Introduction to Magnesium and Dr. Carolyn Dean

Welcome to the Conquering Chronic Inflammation Summit. I'm your host, Dr. David Jockers. And today we're talking about all about Magnesium: The Missing Link to Total Health.

My guest is Dr. Carolyn Dean. You can find her at drcarolyndean.com. She's a medical doctor, naturopath, bestselling author of the book

Magnesium: The Missing Link to Total Health. She spent over 50 years committed to applying the science of medicine and the gifts of nature to help people feel better, find more energy, and take control of their personal health.

And in this interview, we talk about the top symptoms related to magnesium deficiency. And you may very well be experiencing these because these are very, very common.

In fact, magnesium is critical for over 300 enzymatic processes in the body, and it's one of the top nutrient deficiencies in our society. We're going to talk about the top 12 reasons magnesium is critical for overall health, and how magnesium is key for mitochondrial integrity energy production.

We're gonna talk about how it's a partner cofactor with other key vitamins and minerals, such as vitamin D and calcium. You guys are in for a treat here.

We're going to do a deep dive on magnesium. So without further ado, let's go into this interview with Dr. Carolyn Dean. Well, Dr. Carolyn Dean, great to connect with you here.

And, you know, it's one of my favorite topics, magnesium deficiency. Because, you know, for years when I was working with one on one with clients, it was like I would say 50% of my clients if I just got them on magnesium right away and made some dietary changes, some lifestyle changes, they felt significantly better.

And that would be like, you know, one of the top line supplements that I would give them to start with and they would notice improvements. They just felt like they slept better.

They had better energy. And so there are just so many people that are out there that are dealing with magnesium deficiency. So I'm really I'm really excited to do a deep dive on this topic.

And I know you, You wrote the bestselling book Magnesium: The Missing Link to Total Health. You're an expert in this. So really excited to have you on here.

Let's start with just what is magnesium. What role is it play in the body. Right. Well, good to be here. call me Carolyn. I'll call you David. Okay. Yeah. Sounds good.

Okay. So magnesium, it's an element. It's a mineral. It's an electrolyte. It's used by 80% of known metabolic functions in the human body. That. That's a new reference.

Working to 2018. Since I wrote the last, edition of The Magnesium Miracle. And that's why I do have Magnesium: The Missing Link because there's so much going on about magnesium.

Everybody's talking about it.

What Magnesium Does in the Body

There's like a dozen different magnesium products, and people are getting confuse. Magnesium is necessary for, I say, up to a thousand metabolic processes and somatic processes that run our energy, that run our muscles are nerves.

So if you I mean, David, if you think there's there's 600 muscles in the body, if those muscles aren't getting a sufficient interaction between magnesium and calcium, they'll go into spasm.

What magnesium does is it opens up the mineral iron channels and allows a little bit of calcium in to create a nerve firing or a muscle action potential.

And if, if the magnesium isn't there to pull the calcium back out, calcium builds up and ends up, you know, we're going into spasm tingling, all of the symptoms that sometimes end up putting people in front of a neurologist who says, oh, you may have missed.

And then boom, you know, the fear of having a disease like that can cause a person enough disruption enough, you know, fear and anxiety that they they start getting sicker and sicker.

So we can't do that. We can't keep doing that to people. We have to let them know that simple minerals are are not as simple as we're being told. so head to foot.

I think the most important thing you've already said, you give magnesium people sleep and they have energy. And then they're able to to create a different lifestyle for themselves.

If you're flat out and exhausted and, you know, just kind of apathetic, you go to your doctor and they say, oh, you're depressed or you're anxious and they start giving you drugs and it's it's game over.

But if you can get someone's energy going, which means magnesium is going into the different cycles in the mitochondria, and we're constantly hearing now about mitochondrial dysfunction, oh my gosh, what can we do?

What are the things that can help my car Andrea. Oh, we don't have any drugs. Seriously. The pentose shunt that creates pyruvate acid puts pyruvate acid at the top of the Krebs cycle.

What makes pyruvate? They get to go to the next step in in the 8 or 10 steps, magnesium and potassium. And then around the circle, magnesium comes in a few more times.

So it starts the process and it kind of ends the process. If you don't have magnesium you don't have energy. Magnesium ATP is what researchers are calling ATP these days.

Really. So they're naming it now magnesium ATP. Is that because magnesium is so critical, so foundational to the production of ATP, which is cellular energy?

Exactly. Without magnesium, you don't have energy. so the fact that we never learned this, you never learned it in your schooling? I never learned it.

My schooling, it's just to me, it's criminal. And it leads people to, I mean, in in my books, I've got up to 70 different disease conditions that are actually magnesium deficiency.

And for those disease conditions, they're given drugs. And then we have to detox the drugs. So we're in a terrible loop with, allopathic medicine that just that ignores the minerals and vitamins that, that are cofactors in everything that the body does.

Yeah. And a lot of these medications that are given also are they, they deplete magnesium. They further deplete magnesium. So yeah, it can be a vicious cycle there.

Now let's talk about the most common symptoms that people are experiencing with magnesium deficiency. And I

always say magnesium is to the body what wheel is to a car.

In a sense it's like more stress rounder the more magnesium we need. And you know, the the level of magnesium deficiency can almost be like a spectrum.

You know, you can have like extreme deficiency and more of like a subclinical or just a more of a slight or milder deficiency. And that can dictate some of the symptoms you experience.

Right. But like let me go personal because I mean, that's how I got into all this because well actually I was in New York and random House asked me to write a book on magnesium, The Magnesium Miracle.

And I realized when I was doing the research that I had headaches. attention, eye twitching. You know, I choke on vitamin pills, heart palpitations, IBS, leg cramps, Charlie horses.

You know, I would stretch in bed and my my calf muscles would just go into the most painful spasm. So.

Magnesium Deficiency Symptoms and Overload Myths

So then my story is I, I started to take, beyond my multiple and over-the-counter magnesium immediately get the laxative effect so that that was me done.

And if you read the you know what alternative medicine says about magnesium and the laxative effect, oh, well, you have enough. You know, you you're on overload.

You don't need anymore. No, that's not the case. Okay. What happens with magnesium is that unless it's absorbed at a cellular level, it just it excretes through the urine or through the bowels.

It's actually the failsafe. You never get too much magnesium by most any side effects of magnesium that you hear about. It's someone who's had, an intravenous magnesium that's been given too much.

So in my case, after I published the book, back in I wrote it in 1999, and it was supposed to it was supposed to come out on the day of 911 in New York.

And so everything shut down in New York for two years. So the book finally came up in 2003. So then I began a ten year search to find the company that would make a non laxative, magnesium, because that's our problem.

if people can't take I had to take finally, when I got my non laxative magnesium, I was taking 1200 milligrams 1200, whereas 50 was giving me the laxative effect.

So you can imagine the people that are severely magnesium deficient on medications. And just to jump in about the medications, did you know that most of the common medications are fluoride based?

So they have, fluorine molecule and that, you know, the Big Pharma says, well, you know, in the test tube, the fluoride doesn't break off into an atom.

It's fine in the intestines. Our microbiome, those crazy little bacteria break down drugs. So we've got fluoride from these drugs. And why is that important?

Well, it's a toxin one thing, but it also binds up irreversibly to magnesium and creates a brittle magnesium fluoride substance. Where does it go? Tendons and joints.

What's the black box warning on Cipro, which is a fluoride drug candidate rupture. How many athletes have come to you after a dose of Cipro and said, oh my gosh, I have a tendon rupture, I'm done.

Yeah. It's common. Yeah, yeah. So I'm saying it's because the fluoride binds with the magnesium. So you don't

have your magnesium. You've got this magnesium fluoride compound which is brittle and it causes disruption.

And you know, it's to me it's another criminal act. Yeah. Absolutely. I mean it's it's a big deal. And so, you know, there are some forms of magnesium that obviously are more laxative than others.

Of course, magnesium oxide is probably the most common one that's used out there. And you know, in, in in supplements. And it's also it's really the best one if you're constipated.

Right. Because it will definitely help move your bowels, but you're not going to get a whole lot of, magnesium absorption out of it. But there are other good forms, you know, and I always get questions.

People are always like, what's the best form for my heart? What's the best form for my brain? Right. And, it's hard to figure out with the research, but, you know, we I, I would say like there are certain forms that tend to be a little bit better for, you know, certain areas of the body.

And I want to touch back, you know, when I go back to that topic, because I know my audience has questions about that. But before we do that, let's talk about the relationship between magnesium and mitochondrial integrity.

Well, they're 1 to 2000 mitochondria in every cell. You know, there's more in the heart. Heart because the heart needs the energy. And red blood cells don't have mitochondria, which I mean, sidebar we're doing, instead of a sheer magnesium test, which is completely, irrelevant to what's going on in your cells.

people are and I recommend of red blood cell magnesium because we can't get the ionized magnesium test. I'm doing university research studies to show the importance of ionized magnesium.

But here we're doing this red blood cell magnesium test. And there are no mitochondria in there, which means the level of of magnesium is going to be low.

So that test is a bit, you know, sketchy. So in for mitochondrial hell, like I said, you know, the pyruvate cycle and then the Krebs cycle. Absolutely.

Are are geared to the amount of magnesium that you're taking in. If you're not getting, your RDA and the audience that low 300 to 400mg, we need at least 600mg.

like I said, I have to take 1200. But then after I got saturated and all my symptoms were gone, I mean, seriously, in my mid 70s now I feel better than I did in my 30s because I'm saturated in my my body and my thousands are working properly.

So if you get it saturation, then at this point in time I'm only on 450mg today of magnesium.

Magnesium, Mitochondria, and Energy Production

If I take more, I'll get the laxative effect because my body doesn't need that much. Now I know I drifted away from mitochondria, but you know, what are you what specifically do you want to know about mitochondria?

Magnesium? Well, obviously we know that the mitochondria produce all the energy. And so, for the mitochondria to function at their best, clearly we need that magnesium.

They're not I know if there was any extra information you had that you hadn't shared earlier. Right, right. No, I think that covers it. I know what happened in, the mitochondrial research.

More in the, alternative medicine. They talk about coenzyme Q10 is important in the Krebs cycle. And it is it's toward the end of the Krebs cycle. And it came into more prominence because of the overuse of statin drugs that kill the enzyme that makes cholesterol and break dilates cholesterol.

So the Stanton drug also kills the, HMG CoA reductase enzyme that magnesium balance. So magnesium works with this same enzyme that Stanton kills. And if you need more cholesterol, magnesium will go to work.

If you if you've got enough cholesterol, magnesium will pull away. And we make 80% of our cholesterol. It's not so much a dietary thing, but it is the regulation by magnesium that's important.

So anyway, if you're taking a statin, you really should be taking coenzyme Q. And but if if you realize that and stands. Deplete magnesium as well. There another magnesium to pleader.

Absolutely. And I think it's the Lipitor stat and has a fluoride molecule in it. so not only do you need to take more magnesium when you're taking these drugs, but also if you can understand that magnesium is a natural statin, as said by many researchers, now, you know, maybe a person could, with their doctor, wean off their, certain drugs.

Yeah, yeah. And it's also magnesium so critical for neuronal stability of the neurons. Right. Like some of the most common symptoms are anxiety, depression in irritability, anger, cravings.

A lot of these kind of neurological types of symptoms that are associated with magnesium deficiency. And so let's talk a little bit more about kind of the mechanism there.

obviously when we look at neurons they're the most dense cells with mitochondria. And so the mechanism there for magnesium deficiency associated with a lot of these neurological mental health type symptoms.

Right. Same thing. You know, the magnesium opens up the neuron. The calcium goes in fires the action potential, and then the magnesium pulls the calcium back out when you have, head trauma that disrupts the whole, you know, function of the brain.

And the inflammation starts and the cells are wide open. Lots of calcium comes in. If you can give someone with head trauma, good. You know, ideally dose of magnesium or non laxative, type of magnesium.

So the time work with you can prevent these post traumatic head injuries. It's that simple. And and that work was, was done by the Burton and Bella Altura.

And they forwarded my magnesium miracle book beads. Where to researchers. And they're still around. But by the time I got to them in the late 90s, they had already written a thousand papers on magnesium, and they promoted the ionized 19 compounds so that what were 25 years later and we still don't know about the ionized magnesium test.

And when I approached them to do the foreword, I was told by everybody else on their, their bench researchers, they they won't have anything to do with, with, you know, clinical magnesium.

When I got to them, they said, we're fed up. We have been working for decades trying to get magnesium recognized. And no, you know, nobody's opening up.

Clinicians aren't opening up. I mean, they must have realized that that medicine and big pharma were kind of in front. So they they forwarded the book.

And since then, they've done some incredible studies on aging for decades. They found that, magnesium disrupts the way the telomeres at the end of the chromosomes, the way they unravel magnesium stops that.

So it's an anti-aging and magnesium will dissolve calcium that's building up in tissues in in the wrong places. So we've got, you know, the calcification caused by, women, especially being told they have to take 1215 hundred milligrams of calcium and ignoring magnesium entirely.

So we've got a calcified society. We've got we've got foods that are, fortified with calcium. So our guide is like 10 to 1 calcium, magnesium.

Magnesium, Medications, and Neurological Health

Whereas where we're born for more of a 1 to 1 ratio, I say 600mg of magnesium 600mg of calcium. Calcium is so, important for the body that it's it is well absorbed from food.

I can eat a quart of yogurt over two, three day period, and my heart palpitations will come back a little bit because the magnesium is trying to push the calcium into the bones and teeth and keep it from being in the blood.

What does calcium do in the blood? Among other things? It's a blood clot or it's actually a blood clotting factor. So if you have high calcium levels, you're going to be clotting.

You're going to have soft tissue calcification, breast tissue calcification. DCF is breast tissue calcification heals nerves, gallstones, kidney stones and atherosclerosis.

Atherosclerosis. I mean, there's that you know, alibi for creation of a blood vessel. You've got a vulnerable little, little d connection there. And if you don't have enough collagen, which is produced by your vitamin C processing, then you'll get little tiny pairs and rips.

And what does the body do? It puts a little plug of cholesterol on that rib to help it out. But then if you've got calcium in the blood, the calcium will precipitate on that cholesterol.

You get a cholesterol plaque and everybody says, oh, high cholesterol. That's the problem. Yeah. The most of those plaques are mostly calcium, right. That's a key part.

It's basically scar tissue formation forming in there. And calcium is key component with that. Now you were talking about calcium metabolism how important that is.

And magnesium plays a key role with that. Also vitamin D and vitamin K2. And they kind of all work together right. Vitamin D is not activated unless you have enough magnesium. Yeah.

So all these vitamin D studies oh it's a miracle. No, no, it's, it's a crock. It's because when they do their research, they're not looking at the magnesium component or measuring the magnesium in these people.

So if if you, if you even go out in the sun and, you know, get a tan or a burn or whatever, you can actually, if you don't have enough magnesium to to allow the sun to work with the cholesterol and make your vitamin D, and then if you don't have enough magnesium, you can start getting magnesium deficiency symptoms.

Also, this craziness of the telepathic marathon all of a sudden getting on the vitamin D bandwagon and giving people 50,000 units of vitamin D2 that has really, you know, in some people they'll come back to me and said, oh my gosh, I'm by magnesium deficiency, symptoms are gone.

What's going on? And and I get to the point. The first question I said, did you did you start taking more vitamin D. And I mean it it to us, you know, it's obvious what's going on.

But to allopathic medicine I don't know what they do with people like that. They just, you know, pat them on the head and say, well, come back when you're worse.

Yeah. Yeah. I mean, so vitamin D is key, but you want to make sure you got magnesium on board. That's key. And they work together to take the calcium out of the bloodstream appropriately, putting it into the bones, all the different tissues of the body.

So yeah, they work hand in hand. And we find it in nature. Like you take something like, like for example, egg yolk, egg yolk has got, you know, magnesium in there.

It's got vitamin D, vitamin K2, you know, it's all right in there in nature. So when you're consuming that, you're

getting all of it together. But David, look what they did to to egg yolk.

They told people even high cholesterol. Yeah. All and started giving people egg whites to eat. I mean it it it boggled Fox all the time. Yeah. It definitely backwards.

Definitely not not the best approach for sure. And so so we're talking about testing for magnesium. I know on unlike just regular blood work, you know I'll look at like a serum magnesium which isn't the best test.

But, you know, the range I like to look at is usually 2.2 to 2.5. And, clinically, they don't mark it as deficient until it's like under 1.5. And then I also look at jaegeetee which is a liver enzyme.

And so that GT should be up over ten. you know, usually like 10 to 25 somewhere in that range when it's under ten. That could be a sign of magnesium deficiency as well, because it's so key for formation of GT, which is part of the glutathione thiamin process and phase two liver detoxification.

Now, what you were talking about RBC magnesium looking at actual the red blood cell levels of magnesium, where do you find like the optimal range for that?

Well, when I first start looking at our magnesium, about ten, 12 years ago, the range was a 4.2 to 6.5. And now if you look it's not a 4.2 anymore. It's 3.8.

still trapped at the lower end because people are getting more magnesium deficient. yeah. And that's one the way that they come up with these lab tests is they just take a whole bunch of people.

Most of the people that are getting labs are not like you and I. They're most people are sick right there. They have deficiencies. So they just take all the people that have gotten labs, and then they kind of take the median area in a sense.

And so if you have a sick population, then you're not really going to get the optimal levels. And that's where functional medicine we're trying to find.

Hey, what is the optimal level? What is a level where most of the symptoms go away. People feel better. Right. So that's kind of what we're trying to look at.

And rather in the clinical range. Right. And what you've got to think about too, with the the sheer magnesium is it's not even registered on an electrolyte panel.

I mean, you may be sending out for magnesium tests, but doctors aren't. That's true. They do not even register any amount of magnesium, because what they found with that tight little range that you mentioned is, only 1% of the total magnesium in the body is in the bloodstream.

And the body knows that magnesium is vital for the heart function to make our heart rhythm.

Magnesium, Calcium, and Vitamin D Balance

When you're, here, magnesium level goes low. Then, the body processes will strip magnesium from muscles and bones. Yeah, that's that's what. And it keeps it so steady.

So doctors, I guess, got to the point where they said, oh, it's always normal. We don't have to test it. Yeah. Which is just incredible to me because then when you look at different conditions like, eclampsia or epilepsy in pregnancy, if a woman has very high blood pressure, she's starting to get seizures.

they'll put up an IV magnesium, and it brings the blood pressure down. It stops the seizures, and she decreases. She loses all the water retention, and then they don't translate that into to daily use.

They know how powerful magnesium is, but then it's not a drug, so let's just ignore it. Yeah. So looking at a serum magnesium would look at more of almost like a later stage deficiency because the body's going to start pulling magnesium from your joints from areas that are less vital.

You know, they're they're less vital in a sense. Right. Like you can live for a long time with muscle spasms, right? Whereas you can't live a long time if you have tachycardia.

you know, if you have, issues, cardiovascular issues that can kill you quickly. Right? So it's going to start pulling that, that magnesium out. So that's that's interesting.

And so so let's talk about like some of the best food sources I want to come back to supplements of course. But let's talk about some of the best food sources.

People should be looking at what foods they should definitely be focusing on, what foods they should be avoiding because there's a lot of foods also that deplete magnesium levels that kind of stress.

The system. Yeah. Anything that stresses the body. Anything. Yeah. well we'll train magnesium. Magnesium burn. Right. well, I've come to the point, David, that I don't think, our food can carry, enough magnesium.

100 years ago, the US Department of Agriculture apparently found 500mg of magnesium in an ordinary diet. These days, you're lucky to get 200mg. One of the one of my.

Besides my, dietary supplement company, I, I spend to our farm here in Maui and biodynamic organic. We have chicken eggs, but it's all fruits and vegetables and herbs, tumeric, etc..

And, I've tried to eat just from the farm from, beautiful. Whatever. And I still get all my magnesium deficiency symptoms. So unless the farmer is just loading the soil with Epsom salts and, and, the nutrients that are being removed, we aren't getting enough.

And, I mean, we all know we were taught we're talking about magnesium, but all the minerals are affected from our soil. You know, we're losing them all.

And that's why we're having all the, this range of diseases. But I think magnesium deficiency the main one. And let me just throw in here, you know, I'm always I barring the two things that I've discovered in my whatever 55 years of studying natural medicine is, magnesium deficiency and yeast overgrowth are the two big, triggers for chronic disease.

And those are the two things I focus on when, you know, when I hear people talking about autoimmune disease or anything else and they'll list all there's 20 reasons for it.

No, start with magnesium deficiency and clear that up and then we'll see what's left over. Is it genetics? Well, magnesium has an effect on DNA and RNA as I said the telomeres are, are supported by magnesium.

So there's so many things that we can we can do when we balance magnesium. And I know, you know, I sound like a broken record. And you know, I'm just focused on this magnesium, but I, I think I have a good point.

Yeah. It's super key, you know, and I would say just from a dietary perspective, definitely making sure you're avoiding processed foods, chemicals, different things like that in your foods.

Anything that's going to spike your blood sugar, which is your highly refined types of stuff that all just stresses your magnesium levels, depletes your magnesium.

anything that spikes insulin, you know, insulin resistance doesn't allow you to get magnesium into the cell. So that's going to be a big factor. And then try to really eat organic, real foods.

That's going to be your best magnesium sources. You know, doing things like for example, you know, eating, you know, with animals head, you know, nose to tail, right?

So you're eating kind of the bones, you know, making bone broth soups and things like that. Oregon meats, you know, with your vegetables do you doing your best to get organic, you know, and then also lower oxalate forms as well, because oxalates can be an issue which, which will stress magnesium.

So I like arugula for example, over spinach rank it's lower lower oxalate. And you know we look at like nutritional content. Nuts and seeds are some of the best sources, but they also tend to be a little bit higher in oxalates.

And so depending on the individual they may not. Some some people can do fine with that and metabolize as well, others not as much. And so but the key there is organic, grass fed animal products and trying to keep your blood sugar stable.

That's probably the best thing you can do from a diet perspective. But I'm in agreement with you. I think that in general, especially if somebody is already coming in symptomatic, chronic inflammatory conditions, getting on a magnesium supplement, it's going to be pretty vital.

All right. So a couple things there. magnesium will bind to oxalate and remove them. Right. Calcium will bind to oxalate. But then create kidney. Stones particularly the magnesium.

Citric acid traits also help. Citrate itself is really powerful for helping to move oxalate out of the system, which and we find that in like lemon lemon juice, for example.

Right. Like lemon or citrus fruits have magnesium citrate in them. Right? Right. And why we're talking organic is so you'll avoid the like phosphate, which binds up, you know, most minerals, but to a large extent magnesium, the glyphosate phosphate.

I like to say it. Yeah. I like to say it's a huge, huge issue. Yeah, absolutely. So, yeah, all roads are good ultra processed foods. Suddenly they're the the big thing.

Now, nutritionists are trying to figure out how they can make ultra processed foods a little healthier so that that people will eat them. And it just it drives me crazy.

The only research that, that they're touting these days, it's about ultra processed foods. And one big study they did it was back in 2018, a Kevin Hall.

He he had 20 people. He he put them on a rotation of ultra processed food. And then the ordinary, you know, sad diet, standard American diet. And he said, oh my goodness, the the people who ate the when they ate the ultra processed foods, they 500 calories more day and gained weight.

And it was like, oh my gosh, what's going on? We don't know why this is happening. Seriously, every one of us that has a brain knows that if you don't get your vitamins and minerals, essential fatty acids from the food you're eating, you're going to keep eating more food to try to to, you know, snag some of what we need.

Yeah. And those things just cause insulin resistance. And you need insulin to get key nutrients into cells. And so if your cells aren't responding to insulin, then your body feels like even though it's got plenty of calories, it doesn't have the nutrients in the cells.

Therefore it thinks it's starving.

Testing Magnesium and Food Sources

It needs more food, right? So think. Starving. Yeah, it thinks it's starving. Yeah. And and in nutritional research has not even got to the point where they understand, vitamins and minerals in their natural state.

I mean, they're still working with synthetics, for Pete's sake. So, yeah, we cannot depend on on any of that dietitian nutritionist who don't understand the cofactor relationship of vitamins and minerals and essential fatty acids and then speaking of that, omega three and omega six, that whole imbalance where we've got so much omega six in our diet now we're we're totally inflamed.

And with omega three is I have great concern about the, the fish having to be processed out of their mercury and toxins and make it into a fish oil. I've, I've used, algae oil for my omega three, and I'm not that keen on krill either, because that's the food of whales.

And, you know, I'm in Maui, so we depend on our whale here. Yeah. So if you, if, if we're using all the krill for supplement, what what happens to the whales.

Yeah. Yeah. Well, let's talk about different forms of magnesium. So there's a lot of different forms out there. There's magnesium. Malic. Listen eight tolerate or rotate three L3 and eight.

you know, so there's some forms that are better than others. So what what is your experience with these different magnesium forms or particular forms that are better for certain functions in the body?

let's go over just your overall experience with these forms. Okay. Here's something that might be a little bit of a brain blow. What the body wants, if it's magnesium deficient, is magnesium.

So elemental magnesium elemental magnesium. So what happens with a mag nizam compound. It's a magnesium malate. And what has to happen in a liquid which is our blood.

Is the magnesium and the malic acid separate? And the ion of magnesium then is free to go into a cell. The compound cannot fit into a cell, but this disassociation is a split second.

So in that split second you have to get the magnesium in to yourself. But as soon as you bind back up, you can't have it. So that's the real problem with magnesium absorption is the disassociation factor.

So what I've worked on is stabilizing that magnesium so that it's always available. But what I guess it's the, the, the supplement companies they've created a narrative where, magnesium metal, malic acid from apples.

It's good for your muscles, it's good for chronic fatigue. And let's just use that. And they're acting like it. They're using a magnesium where they're using a magnesium and a malic acid.

The malic acid is there to treat the symptoms of magnesium deficiency where you want the magnesium you you're not after malic acid if you're trying to treat a magnesium deficiency.

And you know, the worst one, I'm afraid is in the three and eight, because in the label lead 2000mg of magnesium L three and eight, and then you turn the label over and they say, but in in three capsules you'll get 144mg of elemental magnesium.

Now, if I had to treat my magnesium deficiency with L3 eight, I would have had the table at three times 1030 a day and I would be I'd be dead in the bathroom because of the laxative effect.

So then I thought, well, what's going on? I mean, they did a study and they found a 7% incremental increase in the amount of magnesium, the gut into the brain of mice or rats.

And on that basis, they called it a brain magnesium. And I think that's a disservice to all the magnesium, even magnesium oxide in the original studies, because everybody was using just magnesium oxide.

Some, some, entrepreneurial woman who owned a magnesium oxide company gave all the researchers magnesium oxide. So all the studies showed magnesium oxide.

You can download a free ebook. what did the magnesium in the Central Nervous System from University of Adelaide in Australia, 2011 book. And it lists all the studies back in that day using magnesium.

They all work in the brain. It's so to say Trina is the only one I'm training. I thought, oh yeah, well, you know the amino acid three name. It's good for the brain.

Maybe that's what's happening. Know magnesium L308. It's from three ionic acid, which is a breakdown of ascorbic acid. It's got nothing to do with three main so that, you know, kind of shocked me a bit.

And then I wondered, since ascorbic acid has receptors in the cells, actually, ascorbic acid and vitamin C compete to get into the cell. No, I'm sorry I said ascorbic acid.

Vitamin C and sugar compete to get into cells. So when you have a high sugar diet, like you were saying, you'll defeat your immune system because you're blocking vitamin C, ascorbic acid from getting in.

So I wondered if this, chorionic acid, which is from 308, which is, derivative of, ascorbic acid, does that have some, some function of pulling magnesium into the cells behind it because it's an ascorbic acid.

So we don't know any of these answers. Everything is just theoretical. But yeah. And it's just confuses the public when they have to buy a patented drug.

the L three and eight. I call it a drug because it's, Anyway, yeah, it's hard, because it's hard for people to afford that type of product when you have to take so much to treat a magnesium deficiency.

That's what I'm saying. Yeah. So what what do you like to use for magnesium deficiency? What? It. I know you like a loading process.

Magnesium Forms, Absorption, and ReMag

You talked about 1200 milligrams for yourself is kind of where you started till symptoms came down. And now you're, you said you somewhere around 400 and 600mg a day.

So what do you like? What you what is the form that you like to use now? Well, it's my own product, but I don't know if you want me to talk about that.

yeah. Go ahead, go ahead. Yeah. Thank you. It's a stabilized, magnesium from magnesium chloride. Okay. So it medium chlorides we find in Epsom salts. that magnesium sulfate.

But yeah. You're right. Yeah. But no you're right too because they're there are magnesium chloride flakes as well. Right. Right. Yeah. Yeah. They say magnesium chloride itself is is well absorb.

But what what my chemist has done is stabilize the magnesium so that it stays as an iron for, you know, years at a time. And we've done in the research studies we've done on it, they've they've shown a light called this data XYZ or z eta as I said, are through r re mag liquid, which is a clear liquid and it doesn't bounce off any material.

So they declare it, you know, peak emitter size. That's what I call re. I got pico mater stabilized iron of magnesium. And that allows, you know, from the time you put it in your mouth, it's a liquid.

it absorbs through your mouth, it absorbs all the way down. Doesn't even get to the large intestine unless you you chug a lot of it. Yeah. So what what I've done, I mean, it's pretty revolutionary, and it sounds kind of strange, but I don't have any way of really quote advertising it because the FDA won't let me say what, Rima can do, and I won't even say it here we are.

You know, we're really preventing from discussing how vitamins and minerals and essential fatty acids can help, treat disease. Sure. We can talk about the structure and function.

So that's what we're talking about. You know, nerves and muscles are being supported, but. But you found that the re mag is a powerful way to get those higher doses of magnesium without having, digestive complaints, laxative effect and, you know, without having to swallow 40 pills.

Right. But as I've already said, David, any magnesium is going to help people. Right. And that's what I've found is that, you know, just getting people on magnesium, it helps them.

Right? Magnesium oxide to a lesser degree, unless they're constipated. But, a lot of these different forms I've used, I mean, you know, people just notice that they're, they're doing better.

But I think, I think you're on it, on to it. We're we're kind of getting that magnesium loading, which is something that I've done with people as well, where you're starting to take those higher doses.

People see, you know, especially people are dealing with a lot of a lot of chronic issues seem to get better quicker as long as they're able to tolerate it, because kind of the the weak link, there is going to be how well their digestive system is functioning or and how how well it's absorbing it and not having a laxative effect, because once you had that laxative effect, you want to back down.

Obviously you don't want to, you know, you don't want to continue to have that. And so you're wasting, you know, you're wasting magnesium and and everything else.

But what's interesting about something like, re mag a stabilized iron is it makes the intestinal peristalsis work properly so that it, it actually effects constipation.

And a natural manner rather than as a laxative. So I found that amazing. Another amazing thing you might be interested in is 2 or 3 months into taking Re Mac and getting saturated, a lot of our customers will start experiencing yeast die off and they won't know what it is.

It's like you're getting skin rashes, coated tongue, maybe women, their genitals, itchy, itchy ears and and we and right away because we focus on yeast as well we say oh great, you're having the yeast die off.

And then we, we go about treating that with Saccharomyces Galati and humic phobic and Pico Silva. So we work on, on what the body is bringing up, you know, the sort of the layers that you go to the most important layer first people, I mean to you as well, they'll come and say, well, I want to work on this and this.

Then you'll say, well, let's do, let's do it this way. And you'll gradually get to the point where, where everything is taken care of. The priorities in the body speak for themselves.

You can't push them. And that's one of the reasons, I work with the Rimac first, because then the body's detoxing. Naturally. Magnesium will. We'll pull out mercury, it'll pull out a little bit, and chemicals as well, because of all the detox pathways that it affects.

And you've already mentioned how it's instrumental in the glutathione, pathways. I work with, Elma Thiamin as well as Christine will work as well. So what I'm about is giving the body the building block so that the body can do its thing.

Naturally. We can't force it. Yeah, well, I love that. I mean, this has been a great interview, Dr. Carolyn. I mean, so much great information people really need to know about magnesium.

We got to get this message out to as many people as possible. And, yeah, your ReMag product sounds wonderful, guys. You can check that out. They just go to your website.

drcarolyndean.com, for more information on that. Is that correct? That's my educational website. I have separate that. Yeah. The product website is rnareset.com and.

rnareset.com, I knew yeah yeah I knew our RnA was important long before the recent RnA explosion. Sure. Sure. Absolutely. Well, you've always been ahead of the game.

And so, thank you so much. It's been great content. Also, check out her book, The Magnesium Miracle. And so wonderful book. Oh, another new one, the Magnesium: The Missing Link to Total Health.

so definitely check that one out as well so you guys can learn more. Dr. Carolyn, thanks so much again for your time and your expertise here. And we will see you guys all on a future interview.

Be blessed everybody.