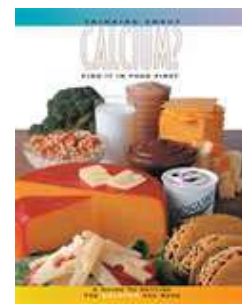




Vitamin D3 (Cholecalciferol) and Calcium



Vitamin D is the latest “miracle vitamin”. I put miracle vitamin in quotes, because it is possible further research will reveal that supplementation (without evidence of true deficit) is useless, just like vitamins C and E. At the current time, cholecalciferol (vitamin D3) is used for preventing osteoporosis (which leads to back pain from broken vertebrae, broken hips, and death); muscle weakness in the elderly; autoimmune, skin and lung diseases; psoriasis; cardiovascular disease and diabetes, among a host of other conditions. Rickets, the symptom of major deficiency, has been known since the late 1800s. Now, however, studies have correlated deficiency of this vitamin with various disease states. What is yet to be proven, however, is whether supplementation from non-food sources can induce the same benefits enjoyed by those with naturally higher levels of the vitamin; that is, we may still be what we eat, unable to correct it with supplements.

By itself, vitamin D seems to be minimally helpful, in most cases needing calcium to create measurable benefit. Calcium is both a building block of bones and teeth, and an element of many cellular functions, including nerve transmission, muscle contraction, blood vessel function, cell membrane function, etc. Absorption of calcium is partly dependent on blood vitamin D levels. Diets high in caffeine or sodium increase the loss of calcium.

Vitamin D and calcium supplementation have been shown to decrease the risk of falls in the elderly, and to decrease the risk of broken bones from falls. While college students may question the relevance of this to them, consider this: bone strength is increased by calcium intake before the age of 35, with greatest benefit in the teens and 20's; after 35, calcium intake slows the loss of bone but can't correct insufficient intake as a young person.

Obesity and diabetes are twice as common in people of all ages who have lower blood vitamin D levels; smaller differences are measurable for high blood pressure and triglycerides (related to cholesterol). There is a measurable decrease in death from any cause in those with higher blood vitamin D.

When women past the menopause take 400 IU D and 1000 mg calcium daily they are better able to lose a bit or maintain their weight; this has not been studied in younger women or in men. Whether this translates into decreased incidence or severity of heart disease or diabetes is still unclear.

Multiple sclerosis is less common in women who have taken at least 400 IU per day for years, and rheumatoid arthritis is less common in women with higher intake of vitamin D. Less clear is whether there is a decreased risk of cancer of any kind. More evidence for benefit is seen for colorectal cancer.

Benefit for other conditions has not yet been researched sufficiently to allow any recommendations.

Vitamin D is found in fatty fish, but for most Americans is mainly created in the skin with sun exposure. Brief exposure to sunlight over much of the body (for about ¼ the time to cause light

pinkness to the skin) is the most efficient way to get vitamin D. Six days of exposure can be stored for a month and a half. Most people don't get this, whether due to climate, residence, or sunscreen. Younger women (daily), and men (during the dark months), are advised to take 400-800 IU (international units) a day. People over age 50 are less efficient with use of vitamin D, so need to take 800-1000 IU a day. Benefit is also clearly tied to sufficient calcium intake, which is defined as 1000 mg a day, the amount in 2 eight ounce glasses of milk, a cup of dark leafy greens (not lettuce), and a serving of salmon canned and eaten with the bones, or two supplement pills. As mentioned before, food sources are likely better absorbed and utilized than supplements, but supplements are better than nothing.

Vitamin D3 is more potent than D2: one grocery store I checked had only D3 available, except for one product containing vitamin D2. Calcium supplements often contain vitamin D, and are convenient. Some are even like chocolate candy! Talk with your health provider if you take atorvastatin/Lipitor or lovastatin/Mevacor (cholesterol medications); there is an interaction that as of this writing is probably not significant.

Calcium is available in many forms and for many prices. No matter which form is consumed, absorption is better when consumed with a meal, and with vitamin D, but not at the same time as antibiotics, diuretics or thyroid medications. The more expensive calcium citrate and heated oyster shell-seaweed calcium products may be better absorbed, but not all studies support that claim. Calcium carbonate is cheap, found in most calcium supplements and also used as an antacid, and fine for anyone with a normal gut. More than 500 mg of (elemental) calcium cannot be absorbed at a time; most people don't need more than 1200 mg a day, less if they eat dairy or other dietary sources of calcium.

Too much vitamin D can cause some of the same problems that lack of it does; do not exceed the daily recommendations, unless instructed by your health provider. Likewise, excess calcium can cause belching and flatulence, and even kidney stones and kidney problems in those so predisposed. Although lead can be found in many of these products, toxic absorption has not been demonstrated; still, it may be better to avoid dolomite.