

Abstract

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Effect of vitamin K on bone mineral density: a meta-analysis of randomized controlled trials.

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OBJECTIVE: A number of randomized controlled trials (RCTs) examining the role of vitamin K on bone mineral density (BMD) have yielded inconsistent results. We performed a meta-analysis of these trials to assess the effect of vitamin K on BMD.

METHODS: We searched MEDLINE, EMBASE and CENTRAL for relevant studies of RCTs examining the role of vitamin K on BMD. Data on participants, interventions, and outcomes were extracted and the quality of all included trials assessed. Primary outcomes for analysis were absolute changes in BMD (mg/cm²) at the lumbar spine and femoral neck. Relative changes (percentage change) in BMD at the lumbar spine were also assessed.

RESULTS: Vitamin K supplementation was shown to be efficacious in increasing BMD at the lumbar spine but not the femoral neck. The weighted mean difference (WMD) in BMD absolute change was 21.60 mg/cm² [95% confidence interval (CI) 3.63, 39.56] at the lumbar spine and 0.25 mg/cm² (95% CI -2.64, 3.14) at the femoral neck. The WMD in BMD relative change was 1.27% (95% CI 0.47, 2.06) at the lumbar spine and 0.17 (95% CI -0.21, 0.54) at the femoral neck. Subgroup analysis revealed that ethnic difference, gender, and vitamin K type were associated with variable effects on BMD at the lumbar spine.

CONCLUSION: The modest overall treatment effects for vitamin K on BMD observed in this review may be biased and should be interpreted with caution. Further studies are required to address factors relating to the observed effects of vitamin K on BMD.

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