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1: [J Clin Endocrinol Metab.](#) 2005 Jun;90(6):3528-33. Epub 2005 Mar 8.

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Effects of potassium alkali and calcium supplementation on bone turnover in postmenopausal women.

[Sakhae K](#), [Maalouf NM](#), [Abrams SA](#), [Pak CY](#).

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Potassium citrate may improve calcium balance by conferring an alkali load. Calcium supplementation slows postmenopausal bone loss by inhibiting PTH secretion. This study explores whether combined treatment with potassium citrate and calcium citrate is more effective than either agent alone in inhibiting bone loss. In a crossover study involving 18 postmenopausal women, the following treatments were compared: potassium citrate (4.3 g or 40 mmol/d), calcium citrate (800 mg or 20 mmol/d), combined treatment, and placebo. During the last 2 d of each 2-wk phase, serum and 24-h urine were collected for assessment of calcium metabolism, alkali load, and bone turnover markers. Compared with placebo, potassium citrate provided an alkali load and significantly decreased urinary calcium without changing serum PTH (sPTH) or bone turnover markers. Calcium citrate significantly increased absorbed calcium, marginally decreased sPTH, and significantly reduced bone resorption markers. Combined treatment retained key features of potassium citrate and calcium citrate. However, more alkali was delivered than with potassium citrate alone, and absorbed calcium did not differ from calcium citrate alone. Compared with placebo, combined treatment increased urinary calcium, marginally reduced sPTH, provided a clear alkali load, and reduced the bone resorption markers serum type I collagen C-telopeptide and urinary N-telopeptide by 20.4% ($P < 0.0001$) and 18.2% ($P = 0.005$), respectively. A significant trend was noted for the decrease in bone resorption markers as treatment changed from placebo to

potassium citrate to calcium citrate to combined treatment. In postmenopausal women, combined treatment with potassium citrate and calcium citrate inhibits bone resorption by providing an alkali load and increasing absorbed calcium.

Publication Types:

- [Clinical Trial](#)
- [Randomized Controlled Trial](#)

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