OUT AND SHARE IT WITH A FRIEND!

VITAMIN D | A BAD EXCUSE FOR A TAN | MELANIE D. PALM, MD, MBA

A little over a year ago, I picked up a throwaway magazine dropped at the front entrance of my dermatology practice in Southern California. Within this so-called natural lifestyle magazine, I found an article extolling the “health benefits” of indoor tanning. One of the prime benefits it mentioned was vitamin D. This felt like a slap.

As a dermatologist who spends significant time educating the public on the harm that ultraviolet radiation (UVR) does to the skin, I was dumbfounded that even today, in the face of irrefutable opposing evidence, anyone could contend that UV tanning beds are good for one’s health. Even more insidious was the claim that they are a great source of vitamin D, when the truth is, rather than generate substantial vitamin D, they destroy DNA.

The tanning industry has helped perpetuate such beliefs, and the media unfortunately have sometimes been complicit. For example, in 2008, an ad ran in the *New York Times* promoting the benefits of UV exposure and dismissing the idea that tanning bed use can cause melanoma.¹ Such declarations, ranging from misleading to fraudulent, help support what is now a \$5 billion dollar tanning industry comprised of nearly 50,000 facilities in the US alone, serving approximately 30 million Americans a year.^{2,3}

Unfortunately, many of these misguided, erroneous beliefs are out there, promoting both outdoor and indoor UV exposure and tanning as a vitamin D source. Polls and studies show that consumers buy it hook, line, and sinker.¹ Here, we take the opportunity to dispel these notions one by one.

Melanie Palm, MD, MBA, is the Director of Art of Skin MD in Solana Beach, CA, and an assistant volunteer clinical professor of dermatology at the University of California San Diego. She is a member of The Skin Cancer Foundation’s Amonette Circle.



MYTH #1

SUNBATHING IS THE BEST WAY TO OBTAIN VITAMIN D, AND IT’S FREE.

It depends on what you mean by free. It’s only free if you don’t consider the lifetime cost to your health of skin damage.

Yes, the body manufactures vitamin D when the sun’s ultraviolet B (UVB) rays interact with a cholesterol precursor called 7-dehydrocholesterol (7-DHC) in the skin, converting it into vitamin D₃. However, sunbathing defeats the purpose for many reasons. First, it takes only a few minutes of sun – as little as 5 minutes of exposure to the face, arms or back twice weekly – for the body to manufacture sufficient vitamin D.¹ In fact, it has been estimated that for a Caucasian in New York City at 12 PM in summer, just five minutes a day would prompt *maximum* vitamin D production.⁴ If you have more sun exposure than that – certainly if you sunbathe long enough to *tan* – your store of vitamin D actually starts to deplete, breaking down into inactive compounds.^{5,6}

On the other hand, with each passing minute of sun exposure, the amount of *damage* to your skin cells – to your skin’s very DNA – keeps rising. Tanning itself is a direct response to DNA damage to your skin cells – your body’s attempt to build a wall of dark pigment against further damage.⁷ But unfortunately, permanent harm has already been done, and as the damage mounts over a lifetime, the rate at which your skin ages keeps accelerating and your risk of skin cancer keeps rising. About 90% of nonmelanoma skin cancers⁸ and 86% of melanomas⁹ are linked to the sun’s UV rays. So sunbathing – especially sunbathing long enough to tan, or worse yet, *burn* – is a terrible idea.



MYTH #2



TANNING BEDS ARE A SAFER WAY THAN SUN EXPOSURE TO GET VITAMIN D.

Since it is UVB rays that stimulate the body to produce vitamin D, and since tanning beds today mainly produce UVA, this argument for tanning beds doesn't hold true. The only study to support UV tanning beds as a source of vitamin D production was basically meaningless because study subjects also had done significant sunbathing.

Furthermore, these machines are anything but *safe*. Tanning salon proprietors have long maintained that UVA rays are safer than UVB, but we now know that UVA rays actually penetrate into deeper layers of the skin than UVB, unleashing molecules called free radicals that are both aging and carcinogenic. Tanning proponents also like to say that the dose of UV in tanning salons is more controlled than sun exposure, but the truth is, frequent tanners using new high-pressure sunlamps may receive as much as 12 times the annual UVA dose compared to the dose they receive from sun exposure.¹⁰

The bottom line is that study after study has linked tanning beds to all three major skin cancers. More than 419,000 cases of skin cancer in the US each year are linked to indoor tanning, including about 245,000 basal cell carcinomas, 168,000 squamous cell carcinomas, and 6,200 melanomas.¹¹ In 2009, the International Agency for Research on Cancer (IARC), an affiliate of the World Health Organization, moved tanning beds into its highest cancer risk category—carcinogenic to humans—alongside the likes of sun exposure, cigarette smoking, and plutonium.¹² Similarly, in 2014, the FDA upgraded these machines from fairly benign Class I devices to moderate-to-high risk Class II devices that must carry a black box warning to consumers.^{13,14}

VITAMIN D HAS MANY IMPORTANT HEALTH BENEFITS THAT OUTWEIGH ANY POTENTIAL HARM TO THE SKIN BY UVR.

According to a 2010 Institute of Medicine study (IOM), the need for vitamin D supplementation is scientifically supported only for bone health and musculoskeletal (muscle and bone) diseases.^{15,16} Many claims have been made in recent years about Vitamin D's ability to boost the immune system and help prevent any number of diseases, but these remain controversial and unproven. To date, the results of large-scale clinical trials using vitamin D supplementation for conditions ranging from heart disease, diabetes, and cancer to neurologic disorders and infectious diseases are far from conclusive.¹⁷

In contrast, the link between skin cancer, premature skin aging, and both indoor and outdoor tanning are now definitively proven.

MYTH #3



MYTH #4



AMERICANS ARE DANGEROUSLY DEFICIENT IN VITAMIN D, AND UV EXPOSURE IS THE ONLY WAY TO GET ENOUGH. THUS, SUNSCREEN IS CONTRIBUTING TO VITAMIN D DEFICIENCY.

Studying this issue in its 2010 investigation, the IOM found that most North Americans take in adequate vitamin D and require no supplementation beyond what they obtain through their regular diet.^{15,16} Since then, other groups such as the Harvard School of Public Health have said that the IOM's standards are too low, and that vitamin D deficiency is indeed a problem in the population at large.¹⁸ However, to date the IOM numbers still prevail as the standard recommendations for daily vitamin D intake. [See "How Much Vitamin D Do You Need?"]

Regardless what the numbers are, dermatologists are in near virtual agreement that the long-term dangers of UV exposure dictate against it as your source of vitamin D, that sunscreen and other forms of sun protection should continue being used on a daily basis, and that the safe, healthy way to attain sufficient levels is through D-rich food and vitamin supplements. [See "Remember to always EAT YOUR D's".]

MY TAKE-HOME MESSAGE IS SIMILAR: 1. Avoid UV tanning devices – their risks far outweigh any benefit. **2. Practice daily sun protection.** A "healthy tan" is a contradiction in terms – there is no such thing. **3. Most of the claims about vitamin D's health benefits remain to be conclusively determined.** What constitutes adequate levels of vitamin D also remains the subject of debate, but there are official standards in place established by the Institute of Medicine. **4. Since vitamin D is known to be essential for bone health,** individuals at high risk for vitamin D deficiency (such as people of color, whose skin allows in less UV, and people living in very northern latitudes) should be screened, and those who prove deficient should up their intake through diet and vitamin supplementation rather than UV exposure. 📄