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## Vitamin D – A Miracle From the Sun

There's a revolution going on in the world of health. And at the heart of this revolution is a simple nutrient called Vitamin D. So profound are the new scientific findings that they have prompted some researchers to suggest that simply correcting the deficiencies of Vitamin D could save millions of human lives and transform the health and welfare of the world. The sun is the source of all energy for all life on earth. And Vitamin D could literally be a miracle from the sun.

Not only has Vitamin D been shown to prevent and improve survival in many forms of deadly cancer, it can also prevent fatal heart attacks, improve survival in kidney disease, strengthen our bones and prevent and cure depression. Vitamin D is also a potent weapon against diabetes, rheumatoid arthritis, Multiple Sclerosis (MS), high blood pressure, inflammation, Sjogren's Syndrome, thyroiditis, Crohn's disease and obesity – all of these have been linked to low vitamin D levels. The benefits of Vitamin D now fills volumes. So far reaching are the benefits of Vitamin D that it has prompted some scientists to call it a magic bullet. And the new science on Vitamin D suggests that this could be the real thing.

It turns out that most people don't get enough Vitamin D and are seriously deficient. But you can get it all you need from the sun because the human body actually makes Vitamin D when the energy of the sun mixes with cholesterol to form a substance called cholecalciferol – or Vitamin D3. Those unable to get enough vitamin D from the sun – which may be most people - can take a simple inexpensive nutritional supplement called Vitamin D3.

### Vitamin D and Cancer

In a recent study entitled *Vitamin D and Prevention of Breast Cancer*, that shocked the medical world, the findings suggest Vitamin D could prevent up to 50 percent of breast cancer. Women in the study who had the highest levels of Vitamin D had the lowest levels of breast cancer. (1)

This now stands as the single greatest discovery in the history of cancer – and in one of the most deadly cancers in women. Vitamin D prevents and improves survival in prostate cancer, ovarian cancer and colon cancer as well.

Breast cancer patients with low levels of vitamin D were much more likely to die of the disease or have it spread than patients getting enough of the nutrient, says a new study -- adding to evidence the "sunshine vitamin" has anti-cancer benefits. Only 24 percent of women in a new Canadian study had sufficient blood levels of D at the time they their breast cancer was diagnosed. Those who were deficient were nearly twice as likely to have their cancer recur or spread over the next 10 years, and 73 percent more likely to die of the disease. (2)



In fact, scientists have now found that people with colon cancer who had the highest levels of vitamin D survived significantly longer than those with low levels of Vitamin D (3).

Vitamin D is actually a prehormone. Some of cholecalciferol from the sun or from supplements is turned into hormones in the body. Some of the cholecalciferol is turned into calcitriol, a very potent steroid with anti-cancer properties. (4) A steroid hormone is simply any molecule in the body that is made from cholesterol and acts to turn your genes on and off. They are always important to health, always need to be handled with care, and are often quite potent.

### **How Does Vitamin D Work Generally**

Vitamin D is a natural gene therapy. Many of the biological effects of Vitamin D are through the regulation of over 50 genes in the tissues throughout the body. (8)

### **How Vitamin D Works Against Cancer**

Vitamin D and its analogues act as natural non-toxic chemopreventive agents in the body. (5) The active form of Vitamin D inhibits cell proliferation and stimulates cell differentiation. Cells that are dividing rapidly are said to be proliferating. Differentiation results in the specialization of cells for specific functions. In general, differentiation of cells leads to a decrease in proliferation. While cellular proliferation is essential for growth and wound healing, uncontrolled proliferation of cells with certain mutations may lead to diseases like cancer. (6)

Another way that Vitamin D works is by enhancing the immune system. The Vitamin D receptor (VDR) is expressed by most of the cells of the immune system. Vitamin D enhances our natural immunity and inhibits dangerous autoimmune reactions.(7)

### **Vitamin D and Heart Disease**

A study of thousands of men recently confirmed an astounding 45% reduction of fatal heart attacks in men with the highest levels of vitamin D. (8)

In another study researchers found the risk of heart disease death was 31% lower in those women who were taking vitamin D. (9)

Dr. Bryan Kestenbaum of the University of Washington in Seattle, one of the authors of another new study says, "Vitamin D deficiency has been associated with risk factors for cardiovascular disease, such as high blood pressure, diabetes, and inflammation."

### **Vitamin D and Multiple Sclerosis**

Vitamin D reduces the risk of Multiple Sclerosis (MS). Despite decades of research, the cause for MS remains unknown. However, people in the northern states (Vermont,

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Minnesota, Washington) of the US, where vitamin D levels are lowest, have been found to rates of MS up to 400% higher than those in the southern states (Arizona, New Mexico, Texas and Florida) where vitamin D production is higher. And people with MS have been shown to be deficient in Vitamin D (Nieves, 1994). Vitamin D supplementation for 1 to 2 years was associated with a decrease in relapses and MS progression in one study (Goldberg, Fleming, & Picard, 1986). Women with the highest intake of Vitamin D had a 30% decreased risk for developing MS compared to women with the lowest intake. (Munger et al., 2004) (10).

### **Vitamin D in Chronic Kidney Disease (CKD)**

A recent study by Dr Kastenbaum of people with Chronic Kidney Disease found those who supplemented with calcitrol – an activated drug form of vitamin D were 26 percent less likely to die of the disease. Patients on calcitrol were also less likely to develop end-stage renal disease, requiring dialysis to replace lost kidney function. Kestenbaum added, "Future studies should also examine the role of non-activated vitamin D [vitamin D3], which is less expensive and less toxic." (11)

### **Vitamin D – Who Can Benefit?**

Who can benefit from Vitamin D? Literally everyone can benefit. Researchers have found that most infants – even those that are breast feeding - are deficient in Vitamin D because their breast-feeding mothers are deficient. Most adolescents are deficient, most adults are deficient and nearly all the elderly have significant Vitamin D deficiencies. And we can make it free by going into the sun for 30 to 60 minutes every day.

When the sun mixes with cholesterol in the body we make the most biologically active form of Vitamin D called cholecalciferol (Vitamin D3). At the equator in the mid-day sun we will make about 10,000 international units (IU) per hour and the body has a self-limiting daily production of about 20,000 IUs. It turns out that the same sunlight that makes it begins to break it down. So you will never overdose on Vitamin D from the sun.

There is widespread and significant Vitamin D deficiency in most Americans and much of the world's population. One recent study found virtually 100% of Blacks, American Indians, East Africans and Hispanics were deficient in Vitamin D (12). This nutritional deficiency is more profound the further from equator we live. When we compare people living in the southern United States (10 degrees latitude) where they have more direct sun to those in the northern states where they have less direct sun we find:

- Cancer death rates are 85% higher at 30-40 degrees latitude
- Cancer death rates are 118% higher at 40-50 degrees latitude (**Need US Map with**
- Cancer death rates are 150% higher at 50-60 degrees latitude **states & Latitudes** )



In fact, researchers now suggest that the color of the skin lightened as our ancestors migrated north and south of the equator as an evolutionary mechanism to gain more vitamin D. And vitamin D deficiency diseases are even more profound in the winter months when we get less exposure and the sun's rays are less direct. So in the winter months it is wise to consider a Vitamin D3 supplement.

### The Different Forms of Vitamin D

It is important to understand the difference between the forms of Vitamin D. Vitamin D3 is called cholecalciferol and is the one formed naturally by the sun combining with cholesterol in the body. Vitamin D3 is also available as a nutritional supplement. It is the safest, most effective and most cost-effective form. Cholecalciferol forms a prohormone called Calcidiol (25(OH)D or 25-hydroxyvitamin D) in the body. Calcitriol is made in the kidneys and other tissues and is the most potent steroid hormone derived from cholecalciferol. Calcitriol has powerful and potent anticancer properties. It is sometimes referred to as the active form of vitamin D. Calcitriol, is actually a secosteroid hormone that targets over 200 genes in the human body. **Current research has implicated vitamin D deficiency as a major factor in the pathology of at least 17 varieties of cancer as well as heart disease, stroke, hypertension, autoimmune diseases, diabetes, depression, chronic pain, osteoarthritis, osteoporosis, muscle weakness, muscle wasting, birth defects, periodontal disease, and more.**

### The Proper Blood Test and The Optimum Range

It is very very important to test for vitamin D with an initial blood test followed by subsequent blood tests on a yearly basis. An initial test will allow you to determine if we are deficient. Then subsequent testing will inform you if you need to increase your sun exposure and will help you to determine if you need to supplement with Vitamin D3 at the proper dose. The test for Vitamin D can be ordered by any doctor and done at any lab. The proper test is called 25(OH)D (also called 25-hydroxyvitamin D).

This test will give readings called "normal levels" or "reference levels" as 20-56 ng/ml (also expressed as 50-140 nmoles/L). Levels at or below 20 ng/ml are considered serious deficiency states which could increase your risk of 17 different cancers and many other diseases. But current research suggests that the optimum levels may be far higher than the normal levels listed with the blood test results.

Good levels on the tests are between 54-90 ng/ml (or 135-225 nmoles/L). And new research suggests that "optimum" levels of 80-90 ng/ml (or 225 nmoles/L) are best.

If you are deficient, and you can not get what you need from the sun, you can take a blood test, then take a Vitamin D3 supplement at 1000 IU to 5,000 IU per day then move to the lowest effective dose to maintain optimum levels in follow-up blood tests. But remember if you are high at the end of the summer you may still be low in the winter.



## Risk Factors for Vitamin D Deficiency

You are likely deficient if:

- It is winter time and you can't get into the sun
- You are not in the sun for 15-60 minutes each day
- You are black or dark skinned
- You live in latitudes more than 30 degrees north or south of the equator
- You wear sunscreen when you are in the sun

Getting enough D safely and effectively is important, as all of the new vitamin studies show. One new study looked at more than 120,000 women who were participants in two studies at Harvard and St Georges Medical Hospital in London. According to Cedric Garland of the University of California in San Diego, *high levels of vitamin D translated to a 50 percent lower risk of breast cancer.*

## How Should We Get Vitamin D?

Most conventional doctors suggest that you can get all the vitamin D we need from food. Drink your milk and you will get all you need. But a new research study has determined that drinking milk - the main vitamin D fortified food – does not raise vitamin D levels. This is because it is fortified with the less effective form of Vitamin D2 (ergocalciferol). In the study healthy young adults drinking 2 glasses of milk each day did not raise Vitamin D levels. However, with sun exposure, the young adults had a 30% higher level of Vitamin D at the end of summer. (13).

## Tanning Beds – Harmful or Beneficial

There is a great debate going on between the medical establishment and the scientific community on whether tanning beds are harmful or beneficial. The medical establishment contends that tanning beds are dangerous and should not be used and the scientific community points out that tanning beds can produce 10,000 and 15,000 ius of vitamin D in 6-10 minutes of exposure. Tanning beds have been shown to dramatically increase vitamin D levels in the blood and are even more efficient at eliminating Vitamin D deficiency disease than mid-day sun. Scientists argue that they can be safely used to produce Vitamin D in the winter months where it is impossible to get enough sun to prevent disease. A study of the use of tanning beds in Europe found that the use of tanning beds was associated with a 10 percent reduction in melanoma. (2.6)



## Medical Training is Decades Behind the Science

Medical doctors receive no training in the science of human nutrition, and are largely unaware of the research on Vitamin D. Thus, it may take decades for this important new information to filter through to your doctor.

The goal of medical research is discovering ways of preventing and resolving disease. But many scientists now question whether the medical establishment has the capacity to recognize an important new idea like Vitamin D - especially if it is a nutrient which comes from outside the drug-based treatment delivery system.

The Food and Drug Administration (FDA) established the Recommended Daily Allowance of Vitamin at 400 IU. Most researchers who have studied Vitamin D suggest that this level is far too low and may actually be responsible for causing millions of deaths and untold human suffering. Dr William B. Grant, a pre-eminent Vitamin D researcher, calls efforts on the part of government agencies and the medical establishment to suppress the information on Vitamin D “the powers of darkness.” (15)

The underfunded FDA is ultimately a political and governmental organization that responds to political pressure.

Thus, three critical factors prevent the recognition of Vitamin D as a therapeutic agent by conventional medical doctors:

- 1) Without training in the use and values of Vitamin D, doctors have no basis for recommending it.
- 2) Without the broader training in nutrition and its impact on the human system, again conventional doctors have no basis for recommending Vitamin D or any nutritional supplement;
- 3) There is no support from the government agencies for such recognition. In fact there is an institutionally obligated bias against the use of nutritional supplements by government agencies.

## The Debate about Skin Cancer and the Sun

Conventional medicine historically made the argument that sun exposure causes skin cancer. While there is evidence that the sun is a factor in skin cancer, far more important evidence points to the far more dangerous risk factors such as a diet of fried and processed foods which are high in hydrogenated fats. Researchers found that simply reducing the fat in the diet from 37% (typical American diet circa 2008) to 21% produced a 94% decrease in skin cancer (16-17).



Skin cancer can also be prevented by a diet high in antioxidants from colorful vegetables and fruits, natural nutritional supplements, and lifestyle changes such as reducing the level of hydrogenated fats found in fast foods and packaged foods and replacing them with good fats like omega-3 fatty acid from fish, flax, and flaxseed oil (18). So don't eat fried foods, eat less fat, eat more vegetables and fruits and good fats – just like your mother told you.

Additionally, non-melanoma skin cancer (NMSC) rarely spreads, is rarely lethal, and is easily removed with simple surgery. While skin cancer cases total about 1,000,000 per year in America they are lethal in only about 2,000 per year (which is only ½ of 1 percent of all cancer deaths). The sun prevents up to 16 other types of deadly cancer -- which do spread and do kill. So the benefits of the sun may far outweigh the small risks of skin cancer.

The most grave and aggressive warnings about exposure to the sun come from doctors who often warn of dying from melanoma. But science has shown that regular exposure to sunlight considerably improved survival in people with melanoma and non-hodgkins lymphoma. (19,20)

Additionally, in a complete overview of all the studies on sun exposure and melanoma, researchers found that while sunburn was associated with increases in melanoma, regular exposure to sunlight **decreased** the risk of melanoma by 18%. (21). Still another study showed that the higher the lifetime sun exposure the lower the lifetime risk of melanoma. (22)

### Nutritional Deficiency Diseases – The Scourges of the Modern World

Most killer diseases have their roots in nutritional deficiencies. These include cancer, cardio vascular disease, diabetes, obesity. Dr Linus Pauling, a two time Nobel laureate stated “I have never found a disease that was not directly related to a nutritional deficiency.” Pauling was so intrigued by this revolutionary concept that he founded Orthomolecular Medicine, an entirely new field of medicine, to study deficiency diseases and the profound effects of simple nutrients on health and disease. Orthomolecular medicine has grown and the number of orthomolecular physicians has grown exponentially along side the thousands of new studies which validate the construct on which it was founded.

Generally speaking, doctors don't know about the new research on nutritional deficiencies like Vitamin D because they're not trained in, or focused on, nutrition. Your doctor will likely tell you that Vitamin D is toxic. But new scientific research indicates the lethal dose (LD50) is more that 440,000 Vitamin D pills at 400ius in humans. (23)

Don't ask your doctor about sun tanning. They will tell you to wear sunscreen but sunscreen doses not prevent cancer – even melanoma. In fact, research suggests that sunscreen may actually **cause** the deadly skin cancer called melanoma which kills more than 8400 Americans each year. (24) And we now know that many of the ingredients in sunscreen



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actually cause cancer themselves (25). Furthermore, sunscreen prevents 99% of the vitamin D production from the sun.

However, you should never go into the sun and get burned. Start sunbathing very slowly and carefully build up a base tan. Most people can go into the sun starting with 10 minutes and moving to 60 minutes at midday. The less you wear – the more Vitamin D your body will make. You will feel better too. It turns out that when you go into the sun, keratinocytes in the skin cells actually create endorphins which improve feelings of well-being.

When it comes right down to it, you can do more for yourself than any doctor. Test for Vitamin D levels. Take a Vitamin D supplement. Put on your shorts or swim suit and go into the sun. The sun and a Vitamin D supplement might just make you healthy, wealthy and and wise. You may never have to go to your doctor. Because the sun is the source of all energy for life itself.

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### Links to Sites and Stories on Vitamin D

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William B. Grant Site (SUNARC) <http://www.sunarc.org/papers.htm>

Tanning systems with UVB and UVA and UVB available at:  
<http://products.mercola.com/tanning%20bed/#order>