Lesson 9: Electrolytes (Part 2)

In today's lesson, we are going to tackle the topics of hydration and electrolytes. By far, I think this is one of the most important lessons of this masterclass and the one that you'll be going back to the most.

Now, let's talk about what happens first, physiologically, that affects our hydration and electrolyte levels. We are insulin-resistant individuals, or we're on the journey to getting better, but maybe we've taken a break from fasting and we've consumed more starches, sugars, refined and processed fats, and we've driven our insulin levels up. Now, insulin causes water retention. So does glycogen storage. So that stored form of sugar in our body, that causes water retention. Now, what happens when we start fasting? Well, we start burning that glycogen for fuel first before we start burning our body fat, and we no longer need that water. Then what happens is our insulin levels start to come down when we're fasting. And if our insulin levels are going down, well, we no longer need that water as well.

So what happens is our kidneys get the signal, the hormonal message that it's time to let out some water, and we end up letting out a lot of water and we lose electrolytes in that water as well. Now, this water loss and electrolyte loss combined can make us feel very tired, the fatigue, lethargic, brain fog. It can cause gout attacks, it can cause acid reflux to flare up some, and it can also cause hunger, especially that late afternoon hunger. So usually around the 4:00 mark that many of us refer to as our witching hours and we really struggle to complete our fast or get through the evening fasting. So we dump out a lot of this water, but we tend to not replenish it adequately, and we also tend to dump out a lot of electrolytes, primarily sodium and magnesium, which we also are not adequately replenishing throughout the day.

Now, let's talk about how we can keep both our hydration and our electrolytes up. Now, in general, when we think of hydration, we just think of liquid fluids. But that's not the case either. Hydration is both a combination of water and electrolytes. So let's tackle water first. Many of us, again, look at all fluids and think of all fluids as hydration, but that's not the case. When you have a cup of tea or a cup of coffee, well, you're adding tea, you're adding herbs, you're adding spices. When you have coffee, you're adding coffee. You're changing the chemical composition of water and instead of it being a hydrating fluid, it ends up becoming a dehydrating fluid. You have to remember that a lot of things like herbs and spices do have physiological events or they do have medicinal properties to them, so it's not just water. It's not just hydration.

Now, my rule has always been for every cup of tea or coffee that you have, you must have two cups of water. When many of us start this journey, we're coming off of lots of flavored but sugary beverages, and the thought of just plain water, well, that's not very enticing. And we talked about that in yesterday's group fasting lesson. It's just not palatable to us at first. So what I find is that people often go to consume more tea and more coffee throughout the day, especially those of us who do experience the great appetite-suppressing benefits of tea and coffee and we tend to forget the water. Then we feel even more awful come 4:00 or in the evening. Even the drywall's starting to look enticing in terms of food and we also can't make it to our desired fasting range. So it's so important that for every cup of tea or coffee that you have that you balance it out with two cups of water. And you can make that easy.

Now, we're talking about cups here. A cup is eight ounces, or approximately 250 milliliters. So you can get one glass ... this glass is 16 ounces, or 500 milliliters, and this one glass, you can just have one tall glass of water for every cup or tea or coffee that you have. So this is a good way to measure and balance it out. Or I also have ... I can't reach it right now. It's a 32-ounce or one-liter bottle of water. So for every cup of tea that I have ... I'm not a coffee drinker, for personal preference, taste preference, not anything health related ... but for every cup of tea I have, I can drink about a quarter of that liter bottle, and then that way I'm not constantly having to get up and refill and get away from my desk, especially during the busy work day. So I love my 32-ounce or one-liter bottle of water. This is a great way to make sure you're getting in adequate hydration on your fasting days.

Now, so many of you are looking to know exactly how much water you should have a day. There are all kinds of really crazy formulas out there, the ones that factor in your gender, your height, your weight, and they spew out a number of ounces or liters that you should be having a day. You really can't go by that. Every one of us has our own unique physiology. I myself have really weak adrenal glands. It was a genetic thing that got triggered before I unfortunately found this lifestyle. I don't retain sodium or water very well at all and I'm constantly thirsty, even though my blood sugar levels are great. But my adrenal glands are not great and I produce a very low amount of a hormone called aldosterone. So if I don't get enough hydration, my blood pressure actually drops very low.

So we have these different physiological things that require different hydration. I am 5'3", I'm 118 pounds. My husband, on the other hand, is 6'4" but 185 pounds, and I need twice as much water a day in order to feel good. Now, for most of us though, as long as we don't have congestive heart failure, any severe kidney disease, any type of fluid restrictions from any of our medical doctors, we typically do well starting around two liters of water a day. So two liters. That's literally four glasses, like this is two liters of water. One glass is half a liter of water. So it's really easy, everybody. It's not a ton and ton of water to get in, but it's a good place to start. And as you start to unravel different hormonal issues and imbalances and signaling, you'll start to be

able to recognize that we often mistake thirst for hunger, and sometimes those hunger signals are really thirst signals.

So get in that water. Start with your four tall glasses or eight short glasses of water to get in that base two liters or 64 ounces. And always make sure that for every cup of one of these that you have, that you have one tall glass or two short glasses of water, or part of your stainless steel or glass water bottle that you keep at your desk. And I really think having these large stainless steel or glass water bottles ... they're just such a great prompt to remind us to drink water throughout the day while providing us with an adequate amount of water that's not going to leave us responsible for getting up from our desk at inopportune times to refill our glass.

So I'd really recommend getting one of these 32 ounce or one liter glass bottles of water or stainless steel bottles of water. They really can help, and you can get them in fun colors. Even the glass water bottles, there's a company, BKR, and they've got really funny and cool stylish coverings on the outside of their glass water bottle to help insulate it. So there are fun ones that can make drinking water a little bit more fun and exciting, as well as a really practical strategy for getting it in.

Now, on the topic of electrolytes. We know that hydration isn't just water, isn't just fluids, but also electrolytes. And so much of what I see on social media makes me want to just rip out my hair because there's so much of a focus on potassium, for example, and I just don't necessarily get it. Unless you have certain medical conditions that require you to take potassium supplementation, fasting in a healthy individual with none of those health issues, none of those medications or supplements causing potassium wasting or any of that, it can be scary to supplement with it. I just don't understand. And if you look at the physiology of electrolytes and hydration and fasting, it doesn't make a whole lot of sense.

So as our insulin levels drop and as we start to lose this water and inevitably lose electrolytes in this water, we have a certain process for how we eliminate and retain and select what we eliminate and retain in terms of electrolytes. Again, as long as we don't have certain medical conditions that might be altering this. Now, sodium is the gatekeeper electrolyte. That's an electrolyte the body is going to start to lose off first in that urine. It's going to protect the other ones and you're going to start to lose the sodium. But then your sodium levels are going to start to get critically low and your body's going to hold on to what's left. And then your body's going to get rid of any magnesium until you reach that critical low point, and then it will hold on to that. And then that's when the other electrolytes, potassium and everything else, may start to drop, if the sodium gets too low and the magnesium gets too low.

So the sodium is the gatekeeper, and the magnesium is the gate. And when we're fasting, if we want to feel good, if we want to protect against feeling tired, lethargic, we want to prevent against certain things like gout and acid reflux, and we definitely don't want to be experiencing that hunger, especially late in the day, it's so important that we focus on that gatekeeper and the gate. So sodium also is just so easy to find. Yesterday, we talked about some of the critical fasting fluids, the fasting training wheels as well that you want to take, especially at the start of your fasting journey, to help with the hydration, things like broth, like a bone broth or a low-carb vegetable broth. We talked about sugar-free pickle juice and shared that you can even make that at home yourself. But you can also drink from the pickle jar as well, as long as there's no sugars or any weird ingredients. You're pretty much looking for water, vinegar, dill, maybe some garlic, very simple ingredients, and then you can have all the brine. Those are great salty, salty fluids to have.

And then, there's also salt itself. Salt and sodium, they're synonymous with one another. But I can't tell you how important sodium is. I actually have ... I don't know if this is going to show up properly on the camera, actually, but this is the sodium element. It's on a coaster. And I have it on my desk and I keep it under my glass, so every time I lift up my glass, I'll see sodium. My husband's an organic chemist, a very geeky organic chemist at that, and I found this in his office after we moved from Toronto to the San Francisco area recently. He had purchased it at a farmer's market back home, he said. But it's just been such a great reminder, and this is how important sodium is because it is that gatekeeper. You want to protect the gate, you gotta protect the gatekeeper.

So in this electrolyte section that we talk about here, I'm going to really tackle sodium and magnesium. So let's get started with sodium. Just to recap, more common sodium fluids that you can have are definitely broth. So the low-carb vegetable broth, the bone broth, and even homemade stock of your choice is perfectly fine to have, and that's a more historically normal way of consuming salt. And then we've learned that things like pickle juice and all the brine are actually really popular vessels for salt. I love pickle juice in the summertime. I just think it is the greatest thing on a hot day, especially when you don't want to be consuming broth outside. You can have this lovely cup of pickle juice on the patio and enjoy it, and it'll leave you feeling good and suppressing your appetite.

But you can also go straight to the source and get salt. Now, many of you will chew on salt. You'll just take some Himalayan salt crystals and chew on it. Others of you will take pinches of a good quality salt, like a Himalayan salt, a Celtic sea salt, a good quality sea salt. This is Redmond's Real Salt. We're not associated with them in any financial way, but their salt, and you'll just take pinches of that throughout the day. And some of you really like Maldon salt flakes, and I'm sorry, we just ran out of regular Maldon salt flakes. But they're literally little flakes of salt and they dissolve on your tongue, and it actually gets absorbed so much quicker into your

circulatory system when it's absorbed into your tongue, rather than just drinking some salty water. So many people like putting the Maldon salt flakes or any salt flake ... it doesn't have to be Maldon ... on their tongue.

There's also smoked salt flakes. Again, by Maldon, but also by other companies, too. And so many of you like adding your Maldon smoked salt flakes to a nice warm glass of water or hot glass of water and have this smoky, warm beverage. It's so great in the evening when it's more chilly or on a cold day. It leaves you feeling like you're having this warm, cozy beverage that's hydrating you, making you feel really, really good, and also not having any caffeine in it for a warm beverage. So it's great to have later on in the evening as well.

And then there are some of you who just really like some of these flavored salt. I have this applewood smoked salt that I got at this little market in Castro Valley here in California, applewood smoked salt. Having a pinch of this is literally like having a pinch of bacon. So if I'm having a really stressful day and that stress is driving up my hunger, but I think I can fast through it and I don't necessarily need to convert to a fat fast, I'll actually go to my applewood salt and I'll take a pinch of it, put it on my tongue, and just enjoy it because it's like having a piece of bacon on a fat fast, but really, truly fasting.

This actually stays on my desk. We have one for the kitchen and one for my desk during just these moments when you might want to snack or graze, for us snackers in the community here. I'm a big, big snacker and I've always been at my desk my whole life, snacking and working, snacking and studying, big circle of just chronic snacking, and having these flavored salts was something that I enjoy so much that remind me and satiate me of a food choice. Well, this is now my alternative to snacking, so it's a great thing to have.

So salt is great. We've talked about how we'll take pinches of it, we'll chew on salt rocks, we'll try different flavors, we'll use the salt flakes to have them dissolve. We might add different flavored salts or other smoked salt flakes or just salt flakes in general to water, especially warm and hot water, to be great strategies to get in salt. And there are other ways. If you're someone who likes to consume your salt in fluid form and you aren't getting nauseated from that, there is a supplement by a company called Keto Chow, and this is their fasting drops. Now, they also have electrolyte drops, which I don't necessarily think are an ideal product. But I really like their fasting drops. They're all sodium with a bit of potassium. Now, a half teaspoon of this is just under a quarter of a teaspoon of regular salt. So a half teaspoon has 220 milligrams of sodium in it, so this is a great way to get in a concentrated amount of salt at one period of time.

Now, aside from my snacking salt ... and I do really love the salt flakes, both the plain Maldon salt flakes and the smoked ones in my water ... my more primary method of getting salt in is

through salt tablets. So this is Redmond's. That's the company. The product is Re-Lyte Hydration Support, and they are just strictly sodium from sea salt, from their actual salt. Now, we have no financial business relationship with them. I'm happy to promote products that I truly believe in, and I want to have that autonomy. I want to be able to walk away from products if they change their ingredients, or if a company has products I don't like but does have products that I do like, I just want to be able to speak my truth. So, I go through so many of these. And I'll be honest, I have purchased them myself, but I'm often sent these.

Now, they are quite expensive, but you can buy vegetable capsules online and you can actually take their salt ... you can buy this for about 10 bucks ... and get a little pill filler scoop just online on Amazon. You can get them for $4 or $5 and you can make 100 capsules in less than half an hour yourself and save a bunch of money. So you can make these at home. But why do I love these salt capsules so much? Well, we typically need quite a bit of salt a day to actually be optimized in terms of our health and how we're feeling and troubleshooting all of these potential side effects of fasting. And it can be really difficult, even for someone who is an extreme salt lover like myself, to just orally eat a lot of salt. You get turned off by the taste of it and it can be troublesome, especially if you physiologically need it but you're just a little bit turned off by the taste of it. So the salt capsules enable you to get in quite a bit of salt without really having to worry about that taste overexposure.

Now, another place that I recommend salt supplementation ... or two other places ... is one, for individuals who do get nauseous taking regular salt in more consistent patterns throughout the day. That often doesn't leave people feeling too good. Another one is when you're really busy and on the go, and you don't have time to go to the kitchen and grab a pinch of salt, or go to your work lounge and have a cup of broth. So I actually started using salt tablets as a method of hydration when I was working with doctors who were fasting members, and they would come to me for some personalized coaching, and they were just struggling so much always because of hydration. They were on their feet 12 to 16 hours, there's a little physicians' lounge, they never get to the doctor's lounge, and it's not like they can carry stuff with them. But they can take a little bag, a little container of some salt tablets, and this was just the greatest miracle for this population.

Now, there's so many of us who have similar environments in terms of being able to carry certain things with us or access those certain resources in our workplace, and sodium tablets are great. So I go through these quite a lot. I always have one at my desk.

So these are the main ways for getting sodium into your system. Now, the million dollar question is how much. And just like with water, it's going to vary so much more per individual. Like myself, with this low aldosterone hormone, I lose too much sodium, so I need to eat more than the rest of us. A really great book out there, especially if you're nervous about sodium, is a

book called The Salt Fix. Again, that's The Salt Fix by Dr. James DiNicolantonio. Again, that's Dr. James DiNicolantonio. He wrote The Longevity Solution with Dr. Fung. He has an incredible book on The Salt Fix, and he talks about how throughout most of human history, our health was optimized when we consumed somewhere between about 4,000 and 7,000 milligrams of sodium a day, whereas right now, the daily recommendation is around 2,200.

He also goes in to explain how we're blaming the salt for what the sugar did. So it's actually the high insulin for many individuals that is actually causing the higher blood pressure levels and the salt intolerance. It's not actually the salt itself. Dr. Fung and I saw this so much at our clinics because our patients had kidney disease, and kidneys regulate blood pressure, so many of them had blood pressure issues. We would switch their diets, get them fasting, and then their blood pressure would start to come down as their insulin level started to come down. And this is despite them taking salt.

So it's unique. There is a percentage of the population that, in the absence of insulin resistance, is still salt sensitive, so it's always important to make sure you work with your doctor. But it's been really unique to see how many people didn't think that they could have salt to really tackle their insulin resistance and then tolerate it.

So before we get started talking about how much sodium you should be having a day, I just want to make this note. If you are an insulin-resistant individual with quite a lot of insulin resistance, you might have a very low tolerance for salt. It might make you fatigued, it might make you bloated, even just a pinch of it, and you might see that translated slightly in your blood pressure levels, too. Now, it can be difficult for very insulin-resistant individuals to take salt. So some of us who are insulin resistant to the point that we can't tolerate it, then you don't need to force yourself to take it. But you might find throughout your journey as your insulin gets lower and your insulin resistance starts to improve, that's when you need the sodium.

So you could be starting today and might not ever think that you need it, but you might actually really need it down the road. And some of you might actually need it now. Despite your insulin resistance, you might be feeling that lack of sodium, but when you take it, you don't feel that great. So you need to be patient and slowly experiment over time. And one last thing to be cognizant of. If you're someone who's followed a very low or next-to-no-sodium diet, you can't just jump in and start taking a bunch of sodium. You're going to feel awful. Our bodies are very capable of acclimating, but they'll acclimate to lower states of sodium. So even though you're giving your body what it needs to be physiologically optimized when you add in the salt, your body's not used to it and it takes a while to adapt. So it's important, if that's you, that you slowly introduce the salt.

Now, like Dr. Fung always says with insulin, you can always take more insulin, but you can't take less. It's the same thing with salt. You can always take more salt, but you can't take less. So keep that in mind. If you've had a low-sodium diet, you need to go low and slow. And in fact, we should all be going low and slow with this. So it's good to start out with just experimenting, very gradually adding the sodium into your routine on your fasting days.

Now, with sodium, we like to take a little bit very frequently throughout the day. Something that's unique about sodium is that our body will see what's there immediately and make an immediate audit on the situation. "Okay, right now, this minute, we need this much sodium. Urinate out the rest." And then a few minutes rolls by, and it goes to do that audit again and again and again and again. So what I often see as such a mistake that people make when it comes to taking salt during their fast is that they take it once in the morning, maybe in the afternoon, maybe later on in the day. That's not going to help us. It's something that you really need to take frequently during the day.

That's why I leave my salt tablets, that's why I leave my flavored salt that I usually go to at my desk. These are really easy resources for me to have. I'll enjoy my smoky salt water if I'm having stress and need to take a break and stretch my legs, or in the evening time, or even in the morning if I'm trying to avoid caffeine that day. But it's so important to take it regularly. In fact, I usually drink a fluid every 90 minutes, and when I do that, I actually always take one to two of these capsules. So it's important to take it often throughout the day. Many people in our community refer to it as salting your body, and frequent salting throughout the day is important.

Now, another concept that's become really important is early salting ... early morning salting, that is. This is the other biggest faux pas that I see individuals make when it comes to salt. They wait until the afternoon when they start to see their energy levels decline to take any form of salt. But did you know when we take it orally, it can actually take 45 minutes, many minutes over an hour to actually kick in and then start to make us feel better? It could take a few hours even by the time you start to feel better, and most of it doesn't make it through that window. Then we end up crashing and burning around 4:00 with our fast.

So the very first thing that I put into my body every morning is I'll have my lemon water, I'll add in some vinegar, and I'll add in some salt. So I'll add in about a quarter of a teaspoon of salt. When I started, I just did an eighth, and now I do a quarter. That's the first thing that goes into my body. And then, since I drink a new fluid usually about every 90 minutes throughout the day, I'm taking my salt tablets. Then if I get snacky, I'll have my applewood smoked salt and I'll mix it up throughout the day like that. It's so important that you do it regularly, and that's what the coaster's there to remind me of.

So salt, if you want it to be effective, you need to start taking it early on in the day and you need to take it frequently throughout the day. I always try to get an equivalent of one teaspoon of salt before about 1:00 PM in the afternoon. So I wake up around 5:00 or 6:00 and I try to really get a significant amount of sodium in the morning. I do that regardless of fasting days or eating days, because on my eating days, I don't often eat breakfast. So every morning is a fasting morning, and I actually find doing that on my eating days helps control my hunger when I do start eating.

Now, if it's an eating day, I'll stop my early salting once I start eating, and then I'll just get my salt in through my meals and salting it to taste. But if it's a fasting day, I'll continue with my salting in the afternoon, but I often find that instead of taking it every 90 minutes, I maybe need to take it every few hours later on in the afternoon. Really taking our salt in the morning can help support our stress response throughout the day and our adrenal glands, so it's often important to really focus on that early morning salting and it's changed a lot of people's lives and fasting journeys. So I really recommend that you give that early morning salting a try if it's okay for you to consume salt by your healthcare team.

Now most individuals typically need somewhere between about one to three teaspoons of salt a day, or the equivalent of sodium to one to three teaspoons of salt a day. So three teaspoons is a tablespoon, and I find a lot of individuals tend to find a sweet spot, typically around one and a half teaspoons. Usually those who exercise more increase their physical activity, need more, and we will find that we do need more sodium as we cycle through the different seasons.

When we are going through very humid seasons or much warmer seasons such as summer and winter ... Winter can be very dehydrating, as well as summer when we're perspiring, obviously, a lot more. Those can be very dehydrating times and we might find that we actually need to increase our salt a little bit then and not so much in the spring and in the fall. So keep that in mind as well. And days that are more stressful or days where you got very poor sleep the night before, well, those days you might need more sodium supplementation. But on those days where everything is going swimmingly and you got a good seven to eight hours of solid, good quality sleep. So stress can alter how much sodium you have. So every day, you need to play around with it a little bit.

Now, signs that you need sodium. I think we have chatted about those. The brain fog, the fatigue, the lethargy, the hunger, and then some of the more rare but more severe side effects of lower sodium such as gout or acid reflux. But how do you know if you've had too much sodium? Well, you'll feel very fatigued, a very strong craving for regular water, and bloat, and you might experience elevated heart rate. So it's always best to go low and slow. So I typically

take a quarter of a teaspoon of salt every time I have it, and I do typically take quite a bit of salt every single day. But that's me, and I had to work my way up to that as well. Even though my body needed it, I had to work my way up to it. I started off with about an eighth of a teaspoon.

So it's best to go low and slow. And I can't stress this enough. You always need to talk to your healthcare team, your doctor to make sure any type of nutritional strategy, fasting, foods, salts, supplements are safe for you before you start doing them.

Now, on to our second supplement, or sorry, our second electrolyte that we're talking about here is magnesium. So the body actually burns through quite a bit of magnesium if you're insulin resistant, and it can be really difficult to tell what our magnesium levels actually are. This is because the body so tightly regulates our blood serum levels of magnesium. So if our levels are low, our body will actually take it from tissue stores to maintain normal blood levels of it. So we could do a blood test for just your regular serum magnesium electrolyte and it'd be perfectly normal, but you could be experiencing symptoms of low magnesium. Feeling a little bit anxious, poor sleep, feeling stressed, lower mood, body cramps, these are all symptoms of low magnesium. Constipation.

So we could be experiencing these symptoms of low magnesium and not really think it makes sense. But we could have these normal blood levels, but very low and depleted tissue levels of magnesium. So how can you tell if you have magnesium deficiency or low magnesium levels if a standard blood test doesn't give you that information? Well, you can do a special blood test called an RBC magnesium, and this will give you a good indicator of what your total stores of magnesium actually are. But individuals with insulin resistance, your body tends to really deplete your magnesium. And the medical research shows and indicates that inadequate magnesium levels result in insulin sensitivity. So many people do benefit in the insulin-resistant community from supplementing with magnesium.

Magnesium. How do you take it? Well, there are magnesium-rich foods such as nuts, for example. But nuts are very difficult to digest, and many of us, because of our previous lifestyles, don't have the best gut health. There's so much IBS and Crohn's and colitis and it's just our guts that need some healing. Fasting and nutrition will help with that, so we have to be patient. But we often do not absorb the nutrients from foods like nuts that are rich in magnesium very effectively.

By far, our favorite strategy for getting magnesium into your body is through the topical application of magnesium. We call it the transdermal magnesium, when you put it on top of your dermis, on top of your skin, and it absorbs into your circulatory system. How can you do that? Well, you can get Epsom salts. Epsom salts are just magnesium sulfate, and you can take a

bath in Epsom salts, usually about two cups of Epsom salts per standard bathtub, and you would soak in it for about 15 or 20 minutes. Or you could just simply soak your feet as well in Epsom salts. So you can get a plain old bucket, fill it up with warm water, dump in a cup or two of Epsom salts, sit, read a book, watch a movie, work at your desk, and just get that magnesium infusion in.

And for some of us, we might not have bathtubs, we might not want the inconvenience of filling up a bucket. You can also buy magnesium oils and magnesium gels, lotions and rub them on your skin and they'll absorb it. It's definitely the most effective way of getting magnesium into your system.

Now, there are different types of magnesium oral supplements that you can take as well. There's magnesium citrate, magnesium bi glycinate, magnesium malate, and magnesium l-threonate, and these are the four typical salts that we will recommend, magnesium salts, that you can purchase in oral supplementation.

Now, each of these different magnesium salts has different health properties, or benefits, rather. Magnesium citrate is very good if you're constipated, but it can be a terrible magnesium to have if you're not constipated because it can make you have loose stools, unwanted loose stools. But if you're constipated, it's a great magnesium. Magnesium by glycinate is just your good, all around, healthy magnesium that can make you feel good, help with sleep, help with cramps, help with digestion. It's just your all around good buddy magnesium salt. Magnesium malate is actually really good at driving up your energy levels. So many people with just low energy, chronic fatigue syndrome, fibromyalgia, they'll take magnesium malate. And then magnesium l-threonate has a lot of cognitive benefits because it's one of the magnesium salts that can actually cross the blood-brain barrier. So people that take it report improvements in memory and cognitive function, as well as all of the other great calming and sleep benefits and mood benefits that you get from taking all of the other magnesiums as well.

And many of us will actually take a combination of these supplements. Sorry for the TMI, but I used to experience a lot of constipation at the start of my journey. So I would take some magnesium citrate, but then I would take some magnesium glycinate to get the additional benefits from the magnesium glycinate. And now, I mix up actually taking magnesium glycinate, malate, and l-threonate. I take magnesium l-threonate every day and every other day, I swap between the other two and it helps me a great deal. And I do take oral magnesium supplementation in conjunction with my Epsom salt baths.

Now, for magnesium supplementation in general, citrate, bisglycinate, malate, the recommendations are always to start off with 400 milligrams. Magnesium l-threonate is dosed a

little bit differently. The capsules are typically 144 or 145 milligrams, and that's typically taken three times a day, so you get in a little bit less than your ... or sorry, yes a little bit less ... or sorry, a little bit more than 400 milligrams of magnesium l-threonate a day. And then some people do work their way up to taking more magnesium, because a lot of the medical literature does show that insulin sensitivity is improved, or insulin resistance is diminished and improved by taking upwards to between 2,000 and 2,400 milligrams of magnesium.

So I definitely sometimes do take that orally. Usually, I take about half, especially if I'm doing the Epsom salt baths, and very slowly you have to work your way up to taking more magnesium. Now, how do you know if you've taken too much magnesium? Well, you'll be spending too much time in the bathroom and you'll be having very uncomfortable tummy cramps and lots of loose stools. So that's how you will know. And just like with sodium, going low and going slow with magnesium and working your way up is in your benefit to help your body acclimate. So magnesium supplementation is a great thing to talk to your doctor and healthcare team about.

Just before we sign off on this lesson, please always make sure you talk to your doctor about hydration, electrolytes, any nutrition or lifestyle strategies that you're looking to change before implementing them.