

THE HEALING POWER OF SUNLIGHT & VITAMIN D

An exclusive interview with Dr. Michael Holick

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“The UV Advantage” and one of the world’s most
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BY MIKE ADAMS

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Adams: Today we're speaking with Dr. Michael Holick, Thank you for joining us today Dr. Holick.

Dr. Holick: Oh, it's my pleasure.

Adams: For those who may not be familiar with your work and your website, can you give a brief introduction of what you cover and how you got into it?

Dr. Holick: Sure, I've been doing research in the vitamin D field for, now, more than 30 years, and I happened to be in the right place at the right time as a graduate student at the University of Wisconsin, and worked with one of the authorities in vitamin D, Dr. Hector DeLuca. As a graduate student my PhD project was actually the isolation and identification of the active form of vitamin D, and my roommate and I, over the next two years, were the first to chemically synthesize it. And what was really neat about that experience was that we actually gave this to patients when I was in medical school -- and patients that had bone diseases associated with kidney failure, that were wheelchair bound, that had severe bone pain started walking again.

That was my first introduction into one of the major benefits of activated vitamin D and the development of it for the treatment of a bone disease.

Adams: Does this mean you and your colleague were the first to synthesize this form of vitamin D?

Dr. Holick: Yes, the active form of vitamin D that's made by the kidney, it's called 125-dihydroxy vitamin D.

Adams: Is this procedure more widely used now, for example to make vitamin D supplements?

Dr. Holick: No, because this active form of vitamin D is available only by prescription. It's used to treat osteoporosis in Europe and Japan. And it's also used to treat bone disease and kidney failure patients, and has a lot of other uses as well.

Adams: So as you were doing the research on this, you were able to immediately observe the health impact of it, right away.

Dr. Holick: Exactly, and what we began to realize was that vitamin D was much more complex than thought. We always knew that vitamin D was made in your skin when you are exposed to sunlight, but it was only in the 1970s that it was finally appreciated that it actually had to go on this circuitous journey, first to your liver to get hydroxylated, kind of activated, modified -- what's called 25-hydroxy vitamin D - it's the major circulating form of vitamin D that doctors should be measuring in your blood to determine your vitamin D status. But that is also inactive, and it has to go to your kidneys, and then in the kidneys it gets modified again, to its active form, which we call 125-dihydroxy vitamin D. And it's this 125-dihydroxy vitamin D that's responsible for telling your intestines to absorb calcium from your diet more efficiently, and to make sure that your blood calcium is normal and that you have healthy bones.

Adams: So if there is a failure of any of these body systems along the chain, that can suppress the circulating active vitamin D then?

Dr. Holick: Exactly, and in fact if you have severe liver disease, for example, you have two problems. One is that you may not be able to modify it, to get the 25-hydroxy vitamin D, and secondly if you have a fat malabsorption problem where you can't absorb dietary fat, since vitamin D is a fat-soluble vitamin, then you can't absorb vitamin D and you become deficient in vitamin D. Then if you have any kind of kidney disease, you need either activated vitamin D or one its analogs in order to be able to maintain healthy bones.

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Adams: In the testing then that you mentioned, was this active form being given through injection?

Dr. Holick: You could either take it orally or by injections.

Adams: Interesting. So you mentioned the positive impact on people who had trouble walking, who had osteoporosis, and various bone diseases. What other effects did you observe?

Dr. Holick: We also realized a few years later was that your skin doesn't only make vitamin D, which I think we'll talk about a little bit more in a minute, but it also recognizes activated vitamin D. And what was really, to me, quite amazing, was that in 1985 we realized the possibility that if you take activated vitamin D and put it in skin cells that you culture from humans, it turns out that activated vitamin D was probably one of the most potent inhibitors of skin cell growth. So I reasoned back in 1985 that if that was true, maybe you could take advantage of it by developing it to treat the hyperproliferative skin disorder psoriasis. And indeed it's one of the treatments of choice now worldwide. Both activated vitamin D and its analogs are used worldwide as the first line therapy for treating psoriasis.

And so again it shows you the breadth of activity that vitamin D has. Not only just to regulate calcium metabolism and bone health, but to regulate cell growth. And that's why we started realizing that people who live in higher latitudes and are more prone to vitamin D deficiency and are more prone to developing common cancers and dying of them, such as cancer of the colon, prostate, breast and even ovaries. And we think that that's in part due to the body's inability to make enough activated vitamin D to help regulate cell growth and to keep cell growth in check.

Adams: That would explain the links between breast cancer, prostate cancer, colon cancer and vitamin D deficiency.

Dr. Holick: Exactly. And then the key factor that we found was that, as I mentioned to you originally, we realized that the kidney was the major source of the activation of vitamin D. And the function of that is to make activated vitamin D for bone health. But we now also know that the prostate, breast, colon and many other tissues in the body can also activate vitamin D. And by doing so, we think that it locally produces this 125-dihydroxy vitamin D, which then regulates cell growth. It's a cell growth modulator. And I spell all this out in my book "The UV advantage" at www.UVadvantage.com.

Adams: It seems like vitamin D is misnamed. It's not really a vitamin in the classic sense, is it?

Dr. Holick: It's a good point, and the reason for it is as follows. It was recognized in the mid-1800s that if you gave cod liver oil to children who had rickets, it could cure rickets. And if you gave cod liver oil to children without rickets, it prevented them from getting rickets. So people thought that there was a vitamin present that was necessary for bone health. And that vitamin was finally identified by taking cod liver oil and boiling it, because once you boil cod liver oil, the vitamin A in it gets destroyed. Originally they thought it was vitamin A that was responsible for bone health, but when they boiled it and destroyed the vitamin A, the anti-ricketic activity, that is the bone health activity, was still present in the cod liver oil. And so it was named vitamin D, because there had already been identified a vitamin A, a B and a C, so the next in line was vitamin D.

Adams: So this was many decades ago then?

Dr. Holick: This was back in the early 1900s. And then they realized that if you're exposed to sunlight, or artificial ultraviolet-B radiation, that it also had anti-ricketic properties, i.e. that it had bone health properties. So all of a sudden people began to appreciate that the vitamin in cod liver oil was also being able to be made by your skin. And so you're correct that it really is not a vitamin, but it's a natural substance that we can make, but we can only make it if we intelligently use sunlight for the purpose of satisfying our body's requirements for vitamin D.

Adams: People don't typically think of their skin as being a pharmaceutical factory, and it's a new concept for a lot of people. Can you explain this point?

Dr. Holick: Yes, in fact the skin is the largest organ in your body, and it's solely responsible for producing vitamin D and providing the body with its vitamin D requirements. And you're quite right that it's basically a factory of all types of chemicals that are being made in the skin, some of which probably alter body functions as well. And certainly one of them is vitamin D.

Adams: I've often heard vitamin D being described as a hormone. Is that a valid description?

Dr. Holick: Well, hormone means it's made in one organ, goes into the blood and has an effect on another organ system. And so if you think about it, since vitamin D is made in the skin and gets into your bloodstream and then goes into the liver and the kidney to get activated, and then goes to the intestines and bones to have its biological effects, by definition vitamin D is a hormone.

Adams: In your research on this, how common is vitamin D deficiency in, say, the American population?

Dr. Holick: What's really remarkable is that vitamin D deficiency is epidemic throughout the entire United States, through all age groups. And I'll give you some examples. It's well known that elders throughout the United States are at high risk. And upwards of 40-60% are at risk for vitamin D deficiency. But we also now realize that even younger adults that are otherwise active and who may be always wearing sunscreen before they go outdoors, or they never see the light of day because they're working all the time. When we did a study in Boston, we found that students and doctors 18-29 years of age, at the end of the winter, 32% were vitamin D deficient.

Adams: Wow.

Dr. Holick: More shocking, though, was that we also looked at young girls (working with Dr Sullivan and Dr Rosen in Maine) -- and these are Caucasian girls ages 9-11 - and we found that 48% were vitamin D deficient at the end of the winter. And 17% remained vitamin D deficient at the end of the summer because of wearing all the sun protection.

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Adams: Now that's even more shocking, it's obviously a chronic deficiency.

Dr. Holick: But here's even a bigger shock. I had been concerned, and others had been concerned as well, that if you're not exposed to any sunlight or if you have very deep skin pigmentation, that you need 1000 international units of vitamin D to satisfy your body's requirements. And so we reasoned that probably women during pregnancy, even though they're taking their prenatal vitamins that contain 400 units of vitamin D, they're only getting 40% of what they need. So we did a study at our hospital, and we looked at women coming in and giving birth, and we measured their vitamin D levels -- their 25-hydroxy vitamin D levels, and the infants' 25-hydroxy vitamin D levels at birth. 49 infant-mother pairs were looked at, mostly African-American and Hispanic but some Caucasian as well. 76% of mothers were severely vitamin D deficient. 81% of infants were severely vitamin D deficient.

Adams: That's astonishing.

Dr. Holick: And so, what we're now becoming more concerned about, me and many of the experts, is that infants that are vitamin D deficient at birth can remain vitamin D deficient for the first several months after birth, it may put them at risk of developing many chronic diseases later in life, including type 1 diabetes, rheumatoid arthritis, multiple sclerosis, as well as many of the common cancers of the breast, colon and prostate.

Adams: And this trend - can it be reversed through vitamin D supplementation later on in their life? Or is that set in stone?

Dr. Holick: I don't know. What we're concerned about is the possibility that this may be imprint on the infant for the rest of his/her life. And I'll give you an example. There was a study done in Finland, and what they did was they looked at children 1 year of age that received 2000 units of vitamin D as a supplement for the first several years, and they followed them for over 20 years. And when they compared their risk of getting type 1 diabetes as young adults, they had an 80% reduced risk of developing type 1 diabetes.

Adams: Again, wow.

Dr. Holick: 80% decreased risk! And for children at 1 year of age that were found to have rickets and were vitamin D deficient, they had a fourfold increased risk of getting type-1 diabetes.

Adams: Was there any correlation with adult-onset diabetes as well, or was that not studied?

Dr. Holick: Those studies have not been done, but what we do know is that activated vitamin D does a couple of things. It will regulate insulin secretion by your pancreas, which is of course one of the major problems with type 2 diabetes, and it may increase insulin sensitivity. We think that vitamin D deficiency may exacerbate type 2 diabetes, there's some mounting evidence in the literature to suggest that.

Adams: So, if I can summarize, it appears that we have a nation that is suffering from chronic vitamin D deficiency that we are giving to a whole new generation of children who are starting out deficient and are therefore at a high risk for these diseases.

Dr. Holick: I think so, and that's why we're starting to sound the alarm. I'll give you another statistic. The CDC reported that when they looked across the United States at African American women during their child-bearing years, aged 15-49 years of age, 42% were vitamin D deficient at the end of the winter time.

Adams: It appears that we have a nation suffering from chronic vitamin D deficiency, and that we are creating a whole new generation of children who are starting out deficient and are therefore at a high risk for diseases like diabetes.

Dr. Holick: I think so, and that's why we're starting to sound the alarm. I'll give you another statistic. The CDC reported that when they looked across the United States at African American women during their child-bearing years, aged 15-49 years of age, 42% were vitamin D deficient at the end of the winter time.

Adams: So why isn't this front page news, why aren't Americans being warned right now to go out and get more vitamin D into their bodies?

Dr. Holick: Part of the problem, I believe is that people just take vitamin D for granted. And in fact I've talked to many dermatologists who blithely will say on TV that you just drink another glass of milk, or you get vitamin D from your diet. And unfortunately it's incorrect. They really are ignorant that very few foods naturally contain vitamin D. And we're talking about oily fish like salmon and mackerel, and you would have to eat salmon and mackerel 3-5 times a week in order to get your vitamin D requirement. Cod liver oil is another good source, although milk or orange juice fortified with vitamin D has some, but there are only 100 units in an 8 oz glass of vitamin D-fortified milk and orange juice. **So you would have to drink 10 glasses of milk or 10 glasses of orange juice a day.** You cannot get your vitamin D easily from your diet. And even if you take a multivitamin, a multivitamin contains 400 international units of vitamin D, only 40% of what you need. So you would have to make a conscious effort to take a multivitamin, drink 2 glasses of milk, drink a glass or two of orange juice fortified with vitamin D and eat salmon to get the amount of vitamin D that you require to satisfy your body.

Adams: Or you could just walk outside and get natural sunlight on your skin.

Dr. Holick: Or you can use sensible sun exposure, right. I mean, we evolved in sunlight. We were bathed in sunlight, we feel better in sunlight. And sunlight provides us with a gift, which is vitamin D. And so, as you're well aware, in my book, I have tables at the end of the book, where I tell people anywhere on the globe, any time of the year, for any skin type at any time of day, how long they can stay outside to get some safe sun to provide them with their vitamin D requirements, and then to use sun protection thereafter.

Adams: I think that's wonderful that you have that kind of chart in your book, because that's what people are wondering. Can you give an example, let's say someone of African descent living in the UK, for example?

Dr. Holick: Sure. If you were living in the UK, say in July, they're much further north than we are in the U.S., about 10 degrees further north in latitude, so the sun's rays are even weaker, so they probably would need a good 30 to 60 minutes of exposure of arms and legs, or hands face and arms, 2-3 times per week.

Adams: So that's several hours a week they need to be getting.

Dr. Holick: Yes. But for a Caucasian it would probably be no more than 5 to 10 minutes.

Adams: Also 2 or 3 times per week?

Dr. Holick: Yes, so it makes a big difference. A typical African American with very deep skin pigmentation -- they have sun protection that's typical of a sun protection factor of 15-30. And what that means is that they can stay out 15-30 times longer. Which means that they need to be out much longer to satisfy their body's requirements of vitamin D.

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Adams: Sure, that makes perfect sense.

Dr. Holick: And to give you an example of how powerful putting sunscreen on is, if you put a sunscreen on with an SPF of 8, it reduces your ability to make vitamin D in your skin by more than 95%.

Adams: So you're pretty much shutting down vitamin D production with even a mild sunscreen.

Dr. Holick: Exactly. And so what we recommend is you go outside for 5 or 10 minutes, enjoy the sun, make the vitamin D in your arms and legs or hands face and arms, and then put the sunscreen on.

Adams: Right. That does sound sensible. Is there a direct calculation where you can say X number of minutes under the sun at this latitude equals a certain number of units of vitamin D?

Dr. Holick: Within reason. The problem is that obviously there are clouds in the sky, and there's pollution in the air including ozone which absorbs the vitamin producing rays... but on average, I tell my doctor friends that if you're on the beach on Cape Cod, here in Massachusetts in June, and you know that you're going to get a mild pinkness to your skin, say 30 minutes of being outside, in a bathing suit, it's equivalent to taking 20,000 units of vitamin D orally.

Adams: OK, so that's 20 times more than they might need.

Dr. Holick: Exactly. So what we recommend is that if you just expose 6-10% of your body, a couple of times a week, that's all you need.

Adams: Another question then. Can, in addition to sunburn which is a totally separate issue, can a person's body actually produce too much vitamin D itself where it becomes toxic?

Dr. Holick: The answer is no. The body is very clever and no matter how much sun you're exposed to, you can never become intoxicated with vitamin D. So if you're a sun-worshipper or a lifeguard, there's never been a reported case of vitamin D toxicity. And the reason is, as we had shown many years ago, that when you're exposed to sunlight, your body makes enough vitamin D, and that any excess that's made is destroyed by the sun.

Adams: So it's a self-regulating system, and that's the best way to go.

Dr. Holick: Exactly. And basically it tells you that Mother Nature really had always programmed for you to get your vitamin D requirements from some sensible sun exposure.

Adams: What about storage of vitamin D in the body. If someone lives in a climate where it gets cloudy for 2 months in a row, what then?

Dr. Holick: Excellent point. Remember I told you about the major circulating form of vitamin D which is 25-hydroxy vitamin D? It's half-life in the blood stream is 2 weeks. So when you build up your vitamin D levels during spring, summer and fall, you can use them because your blood levels are much higher, and also some of the vitamin D is stored in your body fat and is released during the winter time. But the opposite is true also, and that is that if you're obese, we know that most obese people are prone to deficiency in vitamin D, and the reason is that the vitamin D gets sucked into the fat and it can't get out. And so we actually did a study in obese and non-obese individuals, and we gave them either an oral dose of vitamin D or we put them on our tanning beds so that they can make vitamin D in their skin. Obese people could only raise their blood levels of vitamin D about half as much as non-obese individuals.

Adams: Very interesting.

Dr. Holick: And so if a person is in fact overweight, they don't need 1000 units of vitamin D a day, they probably need 2000 units of vitamin D a day.

Adams: That's fascinating, because again that plays into the sensitivity to vitamin D, so there's a vicious cycle going on there in obesity.

Dr. Holick: Exactly.

Adams: It's going to take a lot of vitamin D, a lot of sun exposure to help break that cycle. I've got another question for you here. So if a person has all the vitamin D that their body wants, and it's stored in the fat tissues, how long can they go, is it a period of months?

Dr. Holick: Yeah, I mean if you're getting a really adequate source in the spring, summer and fall, it'll last two to three months. So it'll get you through the winter. But for those that are concerned about this issue, what I always tell my patients is, take a multivitamin, you're getting 400 units and get some sun exposure to really make sure that you're building up your stores of vitamin D. And then during the wintertime especially take at least a multivitamin, and maybe take an additional supplement, a vitamin D supplement that contains another 400-1000 units of vitamin D.

Adams: Let me shift gears here and ask you about the controversy side of this. Sadly, I think your book has been attacked with kind of a surprising degree of ferocity. What has happened to you since publishing this book and taking this stand on being a proponent of sun exposure?

Dr. Holick: Well, from my perspective, you know you have to look at life and see that the glass is half full or half empty, and I've always seen it as being half full. And I think that in many ways it's been good. Even though I was unfortunately fired from my position in dermatology because my views on some sensible sun exposure were counter to the American Academy of Dermatology and some of the so-called leaders in the dermatology field, for the most part I think that it's been a benefit because it's really raised the public's awareness about this issue and for that I'm really grateful. Because in the past people have just said vitamin D, ho-hum, sunshine vitamin ... who really cares about it? And these people now have to take pause and begin to think about it.

Adams: And in the UK especially, they're now seeing an official body overturning the advice to avoid the sun, isn't that right?

Dr. Holick: Which is wonderful.

Adams: But in the United States?

Dr. Holick: In the United States I think it's going to be a more slow and gradual process, because the American Academy of Dermatology has so brainwashed the public that you should never be exposed to any sunlight, that it basically is part of everybody's way of life. And it's extremely unfortunate.

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Adams: And it is widespread, wherever I go and talk to people, to groups, I inevitably mention sunlight and vitamin D, and I have not run into a single person yet that is aware of the health benefits of ultraviolet radiation. Not a single one.

Dr. Holick: I'm not at all surprised. Like I said, the problem was that over the past 20 years ago the dermatologists have basically been in control of the media regarding the role of sunlight in health. And all they've looked at is the negative effect. And there's no question that chronic, excessive exposure to sunlight increases risk of nonmelanoma skin cancer, which is Basal or Squamous cell cancer. I make that very clear in my book.

Adams: Right.

Dr. Holick: But there's very little evidence in my opinion that sensible, moderate sun exposure increases your risk of the most deadly form of skin cancer, melanoma. In fact, there's good evidence to suggest that it may decrease your risk.

Adams: What about sunscreen products? The sunscreen manufacturers, I think they're happy to go along with the idea that sun should be avoided. What's been your experience?

Dr. Holick: Yeah, I think that there's no question that the American Academy of Dermatology is well-funded by the sunscreen industry, and I'm sure that that plays a role in this.

Adams: There's influence, or lobbying, or what?

Dr. Holick: Well, back in April, just before my book was launched, I think the "Safe Skin Association" actually put out a paid news release attacking me and the book, even before it was launched.

Adams: You really have to be stirring things up to get that kind of treatment.

Dr. Holick: Yeah. It was called the "Safe Skin Alliance" I believe. And it was actually funded by one of the companies that makes Coppertone, among other sunscreen products.

Adams: And just to be clear to the readers or listeners here, your advice to get sensible exposure to the sun, technically doesn't preclude using sunscreens in an intelligent way. Correct?

Dr. Holick: Correct. In fact, that's what I make very clear in the book, is, go out for the 5-10 minutes, be exposed to sensible sun exposure, then put a sunscreen on with the proper SPF. And I even teach you in the book how much sunscreen to use to make sure that you're getting the full sun protection that's stated on the bottle.

Adams: Let's move on to discuss some of the other disorders or diseases that are correlated with vitamin D deficiency. Let's talk about mental health and Seasonal Affective Disorder.

Dr. Holick: Principally, Seasonal Affective Disorder is due to the fact that people who live in northern climates can't easily regulate the production of melatonin by the pineal gland. And melatonin is a hormone that causes you to fall asleep basically, or to hibernate. And so for many people that live in northern latitudes, the sun's rays are not intense enough and long enough in exposure time to regulate melatonin levels. So people will wake up in the morning in winter time, their melatonin levels are not suppressed as they should be if you're exposed to some bright sunlight, and as a result they feel tired and they want to hibernate throughout the winter. They get depressed.

There is one study, however, that looked at patients with seasonal affective disorder and looked at exposing them to a tanning bed, and looking at their vitamin D levels, and they could show a direct benefit from increasing blood levels of 25-hydroxy vitamin D and relief of symptoms of seasonal affective disorder. We also know that people during the winter time have aches and pains in their bones and muscles, and it also makes them depressed. And we now recognize that vitamin D is very important for muscle function, and that people who are vitamin D deficient are prone to have muscle weakness, they're more likely to fall and they're more likely to have bone fractures. We also know that if you're vitamin D deficient, not only does it precipitate and exacerbate osteoporosis in older men and women, but it causes a very subtle and quite devastating bone disease known as osteomalacia. Long story short, osteomalacia is like adult rickets. And what it does is it causes severe bone discomfort, achiness in the bones and also in the muscles. And these patients are often misdiagnosed as having fibromyalgia.

Adams: Yes, that makes sense.

Dr. Holick: There was a study done in Minnesota by Dr Plotnikoff and what he showed was that, he looked at over 150 individuals. And we're talking about children ages 10+ and adults up to the age of 65, presenting at a Minnesota hospital in the wintertime, complaining of muscle aches and pains and bone pain. Many of these, especially young women in their 20s, were given Motrin or some type of over the counter drug, or even a prescription strength anti-inflammatory drug (NSAIDs) because the doctors couldn't figure out what was going on. 93% of that entire group of children and adults complaining of bone pain or muscle pain were vitamin D deficient.

Adams: Wow.

Dr. Holick: And none of the doctors at the time recognized the signs and symptoms or worked these people up for vitamin D deficiency, or treated them appropriately.

Adams: What a tragic failure of diagnosis and treatment.

Dr. Holick: I see this all the time in my clinic. I see women as well as men coming in complaining of severe achiness in their bones and muscles. A complete work up, sometimes thousands of dollars are spent, to do all kinds of tests, not to find the cause, only to be seen by me, only to find that they're vitamin D deficient. As I explained, it takes months, it takes years to become vitamin D deficient, and to have such problems with your bones and muscles, and it takes months at least if not up to a year of intensive vitamin D treatment and sunlight exposure in order to reverse that effect.

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Adams: That's an important bit of information: you're saying months to years to reverse the deficiency?

Dr. Holick: Right, but what I also tell my patients is that they'll begin to feel better after a month or two, but it's not something that's going to happen overnight. And I have one particular case of a woman who was hospitalized, totally immobile and was just complaining of global bone pain and muscle aches and weakness ... she couldn't even get out of bed! And her doctors didn't know what to do with her. She basically was admitted to the hospital to die. And I happened to see her because I was on call for that weekend, and I instantly recognized it -- she was African American, she was not outside at all. I was convinced based on my physical exam. Typically what I like to do is if you take your forefinger and press on the breastbone a little bit, if the patient winces in pain, it's consistent with osteomalacia. And that's exactly what she did. She was excruciatingly uncomfortable with minimum touching of her sternum. I was convinced that she had osteomalacia. And I told her, I want you out of the hospital. I'm giving you vitamin D, and I'm telling you to go out and be exposed to some sunlight, and you're going to start feeling better in a month or two. Hopefully you'll get in your wheelchair, and then eventually you'll be able to walk within six months. And then sure enough, I just saw her in clinic this past Monday, and she now is up and walking around, using a walker. Really almost for the first time in half a dozen years.

Adams: Fascinating. How many other people are in nursing homes and hospitals right now suffering from nothing more complicated than this deficiency?

Dr. Holick: I saw another case in my clinic on Monday, which was absolutely shocking, which again shows how pervasive this concept is that the American Academy of Dermatology has provided to the media. I saw a 45 year old woman who brought in her 7 year old son, and her son had severe rickets. She's Caucasian, as is her son and the father. And she was told, because she was older when she had her first pregnancy that she was at very high risk of having a potential problem, that she should never be exposed to any sunlight.

Adams: Unbelievable!

Dr. Holick: And so she followed her physician's advice. And then she was told that when she gives birth, that she should solely breastfeed her infant, and that the infant should not receive any extra outside nutrition or supplements. And she followed the physician's advice.

Adams: And passed on the vitamin D deficiency.

Dr. Holick: By this age, the child had severe bowing of the legs, and that's severe rickets.

Adams: Fascinating. And it seems like, well, what do you estimate -- how many people are in nursing homes and hospitals right now with this condition, and those buildings are typically windowless...

Dr. Holick: Doesn't matter actually, because vitamin D rays are absorbed by the glass, so even if you're exposed to sunlight through glass, you can't make any vitamin D.

Adams: And that's all glass?

Dr. Holick: All glass. And so if you're driving in the car all the time, it's not going to do you any good. But the bottom line is this -- a study was done in Mass General Hospital. They found over 50% of inpatients - these are young adults, and middle aged, and older adults - were vitamin D deficient. Typically, on average, probably 50-80% of nursing home residents, 50-60% of inpatient hospital patients, and on average I would estimate, 40% of the population in the United States at large, if they're not getting some sensible sun exposure, are probably deficient in vitamin D.

Dr. Holick: A study was done in Mass General Hospital. They found over 50% of inpatients - these are young adults, and middle aged, and older adults - were vitamin D deficient. Typically, on average, probably 50-80% of nursing home residents, 50-60% of inpatient hospital patients, and on average I would estimate, 40% of the population in the United States at large, if they're not getting some sensible sun exposure, are probably deficient in vitamin D.

Adams: And let me bring you back to the mental effects of this. What's the correlation - beyond depression, are there other areas?

Dr. Holick: Well, there's a fellow in Australia that's done a very interesting study. And what he's concluded is the possibility that if you're born during the wintertime, you're at higher risk of developing schizophrenia later in life. And during the wintertime you're more prone to vitamin D deficiency. And he's done studies in mice to show that vitamin D seems to be critically important for the development of the brain. So there is some suggestive evidence that maybe indeed vitamin D deficiency, especially in utero as well as in infancy could potentially increase that individual's risk of developing schizophrenia later in life.

Adams: Fascinating. So here's another question then. If sunlight could be bottled up and put in capsules and patented by pharmaceutical companies, how much would they charge for it?

Dr. Holick: Well, vitamin D is available pharmaceutically. And it's shocking but true that they're charging about \$10 per pill for my patients.

Adams: \$10 per pill?

Dr. Holick: Yes.

Adams: And that's for 1000 units?

Dr. Holick: No, that's for 50,000 units. I typically treat my patients with 50,000 units of vitamin D once a week for 8 weeks, followed by 50,000 units of vitamin D every other week. And that's a great way to fill up the vitamin D tank if it's empty, and to maintain it in its full state for the patient for the rest of his or her life.

Adams: Do you think part of the reason the health benefits of natural sunlight aren't getting a lot of attention is because there's no money in it? I mean, sunshine's free.

Dr. Holick: It certainly is a part of it. And like I said, the problem is that vitamin D deficiency has such subtle but incredibly important health implications. It's the subtlety that's the problem. I mean, when you mention the word cancer, everybody's aware of that, and everybody's aware of how serious cancer is. And so people will immediately help fund that kind of research, and promote that kind of research.

But to suggest that sensible sun exposure, making vitamin D, vitamin D probably evolved early in evolution to modulate cell growth, decrease risk of cancer, modulate your kidney to produce the blood pressure hormone renin, which regulates your blood pressure ... I mean all of those things are very subtle, you can't feel your blood pressure, and you can't feel your cells growing, but you certainly know if you have cancer. By then it's too late, what you really want to do is take preventative measures, and one of those is to make sure you're getting an adequate source of vitamin D, both from vitamin supplements and from sensible sun exposure.

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Adams: In your book you talk about the link with calcium and calcium assimilation. How important is that for people to understand?

Dr. Holick: Well, it's critically important for people to realize that even if they have an adequate amount of vitamin D, if they don't have any calcium around, the vitamin D can't have the desired effect on bone health without being able to get enough calcium out of the diet and to put it into the bloodstream which will eventually get to your bones. So, making sure that you have adequate calcium intake is very important. And the recommendation by the Institute of Medicine (and I was on this committee back in 1997) is that if you're a teenager, 1300mg a day of calcium, for adults ages 18-50 it's 1000mg of calcium and 51+ years it's 1200mg of calcium for both men and women.

Adams: And you mention that you have to have calcium in your system for vitamin D to work - is the opposite also true? You've got to have vitamin D for the calcium to be effective?

Dr. Holick: Oh, no question about it. If you are deficient in vitamin D, you absorb on average 10-15% of the calcium that's in your diet. If you're sufficient in vitamin D, if you have adequate sun exposure or adequate intake of vitamin D, you absorb about 30% of the calcium in your diet. During pregnancy and lactation, and during growth spurts, the body responds appropriately by actually increasing that efficiency up to 80%.

Adams: So the normal level is 30%.

Dr. Holick: 30% for healthy adults, yes.

Adams: So a person who's taking, let's say coral calcium supplements, if they're not getting sunshine or vitamin D to go with it, their absorption is halved.

Dr. Holick: Yeah, exactly, and it's really of little benefit.

Adams: That's fascinating. Once again showing that there's no single magic pill, you have to be healthy across the board.

Dr. Holick: That's right. And what I typically recommend to my patients is Tums or Os-Cal or Caltrate or any of the respected brands ... Super Cal or all good sources of calcium.

Adams: As long as you've got vitamin D.

Dr. Holick: Correct. If you have adequate vitamin D or some sun exposure.

Adams: Cod liver oil is of course a great source of vitamin D, as you mention, but some people are concerned about contamination of these oily fish with heavy metals - is that a concern?

Dr. Holick: Yes, PCBs. And so, what you have to do is if you're going to buy it, buy it from a respectable source. Certainly it's a step in the right direction. But you know there are omega fatty acids in there that have benefits to the heart, and have other health benefits. So it may be that many of those outweigh the possible risk if there are contaminants in there. Although, like I said, a lot of the manufacturers are pretty good at making sure that there aren't.

Adams: How do you think our country would look in terms of healthcare costs or patient counts if every person were out there getting sensible sunlight and getting adequate vitamin D? What would change?

Dr. Holick: It's almost incalculable, because like I said if you just think about the study that was done in Finland where it can reduce your risk of getting type 1 diabetes by 80%. Studies that have been done in the United States and Europe show it can decrease risk of getting colon cancer and dying of colon cancer by 50%, prostate cancer by 50%, ovarian cancer and breast cancer by almost the same amount. The amount of not only money saved, but the amount of grief and pain and suffering that people go through with these serious chronic diseases, potentially could be avoided.

Adams: And are these all topics that you discuss in more detail in the UV advantage book?

Dr. Holick: That's correct. Not only do I discuss these topics and I think in a relatively simple, readable form, but for those that are interested in going to the source, I provide almost 100 references, scientific references for almost everything that I say in the book. So everything that I say in the book is well documented by good science.

Adams: I find that fascinating. And yet, it remains controversial in so many circles. It just seems like those old beliefs are hard to change.

Dr. Holick: It's really quite remarkable. And like I said, it was a big surprise to me, because I would have thought, and in fact I was a little bit surprised because in the beginning of the book you know that I specifically state that I do not advocate tanning. However, I also point out that for those that wish to tan, they should do it responsibly. And that in fact is the message in the book, that you should take advantage of some sensible sun exposure for your health. It's incredibly important, not only for your bone health, but for the prevention of many serious, chronic diseases. And the parents out there should really think about their children. Because I know that they're so concerned about their children, they always put a sunscreen on. And I know even from my own experience in my clinical office that African American mothers are so worried about this message that any sun exposure could increase the risk of skin cancer, that they even put sunscreen on their children. And as a result they even put them at a higher risk of developing vitamin D deficiency.

Adams: They might as well put on a suit of armor!

Dr. Holick: That's exactly right. And it's so unfortunate. And it's probably not atypical of the kind of American psyche -- that very seldom do they practice moderation, they always like the extremes. And so this is a very unfortunate extreme, to suggest that people should never be exposed to direct sunlight. In my opinion, it's really bad advice.

Adams: Have you thought about marketing a product, a watch that you can wear that senses UV radiation and tells people when they have sufficient amounts? Because they have ones that warn people about overexposure, but not ones that tell people how much sunlight they actually need.

Dr. Holick: We've thought about that, and we've developed a method where we can tell you how much vitamin D you're making, but it's somewhat cumbersome, and it's probably going to take a lot more effort before such a product could potentially be available.

Adams: I certainly hope you find cause to pursue that, because I think that would be a great aid to people. There's a big question mark when people go outside - they don't know how much time ... is it too much, is it too little? They need something they can look at, that will give them some guidance. I think that would be a popular product as the public opinion shifts on this issue.

Dr. Holick: Well, there may be some inventive individuals out there listening right now. It may spark their interest.

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Adams: We'll call it the "Healthy Sun Watch" or something. Of course you'd have to enter your skin pigmentation into the device, right?

Dr. Holick: Sure. Yep.

Adams: And your latitude even? Is that true?

Dr. Holick: You could put your latitude, time of day, season of the year, you could program it all probably into a little mini-computer.

Adams: I hope to see something like that. Final question for you, Dr Holick. What's next on the horizon for you? Any other upcoming projects you'd like to mention?

Dr. Holick: Well, we're very interested now in taking the vitamin D story in cancer to the next level. We're in the process of demonstrating clearly in animal models that if you're deficient in vitamin D that it will not only cause colon cancer to be more aggressive but that the tumor will continue to grow in a very significant way. And we also are now working on developing analogs of activated vitamin D specifically to treat colon, prostate and breast cancer.

Adams: These would be oral supplements?

Dr. Holick: These would be, not supplements, but oral drugs.

Adams: OK, so these would be by prescription only. But they're molecularly identical to the activated vitamin D in your body?

Dr. Holick: Exactly, but would be more potent than the activated vitamin D.

Adams: Do you have a practice where people can visit you long distance? I mean, they can come visit you?

Dr. Holick: Yeah, I have a lot of people from around the globe that will make an appointment and see me. And I'm certainly happy to do that.

Adams: What city are you located in?

Dr. Holick: In Boston. In the University Medical Center.

Adams: OK, Boston, so not exactly the sunlight capital of the world there, either, but for those who are looking to go right to the top here, to work with the expert, can they contact you at uvadvantage.com?

Dr. Holick: It's probably difficult to do that, but I think what they could do is probably to get in touch with you and I can give you some of that information.

Adams: OK, that sounds great, I'll be happy to pass on the contact information for anyone who emails us and wants to come visit you. So we've been talking today with Dr Michael Holick, author of "The UV Advantage," who as you can see here, is an authority on vitamin D, the best-informed person I've ever spoken with on this subject. And I want to thank you very much for your time today, Dr Holick.

Dr. Holick: My pleasure, and - enjoy the sun!

Vitamin D Myths, Facts and Statistics

Fifteen Facts You Probably Never Knew About Vitamin D and Sunlight Exposure:

(Compiled by Mike Adams, based on an interview with Dr. Michael Holick, author, The UV Advantage)

Vitamin D prevents osteoporosis, depression, prostate cancer, breast cancer, and even effects diabetes and obesity. Vitamin D is perhaps the single most underrated nutrient in the world of nutrition. That's probably because it's free: your body makes it when sunlight touches your skin. Drug companies can't sell you sunlight, so there's no promotion of its health benefits. Truth is, most people don't know the real story on vitamin D and health. So here's an overview taken from an interview between Mike Adams and Dr. Michael Holick.

1. Vitamin D is produced by your skin in response to exposure to ultraviolet radiation from natural sunlight.
2. The healing rays of natural sunlight (that generate vitamin D in your skin) cannot penetrate glass. So you don't generate vitamin D when sitting in your car or home.
3. It is nearly impossible to get adequate amounts of vitamin D from your diet. Sunlight exposure is the only reliable way to generate vitamin D in your own body.
4. A person would have to drink ten tall glasses of vitamin D fortified milk each day just to get minimum levels of vitamin D into their diet.
5. The further you live from the equator, the longer exposure you need to the sun in order to generate vitamin D. Canada, the UK and most U.S. states are far from the equator.
6. People with dark skin pigmentation may need 20 - 30 times as much exposure to sunlight as fair-skinned people to generate the same amount of vitamin D. That's why prostate cancer is epidemic among black men -- it's a simple, but widespread, sunlight deficiency.
7. Sufficient levels of vitamin D are crucial for calcium absorption in your intestines. Without sufficient vitamin D, your body cannot absorb calcium, rendering calcium supplements useless.
8. Chronic vitamin D deficiency cannot be reversed overnight: it takes months of vitamin D supplementation and sunlight exposure to rebuild the body's bones and nervous system.
9. Even weak sunscreens (SPF=8) block your body's ability to generate vitamin D by 95%. This is how sunscreen products actually cause disease -- by creating a critical vitamin deficiency in the body.
10. It is impossible to generate too much vitamin D in your body from sunlight exposure: your body will self-regulate and only generate what it needs.
11. If it hurts to press firmly on your sternum, you may be suffering from chronic vitamin D deficiency right now.
12. Vitamin D is "activated" in your body by your kidneys and liver before it can be used.
13. Having kidney disease or liver damage can greatly impair your body's ability to activate circulating vitamin D.
14. The sunscreen industry doesn't want you to know that your body actually needs sunlight exposure because that realization would mean lower sales of sunscreen products.
15. Even though vitamin D is one of the most powerful healing chemicals in your body, your body makes it absolutely free. No prescription required.

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On the issue of sunlight exposure, by the way, it turns out that super antioxidants greatly boost your body's ability to handle sunlight without burning. Astaxanthin is one of the most powerful "internal sunscreens" and can allow you to stay under the sun twice as long without burning. Other powerful antioxidants with this ability include the superfruits like Acai, Pomegranates (POM Wonderful juice), blueberries, etc.

Diseases and Conditions Caused by Vitamin D Deficiency:

- Osteoporosis is commonly caused by a lack of vitamin D, which greatly impairs calcium absorption.
- Sufficient vitamin D prevents prostate cancer, breast cancer, ovarian cancer, depression, colon cancer and schizophrenia.
- "Rickets" is the name of a bone-wasting disease caused by vitamin D deficiency.
- Vitamin D deficiency may exacerbate type 2 diabetes and impair insulin production in the pancreas.
- Obesity impairs vitamin D utilization in the body, meaning obese people need twice as much vitamin D.
- Vitamin D is used around the world to treat Psoriasis.
- Vitamin D deficiency causes schizophrenia.
- Seasonal Affective Disorder is caused by a melatonin imbalance initiated by lack of exposure to sunlight.
- Chronic vitamin D deficiency is often misdiagnosed as fibromyalgia because its symptoms are so similar: muscle weakness, aches and pains.
- Your risk of developing serious diseases like diabetes and cancer is reduced 50% - 80% through simple, sensible exposure to natural sunlight 2-3 times each week.
- Infants who receive vitamin D supplementation (2000 units daily) have an 80% reduced risk of developing type 1 diabetes over the next twenty years.

Shocking Vitamin D Deficiency Statistics:

- 32% of doctors and med school students are vitamin D deficient.
- 40% of the U.S. population is vitamin D deficient.
- 42% of African American women of childbearing age are deficient in vitamin D.
- 48% of young girls (9-11 years old) are vitamin D deficient.
- Up to 60% of all hospital patients are vitamin D deficient.
- 76% of pregnant mothers are severely vitamin D deficient, causing widespread vitamin D deficiencies in their unborn children, which predisposes them to type 1 diabetes, arthritis, multiple sclerosis and schizophrenia later in life. 81% of the children born to these mothers were deficient.
- Up to 80% of nursing home patients are vitamin D deficient.

What You Can Do:

Sensible exposure to natural sunlight is the simplest, easiest and yet one of the most important strategies for improving your health. I urge you to read the book, "The UV Advantage" by Dr. Michael Holick to get the full story on natural sunlight. You can find this book at most local bookstores or through BN.com, Amazon.com, etc. *Note: This is not a paid endorsement or an affiliate link. I recommend it because of its great importance in preventing chronic disease and enhancing health without drugs or surgery.* **This may be the single most important book on health you ever read.** If more people understood this information, we could drastically reduce the rates of chronic disease in this country and around the world. Sunlight exposure is truly one of the most powerful healing therapies in the world, far surpassing the best efforts of today's so-called "advanced medicine." There is no drug, no surgical procedure, and no high-tech procedure that comes even close to the astonishing healing power of natural sunlight.

And you can get it free of charge. That's why nobody's promoting it, of course.

About the Author



The Health Ranger (Mike Adams) is a holistic nutritionist with over 5,000 hours of study on nutrition, wellness, food toxicology and the true causes of disease and health. He is the author of *The 7 Laws of Nutrition*, *Grocery Warning*, *Health Seduction*, and many other books available at <http://www.TruthPublishing.com>.

Adams is also the creator of the popular *Honest Food Guide*, a free downloadable nutritional guide found at <http://www.HonestFoodGuide.org>. In addition, more than 1,500 free articles on health, nutrition and wellness have been authored by Adams and are available at <http://www.NewsTarget.com>.

Adams uses no prescription drugs whatsoever and relies exclusively on natural health, whole foods, superfoods, nutritional supplements and exercise to achieve optimum health. To prove the value of nutrition and physical exercise in enhancing health, Adams publishes detailed statistics on his own blood chemistry (with full lab results) at <http://www.NewsTarget.com/AdamsHealthStats.html>.

Other books by the Health Ranger

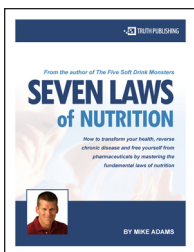


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