

Vitamin K Intake Important in the Prevention of Osteoporosis

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A recent study provides additional evidence that vitamin K intake is an important determinant of bone mineral density (BMD) and hip-fracture risk. In a study conducted at the Jean Meyer U.S. Department of Agriculture (USDA) Human Nutrition Research Center, researchers assessed vitamin K intake in 1,479 women and 1,112 men (29-86 years of age) who had participated in the Framingham Heart Study. The results showed that women in the lowest quartile of vitamin K intake had significantly lower hip and spine BMD than women in the highest quartile. No association between vitamin K intake and BMD was noted in men, however. Researchers concluded that the results were consistent with previous reports that low dietary vitamin K intake is associated with an increased risk of hip fracture in women.

Vitamin K is required for the synthesis of osteocalcin, an important protein that forms part of the bone matrix. A lack of osteocalcin has been shown to weaken bone and predispose individuals to osteoporosis and bone fractures. Consequently, a biochemical basis exists to explain how suboptimal intake of vitamin K can predispose an individual to the development of osteoporosis and related fractures.

In one study of 71 postmenopausal women, participants with reduced BMD showed lower serum levels of vitamin K than did those with normal bone density. Similar results have been seen in other studies. A recent report from the Nurses' Health Study, which involved 12,700 participants, found that higher dietary intake of vitamin K was associated with a significantly reduced risk of hip fracture.

The official U.S. recommended daily allowance (RDA) of vitamin K for adult women is 75 micrograms (mcg); however, studies now suggest that an intake in the range of 110 mcg may be required to help reduce risk of osteoporosis. The current RDA for adult men is 120 mcg.

Green, leafy vegetables, including kale; turnips; spinach; broccoli; lettuce; and cabbage, are good sources of vitamin K, as is green tea. Other food items, such as oats; green peas; whole wheat bread; green beans; watercress; and asparagus, also contain respectful levels. Additionally vitamin K is synthesized by the bacteria in the large intestine (gut flora), and represents a significant contribution to an individual's vitamin K nutritional status.

Vitamin K is most recognized for its participation in blood clotting. In fact, the blood-thinning effect of warfarin (coumadin) works by antagonizing the effects of vitamin K. Conversely, vitamin K blocks the action of these blood-thinners - a fact to be considered in patients using these medications. (This requires monitoring of the INR.)

In summary, a number of recent investigations implicate suboptimal intake or serum levels of vitamin K in the development of osteoporosis. In addition to its role in blood-clotting (pro-coagulant), vitamin K is less appreciated for its vital role in the synthesis of osteocalcin, an important bone protein. Health practitioners should encourage patients to derive adequate amounts of vitamin K from food sources and determine if supplementation may be of further value

on a case-by case basis, factoring in whether or not the patient is taking the blood-thinner warfarin, which is a potential contraindication to supplementation.

Resources

American Journal Of Clinical Nutrition 2003;77(2):512-516.

NNFA Supplement - Mon, March 31, 2003.

Consumerslab.com (vitamin K).

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Please take time to listen to Dr. Meschino's informative interviews at www.chiroweb.com/audio/meschino. The titles of the latest interviews are: "Selenium and its Influence on Cancer"; "Benefits and Clinical Application of Alternative Medicine and Acupuncture"; and "Research and Strategies Related to Eye Health."

MAY 2003