Menopause: Calcium Supplements

What We Know

› During menopause women begin to lose bone mineral density and develop structural changes in bone that increase bone fragility, which can cause osteopenia (i.e., reduced bone mineral density), osteoporosis (i.e., significantly reduced bone mineral density), and increased risk for fracture\(^\text{2,6,11}\)
› Calcium requirements for women change with age, and more calcium is required after menopause\(^\text{2,11}\)
   • A woman needs less dietary calcium during her 20s because bone cell formation and bone cell absorption rates are stable and peak bone mass is achieved\(^\text{2,11}\)
   • At menopause, dietary calcium requirements increase because bone resorption rates increase, but bone formation continues at the premenopausal rate\(^\text{3}\)
     – The menopausal decline in estrogen production reduces the body’s ability to utilize dietary calcium\(^\text{2}\)
     – Mobilization of calcium from bone occurs secondary to low dietary calcium or low physiologic calcium utilization, increasing bone fragility\(^\text{10}\)
     – Vitamin D deficiency can reduce calcium absorption at any age, but it is particularly important to maintain adequate levels of vitamin D after menopause\(^\text{5}\)
› The average diet after menopause does not provide an adequate amount of calcium.\(^\text{8}\)
   Calcium supplements—particularly supplements with added vitamin D—can reduce or halt bone loss before and after menopause. Although not as effective as other treatments for bone loss (e.g., bisphosphonates), daily supplementation with 1,000–1,500 mg of calcium plus vitamin D (CaD) is recommended to prevent bone loss\(^\text{2}\)
   • Although early-treatment is recommended, even women who have substantial bone loss or have had a previous fracture can benefit from CaD supplementation\(^\text{5,6,9}\)
     – A combination of dietary and supplemental calcium with adequate vitamin D reduces the incidence of spine, hip, and other fractures during and after menopause\(^\text{2,2}\)
› According to findings of the United States Preventive Services Task Force (USPSTF), daily CaD supplementation < 1,000 mg/400 IU has no net benefit for fracture prevention in community-dwelling postmenopausal women, and its use is not recommended. The USPSTF found insufficient evidence to support CaD supplementation ≥ 1,000 mg/400 IU for fracture prevention in this population\(^\text{2}\)
› Investigators have historically reported that supplementation with calcium and other micronutrients may reduce mortality secondary to cancer and cardiovascular disease (CVD). The findings of the recent Women’s Health Initiative Calcium-Vitamin D study support the possibility that CaD supplementation may reduce mortality in postmenopausal women\(^\text{6}\)
› Enriching milk with n-3 fatty acids may help to reduce the risk of both osteoporosis and CVD in postmenopausal women. In a study that compared the effects of semi-skimmed milk enriched with vitamins A and D to a skimmed milk enriched with eicosapentaenoic acid (EPA), docosahexaenoic acid (DHA), oleic acid and vitamins, the group that received the enriched milk had improvements in bone and metabolic biomarkers compared to the control group\(^\text{4}\)
In a study on postmenopausal Chinese women, researchers determined that supplementing with a high calcium (900 mg) milk powder was more effective than lower calcium milk powder, in maintaining bone mass in the greater trochanter area\(^1\).

Only 50\% of women who have osteoporosis or are at increased risk for osteoporosis satisfactorily adhere to a prescribed regimen for calcium supplementation\(^2\).

- Proposed strategies for improving adherence include the development of weekly or monthly supplementation dosage forms and a single-tablet formulation of CaD and improving patient education and support from clinicians for patients who are receiving supplementation\(^2\).

**What We Can Do**

- Learn about the benefit of calcium supplementation before, during, and after menopause so you can accurately assess your patients’ personal characteristics and health education needs; share this information with your colleagues.
- Educate your female patients regarding lifetime calcium requirements and encourage them to explore strategies for initiating and maintaining adequate calcium intake.
- Reinforce the prescribed treatment regimen for CaD supplements.
- Educate regarding the risks associated with bone loss as a strategy for improving adherence.
- Advise your patients to eat a well-rounded diet that includes a variety of fruits, vegetables, whole grains, and lean proteins. For more information, see the United States Department of Agriculture’s (USDA’s) food guidance system, MyPlate, at [http://www.choosemyplate.gov/](http://www.choosemyplate.gov/)
References


