Should men avoid calcium supplements? Should women avoid calcium supplements? Do calcium supplements increase heart disease risk?
If you've been listening to some of the recent headlines in magazines, newspapers and health blogs, that's exactly what you might think. And, after years of telling us that calcium supplements may be important for bone health, even some doctors are now recommending that their patients avoid calcium supplements. So what's the truth? **What should you believe?**

Let's start by examining the existing research. The latest headlines are based on a JAMA article (Xiao et al, JAMA Internal Medicine, 173: 639-646, 2013) that concluded that high calcium intake from supplements was associated with a slight (20%) increased risk of cardiovascular death in men, but not in women. Another study (Michaelsson et al, BMJ, 2013:346 doi: 10.1136/bmj.f228) published earlier this year concluded that high calcium intake (> 1,400 mg/day) was associated with an increased risk of cardiovascular and all cause death in women, but not in men. In this study calcium supplementation was also associated with an increased risk of death, but only in women with a total calcium intake greater than 1400 mg per day.

Of course, the press always likes to hype the latest study, especially if that study is bad news. So let me help you evaluate that report the way that a scientist would. **To begin with one of those studies concluded that calcium supplementation is associated with increased cardiovascular death in men, but not in women. But, the other study concluded that calcium supplementation is associated with increased cardiovascular death in women, but not in men. That's a bit curious. Obviously, both studies cannot be correct.**

So what does a scientist do when confronted with conflicting studies? We dig a bit deeper into the literature and asking what other studies say. And. when I dug further into the literature, things got even murkier. It turns out that both of those studies are contradicted by other, equally good, clinical studies.

For example, two major studies have found **no correlation between cardiovascular death and either dietary or supplemental calcium intake** (Li et al, Heart, 98: 920-925, 2012; Bolland et al, BMJ, 342: d2040, 2011). And, another study reported that both increased dietary intake of calcium and use of calcium supplements were associated with a reduced risk of death in women, but not in men (Langsetmo et al, J. Clin. Endocrin. Metab., doi: 10.1210/jc.2013-1516).

Faced with all the conflicting published clinical studies, the Institute of Medicine recently concluded that "evidence from clinical trials currently does not support an effect of calcium intake on risk of cardiovascular disease".

Are you confused yet? If so, you have every right to be. The experts in their field are also scratching their heads.

So let me add to your confusion by sharing with you yet another study that has just been published (Van Hemelrijck et al, PLOS One, April 2013, volume 8, issue 4, e61037). This study looked at 20,024 adults 17 years old and older who were surveyed in the third National Health and Nutrition Examination Survey (NHANES III).
The study asked how many of them died of cardiovascular disease over the next 12 to 18 years. The strength of this study is that it evaluated serum calcium levels as well as dietary and supplemental intake of calcium. In this study only serum calcium levels showed any correlation with cardiovascular death - and even this effect was confusing. For women there was an increased risk of cardiovascular death for those with serum calcium levels in the top 5%. In contrast, for men there was an increased risk of cardiovascular death for those with serum calcium levels in the bottom 5%. Once again, no association was observed with cardiovascular death and either dietary or supplemental calcium intake.

The reason I'm bringing this study to your attention is I think it may offer a key to understanding the conflicting results of previous studies. Serum calcium levels are very tightly regulated by the body and are not normally affected by either high or low calcium intakes. For example, in the study above there was no correlation between serum calcium levels and either dietary or supplemental calcium intake. Significant variations in serum calcium levels are usually associated with either metabolic or hormonal diseases.

Perhaps some of the conflicting results in the previously mentioned studies may be due to inclusion or exclusion of people with diseases that affect serum calcium levels. I will hasten to add that this is just a hypothesis on my part - one that needs to be verified by further studies.

So what is the bottom line for you?

1) The evidence that calcium supplementation affects cardiovascular risk is weak at best. While the possibility of increased cardiovascular risk associated with high calcium intakes exists, the preponderance of evidence suggest that this is not a concern, despite what many of the recent headlines suggest.

2) On the other hand, there is clear evidence that calcium intake in the 1000 to 1300 mg per day range decreases the risk of osteoporosis, and osteoporosis can significantly decrease the quality of life and even lead to increased mortality. Most people aren't getting enough calcium in their diet. For these people appropriate calcium supplementation is clearly advantageous.

3) So my advice is to ignore the scary headlines and continue to make sure that you're getting the 1000 to 1300 mg of calcium per day that you need for healthy bones. I will keep you updated if the science about cardiovascular risk changes.

4) Of course, you don't need to go overboard on supplemental calcium. Start by figuring out your dietary calcium intake. You can count on about 200 to 250 mg per serving for most dairy products, and most people get around 200 mg per day of calcium from other food sources. Once you've figured out your dietary calcium intake, add enough supplemental calcium to bring your total intake up to the recommended RDAs (1,300 mg/day for ages 13-18, 1,000 mg/day for ages 19-50, and 1,200 mg/day for adults over 50).

5) Finally, as I have told you previously, supplemental calcium is unlikely to do mischief if it is utilized primarily for bone formation, so make sure that you are getting 800 to 1200 IU of vitamin D per day plus RDA levels of the other nutrients needed for bone formation (vitamin C, vitamin K, magnesium, zinc, copper and manganese).

To Your Health!
Dr. Stephen G Chaney

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