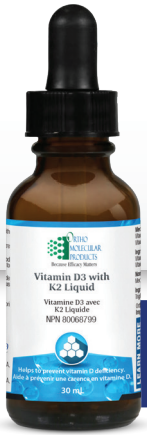


Vitamin D3 with K2 Liquid



RECOMMENDED USE

- *Helps in the development and maintenance of bones and teeth*
- *Helps in the absorption and use of calcium and phosphorus*
- *Helps to maintain immune function*
- *Helps to prevent vitamin D deficiency*

ESSENTIAL VITAMINS

What is Vitamin K with D3?

A growing body of research shows that when it comes to bone health, ensuring optimal intake of vitamin K is a critical piece of the puzzle. New research is focusing on the synergistic relationship between vitamin K (specifically, vitamin K2) and vitamin D3, especially in terms of bone strength.¹ A group of naturally occurring and structurally similar, fat-soluble vitamins, vitamin K is essential for the proper utilization of calcium. Through its activation of the protein osteocalcin, vitamin K helps to bind newly absorbed calcium to the mineral matrix in bone. In addition, vitamin K has been found to help maintain bone mineral density by decreasing the activity of osteoclasts, a cell that breaks down the bone matrix.² Thus, vitamin K and vitamin D not only share similar qualities but they also act synergistically with one another within the body.³ Vitamin D3 with K2 Liquid utilizes a medium chain triglyceride (MCT) delivery system providing 10 mcg of vitamin K2 (as MK-7) and 1,000 IU of vitamin D3 per serving. Natural MCTs have physical properties that allow them to be readily absorbed without lipase and bile. MCTs are a great way to deliver pure, tasteless and odorless liquid vitamin K2 and D3, which easily combines with any beverage.

Overview

While vitamin D has long been known to assist calcium absorption, it is vitamin K, through its carboxylation of osteocalcin, which guides this calcium to bones and prevents their absorption into organs, joint spaces and arteries. Vitamin K occurs in three main forms: K1 (phylloquinone), derived from

foods such as green leafy vegetables, K2 (menaquinones) which originates from bacteria;^{4,5} a third form, K3 (menadione), is a synthetic analogue. Numerous studies have shown that vitamin K2 influences bone building. In addition, though both reach the liver, most of the K1 is used for purposes of coagulation, with little left over to support the body's needs elsewhere.⁶ The profoundly different degrees of bioavailability between K1 and K2 is due to their differences in structure; only 10-20% of vitamin K1 that is absorbed from food even reaches circulation, while the long side-chain of vitamin K2 allows it to bind with fat particles in circulation and facilitate its arrival at soft tissue, bones and arteries. There are two forms of vitamin K2 commonly used in supplements: MK-4 and MK-7. The MK-7 form is the optimal form of K2 for health because it remains in circulation nine times as long as MK-4 with a half-life of three days versus eight hours.⁷

Vitamin K Depletion

Although most people consume adequate dietary vitamin K to maintain sufficient blood clotting, most do not consume enough to meet bone health needs. Additionally, compromised intestinal absorption and certain medications like antibiotics, cholesterol lowering medications and laxatives may also contribute to K2 deficiency. When K2 levels are insufficient, calcium is distributed to other tissues instead of bone.⁸

Bone Health

Building and maintaining healthy bones requires vitamin K as well as other key nutrients to properly incorporate calcium to

the bone matrix. A 2005 study from northern Finland found that those with greater levels of vitamin K-carboxylated osteocalcin had stronger bones than those with lower levels of the protein. A Japanese study found superior bone health among women who were frequent MK-7-rich natto eaters than those who were not.⁹ Another randomized study which split 172 women into a vitamin K2 group, a vitamin D3 group, a vitamin K2 and D3 group, and a placebo group for two years found that the combination of vitamin D3 and K2 had the most benefits for supporting bone health among the groups.¹⁰

Immune Modulation

New evidence also suggests vitamin K plays a central role in balancing immune health. Recent studies have shown that both vitamins D and K impart immune-modulating effects. In the Framingham Offspring Study, one of the longest-standing studies on generational health, higher serum levels of vitamins D and K were associated with stronger immune function.^{11,12} In a 2011 study, vitamin K was also found to suppress various markers of the immune system.¹³

Recommended Dose

Adults: Take one drop per day. Can be mixed with beverage of your choice.

Medicinal Ingredients (per drop)

Vitamin D3 (Cholecalciferol).....25 mcg
 Vitamin K2 (Menaquinone 7) (MenaQ7®PRO) ..10 mcg

Non-Medicinal Ingredients

Medium chain triglycerides.

Risk Information

Consult a health care practitioner prior to use if you are taking blood thinners.

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