



Episode 662: Why Most of Us Are Mineral
Deficient, How to know, and What to Do About It
With Barton Scott

Child: Welcome to my Mommy's podcast.

This podcast is brought to you by LMNT, which is a company that I have had the chance to invest in and have loved since day one. They just released brand new grapefruit flavor on top of all of their other flavors that I absolutely love, including watermelon which is a kid's favorite in my house, as well as citrus, raspberry, orange, and a couple of ones that I really like, like mango and lemon habanero as well. As you know, summer brings warmth and sunshine, and with it, energizing opportunities to all of us to move and play and be outside. But it also brings a fair amount of sweat. And if you are a regular sauna user like me, you know that sweat is part of it, as well as if you exercise regularly. And this is why optimal hydration is the key with the right fluid to electrolyte balance, because it isn't just about getting enough water and fluid, but also making sure our electrolytes are dialed in and you feel the difference when you get it right. So when summer brings the heat, LMNT brings the grapefruit salt flavor to help you enjoy that balance all summer long. You can consider grapefruit or any of their flavors, your ultimate summer salt companion. And I love that they combine sodium, magnesium, and potassium in the clinically studied ratios to make sure that you can stay optimally hydrated even if you are sauna'ing or exercising or just spending time outside in the summer. Find out more about LMNT by going to drinklmnt.com/wellnessmama. And this is a one time flavor so when it's gone, it's gone for good. I highly recommend that you try it. I also would suggest trying watermelon and mango chili if you like a little bit of a spicy kick. But watermelon, like I said, is the kid favorite at my house and you can find those and all of their flavors at drinklmnt.com/wellnessmama.

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My favorite products from BON CHARGE are their Anti-radiation and EMF Protection products.... And their lighting solutions. I use their laptop mat when working on my computer to protect my body from the EMFs from my computer, and their blanket is great for curling up and watching a movie or using when traveling. I'm also a big fan of their lighting. Junk lighting has been a problem for a long time, and I hadn't found a great solution until now. They have red light bulbs that have zero blue and green light, designed and tested not to disrupt melatonin production, as well as full spectrum bulbs that have settings for morning, afternoon and evening. The daytime settings mimic the full spectrum light from the sun and the evening setting mimics a campfire to help promote restful sleep. At my house, I love using their full spectrum bulbs in ceiling lighting, which is also the angle we get light from the sun, and using the red light bulbs in lamps, as some evidence shows red light is experienced from eye level or below in nature. Now, I can just switch from overhead light to lamps at sunset and help my family be calm and relaxed before bed. They are also energy saving and low/no EMF!

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Katie: Hello and welcome to the Wellness Mama Podcast. I'm Katie from Wellnessmama.com and this episode is all about minerals and mineral absorption and how deficiencies or absorption issues can be holding back your energy levels, your sleep quality, your adrenal and thyroid function, even viral and bacterial susceptibility hormones, and so much more.

And I'm here with Barton Scott, who is a biochemist and founder of Upgraded Formulas. He's also a nutritionist and a researcher, and for the last seven years he's been the process developer behind Upgraded Formulas. He's passionate about helping people address the stress of daily life, sleep struggles, hormone issues, fatigue, and the nutrient absorption issues that we all face.

And this is what Upgraded Formulas was designed to do. But we go deep on the science of this today and why most of us are mineral deficient, how to know and what to do about it. We talk about why we are all facing a lack of nutrients in our food supply and why this is a new phenomenon. We talk about why this issue is important because we are getting less than 50% of the minerals from our food that we used to, but we can't eat double the calories to compensate. He talks about his mom struggle with a life threatening health issue that led to his work in this area. He talks about how the body is always putting out warning signs and speaking to us, but we may not always understand what it's saying. We talk about why blood tests are not accurate for minerals and why hair tests are more accurate because blood tests are sort of you are on your best behavior because our body will prioritize keeping the blood in balance and take things even from bone marrow and organs if needed.

He talked about why abnormal results in blood tests can often indicate that a person has had a deficiency for decades. Not just one, but multiple decades. How eight out of ten people are deficient in magnesium on a daily basis and 99% of people are deficient in both magnesium and potassium. He talks about why men and a lot of women are deficient in testosterone why minerals are the building blocks for hormones and neurotransmitters and how absorbable minerals can help with things like making melatonin and serotonin and how taking a bioavailable form can help, even if you have digestive issues or other things going on that make it hard to get these from food.

He talks about how magnesium activates 3200 proteins in the body and over 800 enzymatic pathways, and how minerals are a light switch of sorts that opens the conduit for the circuit of the body to be able to use other things like vitamins. He talks about how activity levels, sweating, etc can impact mineral need as well as stress, caffeine, alcohol and other things. And we talk about sodium, lithium, copper and potassium deficiencies as well. Very fact packed episode. I know you will learn a lot so let's join Barton Scott. Barton, welcome. And thanks for being here.

Barton: Hey, thanks for having me Katie.

Katie: Well, I know there is quite a range of topics we are going to get to go deep on today. I think let's start off foundational and maybe talk about minerals in general. I know that there's a lot we can go into related to minerals deficiencies and the reasons for that maybe define some of the reasons these are important and some of the key minerals we're going to be talking about today.

Barton: Right. So what we are facing is a huge, all of us are facing this and we'll get into why it's so important is the utter lack of nutrients in our food supply. And this wasn't always the case, in fact in our grandparents lives, depending on how old you are. But let's say the last 80 to 100 years, the amount of nutrition, particularly minerals being the most important, we'll get into why that is.

The amount of nutrients in general, minerals included, has gone down by about 50% and we're not able to eat twice as much without taking on many extra calories. So that's the issue and that is just staring us in the face. So what do we, all of us, so what do we do about it and how did we get here? Those are some of the jumping off points and yeah, really for me it was because my mother got very sick when I was in my mid 20s. I knew a ton about nutrition already. I'd been studying nutrition since I was quite literally like ten years old because I wrestled amongst other sports. And with that sport you have to understand nutrition, otherwise it just doesn't work because you have to make weight.

So I started thinking about things like that at age, even younger than that, frankly, I started noticing things and ultimately what I found was I wasn't able to help her as much as I thought I could and no one else was either. Like doctors, medication, surgeries, all these things. And we're very tight as a family and whenever you lose someone close to you, especially early in life, it's a very formative experience. And I could see that she was very healthy outside of a couple of things that sort of tripped her up and then that was enough to feel worse and worse and worse and worse. The other thing I learned along the way is the body is always putting out these warning signs. Body is always speaking to us in a way that we simply don't understand.

So you may think, oh, migraines or headaches or bone spurs in your heel, all of those things, if we just understood the language. They all have magnesium deficiency in common. They all have this deficiency in common. That deficiency. People weren't doing functional lab testing or they weren't using it correctly, they weren't interpreting it to its true depth. So there's many different reasons and then I started to have my own memory issues after that, after pushing so hard in sports and then school and chemical engineering. And I found for both of us, we really didn't have the solutions we needed. So, yeah, we can talk about all that and any other things you want to get into.

Katie: Yeah, I mean, I've definitely seen reports of this as well, how our food supply and even water supply have much less minerals than they used to. And to your point, we can't just easily start eating double or triple or more the amount of food to be able to get those minerals. Let's maybe go in the two factor different way of why is this happening and why so quickly? Because it seems like this has been a pretty rapid change. And then also start to delve a little bit into the world of how do we know if this is happening to us and what do we do about it?

Barton: Sure. So it's happening quickly because of farming practices, their focus purely on maximum yield and short term thinking and not regenerative agriculture. And it's happening because of that. We have a loss of topsoil. That means that there's just not that much real soil that can give nutrients in the same way that a mother cannot give her child things, nutrients to form that child if she doesn't have them herself. And also she'll give heavy metal toxicity and any other things, diseases, all these things get transmitted. So the soil, the

earth is very much that way in that there's a limit to what it can give. And we just haven't been thinking long term about that for a while. So it's been getting worse and worse.

So the thing that we covered, or we came to after spending just tens of thousands on testing and trying different tests, was that blood was ultimately you on your best behavior. And although blood could be good for some things, for minerals, I found that hair testing was the best if someone understood the hair test really well. And we got really lucky with that. We met this sort of wizard of a person that's now retired and he was a mentor for a bit and just kind of was able to answer a lot of the questions, although not all of the questions I had. And that was about 13 years ago, 14 years ago now.

And since then I became, through that process and all that pain is a powerful driver. Necessity is a very powerful driver. And I really, without realizing it, sort of became one of the top people in the world that understand hair mineral analysis and using my background in chemistry as a chemical engineer and as a nutritionist. And I got to the point where I could listen to someone's voice and look at their hair test results. And over time I just started noticing patterns in people's voices and what they were deficient in and just all sorts of interesting things like that.

But from a hair test, we see so many things, and that shouldn't be surprising. But here's why that is. It's because what we're testing for is a collection of the periodic table, the collection of all the building blocks on the planet that make everything, every hormone and neurotransmitter is some collection of ingested and digested nutrients that we call minerals. The bad ones we call heavy metals. They're always at war. There's a tug of war happening in our bodies and in the universe itself. And that is really what we test for. We understand, we decipher. And then I've created products that really work to replenish those deficiencies. Because the thing that I noticed is we're testing and testing and supplementing, and the results weren't really coming for years. And for her, for a few other people.

And I remember thinking, this is a very solvable problem. And what I went to school for is essentially creating the process that solves that. Of all the things you could study, I studied the exact right thing that allowed me to solve this from a process standpoint and to know what to look for. Because chemists don't create processes, mathematicians don't, doctors don't. Chemical engineers create the actual industrial process that creates the outcome. And I knew nanotechnology was going to be this new frontier of things, so I thought, why don't we apply this to supplements? Let me find a solution that truly works for people. And so we've been able to do hair analyses on infants that were crying nonstop, just incessantly. We've done it for people that are 80 and everyone in between, or 100. I don't even know how old at this point. We've done so many. But that's sort of like how to test and why I feel like that is the best test and how I came to it.

So I hope that is helpful for people if you're looking for some way to sort of decipher your health and retain that power. Because my wish, really for people is to democratize healthcare in a way that people can just order the test and they have enough knowledge baseline to know what to order, be able to schedule appointment with someone, be able to take supplements, be able to avoid drugs, be able to just truly have ownership of your own health so that you don't feel so chained to your doctor. And that white coat syndrome

that we all know of, and we know that's a thing goes away because that power gradient is no longer there. That charge is no longer there. You have the power back where you should.

Katie: Yeah, I love that. I say on here probably more often than the listeners would like, that we are each our own primary health care provider. And at the end of the day, while we can partner with amazing practitioners, the responsibility still entirely lies in our own court. And that it's our daily habits and decisions that make the biggest impact on our health. And so if we can shift into that area of responsibility and I think one of the limitations we run into there is that often it is difficult to get some of these tests and things without a doctor. So I love that that's part of the work you're working toward is make this more available to the average person.

I'd love to also hear a little bit more about you mentioned that blood tests are not accurate for minerals and I would guess people listening some have gotten blood tests and been told they were fine. For instance, on magnesium or whatever the mineral may be. Can you explain a little bit more about why hair analysis is more effective for minerals especially than blood test?

Barton: Right. Yeah. So the interesting thing with blood is it's really doing your best behavior. And the reason I say that is because blood is so important that we pull from our bone marrow, if we have to, to neutralize the blood. We pull from our organs to neutralize our blood and to make sure the blood is ideal as possible. As ideal as possible. And with that understanding, with what I just said if you go and check the blood, unless something is gravely wrong you should expect to find that the blood is pretty much ideal in all these things. If it's not, you've had a deficiency for years and years and years. Most likely not only one decade but multiple decades that you could have seen in hair and rectified.

Because hair is tissue, just like skin is tissue, just like organs or tissue. Even bones, teeth are tissue. We think of them as different things and they are essentially all tissue. So we test tissue. The easiest of which to obtain is hair. And that could be hair on your scalp, your neck, underarm pubic. Those are the top three places to grab hair from. And we know intuitively too, from other areas, other fields. For example, drug testing. People know that a hair drug test is much more effective than a blood or urine. And it's a little different here. You get six to eight weeks of data with a hair test and that's a good average. And it gives you about 1000 times more data per nutrient sampled. So if you're looking at iron or you're looking at chromium or manganese or magnesium, you're dividing by 1,000 to get a much more accurate number. So there's that aspect of it too.

Katie: Yeah, that's interesting. And I know that you have resources related to this as well. I'll make sure we link them in the show notes including resources on how to get hair mineral analysis. But I know that there's also kind of infinite things in the body that are impacted by these minerals. I know for magnesium alone, the often quoted number is it contributes to over 600 reactions within the body. And that's just the tip of the iceberg for one mineral. But maybe walk us through some of maybe the more common patterns that you see, the more common deficiencies that you see and how these are impacting people.

Barton: Yeah, so we see different patterns, and I could name things like four lows patterns and different toxicities, but we see some of the things that you would never see, for example, in blood, and don't get me wrong, like blood testing can be helpful for many things, like vitamin D deficiency, etc. So if you're a practitioner listening to this, it's more of an invitation to explore, does this fit your practice? Is this something you can offer as an additional lens, not as you need to switch everything you're doing? No, it's more of an add this and here's why. That's my approach for almost everything we do.

Something that we see, for example, is hidden copper toxicity, though you wouldn't see that without blood. You wouldn't see iodine deficiency in blood, then too small of amounts to be accurate. We see a lot of thyroid dysfunction. We see a lot of Adrenal dysfunction in almost everyone. Adrenal dysfunction, thyroid. So you can see that through hair. We can see how they handle sugar. We can see what their metabolism is like. We can even see what their viral susceptibility is like. So how likely are you to get a virus? How likely are you to get a bacterial infection? We can see that through hair, through different ratios of minerals, because we know in those ranges where someone should be and if you're not, or if you are within a certain window, for example, we can see that someone may have a difficulty focusing, ADHD. They may be manic, they may be depressed, they may experience bipolar, and almost certainly do if they're within certain ranges. And it's okay to see that because the hope inspiring thing of what we do is that everything is reversible because we've developed great tools.

Katie: Got it. That makes sense. And I'd love to go deeper on the topic of magnesium in particular, because it seems like this one is especially a big puzzle piece for a lot of women. And it seems like, at least from the statistics I've seen, it's a pretty safe bet that most people are deficient in it. So if you're curious if you're deficient, you likely are, and obviously it's still good to get testing, but I would love to hear what you're seeing when it relates to magnesium, if most people actually are deficient and then anything related to what forms of magnesium and the best way to replenish the body if we are deficient.

Barton: Beautiful. Sure. It's a great question. Eight out of ten people are deficient on a daily basis. Is the stat part of that stat that a lot of people that is left out and many people wouldn't understand. So what I'm really saying in that is that each day you have to take in enough magnesium, but it doesn't really store it. And that's the case for most minerals. Not all, but most. And the thing with what we do in applying now technology to this to truly solve this is and if this was your company or anyone else's, I would talk about that and just describe it. So that's what I'm doing here.

What we do is with the understanding that your body never asks for multiple forms of anything. If it gets it from food, it breaks it down to electron level. So that is what we do with all of our products. Well, with the exception of upgraded tea, which is essentially like a testosterone multivitamin for men and women, because most women have low T2, after age 28 or so, again, because the soil is depleted and we need those nutrients.

So this is a really key point to note. Minerals are the building block for hormones and neurotransmitters along with fats and amino acids. So what that means is without minerals, without the right balance of the right minerals, which changes every three months or so. So we recommend testing, ideally quarterly. I do mine

every 60 days. That gives you the map. Without the map, it's kind of like planning your business or your relationship with a very loose plan from a long time ago. And it's just like you want better data than that. So that's the reason there, particularly when you're making changes, like you have more energy, so suddenly you start changing your lifestyle, or someone gets pregnant, or you have a child, or you go through a divorce, or you get in a car accident or you lose some. Like all these life changes have tremendous nutritional needs that go along with them. And I think a lot of people are somewhat aware of that. But then they struggle with the what do we do part. So that's really what we're talking about.

So with our process, just like with food, imagine you eat something, there's 100 steps between eating that thing and having it be absorbed in your bloodstream as electrons. So what we deliver is that last 100 out of 100 step. So that even if your digestive system is not working very well, all you have to do is digest a capsule. And then what's in that capsule is dispersed in the body just like light, essentially. And it provides this leg up on things, this momentum that we need to get healthier. Because then all right, now we're at the point where we absorbed all the magnesium we took. Now we create a lot of melatonin naturally. Doesn't mean you should take melatonin. You should take the ingredients that build hormones like melatonin, serotonin. Magnesium actually builds both serotonin, which is your feel good, everything's going to be okay. I'm going to figure out a way sort of perspective on the world that's serotonin and melatonin, the go to sleep hormone. And also it's a huge antioxidant in the body. It does a lot of things that's all built on magnesium. And magnesium activates 3150 proteins in the body that we know of, and it now activates over 800 enzymatic pathways. And that's just as you said earlier, just one nutrient. That's just one that we could talk about.

And there's, what, 17 others that we test for individually. And then we look at ratios and heavy metals. So this really is the universe that we're testing for the planet. At least all the building blocks in here with magnesium, that's really what you're looking for with us. The form doesn't matter because we get it to that point where your body, it's broken down so far. It's at such an elemental basic level that your body interprets it and understands it and brings it in, and every cell in the body can utilize it. It's not just this, not just your brain or not just your muscles or anything like that. Like it is with an old process, an old industrial process that produces a certain form of a certain mineral. This is not how nature does it.

Katie: That makes sense. And that was such a clear explanation, and my numbers were apparently outdated of how many things magnesium contributes to in the body and just that alone. I do feel like it is kind of the master mineral, like I said, especially for women. Are there any tips for I know, obviously dependent on a person's individual levels, but on dosing or when to take magnesium for best absorption with food, without food? Before bed, what do you recommend?

Barton: There always before bed is my thing. I do it within an hour of bed, always every single night. And I also test my levels for sure. Like you're talking about, testing is a big part. Although we put out great supplements and we have, I feel like, the easiest to use hair test out there. It ships to pretty much everywhere in the world. We're so bullish on testing that we own the phrase test on guests. A lot of people use it. I'm okay with that. But we actually own that phrase because it's key to what we believe and also how we want to help people, because we do tests and we do consultations that are optional. You can just buy the supplements if you want,

but test really gives you the insight, the enlightenment of, here's what's really going on right now, and here's what we could do to improve that.

So maybe the only problem that you're facing is that you have a lot of fatigue in the afternoon and everything else is pretty good. Maybe it's that you feel like your hormones are completely crashed. All of these things are so those are a couple of extremes, and a lot of things result from those different places. But maybe it's just brain fog and there's different levels of that. And I had really severe and I had really light and that's one of the first signs of mineral deficiency is the brain starts letting you know like, hey, there's not enough nutrients, there's not enough electricity in the brain. And you feel that pretty quickly and sometimes you wake up from sleeping and you feel really replenished and sometimes you really don't. Those are just kind of ways to think about this whole process. And what else were you saying? I'm trying to that covered it.

Katie: Of dosing and sourcing. One tip I found is anytime I can either put things in my way or habit stack to help remember to do them, that helps me be compliant with doing it. So I have certain things I keep on my nightstand for before bed and I have certain things I keep right next to my bathroom sink for first thing in the morning on an empty stomach. And I feel like having them there top of mind helps versus having to remember to go find them. Even supplements that I take with meals I put on the kitchen table next to the napkins and the salt because it reminds me to take them. So just a tip for people. If you have trouble remembering to take these things, that's the thing that can help.

I've also heard you talk about that vitamins can be of no use without minerals. And I would love for you to expound on this because I think this is a concept that a lot of people maybe don't understand.

Barton: Right? Yes, absolutely. That is because minerals activate, think of minerals as a light switch and you turn that switch and that circuit opens. That's what's happening in the body. So you have these vitamins that are essentially inactive. So vitamin D, did you know that vitamin D is inactive in the body without boron? Most people don't know that. Certainly not testing for boron. That's an example. That's a really important one. And it's true for all vitamins.

So there's a sort of a role that gets played there. It's almost like a dance between masculine and feminine. Almost. It's a really beautiful process where minerals are activating vitamins and without you just need both. You really do in every step of the way. And on dosage to get really clear on that for people besides just saying "test, don't guess" is it really depends on your activity level. So I have a few friends that are I would say like for this audience, probably the best example would be like my friend Natalie. She's I would say very fit, very active, runs her own business. She does four capsules of upgrade magnesium every night. And her deep sleep when we met was so abhorrent, it was so terrible that it was almost nonexistent. She was getting 15 minutes of sleep, of deep sleep a night and about four and a half hours of REM on her Oura ring.

And we took that in five to seven nights up to nearly 2 hours. And then her time in bed went from eleven and a half hours down to like seven and a half or eight. And so she got a lot of life back is what that means. She got

an extra roughly 4 hours, about eleven and a half to four and a half sorry, eleven and a half to seven. So about 4 hours back and she immediately felt more creative. I've had another friend, he said that his best weekend ever he's ever had with his kids was last weekend or weekend before now. And it was because he attributes that solely to sleeping so well now. And that's just Upgraded magnesium. That was his change. It's a beautiful testimonial video. This is a very high functioning person. He works for a private office. He's super connected to a lot of people and certainly can afford any solution. I would say, they both can, and they know decent solutions and they were managing but not thriving. That's the foundational piece. There is no more foundational piece than the building blocks to build the planet. And that's what we test for and that's what we give people an upgraded version to absorb.

Katie: And it sounds like we mentioned already, stress can deplete minerals more quickly. So can I would assume high activity levels from what you just said as well as I would guess, Sauna, if activity levels can also deplete minerals, I know from motherhood pregnancy can deplete them quite rapidly. Are there any other risk factors? I've heard caffeine mentioned as if you're drinking a lot of caffeine, you might have a higher need for these things. We already know our food supply is already depleted, so probably eating any kind of processed food further depletes your minerals. But any other risk factors to be aware of?

Barton: Yeah, other risk factor would be alcohol, anything that changes the PH of your body. So alcohol, caffeine, stress, all those things change our PH. On a good note, breath work, oxygenates. Right. But anytime you're producing energy, you need certain things. So for every molecule of oxygen in the body, you need a certain amount of copper and magnesium to produce ATP in the cell or energy in its raw form in the cell. And when those things get out of balance, you start feeling out of breath, you start getting sick more easily, you feel tired and wired more easily.

All these things I would say in terms of deficiency as well. Katie, the one that's overlooked so many that I would be remiss if I didn't mention it here on your show is particularly if you are a mom or you know someone that is that is either pregnant or getting pregnant, like two years prior in that phase. Or even more. Or breastfeeding, particularly. Or just like trying to replenish your or yeah, just replenishing your own stores at this point. Iodine iodine deficiency is rampant. If you are listening to this, you have iodine deficiency. That's how big the numbers are. 96% out of 6000 people tested. And some of those 6000 said that they were supplementing iodine regularly. Still 6000 were deficient. 96% of 6000, virtually all.

And the reason part of that is that when you look around at an otherwise healthy American diet, even if it's pasture raised, grass fed organic, which don't get me wrong, we really need to be intentional with how we spend our money because we get more of that. So we should all vote with our money and do that. But there's no real iodine in those food choices because we don't have things that people eat in Japan, for example, where they have a much higher daily intake of iodine, they take in about 100 times more iodine than we do, 80 to 100 times a day after day after day. And what that results in is a child born with iodine deficiency actually results in a 20 point lower IQ, 20 points, which is the difference in succeeding in life and really struggling to get by getting into college and not getting into college, just struggling to make friends and adapt. Also a lot of this leads into confidence too. Self worth, all these things.

So when someone really sees everyone around them as peers or something like that, that's great. When everyone sees people around them as smarter than them, that's really difficult. That's quite a challenge to overcome. And when you feel really smart and capable, your ability to access resources and develop yourself and others is exponentially higher. So iodine is a very much a scale tipper, an inflection point, a real thing to look at and to take. So we have a high dose iodine that's considered high dose because of how low our recommended daily allowance is in the US. Which is, as far as I can tell, only based on keeping us alive. And that's certainly not well.

Katie: And we've talked a lot about magnesium and just touched on a couple of others. But I would love to go deeper on specifically zinc and potassium because you seem like ones that also come up, at least when I'm reading studies, these come up quite often. I know you have a lot more research here than I do, so maybe walk us through what the body uses those for and some kind of guidelines about how to get enough of them.

Barton: Sure. So, potassium, if you're listening to this, congratulations, you also have a potassium deficiency. 98 or 99% of people have a potassium deficiency and it's because we use it for so many things. Potassium is needed to put on muscle, it's needed for muscle contractions, it's needed for adrenal function. Part of the reason why we have low energy and low electricity in the body is due to a lack of potassium. So that is critical. And there's many other things with potassium, but those are some of the major ones.

What I'm really saying there when I say adrenal function is potassium is one of the minerals along with magnesium and sodium that you need to actually form the building blocks and then the hormones themselves that the adrenals make. So without that, your adrenals and thyroid together have the symphony. And for them to work delicately and perfectly or ideally or optimally in concert with each other, they have to have this is not some oh, this would be a nice to have no, you need potassium or you're going to die. You need potassium or you're going to be fat and overweight. You need potassium or your mood is going to be terrible. You need potassium or you're going to feel bipolar. This is important. I don't know how many ways to say it. This is important. And it's not going anywhere. It's not going to change tomorrow. It's not going to be with the new diet trend or the best selling book that's released. None of that shit is going to ever change. This is truly here to stay. That's why I focus on that. I'm so passionate about that. I really want people to understand it and it's just so critical.

So when we look at zinc, you mentioned zinc is a really interesting one in that we can certainly have too much of it. And when we have too much of it, here's how that looks and feels. It looks like essentially accountant personality, but like a IRS accountant, like someone that is furiously analytical and not really emotional. So with all things in the body and we test for these we have these ratios that we look at. We need a balance. And zinc to copper is this balance that's really nice. And zinc is a, you can think of it as a masculine element and you can think of copper as a feminine element.

Copper is very creative. It's creativity. With too much copper, it's ungrounded. With too much zinc, it is overly analytical and not creative. So you can actually see personality through this ratio. This is one of the ratios where we see personality. And the good news is that can change over time. The interesting thing is if you start a relationship with someone and you're not living together, you're eating different foods and you have this ratio, this nutrition really becomes personality, which is what something I'm writing about right now in the book that's coming out later this year.

And the interesting thing is that over time, as you live together and you eat the same foods, move in, you do more and more of the same things. There can be a lack of polarity just from an off balancing of nutrition through these elements, which pretty it sounds crazy and it's probably interesting to think about, but it's also so obvious when you think about it too. These are the things so we should be testing. We don't want anyone to be overly analytical, unless that's the way they've always been. We'd love them for it. And you want to be aware of that. I think so. It's like, oh, here's the hair test we had when we first got together, both of us. Here's where we are now. It's pretty different. And that might be okay. That might be the perfect thing. That might be a disaster. One thing I can tell you is that I've lost two relationships, and I just so happened to have a hair analysis done for both women right before we broke up. And I got to see this gaping sodium deficiency in one case, lithium in another, lithium and sodium. And that really is a recipe for anxiety, like extreme anxiety, both of those.

When you're missing lithium, which is something we now have an upgraded mood, you don't feel safe in your own body. It's really what it comes out to. And we think of lithium, or some people think of lithium as a drug. Lithium is an element and should always be thought of as a supplement. What they noticed I'll pause in a second here, but this is just such a thing. I want people to make sure you hear this is they did a study, multiple studies on groundwater throughout the US. And they found that the areas that have the lowest groundwater at the highest rates of suicide depression of lithium, I should say. So the lithium that if it was missing in the water, the water table, it's a trace amount. It's one of these trace minerals. But trace minerals are still needed, and they still have a huge impact. They're arguably, in some ways more important, because even a small amount of them missing means that everything's off versus magnesium being a macro mineral.

That also doesn't mean that trace minerals are easily absorbed. That's not a particle size thing. That is what we do for all of our products. We change the particle size. We make sure they're stable. We allow them. We produce something that the body interprets and absorbs easily without digestion. And that's really the solution. A brief story would be that in the case of what is now upgraded mood, we just released a couple of weeks ago. I had a girlfriend a couple of years ago as we were working on it, we had a pilot batch of it. And I didn't know this, but she was on anxiety medication. We'd been together several months, and she just started taking upgraded mood. She stopped taking her anxiety medication, which worked out fine until we ran out of upgraded mood. And that had magnesium, chromium, lithium, and the new version today has sulfuric acid in it as well. So all of these and yeah, I mean, she just disappeared. It was one of those, like, one day the person's in your life telling you they love you, and then the next day and things are good, and then the next day they're super overwhelmed, they sort of just disappear from your life. And that's happened because of sodium deficiency as well. I've seen that, and I'm sure this happens all the time for so many people, and it's so preventable.

Katie: Well, and I'm taking lots of notes.

This podcast is brought to you by LMNT, which is a company that I have had the chance to invest in and have loved since day one. They just released brand new grapefruit flavor on top of all of their other flavors that I absolutely love, including watermelon which is a kid's favorite in my house, as well as citrus, raspberry, orange, and a couple of ones that I really like, like mango and lemon habanero as well. As you know, summer brings warmth and sunshine, and with it, energizing opportunities to all of us to move and play and be outside. But it also brings a fair amount of sweat. And if you are a regular sauna user like me, you know that sweat is part of it, as well as if you exercise regularly. And this is why optimal hydration is the key with the right fluid to electrolyte balance, because it isn't just about getting enough water and fluid, but also making sure our electrolytes are dialed in and you feel the difference when you get it right. So when summer brings the heat, LMNT brings the grapefruit salt flavor to help you enjoy that balance all summer long. You can consider grapefruit or any of their flavors, your ultimate summer salt companion. And I love that they combine sodium, magnesium, and potassium in the clinically studied ratios to make sure that you can stay optimally hydrated even if you are sauna'ing or exercising or just spending time outside in the summer. Find out more about LMNT by going to drinklmnt.com/wellnessmama. And this is a one time flavor so when it's gone, it's gone for good. I highly recommend that you try it. I also would suggest trying watermelon and mango chili if you like a little bit of a spicy kick. But watermelon, like I said, is the kid favorite at my house and you can find those and all of their flavors at drinklmnt.com/wellnessmama.

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My favorite products from BON CHARGE are their Anti-radiation and EMF Protection products.... And their lighting solutions. I use their laptop mat when working on my computer to protect my body from the EMFs from my computer, and their blanket is great for curling up and watching a movie or using when traveling. I'm also a big fan of their lighting. Junk lighting has been a problem for a long time, and I hadn't found a great solution until now. They have red light bulbs that have zero blue and green light, designed and tested not to disrupt melatonin production, as well as full spectrum bulbs that have settings for morning, afternoon and evening. The daytime settings mimic the full spectrum light from the sun and the evening setting mimics a campfire to help promote restful sleep. At my house, I love using their full spectrum bulbs in ceiling lighting, which is also the angle we get light from the sun, and using the red light bulbs in lamps, as some evidence shows red light is experienced from eye level or below in nature. Now, I can just switch from overhead light to lamps at sunset and help my family be calm and relaxed before bed. They are also energy saving and low/no EMF!

Check them out at boncharge.com/wellnessmama and use coupon code wellnessmama to save 20%.

But you brought up two more. I want to make sure we get to touch on a little bit, which are copper and sodium. I feel like sodium especially has gotten such a bad rap because of all the low salt information over the last 30 years. And I had another guest recently, Chris Masterjohn, who also made a really compelling case for why most people are also deficient in sodium. And also likely, if you wonder if you're getting enough, especially if you're eating a more clean, real food diet, you are likely not getting anywhere near enough, and you're potentially doing more harm to your body by avoiding sodium than by getting too much of it. But I would love to hear your take on that as well, because I feel like these are other areas that they're potentially gaping holes for people, and they may not even realize it.

Barton: I agree that we are not getting enough salt for eating a clean diet. The ideal recommendation, again, test don't guess. I don't know what your other elements are. Maybe your potassium is really low, having a lot of or your magnesium is low, and these balance each other. That's really what I want you to take away from this conversation as you're hearing this, is these elements balance each other. This is a swing set, essentially. This is a seesaw, except it is a multidimensional seesaw where multiple seesaws are connected. That's how I describe it. That's how I think about it. That's how I picture it.

And with that understanding, when you don't have enough sodium, your adrenals will be off and your adrenals are off, your thyroid will be off, that will downregulate, and you will not have as much energy as you could just purely from that. Now, once that happens, other things will happen. Maybe you won't absorb as much other nutrients from certain foods. You'll probably collect calcium, and that'll actually make the problem worse. It's terrible. I know. I wish it didn't work that way, but it does. Most of us have way too much calcium. By the way. That's the side note. If you can avoid nearly all sources of calcium, you're probably better off. But again, some people do, it's rare, but some people do have low calcium. So you don't want to just hear that as a rule and take it as gospel.

So really, the thing with salt is broad strokes. Really broad strokes. And again, test your hair every 90 days, and you'll have something you can trust on this. Do a consultation with a practitioner that you trust, that you feel like really has a good understanding of the test we offer that you can find at other places I'm sure. And however you do it, do it because if you have enough salt, you have a lot more energy. You will think better, your mood will be better. I can't tell you how many days I turn my afternoon around by just having more salt in my water. So I'll salt water and I'll do at least, at least 35.

So, what we found is research throughout millennia shows that groups like in all different environments, temperatures, ate at least 3500 milligrams of sodium a day. That's one idea there. Now, because you can be stressed just from even if you're sitting at your desk, you might be redlining thanks to your mental state, trauma, any of these things. They keep our burn rate of minerals high. Stress again, remember, those are some thoughts on sodium and copper. Copper is bacterial defense for the body. Zinc is a viral defense for the body. But you take too much of either one and you'll have the other. So you'll have a bacterial infection in your mouth if you're taking too much zinc. I saw that happen a lot with COVID and I saw people have viral infections too because they didn't have enough. Iodine also is antiviral. That's why I really like it and almost everyone's deficient in it. It took me years to not be deficient in it. I had such a deficiency to reverse even with

supplements that really absorb well, there's that. Now, that's a rare case. I think most of us recover our deficiencies much, much faster.

But I'd grown up in a home where well, like a daycare situation where there's second hand smoke. So iodine got leached and leached and leached. But most of us have that. Whether it's growing up in a city because the atmosphere itself is not in our favor these days, it's many times more toxic. The numbers I've seen is roughly 1000 x more toxic now, the air and water compared to any other time in human history that we've been alive.

Katie: Well, and that's an important point to consider as well. Especially if you have a long history of deficiency in these. It can take a while to recover. That I found for myself. I was very deficient in magnesium when I did a hair test and that one has taken years for me to get my levels back up. And I don't know if you have any insight on this but especially when I first started taking magnesium even though I was taking oral magnesium, my skin would get itchy. Any idea why? Personal curiosity.

Barton: Yeah. So that was a detox reaction. So magnesium helps us detox at a cellular level. And when you've done without a magnesium deficiency, which makes sense because you've had kids, you've lived a fast paced life, all these things, you've really been a go getter and done a lot. Right? So magnesium is needed for every one of those thoughts and decisions that you've ever made. Our hearts would not beat without it, our hearts would not relax after the beat. Potassium is really the beat. Magnesium is the relaxation after. So when someone has a heart attack, they give them magnesium. I can't tell you how many heart attacks could be avoided if people had adequate magnesium levels. That's why possibly our most important product is upgrade magnesium.

And we're actually doing a double blind clinical trial that's done by the time this podcast comes out to show that it's almost certainly the most effective sleep product that's on the market. But it's a cramp support. It is a constipation support. Although it doesn't cause loose bowels, it just helps your body function the way it should because again, it activates over 3000 proteins and 800 enzymatic processes. So, of course it does a lot, but of course a lot is needed. And it's needed daily, so you have to absorb it really well. So, yeah, your skin was itching just because your body was pushing toxins through the skin and it's getting you to actually rub it. The body is so smart.

Katie: Yeah, is. And it's one I definitely still am very aware of and on top of because I do a lot of the risk factors. Like, I exercise a lot, I sauna a lot, I do drink caffeine, I don't drink alcohol that much, but I have some of those risk factors. And just by nature, being a mom, I do occasionally have stress as well. So it's one that helps me a lot. And I've talked about magnesium a bunch for years. But I love that you've gotten to shed some deeper scientific light on some of the reasons why people notice such profound differences when they get that and these other minerals in range. I know you guys have a lot of products related to this and that you have the testing available on your website without a doctor, which is awesome. I will make sure there are links in the show notes for you guys listening to all of those things. That's at [wellnessmama.FM](https://www.wellnessmama.fm). If you're listening on the go, everything we've talked about, show notes and links are there. And a couple of questions I love to

ask toward the end of interviews. The first being if there is a book or number of books that have had a profound impact on your life. And if so, what they are and why.

Barton: The Surrender experiment was great, or just creating ease in your life. The book mindfulness the book. The one thing relationships, I would say, wow, the masculine relationship changed a lot. Yeah, there's been a lot. Dr. Unger's book a long time ago was one of the probably read that 14 years ago right when it came out. And that's called clean. The new updated version is called Clean Gut. There's so many from like 22 to 35 now. I've either read or listened to, I don't know, seven, six or 700 titles. And those stick out. I'm looking at a bookshelf right now, too. Those are a couple that I could add. Yeah, I guess I would say that.

Katie: Well, I will link to those in the show notes as well. And lastly, any parting advice for the listeners today that could be related to minerals or something that we've talked about or could be entirely unrelated? Life advice?

Barton: Great question, Meditate. Yeah, for so many reasons. My first thought was connect with love and peace as often as possible and remember your true essence in the process. Who you are, you're here to be, who you're not here to be, all these things. And it intersects with minerals in that by reducing our stress, which meditation does so brilliantly, and increasing our focus simultaneously, we get where we want to go with more ease, with more grace, with less casualties, and it just provides a lot of peace in the world.

So I wish everyone would have more time to reflect and there would be less finger pointing, there would be a lot more satisfaction and something you said, which is essentially advocacy for yourself, a lot more of just taking good, honest responsibility for anything in your life and just never being a victim. And as hard as that may seem like, I personally just went through a breakup and it was so unexpected. And anyone that I would talk to would most likely go like, that was her, but there's always some room to find in there of, well, maybe she betrayed me, but how did I betray myself? And it's those moments of intense clarity that come more frequently when we're meditating that give us that instructive path.

Katie: I love it, and it definitely do tie in indirectly, but I would say also directly with everything we've talked about. And I think those things you mentioned, meditation and connection with other humans in a peaceful, loving way, those things and our mental and emotional health impact our physiology much more than I realized for a lot of years. And focusing on those things has been profoundly impactful for me as well. So I love that you mentioned those. And I'm so grateful for your time today, for sharing and that we finally got to connect. Thank you so much for being here.

Barton: Thank you so much, Katie. It was a pleasure.

Katie: And thanks as always to all of you for listening and sharing your most valuable resources, your time, your energy and your attention with us today. We're both so grateful that you did, and I hope that you will join me again on the next episode of The Wellness Mama Podcast.

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