



Vitamin D Pills Are of Little or No Benefit and Some Harm. So What to Do Now?

According to popular opinions coming from friends, family, and physicians, most people are vitamin D deficient and in need of supplementation with pills. Evidence suggests that more than 40% of the world's population is vitamin D deficient (1). A recent report from a Scottish doctor found only 2% of his patients had a sufficient vitamin D concentration (75 nmol/L or above), and 47% had a severe deficiency (below 25 nmol/L) (2). Low vitamin D levels found in the blood are a clear indication that there is a worldwide problem of sunlight deficiency. Rather than correct the problem and encourage people to expose themselves to more of this natural element, the solution has become another drug — a supplement pill sold as vitamin D.

According to the authors of a landmark editorial just published in the March 2, 2010 issue of the *Annals of Internal Medicine*, "Despite the promise for disease prevention suggested by available studies, we believe that the evidence for widespread use of high-dose vitamin D supplementation in the general population remains insufficient (3)." Even though the supplements translate into higher levels of vitamin D in the blood, expected benefits of reductions in the occurrences of common diseases are lacking.

Recent vitamin frenzies over the recommendations for the widespread use of antioxidants, folic acid, vitamin E, and beta-carotene provide lessons about vitamin supplements that must not be forgotten. When the proper research was finally done, the results backfired. More heart disease, cancer, and overall death were discovered in those taking these isolated concentrated nutrients (4-9). Each of the above nutrients is originally found in edible plants. In these perfect packages these nutrients provide for excellent health, prevent and cure diseases, and prolong life.

When consumed as isolated concentrated nutrients wrapped in a pill-casing, vitamin D supplements cause nutritional imbalances, which leads to metabolic sicknesses. At dosages considered safe, an increase in "bad" LDL-cholesterol, prostate cancer, immune system suppression, autoimmune diseases, gastrointestinal symptoms, kidney disease, and calcium stones has been observed (10-16). The adverse effects of vitamin D therapy are understudied, underestimated, and underreported.

Confounding Factors Inflate the Benefits of Vitamin D

A serious metabolic and bone disease, known as rickets, is the classic example of the consequences of prolonged sunlight deficiency. Ultraviolet light in the spectrum of the sun and vitamin D supplements will cure this condition. No one argues about this.

Recently, low vitamin D status has been associated with many other illnesses, such as heart disease, strokes, type-2 diabetes, common cancers (breast, prostate, and colon), and multiple sclerosis. The original evidence for this connection is the observation that people who live farther away from the Equator (north and south) experience a greater risk of developing these common diseases. This risk is blamed on a lessening of the amount of sunshine received annually by various populations. But a crucial oversight is made: as people move further away from the Equator they eat fewer plant foods and more animal foods. Sunshine plays a big part in overall health, but a small part in the prevention of common Western diseases. It's the food!

Researchers are further confused by confounding factors, such as: people with higher vitamin D status are in general of a young age, normal body weight, and live a healthy lifestyle (17). Lower vitamin D status is associated with smoking, parental history of myocardial infarction, alcohol intake and suffering with chronic illnesses (17). Health-conscious people are more likely to consume vitamin D fortified low-fat milk and fish (a vitamin D source), as opposed to soft drinks and junk foods, favorites of unhealthy people. (Yes, neither milk nor fish is a healthy food, but they serve as markers of people who have better habits.)

The Benefits from Pills Remain Unproven

Even though there is an association between lower vitamin D status and heart disease, strokes, type-2 diabetes, common cancers (breast, prostate, and colon), and multiple sclerosis, treatments with supplements have not been shown to be effective for these conditions (17-19). The benefits for bone fracture prevention are small and largely restricted to institutionalized elderly women and to studies that use a combination of vitamin D and calcium, not vitamin D alone (17,19).

Vitamin D Testing

Laboratory tests to check for vitamin D status usually measure the 25-hydroxy vitamin D, 25(OH)D, form in nmol/L

Deficiency: 25 or less

Insufficiency: 50 or less

Sufficiency: 51 to 75

Safe range: below 140

Toxicity: 750

Researchers do not report 25(OH)D units in consistent ways. To convert ng/mL to nmol/L multiply by 2.496.

Sunlight is the Best Way to Raise Vitamin D Levels in the Body

Sunlight, in UVB wavelengths of 290 to 315 nm, is the natural and most effective way to produce vitamin D in the body, and an estimated 90% of our daily body requirements are met by sunlight exposure (20,21). In the summertime, exposure of a large surface area of skin for 20 to 30 minutes can produce approximately 10,000 IU of vitamin D in White people (22). A dose that causes redness of 6% of the skin is equivalent to the ingestion of 600-1000 IU of vitamin D (23). (The Scientific Advisory Committee on Nutrition and National Institutes of Health recommend 200 IU daily.) Exposure during the spring, summer, and fall of the hands, face and arms two to three times a week is sufficient in White people (23). Asian-Indians may require 3 times, and Blacks may require 10 times as much exposure as Whites under the same sunlight conditions (24). Changes in the amount of vitamin D in the body are primarily regulated by sun exposure, and not by the diet (25,26).

The amount of vitamin D you have in your body during the winter months is based on the vitamin D you produce during the spring, summer, and fall. The vitamin D made in the sunshine months of the year is stored in your body fat and slowly released during the darker months. Plasma concentrations of 25-hydroxy vitamin D (25-OHD) in winter of 15.0-22.5 nmol/l require that the concentration in the previous summer was over 40 nmol/l (27).

Ultraviolet radiation is natural and provides benefits far beyond the production of the hormone called vitamin D (24). Apart from vitamin D synthesis there are a number of known ways that sunlight can affect a person's health. Some of the discovered mechanisms involve the direct alterations of the immune system, locally and systemically; modulation of other hormones like melatonin, calcitonin, and melanocyte

stimulating hormone; and changing the number and function of cells present in the skin (28,29) Sunlight also establishes circadian rhythms. Undoubtedly, many important mechanisms for the benefit of natural sunlight remain to be discovered.

Exposure to sunlight for extended periods of time does not cause vitamin D toxicity. However, overexposure from the sun or a tanning bed can cause skin damage.

Tanning (Sun) Beds Are the Second Best Way to Raise Vitamin D

Indoor tanning machines emit the same spectrum UVB radiation, as does sunlight. In areas of the world where sunlight is limited, when people's lives do not lend themselves to outdoor activity, and in situations where patients cannot absorb vitamin D from their diet or pills (for example, people with bowel disease), artificial ultraviolet light has been used to correct vitamin D deficiency. People using an indoor tanning bed at least once a week can raise their vitamin D levels 150% higher at the end of winter compared to nonusers (30). Many other studies support the effectiveness of tanning beds for the production of vitamin D (31).

Tanning beds have a bad reputation mainly because they are used improperly. Overexposure and resulting skin damage is easy to do because tanning beds can give out greater doses of ultraviolet rays than the midday Mediterranean sun. A recent survey found that the typical user of tanning beds is female, between 17 and 30 years old, and tends to live a comparatively unhealthy lifestyle; smoking cigarettes and drinking alcohol more frequently, and eating less healthy food than nonusers. They also lack knowledge about the health risks of ultraviolet radiation (32). Improper use is the reason tanning bed users have higher risks of skin cancers, skin damage, and premature aging (33). The same adverse effects are the destiny of those who overdose on natural sunshine.

Pills Are the Last Choice to Raise Vitamin D Levels

Some people are unable or unwilling to get outdoors or unable to afford to use a tanning bed. The elderly and infirm confined to nursing homes, long-term care facilities, and their own homes are at an especially high risk of developing deficiencies. Adequate oral daily supplementation is as little as 200 IU of vitamin D for healthy adults not exposed to sunshine. Darker skinned and elderly people require more. Common recommendations are for 2000 to 4000 IU daily of over-the-counter vitamin D to correct vitamin D blood levels. Signs of vitamin D toxicity appear only after daily doses exceeding 10,000 IU. (1 mcg vitamin D [cholecalciferol] = 40 IU). Vitamin D2 is as effective as vitamin D3 in maintaining circulating concentrations of 25-hydroxyvitamin D (34). Remember the topic of this newsletter: The benefits from taking pills are very limited and there are adverse side effects. The lesson is: Natural is best when it comes to food and sunshine.

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