QUEST

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QUEST K2 180µg

Bioactive all-trans vitamin K2 (MK-7) for bone and heart health.

Nutritional Information

One capsule provides:

Vitamin K2 (MK-7)	180 µg
(K2VITAL™ all trans menaquinone-7)	

Take one capsule daily with food. Swallow with water.

SUMMARY

- 180mcg of Vitamin K2 per capsule in Menaquinone-7 (MK-7) form.
- Micro-encapsulated all-trans Menaquinone-7.
- The most stable and biologically active form of K2.
- Helps balance calcium in the body.
- Improves bone strength & density.
- Maintains cardiovascular health.

VITAMIN K OVERVIEW

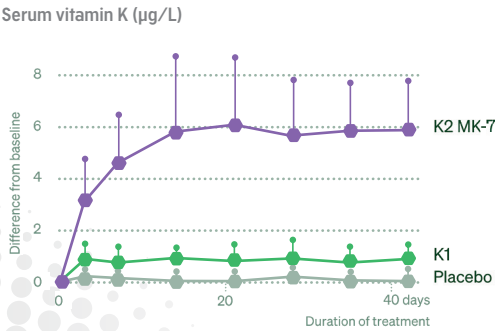
There are two primary forms of vitamin K. Vitamin K1 (phylloquinone) and Vitamin K2 (menaquinones). Vitamin K2 MK-7 is the most bioavailable and active form of Vitamin K[1,2], and yet only 10-25% of total dietary vitamin K intake is in Vitamin K2 form.[3,4]

Different forms of vitamin K for different actions

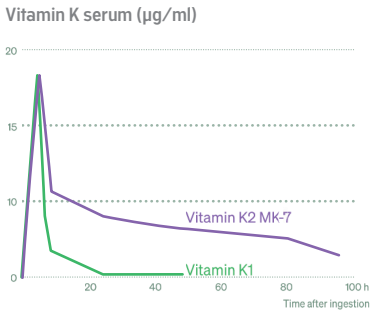
	Vitamin K1	Vitamin K2 MK-7
Source	Green leafy vegetables	Fermented foods
Primary role	• Activation of coagulation factors in the liver • Activation of bone building proteins (low efficacy)	• Activation of coagulation factors in the liver and also outside the liver, including protein S which has anti-clotting effects • Maintaining calcium balance • Maintaining elastic fibres elasticity • Immunomodulation • Activation of bone building proteins (high efficacy)
Main localization	**Hepatic:** the liver has priority in the utilization of K vitamins. Under inflammatory situation the demand increases in and outside the liver	**Extrahepatic:** transport to extrahepatic tissues
Half-life	**1.5 hrs**	**72 hrs**

Vitamin K1 mainly supports blood coagulation, while Vitamin K2 (MK-7) promotes bone and heart health, and especially acts on calcium metabolism in the body. It remains biologically active in the body longer than other forms of vitamin K with a half-life of 72 hours.

Vitamin K1 v K2 uptake & bioavailability



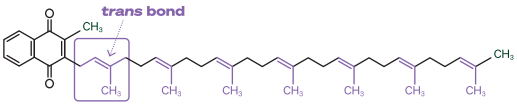
Vitamin K1 v K2 half-life



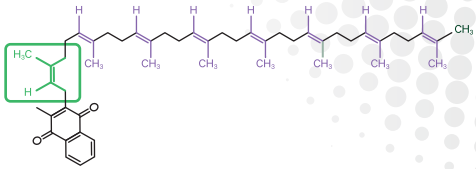
VITAMIN K2 MK-7 ALL TRANS ISOMER – K2VITAL®

Quest K2 uses a special form of Vitamin K2 (MK-7) called **K2VITAL®** containing **all-trans isomers**. Trans MK-7 Vitamin K2 is the key bioactive isomer of Vitamin K2 which activates Vitamin K-dependent proteins in the body, conferring the greatest benefits.

BIO-ACTIVE
Trans isomer of Vitamin K2 (MK-7)
Contained in Quest K2



LESS ACTIVE
Cis isomer of Vitamin K2 (MK-7)



K2VITAL® has been specifically researched in >10 peer-reviewed journals and scientific papers and contains 99.7% all trans isomer of Vitamin K2. It complies with USP monograph and EU Novel Food regulations, and is manufactured in Norway under the highest certifications.

VITAMIN K2 & BONE HEALTH

Vitamin K2 activates osteocalcin in the body, and plays a pivotal role in bone health by incorporating calcium into the bone. Vitamin D and Vitamin K2 function together to regulate calcium metabolism from the absorption to placement of the mineral in the bone.[5]

Role of Vitamin K2 in bone health

Vitamin D3 induces the production of osteocalcin in osteoblasts

Vitamin K2 is necessary for activation of osteocalcin

Active osteocalcin binds and directs calcium

KEY:
ucOC uncarboxylated inactive osteocalcin • **cOC** carboxylated active osteocalcin • **Glu** glutamate • **Gla** gamma-carbxyglutamate

High levels of carboxylated active osteocalcin are optimal to ensuring bone density and supporting the remodelling of bone tissue. The role of Vitamin K2 in bone health is associated with the activation of osteocalcin in the body, thereby converting uncarboxylated inactive osteocalcin to carboxylated active osteocalcin.

A 5 year observational study in men and women showed that low levels of carboxylated active osteocalcin in the body (which is activated by Vitamin K2) was closely indicated with higher occurrence of fractures in men and women.[6]

A double-blinded, randomized, placebo controlled study showed that supplementation in 244 postmenopausal women of 180mcg Vitamin K2 (MK-7) daily significantly increased levels of carboxylated active osteocalcin after one year, and also decreased uncarboxylated inactive osteocalcin in the same period. The same study also showed significant benefits in changes to bone mineral density over 3 years and supports the use of 180mcg Vitamin K2 (MK-7) daily to protect postmenopausal women from bone loss.[7]

Additional analysis of 10 studies with a total of 1,346 participants with supplementation study periods of between 6 months and 4 years have further supported the combination of calcium with vitamin K2 supplementation to protect bone mineral density and reduce levels of uncarboxylated inactive osteocalcin.[8]

VITAMIN K2 & VITAMIN D3

The importance of pairing Vitamin D3 and Vitamin K2 is due to the synergistic effect of the two vitamins.

Vitamin D3 is necessary for calcium absorption into the blood stream and the synthesis of osteocalcin proteins. Vitamin K2 activates osteocalcin, creating carboxylated active osteocalcin which binds with calcium in the body to build bone density.

An analysis of 8 studies with a total of 971 participants with supplementation study periods of between 6 months and 3 years showed that a combination of vitamins K + D can significantly increase the total bone mineral density and significantly decrease uncarboxylated inactive osteocalcin in the body.[9]

Vitamin D3 is also necessary for the synthesis of matrix Gla protein which is also activated by vitamin K2, creating carboxylated matrix Gla-protein which binds with calcium and reduces calcium in the arteries of the body thereby supporting hearth heath.

VITAMIN K2 & HEART HEALTH

Vitamin K2 activates matrix Gla protein in the body, and plays a pivotal role in heart health by reducing arterial calcification. Micro-calcifications in the body is associated with atherosclerosis in the coronary arteries.

Role of Vitamin K2 in heart health

KEY:
ucMGP uncarboxylated inactive MGP (matrix Gla protein) • **cMGP** carboxylated active MGP (matrix Gla protein)

The Rotterdam study with 4,807 male and female participants >55 years observed that a dietary intake of Vitamin K2 supports cardiovascular health and the prevention of coronary heart diseases. Vitamin K2 intake was inversely related to incidence of coronary heart disease, severe aortic calcification and cardiovascular disease.[10]

Additional studies have also show that Vitamin D3 and K2 supplementation can slow down the progression of coronary plaque, including in patients on statins[11,12], including in patients on statins.

Several studies have also shows that Vitamin K2 supplementation can have a beneficial impact in lowering the rate and progression of arterial stiffness progression.[13,14]

HEALTH NEEDS

BONES | HEART & CIRCULATION | EVERYDAY HEALTH & WELLBEING

SCIENTIFIC REFERENCES

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QUEST NUTRAPHARMA

Quest Vitamins Limited
Units 18-19, Three Elms Estate,
Bakers Lane, Hereford HR4 9PU, UK
T +44 198 125 1713 F +44 198 125 1715
E info.uk@qnutrapharma.com

Quest Vitamins Middle East FZE
Jebel Ali Free Zone, PO Box 17836
Dubai, United Arab Emirates
T +971 (0)4 886 2850 F +971 (0)4 886 2851
E info.me@qnutrapharma.com

QNutraPharma.com