# D3-2K™/D3-5K™

BECK NATURAL MEDICINE
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## Clinical Applications

- D3 (Cholecalciferol) provides 300% more potency than D2 (Ergocalciferol)
- Bone Health
- Support Musculoskeletal Comfort Dietary Deficiency/Limited Sunlight Exposure
- Repletion of Vitamin D with Depleting Drugs (eg. Steroids, Antacids, Barbiturates, Anticonvulsants, Calcium-Channel Blockers etc.)
- Modulation of Immune Function
- Chemoprotection, CV Risk Reduction

*D3-2K/5K™ is provided as cholecalciferol, identical to the form in which it is derived in the body from cholesterol and synthesized by sunlight on the skin.*

**All Beck Natural Medicine® Formulas Meet or Exceed cGMP quality Standards**

## Discussion

Ergocalciferol (D2) and cholecalciferol (D3) are very similar biochemically; however, vitamin D(2) is one-third the potency and has shorter duration of action relative to vitamin D(3).[1] Both forms of the vitamin have to undergo two sequential hydroxylation reactions in vivo to make them biologically active. The kidneys convert D3 into the hormone calcitriol which affects bone, intestine, muscle, brain, skin and immune system cells. Calcitriol is important for healthy cell differentiation.

The active metabolites of cholecalciferol increase plasma levels of calcium and phosphorous by increasing the amount of calbindin, the protein responsible for binding calcium in the intestine, and by stimulating transfer of calcium and phosphorus from the bone to the plasma. In addition to the association of vitamin D blood levels to bone metabolism, researchers have also demonstrated associations with healthy blood pressure, and blood sugar levels, as well as healthy pulmonary function. The prevalence of vitamin D insufficiency has been shown among patients with chronic musculoskeletal pain and dramatic reduction by supplementation with the vitamin has been demonstrated.

Research demonstrates 1, 25-dihydroxyvitamin D3 is an immune modulator and the majority of 63 observational studies in a PubMed database search demonstrated a chemo protective role of vitamin D. Data also suggests that vitamin D therapy may prolong survival in patients with chronic kidney disease. A study reported in Stroke concluded Vitamin D deficiency is present in most cases of acute stroke and may even precede a stroke event and that post-stroke repletion enhances musculoskeletal health.

The standards for recommended dietary intakes of vitamin D are being scrutinized for being too low. The consensus of scientific understanding at this time appears to be that vitamin D deficiency is reached for serum 25-hydroxyvitamin D (25OHD) levels less than 20 ng/mL (50 nmol/L), insufficiency in the range from 20-32 ng/mL, and sufficiency in the range from 33-80 ng/mL, with normal in sunny countries being considered 54-90 ng/mL, and excess greater than 100 ng/mL.

D3-2K™/D3-5K™

## Supplement Facts

Serving Size: 1 Softgel
Servings Per Container: 120

| | Amount Per Serving | %Daily Value |
|---|---|---|
| Vitamin D3 (Cholecalciferol) | 2000 IU | 500% |

** Daily Value not established.

**Other Ingredients:** Gelatin, Glycerin, Water.

## Supplement Facts

Serving Size: 1 Softgel
Servings Per Container: 90

| | Amount Per Serving | %Daily Value |
|---|---|---|
| Vitamin D3 (Cholecalciferol) | 5000 IU | 1250% |

** Daily Value not established.

**Other Ingredients:** Gelatin, Glycerin, Water.

## Dosing:

Current understanding is that the physiological requirement of this fat-soluble vitamin may be as high as 4000 IU/day. This is less than half the amount the body would be able to synthesize on its own with full-body exposure to sunlight. Vitamin D3 is highly lipid-soluble, has a plasma half-life of about 19-25 hours, and a terminal half-life of weeks to months.

A study demonstrated that it is not necessary to dose vitamin D according to body fat content. Note: One microgram of cholecalciferol has 40 IU of Vitamin D activity. Thus, another way of expressing 400 IU of Vitamin D is 10 ug (micrograms) cholecalciferol.

## References


1. Walaszek Z, et al. Dietary glucarate as anti-promoter of 7,12-dimethyl-benz [1] anthracene-induced mammary tumorigenesis. Carcinogenesis.1986; 7(9):1463-6. [PMID: 3091283]
2. Dwivedi C, et al. Effect of calcium glucarate on beta-glucuronidase activity and glucarate content of certain vegetables and fruits. Biochem Med Metab Biol. 1990 Apr;43(2):83-92 [PMID: 2346674]
3. Z. Walaszek, PhD, Metabolism, Uptake, and Excretion of a D-Glucaric Acid Salt and its Potential Use in Cancer Prevention. Cancer Detection and Prevention 1997; 21(2):178-190. http://www.cancerprev.org/Journal/Issues/21/2/186 {accessed 13 November 2007}
4. Olas B, Protective effects of D-glucaro 1,4-lactone against oxidative/nitrative modifications of plasma proteins. Nutrition. 2007 Feb;23(2):164-71 [PMID: 17234507]
5. Calcium D-Glucarate monograph. Natural Medicines Comprehensive Database. http://www.naturaldatabase.com {Accessed 19 November 2007}


## Cautions:

Drug interaction is theoretically possible with drugs that are cleared via glucuronidation.[5]

*The information contained in this paper has not been evaluated by the FDA. The associated product is not intended to diagnose, treat, cure or prevent any disease.