



It Starts *with* You

How our vitamin
D-deficient country
can turn its health around.

BY MICHAEL A. MILLER

The jubilant colors of the holidays have dissipated beneath a slate-colored sky. As you return to your usual grind, you might feel robbed of your sunny disposition—but not because of that looming deadline—you've been robbed of actual sunshine. Odds are, you are deficient in vitamin D, and that is certainly something to be sad about.

You're not alone. More than 66 million Americans are deficient in vitamin D. The Institute of Medicine at the National Institutes of Health considers blood (serum) levels of just 12 ng/ml to indicate deficiency and 20 ng/ml to be adequate, but either amount falls way short of its potential benefits.

Vitamin D is actually not a vitamin at all, but a hormone that the body makes through a chemical process triggered by UVB light contacting the skin. It is converted by the liver and then by the kidneys into the usable version of vitamin D, which supports strong bones and teeth by helping the body absorb and distribute calcium and phosphorus. Serving as calcium's usher, vitamin D battles soft bones (osteomalacia), thinning bones (osteoporosis), and weakening bones (rickets). But to many researchers and medical practitioners, this is old news—about 80 years old, according to *Current Rheumatology Reports*. Instead, researchers are now buzzing about vitamin D's potential extra-skeletal benefits.

Vitamin D receptors exist in almost all your cells and organs, suggesting disease-fighting functions far beyond bone health. Recent research shows an association between low vitamin D levels and increased risk for heart disease, high blood pressure, type 1 diabetes, depression, immune dysfunction, infectious and autoimmune diseases, and even certain types of cancer. Vitamin D is much more than a humble bone builder, and the nationally recommended 20 ng/ml simply isn't enough.

A non profit research group, Grassroots Health, has determined effective serum levels of vitamin D to reduce risk for many of these chronic diseases. Only rickets was prevented at the national serum average—25 ng/ml—but serum levels between 49 to 60 ng/ml bestowed protection from cancer, type 1 diabetes, multiple sclerosis, and much more. Considering their research, Grassroots Health educates consumers on adequate levels of 40 to 60 ng/ml. You'll want to be careful with upping your level of vitamin D, though. Your body can misuse all that extra calcium unless you simultaneously boost your levels of vitamin D cofactors, such as vitamin K₂, vitamin A, magnesium, and boron.

Unfortunately, this groundbreaking new research is having difficulty finding its way into actual practice. Some medical institutions are waiting for more evidence from long-term randomized clinical trials before taking a definitive stance on the new findings. The Vitamin D and Omega-3 Trial (VITAL) out of Harvard is investigating whether vitamin D or omega-3 supplements affect the risk of cancer, heart disease, and stroke in a population of almost 26,000 people. A similar study in Australia is looking at changes in mortality and cancer from 60,000 IU per month. Yet, we may not see the results of these studies for years.

Jeffery Blumberg, PhD, a senior scientist at Tufts University, doesn't recommend putting off your good health while waiting for the results of

more randomized clinical trials to land on doctors' doorsteps—gold standard or not. "People don't invest that much time and effort in doing clinical trials where they think oh, it probably doesn't work, but I'm going to devote the next 5 to 10 years of my career looking at this," he said. "For somebody who wants to empower themselves to take control of their own health, vitamin D supplements make a lot of sense." There's no need to wait for institutional lethargy to realize your vitamin D-estiny. How you get there is another story.

The appropriate dosage of vitamin D to reach disease-spurning territory depends on the latitude of your residence, diet, sun exposure, age, skin color, and absorption efficiency. "People have different healthcare issues, and there may be compounding risk factors or drugs that they take, so it's very individualistic," said Karen Howard, CEO and executive director of the Organic and Natural Health Association, a partner of Grassroots Health.

As we make sand angels on the beach and soak up the sun, we synthesize vitamin D—but snow angels don't have the same effect. "I could stand outside all day with no shirt on in December in Boston, which is not something I would like to do, and I would never make any vitamin D," said Dr. Blumberg. If you live north of the Mason-Dixon Line (connecting San Francisco to Philadelphia), the solar angle is such that you rarely make vitamin D from the sun no matter the season. Bundling up and slathering sunscreen further limit the vitamin D we naturally make from the sun.

Why not catch golden rays through the window in your cozy office? Nice try, but no. Only UVA rays pass through glass—the kind that cause melanoma and wrinkles. That leaves diet and supplementation as the last bastions for scoring the essential hormone. Unfortunately, very few foods contain it, such as fatty fish, milk, and fortified juice and cereal, making it unrealistic to



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fulfill your needs from diet alone. More than 90 percent of Americans don't get the estimated average requirement of vitamin D from their diets, according to Dr. Blumberg. So how do you find out where you're at and what corrective measures you should take?

Testing for Ds

Dr. Blumberg says the best way is to test and monitor your serum levels. Asking your physician to administer a 25-hydroxyvitamin D test is one way to find out, but Grassroots Health offers a low-cost way to test and correct your levels while helping to advance vitamin D research and create a long-term plan for public health.

The D*Action Project is a five-year study involving more than 12,000 individuals who monitor their own

vitamin D levels in relation to their health status using home test kits every six months and report back to Grassroots Health. By participating in the study, you'll give researchers a detailed picture of your lifestyle and medical history, and—unlike the VITAL study which does not release bloodwork—you'll receive the information you need to act, whether that means increasing supplementation, adjusting sun exposure, or starting an educated conversation with your physician. "The more we can educate people on where supplementation is important based on their knowledge of what their levels are, the better the health status we'll have for individuals and the population at large," said Howard.

Grassroots Health is also working directly with medical institutions to push their research into practice. "We are creating conversations with a broad spectrum of practitioners, including integrative medicine and naturopathic medical doctors who understand the importance of nutrients and are proactive with their patients on getting tested and being monitored for achieving appropriate levels," said Howard. For example, Grassroots Health found a 50-percent reduction in pre-term birth in a population of pregnant women during their work with the University of South Carolina. As a direct result, the university changed their delivery care protocols to monitor vitamin D levels in their pregnant employees.

By testing your own vitamin D levels, you learn where you stand as an individual and how to use your results to prevent disease. "Your understanding of the impact vitamin D and subsequently other nutrients have on your health is just a better way for you to manage your health," said Howard.

To learn more about receiving a home test kit, visit powerofd.org. 