

AlgaeCal

13 Minerals And 3 Vitamins For Bone Health

Did you know calcium is only one part of the bone health puzzle? In fact, there are 13 minerals and three vitamins you need to support strong, healthy bones!

But here's the catch; most Americans aren't getting enough of these nutrients! See, modern agricultural practices have left us with damaged topsoil that can't hold the level of nutrients it could in previous decades. In fact, a 2006 whitepaper from the Nutrition Security Institute¹ stated our food system is rapidly losing its ability to produce food with nutrient levels adequate to maintain our health. 50% of Americans consume less than the Estimated Average Requirement for magnesium alone², with some age groups consuming far less. Unfortunately, a similar trend is true of many of the nutrients you need for optimal bone health.

But the good news is that AlgaeCal Plus provides all the essential bone-building nutrients! See, AlgaeCal Plus is a calcium supplement derived from a unique marine algae called *Lithothamnion superpositum*. This very special marine algae naturally digests the 13 essential bone-supporting minerals from the ocean and uses them to support its own bony structure.

What's more, *Lithothamnion superpositum* provides the 13 essential minerals in amounts similar to your bone's composition (we just add the three crucial vitamins and a bit extra boron and magnesium for maximum bone-building results). Here's a brief overview of each, plus how much a daily serving (4 capsules) of AlgaeCal Plus provides:



1. Calcium: 720 mg

As you know, calcium is the cornerstone of bone health. Calcium is actually the most abundant mineral in your body! And 99% of the calcium in your body is in your teeth and bones³, where it helps keep them strong and healthy.

Because the calcium in AlgaeCal Plus is plant-based, it's natural for you to consume and digest it. Not like the rock-based calcium in most other supplements. As a result, there are no side effects with AlgaeCal Plus... including no constipation!



2. Magnesium: 350 mg

Up to 68% of Americans are magnesium deficient⁴... which is very bad news for American bones (and a good indicator of bone health around the world)! Magnesium is responsible for over 300 biochemical reactions. But perhaps the most important role of magnesium as far as your bones are concerned is that it's a very close ally of calcium.

See, magnesium greatly impacts calcium metabolism within your body. Too much, or too little of one of these minerals can impact the other. That's why it's very important to consume these minerals in the correct ratio (about 2:1 in favor of calcium) which is how they're provided in AlgaeCal Plus.



3. Boron: 3.0 mg

Think of boron as your bone-building team's coach. Coach boron keeps all the "big egos" on the team— calcium, magnesium, and vitamin D – in check and working together as they should. Boron ensures the levels of each of these nutrients are optimal and supports their functions within your body.

What's more, research shows boron can reduce your risk of arthritis!⁵ In areas of the world where boron intake is low, the incidence of arthritis ranges from 20 to 70%. But in areas of the world where boron intake is higher (3 mg to 10 mg) incidence of arthritis range from 0 to just 10%.



4. Copper: 2.11 ppm*

Copper plays a role in an enzyme called *lysyl oxidase*. Through this enzyme, copper aids in the formation of collagen and elastin into the organic component of bones— both important for the structure and flexibility of bone.⁶

Plus, research shows a copper deficiency can lead to low bone density, especially in the spines of post-menopausal women.



5. Manganese: 44.7 ppm

Research shows the trace mineral manganese is a co-factor in the formation of bone cartilage and bone collagen, as well as in bone mineralization.

What's more, studies reveal that a manganese deficiency is correlated with lower bone density, bone strength, and even increased bone loss.



6. Silica/Silicon: 15700 ppm

Calcium may steal the limelight by making your bones strong and hard, but silica plays an extremely important job too. Silica helps to give your bones their flexibility... which is crucial for withstanding impact and preventing fractures!

Silica is essential for the production of collagen. And collagen is the protein that provides the framework of your bones before calcium and the other minerals fill in and strengthen that framework. This combination makes your bones both flexible and strong enough to withstand stress.



7. Nickel: 0.83 ppm

Research is still ongoing to discover the scope of nickel's benefit to bones. But what we do know about this trace mineral is that you need it to distribute other nutrients– including bone-building superstars like calcium– properly. Think of nickel as the bus that transports your bone-building team around your body.



8. Selenium: <0.10 ppm

Selenium is another trace mineral researchers are still trying to understand fully. But the few studies that have been conducted suggest that selenium lowers the risk of osteoarthritis and combats osteoporosis. Talk about win-win!



9. Strontium: 1721 ppm

Strontium is the only known mineral to have a dual effect on bone. See, strontium increases the formation of your osteoblast cells– specialized cells that form new bone. And strontium also regulates the receptors that activate your osteoclast cells– specialized cells that break down your bone. In short, strontium helps boost bone building and limits bone resorption!

Now, you may have heard that strontium can have scary side effects. Please note that this is only the case with man-made versions of strontium like strontium ranelate. AlgaeCal Plus contains natural strontium citrate which is completely safe and side effect-free. It's even found in foods you eat every day, like carrots, cheese, and spinach.



10. Phosphorus: 137 ppm

Approximately 85% of the phosphorus in your body is found in your bones and teeth⁷. Phosphorus is fundamental for a whole host of biological processes including growth, cell structure, and bone mineralization.

Looking at bone health specifically, phosphorus (present as phosphate) binds with calcium to form a mineral crystal called hydroxyapatite. And hydroxyapatite provides strength and structure to your bones and teeth.



11. Potassium: 164 ppm

Potassium is an essential mineral that helps oversee the normal functioning of your cells, tissues, and organs.

When it comes to your bones, potassium's main benefit is preventing excess urinary calcium loss. As calcium is the cornerstone of bone health, that's obviously something you want to limit!



12. Vanadium: 3.12 ppm

Studies show that vanadium deficiency in animals can lead to skeletal deformities. What's more, vanadium appears to play a role in collagen synthesis. (Remember, collagen is the protein that provides the framework for your bones and gives them their flexibility).



13. Zinc: 30.1 ppm

Remember the osteoblasts– the specialized cells that form new bone? Well, zinc is a cheerleader for your osteoblast cells and stimulates them to get to work!

What's more, zinc is required to produce the collagen protein matrix which the bone-forming calcium and phosphorus compound is deposited on.



Vitamin C: 50 mg

Vitamin C is a potent antioxidant. It's this property that makes vitamin C such a powerful bone health ally. See, many factors (including oxidants) can amplify your natural inflammatory response and cause chronic, low-grade inflammation. This chronic inflammation then over activates your osteoclasts (the cells that resorb bone) causing excess bone loss! But antioxidants like vitamin C neutralize the oxidants that cause inflammation and help keep your inflammatory response under control.

Plus, vitamin C is also vital in collagen production. If you recall from previous nutrients, collagen gives your bones their flexibility.



Vitamin D: 1600 IU

If you don't get an adequate amount of vitamin D, you won't be able to absorb the calcium you consume effectively. In fact, research suggests you only absorb 10% to 15% of the calcium you consume if you don't have enough vitamin D^{8!}

As you probably know, the sun is a great source of vitamin D. But depending on where you live and the time of year, adequate sunshine can be tough to come by—almost 50% of the world's population suffers from vitamin D insufficiency! That's why AlgaeCal Plus provides plenty of vitamin D to meet your daily needs.



Vitamin K2: 100 mcg

Vitamin K2 activates two proteins that regulate where the calcium you consume ends up in your body. Osteocalcin directs the calcium you consume to where it's needed... your bones! And matrix Gla protein keeps calcium out of the places you don't want it—your blood vessels, kidneys, brain, and soft tissues.

Now, the major problem with vitamin K2 is getting enough. Especially the MK7 form of vitamin K2 that stays in your body long enough for you to reap the bone health benefits! See, the Western diet is almost completely void of the MK7 form vitamin K2, let alone enough to meet your bones needs. That's why we add vitamin K2, in its MK7 form, to AlgaeCal Plus. Despite it being the most expensive vitamin in the world! (That's why you won't find it many other calcium supplements...)

*PPM = parts per million. These trace minerals are present in AlgaeCal Plus in small amounts, but they still make a big difference to your bone health.

Sources:

- 1 http://www.nutritionsecurity.org/PDF/NSI_White%20Paper_Web.pdf
- 2 <https://www.ncbi.nlm.nih.gov/pubmed/28140318>
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