

# **The Miracle Vitamin - New evidence shows that getting enough D may be the most important thing you can do for your health.**

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## **MORE TIME IN THE SUN**

You know the usual prescription for good health: a balanced diet with lots of fruits and vegetables, regular exercise, no smoking. Now add this: Spend a little more time in the sun.

Huh? That may sound like medical heresy. After all, we've been warned for decades about the dangers of the sun: wrinkles, age spots and the increasing threat of skin cancer.

But new and impressive medical evidence suggests that sunlight is beneficial. The vitamin D it prompts our bodies to make may prevent cancer, protect against heart disease and ward off a long list of disorders such as multiple sclerosis, rheumatoid arthritis, diabetes and gum disease. It is even showing promise as a treatment for heart disease and some cancers.

Long recognized as vitally important for bone building (it's needed for calcium absorption), vitamin D has now achieved superstar status among nutrients. While all doctors may not agree, many experts are confident enough of its wide-ranging powers to urge that we get much more of it, from the sun and from supplements, as even the best diet in the world may not give us enough.

## **D DEFICIENCY AND CERTAIN CANCERS**

Some of the stunning findings: Getting 1000 IU (international units) of vitamin D from supplements or the sun may cut the risk of colon cancer in half, a change that would save many thousands of lives every year. Increasing vitamin D intake to 2000 IU would reduce the risk by two-thirds, says epidemiologist Cedric Garland of the University of California, San Diego. In 1980 Dr. Garland and his brother Frank, also an epidemiologist, published a groundbreaking study showing that rates of colon cancer were about twice as high in the sun-starved northeastern United States as they are in the sunny South.

Since then, evidence of the connection between vitamin D deficiency and cancer has strengthened, prompting researchers to make some startling claims. Considering all types of cancer, insufficient vitamin D trumps the other risk factors, says Dr. Garland. Of course, for certain cancers some of those "other risks" are overwhelmingly powerful. For example, vitamin D won't stop some smokers from getting lung cancer or heavy drinkers from being at risk for oral or esophageal cancers.

But researchers have now identified at least 18 types of cancer that are more common among people who don't get enough vitamin D, including such common ones as breast, lung and prostate. (Other cancers that have been linked to vitamin D: bladder, esophageal, gastric, ovarian, rectal, renal, uterine, non-Hodgkin's lymphoma, cervical, gallbladder, laryngeal, oral, pancreatic, Hodgkin's lymphoma and

colon.) They've learned that prostate cancer typically strikes men who work indoors four years earlier than it occurs among men who work outdoors. And they suspect that higher rates, and more aggressive cases, of prostate cancer among African Americans occur because black skin doesn't efficiently absorb the ultraviolet B (UVB) rays that trigger vitamin D production. In Africa, black skin does a great job of absorbing UVB. The weaker rays farther north just don't make it through often enough, leaving African Americans more likely than whites to run low on vitamin D. The same thing may explain why breast cancer tends to be more aggressive and more frequently fatal among African American women than it is among white women.

### **CAN D CURE?**

Even after cancer strikes, the vitamin D our bodies make in the summer helps fight the disease. A study at Harvard found that mortality rates were 40 percent higher among lung cancer patients operated on in the winter than among those who had surgery in the summer and had high levels of D from sun or diet. This year, a British study found that survival rates there are highest among cancer patients diagnosed in the summer and fall. And last year in Norway researchers found higher survival rates among young people with Hodgkin's lymphoma diagnosed in the autumn.

Benefits aren't limited to D from the sun. In Canada, patients given vitamin D along with chemotherapy had fewer side effects and developed fewer thromboses (blood clots), serious complications of treatment, than those who got a placebo with chemo.

How can a mere vitamin harbor such amazing powers? For starters, D isn't really a vitamin. In the body, it is transformed into a benevolent hormone, shoring up our bones, regulating cell growth and helping prevent the kind of wild cell proliferation that leads to cancer. "Almost every tissue and cell in the body has receptors for vitamin D, which means that every tissue and cell needs vitamin D to function maximally," says Michael F. Holick, MD, a vitamin D researcher at Boston University.

In the lab, researchers have watched as activated vitamin D actually turns off cancer. When prostate cancer cells were exposed to D, the cells stopped reproducing wildly and resumed normal, orderly growth. Later studies showed that the same process occurs in colon and breast cancer cells. And when Dr. Holick's team gave vitamin D to mice with colon cancer, they witnessed a 40 percent reduction in tumor growth.

The big challenge now? Distilling the cancer-protective elements of vitamin D into compounds that can be used to treat humans.

### **RISKS OF TOO LITTLE D:**

Cancer isn't the only killer disease linked to vitamin D. Getting more of it could protect against heart disease and high blood pressure, both more common in areas of the world where strong sun is in short supply for much of the year. Heart disease deaths are more common in winter than any other season.

### **HEART DISEASE:**

Research on the connection vitamin D has with heart disease isn't as advanced as the connection it has with cancer. But studies have already shown that supplements of D can lower levels of C-reactive protein, a marker for the inflammation now believed to underlie heart disease. And a combination of vitamin D and calcium can reduce blood pressure.

Dr. Holick showed that just a few minutes of UVB exposure on a tanning bed three times a week for six weeks lowered blood pressure. So did other researchers giving 1600 IU of D and 800 mg of calcium to female hypertension patients for eight weeks. To nail down this evidence, D will have to be tested against drugs for high blood pressure to see if it works as well or better than the medicines do.

Meanwhile, the list of diseases affected by D keeps growing and includes some of the most troubling illnesses, those that occur when the immune system mistakenly perceives the body's own tissues as a threat to health and begins producing antibodies to attack them:

### **MULTIPLE SCLEROSIS:**

Activated vitamin D prevents the mouse version of MS and seems protective in humans. The disease is rare in regions close to the equator. And elsewhere, it seems, the more D you get, the lower the risk. A study including 187,563 nurses showed that those who got at least 400 IU of vitamin D daily had a 40 percent lower risk of MS than those who got less D.

When researchers gave daily supplements of 1000 IUs for six months to women with MS, they saw an increase in body chemicals that put the brakes on the immune system attacks that worsen the disease.

### **DIABETES:**

If there only were more sunshine in Finland, fewer children might develop type 1 diabetes. That theory gained credence when researchers found that youngsters who took 2000 IU of vitamin D daily during the 1960s had an 80 percent lower risk of developing the disease than kids who got fewer supplements.

### **RHEUMATOID ARTHRITIS:**

In Iowa, of the nearly 30,000 women age 55 to 69 followed for 11 years, those who received the most D were the least likely to develop rheumatoid arthritis.

### **GUM DISEASE:**

Vitamin D may also help prevent gum disease, perhaps because of its ability to check inflammation. When dentists looked at blood levels from 6,700 teens and adults, they saw that those with the highest levels of vitamin D were 20 percent less likely to experience gum bleeding than people with low D levels.

A study to determine if vitamin D supplements change this picture is underway.

### **SUNSHINE VS. SUPPLEMENTS**

Probably not. "Deficiencies have been found in people across the age spectrum, from babies with the bone-weakening disease rickets to the elderly in nursing homes," says Catherine Gordon, MD, a pediatric bone specialist at Children's Hospital Boston.

When she tested 307 healthy teenagers, Dr. Gordon found that 24 percent were vitamin D deficient. When measured against the higher blood levels experts now say we need for good health, 42 percent of the young people fell short. Similar results have been found among adults of all ages. "Worldwide, one billion people are vitamin D deficient," explains Dr. Holick.

Check out the current vitamin D guidelines and find out which foods are its best sources.

Dr. Holick and others now prescribe at least 1000 IU daily from the sun, supplements or food. A diet designed to give you 1000 IU of D daily would be pretty monotonous (mostly milk, juice and cereal that have been fortified, plus oily fish and cod liver oil), so the alternatives are the sun and supplements.

Most multivitamins provide 400 IU of D, a level calculated to prevent rickets. This disease was nearly eradicated in the 1930s, when milk was fortified, but is now on the rebound thanks to widespread vitamin D deficiency.

The government's recommended daily allowances for D will be re-examined starting in 2008 and may be pushed up to 1000 IU (or higher) for everyone over age one in 2010, says Dr. Holick. In the meantime, he takes 1200 IU daily ("and so does my family"). Holick and other experts see no reason why we shouldn't all aim for at least 1000 IU right away. Look for "vitamin D3" on the label, the most effective form, according to Dr. Garland.

There's little danger of overdose, say experts. In fact, some researchers are beginning to forecast an RDA of 2000 IU. That much is generally considered safe, but it's not a great idea to assume that more is better.

Toxicity symptoms include nausea, vomiting, loss of appetite and constipation. Excess vitamin D can also dangerously elevate calcium levels, causing confusion and bizarre behavior.

However, you can't overdose on vitamin D from the sun. Once the skin absorbs enough UVB rays to make D, the conversion process shuts down. But the threat of sunburn, of course, continues.

### **SUNSCREEN AND A SIMPLE PLAN**

That's where vitamin D researchers and some other experts disagree.

Dermatologists who are focused on preventing skin cancer advise getting D from supplements. But vitamin D experts think we may have gone overboard with sunscreen. While zealously protecting ourselves from wrinkles and skin cancer, they say we're risking more deadly forms of cancer and other diseases.

By getting enough sun to increase vitamin D levels, "we could save ten people from death from internal cancers for every one who dies of skin cancer," says Dr. Garland.

Dr. Holick has a simple plan designed to satisfy almost everyone: First, figure out how long it takes your skin to turn pink or show other signs of reaction to the sun. Then spend only one-quarter of that time outdoors without sunscreen (except on your face) several times a week. For most people that adds up to 10 to 15 minutes in the midday sun (unless your skin is very fair and reddens with such brief exposure). African Americans and others with very dark skin may need at least twice the time in the sun.

For best results, expose at least 50 percent of your body, wearing shorts and a T-shirt or a bathing suit, if possible. And when your time is up, protect your skin and slather on the sunscreen!