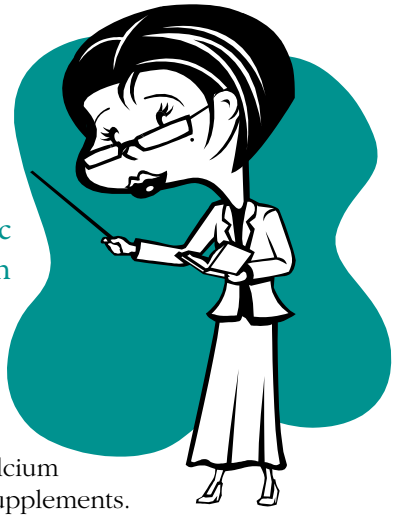
The *Truth* About Calcium

by Margy Squires



Are you one of the many women who have been advised to supplement with 1000 to 1200 mg of calcium a day to "save" your bones from osteoporosis? Millions of women were alarmed to hear reports in May of 2012 that too much calcium could raise the risk of heart attack, stroke or mortality from a cardiac event. In fact, some decided to stop taking calcium altogether. To add confusion to the dilemma, a second report in November said the opposite; that there was no correlation between calcium in food or supplements and cardiac risk. Which news is true? Here's what you need to know to decide.

The truth is researchers were concerned and reported about the calcium-heart risk connection in 2008[1] long before the "surprise" report in May. But they only looked at calcium. The truth is basic biochemistry would tell you that calcium cannot act alone in this conspiracy theory. The truth is many of the nutrients involved in bone health also contribute to heart health so maybe we should look at all of them in collusion?

Let's make this simple. You need calcium. According to the National Institutes of Health data sheet from the Library of Medicine,[2] this important mineral helps regulate your heart rhythm along with magnesium. It is required for a strong bone matrix for your teeth and skeleton. Research in the past decade suggests a beneficial effect of calcium on cardiovascular risk factors like inflammation, hypertension and lipids. Studies also show calcium helps with insulin resistance and body weight.[3] So how could something so good for health "suddenly" be bad for your heart? Let's look at the two opposing studies and their results.

First, the May 2012 headline. The European Prospective Investigation into Cancer and Nutrition study analyzed data from 23,980 participants, aged 35-64 who were *free of major heart events.*[4] What they found was that those who consumed the most calcium from foods might not offer "significant heart benefits" but calcium supplements might raise heart attack risk of myocardial infarction, stroke and death over an 11 year period. What they failed to mention is the kind and amounts of calcium supplements in the data collected via the questionnaires.

Second, let's look at subjects from the November Framingham Heart Study,[5] one of the longest running medically observed populations in history. Using a heart score based on coronary artery calcium scan, C-reactive protein, family history, pulse and carotid artery check, participants were assessed for predictable heart disease. About 1300 men and women aged 36-83 *with intermediate risk scores* were followed for eight years. In this published study, the authors concluded that their data "does not support the hypothesis that high calcium intake increases coronary artery calcification" after finding no risk difference between calcium intakes from food or from supplements. They also do not feel the current recommendations for calcium need to be changed.

These two conflicting studies leave you wondering which news to swallow along with the calcium pills you may be holding in your hand.

> "About **99% of your body's calcium should be in your bones**, leaving 1% to be utilized elsewhere."

More truth. About 99% of your body's calcium should be in your bones, leaving only 1% to be utilized elsewhere.[6] Taking more calcium than your body can metabolize or absorb into the bones means it has to go into the 1% pool – like blood, muscle and other tissues. As its name implies, calcium "calcifies" or hardens material. While that's good for your bones, it's not great for tissue or blood vessels which need to be flexible and resilient. If you are supplementing for optimal bone health, perhaps the simple solution is making sure it gets there in the first place.

SUPPLEMENT WISELY

Usable truth. Here's what you should consider if you decide to benefit your bones with a calcium supplement *and* protect your heart.

Define your needs. Merriam-Webster defines the term supplement as *something that completes or enhances something else when added to it.* In this case, a nutritional supplement is in addition to a healthy diet. If your diet is high in calcium-rich foods like yogurt, cheese, milk, etc, do the math. Since many serving sizes are equal to 300 mg, it makes the math easier. Then subtract your dietary amounts to determine what you need to "supplement" or complete your daily calcium requirements.

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Can your multivitamin cover the missing calcium? Probably not. Here's why. Minerals like calcium and magnesium take up a considerable amount of space. They are either added in very small quantities as inorganic salts (carbonate, oxide) or left out entirely.

Go organic. If you need supplemental calcium, consider Albion organic chelate calcium. As the "mineral people", they have the research that shows their calcium is absorbed double that of citrate.[7] The forms used in most studies are citrate or carbonate, inorganic calcium not found in foods. Since food sources of calcium showed no cardiac risk correlation, make sure your supplement is organic, too. The simplest way to do that? Just look for the Albion Gold Medallion.[8] It means all the minerals used in the product are 100% Albion and organic.

Opt for a lower mg dose. Small doses will keep blood levels of calcium in line with what your body can process, typically 500 mg or less per dose. If you opt for "food size" amount, try 250-300 mg per dose.

Stay Balanced. Minerals need help with absorption and metabolism from other minerals and vitamin co-enzymes. Could it be that looking at calcium in isolation is part of the problem? Even the studies with calcium and vitamin D do not give the true picture of nutrients for bone or heart health. Consider these co-factor nutrients for the reasons given.

Magnesium (Mg). It's required for vitamin D metabolism and action and helps move calcium into bones. Magnesium is also found low in most cardiovascular diseases. It's a natural calcium channel blocker and works with calcium to relax and contract heart muscle and blood vessels.[9] Two studies look at the increasing ratio of calcium to magnesium as problematic for heart rhythm and EKG abnormalities.[10] In fact the odds of being "unbalanced" are high since 76% of Americans are low in this mineral. Another factor found in the studies? Magnesium levels affect C-reactive protein, an inflammatory risk marker for heart disease.[11] A third study looked at how magnesium improves osteoporosis and found it decreased bone loss and increased bone formation in postmenopausal women.[12] You can see why calcium regulates magnesium for both bone and heart health. A word to the wise; these two minerals by nature are competitive. Again, organic is the way to take them together since Albion's minerals are equally absorbed.[13]

Vitamin D3. Helps proper assimilation of calcium into bone. Interestingly studies have looked at this vitamin's role in heart health, too. A 29 year study of 10,119 women and men found those with the lowest vitamin D level (less than 15 ng/L) had the highest incidence of cardiovascular events, including sudden death.[14] Those with the lowest risk had the higher levels of D (50 ng/L). Another piece of the nutrient equation for bones and heart?

Vitamin K2. A vitamin co-enzyme known for its bone building ability. In fact, when researchers looked at DEXA bone scans, K2 showed an improvement over calcium alone.[15] Does K2 help the heart too? Funny you should ask! A 2010 systematic review of studies showed an association with a deficiency of K2 and increased calcification of the main arteries of the heart. Researchers also noted an increased insulin resistance[16] (diabetes and metabolic syndrome are both risk factors for cardiac disease).

Boron. As a nutrient, the exact biological action of boron is not completely understood. However, as early as 1990, its role in bone formation and growth when taken with calcium was evident.[17] A recent 2012 review confirms this known fact and adds that insulin regulation may be another benefit of boron.[18] Choose organic here too!

BOTTOM LINE?

The whole truth. Bone is living tissue, constantly breaking down and rebuilding. Apparently many of the nutrients that also support calcium also support a healthy heart. That's the way it goes with the body; one nutrient affects another and has the potential for impacting any other body function.
Is there a "new normal" for calcium supplementation? No. Just a common sense approach to taking supplements the "old fashioned" way – organic and balanced with other nutrients the way your body requires.

Note: If you've been taking high dose inorganic calcium, should you have a coronary artery calcium calcification (CAC) scan used in the Framingham study? The test measures calcification or hardening of arteries caused by calcium deposits or high blood lipids.[19] In one study of women with EKG abnormalities for heart ischemia, CAC is commonly found, which could explain the "increased coronary heart disease risk".[20] Newer scans may have higher radiation cautions one study author but a positive correlation between an abnormal score and risk was found. Discuss with your doctor if your medical and family history make you a candidate for this non-invasive test or not.

References omitted; available upon request to editor.

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