



What Is the Evidence for Supplement Use for Healthy Bones?

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Osteoporotic fractures are common and devastating occurrences. The lifetime risk of hip fracture at age 50 is 17.5 percent for Caucasian women, and 6.0 percent for Caucasian men. Comparable figures for African-American men and women are 5.6 percent and 2.8 percent, respectively. Many lifestyle risk factors for osteoporosis have been identified, and generally speaking, their effects are additive. Low calcium and vitamin D intakes are established risk factors for osteoporosis, and low intakes of protein and vitamin K are under investigation as potential contributors to this disease.

Several lines of evidence describe the role of calcium and vitamin D in bone health. From calcium balance studies, we know that one can increase total body retention of calcium with increasing calcium intake up to 1,200 mg/d. Calcium and vitamin D supplement studies link supplement use to reduced rates of bone loss. More importantly, use of the combination of calcium and vitamin D supplements lowers hip and all non-vertebral fracture rates in older adults. Many patients require prescription therapy for osteoporosis. The anti-fracture efficacy of each of the currently approved treatments has been demonstrated in patients taking calcium and vitamin D supplements; it cannot be assumed that these treatments would have the same anti-fracture efficacy in calcium and/or vitamin D-deficient patients.

The National Academy of Sciences recommends 1,200 mg/d of calcium for men and women aged 51 and older, 400 IU/d of vitamin D for those aged 51-70, and 600 IU/d for men and women over age 70. There is a general consensus that vitamin D insufficiency is common in the elderly, particularly in the wintertime. However, there is not yet a consensus on the optimal level of 25-hydroxyvitamin D for bone health. Additional research is needed to solidify our understanding of the desired blood level of vitamin D and to identify the dose of oral vitamin D needed to reach that level. Fewer than 1 in 10 men and women over age 50 in the United States is currently meeting the calcium intake recommendations through their diets. This leaves a substantial calcium gap that needs to be filled by diet modification, food fortification, and supplements.

References:

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