MK-7 Select®

MOSS NUTRITION

HIGHLY BIOAVAILABLE VITAMIN K2 SUPPORT FOR BONE & VASCULAR HEALTH

Supplement Facts
Serving Size: 1 Capsule
Servings Per Container: 60

	Amount Per Serving	%Daily Value
Vitamin K2 (as Menaquinone-7)	160 mcg	133%

Other ingredients: Microcrystalline cellulose, hypromellose (capsule), vegetable stearic acid, vegetable stearate, silicon dioxide.
Does not contain gluten.

SUGGESTED USE: 1 CAPSULE PER DAY WITH FOOD, OR AS DIRECTED BY YOUR HEALTHCARE PROFESSIONAL.

WARNING: IF YOU ARE TAKING MEDICATION, HAVE A MEDICAL CONDITION OR AN UPCOMING MEDICAL PROCEDURE, OR ARE PREGNANT OR NURSING CONSULT A PHYSICIAN BEFORE USING. IF ADVERSE REACTIONS OCCUR, DISCONTINUE USE & CONSULT YOUR HEALTH CARE PRACTITIONER.

- Vitamin K2 provided as menaquinone-7 for optimized bioactivity.*
- Essential nutrient for normal blood clotting and calcium transport.*
- Helps support healthy bone density & healthy vascular and soft tissue structure/function.*
- Clinically relevant 160 mcg potency.*

MK-7 Select® contains 160 mcg of pure vitamin K2 in the well-absorbed *menaquinone-7* form. Vitamin K helps to support healthy blood clotting, healthy bones and a healthy cardiovascular system. Vitamins K and D work together to help prevent vessel mineralization by serving to direct calcium deposition into bones and away from blood vessel walls.

VITAMIN K is a fat-soluble essential nutrient known to exist in two primary forms: vitamin K1 (*phylloquinone*) and vitamin K2 (a small family of compounds known as *menaquinones*). Both vitamins K1 and K2 participate in similar functions, such as helping to support normal bone formation and preserve bone strength, but the K2 form specifically has been researched as a significant regulator of tissue calcification, making it especially important for the maintenance of arterial elasticity and vascular health.

Vitamin K activates various vitamin K-dependent proteins involved in a number of cellular functions, notably the regulation of soft tissue calcification. By 2012, seventeen vitamin-K dependent proteins had been identified including *osteocalcin* and Matrix GLa protein (MGP). Osteocalcin is a hormone produced by osteoblasts, or bone-building cells located within bone tissue. Osteocalcin is best known for helping to fix calcium into the mineral matrix of bones and teeth, but it also plays a role in regulating insulin secretion. Matrix GLa protein is primarily found in blood vessel walls and cartilage, but also occurs in other soft tissues such as the brain, lung, kidney, skin and salivary glands. MGP, which helps prevent the deposition of calcium into soft tissues, is required for the prevention of vascular calcification.

Other vitamin K-dependent proteins include blood coagulation factors such as *prothrombin*, anticoagulant proteins, and Growth Arrest Specific-6 protein which is believed to regulate cell gowth and apoptosis. Vitamin K2 serves as an enzyme cofactor for the carboxylation of these vitamin K-dependent proteins, and also is involved in transcription regulation activities such as increasing the transcription of collagen type I by osteoblasts, and inhibiting adipogenesis (i.e. the production of new fat cells).

MENAQUINONE-7 (MK-7) is widely considered the most readily absorbed and bioactive form of vitamin K. MK-7 is present in some fermented foods, notably natto, but it is not found in common dietary sources. Studies suggest that

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* 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.

MK-7 can be transported directly to tissues and has a longer half-life than either vitamin K1 or *menaquinone 4* (MK-4), another researched form of vitamin K2. While both vitamin K1 and MK-4 have been suggested to improve bone health when given in high doses, much smaller amounts of MK-7 are needed to provide similar benefits.

In a double blind, randomized controlled trial of 120 women aged 20 to 69 years old, osteocalcin carboxylation was significantly increased in subjects taking just 100 mcg of MK-7 per day. In another study published in the journal *Osteoporosis International*, 244 healthy postmenopausal women received MK-7 (180 mcg per day) or placebo for three years. Supplementation with MK-7 was found to significantly improve vitamin K status, and to significantly decrease age-related decline in bone mineral density and bone strength, compared to placebo. Specifically, bone mineral density of the lumbar spine and femoral neck remained significantly higher in MK-7 supplemented subjects, in whom a significantly reduced loss in vertebral height at the mid-site of the vertebrae in the lower thoracic region also was observed.

In addition to benefitting bone health, MK-7 supplementation has been found to help improve arterial stiffness in post-menopausal women. A double-blind, placebo controlled trial conducted in healthy postmenopausal women found that MK-7 (180 mcg per day) helped to significantly increase circulating levels of carboxylated Matrix GLa Protein and to improve several markers of endothelial stiffness, such as compliance and distensibility, after three years. In this study, the greatest improvements were observed in those subjects exhibiting the highest levels of arterial stiffness at outset, suggesting a need-based benefit to MK-7 supplementation.

In the past, vitamin K supplements were roundly discouraged for use in people taking blood thinning medications, due to the well established role of vitamin K in healthy blood clotting. However, more recent research suggests that low dose vitamin K may not impair coagulation control in such patients and, according to one study, may even have a beneficial, stabilizing effect. Larger high quality trials are needed to further elucidate this mechanism. Patients who take blood-thinning medications should speak with their physician about whether or not taking a low dose vitamin K2 supplement such as **MK-7 Select®** would be right for them.

Like all vitamin K supplements, **MK-7 Select®** is fat soluble and should be taken with a fat-containing meal to help optimize absorption.

REFERENCES

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www.mossnutrition.com
Moss Nutrition
380 Russell Street
Hadley, MA 01035
800-851-5444