

## **What's Hip? Study Shows Promise in Reducing Hip Fracture Risk.**

*The incidence of hip fractures in seniors has been climbing dramatically. Evidence suggests potential in reducing the risk.*

It is well-known that vitamin K is essential to normal blood clotting in humans, but that may not be its only important role in the body. Increasingly, researchers are showing it is also important to bone health – and may reduce the risk of hip fractures.

In a study published in May 2000 in the *American Journal of Clinical Nutrition*, Booth and colleagues in the Boston area found an important association between vitamin K intake and incidence of hip fractures among 888 senior men and women who were participants in the Framingham Heart Study between 1988 and 1995.

In this group whose average age was 75 years, the researchers found significantly more hip fractures had occurred by 1995 in the group of men and women who reported the lowest daily intake of vitamin K (56 micrograms average), than in the group that reported the highest level of intake of the vitamin (254 micrograms average). 36% of the total study participants who had experienced hip fractures fell into the low vitamin K intake group whereas only 16% of those with hip fractures fell into the high vitamin K intake category.

The *risk* of hip fracture decreased as vitamin K consumption increased suggesting a protective effect of vitamin K in helping to prevent hip fractures. Low vitamin K intake was associated with higher incidence of actual hip fractures in the senior men and women involved in the study.

### **How Did They Measure Vitamin K Intake?**

The participants' diets were assessed through a food frequency questionnaire that they completed about their usual intake of certain foods, beverages and supplements over the previous year. The questionnaires were then analyzed to estimate average vitamin K intake.

The researchers indicated that the questionnaires overestimated the *actual* intake of vitamin K since individuals typically report eating more fruits and vegetables than they actually do. However, while the actual amounts cannot be used for making dietary recommendations for vitamin K, they can be used in assessing risk of certain health outcomes like hip fractures in this study by ranking vitamin K intake into a range of 4 groups from high to low.

## **How is Vitamin K Related to Hip Fractures?**

At least 2 bone proteins are dependent on vitamin K. Researchers, however, are still unclear on the details of how vitamin K affects the growth or maintenance of healthy bones in humans. This research, along with some others, are showing a clear relationship between vitamin K and certain bone-related outcomes, but how it all works is yet to be discovered.

## **What Do We Know About Vitamin K?**

Vitamin K is a fat-soluble vitamin found in a variety of fruits and vegetables and also synthesized by bacteria in the human intestine. It is essential for blood clotting and without vitamin K, an injured person could bleed to death.

The Recommended Daily Allowance for Vitamin K is 65 micrograms for adult women and 80 micrograms for adult men that can easily be met through a diet rich in green vegetables and moderate in fat.

Vitamin K turns over rapidly in the body so deficiency can be possible. Individuals taking antibiotics can be at risk for deficiency since antibiotics can destroy the intestinal bacteria that make the vitamin. Infants are susceptible to vitamin K deficiency due to their immature intestine and lack of the nutrient if they are breastfed. Therefore, a vitamin K injection to newborns is common.

There is no documented toxicity related to vitamin K, although it may hinder the action of blood thinning medications like Coumadin. Usually health care providers and dietitians recommend keeping vitamin K-rich foods consistent in the diet rather than eliminating them if an individual is on a blood thinner. It is always recommended to consult a health care professional about dietary changes in respect to vitamin K if an individual is taking prescription blood thinners to avoid any unwanted, adverse effects.

## **Food Sources of Vitamin K.**

Dark green leafy vegetables contain the highest amounts of vitamin K. For example, 1 cup steamed broccoli or about ½ cup cooked spinach contain 4-5 times the RDA for Vitamin K. Brussel sprouts, kale, asparagus, collard greens and lettuce are also rich sources of vitamin K. Certain oils like soybean oil and olive oil, as well as liver and egg yolks are good sources of the vitamin. Herbal and green teas also contain vitamin K.

Healthy intestinal bacteria synthesize the majority of the vitamin K the body needs, but food sources of vitamin K also provide a host of other nutrients and phytochemicals that may benefit overall health and wellness.

## **Implications of this Study: Vitamin K and Bone Health.**

The findings from this research are suggestive, though not conclusive, regarding the relationship of vitamin K intake and hip fractures. The researchers concluded that individuals consuming low amounts of vitamin K have an increased risk of

hip fractures and documented a higher actual incidence of hip fractures in the study group reporting low intake when compared to high intake of the vitamin.

This research, along with other recent studies, supports a role of vitamin K in slowing bone loss in senior adults, although the exact mechanisms are still largely unknown. Further research will continue to uncover the exact role this important vitamin has to maintaining healthy bones.

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