

Calcium Intake and 10-Year Weight Change in Middle-Aged Adults

Gonzalez AJ, White E, Kristal A, Littman AJ. *J Am Diet Assoc* 2006;106:1066-1073.

OBJECTIVE

To examine the purported effects of calcium on modulating body weight.

STUDY DETAILS

- A retrospective analysis was used to assess the relationship between calcium intake and weight change over an 8- to 12-year period among middle-aged adults
- Participants were 5250 men and 5341 women aged 53 to 57 years from the Vitamins and Lifestyle Study (investigating vitamin and mineral supplementation and cancer risk), recruited from October 2000 to December 2002
- Data collection consisted of a self-administered, optically scanned questionnaire covering:
 - supplement use: a comprehensive assessment of the use of 38 vitamin (including daily multivitamins), mineral, herbal and other supplements during the 10 years before baseline. Participants were asked about current vs. past use, frequency (times per week) and duration of use and usual dose (based on the most common formulations for each supplement)
 - food intake: a semiquantitative food frequency questionnaire querying consumption frequency and portion sizes of 120 foods or food groups **during the past year only**
 - demographics and health habits: to identify potential confounders including age, education, race, smoking status, health history and participation in recreational physical activity
 - **weight change from age 45** was the dependent variable of interest. 8- to 12-year weight change (termed “10-year weight change”) was calculated by subtracting weight at age 45 from current weight body mass index (BMI) was calculated using reported weight and height at age 45
 - linear regression was used to model associations of 10-year weight change and calcium intake, controlling for age at baseline, weight at age 45, race, education, smoking, energy intake and physical activity
- Exclusion criteria: age, weight, height and/or (BMI) unavailable or outside the range of plausible values; a history of conditions associated with weight loss; a self-rating of overall ill health and reflux disease and/or indigestion (which are often self-treated with calcium-containing antacids)

KEY FINDING

Increasing calcium intake, in the form of calcium supplements, may be beneficial for weight maintenance, especially in women during midlife.

Women currently taking a calcium supplement dose of > 500 mg/day had significantly lower 10-year weight gain than non-users.

RESULTS

- Women who were current supplement users (calcium + multivitamins) had a significant lower 10-year weight gain of 5.3 kg vs. 6.4 kg for non-users (p for trend = 0.001). Men were less likely than women to use calcium supplements (15% vs. 53%, respectively), but for those who did, there was no association with weight change
- For women, greater 10-year average calcium supplement intake (from individual supplements + multivitamins) was significantly associated with lower 10-year weight gain for users and non-users of supplements (p for trend = 0.001). There was no significant association when the analysis was limited to supplement users

- For both men and women, greater current daily dose of calcium supplements was associated with lower 10-year weight gain for users and non-users of supplements (p for trend = 0.0001 and p for trend = 0.001, respectively). When compared to supplement users only, it remained significant only for women
- Total current daily calcium intake (diet + supplements) was associated with lower 10-year weight gain (p for trend = 0.001) in women only (primarily due to calcium supplements)
- When stratified according to women's hormone status, the largest effect of current calcium supplement intake on 10-year weight change occurred among postmenopausal women not receiving HRT (the group with the lowest expected levels of circulating estrogen). Those women not currently taking calcium supplements gained 7.8 kg vs. 4.8 kg for those with the highest current calcium supplement intake
- Dietary calcium alone did not significantly affect 10-year weight change in either sex
- This analysis of calcium supplement use and weight change among free-living middle-aged men and women is unique in that researchers analyzed 10-year weight change rather than weight at a specific point in time

General Findings		
Variable	Women	Men
Average weight gain	5.8 kg	4.8 kg
Mean dietary calcium intake	811 ± 440 mg/day	1017 ± 522 mg/day
Mean total dietary calcium intake (diet + current supplements)	1094 ± 588 mg/day	1115 ± 557 mg/day
Percentage getting ≥ 500 mg calcium daily from supplements	40%	8%

Adapted from Gonzalez et al. 2006