Effects of Calcium Supplementation on Body Weight and Blood Pressure in Normal Older Women: A Randomized Controlled Trial

**Objective**
To assess the long-term effects of calcium on body weight and blood pressure.

**Study Details**
- This is a substudy of a double-blind, randomized controlled trial of calcium supplementation in normal postmenopausal women (originally designed to assess the effects of calcium on fracture incidence)
- Normal postmenopausal women (n=1471, mean age: 74 years, mean weight: 67 kg, mean blood pressure: 134/70 mmHg at baseline) were randomized to receive 1 g/day (2 x 200 mg before breakfast and 3 x 200 mg in the evening; compliance assessed by tablet count) supplemental calcium (n=732) or placebo (n=739)
- Dietary calcium intake was assessed via food frequency questionnaire
- Exclusion criteria: women taking therapy for osteoporosis, calcium supplements or those with any major chronic disease

**Key Finding**
Calcium supplementation of 1 g/day did not produce biologically significant effects on body weight and its hypotensive effect was small and transient in most women.

**Results**
- Mean compliance over the study period was 78% for subjects in the calcium group and 80% for those taking placebo
- At baseline, both body weight and body mass index were unrelated to dietary calcium intake
- At 30 months, body weight decreased by 368 ± 132 g in the calcium group and by 369 ± 134 g in those taking placebo—changes that were significant over time for each group but not between groups
- When dietary calcium intake at baseline was considered, a small, non-significant trend toward greater weight loss was seen only in those women with calcium intakes less than 600 mg/day (−749 ± 262 g in the calcium group vs. −261 ± 268 g in the placebo group). In women with an intake greater than 600 mg/day calcium, the trend was one of weight gain
- Fat mass did not change in either group but there was a significant loss of lean mass in both groups (but no significant difference between the groups)
- Systolic and diastolic blood pressures (BP) tended to rise throughout the course of the study, but with transient reductions at 6 months in the calcium group resulting in a significant between-group difference for systolic (p=0.048) but not diastolic BP
- Dietary calcium at baseline was unrelated to any changes in BP. When the subjects were divided into those consuming more or less than 600 mg calcium/day at baseline, those with low-calcium intake (< 600 mg/day) had reduced systolic (p=0.06) and diastolic (p=0.05) BP compared to those in the placebo group at 30 months. This suggests that benefits of supplementation are larger and more persistent for those starting out with low-calcium intakes
Changes in body weight in normal postmenopausal women randomized to receive calcium (1 g/day) or placebo for 30 months.

There was a non-significant difference between groups.

Adapted from Reid et al. 2005