Dynamic Chiropractic

VITAMINS / SUPPLEMENTS

# Calcium Supplements and Mortality

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When the National Institutes of Health's AARP Diet and Health Study reported that men who took calcium supplements had a higher risk of dying from cardiovascular disease compared those who didn't,[1] it was the third large cohort in six months with alarming findings regarding calcium supplements. The Swedish mammography cohort said women who take calcium supplements have a higher risk of mortality[2] and the Heidelberg cohort[3] found calcium supplements increased the risk of CVD in both sexes.

The AARP Diet and Health Study

The National Institutes of Health - AARP Diet and Health Study followed almost 220,000 men and 170,000 women ages 50-70 from 1995-1996 until 2007-2008. The study was set up to investigate cancer as it relates to diet and other factors. Calcium supplements were used by half of the men and more than two-thirds of the women. In men, supplemental calcium (from multivitamins and/or calcium) intake over 1,000 mg/day was associated with an elevated risk of death from cardiovascular disease, specifically myocardial infarction. What didn't make headlines was that all-source calcium up to 1,200 mg/day actually *reduced* mortality rates.

The Swedish Mammography Cohort

This study was conducted between 1987 and 1990. Ninety thousand women (ages 39-73) were offered a free mammography screening if they filled out questionnaires on diet and lifestyle. Seventy-four percent responded and 92 percent (61,433) met the inclusion requirements. In 1997, approximately 56,000 of the women still living locally were contacted, approximately 70 percent of whom replied. Ninety-nine percent (38,894) were included (they had previously met inclusion requirements) and answered a longer questionnaire. The headlines that made the news were:

- High calcium intake (>1,400 mg/day) was associated with an increased rate of mortality, including death from cardiovascular disease and heart disease.
- The increase was moderate when high calcium intake was from food only.
- The risk became significant when high calcium was from a combination of dietary calcium and supplemental calcium.
- Women who got less than 1,400 mg/day of calcium from diet and supplements had "modest differences in risk" compared to women who got the same amount of calcium from diet only.
- Dietary calcium intake below 600 mg/day had a mortality rate that was similar to subjects who consumed more than 1,400 mg/day.

What didn't make the headlines was the actual conclusion: "After sensitivity analysis including marginal structural models, the higher death rate with low dietary calcium intake (<600 mg/day) or with low and high total calcium intake was no longer apparent. Use of calcium tablets (6% users; 500 mg calcium per tablet) was not on average associated with all cause or cause specific mortality, but

among calcium tablet users with a dietary calcium intake above 1400 mg/day the hazard ratio for all cause mortality was 2.57."

In other words, only the women who got more than enough calcium from their diet *and then* took calcium supplements elevated their risk of mortality.

The Heidelberg Cohort

In the Heidelberg cohort of the European Prospective Investigation into Cancer and Nutrition, nearly 24,000 subjects ages 35-64 years and free of major cardiovascular disease events at recruitment were followed for an average of 11 years. The investigators found that calcium from supplements – but not dietary calcium (dairy or non-dairy) – increased the risk for myocardial infarction. When other supplements were taken with the calcium, the risk was less pronounced.

The authors did not get any information from the study participants on what "other supplements" were. There were other problems with the study that the popular press overlooked. They are best described by the authors themselves:

- "[We] therefore only identified a limited number of calcium supplement users, who accounted for 3.6% of all cohort participants."
- "[This] model was based on a hypothetical linear relationship between times of self-reported calcium supplementation and MI risk."
- "[One] single measure of dietary nutrient intakes at baseline apparently could not capture the long-term variation, as we know that individuals might modify their diet."

Comment

Analyzing or re-analyzing complex statistical data from large observational studies is no easy task. Trust me, my eyes became blurry pouring over the statistics from these three studies. A headline or soundbite can often be misleading or even incorrect.

That is not to say we should ignore the results of these cohorts, because we shouldn't. And if supplemental calcium is actually unhealthy, we want to know it. But we must also take the time to understand what was actually observed and analyzed, and how the numbers were calculated, before coming to a conclusion. All three of these studies generated news that made a confused public even more confused.

In my previous article on the most common mistakes people make when taking dietary supplements (May 1 issue), I suggested taking any dietary supplement when there is no dietary deficiency is unnecessary (unless prescribed by a health care professional to treat a specific problem or condition), a waste of money, could be unhealthy and is a very common error many people make because they "take them without knowing if they need them." It appears this is exactly what the authors of these studies observed. Unfortunately, it was not presented this way to the public.

*References*


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