

Calcium Supplements & Heart Attack Risk Demystified



[DN version. Sept 20 . 7 pm](#)

Are Your Calcium Supplements Putting You Between A “Rock and a Hard Place”?

Should you take calcium supplements and risk a Heart Attack... or avoid them and chance a Hip Fracture?

There is a SAFE and simple course of action that will optimize both your bone and heart health!

Seldom do you see common supplements making the headlines of major newspapers, but from the summer of 2010 to today startling information about calcium supplements' connection to heart attacks has come in wave after front-page crashing wave. As usual, the media made headlines from the most sensational aspects.

Results taken from countless studies, involving thousands of subjects over decades, was neatly summed up with five stark, memorable words: "Calcium Supplementation Causes Heart Attacks".

Wave #1: July 29, 2010

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The first news to emerge from the British Medical Journal (BMJ) was a meta-analysis of several studies that covered 12,000 people.

The objective was to investigate whether traditional traditional calcium supplements (calcium carbonate or calcium citrate) increase the risk of cardiovascular events. The conclusion was taking these calcium supplements floods the blood with the mineral, leading to hardening of the arteries and raising heart attack risk. This study was widely criticized as being invalid because **vitamin D, which is normally in calcium formulations, was absent**. The critics, however, were quickly silenced by the “wave 2” study.

Wave #2: April 20, 2011

The second study to sound the alarm was also from the same research group and also reported in the BMJ. The objective was to investigate if vitamin D is the difference maker regarding traditional calcium supplements and matters of the heart.

A meta-analysis of 28,000 people taking calcium with vitamin D, this study concluded that rock based calcium supplements (whether or not with vitamin D) raised the odds of a heart attack by about 24%, and of heart attack or stroke by about 15%. Putting these numbers in perspective, any drug that could reduce heart attack risk by just a few percentage points would be a run-away success...so supplements increasing risk by double digits was alarming and the medical community started to take this risk seriously.

Wave #3: July 22, 2012

A third and most recent study known as the EPIC - Heidelberg cohort evaluated the associations of dietary calcium intake versus traditional calcium supplementation, with risk for heart attack, stroke and overall risk of death from cardiovascular disease. This analysis of data on nearly 24,000 people over the course of a decade found that taking large or little doses of calcium supplements may increase the risk of having a heart attack, but calcium from dietary sources—meaning calcium from foods that also delivers other nutrients—is slightly beneficial to the heart.

If you are one of the many aging baby boomers across the world with thinning bones, these studies presented a rock and a hard place!

Key Learnings from the Studies

1. Calcium from SUPPLEMENTS increases the risk of developing cardiovascular issues - especially if you take too much. Anything over 800 mg per day may end up coating arteries rather than bones.
2. Calcium *from FOODS*, naturally combined with other co-factor nutrients such as vitamin D, vitamin K, magnesium and many more crucial trace minerals, **reduces** cardiovascular issues.

Overlooking the Obvious!

The key conclusion - that calcium supplements cause increased heart attack risk is all based on research of calcium supplements made from ROCKS.

All three studies involved pills made from calcium carbonate and calcium citrate. Calcium carbonate is milled limestone or marble. Calcium citrate is simply calcium carbonate reacted with citric acid...also rock. 95% of the calcium supplements on the market, and all of the calcium supplements in the studies are made from indigestible, inert, hard, cold, and solid rock.

Whether you are a creationist or an evolutionist, you would have to agree that we are not designed or evolved to metabolize rock. There is no food we have historically consumed comprised of marble, limestone, or any other rock.

The question the researchers should be asking is "why do we assume eating rocks is healthy"?

Hmmmm. So we overdose on rocks...for decades...with no natural offsetting co-factors ...and marvel at the news that it coats our arteries!

Darned If You Do...Osteo if You Don't?

Many debated, or outright stopped taking calcium supplements since these headlines were published over the last 2 years, based on the reasonable rationale of "I'd rather break a bone than have a heart attack".

But the headlines, you can now see, are really just the deceptive 10% tip of the iceberg. The majority of the information in the studies (that was not seen by the general public) doesn't indicate that calcium per se is detrimental. It's supplementing with large amounts of rock based calciums without the necessary co-factors that leads to problems.

Calcium plays an integral role in our bodies' health, so to avoid it would actually lead to much more serious problems than just a broken bone.

As you know, calcium is vital for healthy teeth and bones, but it also important for many other bodily functions, such as muscle contraction and exocytosis (a process by which material is exported from a biological cell) .

Calcium is also essential for nerve conduction, the regulation of enzyme activity and the formation of cell membranes. Your body has very strict guidelines about the amount of calcium required to ensure your body will function normally.

Who Would Know Eating Rock is Unhealthy?

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The take home message from these important studies is:

- The healthiest way to meet your bone health needs, without increasing your risk of heart attacks, is to get calcium, *and* several other much needed co-factor nutrients *not* from the White (calcium rich) Cliffs of Dover, but from food sources.

Modern 'Virtual' Veggies Vitamins have Vanished

But how is this possible when, due to mass food production techniques, many foods have half the nutrients they did in our grandfather's era? Yes, this is a fact- many common veggies are shadows of their former selves, due to over farming that results in nutrient deficient soil.

For instance, broccoli today has only 50% of the calcium it did in 1963. The potassium level in beets has dropped by 10% over the same time period, and spinach has 10% less magnesium.

Going back to the 1930's, vegetables have lost about half of their sodium and calcium content, a quarter of their iron and 76 percent of their copper content.

The nutrient levels of fruits has declined significantly, with copper, iron, and zinc all falling by up to 27 percent. And other vitamins and minerals have shown a 5 to 35 percent decline in our fruits and vegetables over the past 50 years.

Is Convenient Calcium Supplementation with a FOOD Possible?

The University of Texas, U of CT, and others have conducted studies on a new calcium source that shows promise. There are ocean algae that contain such high levels of calcium, and all the necessary nutrient co-factors, that they are crushed into powder and put into capsules -specifically to fill the need that mass produced, nutrient depleted foods have created.

Published clinical study results show participants received moderate amounts of calcium (750mg per day) from capsules filled with these powdered and dried South American algae, and *increased* bone density- without any reports of cardiovascular issues.

Considering that traditional rock derived calciums are proven to only *slow* bone loss- and studies conclusively show they increase cardiovascular problems, it seems clear to steer away from them in favour of a nutrient rich diet along with plant based supplements.

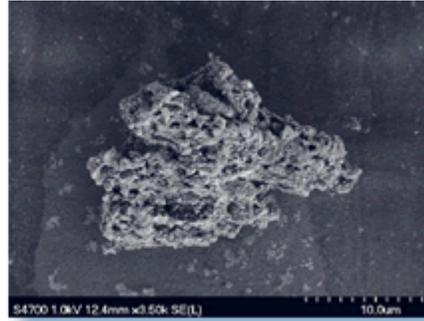
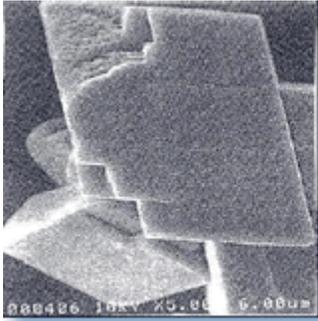
Calcium is Calcium - or is it?

For decades, calcium derived from rock has been the popular choice when supplementing - because it's plentiful, cheap and on a molecular level, all calcium is

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equally effective once it is in your bloodstream. So when recommending a supplement, you'll hear doctors say 'buy the cheapest - because calcium is calcium'.

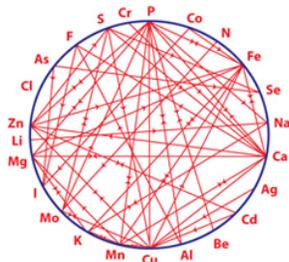
However, what they fail to recognize is that calcium is absorbed differently by the body- depending on whether we get it from rocks or plants. Plants break down the minerals in soil into tiny particles which are more readily useable by the body than eating the soil or rocks.



Under Electron Microscope the porosity differences between inorganic Calcium Carbonate (left) and plant (right) are apparent. Intuitively this is obvious, yet rock based calcium supplements continue to sell due to potent marketing.

Also what's not taken into account by doctors, but is now evident from the aforementioned study results, is that typical rock calciums are a one trick pony - they're conspicuously absent of the necessary trace minerals that plants and bones have, and require. You've heard that the calcium amounts in various plants can be significant (the highest calcium content by far comes from marine algae) but less known is that there are crucial trace minerals present in the same plants. They are support characters that prop up the bone health stars calcium and magnesium- yet without trace minerals, the story, and your bones, will become thin and break.

Trace minerals - The Best Gifts Come in Small Packages



You are aware that calcium is needed in significant amounts for optimum bone health. Due to its prominence it's referred to as a macromineral. But without certain *microminerals*, more commonly called trace minerals, calcium doesn't reach its intended destination (the bones) and ends up on arterial walls, and in our soft tissues.

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We'd Be Gone Without a Trace...

Trace minerals that are part of our bones' makeup, and have been proven to have a positive effect on bone health are:

boron, manganese, selenium, silica, strontium, vanadium, zinc, nickel, copper, magnesium, potassium and phosphorous.

In total there are 60 minerals found in human blood and are needed in the diet on a regular basis. It is not completely understood why each mineral is important, but if you have to go without them, you will have no doubt they are.

Interestingly, macro ocean algae are at the top of an elite category of foods that have all the trace minerals necessary for optimum bone health, as well as unusually high levels of calcium. Recent published clinicals studying calcium and trace minerals from marine algae indicate no adverse cardiovascular issues, unlike traditional rock based single element calciums.

Historically we've gotten trace minerals from the foods we eat. We still do to some extent but when people consume a diet derived from crops grown in nutrient-depleted soil, their intake of essential elements becomes inadequate. This leads to the impairment of bodily functions and causes disease.

Aggressive modern farming techniques have brought many of the earth's minerals to the surface, where due to runoff they have been washed back into the ocean.

Shells and coral, like macro algae, absorb these minerals from the ocean and contain significant amounts of calcium, plus all the trace minerals your body requires.

Macro algae contain the highest amount of these minerals, and unlike shells, algae, are environmentally sustainable and easy to absorb by our bodies.

No Vitamin Is an Island

I bet you know that vitamin D boosts calcium's absorption from our intestines and its re-absorption from our kidneys, thus increasing levels of available calcium within the body. Less widely known is that Vitamin D also boosts vitamin K-dependent proteins.

So when you get optimum vitamin D (at least 1000 IU per day) , you are increasing the amount of calcium available in your body- *and therefore your need for vitamin K increases*. Vitamin K2 is crucial because it cleans calcium deposits from your arteries and deposits it in your bones.

In all three of the controversial calcium studies, cardiovascular issues arose *not* when participants gained calcium, trace minerals and other needed co-factors vitamin D and K from whole foods. All complications arose strictly from eating large amounts of single

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element rock calciums... without the necessary co- factors.

Your body's physiology is accustomed to eating adequate amounts of *various* minerals from mostly plants. The sensational results of what happens when we ingest rock is proof that trying to re-invent the wheel has cardiovascular costs.

ENDNOTES:

Between the Study Lines:

BMJ 2010 Study: *"Effect of calcium supplements on risk of myocardial infarction and cardiovascular events: meta-analysis"*

An international team of researchers analysed the results of 11 randomised controlled trials of rock sourced calcium supplements (without co-administered vitamin D) involving 12,000 patients.

Differences in study design and quality were taken into account to minimise bias. They found that these elemental calcium supplements were associated with about a 30% increased risk of heart attack and smaller, non-significant, increases in the risk of stroke and mortality.

The findings were consistent across trials and were independent of age, sex.

However, the vitamin industry responded confidently that without vitamin D, research has shown calcium will not reach the bones, but will instead end up in the arteries (and soft tissues) and lead to heart attacks.

The public breathed a collective sigh of relief that they could get around the doctor favoured bisphosphonates, and continued to take elemental rock derived calcium- as long as it was accompanied by the great facilitator, vitamin D.

But a year later, more confounding news emerged in the form of the:

BMJ 2011 Study: *"Calcium supplements with or without vitamin D and risk of cardiovascular events"*

A seven year, randomised, placebo meta-analysis of elemental calcium and vitamin D (1000 mg of calcium and 400 IU vitamin D daily) in 36 282 community dwelling postmenopausal women. The results, not surprisingly, were that "calcium supplements, with or without vitamin D, modestly increase the risk of cardiovascular events." As with the EPIC study, researchers confirmed that taking large doses of single element calcium derived from rock (calcium carbonate and calcium citrate) can lead to heart issues.

Evidently the body does not respond well to ingesting large amounts of elemental rock calcium, even if taken with vitamin D. This is in part because the calcium in supplements absorbs more quickly than calcium from plant or dairy sources, so it floods into the blood in unhealthy proportions. And without integral nutrient co-factors present, the body cannot possibly process an unnatural amount of this one element.

However, when other nutrient co-factors are present, calcium is quickly pulled out of the blood and into cells for its many critical uses in our bodies. In addition to being used to build and maintain our bones and teeth, calcium wears a lot of other hats, playing key roles in a variety of critical physiological processes. Calcium helps our blood to clot, our nerves to send impulses throughout the body (including the brain), our muscles to contract. Calcium regulates the permeability of our cell membranes, so our cells can allow entry to what they need and send out what they don't. In sum, every cell in our body requires calcium.

When provided with the nutrient co-factors required to do so, the human body tightly regulates the amount of calcium in the bloodstream, ensuring just enough is on hand to meet current demands, while delivering the rest where it is needed, including our bones, which also serve as a calcium savings account.

EPIC- Heidelberg Study:

In the EPIC- Heidelberg study, the increased risk of heart attack, stroke and overall risk of death from cardiovascular disease was especially prominent in participants who took *large amounts* (1100+mg per day) of elemental rock derived calcium carbonate, or calcium citrate.

Another finding was that increasing calcium intake from diet offers some cardiovascular benefits. And they found participants with a moderate intake of calcium from all sources had a 31% lower risk of heart attack than the ones in the bottom 25% of calcium intake.

But an increased risk for heart attack should be expected from taking single element calcium without other nutrients. Why? Because other co factor nutrients such as vitamin D, K2, magnesium, and many other trace minerals are crucial to regulate that calcium is deposited in the bones, not arteries (or soft tissue).

And it makes sense that the participants who obtained calcium from their diet had some cardiovascular benefits, as the calcium in food is more gradually absorbed- and is accompanied by a number of other nutrients, (vitamin D, vitamin K, magnesium and many needed trace minerals for example) that are mandatory for proper calcium assimilation.

“What this study is telling patients is that too little or too much calcium are both bad for your heart,” says Bradley Bale, MD, medical director of the Heart Health Program for the Grace Clinic in Lubbock, Texas

Supporting the idea that nutrient co-factors are crucial alongside calcium in reducing cardiovascular issues: In a three year, double-blind, randomized clinical trial involving 108 postmenopausal women, the carotid arteries of the women given a supplement containing 1000 micrograms/day of vitamin K1 along with 320 IU of vitamin D3, plus magnesium and trace minerals, had more elasticity and ability to respond to changes in blood pressure compared to women who received the mineral supplement alone, or the mineral supplement with vitamin D3. These beneficial effects were due, in part to vitamin K's role in *reducing calcium deposition in the blood vessel wall*.²⁰

1. Aswathanarayana, U. Professor. Trace Substances Environment and Health. Science Reviews, London, 1:1994, pp. 222-223.

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