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## Osteoporosis in Postmenopausal Women

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## Presenters

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### **Abstract**

**Background:** Osteoporosis is a skeletal system disease that causes bone fragility due to low bone mineral density (BMD). BMD decreases with age and lack of estrogen production. Thus, post-menopausal women are prone to osteoporosis and have an elevated risk of bone fractures. Non-pharmaceutical interventions have the potential to increase BMD and lower osteoporosis patients' risk for bone fractures.

**Objective:** To compare published evidence on the effects of vitamin D, calcium supplements, and performing weight-bearing exercises in increasing BMD and lowering the risk for bone fractures among post-menopausal women.

**Methods:** In accordance with PRISMA guidelines, we conducted a systematic search of Pubmed, Cochrane Library, and the National Center for Biotechnology Information for relevant published studies using the keywords "post-menopausal women," "osteoporosis," "bone mineral density," "calcium, and vitamin D supplements," and "weight-bearing exercises." We included peer-reviewed studies that had post-menopausal women as their targeted population, published in English-language from 2012-2022, had vitamin D and calcium supplements, and/or weight-bearing exercise interventions, as their measurable outcomes as increased BMD and/or decreased fracture.

**Results:** Fourteen articles were included in this review. Findings indicated weight-bearing exercises are effective in increasing BMD in post-menopausal women. There is inconclusive evidence on the effectiveness of calcium and vitamin D supplements increasing BMD in post-menopausal women.

Conclusion: The findings revealed that weight-bearing exercises are effective for postmenopausal women to increase their BMD and lower their risk for bone fractures. However, evidence on the effects of calcium and vitamin D supplements on BMD is contested.