Randomized controlled trial of calcium supplementation in healthy, nonosteoporotic, older men.


Department of Medicine, Faculty of Medical and Health Sciences, University of Auckland, Private Bag 92019, Auckland, New Zealand.

BACKGROUND: There is no consistent evidence, to our knowledge, that calcium supplementation affects bone mineral density (BMD) in men, despite male osteoporosis being a common clinical problem.

METHODS: To determine the effects of calcium supplementation (600 mg/d, 1200 mg/d, or placebo) on BMD in men, we conducted a double-blind, randomized controlled trial for a 2-year period at an academic clinical research center. A total of 323 healthy men at least 40 years old (mean age, 57 years) were recruited by newspaper advertisement. Complete follow-up was achieved in 96% of subjects.

RESULTS: The BMD increased at all sites in the group receiving calcium, 1200 mg/d, by 1% to 1.5% more than those receiving placebo. The results for the group receiving calcium, 600 mg/d, were not different from the placebo group at any BMD site. There was no interaction between the BMD treatment effect and either age or dietary calcium intake. There were dosage-related, sustained decreases in serum parathyroid hormone (P < .001), total alkaline phosphatase activity (P = .01), and procollagen type 1 N-terminal propeptide (P < .001) amounting to 25%, 8%, and 20%, respectively, in the group receiving calcium, 1200 mg/d, at 2 years. Tooth loss, constipation, and cramps were unaffected by calcium supplementation, falls tended to be less frequent in the group receiving calcium, 1200 mg/d, but vascular events tended to be more common in the groups receiving calcium vs the group receiving placebo.

CONCLUSION: Calcium, 1200 mg/d, has effects on BMD in men comparable with those found in postmenopausal women but a dosage of 600 mg/d is ineffective for treating BMD.

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