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## Elevated calcium intakes double risk of heart disease death in women: BMJ Study



By Nathan Gray+  
13-Feb-2013

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**A high intake of calcium from both food and supplements is associated with an increased risk of all-cause mortality and death from heart disease in women, reports a new study.**

The research findings suggest that women with high intakes calcium from dietary and supplementary sources are associated with twice the risk of death from heart disease when compared to those women with a lower intake.

Writing in the *British Medical Journal* (BMJ), the research team report that women with calcium intakes greater than 1400 mg per day were more than twice as likely to die compared with women taking between 600mg and 999mg per day.

*"In this study of women in the Swedish mammography cohort, a high calcium intake ... was associated with an increased rate of mortality, including death from cardiovascular disease,"* explained the research team, led by Professor Karl Michaëlsson from Uppsala University in Sweden.

*"The increase was moderate with a high dietary calcium intake without supplement use, but the combination of a high dietary calcium intake and calcium tablet use resulted in a more pronounced increase in mortality,"* they said.

*"For most women with lower intakes we observed only modest differences in risk."*



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Responding to the research findings, Taylor Wallace, PhD, senior director, scientific and regulatory affairs at the Council for Responsible Nutrition (CRN) warned that the study does not change that fact that calcium is essential for bone health, “especially if you are a postmenopausal woman at risk for osteoporosis.”

“The Institute of Medicine recommends women over 50 should obtain 1,200 milligrams of calcium daily, but also advises of a Tolerable Upper Intake Level (UL), which is the point at which no adverse effects are known, of 2,000 mg daily—from all sources, including food and supplements,” said Wallace.

“This study does not change those recommendations, nor should it.”

## Calcium debate

The new *BMJ* paper is the latest in a line of recent studies to highlight possible risks associated with calcium supplementation, after previous research has linked high intake of calcium with arterial stiffness and an increased risk of heart conditions and stroke.

A recently published *JAMA* study found ‘excessive’ supplemental calcium could lead to a higher risk of heart disease risk for men, but not women. While research published in *Heart* linked calcium to an increased risk of heart attack, and another *BMJ* study argued that “the indiscriminate use of calcium supplements ‘should be abandoned’ because the risks of heart attack outweigh any possible benefit from osteoporosis prevention.

Speaking to *NutraIngredients* previously, Professor Ian Reid, senior author of the previous *BMJ* studies said that the accumulating data is providing “a significant body of evidence that says there is a concern.”

“We find that for every thousand people we give calcium to for five years, we cause six heart attacks and we prevent three fractures,” said Reid. “It’s not a very effective way of preventing fractures, and it probably does carry a significant risk.”

Despite this recent research suggesting such a link to increased heart attacks and stroke, Michaëlsson and his colleagues said further study analysis attempting to follow this up by assessing any association with all-cause and cardiovascular mortality had not been tackled until their current paper.

## Study details

Michaëlsson and his colleagues analysed data from the Swedish Mammography study, which followed 61,443 Swedish women born between 1914 and 1948 for an average of 19 years.

The study used death from all causes and cause specific cardiovascular disease (CVD) as markers and assessed dietary intake in the group using food frequency questionnaires at baseline (between 1987 and 1990) and again in 1997. From this data intakes of calcium were estimated by adding together dietary and supplemental calcium sources.

“Follow-up was through the Swedish cause of death registry,” explained the researchers, adding that ‘complete linkage’ with the register is achieved using personal identity numbers that are provided to all Swedish residents.

“The highest rates of death from all causes, cardiovascular disease, and ischaemic heart disease but not stroke were observed among those with a dietary calcium intake higher than 1400mg/day,” said Michaëlsson and his colleagues.

These intakes, compared with dietary intakes between 600 and 1000mg per day, conferred hazard ratios of 1.40 for all-cause mortality, 1.49 for cardiovascular disease mortality, and 2.14 for ischaemic heart disease mortality, the team revealed.

“In addition, mortality rates were higher among women with an intake below 600 mg/day,” said the

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team.

Michaëlsson and his team attempted to explain the mechanism behind their finding by suggesting that that diets very low or very high in calcium can override normal homeostatic control causing changes in blood levels of calcium.

Wallace of the CRN said: *"It's important to understand that this study did not demonstrate a cause and effect relationship between calcium and heart health or all-cause mortality, and in fact, we are not aware of a single human study that does."*

*"Consumers should be aware of how much calcium they are getting, from food and then from supplementation," he said. "Despite the way the medical journal has tried to promote this study, the fact is supplementing with calcium is a perfectly safe and reasonable approach to take."*

Source: *British Medical Journal*

Published online ahead of print, doi: 10.1136/bmj.f228

*"Long term calcium intake and rates of all cause and cardiovascular mortality: community based prospective longitudinal cohort study"*

Authors: Karl Michaëlsson, Håkan Melhus, Eva Warensjö Lemming, Alicja Wolk, Liisa Byberg

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### 3 COMMENTS

#### Is the risk of Calcium Citrate the same?

The majority people taking calcium supplements are taking calcium carbonate, which does not absorb well.

Is there are difference when taking calcium citrate?

Posted by **D'Lynn Waldron**  
15 February 2013 | 11h15

REPORT ABUSE

#### Too myopic

This is what happens when we investigate a single nutrient without considering the essential co-factors needed for that nutrient to do its job. Absolutely calcium will cause problems without adequate K2, D3, magnesium and other minerals. Women have been told to take calcium for decades, but it's just recently we realized that, whoops, without D3 there may be absorption problems. Those are just 2 pieces of a much more complicated puzzle. And maybe, just maybe, we really don't need that much calcium, but this is more a reflection of the co-factor deficiencies. After all, women in other industrialized countries don't pound down the calcium supplements like American women and we've got some of the highest rates of osteoporosis - and heart disease. Go figure...

Posted by **Lori**  
14 February 2013 | 18h12

REPORT ABUSE

#### elevated calcium intake

Would these results be mitigated by adequate intake of vitamin K2?

Posted by **A. Goldstein**  
13 February 2013 | 22h36

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