Mighty Minerals: Boron - The Overlooked Mineral for Testosterone, Bones & Healthy Aging Transcript

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Introduction to Boron

but there's more than just retention of those minerals. Boron also appears to play a role in how calcium gets used, meaning it helps support the process by which calcium actually deposits into the bone.

Not in the same way that vitamin K2 does, but it still is a player in that critical element of bone health and bone strengthening. Think of bone not just as a calcium storage tank, but as living structure that requires multiple inputs working together.

Boron is one of those inputs. Welcome to Vitality Radio, the podcast that helps you make sense of natural supplements and thrive without pharma drugs.

I'm Jared St. Clair. I grew up in a health food store and spent over 40 years now figuring out what works and what doesn't, so that you can make confident, informed decisions about nutrition, supplements and your health.

There is a mineral out there that your bones, your hormones, Your brain and your vitamin D are all quietly depending on and I can almost guarantee it's not on your radar.

Most people have never even heard of it. The ones who have maybe vaguely remember it from chemistry class, but here's what's interesting. Researchers have been studying this stuff since the late 80s, and I remember when it first popped up on supplement shelves.

What they found in the research is genuinely impressive. Now, as a listener of Vitality Radio, you probably do have it on your radar. If you're a new listener though, maybe not, but today's the deep dive where you gonna understand just why boron, B-O-R- O-N, is such an incredible mineral and as mighty as Mighty Minerals get.

So some people associate Boron with Borax for good reason, because that is actually a form of Boran, the stuff that you add to your clean laundry detergent and that kind of stuff.

What Boron Is and Where It Comes From

By the end of this episode, you're going to understand where Borron comes from in your food, what it does and why you are most likely running low and then how to use it if you decide it's right for you.

Before we get into Boron specifically, let me say something that I say in a lot of these Mighty Minerals series episodes because I think it genuinely matters.

There's no official RDA, Recommended Daily Allowance for Boran. No RTA doesn't mean What you might think it means though, can't be that important if there's no RDA, right?

Not exactly. The absence of an RTA doesn't tell you anything about whether a nutrient is essential to optimal health. What it tells you is that we haven't seen any severe acute deficiency diseases like scurvy or pellagra from not getting it.

That's a very different thing than saying you don't need it and that your body doesn' t function optimally without it But what is boron exactly? Well, let's start at the beginning.

It's a naturally occurring trace element, technically what's called a metalloid or a metaloid, metalloids, I think it's metallid, which just means it has properties of both metals and non-metals.

it is found in soil, it moves into plants, we eat the plants and that's primarily how we're supposed to get it. Mainly fruits, nuts, legumes, things like that.

Now, for a long time, boron was considered interesting from an agricultural standpoint because farmers know that borone-deficient soil produces weaker plants.

I'm going to tell you, and you're going agree with me, I think at the end of this episode that Boron depleted humans are also weaker humans for a variety of reasons.

So what does it actually do in human health? And how did we figure this out? Well, the modern story starts with a guy named Forrest Nielsen. He was at USDA's Human Nutrition Center in Grand Forks, North Dakota.

And he dedicated a significant portion of his career to studying trace minerals. and Boron became one of his primary focuses. In 1987, he published research in a journal that really got people paying attention.

It was a study on postmenopausal women, and it showed that supplementing with just three milligrams of Boran per day dramatically reduced how much calcium and magnesium they were losing through their urine.

We're talking a 40% reduction in urinary calcium excretion in just eight days. Now that's not a small effect. That's a significant finding for anyone thinking about human health and bone health specifically.

And that was just the beginning because that same research also showed meaningful changes in hormone levels, specifically elevations in estrogen and testosterone in women who were post-menopausal, which is typically a time of declining hormones.

Boron supplementation appeared to support the body's own hormone production naturally. That study opened up the door for a lot more follow-up work, and I'm going to share a lots more of what we've learned about Boronsense.

Now, let me walk you through the main areas where Boran shows up as an important player in human health. Bone health and calcium metabolism, by far the biggest body of evidence for Borón is in these areas.

And it works through a few different mechanisms.

Early Research and Bone Mineral Retention

First, as I mentioned, Boron helps your body hold on to calcium and magnesium. It reduces how much you excrete through your urine. So even if your calcium intake is decent, if you're Boran is low, you are potentially losing more of that calcium than you should be.

And if You're a magnesium lover like I am, and like, I would anticipate most people listening to this podcast are, we want to hold onto magnesium to remember the magnesium burn rate.

is based on the level of stress in our body and how quickly we cycle through magnesium. If we have boron and it can keep it in the body at a much higher level, 40% higher, then that's not nothing.

That's actually a big, big deal. But there's more than just retention of those minerals. Boron also appears to play a role in how calcium gets used, meaning it helps support the process by which calcium actually deposits into the bone.

Not in the same way that vitamin K2 does, but it still is a player in that critical element of bone health and bone strengthening. Think of bones not just as a calcium storage tank, But as living structure that requires multiple inputs working together.

Boran is one of those inputs. What about vitamin D? Well, this one is really, really interesting. And it's one of the reasons why Boron is in the vitamin D3 K2 formulas from Vitality Nutrition.

You know that vitamin d is a major deficiency in Americans. And I would guess that a high percentage of people listening to this show are supplementing vitamin, getting out in sunshine to get more vitamin all that kind of stuff.

Your body converts vitamin D into its active form called 25-hydroxy-vitamin D, and boron seems to slow the breakdown of that active-form, essentially making your vitamin-D last longer and work more efficiently.

Similarly to what it does with calcium and magnesium, but a little bit different mechanism. Forrest Nilsen's research from the 90s demonstrated that borone-deficient animals had significantly lower levels of active vitamin d compared to animals with adequate borons.

And there's a human data suggesting similar dynamics. In 2004, a reviewed published journal entry in the environmental health perspectives looked at boron's biological role and specifically noted its interaction with vitamin D metabolism as one of its key functions.

So if you're supplementing vitamin d, which most of us should be, and you are not paying attention to borons, you may be leaving efficiency on the table.

This is, again, why boron is in the vital D3K2 formula. It's why Boron in in The Ultimate Vitality Multi. it is a critical element that is often overlooked and we need to stop overlooking it.

What about magnesium metabolism? Well, the same story applies to magnesium. Boron influences how well your body uses and retains magnesium, which is already a mineral most Americans are chronically short on.

So it's not just the preventing some of the excretion of magnesium but actually optimizing how magnesium is utilized. And what about hormones, testosterone and estrogen specifically?

This is an area where the research is genuinely exciting and I want to be careful to talk about it accurately. I'm not going to promise you that Boron is going be dramatically transformative for your hormone levels, but It is still a very, very powerful tool in the tool case if you're concerned about optimizing your sex hormones.

I mentioned Nielsen's work in 1987 showing that it raised estradiol and testosterone levels in post-menopausal women. That finding has been followed up and extended.

A study published in The Journal Hormones in 2011 looked at healthy men who were given 10 milligrams of Boron daily for one week, just one What they found at the end of that week was notable.

Free testosterone increased by about 28% and sex hormone binding globulin, SHBG, that's the one that holds on to testosterone, prevents it from being used by the body.

It decreased significantly. So when SHBG goes down and free testosterone goes up, that's a meaningful hormonal shift.

Vitamin D, Magnesium, and Hormone Support

Estradiol on these men also increased, which from a male hormone balance perspective is generally considered favorable. Now one week is a short timeframe and it is just one study.

So I want to be clear. This is not a claim that Boron is some kind of testosterone booster in the way that the term gets thrown around in fitness world.

but the mechanistic picture that researchers have built suggests Boron plays a role in regulating how the body produces and metabolizes hormones. For women, 35 and up, which makes up a big chunk of people listening to this show right now, perimenopause, menopaus, hormone changes, the idea of a trace mineral that supports the bodies own natural hormonal production in a modest physiologically appropriate way is genuinely relevant.

Same for men who are dealing with the declining testosterone levels that we all know are happening. But Boron doesn't just stop there. It also has some really cool research on brain health.

In the late 80s and into the early 90s, boron was shown to affect brain electrical activity and cognitive performance. When people in these studies were put on a low-boron diet, their performance on cognitive tasks declined.

Things like attention, motor speed, short-term memory, when borone was reintroduced, performance came right back up. Boron appears to influence the production and activity of neurotransmitters.

It's been associated with healthy levels of certain brain-related compounds. This is an area where more research is certainly welcome, and it's not a huge body of research.

But what exists is consistent and suggests boron has a real role in how the brain functions, not just how to body structures calcium. And there is even more.

Now I remember back in the 80s when people were coming in asking for Boron because there were studies back then 80's and early 90's saying that it even helped with arthritis.

And I had honestly kind of forgotten about that piece, but there's some really compelling information here. This Rex Noonham PhD out of Australia looked at countries and regions around the world in the early 80s and found a consistent pattern where boron intake from food and water was low, arthritis rates were much higher.

When boran was naturally abundant in a diet, Arthritis rates are much lower. He published a small randomized trial in The Journal of Nutritional Medicine in 1994. Patients with osteoarthritis received Boron supplementation and showed improvement compared to placebo.

It was a short study, but still a notable one. Since then, researchers have looked at a specific form of Boron and found promising results around joint comfort and inflammatory markers.

A 2012 study found that Borons supplementation supported healthy inflammatory balance and joint function in people with mild knee discomfort. Now, is there deficiency in the real world today?

Well, as you've probably heard, and it sounds like a broken record at this point, I'm sure, the soil is depleted. It ain't what it used to be. We're getting two-thirds less magnesium than our ancestors got.

we're giving less of just about all trace minerals than what we used too. And on average, it's considered about one to three milligrams is what the average American diet contains of boron.

The estimated average intake of Boron in American Diet is roughly one-to-three milligrams per day. Some researchers suggest a minimum of three to six milligrams and many researchers, particularly on the functional medicine side, are recommending as much as 10 to 30 milligrams per day.

So there's potentially a meaningful gap for a lot of people, probably for most of us. Now, a few reasons for this. The first one is it mostly comes from plant foods and the soil is depleted.

Really, really simple. But also, boron is highly water soluble in soil. It leaches out very easily, especially in areas with heavy rainfall, over farming or acidic soil, so depending on where you live, you may be getting even less boran than is average.

And for people who may be especially likely to run low, those would be eating diets that are low in fruit and vegetables, older adults, people with compromised digestive function, uh, People on PPIs or acid blockers of any kind are going to have much harder time absorbing boron.

And so there's a lot of places where people are just simply not getting enough. I would dare say that the majority of people. Are not the three milligrams that I consider kind of baseline minimum.

So let's talk about where Boron lives in food really quick because getting it for your diet is going to be the most bioavailable way to do it. Avocados are great.

Prunes, raisins and apricots are. Tree nuts, including almonds, peanuts and walnuts are solid sources. Legumes generally across the board and apples and pears.

So if your diet is built around whole foods, vegetables, fruits, nuts, legumes, things like that, you probably get a reasonable foundation, but you might still not be getting that optimal level.

And we're going to talk about what I consider to be the optimal levels here in just a moment. But first I want to detour just little bit.

Brain Health and Joint Benefits

I wanna talk calcium because the two places people hear about boron nowadays are bone health and testosterone, because those are the places, frankly, that there's probably some of the most research, but also some the marketing.

And this is really, really important, especially for the female part of my audience, for men as well. We're going to talk about calcium and bone health and why Boron is such a key player and how to maximize this for just about five minutes and then we'll jump back into Borons specifically.

I think this really really is important. For women 35 and older in particular, You may have had your doctor say, you know, You're dealing with some bone loss, osteopenia, Osteoporosis, and they're going to recommend that you get home and take 1000 milligrams, 1200 milligrams 1500 milligrams of calcium per day.

Sometimes they might say to take a specific kind like calcium citrate. They almost never are telling you to Take some of the best forms like Calcium hydroxyapatite or calcium from algae, which I consider to be the two best Forms.

But the biggest thing is that they're almost always telling you, go take calcium, and they are not saying take vitamin D. Or if they ARE saying, take Vitamin D, they aren't saying vitamin K2, which is ultra-critical, especially if you're taking vitamin B3, And they often are NOT saying to take magnesium.

The co-factors matter. The cofactors matter so much because most Americans are getting a pretty decent amount of calcium. It's not calcium deficiency as much as calcium retention and calcium utilization that are really causing so many of the bone loss in this country.

And I'll prove that with some observational studies here in just a minute. So what are the key elements, those key co-factories? I've talked about them before, but I'm going to talk about it again right now.

Calcium does not do well in the absence of enough magnesium, enough vitamin D3, and enough Vitamin K2. It's as simple as that. Those are the critical elements that are absolutely necessary for calcium utilization.

But I think the next element, the fourth, and probably almost as important in some ways is Boron. It's a big, big deal. And then if I had to pick a fifth, it would be silica.

These are the key co-factors that make sense for bone health based on all the research that I've done and the evidence that we've seen in not just animal, but also human trials.

I'm going to get into that in just a minute. Remember, I've talked about this before. You can take all the calcium you want, you can consume all calcium, whether it's from supplements or from diet.

And if it just floating around in your bloodstream without direction, it ends up in places that it absolutely should not be. It can calcify your arteries.

which contributes to cardiovascular issues, it forms kidney stones, they can form bone spurs, It can accumulate in your joints and contribute to arthritis.

It could calcify soft tissue like the pineal gland or the parathyroid. it can also even calciify and do leave calcium deposits in breast tissue, which is why some women end up with suspicious findings on mammograms that turn out to be calcium deposit.

It calcifies endocrine glands and reduces their function. This is the calcium paradox. You're trying to build stronger bones, but in many cases, your bones aren't getting stronger and your soft tissues are getting harder and paying the price instead.

There's a meta-analysis, and this isn't the only one, but it's probably the most compelling one done in the British Medical Journal in 2011 that analyzed data from multiple clinical trials and found that calcium supplementation without vitamin D, magnesium, or K2 was associated with increased cardiovascular risk.

Not a small increase, about 25% increase and bone health didn't improve over a 10-year period of time. Bones didn' get stronger. Heart disease got worse taking calcium without those key cofactors, vitamin D, magnesium, and K2.

And that speaks exactly to what functional medicine practitioners and people like myself have been saying for years. Calcium in isolation is incomplete.

at best and potentially harmful at worst.

Boron Deficiency and Food Sources

Now, let me add one more layer to this that really matters. Most of the calcium that gets added to processed foods and cheap supplements is called calcium carbonate.

It's the most common form by a wide margin because it's inexpensive, it takes a very little space in a formulation, but calcium murderous to try to absorb, especially in people over 40, which is the vast majority of people who are taking it because stomach acid depletes and we need more stomach acids to break down calcium carbonate to have a hope of absorbing it.

It is the most likely calcium to not be absorbed and therefore the Most likely Calcium to create issues in the body. Now think about what's in a lot of these fortified plant milks, because if you're avoiding dairy, for whatever reason you are, most people aren't avoiding Dairy because they're vegan or vegetarian.

Most people are avoiding diary because They don't do well with dairy. Or they don't trust the source of the dairy. Maybe it's got, uh, you know, RBS tea.

It's not organic. Uh, it' not raw, whatever it is. And then you go into plant milks and I'm going to do a whole show on plant milk here very soon. I've decided that's an episode that has to be done.

Oat milk, rice milk soy milk. That's kind of fallen out of favor. Hemp milk cashew milk there's so many different options, oat milk being kind the darling right now.

and most of them are fortified with calcium carbonate. Oftentimes as much as three or 400 milligrams per cup. and they don't have vitamin K2 in them. And they usually don' have Vitamin D and the usually they have magnesium and that is terrible because calcium in a very difficult to absorb form, isolated without the key cofactors will go into the body in places that you do not want it to go.

So if you are doing nut milks, find ones that are not fortified. Please do yourself a favor and find one that's not for fortify. If you're buying oat milk, no matter what variety, Make sure it's organic.

Oat milk is one of the highest sources of glyphosate. If it is not raised organically, you do not want glyphasate, so keep that in mind as well. So what should you actually do for calcium?

Well, that's actually easy. It's the same answer for every nutrient. We should get it from our food if we possibly can. The food sources I already mentioned are huge.

Some of the leafy greens that I didn't mention before, kale, collard greens, bok choy. Many of cruciferous vegetables are excellent sources of calcium and much, much more well absorbed.

Even sardines and canned salmon with the bones and then full fat dairy is a great place to get, especially raw dairy. So there are places to it get from your food.

If you feel you need more beyond food, especially if you've got a DEXA scan that indicates that you got bone loss, then some people may want to consider taking a really high bioavailable form of calcium, and the best for my money is MCHA, which is microcrystalline hydroxyapatite.

Oftentimes on the bottle it'll just say calcium hydroxylapatine, on back it will say MCHJ. And I want to take a minute on this because it's worth understanding why it is different from other calciums.

And there's a couple of reasons that it different and these are really, really important. MCHA, microcrystalline hydroxyapatite calcium, is the actual structural form of calcium found in human bones.

It's not a salt dissolved from limestone like calcium citrate or calcium carbonate. it's Not a synthetic compound, but the real crystalline matrix that your bones are made of derived from clean range fed bovine bone.

because it's not a dissolved salt. It doesn't dump calcium into your bloodstream the way carbonate does. There's no blood calcium spike. there's now calcium looking for somewhere to go and not being able to find out where it supposed to be.

Instead, it delivers calcium along with phosphorus in the exact 2 to 1 ratio that is in your bones plus collagen proteins including the specific amino acids involved in bone matrix synthesis.

It delivers all of that in a form that the body already recognizes and knows exactly how to handle.

Calcium, Bone Health, and Cofactors

The clinical data on MCHA is legitimately impressive and it's independent of any brands actually selling the product. A meta-analysis of six randomized controlled trials published in the Journal of the North American Menopause Society found that MChA microcrystalline hydroxyapatite calcium produced an average increase in bone mineral density of just over 1%. So that's great.

In a large three-year study of 851 perimenopausal women, the MCHA group maintained completely stable bone density, while the calcium carbonate group lost 3.1%.

And here's the part that I love. MCHA group was only taken about 700 milligrams per day versus a full thousand milligrams in the carbonate group. So 30% less calcium with a much, much better outcome.

Cause we have to keep in mind the average woman in menopause or beyond is losing about half to 1% bone density per year. Half to 1%. So the fact that this study was done on perimenopausal women, the same group of women that are losing half to one percent per year, and it showed that microcrystalline hydroxyapatite stopped that bone loss.

That is massive. That is not a small change that is dramatic, especially considering the other part of the group was taking calcium and losing 1% per year, basically 3.1% over a three year period.

So they were not slowing down calcium bone loss. They may have been actually increasing bone lost in some cases. We don't know exactly, but compared to other studies, that's what it appears.

So microcrystalline hydroxyapatite solo, this is important too. Not with vitamin D3, not with Vitamin K2, Not With Magnesium, not with Boron, Not with Silica.

Just this calcium alone stop the bone loss. And you have to assume, I think safely that adding all the cofactors in would yield even a better result. I've certainly seen that with my customers here at Vitality Nutrition.

And that brings me back to this dosing thing. Your doctor will tell you 1000 to 1200 milligrams. That is the oldest recommendation in the books. They've been recommending that for 25, 30, 35, 40 years.

I don't even know. The last, I remember when that recommendation started coming in, but we've had people for probably at least 40. Coming into vitality and nutrition, saying my doctor said take a thousand milligrams of calcium.

And then I have to say, okay, not your doctor, can I explain to you? that there is some research about the different qualities of calcium out there and help people understand that not all calcium is created equal.

My opinion, not your doctor's opinion. my opinion for you based on the research that I've done, based the results that i've seen in real people who've talked to me and showed me their DEXA scan results and things like that is that, I don't think people need a thousand milligrams of Calcium.

I think most of us are getting plenty of calcim in our diet. If we're not getting a plenty a calcium, if we feel like we need more, i think 500 milligrams.

of microcrystalline hydroxyapatite and really probably a max of 750 milligrams. That's two to three capsules of the solar ray micro crystalline, hydroxylapatites form of calcium is the dose that I'm recommending.

Two a day for most people divided preferably morning and night with a meal. And the reason I believe that is because the study that showed that it stopped bone loss was at 712 milligrams.

So that's not substantially less than that. And I'm recommending always using the co-factors. Now, if you're not using co factors, then I think you are making a mistake to take calcium at all, personally.

But you got to use those cofactors. And when you do use cofactors, I think you can get away with less calcium because you're also going to absorb a lot more of the calcium that's in your diet.

It's going get into the bones the way that it's supposed to get there. If you want to go a little heavier on it, if you are going take too much calcium.

Like if you're erring on the side of more rather than less, the form to take too much of is the hydroxyapatite form because it's not a calcium salt. It's far less likely to end up in places that you do not want it.

So my new bone health protocol over the last couple of years has been this. Its three supplements, magnesium bisglycinate. Obviously I prefer my Vital 5 magnesium bisglycinate, but magnesium is phenomenal.

You should be on that regardless anyway. My Vital D3 K2 formula, which gives you D three, K two, boron and silica in one single capsule and the solar ray brand, microcrystalline hydroxyapatite for your calcium source.

Add in weight bearing exercise because you absolutely need that. That's the signal that tells your body, your bones to stay dense. And make sure you're eating plenty of protein because the bone matrix is largely made of.

Protein and most people, especially women are chronically under eating it. That's the full stack. It's three different supplements. Cause I haven't found one that puts them all together appropriately.

Maybe at one point I will create one, but that's. And I think it makes a ton of sense. for anybody that's concerned about their bone health. Okay, now we're gonna go back to Boron and the other benefits.

Who have benefits besides the bone-health crowd? Let's talk about the hormone optimization thing first. Anyone trying to optimize hormone balance, I think this makes sense.

If you're experiencing low testosterone as a man or a woman, if you are navigating the hormonal shifts of perimenopause or menopaus as woman. The evidence suggests Borons may support your body's natural hormone production and balance.

Initially, we always plan to have boron in the endocrine protocol that Jen and I have been working on for the last couple of years, for sure. But we weren't going to put D3 and K2 in there.

And as we started seeing all of the interplay between D 3, K 2, borons, silica, magnesium. which of course I recommend for everyone, and bone health and muscle health, in maintaining muscle mass, we realized we couldn't just have Boron in there.

We needed the D3 and the K2, And then that's when, over time, it just made sense to actually put them all in one formula. If you're supplementing vitamin D, and you most of us probably should be and especially if you're not getting enough sun exposure, Boron is a critical element in keeping vitamin D more active in the body for longer term.

If you have joint pain or joint stiffness, boron could make sense for you and if your concerned about brain fog or cognitive function issues, it could makes sense as well.

And then if think about it, These categories often overlap heavily. The 45-year-old woman who's thinking about her bones, her hormones, energy, vitamin D levels, mood, she has multiple reasons to be interested in Boron.

Same for the 50- year- old guy thinking of testosterone, joint comfort, and cognitive sharpness. So there are a few different forms of boron and frankly, most of the boran on the market is in a pretty good form.

You'll see it in glycinate, you'll you see in citrate, aspartate, something known as just an amino acid chelate. That's actually the form that I'm using right now in the Ultimate Vitality Multi and the Vital D3K2.

These are all.

Best Calcium Forms and Bone Health Protocol

They're all boron chelated to an acid that helps it to absorb into the body. There aren't great head-to-head studies to indicate that one is better than the other.

So I always just tell people look for a chela. I choose to use the amino acid chelet in my formulas and have had good success with that. One thing worth noting is this.

And you'll see this a lot, and you will hear it a lots in my Mighty Minerals series, you heard it in the Chromium episode. You'll one to two milligrams is often what's in formulations, sometimes you see three, occasionally you can see six.

I use ten milligrams in Vital D3K2, I used three milligrams of the multivitamin. Why these numbers? Three milligrams I think is the minimum that you should supplement daily if you're supplementing Boron.

And because the Ultimate Vitality Multi is designed to be a universal tool for many ages, for both genders and so on and forth, I decided three milligrams is a good baseline dose to have in there to make sure we're just covering the bases.

But 10 milligrams in the Vital D3K2, which oftentimes people are stacking with the Multi, gives you 13 milligrams. And for me, that makes tons of sense.

From a safety standpoint, the only real precaution is pregnancy. There's enough animal data saying that maybe really high doses of boron aren't a good thing during pregnancy.

Lower doses are probably fine. That's one that you either want to, you know, check with your physician and decide how you want do it. But I personally, I think there's no reason to believe that a moderate dose, like three milligrams would be problematic.

And many prenatals do have a little bit of Boron in them, but I don't recommend higher than that during Pregnancy for sure. I do recommend checking with you physician, your OB, that kind of thing, midwife, whoever you're using that's an expert in that field.

It's considered very, very safe. because 84% of it leaves the body. It's a water-soluble mineral, which makes it pretty unique among minerals, but it gets in and gets out pretty, pretty quickly.

And they have not found toxic levels of boron. it just doesn't seem to exist in the literature. So overdoing it seems to be pretty hard. Sure, you could take more than you need, But you're probably not going to create any harm.

and some of the best studies are at those higher doses. Let's talk about that for just a minute and then we'll close out this show. As I mentioned, I have two formulas that have Boron in them right now.

I will tell you that the Endo Elevate formulas for men and women that are coming out in the next couple of months will also have boron because again, we're looking to optimize and there's enough literature out there to me indicating that 10 milligrams is probably kind of minimum for optimization of Boran and it probably falls in even a little higher than that for a lot of people.

maybe 20 or 30 milligrams per day. And there's mounting evidence that more can potentially be more effective for people. So when I formulated the D3K2 formula, those take up very little space in a cap.

I didn't want to just put a bunch of fillers in there like a lot of companies do. I wanted to put active ingredients in their and as I was digging around, it just made sense.

This is a place where I can get Boron in, that people don't have to take another pill. that they can get it all in one dose and that's why boron and silica ended up in my formula instead of just a filler.

And I landed on that 10 milligram dose again because we have really good studies at 10 milligrams, excellent studies, at ten milligrams. One of my favorite studies that ten milligram showed a reduced inflammatory signal, a significantly reduced inflammatory signal of 45% on C-reactive protein in a short-term study in 2011 and a 28% increase in free testosterone at 10 milligrams.

The World Health Organization of all people of, all groups says that 30 milligrams seems to be a very safe dose. Well, they actually say 28 milligrams So again, overdoing it, probably not a big deal.

There are two D3 K2 formulas. there's the original and there is the high potency. The high-potency has 5,000 units of D three. the Original has 2,500 units.

A lot of people will stack the D 3 K 2 2 500.

Boron Dosing, Safety, and Product Options

original potancy with the ultimate vitality multi that gives you 360 K two, which is my sweet spot for K to seven myself. and 5,000 units of D3 and it gives you 13 milligrams of Boron.

I love that for almost everybody, I think that's a great universal dose. If you're not taking my Multi, you are taking something else instead, trying to piece it together from your diet and that kind of thing, then the full potency one, 5 thousand units, of the D 3 with 360 K2, still 10 milligrams, Boran and 150 milligrams Silica, probably makes a lot of sense for you.

I have zero concerns at those numbers. And if you are wanting to push a little bit higher than that, because of some of what I've said, or some other research you've seen, we even have a 30 milligram dose from Hakala known as the Borotab.

That product is great for people that want a one pill, high dose Boron that can work really well for you as well. So let's bring it all home here. Boron, no recommended daily allowance.

No fanfare, No marketing machine behind it. But my gosh, it's an amazing supplement. It's one of the least expensive supplements out there. Is not expensive to take.

And the way that I've done it, including in the Multi and the D3K2, It kind of a throw in. it doesn't really change anything price wise in either one those formulas.

So you're essentially getting it for free. You can get lots of Boran, not supplement level doses, but good doses of boron in a diet that's rich in fruits, nuts, vegetables, legumes, things like that.

And this entire Mighty Minerals series is about helping to expose to you some of these minerals that need a lot more of your attention for optimizing your health and wellbeing.

I hope you enjoyed the show. If you did, let me know. Go tell somebody about the Show. Share it online. Check it out on YouTube if you're listening to it and you want to you know, see my face while I'm doing this stuff.

Not sure why you'd want to, but whatever. That's an option as well. I've had a lot of people ask for YouTube. We finally got it launched and we'd love to get your comments on the YouTube videos as your comment on Spotify.

If you're listening over there, you can also jump on our website, vitalitynutrition.com. The products that I mentioned will be linked in the show description.

And that's it for me. My name is Jared St. Clair and this has been Vitality Radio. Thanks for listening to the Vitality Radio podcast. If this episode helped you follow the show, share it with someone and explore trusted education and resources at vitalitynutrition.com.

See you next time. Hello, everyone. I hope you enjoyed this week's episode of Vitality Radio. Just a reminder that this podcast is for educational purposes only.

This podcast has not been evaluated by the FDA. Thank you.