

Bone Building with a plant-sourced calcium!

A unique form of plant-source calcium could change how you supplement your calcium.

Bone density and osteoporosis in Canada

Osteoporosis is an all-too-common disease where decreased bone density leads to an increased risk of breakage. Bone fractures from osteoporosis most frequently affect the wrist, spine and hip, injuries which can lead to disfigurement, reduced mobility and loss of independence. Bone density peaks before the age of twenty and starts to decline after thirty. Women can lose a shocking 2-5% bone density per year during menopause.¹

How common is osteoporosis in Canada? Currently over 2 million Canadians are afflicted, particularly those over fifty. Twenty-five percent of women and twelve percent of men over fifty suffer from osteoporosis. The related suffering is immense: 40% of women will experience an osteoporotic fracture after reaching fifty. Almost one quarter of those unfortunate enough to experience an osteoporotic hip fracture do not survive the first year.¹

Concerns over calcium

One of the downsides of calcium intake at high doses is the potential risk for heart health. If the calcium is not effectively taken up by the bones, there is the risk of it building up in the arteries as plaque. This build-up can cause a narrowing of the arteries known as atherosclerosis, which can slow blood flow to the heart, leading to angina (chest pain) or even worse, increase the chances of a heart attack when undiscovered or untreated over a long period of time.

Recently the media has trumpeted such headlines as “Calcium pills taken by hundreds of thousands of women ‘double risk of heart attack and could do more harm than good’” (Daily Mail, May 2012), leading calcium users to question their supplementation of this mineral.² A large study done by the University of Auckland, looking at calcium supplement users in Germany was behind the headlines and concluded that calcium supplements at high doses may indeed be linked to an increased incidence of heart attacks. The study was quite controversial and some felt that more studies need to be done before such conclusions are drawn. The authors of the study concluded that calcium-only supplements in isolation were not as well utilized by the body as calcium from food sources.³

This brings up two key questions. One, what if one could supplement with food source calcium, complete with all the other nutrients present in food as nature intended? Would it be safe and effective? And, two, what exactly is going on with recent findings on vitamin K2? Is vitamin K2 a potential solution to getting calcium into the bones, rather than allowing it to build up in the arteries?

A plant-source calcium?

Most calcium supplements on the market are derived from mined limestone. The supplements used in the studies that have raised concerns about calcium were also sourced from limestone. As we don't often sit down for a hearty meal of rocks, supplementing with a more “food-like” source makes sense. The algae *Lithothamnion calcareum* is such a source — a living, edible plant rich in calcium and other nutrients. Branded as Aquamin™, it is a red algae that grows off the coast of Iceland that naturally contains over 34% in elemental calcium. The majority of limestone-derived calcium supplements are just that — calcium. Aquamin™, being a food, contains a full complement of minerals such as magnesium, potassium, phosphorus and the trace minerals boron, strontium, vanadium, copper, silica, selenium

and zinc, all of which are involved in bone health.

Originally used in Ireland as a natural fertilizer, its tremendous effects on livestock health led *Lithothamnion calcareum* to be investigated for human health applications. Initial anecdotal reports on the algae's benefits for arthritic conditions led to more in-depth studies. Many clinical studies later, Aquamin™, the branded version of *Lithothamnion calcareum* was born.

Aquamin™ is sustainably harvested under a controlled 30-year license by the Icelandic government. Independent monitoring and continuous research is done to ensure harvest activities are not impacting the ecosystem. Only the fully calcified algae are harvested, leaving young algae to grow to full maturity. The area of harvesting is strictly controlled to ensure the material will be sustainable and harvesting is monitored by GPS systems and divers.

Aquamin™ has several clinical studies, showing safety, absorbability and effectiveness for bone health:

- Aquamin™ has been shown to reduce levels of PTH (parathyroid hormone) in the body more effectively than other forms of calcium. PTH reduces calcium content in the bones by making it available to the rest of the body. High levels of PTH are associated calcium leaching from the bones and reduced levels of bone mineral density, which can lead to osteoporosis. Aquamin™ has shown this positive effect in pre-menopausal and post-menopausal women and athletes in non-impact sports (i.e. cycling) who exhibit lower-than-normal bone mineral density.^{4,5,6}

Measuring the absorption of various forms of calcium is difficult. Absorption can vary by the source of calcium, the delivery form, the individual human subject and meal consumption. The reduction of PTH levels in humans is so linked to calcium levels, that Aquamin™'s greater ability to reduce PTH is the conclusive proof of its superior bioavailability.⁵

It is believed that the porous nature of Aquamin™ is key to its superior absorption vs. other forms of calcium.

- In studies of bone cells, Aquamin™ has been shown to effectively remineralize the cells. By remineralizing the cells, the number of osteoblasts is increased. Osteoblasts are responsible for new bone formation. Researchers theorized that the synergistic effect of the mineral complex in Aquamin™ was responsible for the increase in osteogenesis (bone formation activity).⁷

- Aquamin™ has been shown to have anti-inflammatory properties that help to reduce joint pain and stiffness. In fact, one clinical study showed Aquamin™ to be as effective at reducing joint pain as glucosamine sulfate and better at reducing joint stiffness!^{8,9}

- Aquamin™ has published a major placebo-controlled study on bone mineral density in 2012. Three capsules daily of SeaCal PLUS™, match the potencies of this clinical study (800 mg of calcium from Aquamin™).

That the Aquamin™ calcium comes from a “whole food” source with a variety of synergistic minerals and is easily absorbed by the body may account for its clinical effectiveness in bone health. Whatever the reason for its effectiveness, the human studies behind Aquamin™ should make it clear that it's time to rethink the way you supplement your calcium.

Vitamin K2 – A solution for calcium issues?

Earlier in the article, we discussed the concerns of excess calcium

building up in the arteries and the related negative effects. Studies on natural source vitamin K2 indicate that it may be the key nutrient in the proper and safe utilization of calcium in the body. One of the challenges with vitamin K2 is that we no longer get enough of it in our diets from meat, eggs and dairy. The animals that provide these foods are no longer grass-fed; grass-based diets provided livestock with K1 which they converted to K2, allowing humans to get K2 in their diet.¹⁰

While vitamin D3 increases calcium absorption in the body, it does not determine where the calcium ends up. Research indicates that K2 may prevent some of the negative consequences of high calcium intake. K2 makes sure that calcium intake actually gets into the bone rather than being left to build up in the arteries. Calcium in the bone helps to increase bone density. Vitamin K2 works most effectively when combined with vitamin D3 and the preferred form of K2 for absorption and effectiveness is the natural source menaquinone-7 (MK-7).¹¹

In Canada, Health Canada labeling requirements advise a caution statement to consult your health care practitioner when supplementing with any vitamin K while using blood thinners, including the MK-7 form of K2.¹² Preliminary research suggests that doses of K2 under 50 mcg may actually be beneficial with blood thinners — but consult your health care practitioner for your particular situation.¹³

In summary, to find a safe calcium supplement for helping to maintain bone mineral density and prevent osteoporosis, consider:

- A plant-source calcium. Not only is it better absorbed than limestone calcium supplements, the calcium is delivered together with other minerals and nutrients as nature intended.
- With added K2 supplementation to ensure that excess calcium is getting to the bone, rather than the inside of your arteries. Note: Consult your health care practitioner if you are taking blood thinners.

Natural Balance® SeaCal PLUS™ Provides Bone Building with a Plant Source Calcium !

- SeaCal PLUS™ features Aquamin™ plant source calcium from the Icelandic red algae species *Lithothamnion calcareum*.
- Aquamin™ contains over 34% calcium plus 73 other minerals, including all 13 key minerals involved in bone health.
- Aquamin™ has been shown to reduce PTH (parathyroid hormone), a hormone associated with a reduced bone mineral density.
- Aquamin™ helps to remineralize bone cells.
- Aquamin™ helps with joint pain and stiffness even better than glucosamine sulfate.
- 3 capsules daily match the potency of the 2012 placebo-controlled Aquamin™ study on bone mineral density.
- SeaCal PLUS™ also added additional magnesium, boron and vitamins D3 and K2.
- Vitamin K2 helps excess calcium gets to the bones, not on arterial walls.
- SeaCal PLUS™ is produced in a capsule form without any fillers or binders and is easy to absorb.

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