



The Many Uses of Vitamin D

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Literature Education Series On Dietary Supplements

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Vitamin D is the “sunshine vitamin”; so coined because exposure to the sun’s ultraviolet light will convert a form of cholesterol under the skin into vitamin D. This nutrient is best known for its role in helping to facilitate the absorption of calcium and phosphorus (as well as magnesium), and so helping to promote bone health. But did you know that vitamin D may also have value in the treatment of fall prevention, psoriasis, multiple sclerosis, rheumatoid arthritis, cancer, diabetes, PMS, and corticosteroid-induced osteopenia and osteoporosis? Read on to learn more about the many uses of vitamin D.

Fall prevention

Individuals with a vitamin D deficiency have a higher risk of experiencing falls (Dhesi et al, 2002; Flicker et al, 2003). However, falls can be reduced by 22% in older adults if they are taking vitamin D supplements. This reduction in risk does not seem to be related to calcium supplementation, although some experts think a combination of calcium and vitamin D may be the best choice (Bischoff-Ferrar et al, 2004). The combination of Vitamin D and calcium seems to prevent falls by decreasing body sway and systolic blood pressure instead of increasing bone mass strength (Bischoff et al, 2003).

Psoriasis

Calcipotriene is a vitamin D analog. When applied topically, calcipotriene can effectively treat plaque-type psoriasis in some patients (Linden & Weinstein, 1999)

Multiple sclerosis (MS)

Population-based research has shown that long-term supplementation with vitamin D may decrease the risk of MS in women by up to 40%. At least 400 IU daily must be consumed to reduce risk, and when taken mainly in the form of a multivitamin supplement, the greatest protective effect was seen (Munger et al, 2004).

Rheumatoid arthritis (RA)

As with MS, population-based research has shown that vitamin D may protect against RA. Specifically, older women who have a higher intake of vitamin D from foods or supplements tend to have a lower risk of developing RA (Merlino et al, 2004).

Cancer

Higher blood levels of vitamin D from various sources (e.g., food, supplements, sun exposure) may be associated with a reduced risk of cancer and cancer-related mortality in men. In epidemiological research, men with the highest level of vitamin D had a 17% reduction in overall cancer incidence, 29% reduction in cancer-related mortality, 43% reduction in gastrointestinal cancer incidence, and 45% reduction in gastrointestinal cancer-related mortality (2006).

Diabetes

Some evidence indicates a reduced incidence of type 1 diabetes development later in life when vitamin D is supplemented on a daily basis in infants during the first year of life (Hyponen et al, 2001).

Premenstrual syndrome (PMS)

Increasing total or dietary intake of vitamin D is associated with a decreased risk of developing PMS. Women who consume an average of 706 mg daily of vitamin D appear to have about a 40% lower risk of developing PMS in comparison to women consuming 112 mg daily of vitamin (Bertone-Johnson, 2005).

Corticosteroid-induced osteopenia and osteoporosis

Taking vitamin D orally prevents corticosteroid-induced osteopenia (bone mineral density that is

lower than normal but not low enough to be classified as osteoporosis) and osteoporosis (Food and Nutrition Board, 1999).

Depression in older adults

In older adults (aged 65-95), researchers found that vitamin D levels were 14% lower in subjects with major and minor depression, compared to non-depressed individuals. Likewise, parathyroid hormone levels were 5% and 33% higher in people with minor and major depression, compared to non-depressed individuals (Hoogendijk, 2008). In older people the prevalence of minor depression is 13%, which is relatively high.

Drugs/conditions that may interfere with vitamin D absorption

The absorption of vitamin D may be decreased by certain cholesterol lowering medications (cholestyramine and colestipol) orlistate, mineral oil and the fat substitute olestra. Antionvulsant medications may reduce blood levels of an active form of vitamin D known as calcidiol (Higdon, 2003). In addition, individuals with fat malabsorption syndrome have trouble absorbing vitamin D in the intestines, so a standard oral vitamin D supplement may be ineffective (Lo et al, 1985). Likewise, individuals with cystic fibrosis (Lark et al, 2001), Crohn's disease and pancreatic insufficiency (Vogelsang et al, 1997), and biliary cirrhosis may also have poor intestinal absorption of vitamin D.

Dosage

Normal use: 400-1,000 IU daily

Fall prevention: 800 IU daily in combination with 1200 mg calcium daily (Bischoff et al, 2003).

Multiple sclerosis prevention: Long-term consumption of at least 400 IU per day, mainly in the form of a multivitamin supplement (Munger et al, 2004).

All other uses: 400-1,000 IU daily

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