

# Vitamin K2

All-Natural Source



## DESCRIPTION

Vitamin K2 supplies a significant amount of biologically active vitamin K in the form of menaquinone-7 (MK-7).

## FUNCTIONS

Vitamin K was originally discovered as the anti-hemorrhagic factor, but it now encompasses a variety of physiological processes. The major source of vitamin K in most diets is phyloquinone (vitamin K1), which is present in green leafy vegetables such as spinach, broccoli, and kale. Vitamin K2 is present in small amounts in fermented foods, milk products, cheese, and meat, and is synthesized by various human gut microbiota. It is well documented that the Western population obtains insufficient vitamin K from their regular diets, possibly related to poor absorption from these foods.

Beyond blood clotting, the role of vitamin K in osteoporosis and cardiovascular disease is related to calcium utilization. Scientific studies have revealed that vitamin K plays a crucial role in building and maintaining bone health, which is influenced by osteoblasts, osteoclasts, hormones, cytokines and nutritional factors, including vitamin K intake. Inadequate calcium metabolism can result in cardiovascular and bone health problems. The deposition of calcium into arteries is an organized, regulated process similar to bone formation that occurs when other factors are present. Proteins like osteocalcin and matrix Gla protein, which are actively involved in the transport of calcium out of vessel walls, are suspected to have key roles in coronary calcium deposition. The greater the amount of calcification, the greater the likelihood one may develop suboptimal coronary health.

Additionally, research shows under carboxylated osteocalcin and low vitamin K intakes are risk factors for fractures in women. Vitamin K is needed to activate osteocalcin (carboxylated), which functions to take calcium out of the vessels and deposit them into the bones. Therefore, consuming sufficient amounts of dietary calcium is not enough for bone and cardiovascular health; the body needs to distribute and utilize the calcium properly with aid of Vitamin K.

Vitamin K2 (as MK-7) is more bioactive and has proven more effective than vitamin K1 and other menaquinones. MK-7 showed eight times the half-life of vitamin K1 in a 24-hour serum concentration level after 1 mg of each form was ingested. Thus, MK-7 can be administered in low dosages only once a day, typically 1/1000 that of a MK-4 dose. Furthermore, the study showed better utilization and improved osteocalcin carboxylation for MK-7 after 6 weeks. Numerous studies reveal long-chain menaquinones, such as MK-7 are more effective in supporting arterial health than vitamin K1 menaquinones.

Vitamin K2 as menaquinone-7 (MK-7) is derived from geraniol and farnesol. Geraniol is the primary part of rose oil, palmarosa oil, and citronella oil. Farnesol is present in many essential oils such as citronella, lemon grass, rose, and musk. This natural form of MK-7 has been extensively tested for molecular identity and bioequivalence when compared to MK-7 from fermented soybeans (natto). It is the all-trans form, thus providing a significantly higher purity of the only biologically active form.

## INDICATIONS

Vitamin K2 may be a useful dietary supplement for individuals who wish to increase their intake of Vitamin K and support bone and cardiovascular health.

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.

## FORMULA (WW #10225)

### 1 Vegetarian Capsule Contains:

MenaquinGold™ .....45 mcg  
(as menaquinone-7)

Other Ingredients: Capsules (cellulose, water), cellulose, magnesium stearate, and silica. Contains soy.

Vitamin K2 (menaquinone) is an all-natural form of Vitamin K that is much more biologically active than the more common form, Vitamin K1 (phyloquinone).

This product contains NO salt, dairy, wheat, gluten, soy, preservatives, artificial colors or flavors.

## SUGGESTED USE

Adults take 1 vegetarian capsule daily at mealtime, or as directed by a healthcare professional.

## SIDE EFFECTS

No adverse effects have been reported.

## STORAGE

Store in a cool, dry place, away from direct light. Keep out of reach of children.

## REFERENCES

- Forli L, Bollerslev J, Simonsen S, Isaksen GA, Kvamsdal KE, Godang K, Gadeholt G, Pripp AH, Bjortuft O. Dietary vitamin K2 supplement improves bone status after lung and heart transplantation. *Transplantation*. 2010 Feb 27;89(4):458-64
- Prabhoo R, Prabhoo TR. Vitamin K2: a novel therapy for osteoporosis. *J Indian Med Assoc*. 2010 Apr;108(4):253-4, 256-8.
- Lanham-New SA. Importance of calcium, vitamin D and vitamin K for osteoporosis prevention and treatment. *Proc Nutr Soc*. 2008 May;67(2):163-76.
- Booth SL. Roles for vitamin K beyond coagulation. *Annu Rev Nutr*. 2009;29:89-110. Review.
- Gijsbers BL, Jie KS, Vermeer C. Effect of food composition on vitamin K absorption in human volunteers. *Br J Nutr*. 1996 Aug;76(2):223-9.
- Schurgers LJ, Teunissen KJ, Hamulyák K, Knapen MH, Vik H, Vermeer C. Vitamin K-containing dietary supplements: comparison of synthetic vitamin K1 and natto-derived menaquinone-7. *Blood*. 2007 Apr 15;109(8):3279-83.
- van Summeren MJ, Braam LA, Lilien MR, Schurgers LJ, Kuis W, Vermeer C. The effect of menaquinone-7 (vitamin K2) supplementation on osteocalcin carboxylation in healthy prepubertal children. *Br J Nutr*. 2009 Oct;102(8):1171-8.
- Rennenberg RJ, de Leeuw PW, Kessels AG, Schurgers LJ, Vermeer C, van Engelshoven JM, Kemerink GJ, Kroon AA. Calcium scores and matrix Gla protein levels: association with vitamin K status. *Eur J Clin Invest*. 2010 Apr;40(4):344-9.
- Yamauchi M, Yamaguchi T, Nawata K, Takaoka S, Sugimoto T. Relationships between undercarboxylated osteocalcin and vitamin K intakes, bone turnover, and bone mineral density in healthy women. *Clin Nutr*. 2010 Dec;29(6):761-5.
- Gast GC, de Roos NM, Sluijs I, Bots ML, Beulens JW, Geleijnse JM, Witteman JC, Grobbee DE, Peeters PH, van der Schouw YT. A high menaquinone intake reduces the Vitamin K2 Menaquinone-73 incidence of coronary heart disease. *Nutr Metab Cardiovasc Dis*. 2009
- Kidd PM. Vitamins D and K as pleiotropic nutrients: clinical importance to the skeletal and cardiovascular systems and preliminary evidence for synergy. *Altern Med Rev*. 2010 Sep;15(3):199-222.

Manufactured For:

**Fireside Pharmacy**

73847 Hwy III

Palm Desert, CA 92260

760.346.1113