Newsletter Overview

- Introductory information about Vitamin D and the 25-Hydroxycholecalciferol test
- Research Citations for Vitamin D on
  - Status and risk
  - Emotional Wellbeing
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  - Pain and Bone
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- Vitamin D Information Resources
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- Et Cetera section including new cardiovascular test information

Introductory Info

Vitamin D has been a hot topic in holistic health care in the last several years and for good reason. Previously, we’ve been warned that vitamin D could be toxic if we took too much and that we should be wary of sunlight because it may cause skin cancer. The RDA is 400 I.U. and most Americans and their health care practitioners have been overly cautious about their intake of D. It does make some sense to be wary of fat soluble vitamins, because they can accumulate in the body – a few ounces of polar bear liver has enough vitamin A to be toxic in and of itself.

In the case of vitamin D, we are working with an RDA that seems far too low in light of more current research, and the most generous natural source for stimulating production in our bodies – sunlight – has been the subject of frequent and ominous warnings, with the use of sunblock highly recommended. While sunburn is truly a dangerous risk factor for skin cancer, the unfortunate outcome has been a near-pathologic avoidance of one of Mother Nature’s greatest gifts. Fortunately, a new day is dawning and mounds of research are quite literally letting the sunshine in on the vitamin D story.

Vitamin D has both vitamin and hormone-like activities; it has documented involvement in osteoporosis and bone health, congestive heart failure, hypertension, several types of cancer, angiogenesis, emotional wellbeing, autoimmune issues, and Metabolic Syndrome. That’s a substantial list for one vitamin that’s received so little attention for decades, but now with so much information available, with new guidelines for interpretation, and with testing so inexpensive, vitamin D status is must-have information.

From Medline Plus Medical Encyclopedia...

Vitamin D is a fat-soluble vitamin that promotes the body’s absorption of calcium, which is essential for the normal development and maintenance of healthy teeth and bones. Calcium is also important to nerve cells, including the brain.
Vitamin D helps maintain adequate blood levels of calcium and phosphorus.

Vitamin D is found in the following foods:
- Dairy products
  - Cheese
  - Butter
  - Cream
  - Fortified milk (all milk in the U.S. is fortified with vitamin D) (D2, the weaker ergocalciferol form, not the preferred cholecalciferol D3 form)
- Fish
- Oysters
- Fortified cereals (Watch out for refined carbs)
- Margarine (NO THANKS)

A vitamin D deficiency can lead to osteoporosis in adults or rickets in children. Excessive doses of vitamin D can result in increased calcium absorption from the intestinal tract. Excessive levels may also cause increased calcium resorption from the bones, leading to elevated levels of calcium in the blood. Elevated blood calcium may then cause calcium deposition in soft tissues such as the heart and lungs. This can reduce their ability to function. Kidney stones, vomiting, and muscle weakness may also occur due to the ingestion of too much vitamin D.

Vitamin D is also known as the "sunshine vitamin" because the body manufactures the vitamin after being exposed to sunshine. Ten to fifteen minutes of sunshine 3 times weekly is adequate to produce the body's requirement of vitamin D.

The best way to get the daily requirement of essential vitamins is to eat a balanced diet that contains a variety of foods from the food guide pyramid.

Comment: That's the standard information from the allopathic viewpoint. It's included for perspective.

Excerpts From LabCorp's Directory of Services...

The Old Reference Range (pre 2-2006):
Adults: 8-46 ng/ml

New Ranges for Vitamin D
We are pleased to report that LabCorp has recently adopted new classifications for vitamin D status based on an article by A. Zitterman “Are We Ignoring the Evidence?” Br. J. Nutr. 2003;89(5): 552-572.

- Deficiency – 0-5 ng/ml
- Insufficiency – 5-20 ng/ml
- Hypovitaminosis – 20-40 ng/ml
- Sufficiency – 40-100 ng/ml
- Toxicity – >100 ng/ml

LabCorp’s reference range is now 32-100 ng/ml.

Ordering Code 081950 CPT Code 82306

Note: Why not 40 as the lower limit? This is a compromise value - see comment below.

The Vitamin D, 25-Hydroxy Test
Used to rule out vitamin D deficiency as cause of bone disease; differential diagnosis of hypercalcemia.

Values of vitamin D vary with exposure to sunlight. There are also variations during the menstrual cycle, particularly at the time of ovulation. Vitamin D₃ (cholecalciferol) and vitamin D₂ (ergocalciferol) are hydroxylated in the liver to the 25-hydroxy form, and then to the active 1,25-dihydroxy form in the kidney. Functional abnormalities can result from failures of absorption or either hydroxylation step. Vitamin D has a major action on intestinal absorption of calcium, bone calcium balance, and renal excretion of calcium. Thus, assessment of serum vitamin D levels is useful in the differential diagnosis of hypocalcemia, hypercalcemia, and hypophosphatemia.

Comment: After speaking with a lab director at LabCorp about reference ranges, I am pleased to say they are making a substantial attempt to accommodate the need for health care as well
as disease care. We have seen changes in a number of reference ranges such as glucose, fibrinogen, homocysteine, and now vitamin D.

Vitamin D is measured as 25-hydroxycalciferol and the test is done with the state of the art DiaSorin instrumentation.

**Related Laboratory Tests**

1,25-dihydroxy vitamin D, the “active” form; seldom used because 25-hydroxy is the better test for D status. Has application in some autoimmune cases.

PTH (parathyroid hormone), calcitonin, serum phosphorus, and calcium. Alkaline phosphatase elevations in children may indicate vitamin D deficiency. Estrogen, progesterone, and n-Telopeptide as related to bone integrity.

**Research Information**

Note: Vitamin D results are reported in either nmol/L or ng/ml. Since our LabCorp reports are in ng/ml, we converted where needed in order to standardize interpretation. The conversion factor is nmol/L / 2.5 = ng/ml.

**Vitamin D Status and Risk**

**CDC NHANES III Data on “D” Status**

The mean levels of 25-hydroxy D3 were lower among the female than male participants (28.4 vs 31.4 ng/ml). White men and women (33.2 and 30.4) had higher mean levels of vitamin D than Hispanic men and women (27.3 and 22.6) and than Black men and women (20.8 and 18), respectively. The prevalence of both mild-moderate and severe deficiency of vitamin D is higher among women (P<.0001) and minority populations. However, even among White men, 34% had low vitamin D levels. NHANES III was conducted 1988-94. *Ethn Dis.* 2005 Autumn;15(4 Suppl 5):S5-97-101.

**Comment:** With the new standard of interpretation, well over half the population fails to meet the minimum vitamin D status of 32 ng/ml. Since at least 40 ng/ml is now believed to be necessary for good health, it is reasonable to say that the majority of Americans are deficient.

**Vitamin D Status in the Sunshine State**

212 men and women were measured for vitamin D status at the end of winter – men averaged 24.9 ng/ml +/- 8.7 and women 22.4 ng/ml +/- 8.2. Under current guidelines, the great majority were below the bottom of the reference range (32 ng/ml).

At the end of summer 99 participants returned for testing with men averaging 31 +/- 11 ng/ml and women 25 +/- 9.4 ng/ml – many still under an acceptable limit. *The Journal of Clinical Endocrinology & Metabolism* Vol. 90, No. 3 1557-1562

**Comment:** Even in Florida there is wholesale deficiency of vitamin D. This is what we have observed with testing through PCS as well.

**Who Has The Highest Risk?**

- Individuals with malabsorption issues, including Crohn’s, colitis, gastric bypass, and celiac disease.
- Individuals with severe liver and kidney disease that may interfere with conversion of vitamin D and its metabolites.
- Those living in northern latitudes, especially in winter months when less UV-B is available.
- Older adults generally have less efficient skin production of vitamin D.
- Anyone with decreased exposure to sunlight.
- Those with dark, highly pigmented skin living in northern latitudes. Skin pigmentation is an evolutionary adaptation and there are wide variations in penetration of UV-B and the ability to produce vitamin D.
- **Note the significant disparity between Blacks and Whites – 60% – in the NHANES III data!**
**Health Consequences of Deficiency**

Vitamin D deficiency causes poor mineralization of the collagen matrix in young children's bones leading to growth retardation and bone deformities known as rickets. In adults, vitamin D deficiency induces secondary hyperparathyroidism, which causes a loss of matrix and minerals, thus increasing the risk of osteoporosis and fractures. The poor mineralization of newly laid down bone matrix in adult bone results in the painful bone disease of osteomalacia.

There is mounting scientific evidence that links vitamin D deficiency to increased risk for type 1 diabetes, multiple sclerosis, rheumatoid arthritis, hypertension, cardiovascular disease, and many common deadly cancers.


**Book Note:** The author of this article, Dr. Michael Holick, is one of the leading authorities on vitamin D. His book, The UV Advantage, contains extensive information on vitamin D.

**Sundry Studies**

**Feeling of Wellbeing**

64 patients were studied with baseline vitamin D averaging 20ng/ml. They were treated with either 600 IU or 4000IU a day for 6 months. The group receiving 600 IU increased to 32 ng/ml and the 4000 IU group increased to an average of 45 ng/ml. Both doses lowered PTH with no change in serum calcium. The wellbeing score improved in both groups but more for the higher dose group. This work confirms safety and efficacy of a 4000 IU daily dose.


**Insulin Sensitivity & Insulin Production**

Positive correlation of 25-hydroxy D concentration with insulin sensitivity. Subjects with lowered vitamin D status are at higher risk of insulin resistance and the metabolic syndrome. Mechanism unknown.

There is also a negative effect of decreased D on beta cell function and insulin production in diabetics.


**Cold and Flu Anecdote**

Dr. John Cannell, who writes a superb newsletter devoted to vitamin D (see Resources on page 9), tried a 50,000 IU dose when the bug hit him and felt much better the next day. There is precedent for this level of dosing in Europe.

I haven’t yet had the need, but the next time I do, I’m giving it a try.

Also from Dr. Cannell’s newsletter – a group of 27 African children with frequent cold and flu infections were given vitamin D at 60,000 I.U. per week. Within a few weeks the kids stopped getting sick and stayed that way for six months following.


**Bone and Pain**

**The Mayo Clinic Pain Study**

150 patients with persistent, nonspecific musculoskeletal pain were followed at the Community University Health Care Center in Minneapolis, Minn.

Of the African American, East African, Hispanic, and American Indian patients, 100% had deficient levels of vitamin D (< or = 20 ng/ml).

Of all patients, 93% (140/ 150) had deficient levels of vitamin D (mean, 12.08 ng/ml; 95% confidence interval, 11.18-12.99 ng/ml).

CONCLUSION: All patients with persistent, nonspecific musculoskeletal pain are at high risk for the consequences of unrecognized and untreated severe hypovitaminosis D. Screening all outpatients with such pain for hypovitaminosis D should be standard practice in clinical care.


**Vitamin D Improves Low Back Pain**

Initial assessment involved 360 patients (90% women and 10% men) who had experienced low back pain that had no obvious cause for more than 6 months.

Findings showed that 83% of the study patients (n = 299) had an abnormally low level of vitamin D before treatment with vitamin D supplements. After treatment, clinical improvement in symptoms was
seen in all the groups that had a low level of vitamin D, and in 95% of all the patients (n = 341). Spine. 2003 Jan 15;28(2):177-9.

**Osteomalacia – Adult Rickets**

Osteomalacia means soft bones. Like osteoporosis, osteomalacia weakens the bones and makes bones more likely to break. However, the process is different from that in osteoporosis. In osteoporosis, bone is broken down faster than it is re-formed. In osteomalacia, the two activities are balanced, but the bone that is formed does not become dense and hard (mineralized). Among older people, osteomalacia is much less common than osteoporosis.

Osteomalacia is treated with vitamin D or phosphate supplements depending on the cause. www.merck.com

**Comment:** Soft bone in Vitamin D deficiency represents a significant source of pain. Poorly mineralized bone is subject to more expansion and contraction than normal hardened bone.

**Calcium Absorption Rate is Vitamin D Level Dependent**

There is significant variance in calcium absorption based on the level of vitamin D in the serum. 65% more calcium was absorbed with a 25-hydroxy D level of 35 ng/ml than at 20 ng/ml. J Am Coll Nutr. 2003 Apr;22(2):142-6.

**Comment:** If vitamin D increases absorption of calcium, why is there no change in serum calcium after therapy? The answer is in the Parathyroid hormone (PTH). PTH is drawing calcium from bone to keep the serum level adequate when there is a lack of dietary intake or faulty absorption due to vitamin D deficiency. PTH is lowered after treatment with D and that spares bone resorption.

**Vitamin D and Bone Health in Postmenopausal Women**

Vitamin D intake between 500 and 800 IU daily, with or without calcium supplementation has been shown to increase bone mineral density (BMD) in women with a mean age of approximately 63 years. In women older than 65, there is even more benefit with vitamin D intakes of between 800 and 900 IU daily and 1200–1300 mg of calcium daily, with increased bone density, decreased bone turnover, and decreased nonvertebral fractures. Journal of Women’s Health Feb 2003, Vol. 12, No. 2: 151-156 Michael F. Holick, PhD, MD, Alan O. Malabanan, MD.

**Bone-related Info**

**Estrogen** modulates the rate of bone resorption through its effect on osteoclast cells that stimulate the breakdown of bone. **Progesterone** influences formation of new bone through its effect on osteoblasts which encourage new bone growth. **N-Telopeptide** (nTx) is a byproduct of bone resorption found in the urine. About 10% of bone is type 1 collagen and this protein remnant, nTx, serves as a marker for bone loss. An interpretation guide is provided with results. **Calcium and phosphorus** are the principle minerals in bone. A ratio f 2.5 to 1 is recommended. **Parathyroid hormone** (PTH) causes the bones to release more calcium into the blood and reduces the amount of calcium released by the kidneys into the urine. In addition, vitamin D is converted to a more active form, causing the intestines to absorb more calcium and phosphorus. (Web MD)

**Book Note:** For more information on hormones, we highly recommend Dr. David Brownstein’s *The Miracle of Natural Hormones*, available at www.drbrownstein.com

**Cardiovascular**

**Hypertension**

With respect to its effects on hypertension, vitamin D markedly suppresses renin transcription and regulates the renin-angiotensin system. Hypovitaminosis D is associated with increased risk for hypertension and vitamin D therapy reduces blood pressure. Minnesota Medical Association January 2003/Volume 86.
**Congestive Heart Failure**

Available data indicate that the majority of CHF patients, characterized by reduced left ventricular ejection fraction in association with water and sodium retention, have 25-hydroxy vitamin D levels in the insufficiency range. Benefits of adequate vitamin D status included vitamin D-mediated reduction of elevated blood pressure as well as a vitamin D-mediated prevention of enhanced parathyroid hormone levels, a pathophysiological state that contributes to cardiovascular disease.

*Heart Fail Rev. 2006 Mar;11(1):25-33.*

**Note:** – about 90% of bone is calcium phosphate. In Metabolic Syndrome, low phosphorus is often seen as a result of sugar consumption (Dr. Melvin E Page, *Degeneration, Regeneration*, 1949) and when phosphorus is low, ionized calcium is high *(Am J Dis Child, 1989, 143(11):1340-1)*, contributing to the atherosclerotic process.

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**Too Much of a Good Thing?**

While the new reference range extends to 100 ng/ml, there is at least some lack of resolution on how much is too much.

Given the evidence for the arteriotoxicity of vitamin D, further investigations are warranted to probe whether the elevated serum levels of 25-hydroxy vitamin D3 observed in patients with ischemic heart disease in a tropical environment have any pathogenic significance. The levels averaged 89 ng/ml.


**Autoimmunity**

**Vitamin D Positive Effects**

Evidence from animal models and prospective studies of RA, multiple sclerosis, and type-1 diabetes suggest an important role for vitamin D as a modifiable environmental factor in autoimmune disease.

Data from a group of Lupus patients suggest vitamin D deficiency as a possible risk factor for SLE.


Vitamin D deficiency is an unrecognized epidemic among both children and adults in the United States. Vitamin D deficiency has been associated with increased risks of deadly cancers, cardiovascular disease, multiple sclerosis, rheumatoid arthritis, and type 1 diabetes mellitus.


Vitamin D has been shown to inhibit development of autoimmune diseases including inflammatory bowel disease (IBD), rheumatoid arthritis (RA), multiple sclerosis (MS), and type 1 diabetes. The effectiveness of D treatment of autoimmune diseases is due to inhibition of the development and function of Th1 cells and the induction of other Th cells including Th2 cells.

It is likely that the effectiveness of treatment of autoimmunity is due in part to the inhibition of the TNF family of genes. D-hormone is a selective regulator of the immune system, and the outcome of D treatment depends on the nature (infectious disease, asthma, autoimmune disease, etc.) of the immune response.

*J Rheumatol Suppl. 2005 Sep;76:11-20.*

**Book Note:** *Nutritional and Botanical Treatments for Autoimmune Diseases* by Alex Vasquez, D.C., N.D. is available through [www.OptimalHealthResearch.com](http://www.OptimalHealthResearch.com).

**Vitamin D Gone Wrong**

Many patients with Crohn’s disease (CD) have low bone mineral density (BMD) that may not be solely attributable to glucocorticoid use. Inappropriately high levels of serum 1,25(OH)2D (>60 pg/ml) – the active form – were observed in 42% of patients with CD compared with only 7% in ulcerative colitis, despite no differences in mean PTH.

The source of the active vitamin D may be the inflamed intestine. Treatment of the underlying inflammation may improve metabolic bone disease in this subgroup of patients.

Autoimmune/Inflammatory Disorders Linked to Vitamin D

Th1 (T-helper cell type 1) conditions are thought to be related to immune response entities like Sarcoidosis, Lyme disease, Chronic Fatigue Syndrome, Fibromyalgia, Lupus, and Rheumatoid Arthritis that are caused by various pathogens (mycoplasma, borrelia, coccoid, L-form and others). These pathogens are able to sequester themselves safely inside phagocytes instead of being destroyed by the phagocytic cells that ingested them.

Detection of these pathogens is accomplished with two basic blood tests of the D metabolites: 1,25-dihydroxy vitamin D and 25-hydroxy vitamin D. If the level of 1,25-dihydroxy vitamin D in the blood is elevated (above 38-45pg/ml), and/or the 25-hydroxyvitamin D depressed (below 20 ng/ml), a Th1 infection is likely to be present.

The Marshall Protocol
The Marshall Protocol consists of two steps. Step one involves reducing the level of the active vitamin D metabolite that has been elevated by the infection/inflammation.

A key part of this goal establishes a blockade of the inflammatory hormone Angiotensin II with Benicar.

The second protocol step is the introduction of carefully selected antibiotics. After one week on Benicar, the patient begins an every-other-day treatment with 25mg of the antibiotic minocycline. After approximately 3 months, other antibiotics are added to the treatment protocol. All the antibiotics are taken at low doses and extended intervals, so that the plasma concentrations 'pulse' between each dose.

This information was gleaned from the Marshall Protocol website. Dr. Trevor Marshall, PhD has only a few research citations that I could find, the most notable being Marshall TG, Marshall FE: Sarcoidosis succumbs to antibiotics – implications for autoimmune disease. Autoimmunity Reviews, 2004;3(4):295-3001.

http://www.marshallprotocol.com/forum2/2572.htm

Possible Explanation for Conflicting Autoimmune Relationship to Vitamin D

“Our findings suggest that polymorphisms within the vitamin D receptor gene are markers of susceptibility to or protection from autoimmune diseases, although, at least in the Basque population, association of VDR variants with celiac disease and type 1 diabetes seems to be heterogeneous.”


Comment: Although the case for vitamin D as a causal factor in certain autoimmune diseases is not well documented, it seems unwise to dismiss it altogether. I believe the citation above and several others suggest a difference in vitamin D receptors (VDR) in some individuals and these differences are possibly linked to predisposition in some cases to autoimmune and inflammatory disease. I suggest that if you have a case where 25-(OH)D is very low even after UV-B exposure and/or supplementation and the symptoms are exacerbated, you may want to consider testing for 1,25-vitamin D to see if it is elevated.

There is little doubt that in many cases of autoimmunity, Vitamin D therapy has a positive effect.

Cancer and Vitamin D

Ultraviolet light from sun exposure increases the risk of skin cancers and melanoma. Nonetheless, where sun exposure is low, rates of several cancers have been reported to be high, including prostate, breast, and colon cancer. The geographic distribution of colon cancer is similar to the historical geographic distribution of rickets. Breast cancer death rates in white women also rise with distance from the equator and are highest in areas with long winters.


Laboratory tests have shown vitamin D to be a potent angiogenesis inhibitor.
Comment: Angiogenesis is the growth of new blood vessels often associated with tumors. Various anti-angiogenic agents have been used in cancer therapy to cut off the blood supply to the mass.

American Association for Cancer Research

Dr. Edward Giovannucci, a Harvard University professor of medicine and nutrition, was a speaker at the American Association for Cancer Research meeting in 2005. His research suggests that vitamin D might help prevent 30 deaths for each one caused by skin cancer. He presented powerful data linking vitamin D deficiencies to numerous cancers. Among the benefits he mentioned were decreased angiogenesis, metastatic potential and cell proliferation, and increased apoptosis. "I would challenge anyone to find an area or nutrient or any factor that has such consistent anti-cancer benefits as vitamin D". "The data are really quite remarkable."

Edward Giovannucci, D.Sc., M.D.
Harvard School of Public Health, Boston, MA
The Role of Vitamin D in Cancer Incidence and Mortality
Presentation at American Association for Cancer Research Annual Meeting, April 19, 2005 • Anaheim Convention Center • Anaheim, CA
www.aacr.org.

Changes in Latitudes, Changes in Cancer Risk!
A significant difference in the incidence of certain cancers occurs in areas of the country with lower availability of UV-B sunlight. UV-B penetration is affected by altitude, climate, and time of year. Note that in SE Florida and southern California there is a higher incidence. Maybe this is due to the heavy migration of northerners?

Ovarian Cancer
1970-1994

Breast Cancer

Colon Cancer
1970-1994

Multiple Sclerosis

There is a pattern of incidence related to UV-B sunlight similar to that for the cancers mentioned above. Scotland, which also has a cloudy maritime climate that obscures the summer sun, has probably the highest incidence of MS in the world. Much other evidence shows a link between MS and latitude.
Extensive studies of twins, adopted children, and half-siblings by George Ebers and colleagues have shown that MS is not caused primarily by risk factors within families such as diet or infection. Heredity influences a person’s susceptibility to
MS, but the place where a person is born and the time of year that they are born seem to be crucial in deciding whether or not they develop the disease. 

Sunlight Robbery – Health benefits of sunlight are denied by current public health policy in the UK. 
Author: Oliver Gillie 
Available as a free download from www.healthresearchforum.org.uk.

Resources for Vitamin D Information

http://www.sunarc.org/index.htm

Sunlight, Nutrition and Health Research Center (SUNARC) is an organization devoted to research and education relating to the prevention of chronic disease through changes in diet and lifestyle. 
A non-profit site principally maintained by William B. Grant, Ph.D.

http://www.vitamindcouncil.com/

The most complete information on Vitamin D available. Dr. John Cannell, MD has provided a literal treasure trove of information about vitamin D. This is a non-profit organization well worth supporting that offers a free email newsletter.

http://www.sunlight.as.ro/sungazing.htm

An amazing site that offers a yogic/Ayurvedic perspective along with many research citations that provide fascinating insights into hormonal relationships involving sunlight. I found some interesting connections for the Metabolic Syndrome phenomenon.

From Medline Plus Medical Encyclopedia...

PTH, the most important regulator of body calcium and phosphorus, is a protein hormone secreted by the parathyroid gland. 

PTH:
- Decreases the loss of calcium and increases the loss of phosphorus in the urine
- Increases the activation of 25-hydroxy vitamin D to 1,25-dihydroxy vitamin D in the kidneys

Secretion of PTH is regulated by the level of calcium in the blood. Low serum calcium causes increased PTH to be secreted, whereas increased serum calcium inhibits PTH release.

Nutrition and Supplementation

Food Choices
Or rather lack of choices. See list on page 2.

Safe Sun-bathing
Start with 3-5 minutes, especially if you are fair-skinned. 15-20 minutes in the sun without sun block will generate a significant amount of D – about 10,000 I.U with optimal conditions. Keep in mind that mid-day sun is best and during winter months there may be little or no UV-B available.

Vitamin D Maintenance Dosage
Dr. Michael F. Holick of Boston University Medical Center, one of the world’s foremost vitamin D experts, recommends 1,000 I.U daily for everyone through a combination of safe exposure to sunlight and supplements.

Vitamin D Therapeutic Dosage
As mentioned in research citations, 4,000 I.U. per day has been used without problems. Higher doses are reported in many sources for short-term use without problems.

Bottom Line
Let the test results guide you in managing individual cases. Refer to the guidelines on page 2.

The Best Form
Vitamin D is available in fish oil based supplements and in emulsified form. D3 – cholecalciferol – is the preferred form.
**Vitamin C Status Affects Vitamin D**

Vitamin C deficiency potentiated effects of vitamin D deprivation and impaired a restorative action of vitamin D.

The data demonstrate a critical role for ascorbic acid in vitamin D metabolism and binding.


**General Comment:** As cited in the research on page 3, even in Florida deficiencies in vitamin D are rampant and we've seen this on results coming through our office. I am personally aiming for a level around 50 ng/ml or a bit higher.

I will not be surprised if some interfering issue for conversion to vitamin D in the skin with UV-B exposure is discovered. Cortisol can inhibit the conversion of cholesterol to pregnenolone; excess triglycerides can reduce passage of leptins through the blood/brain barrier and insulin can affect testosterone production in men, so maybe we will eventually find more such interfering factors in our modern world.

With all of the benefits of adequate levels of vitamin D, this is really “must have” information.

**Et cetera**

**Elevated WBC Count May Be Associated With Increased Cancer Risk**

Elevated white blood cell (WBC) count is associated with an increased risk for cancer, and that risk may be less in persons taking aspirin (3X/wk).

Multivariable relative risk (RR) for all cancer mortality for the highest quartile of WBC count (>7,400 cells/µL) vs the lowest quartile (≤5,300 cells/µL) was 1.73 – 95% confidence interval. (That’s a risk 1.73 greater with a WBC count greater than 7,400). Diabetics had even higher risk.

WBC count was associated with cancer mortality, even after adjusting for smoking status.


**Comment:** If there is no apparent reason for sub-clinical elevations in WBC's, we should be wary of a serious condition causing the immune system to be “working behind the scenes”. Following WBC counts in repeat testing over time may be useful in gaining insight.

**Gastric Acid Suppressors Increase Risk of Clostridium difficile**

The use of acid-suppressive therapy, particularly proton pump inhibitors, is associated with an increased risk of community-acquired C difficile. Study also found an unexpected increase in risk with nonsteroidal anti-inflammatory drug use.


**Comment:** What a shocker – raise the pH of the intestinal tract by blocking acid production in the stomach and increase the risk of a bacterial infection. Basic biological terrain 101.

**New Tests Available**

**NMR LipoProfile ®**

**Identify Increased Risk for Cardiovascular Disease**

- Two people with the same total cholesterol can have very different risk.

- Provides number and size of several HDL, LDL, and VLDL subclasses of lipid particles – the true picture of cholesterol.

- 884247 ordering code.

**The PLAC® Test**

**For Stroke and Heart Attack Risk Assessment**

- Measures lipoprotein-associated phospholipase 2 (Lp-PLA2), an enzyme specifically related to rupture-prone plaque.
This test is specific for inflammation-associated arterial plaque; CRP is a generalized marker for inflammation.

Plaque rupture is a major cause of stroke and heart attack. Risk Assessment included in report.

- 141275 ordering code.

Lecture Notes with CD’s Available Soon
The following lecture in various forms has been presented at Florida Chiropractic Association conventions, Florida International University's Annual Wellness Conference, The Florida Academy of Naturopathic Medical Physicians meeting, and to various groups of physicians in seminar format.

We are going to make one more revision and record the lecture. It will be sold for $59 including lecture notes, audio CD’s, and postage.

Pathological Processes Related to Glucose & Insulin Excess, with Hormonal Interactions and Laboratory Assessment

The Underlying Link to Ill Health in America

Persistent, moderately increased levels of glucose in the American population have become a significant and insidious link to chronic degenerative diseases. A myriad of disease entities (including Syndrome X, diabetes, cardiovascular disease, hypertension, fatty liver (NASH), chronic inflammation, acidic metabolism, cancer, and others) can all be related to impaired glucose metabolism. Added relevance of hormonal imbalances/influences makes this lecture a powerful bridge to clinical success in connecting to the underlying issues of many of today’s most common health problems. Physiology, pathology, and biochemistry are presented in detail along with laboratory assessment and therapy considerations.

Presented by:
J. William Beakey, N.M.D., Dipl. Homeopathy
Professional Co-op Services, Inc.

Updated Website
We’ve updated much of our website, especially the new page for Forms and Info, where you can find up-to-date Terms of Service, Paperwork Instructions, Patient Information forms, and other helpful info for using the co-op service.

The Resource Directory also has many new listings – we hope you will spend a few minutes to browse this valuable page.
Next Topic: Iron, TIBC & Ferritin
Putting the Iron Picture Together

Your comments and suggestions are welcome.

Thank you!

Disclaimer - Information in this publication is intended as a sharing of knowledge, research, and information. It is not intended as medical advice. It is left to the discretion and is the sole responsibility of the user to determine if the information and procedures described are appropriate for their patient. Professional Co-op Services, Inc., its members and employees cannot be held liable for inadvertent errors or omissions in any of the information contained herein.

FDA has not commented on the above-mentioned studies or statements.

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