

Effect of vitamin K supplementation on bone loss in elderly men and women.

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Abstract

CONTEXT: Vitamin K has been implicated in bone health, primarily in observational studies. However, little is known about the role of phylloquinone supplementation on prevention of bone loss in men and women.

OBJECTIVE: The objective of this study was to determine the effect of 3-yr phylloquinone supplementation on change in bone mineral density (BMD) of the femoral neck bone in older men and women who were calcium and vitamin D replete. **DESIGN, PARTICIPANTS, AND INTERVENTION:** In this 3-yr, double-blind, controlled trial, 452 men and women (60-80 yr) were randomized equally to receive a multivitamin that contained either 500 mug/d or no phylloquinone plus a daily calcium (600 mg elemental calcium) and vitamin D (400 IU) supplement.

MAIN OUTCOME MEASURES: Measurements of the femoral neck, spine (L2-L4), and total-body BMD, bone turnover, and vitamins K and D status were measured every 6-12 months. Intent-to-treat analysis was used to compare change in measures in 401 participants who completed the trial.

RESULTS: There were no differences in changes in BMD measurements at any of the anatomical sites measured between the two groups. The group that received the phylloquinone supplement had significantly higher phylloquinone and significantly lower percent undercarboxylated osteocalcin concentrations compared with the group that did not receive phylloquinone. No other biochemical measures differed between the two groups.

CONCLUSIONS: Phylloquinone supplementation in a dose attainable in the diet does not confer any additional benefit for bone health at the spine or hip when taken with recommended amounts of calcium and vitamin D.

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