

Vitamin D

COMMON NAME: Vitamin D

SCIENTIFIC NAME: Cholecalciferol (D3), Ergocalciferol (D2)

RECOMMENDED WITH CAUTION

LEVELS OF EVIDENCE



Recommended:

Several well-designed studies in humans have shown positive benefit. Our team is confident about its therapeutic potential.



Recommended with Caution:

Preliminary studies suggest some benefit. Future trials are needed before we can make a stronger recommendation.



Not Recommended - Evidence:

Our team does not recommend this product because clinical trials to date suggest little or no benefit.



Not Recommended - High Risk:

Our team recommends against using this product because clinical trials to date suggest substantial risk greater than the benefit.

Evaluated Benefits

Lowering of LDL-cholesterol and total cholesterol

Source

Dietary sources of vitamin D are limited and is found in limited amounts in butter, cream, egg yolk and liver. Fish and fish liver oils are the best sources of vitamin D. Additionally, fluid milk and other beverages such as orange juice are fortified with vitamin D. An 8-ounce glass of milk typically contains 20–100 IU of vitamin D.

Vitamin D₃ is produced from 7-dehydrocholesterol in the skin when exposed to sufficient UVB light. The liver metabolizes vitamin D to its principle circulating form 25(OH)D. The kidneys metabolize 25(OH)D to several metabolites, the most important of which is 1,25(OH)₂D, also known as the active form of vitamin D.

The required sun exposure to meet physiological need varies based on the age of the patient, and skin pigment however the typical recommendation is for 15 minutes of passive sun exposure including the arms and face, three times weekly.

Indications/Population

Lowering of cholesterol in patients with hyperlipidemia at low risk for cardiovascular event and/or intolerant of first line medication(s).

Mechanism of Action

Significant independent positive correlations between serum vitamin D and apolipoprotein A1 and HDL cholesterol have been reported in adult men and women. In a database of 20,360 participants, serum vitamin D was positively associated with HDL cholesterol and inversely associated with triglycerides and LDL cholesterol.

In vitro, vitamin D metabolites can upregulate lipoprotein lipase, increasing HDL cholesterol and lowering triglycerides. Vitamin D has anti-inflammatory effects and might, speculatively, reduce insulin resistance by reducing low-grade chronic inflammation, thus lowering triglycerides and increasing HDL cholesterol.

Side Effects

LDL cholesterol levels increased overall and HDL cholesterol levels decreased in studies lasting longer than one year.

Dosing

800–2,000 IU daily

Dose is dependent on starting blood levels.

Drug Interactions/Cautions

Vitamin D toxicity can occur and should be suspected in individuals with 25OHD levels above the laboratory reference range and may be accompanied by hypercalcemia, change in mental status, and ataxic gait.

Vitamin D induces the cytochrome P450 enzyme and may reduce levels of medications metabolized through this system.

References

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