

Vitamin D Test

- Vitamin D / 25 OH blood test

Note: This is not the same test as the 1,25-dihydroxy vitamin

Mayo clinic 2006 Vitamin D blood level

recommendations

- 32 ng/ml (80 nmol/L) or as high as 48 ng/ml (120 nmol/L)

Dr. Joe's Vitamin D Regimen

- 50,000 IU daily until 80-120 nmol/L blood levels are reached
- 1,000 to 7,000 IU daily

For well being

- Regimen monitored by periodic Vitamin D / 25 OH blood test

Apple Health Foods

- D3-5 / Cholecalciferol (Biotech Pharmacal, Inc.)

50,000 IU capsules

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When we hear of Vitamin D we think of fortified milk and strong bones. It is true that Vitamin D helps our bones absorb calcium making it important in bone mineral metabolism, but a fact less known about the vitamin, is that it can only be made by our bodies in the presence of sunlight from a cholesterol precursor. This detail would end up having unforeseen consequences to overall health. The notion of sun exposure or sun bathing has mostly been linked to wrinkles, skin cancers, and malignant melanoma, causing many to avoid sunlight altogether and gradually leading to sunlight deprivation. Not until this past decade did researchers begin to notice that a significant percentage of Americans and other global populations were Vitamin D deficient and didn't know it. While other factors may have compounded the problem, researchers now suspect that avoidance of ultraviolet exposure is partially responsible for Vitamin D deficiency.

What we also know now is that Vitamin D's role in our well being is far more complex than initially understood and the good news is that its benefits, steadily gaining strong scientific support, can help millions of people prevent and battle common ailments.

Vitamins have been known to be responsible for a single disease and appropriate supplementation should correct the disease. However, Vitamin D goes to distant tissues and makes multiple metabolic improvements, classifying it more accurately as a hormone.

Medicine is undergoing a paradigm shift in relation to how it views Vitamin D. The idea that a vitamin derived from sunlight may inhibit the growth of cancers, a few years ago, was ridiculed. Now scientific evidence is causing medicine to rethink its traditional views and modify how common illnesses are treated.

Growing research supports that Vitamin D can protect us against:

- Diminishing muscle strength / Leg Weakness
- Osteoporosis and Osteomalacia
- Autoimmune diseases (Multiple Sclerosis ("MS"), Rheumatoid Arthritis ("RA"))
- Immunity and Energy Metabolism

- Diabetes
- Cancer (Prostate, Breast, Colon, etc.)
- Gum disease
- Obesity
- Renal failure
- Infertility

Are you at risk of being Vitamin D deficient?

You may read that if you live in a part of the world that does not get enough sunlight, if you wear too much sunscreen, if you don't get enough Vitamin D in your diet, if you don't take any D supplements, if you are 60 years or older, or if you have dark pigmented skin, you may be at higher risk of being deficient. A simple blood test can tell you if you are deficient.

Vitamin D deficiency test:
Vitamin D / 25 OH (blood test)

Note: This is not the same test as the 1,25-dihydroxy vitamin

The reputable *Mayo Clinic Proceedings* by Robert P. Heaney, MD. published the following recommendations in Feb of 2006 regarding Vitamin D. The concentration of Vitamin D (25 OH) in the serum should be at least 32 ng/ml (80 nmol/L) or as high as 48 ng/ml (120 nmol/L). A blood level of the vitamin below this recommendation is considered deficient.

Mayo Clinic 2006 Recommendations for vitamin D blood levels
32 ng/ml (80 nmol/L) or as high as 48 ng/ml (120 nmol/L)

Our primary source of Vitamin D is our own ability to produce it. A secondary source is our diet; the vitamin occurs naturally in some foods, like fish. However, in order to compensate for a deficiency, Vitamin D must be taken orally in vitamin form or by prescription. Bio Tech Pharmacal, Inc. manufactures D3-5 Cholecalciferol; 50,000 IU capsules are available. This is an over the counter Vitamin D capsule that can be purchased at Apple Health Foods in Redwood City, CA. While there is agreement about what the vitamin level should be in our blood for optimal health, there is still controversy on how to get there.

Most Vitamin D specialists are urging the Food and Nutrition Board to raise the intake recommendations. The food and nutrition board currently recommend that adults, depending on their age, take anywhere from 200 - 600 international units daily.

Two leading vitamin D scientists, Heaney and Holick have written numerous articles over the years on Vitamin D and report that the human body can generate up to 10,000 to 12,000 international units (IU) of vitamin D just from half- hour of sun exposure.

Vitamin D Regimens

Regimens vary, but they all aim to get patients to the 120 nmol/L level. Some regimens recommend anywhere from 2,000 – 5,000 units a day indefinitely, while others recommend 10,000 units a day for several months. There are also high dose regimens designed to target illness at a specific point of their cycle, like the flu, and recommendations can be as high as 50,000 units a day for a certain body weight and for a limited period of time. In order to get patients to the 120 nmol/L range, I recommend 50,000 daily units for 30 days.

A lab test is ordered after 30 days to confirm that a patient has reached the desired range of 80-120 nmol/L. After reaching the desired range of 120 nmol/L, regimens for general well being vary per individual and this new regimen should be determined by patient and their physician. In my practice they vary from 1,000 IU daily to 7,000 IU daily. Due to the many variations, the Vitamin D council recommends that anyone taking more than 2,000 units a day should have a periodic 25(OH) test to monitor their blood levels.

Dr. Joe's Vitamin D Regimen

50,000 IU daily until 80-120 nmol/L Vitamin D levels are reached in the blood
1,000 to 7,000 IU daily for well being
Monitored by a periodic Vitamin D / 25 OH blood test

Diminishing Muscle Strength / Leg Weakness

Muscle weakness, particularly of the leg, is a common symptom of severe Vitamin D deficiency. In Feb of 2003, the *Journal of Bone and Mineral Research* published a study involving elderly women (mid 80s) that demonstrated that D improved their leg strength, ability to get up from chairs and sit back down, ability to walk, and they also sustained half as many falls during the trial compared to those not on D. Falls are responsible for the majority of fractures in the elderly population and they have been reported to account for at least 20 billion a year of U.S. medical expenses.

Osteoporosis / Osteomalacia

Perhaps the most common association to Vitamin D deficiency is the one involving osteoporosis. In 1998 the New England Journal of Medicine reported that insufficient exposure to sunlight and inadequate D dietary intake were the two main factors responsible for osteoporosis, especially in our elderly population. Studies have also shown that hip fractures drop by 23% and other non-vertebral fractures drop by 26%.

Autoimmune diseases (Multiple Sclerosis ("MS"), Rheumatoid Arthritis ("RA"))

An Iowa Women's Health Study of nearly 30,000 women in their 50s and 60s identified that RA went down as Vitamin D went up. Kassandra Munger of the Harvard School of Public Health reported in a study involving 187,500 U.S. nurses, published in *Neurology*, that D decreased the risk of developing MS.

Immunity and Energy Metabolism

Dr. David Feldman of Stanford University wrote in October of 2004 "What's now clear is that vitamin D is a potent force in regulating cell growth, immunity, and energy metabolism." Currently Dr. Feldman and his group at Stanford continue their investigations and are studying genetic variations in the vitamin D receptor gene and inheritance of low bone mass in relation to the development of osteoporosis.

Diabetes

Many studies have linked Vitamin D deficiency to increased risk of type 2 diabetes, but studies are still underway to confirm what aspect of diabetes the vitamin is acting on.

Prostate Cancer

David Feldman of Stanford University research has shown that Vitamin D can reduce the build up of a prostate cancer protein marker (PSA).

Cancer of the Digestive System

This year the April 5th issue of the *Journal of the National Cancer Institute* reported that low levels of the vitamin may be associated to increased cancer incidence in men; they placed emphasis on cancers of the digestive system. Recent data presented by Harvard University Professor of Medicine, Dr. Edward Giovannucci, suggested the risk reduction for cancer of the digestive System is 43%.

Breast Cancer

A UK study published in May of 2005 demonstrates that women with low levels of 25-hydroxy vitamin D (25OH) have an increased risk of breast cancer. Another study published July of 2005 suggests that increasing intakes of vitamin D and calcium may represent a safe and inexpensive strategy for breast cancer prevention.

Gum Disease

A 2004 study published in the *Journal of Clinical Nutrition* reported that periodontal disease is inversely related to Vitamin D levels.

Obesity

Obese persons are known to have elevated levels of parathyroid hormone and low levels of Vitamin D. The vitamin has shown it lowers leptin, which is a hormone produced by fat cells that play a role in regulating weight.

Renal Failure, Antibiotic Therapy, Lupus, and Fertility

Vitamin D conference in Victoria, Canada, Dr. Thadhani and his group from Harvard presented calcitriol (another name for VITAMIN D) increases survival in patients with renal failure. Dr. Robert Modlin of UCLA and his group presented that Vitamin D may be, in effect, a powerful antibiotic. This was published in *Science* this year. Dr. Hardin, from Columbia University, presented on the benefits of Vitamin D for patients with lupus. Dr. Bulmer and his group from the Royal Victoria Infirmary presented on how Vitamin D may enhance fertility.

Research also includes benefits for those affected by Crohn's Disease of the bowel and marked improvement in psoriasis as well. If that isn't enough, patients report improvement in well being and energy, often in the first week. These improvements were reported in *Endocrine News*, a publication of the Endocrine Society in the August/September 2005 issue.

Vitamin D is a potent modulator of activated T and B lymphocytes, the workhorses of the immune system. With growing science to support its benefits ranging from muscle strength to immunity, Vitamin D offers much promise for those seeking optimal health and for those confronting illness.

It's your time.

Dr. Joe