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Effects of vitamin K on calcium and bone metabolism.

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Abstract

The K vitamins, a group of naphthoquinones, are required for the carboxylation of a limited number of proteins including the bone matrix protein osteocalcin. Vitamin K1 (phylloquinone) and vitamin K2 (menaquinones), differ regarding food source (green vegetables and fermented products, respectively), bioavailability and intermediate metabolism. Epidemiological studies provide evidence for an association between a low vitamin K intake and an enhanced osteoporotic fracture risk. Doses of vitamin K1 up to 15 times the current recommended dietary allowance have successfully been used to reduce the percentage of undercarboxylated osteocalcin in the circulation. Studies demonstrating clear beneficial effects on bone health, however, are still lacking. In contrast, therapy with very high pharmacological doses of the vitamin K2 menatetrenone has impressively been used to prevent further bone mineral loss and fracture risk in osteoporotic patients.

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