

K2VITAL
VITAMIN K2 MK-7

CALCIUM BENEFITS
Vitamin K2 Fact Sheet

Vitamin K2
– the key for optimal balance of Calcium in the body

Calcium is carefully regulated in the body by the means of certain proteins. Vitamin K2 is responsible for activation of these proteins; osteocalcin which ties calcium to the bone structure and matrix Gla-protein (MGP) which ties up calcium in the blood vessels. The Western population is prone to be deficient in vitamin K2. The vitamin should thus be taken daily to support optimal use of calcium in bone building processes and to prevent calcification of vessels.

The active compound in K2VITAL® is vitamin K2 in its natural form, the most efficient form of vitamin K; MK-7. Vitamin K2 is tested in numerous clinical trials and K2VITAL® is documented as safe.

Vitamin K

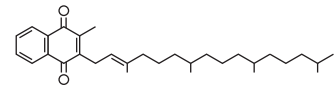
Vitamin K belongs to the fat soluble vitamins (Vitamins A, D, E, K). Vitamin K is an important group of micronutrients essential for the functioning of several proteins (co-factor) involved in a.o. blood clotting, bone metabolism and inhibition of calcified vessels.

The importance of choosing the right vitamin K2

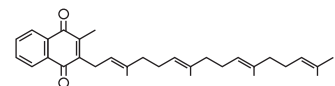
The vitamin K group consists of vitamin K1 and the vitamin K2 family. The differences among the various K vitamins lie in the side chains, properties of which influence intestinal uptake and sites of action in the body. Vitamin K1 is transported to the liver and is primarily involved in blood clotting, while the prime function of Vitamin K2 is the activation of the bone protein osteocalcin and the Matrix Gla Protein (MGP) located in cartilage and vascular smooth muscle cells. Osteocalcin is responsible for incorporation of calcium into bones whereas MGP binds calcium and prevents deposits of calcium in the vessel wall.

Figure 1: Commercial forms of vitamin K

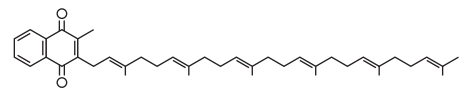
Vitamin K1 (phylloquinone)



Vitamin K2 = Menaquinone-4



Vitamin K2 = Menaquinone-7



Menaquinone-7 (MK-7) has the best bioavailability of all K-vitamins and has a serum half life of up to 72 hours, compared to MK-4 and vitamin K1 with only 1-2 hour half lives. For maximum effect, MK-7 is thus the optimal source of vitamin K.

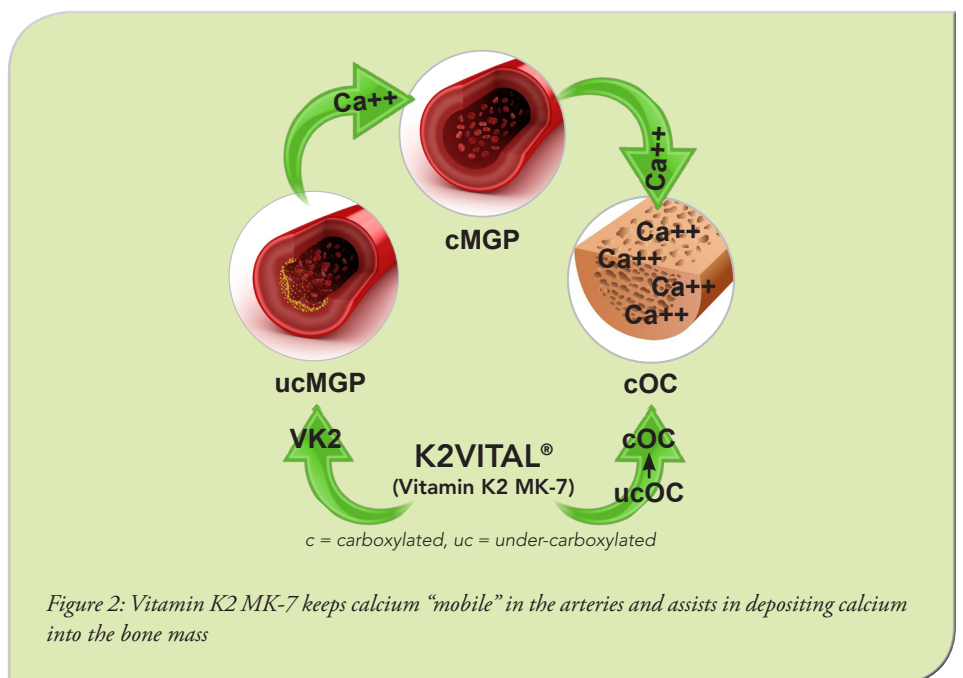


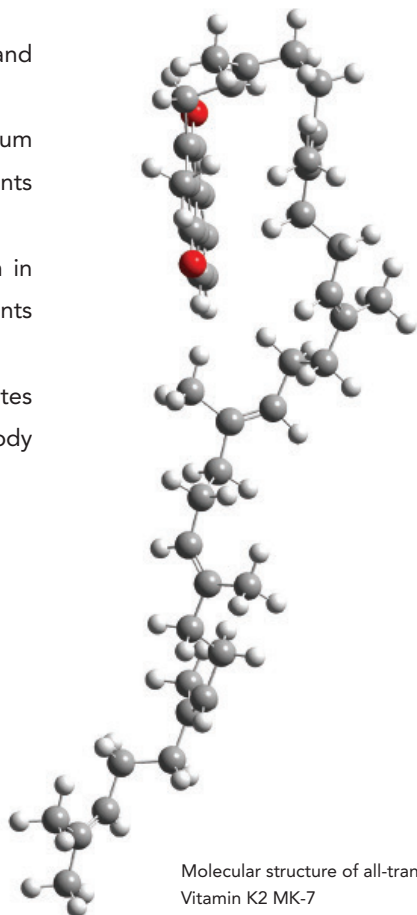
Figure 2: Vitamin K2 MK-7 keeps calcium “mobile” in the arteries and assists in depositing calcium into the bone mass

Vitamin K2 MK-7

– the vitamin with multiple effects

Clinical importance to the skeletal and cardiovascular systems.

- Activates proteins which ties calcium to the bone structure and prevents thereby osteoporosis
- Activates proteins tying up calcium in the blood vessels and thereby prevents arterial calcification
- New research and studies indicates several more applications in the body (i.e. inhibits inflammation)



Molecular structure of all-trans Vitamin K2 MK-7

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ABOUT KAPPA BIOSCIENCE

Kappa Bioscience AS, a Norwegian entity, is the innovative leader and first mover with its patent protected high purity, all-trans vitamin K2 as menaquinone-7 (MK-7). Driven by our core vision to make Vitamin K2 MK-7 available for everyone, we own and manage the whole value chain - from production to sales. Kappa Bioscience has substantial resources and knowledge about vitamins and vitamin K2 in particular. We deliver our vitamin K2, branded as K2VITAL® on various commercially suitable carriers, such as MCC, MCT & microencapsulated powder.

K2VITAL® - The Vitamin of Tomorrow

K2VITAL® is currently the only product based on pure MK-7 to facilitate the optimal bioavailability and effect in non-activated GLA proteins such as osteocalcin and MGP.

Application Field	K2VITAL® MCC Microcrystalline cellulose powder	K2VITAL® MCT OIL Medium chain triglyceride oil	K2VITAL® DELTA Microencapsulated powder
Food based (low fat basis)			✓
Food based (adequate fat basis)		✓	
Beverages (no fat base)*			✓
Beverages (with fat base, eg Dairy)		✓	
Powdered Beverage Formulation			✓
Compressed Tablets (without minerals)	✓		
Compressed Tablets (with minerals)			✓
Soft Gel Capsules		✓	
Hard Gel Capsules	✓		✓
Dietary Powder Formulation			✓

*Stability tests are ongoing

Country of origin: USA & Europe

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References: For Appendix information, please go to: www.kappabio.com/references

