



988: The Magnesium Miracle: Why It's the
Most Overlooked Mineral in Women's Health
With Dr. Carolyn Dean

Child: Welcome to my mommy's podcast!

Katie: This podcast is brought to you by Hiya for children and especially I love to talk about their new greens line for children. Now, I have tasted these vitamins and they're delicious, and my kids are the ones who really love them though. And I love that they're getting the nutrients they need without the sugar because most children's vitamins are basically candy in disguise with up to two teaspoons of sugar and dyes and unhealthy chemicals or gummy additives that we don't want our kids to have.

So Hiya created a superpowered children's vitamin that's chewable, without the sugar or the nasty additives and it tastes great. My little ones love it. They especially are designed to fill the most common gaps in modern children's diets to provide full body nourishment with a taste kids love. And it was formulated with the help of pediatricians and nutritional experts and pressed with a blend of 12 organic fruits and vegetables, then supercharged with 15 essential vitamins and minerals, including vitamin D, B12, C, zinc and folate among others.

It's also non-GMO, vegan, dairy free, allergy free, gelatin free, nut free, and everything else you can imagine. I love that they test every single batch with third party testing for heavy heavy metals and microbials in a qualified GMP compliant lab using scientifically validated testing methods so you can be completely at ease knowing it's safe and nutritious and it's designed for kids and sent straight to your door so you don't have to worry about ordering.

My kids really like these and I love that refills show up on schedule with no stress. Also, again, honorable mention to their new greens because if you are tired of battling your kids to eat more greens, their Daily Greens Plus Superfoods is a chocolate flavored greens powder designed specifically for kids and packed with 55+ whole food ingredients to support kids' brains, their development, their digestion, and kids actually like it. We've worked out a special deal with Hiya for the bestselling children's vitamin. Receive 50% off your first order. To claim this deal you must go to hiyahealth.com/wellnessmama. This deal is not available on their regular website. To get your kids the full body nourishment they need.

This episode is brought to you by NativePath and in particular, something I have been experimenting with and really, really loving lately. And here's what you need to understand. A lot of us think calcium is important for our health, especially for our bones. But is this actually true? Bad news. It turns out maybe not, or at least there's more nuance here.

One of the largest bone health studies ever conducted followed thousands of women taking calcium and oral vitamin D daily, and the results were surprising, but not in the way you would think. They saw no significant reduction in their risk of fractures, and they saw no

improved bone density. So all those calcium pills might not be doing what we think, and it turns out they might actually be counterproductive.

But here's where it gets interesting. A brand new study found that women who did one thing every morning consistently for six months gained 7% bone density, which is massive. This is the same amount of bone mass the average person loses over the course of five years after a certain age. So what did they do?

It was not a medication or even a workout. It came down to one simple thing added to their morning routine. And that's why a lot of people, especially people over 50, are making this one simple change and seeing massive results. I'm sure you're probably curious what it is, and it's a particular protein from one of my favorite brands called NativePath.

And they're offering all of you up to 45% off of this, plus free shipping and a free gift. Right now you can visit savewithnativepath.com/wellnessmama to find out what it is and how to implement it and save up to 45%. So again, that special site for 45% off is savewithnativepath.com/wellnessmama And see why people are adding this to the routine with amazing results.

Katie: Today I get to talk about a topic I've been passionate about for a very long time, which is magnesium and why it's often the most overlooked mineral that can make the biggest difference. And it is my absolute pleasure to get to do this today with truly the woman who wrote the book about this, Dr. Carolyn Dean.

Who has been a leading voice on this, and a researcher and developer among so many things for so many years. Dr. Carolyn Dean is a MD and a naturopath. She has written over 35 books on various topics, including the Magnesium Miracle Reset for Women's Health, Total Body Reset, Complete Guide to Mental Wellness, and then IBS for Dummies.

The list goes on and on and on. And you will hear in this episode just what a wealth of knowledge she is. She explains things on so many deep levels, as well as giving really practical ways that we can actually make improvements in our own health without the need for expensive testing, and at home starting right now. I loved learning from her. Let's jump in.

Katie: Dr. Carolyn Dean, welcome and thank you so much for being here. This feels very long overdue. I followed you for so long, and it is an absolute honor to finally get to chat with you.

Carolyn: Oh, that's awesome. And please call me Carolyn, Katie.

Katie: All right, I will. Well, as any longtime listeners or readers know, I have been researching magnesium for over a decade now. I really feel like it's one of the most

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impactful things that we have access to in the modern world. And your depth of knowledge on this far exceeds mine, which is why I'm so excited for this conversation.

I think there's obviously a thousand directions we could go. Most people are aware of the importance of magnesium, but can you give us some foundation on why magnesium is so important and why deficiency is so common, especially in the modern world?

Carolyn: Big topic, huge topic. I'll start with, magnesium is required for 80% of known metabolic functions, so head to toe. When you think about it being involved with muscles and nerves, that's very important. We have 640 muscles in the body, all of which can cramp up if you have a magnesium deficiency. Nervous system either from, you know, just the anxiety part of stress in life or the actual physical nerves can be affected and you get numbness and tingling. If you bring it into the mother population, the pregnant woman population, magnesium is necessary to keep everything going during a pregnancy.

We're detoxing with magnesium, we're relaxing, we're sleeping, we're... it's a slight diuretic for women who are developing eclampsia. If you go through preeclampsia with a bit of blood pressure, a bit of edema, and heaven forbid it goes to eclampsia where there are even seizures, that's where the doctors roll out the IV intravenous magnesium. But they don't seem to tell women that they need magnesium all through the pregnancy to prevent those symptoms. So it's a huge disservice to women that they're not told about magnesium. And I know you know that.

Katie: And it seems like so many things that are just natural in our modern lifestyles kind of work against us when it comes to maintaining enough magnesium in the body. Like, at least from what I've read, even just things like stress or too much caffeine consumption or sleep disturbances or like, essentially everything we do in the modern world seems to kind of deplete us of magnesium.

But can you speak to that? Like why does it seem like we're facing maybe more than we used to, magnesium deficiency?

Carolyn: Right. It's not in the soil anymore because I'm so interested in food and organic produce and in a good diet. I have a dietary supplement company, but everything I make from my company, I put into an organic farm here in Maui and we keep people fed in Maui with our organic farming. But I can't eat entirely off the farm even though we have chicken eggs and about 60 different fruits, vegetables, herbs. If I don't take extra magnesium, I get my heart palpitations back, my neck tension, headaches, leg cramps. There's dozens and dozens of symptoms you can get from magnesium deficiency. So I know we're not getting it in the soil. When we cook our foods, we burn off the magnesium. When we have stress, we burn off magnesium.

If we get any sort of medical intervention, like a drug, especially medications that have fluoride. If you're on a medication look it up online and look for the chemical formula of your medication. If it has an F there, that's fluoride. Fluoride drugs will break down in the intestines. Even though the drug companies may say, "Oh, it doesn't break down in a Petri dish, you're okay. This fluoride that's normally a hundred percent toxic and a poison, it's okay in your drugs." The microbiome in your intestines breaks down drugs. So that fluoride attaches to whatever available magnesium you have and makes a compound that is irreversible. It's called sellaite magnesium fluoride. And that binds into tendons and joints and causes, I mean heaven forbid, it's an FDA black box warning on a certain fluoride drug called ciprofloxacin, an antibiotic. Black box warning "tendon rupture."

And nobody's talking about this, but common sense puts this, my theory, together. So we've got all these drugs. You have a surgical procedure that sometimes comes up. And the anesthetics that they use. The inhaled anesthetics, one of them in particular, has several molecules of fluoride. So there you are under the anesthetic, getting this poison. It's being metabolized, it's taking over your magnesium. And what's a common reaction to having a surgical procedure? You wake up with a racing heart or a heart arrhythmia or atrial fibrillation. And then you're put on all those types of heart medications. Whereas it could have been just a magnesium deficiency that was created.

Stress, stress, stress, toxins, even the wifi, you know we're all on our black mirrors. And what happens with the calcium mineral channels is they get irritated with wifi. And what keeps calcium from irritating cells is magnesium. Magnesium closes the door on cells to keep calcium from flooding into the cells.

You can Google this you know, just the words I'm saying, calcium and wifi and calcium cell channels. If you have enough magnesium, your cells are protected so you don't get this interference. So I... could go on and on and on. There's so many reasons why we need magnesium. I guess, statistic wise, a hundred years ago we were getting 500 milligrams of magnesium from our diet, a daily 500. Now we're lucky to get 200. And the RDAs are saying that women need 300-350 milligrams. I think we need at least 600. When I was working with my own magnesium liquid, which is non laxative so I could take a lot of it, I needed 1200 milligrams to get rid of my heart palpitations.

If I was taking even 50 milligrams of a magnesium compound, I would get the laxative effect. So what has happened is we're told magnesium is important. They say 300 enzyme processes require magnesium. I've found references that it's up to 800 processes. So, statistically, we're not being told how important it is. And then as I said, all the different interferences with our ability to take on magnesium and utilize it are making us very

magnesium deficient. To the point where I know you know this book, I know it's backwards, but it's Magnesium the Missing Link To Total Health.

I have over 65 conditions that I've listed. Medical conditions that could be magnesium deficiency. And what happens with these medical conditions? They're treated with drugs and maybe 75-80% of the drugs, the common drugs that, you know, really work well, are fluoride drugs. So I already said about the interference of fluoride with magnesium metabolism... So I know I've gone all over the world there, Katie.

But go ahead, let me know what you wanna know next.

Katie: So many great points you've just made and I love how you, like, revised that number. Because I know years ago that was the number I read as well, 300 enzymatic reactions within the body. And it seems like the more we learn, we just reinforce how vital magnesium is. And I've also, in the data I've seen, it seems like magnesium deficiency is common population wide.

And I've seen varying estimates of how much of the population is deficient in magnesium. It seems like women are affected slightly more, like women are even more likely to be deficient. Just like women are more likely to be affected by autoimmunity, for instance. Do you feel like that is because our, like our hormone cycles come into play as well and or women tend to carry a lot of stress in the modern world or have more demands on our bodies and our time?

Or what do you think, why do you think women especially are at a higher risk for magnesium deficiency?

Carolyn: Yeah, great question. Hormones, I've found references that the estrogen increases before the period, during the cycle. Whenever estrogen increases, magnesium drops. During pregnancy, higher estrogen, magnesium drops 15 to 30%. So, confirming we need more, women need more magnesium and women are under more stress.

I mean we take care of everything. We see the big picture, we know where everything is in the house. We know what's going on, so we're constantly engaged. And with children in the house, we're sleeping at a level where we can hear a pin drop. I don't think we get deep sleep when we are aware of someone who's sick in the house or when there's a baby in the house. So we're constantly burning off our magnesium. Our stress levels are so high. I mean, women talk about brain fog and with autoimmune disease, I've often said, well, it's yeast overgrowth that causes brain fog, and magnesium and mineral deficiencies.

Sidebar, sidebar. Nine minerals are required to make thyroid hormones. And every woman knows that they get their thyroid tested when they're pregnant because there's some

possibility that the thyroid will weaken because the fetus is draining your minerals from your body to make the thyroid of the baby. Now, we're not told that, it's, "oh yeah, that happens." So even after the first pregnancy, your thyroid is weakened. You need these nine minerals, but you're not given them. What you're told is, "Well, your blood tests are okay, and let's just wait." Wait until your thyroid crashes, and then we'll give you thyroid hormone replacement instead of the nine minerals. And of course, the nine minerals include iodine, but it's not just iodine. You can't just say it's a linear progression to make these hormones. But just to make the point, you're making iodine into thyroid hormones.

T3 means there's three iodine molecules. T4, four iodine molecules. Okay, it's the most important mineral. But then to create the hormones themselves you go from iodine to say, selenium. And some people are saying, "Well, you know, you need selenium for the thyroid." But you also need boron and copper and manganese and molybdenum and magnesium and calcium.

So we're not getting those when we're eating a diet that is devoid of minerals. What else? Where were we going with that Katie? Come back to me.

Katie: Just why it's more common in women especially. And of course how, like, hormones and pregnancy and all those can create excess demands.

Carolyn: Oh yeah, so there's the hormones and there's the stress and sort of... maybe where I'll go with the brain fog business, it can be yeast overgrowth. But listen to this statistic, I just finished my latest book the Complete Guide to Mental Health. In the brain, there are 86 trillion neurons. And a neuron is just a brain cell. And all cells have the same constituents. In each neuron, there are 2 million mitochondria. In the heart cells, there are 5,000 mitochondria. I used to think the heart had the most magnesium. And then I find out, well, in the mitochondria... Sidebar this. The mitochondria is where we make energy ATP. In order to make that energy, you need magnesium.

ATP is really ATP-Mg. That's the energy bucket. So that means every mitochondria needs a lot of magnesium to make energy. And you get 2 million in the brain and only 5,000 in the heart. So that means when we don't have enough magnesium, our, you know, our brain kind of shuts down, the eyes droop and the fatigue, the bombardment, the sensitivity, could be because we don't have enough magnesium.

And for women who aren't getting their sleep, which insomnia is one of the signs of magnesium deficiency, for women who are just rushing around all the time, micromanaging everything, then they need as much magnesium as possible. But like I said earlier, if you get the laxative effect from the magnesium you're taking, you're not gonna keep taking it. And you will actually hear some practitioners say, "Well, you know, you take

your magnesium up to the point where you get the laxative effect, it means you're saturated." I'm here to tell you that's not true. I already said at over 50 milligrams I was in the toilet. I had to take 1200 milligrams of a non laxative magnesium to really saturate me.

And right this minute, I'm feeling so much better. I'm 76, and back when I was 30, when I was in the throes of magnesium deficiency, I felt 76. But right now I feel like I'm 30. And it's because I have the grounding of the magnesium for my 800 enzyme systems, 80% of known metabolic functions.

So I tell everybody, get your magnesium in check, in control, in the right proportion. And whatever's left of your symptoms, then you go to a doctor or practitioner or nutritionist to figure out, well, what am I missing? And it could be that you need those nine minerals for your thyroid. It could be that you need some good silver for low grade infections.

It could be that you need your Omega-3 fatty acids to make your cell membranes tight and not leaky. It could be you need some natural antifungals and silver to take care of yeast overgrowth. And then there's vitamin D3, of course with K2 that we all need as a vitamin and a hormone or prohormone and vitamin A and E, you can throw in there too.

That's what you need for your building blocks for your cells. You don't need these hundreds of products that are thrown at us now to supplement ourselves. And also what I say about taking natural basic formulas is you don't have to stop your drugs. You don't have to stop anything. You just take your building blocks and as your body feels better then any common sense doctor will help you wean off medications because what are stressed out parents and women on? Anxiolytics, antidepressants, that's what they're offered when you come and say, oh, I'm just so tired, I feel...

And, and if you make a statement, Katie, like, I just feel like I'm dying, or I feel like killing myself, the doctor will be triggered to immediately put you on a drug. If you, I'm gonna say if you overdramatize, I mean, it's not being dramatic. You know, you're suffering. But if you're trying to make a point with a doctor by saying words that trigger them, they will put you on drugs. And they don't know anything from medical school about nutrients.

I didn't learn it in my med training. I learned it, well beforehand I was reading all the natural health books. This was back in the sixties and seventies for Pete sakes. I went to med school in the mid seventies, and then after my med training, I did my naturopathic training. And it was just like, you know, coming home.

I mean, this is common sense. The building blocks, what's the cause? Deep down it's not... Yeah. So I'll, I'll leave there and go back to you, Katie.

Katie: Well, I definitely am excited to, in a few minutes, get to like how do we maximally support our body, and especially when it comes to magnesium and minerals. But before we get there, I hear from a lot of women who are told things like, oh, my doctor said my magnesium levels are fine. And so I would love to address, like, the testing side of this and how to actually know if you might need magnesium.

And I would guess within that, the signs and symptoms to pay attention to that may or may not show up on the lab work a doctor might be doing, especially basic lab work. But can you speak to, like, how do we actually know for ourselves within our own bodies, our own n-of-1 experiment, if we're low in magnesium?

Carolyn: Yes. It's kind of a common sense thing. When I'm saying 80% of known metabolic functions. Then you do a survey. Do you have a tight scalp? Do you have eye twitching? Do you kind of choke when you're trying to swallow a big supplement, which is terrible, giving someone a supplement and they're choking.

But you can have spasms in your esophagus, even hiatus hernia can be a spasm. Do you have muscle tension? Do you have insomnia? Do you have leg cramps or even restless legs? Do you have kind of IBS symptoms where you get constipation or diarrhea where the musculature in your intestines is all spasm? So you go through a symptom survey. I have such a quiz on one of my websites and it's very useful.

Because, Katie, when you look at magnesium, no matter what form, my form or all the other magnesium compounds, they're safe. The myth about any dangers about magnesium and taken in high levels is intravenous magnesium in a hospital setting where they've just pushed in too much and it can overwhelm the electrolytes that help with your heart rhythm. As for testing, they don't even test for magnesium in a normal electrolyte panel, it is not there. You got your calcium, your potassium, your sodium. And no magnesium. Whereas magnesium is the most important mineral.

Why it's not there, is when you test magnesium in the serum, serum magnesium blood test, there's only 1% of the total body magnesium in the blood. So you put your dipstick in and you're just measuring this tiny little segment and it's got a very narrow range. And yes, if it's below that normal range, then the doctors say, "Oh!" But because magnesium is so vital for the heart and everything else, the body has mechanisms where if magnesium goes low in the serum, all these mechanisms come into play and pull magnesium out of your bones and your muscles. So it's always going to be in range. Seriously.

What I started using with the RBC magnesium test, but that's not... I mean, it's got a wider range... But it's interesting because I started looking at it, the range was I think 4.2 to 6.5. And a few years later they dropped it to 3.2 to maybe 6.2. So, what they were doing and

what blood tests are, is an average of the sick population. So, as the population's magnesium was dropping, they said, "Oh, well you're okay if you're a 3.2." So I tell people, look, if you get an RBC test, make it 6. Make it as high as you can because if a doctor sees someone with a 3.3, they will say you are okay.

Now, what I've been doing in my university scientific studies is using ionized magnesium testing. Which is, what you want in your cells, is an ion of magnesium. And actually, that's what my formula is. It's a picometer size, stabilized ion of magnesium. So when we do our studies and someone takes a dose of my picometer ionized magnesium, you get ions in the blood. And they stay stable and they go into the cells. And we've proven in our first study, we saved blood for two years and at the end of two years we redid the ionized magnesium blood test and found out the values were exactly the same. So you can store frozen blood and do the tests.

So, I don't know how long we'll have to wait for this to become a public test. That's only used in ICUs emergency situations and research facilities right now. So those are the three tests. The RBC magnesium, as I said, you can go by that because it has a bigger range. But what's crazy, Katie, is red blood cells don't have any mitochondria. So they don't really bring in the magnesium and utilize magnesium in their Krebs cycles because there's no mitochondria there. So I guess they're just getting magnesium by some sort of diffusion process. So, symptoms work. If you watch your, if you list your symptoms and then you start taking some magnesium and you see your symptoms disperse then I think that's the way to go.

Because the fail safe is the laxative effect. When I was taking my 1,200 milligrams for over a year, for all my symptoms, what happened at the end of that time, everything was taken care of. Then I started to get the laxative effect and I said, okay, I am saturated. So I pulled back. Presently, I'm only taking 300 to 450 milligrams a day, and I'm fine. If I'm under extra stress, you know, I might get a, you know, my heart might skip a beat, okay, I'll take some more. When I moved to Maui and started sweating, I needed more magnesium, for example. So that's the testing.

Katie: That's such a good point. And on the sweating side, I've read that people who are like in hot climates, very active, use sauna a lot, we can lose more minerals in the span of a few years than a sedentary person might in a really long period of time. So that I think is another indicator. Like if you do those things often it might indicate you need additional minerals including magnesium.

And on the lab testing side. I'm so glad you brought that up because I feel like this is actually relevant to a lot of lab testing. Like I remember getting so many tests that said my

thyroid levels were normal. And I had to learn there's a difference between normal and optimal when the ranges are set by the averages of the people who take the test. And people who get thyroid testing are concerned they have something wrong with their thyroid.

Same with Vitamin D. One test I took said, vitamin D level of 20 was fine. And I know I feel best when I naturally have a vitamin D level in the eighties or nineties from sunshine alone, but that's not what the lab tests reflect. I think with magnesium especially, you make such a compelling case for, like you said, following the symptoms, listening to your own body, doing your own experimentation.

And because of its safety profile, it seems like we are much more likely to be deficient and not getting enough than to be anywhere near that getting too much. Especially if we're not getting intravenous magnesium. So I'd love to, in our last few minutes for this episode, talk about how do you recommend people start experimenting with dosing and actually getting enough magnesium and paying attention to those things as they do.

Carolyn: Well, what I say here in interviews, Katie, is everybody has magnesium in their cabinet right now. Everybody knows about magnesium. You talk about it, and, "Oh yeah, I take magnesium." But yes, they're not taking it properly. If you have a capsule, open it up, put it in your drinking water, a liter bottle, and drink that through the day.

Do not just say, "Oh, they say this type of magnesium is good for sleep. I'll just take it at night." The marketing of magnesium is crazy. They're trying to say a magnesium combination of nine magnesiums it's the best thing in the world, but, the body, if it's looking for magnesium, it has to break down all those magnesiums. What happens with a compound is it disassociates in the bloodstream. It separates into a magnesium ion, and then whatever chloride ion, and in the split second before magnesium jumps and binds to something else, in that split second, you'll get some absorption into a cell. So you're asking the body to take these nine different... and I don't know, I mean, I'm just kind of making this up, but is it more work for the body to separate all these and then try to get some ions out of it?

But it's just, it makes for a good marketing text. They go on and on. "Oh, well, you know the glycine part will help you, or the lactate part will help you doing these other things." But if you are looking for a magnesium, you want pure magnesium, not all these other extras, you know, attached to the compound. So, with anything though, what I say is, because we're so deficient and we need so much magnesium, 80% of known metabolic functions, any amount of any magnesium is going to be beneficial.

It's to the point though, I guess because I'm a medical doctor, naturopath, and people approached me over the years because they, the last resort, I'm a resort doctor. So people will be on medications, they'll have a whole list of symptoms and conditions and they need, I think they need, high doses of magnesium. So it has to be non laxative. Even magnesium oxide, which they say is 4% absorbed, and I don't even know if that's absorbed into the blood or into the cells. They've never done proper absorption studies on magnesium. But even magnesium oxide, they've written whole books on the brain effects of magnesium and it turns out they're usually magnesium oxide.

So for the magnesium L-threonate people to say that they've got the only magnesium that goes to the blood brain barrier. I mean, that study was a rat study and they proved that there was a 7% increase in magnesium in the cerebral spinal fluid of these poor rats compared to magnesium, I think it was, citrate. So on a 7% difference, they made this whole million dollar marketing report or whatever that everybody now says magnesium L-threonate is the best. And they also confuse people by implying that they were using threonine, magnesium L3. Threonine is an amino acid that has mood and brain effects. Well they have threonate which is a vitamin C breakdown product. So the whole marketing was kind of sketchy, let's say.

Katie: That makes sense. And so it sounds like a kind of a synopsis of that is any magnesium is better than no magnesium, and there are forms that are even more available to the body with less work. And so, especially if we're in an intensive recovery or healing phase where we're wanting to, like, maximally nourish ourselves, it might be wiser to start with those, but to not throw the baby out with the bath water either.

Like at the end of the day, we likely need more magnesium than we're getting. The body will likely be glad if we get more magnesium. And of course, I'll link to your website. Because I know you have a tremendous amount of education. You have blogs and books and podcasts you've done on these topics as well as the ionic combinations that you've created.

And we're gonna get to do another episode to really go deep on stabilized ions and minerals and understanding that topic. But for somebody who's like, okay, I need magnesium and I wanna learn more about it, where would you send them to start with that?

Carolyn: Yeah, it's my website, drcarolyndean.com has a lot of information. I do a weekly blog and for example, our interview will be listed on my site so that you can go through it or people can Google my name and find me. I have a YouTube channel where our radio show, which we just used to do internally, now they forced me to go on camera Katie.

I avoided it for years, but I mean what's happened in the world of dietary supplements. It happened during the Covid years. Where the FDA came down on everybody who implied that dietary supplements could help your immune system. They came after me because on my website I would have testimonials like the 80-year-old woman that rushed up to me at the farmer's market.

I run a farm. So I'm volunteering at my farm stand on Tuesdays and she said, "I can't believe it. It's been a week I've been taking your," and I can't even mention the name of my product, "I've been taking your liquid magnesium and my life will never be the same." So this is a famous violinist who was starting to, you know, hunch over with all the tension from her musicianship. And she's a healthy person. She comes and buys the organic food and does all the good things, but she was magnesium deficient. So, I get these stories all the time that propel me and keep this going. That a person has to try something on their own. They can't just go by, you can't go by my words because I'm a different person than you are.

So what you do is try things. You have to do your own experiment. Your own N=1 experiment. N is the number of people in an experiment. You can do your own experiment. And that's what we're saying. And educational wise, it's all on my site.

Katie: Perfect. And I will put all of those links. And like you said, I think that N-of-1 study is the perhaps most valuable work we undertake, at least in a physical sense when it comes to supporting our body. And I love that you say that as well. I will put all of those links in the show notes for you guys listening on the go.

Carolyn, this was incredible and I'm excited. We're going to get to record another episode that goes deeper on other minerals as well. But for this episode, thank you so much for your time.

Carolyn: Thank you Katie, and I thank you for what you're doing, getting the information out there.

Katie: Thank you. And thank you as always for listening, and I hope you join me again on the next episode of the Wellness Mama Podcast.