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## 2007 Amgen/ANZBMS Outstanding Abstract Award Recipient

**Winner:** A/Prof Richard Prince

**Abstract:**

**Calcium and vitamin D supplementation prevents hip bone loss in elderly ambulant Australian women**

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**Background:** There are few long-term studies comparing the effects of calcium alone and calcium plus vitamin D versus placebo on bone loss prevention and bone turnover in elderly people.

**Aim:** In a 5-year randomised controlled double-blind trial, we evaluated the benefits of calcium supplementation with or without vitamin D on hip BMD and bone turnover markers in 120 elderly postmenopausal women aged  $74.8 \pm 2.6$  years at baseline.

**Methods:** Participants were randomised to receive either 1000 IU vitamin D and 1200 mg calcium (CaD), 1200 mg calcium and placebo vitamin D (Ca) or both placebos (placebo) per day over the 5 years. Primary endpoints were effects on total hip BMD and bone turnover makers.

**Results:** Both Ca and CaD groups had significantly less loss in total hip BMD than the placebo group at 1 year (-0.04% and -0.17% vs -1.27%,  $P < 0.05$ ) and the effect was maintained in the CaD group at 3 and 5 years. Compared to the placebo group, both Ca and CaD groups had significantly lower plasma total alkaline phosphatase concentrations (6.8-11.3%,  $P \leq 0.02$ ) at 1 year, and significantly lower urinary DPD/Cr ratios at 1 and 3 years (15.6-34.5%,  $P \leq 0.05$ ). These effects were only maintained in the CaD group at 5 years.

**Conclusion:** Addition of vitamin D to calcium may have long term beneficial effects on bone structure in older postmenopausal women living in a sunny climate, which were probably mediated by the long term effects of calcium plus vitamin D on reducing the rate of bone turnover.