

Abstract

Nutr Res. 2009 Apr;29(4):221-8.

High-dose vitamin K supplementation reduces fracture incidence in postmenopausal women: a review of the literature.

Iwamoto J, Sato Y, Takeda T, Matsumoto H.

Institute for Integrated Sports Medicine, Keio University School of Medicine, Shinjuku-ku, Tokyo 160-8582, Japan

BACKGROUND: Although systematic review and meta-analysis of randomized controlled trials (RCTs) have concluded that vitamin K is effective in preventing fractures, the effect of vitamin K on the skeleton remains a matter of controversy.

OBJECTIVE: The objective of the present review of the literature was to evaluate the effect of vitamin K supplementation on the skeleton of postmenopausal women.

SEARCH CRITERIA: PubMed was used to search the reliable literature for RCTs by using the search terms "vitamin K(1) or vitamin K(2)," "bone," and "postmenopausal women" and the following inclusion criteria: approximately 50 or more subjects per group and study period of 2 years or longer. Seven RCTs met the inclusion criteria.

RESULTS: The results of these RCTs showed that vitamin K(1) and vitamin K(2) supplementation reduced serum undercarboxylated osteocalcin levels regardless of dose but that it had inconsistent effects on serum total osteocalcin levels and no effect on bone resorption. Despite the lack of a significant change or the occurrence of only a modest increase in bone mineral density, high-dose vitamin K(1) and vitamin K(2) supplementation improved indices of bone strength in the femoral neck and reduced the incidence of clinical fractures.

CONCLUSIONS: The review of the reliable literature confirmed the effect of vitamin K(1) and vitamin K(2) supplementation on the skeleton of postmenopausal women mediated by mechanisms other than bone mineral density and bone turnover.

PMID: 19410972