Vitamin D Supreme

with vitamins K1 and K2

designs for health®
Science first.

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Vitamin D Supreme provides a clinically useful dose of vitamin D3, 5000 IU per veggie cap, and vitamin K in both K1 and the MK-7 form of K2, which is highly bioavailable. Both of these forms of vitamin K are important to our health: vitamin K1 (the naturally occurring form of vitamin K in vegetables) and vitamin K2 as MK-7, which is a product of fermentation and has the special property of metabolizing slowly throughout the day. This formula contains higher therapeutic doses than Vitamin D Synergy for situations where more aggressive repletion is required. Most holistically oriented health care practitioners are aiming for vitamin D blood levels of between 50 - 100 ng/mL as optimal. Many patients will require a higher dose of vitamin D as found in Vitamin D Supreme to achieve this. Vitamin D Synergy, our 2000 IU lower dose product, should be considered for maintaining optimal blood levels of vitamin D for long-term supplementation in patients that are exposed to adequate sunlight. Vitamins D and K are essential for optimal bone and arterial health and for maintaining the immune system in proper balance. The amount of vitamin D and K in this formula may correct the deficiencies of a majority of patients that do not get adequate sun exposure and/or dietary sources of these vitamins. We now know how important vitamin K is for directing the transport of calcium into bone and teeth for optimal strength. Increasing the amount of vitamin D, via supplementation, in the presence of inadequate levels of vitamin K, can increase the risk of calcium deposition in arteries and soft tissue and have a very negative effect on artery elasticity. This is due to their interaction in the use of MGP, Matrix Gla Protein, which is a strong inhibitor of arteria calcification. The expression of MGP is vitamin D dependent and the gamma-carboxylation step, making it active, is vitamin K dependent. Together, D and K make a great team.

Supplement Facts

Serving Size 1 capsule

Amount Per Serving		% Daily Value
Vitamin D (as Cholecalciferol)	5000 IU	1250%
Vitamin K (as Vitamin K1 Phytonadione 500 mcg; Vitamin K2 Menaquinone-7 50 mcg)	550 mcg	690%

*Daily Value not established.

Other Ingredients: Microcrystalline cellulose, L-leucine.

How does vitamin K help the bones? The most famous Gla protein is "osteocalcin." Osteocalcin requires vitamin K to work. Vitamin K performs a feat on the proteins called "carboxylation." Undercarboxylated osteocalcin can't regulate calcium causing it to float around and dump into the wrong places like the arteries. Osteocalcin is now getting attention for its importance to bone density.

Caution: Vitamin K may adversely interact with anticoagulation drugs known as blood thinners. Patients taking these medications should be medically supervised while taking Vitamin D Supreme.

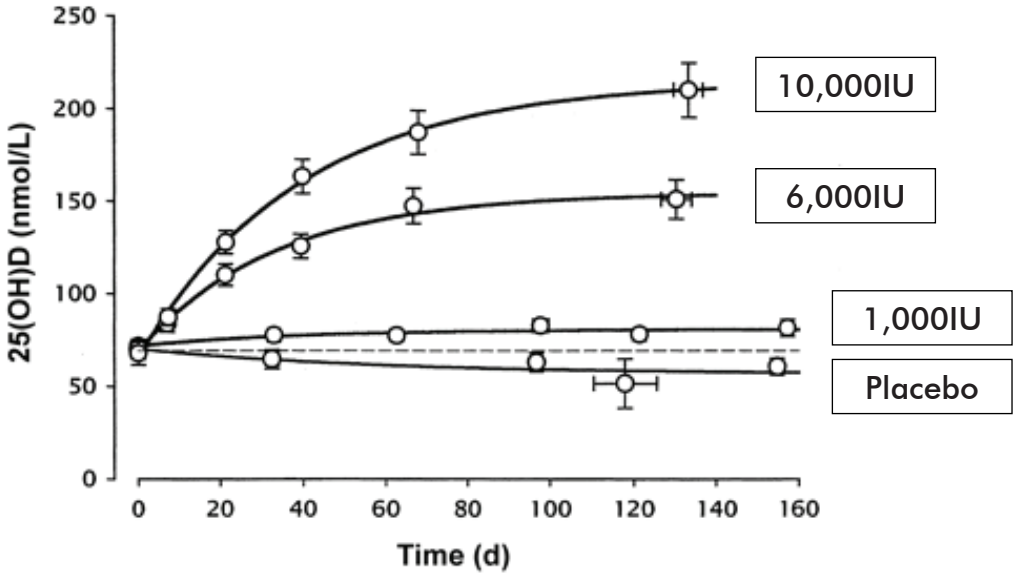
People consuming more than 2,000 IU per day should have their vitamin D blood levels monitored by a qualified health care provider.

Human serum 25-hydroxycholecalciferol response to extended oral dosing with Vitamin D3 (cholecalciferol).

Am J Clin Nutr. 2003 Jan;77(1):204-10. HEANEY RP, DAVIES KM, CHEN TC, HOLICK MF, BARGER-LUX MJ.

BACKGROUND: The cholecalciferol inputs required to achieve or maintain any given serum 25-hydroxycholecalciferol concentration are not known, particularly within ranges comparable to the probable physiologic supply of the vitamin.
OBJECTIVES: The objectives were to establish the quantitative relation between steady state cholecalciferol input and the resulting serum 25-hydroxycholecalciferol concentration and to estimate the proportion of the daily requirement during winter that is met by cholecalciferol reserves in body tissue stores.
DESIGN: Vitamin D3 (Cholecalciferol) was administered daily in controlled oral doses labeled at 0, 25µg (1,000IU), 125µg (6,000IU), and 250 µg (10,000IU) cholecalciferol for approximately 20 wk during the winter to 67 men living in Omaha (41.2 degrees N latitude). The time course of serum 25-hydroxycholecalciferol concentration was measured at intervals over the course of treatment.
RESULTS: From a mean baseline value of 70.3 nmol/L, equilibrium concentrations of serum 25-hydroxycholecalciferol changed during the winter months in direct proportion to the dose, with a slope of approximately 0.70 nmol/L for each additional 1 micro g cholecalciferol input. The calculated oral input required to sustain the serum 25-hydroxycholecalciferol concentration present before the study (ie, in the autumn) was 12.5 micro g (500 IU)/d, whereas the total amount from all sources (supplement, food, tissue stores) needed to sustain the starting 25-hydroxycholecalciferol concentration was estimated at approximately 96 micro g (approximately 3800 IU)/d. By difference, the tissue stores provided approximately 78-82 micro g/d.
CONCLUSIONS: Healthy men seem to use 3000-5000 IU cholecalciferol/d, apparently meeting > 80% of their winter cholecalciferol need with cutaneously synthesized accumulations from solar sources during the preceding summer months. **Current recommended vitamin D inputs are inadequate to maintain serum 25-hydroxycholecalciferol concentration in the absence of substantial cutaneous production of vitamin D.**

FIGURE 1. Time course of serum 25-hydroxycholecalficerol [25(OH)D] concentration for the 4 dosage groups. The points represent the mean values, and error bars are 1 SEM. The curves are the plot of Equation 1, fitted to the mean 25(OH)D3 values for each dosage group. The curves, from the lowest upward, are for 0, 25µg (1,000IU), 125µg (6,000IU), and 250 µg (10,000IU) µg cholecalciferol (labeled dose)/d. The horizontal dashed line reflects zero change from baseline.



Note that 10,000IU's of D3 is the maximum daily amount made by the skin in response to sun exposure, full body for 20min, 11am -2pm, at latitudes lower than 40 degrees.