



Episode 484: Steve Wright on Tributyrin
Breakthrough Molecule for Microbiome,
Histamine and Leaky Gut

Child: Welcome to my Mommy's podcast.

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Katie: Hello, and welcome to the "Wellness Mama" podcast. I'm Katie from wellnessmama.com. And I'm here today with Steven Wright who has been on this podcast before. I wanted to bring him back to talk about a specific topic that I'll get to in a minute. He is a medical engineer, a Kalish Functional Medicine Institute graduate, and a gut health specialist who I have known for many years and followed his research closely. He spent close to \$400,000 overcoming his own health challenges using everything from Western medicine to Eastern medicine and everything in between. He's the founder of healthygut.com, and he has a lot of expertise specific to a lot of particular issues. And today I wanted to talk about tributyrin which is a new molecule that I've been using that was, I believe, helpful in my Hashimoto's remission. It's also been helpful for a couple of my kids for various things, but it's considered a breakthrough molecule for microbiome, histamine, and leaky gut. And we explain why in this episode.

We talk about what butyrate is and how it's produced, how our gut bacteria feeds on some of the food we eat, and what this process does, what anaerobic bacteria are, and why they're important to understand, the new

information we know about leaky gut and how this comes into play, how restrictive diets can reduce butyrate production over time and how to fix it, understanding the histamine response, what mast cells are, why tributyrin is different from other supplemental forms of butyrate and the very specific gut effects it can have, and how to use it effectively for the extremes of different kind of issues and to find your own dose. Steve is so well-spoken, and I loved this episode. Like I said, this is something that's been helpful for me and I was excited to share it with you guys today. So let's join Steve.

Katie: Steve, welcome back. Thanks for being here.

Steven: Katie, thanks for having me again.

Katie: It's always so fun to chat with you, and it's extra fun when we get to record it and share because you are so knowledgeable about so much. Before we jump in, I just have a note in here about fun facts about you that you're an old man at heart and that you eat dinner at 5 p.m. and go to bed at 9 p.m., which if that's true, I love it because that's supposed to be amazing for your circadian rhythm.

Steven: Yeah. It's true. I kind of have an old grumpy man inside of me who likes things very regimented and early, and, yeah, I guess the side effect is better for your circadian health. I don't know what it is. It's just been like that since I was a teenager.

Katie: Well, that's awesome. I feel like you're probably naturally where all of us are trying to get as the goal. I've been doing some brain training, and the neuroscientists keep telling me it would be best to go to sleep around 9 and ideally to wake up naturally before the sun, which I'm getting much closer to but not quite there yet.

Steven: That's awesome. Good luck.

Katie: Thanks. Well, and I know you're here today. We're gonna go deep on a lot of gut-related issues. And you've been on this podcast before. If you guys haven't heard Steve, I'll link to his other podcasts in the show notes, so you guys can find those. But I'm excited to really deep dive into tributyrin because this is one that I've been taking and that I've mentioned to people, and even some of my really educated health friends aren't familiar with this one. And I've seen how profound of an impact it can have. So I wanna kind of break down the mechanisms by which that's happening, but to start broad, can you define first of all what it is?

Steven: Yeah. So, tributyrin, really, I think is the next frontier of gut health, and tributyrin is a specific type of butyrate. And so some people or a lot of people are starting to hear about butyrate. Like basically, it's what all

that vegetables people tell you to eat and all the fibers people tell you to eat, all that goes down into your microbiome, and the microbiome, the good parts, turn most of that into short-chain fatty acids. And the most studied and considered the most important short-chain fatty acid is butyrate. And so tributyrin is a specific type of butyrate that is sort of the next evolution of supplements for humans and animals, and so it's a pharmacokinetically superior form. And we can go into more details about that, but we probably should stick with butyrate and short-chain fatty acids for the beginning here.

Katie: Yeah. I feel like most people listening have probably at least heard of butyrate. That's gotten some press in recent terms and then all of the different types of fatty acids and what the different ones do. Can you explain how the microbiome creates butyrate and these short-chain fatty acids, like what's that mechanism?

Steven: Yes. I mean, I think, it's best remembered in, like, silly terms because the gut can be so complex. I mean, I've been studying this for like 12 years, and it's still...the complexity is amazing. And so the easiest way to remember this is your prebiotics or your fibers are taken in, and then your probiotics or your good bacteria poop out postbiotics or butyrates and short-chain fatty acids. There are other short-chain fatty acids. And if you're like, "What is a short-chain fatty acid?" Well, if you're taking MCT oil, that's a medium-chain fatty acid or medium-chain triglyceride. And so this is just a smaller chain of fat molecules bound together, and butyrate just happens to be, you know, the most important one. Now, how do you actually make that? Well, like I said, it comes from the fibers that we don't actually break down. Sometimes that's resistant starch. Other times, it's just specific compounds polyphenols, your brightly colored vegetables. You know, there's various diets out there that weight the diet towards more brightly colored fruits and vegetables. Those seem to preferentially create more butyrate from certain types of microbiome bugs.

Katie: That makes sense. And some of the listeners may remember a previous podcast where we talked about, like, pregnancy nursing and how a lot of breast milk actually is not designed to feed the baby specifically but to feed the balance of bacteria in the baby's gut. So similar, I would guess, pathway to this. Can you explain why butyrate is important for gut health? And also, I know it extends to a lot of areas of health as well.

Steven: Yeah. So basically, you think about that. You're eating all these vegetables. You know, like, "I don't really know why I'm eating these and all these different colors." And so they go down. Your microbiome produces a bunch of butyrate and other short-chain fatty acids like acetate and propanoate. But 95% of your butyrate is used by your colon cells, and so it is the preferred fuel for these colon cells. Some people have heard that, you know, L-glutamine could be a preferred source for the small intestine. The preferred source for the large intestine is butyrate.

And so when the colon cells metabolize or do their metabolic process through using butyrate, they actually need oxygen. So they suck oxygen out of the colon, which is super important because, if you think about...we all want a really healthy microbiome. We know it's important for food sensitivities, for aging, for immunity, for all kinds of things. The biggest part of the microbiome that's considered healthy is a type of bacteria class called anaerobic bacteria, which...again, there's a lot of names, and some are really hard to make sense of, but

that basically means without oxygen. And so these bacteria love an environment that has a low oxygen content.

And so when your colon cells are actually metabolizing the butyrate that you make, they're sucking oxygen out of the colon and creating the right environment for the good bugs inside of you to flourish and be like very diverse and really healthy. And so when that's happening, a lot of really good things are happening, your mucous barriers, your mucous lining is healthy. Your microbiome is very diverse. Your colon is healthy. And then, yeah, it travels. It's sort of like the magnesium of the gut. A lot of people are familiar with how magnesium is this molecule that's responsible for like 300 interactions all over the body. Butyrate is very similar. It travels around. It's very important for bone health and bone density. So, it helps create parathyroid hormone and T regulatory cells, which regulate bone mass. It's been studied in asthma and allergies to help the lungs. There's ongoing research around the brain and neurodegenerative diseases. So, butyrate in general is...the 5% that gets into the bloodstream and goes everywhere else is super, super important.

Katie: That makes sense, and it makes me wonder about I have a lot of listeners working through various health conditions, and for at least a time, I know you've had this experience as well. I also having to be on a more restrictive diet, and for me, even an AIP diet, which somewhat limits the number of fiber-rich foods that you're eating. And now with the trend of carnivore, a lot of people eating almost no fiber. How does that impact butyrate production?

Steven: Yeah. The quick story here is that it goes down, and so there's nothing wrong. I don't believe in doing a food elimination diet, or a carnivore diet, or various types of FODMAP diets, things that reduce the fermentable carbohydrate load, especially if you're symptomatic. However, the research is very clear especially when they study FODMAP diet set. Starting around six to eight weeks, your butyrate production starts dropping off a cliff.

And then, you know, if you're like me, and maybe you've seen this as well, Katie, but a lot of folks when they do these really restrictive elimination diets, I don't know what percentage, maybe 50% or higher, really struggle to add the foods back in. And they get caught in this loop where they felt better for a while, but now they can't get back to a regular diet, they can't participate in normal life, and their health starts to plateau or get worse. And it's in that area that the sort of the cycle of food is sort of broken, and I believe that's where we're creating our own basically dysbiosis through using diet. And so to get yourself out of that, you gotta figure out how do you get your butyrate back up because when you do that, you can really control a lot of the factors that create food sensitivities, right? Food sensitivities are very complex. Some people are histamine-driven food sensitivities. Some people are leaky gut-driven. Some people have enzyme issues. But in general, butyrate, and a high production of butyrate or using the right butyrate supplement can get you through almost all of those conditions. It's sort of the linchpin for me when it comes to people who are stuck without...unable to reintroduce these foods.

Katie: Yeah. I heard someone say recently, and I thought this was a great point that you can view those more extreme restrictive diets as almost like a pharmaceutical intervention. They can have their place, but they should be thought of as very short-term for a very acute thing and not a long-term ideal. I think often people get sucked into thinking of those as the gold standard for long-term when they feel better, and then, like you said, they see that rebound effect and end up a little bit worse off long run, not to mention that, like, I found on my own health journey getting rid of Hashimoto's, the goal should be to be able to eat a wide range of foods and be highly adaptable and not react to them.

And for me personally, my last holdout food was eggs for a long time, and I now tolerate eggs just fine. And I think maybe tributyrin is part of the equation for that because I was taking your enzymes and tributyrin and HCL when I eat them for a long time, and now seem to have no problem with that. Can you kind of explain maybe what happened there?

Steven: Yeah. Sure. So, yeah, food sensitivities is a very complex topic because, for instance, an egg, I would wager to say that the majority of the reaction there is related to the protein in egg. But a lot of other food sensitivities like FODMAP sensitivities are related to the carbohydrate structure. And so you have this...depending on the type of food and what macromolecules and micromolecules make it up, it can be very complex. But when it comes to egg and other protein dominant food sensitivities, a lot of that I believe is related to leaky gut and then an immune system that's super overreactive.

And so, you know, you and I have been talking leaky gut. I think that was one of our first podcasts many, many years ago, and back then, I and almost everybody in the field thought of leaky gut as just the zonulin molecules, the tight junction sort of separating between your gut cells. Now we know that it's so much more complex than that. There's actually four layers to leaky gut. And so this is, I think, one of the reasons why, you know, things like high-dose L-glutamine and certain probiotics and other things just help, but they don't ever really get you through, for instance, the egg sensitivity. And the reason why is these four layers. So layer one is those tight junctions, so closing those up, super important. Layer two is your mucous membranes. They have to be really thick. They actually protect the gut wall from being exposed to these things. Three is your immune system in and around your gut. You want that immune system regulated and sending out these defense molecules that sort of bind bad things and also signal back to it to be, you know, overly reactive or less reactive. And then fourth is your microbiome. If you have a diverse microbiome, it also sort of helps you in that area of being able to tolerate a lot.

And so the cool thing about tributyrin is that in the research studies, it's been shown to increase all those things. So it helps the expression of tight junctions and strengthens the gut wall. It expresses MUC2, which produces mucus which thickens your mucous lining. It regulates...like I said, T regulatory cells helps lower cytokine release, other immune systems in the gut. And then four, it's been shown to increase your microbiome diversity. So, I've never really seen...I mean, you know me. I order stuff from all over the world I try. Like, I don't care what miracle you wanna tell me about, I'll give it a go. Let's see if there's truth here. Does it work in a body? Is there science? Is there biology to back this up?

And I don't take it lightly when I say that tributyrin is one of the most exciting compounds in the world right now for these types of issues. It's doing things for people who are stuck on five foods, or seven foods, or whole classes like eggs or FODMAPs, things like that that were just off-limits for the majority of their life. And I too and like you, I believe that resiliency is what we wanna build. We wanna build, like, the ability to tolerate all types of foods and be able to choose. And so when you have a lot of butyrate, and you have, you know, something like tributyrin to come in and potentially rebuild those pathways, it produces pretty amazing stories, and it's very exciting.

Katie: Yeah. Exactly. I was recently at an event, and it was a wonderful event, but it was very kind of biohacking-focused. And I found kind of an odd contrast of these people who are doing all of these extreme things to keep their health in check and eating very restrictive diets and considering that resilience. And I understand, like I said, the need to do that in certain instances to recover, but it was really kind of striking, and it really brought up to me, like, shouldn't the goal be to be highly adaptable and able to handle when you have to WI-FI, or blue light, or gluten, or whatever the food may be long-term, even if your body's maybe not there right now. And you mentioned histamine intolerance as well, which I think is something I'm hearing more about from listeners and readers. It seems to be maybe on the rise, or at least there's more knowledge about it right now. Can you talk more specifically about that histamine interaction and how maybe butyrate contributes?

Steven: Yeah. So we have these things called mast cells and we need the right amount of histamine, really. So just like all of our hormones, we don't want too little, we don't want too much, histamine is the exact same way. We want the right regulated response of histamine to our environment and what we're doing with our bodies. There's a bunch of mast cells that are concentrated in the gut wall, and if these mast cells are perchance more exposed to what's happening inside your gut because of a low mucus lining like a thinned-out mucus lining, or if these mast cells have been triggered into high alert due to infections, or toxicities, or inflammation over the years, they can basically overexert histamine. And that can cause all kinds of things. You know, you get flushing. You can get tachycardia. You react to all kinds of foods. This eliminates a lot of your wines, your fishes, your beers, anything fermented, mustards, all kinds of things like that. Like I said, it can become to the point where we have people in our community who like basically can get tachycardia and have to go lay down for hours because just too much histamine will raise their whole body.

And so is it growing? It might be, but I think there is a lot more awareness to what it is. And the cool thing about the options out there for histamine, there's a lot of people talking about taking like a DAO enzyme. DAO helps break down histamine. There's people who take a lot of quercetin with their foods or quercetin during the day that helps lower the amount of histamine that's released as well. But a lot of times, if you don't respond to just those simple interventions, you get on this little hamster wheel where it just gets more and more aggressive. And tributyrin is one of the first supplements I've found that can kind of, like, just insert a foot into the door and stop the cycle from happening and also start to reverse it.

And so part of what's been studied in animals is that it sort of, like, bays the mast cell in a way that it sort of re-regulates it to an environment so it stops expressing so much histamine. And so I would say some of the coolest stories out of our community have been people who, for instance, ate a strawberry in February of last year and went to the hospital because of the histamine release. And then they took our products throughout the year, and for Thanksgiving that year, they were able to eat the meal with their family and have a glass of red wine and not have any issues, which if you don't know about histamine and mast cell, mast cell issues that doesn't even really matter to you, you're like, "I don't understand." If you have those issues, that's like a really big deal for someone like that.

Katie: Got it. And you mentioned examples of stories that you've heard. I know you've heard a lot from your community. I know I saw a difference in my own health. And one of my kids who had eczema in the past, it seemed to be really helpful for her. What other kind of stories do you hear from your community?

Steven: Yeah. I would say some of the other major ways that it can really help is people who have loose stools. So, this could be IBS, IBD. You know, the actual underlying structure is not all that important. It just seems like most people are either too slow in their digestion. That's just like their phenotype, if you will. If you're familiar with that word, it's kind of like body types but applied to the gut. Some people are too slow in general. They're always skew that way. Some people are too fast, and some people alternate.

And so when they've studied IBS people who are diarrhea dominant or constipation dominant, they do have low butyrate in both conditions, but constipation is always more complex than diarrhea. And the cool thing about diarrhea dominant people is Tributyrin-X™ is like one of the first things that is almost like just a 95%, like, recommendation. There's almost no way it doesn't work. And so we've had people who have been on all different types of pharmaceuticals, all different types of supplements, they've seen 20 plus doctors, still having loose stools, and they're able to use a higher dose of Tributyrin-X™ and finally have normal bowel movements. And that's like a really big win if you're someone who's chained to the toilet.

So, the constipation people, on the other hand, we've seen some pretty wild successes there if they go really slow for a long time, so like 12 to 14 weeks of like every other day dosage versus someone with diarrhea might take like nine a day. And something, I think, flips inside of the constipation biome or the constipation gut such that people just report like suddenly, they're using less magnesium, they're using less laxatives, things like that, somewhere around that 12-week mark. And so I think it goes back to this ecosystem idea of are you setting up the conditions to, you know, really have a healthy gut. I mean, we take all these pills, and these killers, and these probiotics, and these prebiotics, and I believe in all that stuff. But if we're throwing it into like the dumpster fire of our gut versus like a really nice remodeled home, they're gonna do two different things. And so I think a lot of the stories that are really successful from the community are related to taking it for like 12 weeks or more, and, you know, things like, "Oh, wow, that skin patch I had, I never knew what it was. I didn't even notice, but it was gone, or you know, that bloating I always got with broccoli, I didn't even realize it, but now I don't have that anymore. I just stopped eating that food." It's really little things like that that matter to people, the details, but also some of these bigger histamine and diarrhea-related things.

Katie: And to circle back, you mentioned, especially with restrictive diets, that many of the listeners have probably tried at some point or another, that you can have that downshift in butyrate production in the gut. And I know like with tributyrin, you can just take it, and that seems to be extremely helpful. But long-term, how can we get back our natural butyrate production if that's even possible, and what does that look like?

Steven: Yeah. That's my hope for myself and for my family and for everybody listening here is, you know, tributyrin is sort of inserting the stop in the door, like I said, and beginning to reverse and repair everything. But the goal, as we've talked about several times already, is to be able to eat all kinds of vegetables and make your own butyrate. And so to do that, we have to think about the ecosystem again. Number one, we gotta be eating foods that have fermentable fibers. Number two, we need the microbiome to be able to break...that microbiome will give off enzymes and basically break that fiber down, and then you have butyrate specific species of microbiome or bacteria that make the butyrate.

You need basically all three of those things to create butyrate on your own. And so how do you do that? Well, for instance, pomegranate and cranberry are shown in the research to help increase butyrate-producing species. There are species now that people are talking about like Akkermansia F. prausnitzii. I think I pronounced that wrong every time. But there's these specific strains...and Clostridium XIVa. You can search those strains online for different types of foods, but in general, it tends to be these high polyphenol foods. So, the goal, I believe, is to take probiotics and prebiotics that sort of increase the diversity such that maybe we can recover that internal butyrate production.

Katie: And butyrate seems to be a bit of a buzzword right now, and there seems to be, at least what I'm seeing, a lot of research coming out. What is the difference between tributyrin and other products that contain butyrate or that claim to help with butyrate?

Steven: Yeah. So butyrate by itself is kind of a fragile stinky molecule. Like it smells like terrible vomit. Like you don't wanna smell...you don't wanna open these capsules. And you may have bought some sodium butyrates and smelled the bottle and just be like, "I gotta get my money back. I can't take this." That was the first generation of butyrates. They were butyrate bonded with salt, either sodium, magnesium, or calcium usually. And these salts are absorbed really, really quickly in the upper intestinal tract. And so you have to do a few things. Number one, you have to make a product that humans can actually not gag and eat. And so sodium butyrate was a huge breakthrough, and there's been a ton of research on it. It's a very helpful compound. But it suffers a lot of issues. One is, it's hard to contain the smell. It still smells pretty bad even when you put it in very high-tech capsules. Number two, it's just naturally absorbed really, really quickly because absorption of salts in the intestinal tract is based on a gradient. If it's really salty in one area, it just moves across the membrane right away. And so then you're also getting a lot of sodium, or calcium, or magnesium, or something like that extra on top of the butyrate. So it's less of, like, a full-on butyrate supplement and more of like a combo supplement. So that can make dosing a little hard.

Then there was this breakthrough like three or four years ago where people started to realize that they could take the tributyrin molecule, which is butyrate backed by fat. It's a glycerol molecule. They could take this natural what they call pro-drug of butyrate, and they could wrap it in special capsules or fat molecules and create liposomes. And that would reduce the smell and protect it from the stomach and get it deeper into the intestines. We actually want our butyrate to be released like basically top to bottom. Like somewhere in the small intestine, you want to open, you're gonna try to get it down into the colon as well. Now, it might be counterintuitive because the majority of it's made in the colon upper large intestine.

But all the research that we've been done, except for the suppository research on butyrate, has been done in capsules that opened in the small intestine and were quickly absorbed in the small intestines. So what I can say is that practically speaking and human research speaking, we want a butyrate product to release in the upper small intestine and make its ways as deeply as we can down into the large intestine.

And so tributyrin does that naturally because it needs lipase to split it apart, and so it's a natural time-release molecule versus the sodium butyrate molecule, which is just a quick salt absorption. When you basically do something like what we did, which is a patent-pending capsule, it's an enteric capsule, so some people are like, "Well, the product I have or the other brand has a really nice capsule too." And it's true, but we're the only ones with an enteric capsule. And you're like, "What's enteric versus gastro-resistant?" And I'm like, well, it's the difference between the iPhone 5 and iPhone 10. If you drop your iPhone 5 or your iPhone 6 in the toilet or in the water, you had to get that thing out right away because it was water-resistant, and most of us know that basically meant it was toast, you know, put it in some rice, it's probably gonna die. iPhone 10s and ups were the next level of water-resistant, and they were like basically what enteric capsule is. At some point, if you leave an iPhone 10 in the water, it's gonna die. At some point, our capsule will open up in acid, but in general, there's been no leakage at over two hours in the studies. And so basically, what that means is getting intact and projecting it from the acid, which allows us to go up to 99% purity, and then when that opens in the small intestine, the natural time-releaseness just gets it deeper. That's one of the reasons why our product is I think special compared to the other products out there.

Katie: You also mentioned magnesium a minute ago, and on a personal level, I'm really curious about this because that's one piece of my own health I haven't been able to fully figure out yet in that I seem to have a skin reaction to a lot of forms of magnesium. I also tend to stay awake from them whereas they help most people sleep, and I wonder about a potential histamine pathway. You mentioned the potential of this to help with not needing as much magnesium. Can you go deeper and explain what's happening there?

Steven: Yeah. If I did, I misspoke. I don't know that taking tributyrin would reduce your magnesium need, but I do know that for people like you who have, like, what's called a counter-intuitive reaction, anytime you...like if everybody reports, you know, most everybody says, in this case, "I get sleepy from magnesium." And you're someone who has a counter-intuitive reaction, you get energized from magnesium, then it's typically another pathway like you mentioned.

Dr. Dan Kalish has actually done some work on this, and he's pretty familiar. I can't remember off the top of my head what he said is needed to sort of fix the magnesium hyper-reactivity. I will say that Tributyrin-X™, one thing I forgot to mention is that we have a whole group of people in our customer group who use it as a sleep pill. And so this doesn't make a lot of sense at the first glance, but there's a mouse study where they give tributyrin to mice, and they experience much deeper sleep and deeper stages of sleep and longer. And so there's like people, like, we have somebody on our team who just got some bottles at their home. The wife who's a mom of three, and she's got a lot going on, right? All the kids are under 10. She just saw it on the counter and started taking one before bed, and her Oura Ring scores or sleep scores are going up. And so I've had other biohackers who track their deep sleep states and their HRV states report better outcomes using Tributyrin-X™ right before bed. So, I'm not sure how to solve the magnesium thing off the top of my head. I know Kalish is the way there.

Katie: Awesome. I will check that out. Are there any contraindications when it comes to tributyrin supplementation or times people would need to be especially cautious?

Steven: Yeah. The biggest thing is that for the constipation dominant people, the number one side effect is as your body's sort of reabsorbing the butyrate and reusing it, it can slow your motility down even farther. If you're using our product or anybody else's product, and you tend towards constipation, I would go very slow and very low, so like once every three days, something like that. That's probably the number one contraindication. Otherwise, I don't know of any others.

You know, ours, for instance, is not a vegetarian or a vegan capsule. We could not find an enteric capsule that was actually able to be vegetarian based, and so for people who may have an animal sensitivity or just prefer to not do that, it wouldn't be suitable for them as well. But, yeah, in general, the coolest thing about tributyrin versus sodium butyrate. Now, sodium butyrate, again, really good research. I'm not saying don't take it, but I am saying if you've ever taken it, try someone's tributyrin, whether it's ours or...like the other good product is Pure Encapsulations, but it's a liquid, so especially good if you have children who don't swallow things.

So the interesting thing there is that in humans, back in the day, they realized that butyrate could be helpful for cancer. And so there was a study done in humans where they gave a ton of oral tributyrin, not oral sodium butyrate, but tributyrin actually. They get up to 42,000 milligrams a day per person. They did see some side effects, some GI side effects, things like that. As far as a safety profile goes, tributyrin orally is one of the best out there. Like in this case, in order to replicate that study, you'd have to swallow our entire bottle of pills, which I don't recommend, and I don't think anybody would do. So I think the really cool thing about the safety profile here is there are clinical research studies checking, is this a bad thing? Could there be side effects? And it's very high, you know, amounts that I've never seen or heard reported before other than that study.

Katie: Got it. Okay. What about the brain connection because this is another area that I see a lot of butyrate-related research, and I see people experimenting with it almost as a nootropic? So, what is happening with the brain when we get enough or make enough butyrate?

Steven: Yeah. I mean, this is early, early days of research, and no one can really tell you. But my theory is that it's traveling up the vagal pathways and the portal pathways right up into the brain. We see almost all neurodegenerative diseases when tested, do they have a disrupted microbiome? Do they have low butyrate production? The answer is pretty much always yes. And so there's ongoing clinical data right now on things like Alzheimer's and, you know, whatnot. I'm not willing to comment on that. I haven't heard it anecdotally, and I don't know the results of those studies. But as I mentioned prior, I mean, sleep is a very brain-driven component, and the sleep data so far as I said is that most people who take a tributyrin supplement or Tributyrin-X™ close to bedtime, like within a half-hour to an hour of bed, typically report more REM sleep, more deep sleep, and then better restedness in the morning. How the pathways and how that's all working, we'll find that out in the next 5 to 10 years.

Katie: That's exciting, and it's super exciting how fast research seems to be moving right now. I'm definitely keeping an eye on a lot of these.

This episode is sponsored by Wellnesse... that's Wellness with an "e" on the end... my all-natural personal care line. Our whitening toothpaste is a mineralizing blend of natural ingredients that supports oral health naturally. It's based on the original recipe I developed over a decade ago and has been through almost a hundred iterations to create the best natural toothpaste available. Many types of toothpaste contain ingredients you might find in paint and that you certainly don't want in your mouth, but ours is enamel friendly and oral biome friendly to keep your teeth and gums happy all day long! Check out the whitening toothpaste and all of our products, including our natural "hair food" haircare at [Wellnesse.com](https://www.wellnesse.com).

This episode is sponsored by Olipop. At least six times a day I get the question, "Mom, can I have an Olipop?" Usually once from each of my kids. And I'm happy to say yes. While I sometimes drink regular soda as a kid and usually felt pretty awful after, I love that my kids get to sip on something that taste like the sodas I grew up with. But unlike other sodas that are full of sugar, corn syrup, and artificial ingredients like aspartame, Olipop is made with natural ingredients that are actually good for you. They use functional ingredients that combine the benefits of prebiotics, plant fiber, and botanicals to support your microbiome and to benefit digestive health. We've all heard that many people consume much more than the recommended amount of sugar. And Olipop is much, much lower in sugar than conventional sodas, with only 2 to 5 grams of sugar from natural sources and no added sugar. Their vintage cola, for instance, has just 2 grams of sugar as compared to a regular Coca-Cola that has 39 grams of sugar. I've worked out a special deal for my listeners to receive 15% off of your purchase. I recommend trying their variety pack if you're not familiar with them, so you get to sample all of their flavors. Go to drinkolipop.com/wellnessmama and use the code "wellnessmama" at checkout to claim this deal.

For a lot of people listening, especially when we talk about food sensitivities, I'm guessing a lot of people are wondering all kinds of questions related to kids because we see certainly food sensitivities on the rise in every

age group of kids right now. So, are there any guidelines? I'm sure you have parents asking, "Can this be given to kids, at what age, in what dose? How do we use this with kids who already have food sensitivities?"

Steven: Yeah. Well, I guess like everything we should say here, you know, Tributyrin-X™ doesn't treat anything. It doesn't treat IBS, IBD, anything, asthma, you know, sleep issues, anything. It's just supplemental to everything else you're doing. If you have any questions, do check with your provider, your healthcare, general doc. But what we're seeing is that, you know, butyrate since it is a normal production inside the body, there doesn't seem to be any contraindications from our users when they're giving it to their kids.

The biggest issue is around swallowing a gel cap. Our product is a very small gel cap, so it's one of the easier pills for a kid to swallow. But if not, then that's where Pure Encapsulations SunButyrate, which is a...it's like a blueberry lemon liquid. That's another good option and can be much easier to use.

So, when it comes to kids, you know, check in with your doctor, be monitoring them. And then as I mentioned earlier, especially with kids, you do want to try to get their diet more diverse. If you're gonna use tributyrin to, you know, basically stabilize the gut, get them out of their acute symptoms, you know, allow them to feel better, then you immediately as a parent, I would hope anyways to begin to get more prebiotics and probiotics in their diet so that we hopefully rebuild that microbiome before they pick up too many sort of like allergies or immune issues as they grow.

Katie: Yeah. Absolutely. It seems very much a both/and equation, and like, we talked about already, with the goal of much more adaptability and resilience and being able to interact with lots of different substances without having a reaction in the long term. I know you also have personal experience in gut healing, and for anyone who's maybe starting off or experiencing some of these more severe problems, you have talked before about kind of the 80/20 of gut health. And I'd be curious, any personal advice you have on just getting started with that. Like I know for me, in the long-term, short fast like three to five-day to reset the gut, and then some of these products were really effective versus more long-term restrictive diets. But I'm curious what your experience is and any helpful tips you would give people for starting.

Steven: Yeah. I mean, you just nailed it there with fasting. I mean, some people are on the verge of going to the hospital, or they're in a real bad place, or a lot of people will buy these very expensive cleanse kits and things like that. It's much cheaper and actually much more beneficial just to do a water fast for, you know, two to five days depending on whatever you can tolerate and have experience with. So, that's gonna be your best bang for your buck when it comes to fasting, and I guess bang for your butt as well probably. So, either way, that's really good.

And then I would say the biggest 80/20 here is if you focus on the ecosystem... Again, I'm an engineer, so I think about things a little differently. But I always try to think when it comes to behavior change or anything,

we wanna set up the conditions for the outcome we want. So, like, for instance, if you're trying to go work out every day and you just can't figure it out, one of the best things you can do is put your shoes and your clothes right underneath your feet when you get out of bed, so when you get out of bed, you literally fall on the floor on your shoes because then you'll be like, "Oh, right." It disrupts all of our mental patterning, and it creates the system or the ecosystem for you to actually be into fitness and do it every day.

So I think about the gut that way as well. I take probiotics, I take prebiotics. You know, from time to time, I've had to use killing programs to kill off certain things. I've taken other specialty products, you know, depending on what's happening for bloating or things like that. But the number one thing I've always come back to is if your ecosystem isn't working correctly, if you don't have the stomach acid to actually break...neutralize, you know, incoming pathogens and break down your foods and things like that, if you don't have the enzyme release to actually break apart the molecules in your food, and if you don't have the butyrate to keep your microbiome healthy and keep the food sensitivities at bay, like, you'll just be chasing your tail. You'll be eliminating foods, you know, month after month. You'll be trying this supplement, trying that supplement, all of which supposedly will help you with those things, and they will. But it's the 20% that doesn't really matter that much until you get that bigger 80% working. If you get the actual underlying architecture of the body working again, then all those things matter so much, then the probiotics matter, then the prebiotics matter, that kind of thing.

Katie: Yeah. That's such helpful perspective. I think two important things you said. The first being about that tip for putting stuff in your way where it's gonna trigger a reaction. Even small things like supplements that are supposed to be taken at meals like your HCL or certain probiotics I've taken, I put them on the table with the salt. So, I see them and then remember to take them, or nighttime supplements, put them next to my toothbrush, things like that, and it helps so much with actually remembering to take those things. And then, like you said, that 20%, I think it's easy to wanna get caught up in these fancy biohacking things or all these cool new devices. But I agree with you, if we don't have those foundational things in place, those things aren't gonna be as effective, or they're gonna be marginally effective compared to what they could be. Whereas I always tell people, if you can optimize sleep especially and light and stress and the basic foodstuff, then anything else you add on top of that is gonna be so much more effective. I've also seen you talk about how bell curves should rule your health choices, and I'd love for you to elaborate on this a little bit.

Steven: Yeah. I should say that a little easier for people, but basically, statistics should rule how you think about your supplements. So, this might be a lot for somebody if this is...you know, depending on where you are in your health journey, this might be too much for you to hear, but I need people to start to get this message, which is that everybody's genetics, epigenetics, their health history, their environments, like you said, their light exposure, their food is different. And so this idea that whatever the back of the bottle says is what you should be taking, or whatever you hear me say on a podcast or someone else who's a "expert" say, that's just straight-up bullcrap. We fall in a statistical probability based on all those factors.

And so there's something called the long tail, which is if you've seen a bell curve, it's like this bell-looking thing, and at either end, it's about 34% of people. That's of a standard population. Now we're talking about people

with, like, for instance, food sensitivities. Well, the chance that you're in that long tail on either end if you have food sensitivities is even higher. So, for people listening to the show, you might fall...you know, there might be a greater percentage than 34% that fall in this long tail. And the long tail basically means you need way more or way less than whatever is the general recommended dose.

This can work for pharmaceutical drugs as well. It definitely works for vitamin D supplementation. So there's some people out there who can take 10,000 IU of vitamin D3 and see, like, no movement. They might have like a 30 on their score, which is, like, just barely good enough. And other people can take 10,000 IUs of vitamin D3 and get to like 70 or 80 nanograms for IU, which is like a lot. And some people might say you might need to take less. The same thing is true, especially in your gut. You really need to work with a provider or, you know, get a certification yourself or get educated yourself to realize like, "Okay. You know, in this case, Tributyrin-X™, like, you know, based on my symptomology, I might need more. I might need to dose higher. I might need to dose less," and, you know, getting regular blood work done like that to help out as well. This comes to like curcumin. This applies everywhere.

But there's so many people who listen to a show like this or are working their butts off to get healthy, and they just haven't been in the industry like you and I have for this long. And so they don't realize that, for instance, you know, 500 milligrams of curcumin is statistically not gonna do crap. Like, it doesn't matter how "bioavailable it is." The research data basically says above 1,000 milligrams a day is where you get like the joint reductions, the inflammation reductions. And so being willing to take chance, dose yourself a little higher, dose yourself a little lower, understanding the risk profiles I think is really important because one of the worst things, I think, is when someone has an emotional breakpoint, and they're like, "I'm gonna handle this. I'm gonna get my health back." They choose the right product or the right grouping of product because they're, you know, listening to the right shows, and they're doing everything right, but then they under-dose it, or they overdose it. You know, that's just so sad to me because you're so close to what you want.

Katie: I'm so glad you brought that up. I've been talking more and more, and I know we've even talked about it in one of our past episodes about the importance of that personalization aspect and how we're also individualized. And that's why I'm hesitant when people are like, "What exactly did you do to get over Hashimoto's?" I'm like, "I can share it with you, but use it as a framework, not a blueprint. Like follow it loosely and experiment. Work with someone who knows what they're doing and figure out your own actual variables." I think it's a two-sided thing. On the one hand, we can learn something from almost every interaction, every experience, every expert, but at the same time, we have to then take that and personalize it to ourselves and not just accept it at face value without experimentation. So that being said as a caveat, I'm curious what your own personal 80/20 for health right now are, and what those consistent things that you figure are the most important for you.

Steven: Yeah. It's a great question. I need the supplements every day. So I take the HCL, the holoenzymes, the Tributyrin-X™ every day. So keeping my gut pretty healthy with those is really important to me. I really need to exercise most days. That just really helps me, I don't know, just getting my body, get out of my head, I'm behind a computer screen a lot. It helps me not think about stress, things like that. The other thing is

meditation and gratitude journaling. This is also super important. I can get into these rabbit holes, or maybe I'm nitpicking my own health or like worried about a loved one in their health. And meditating and gratitude practices, when I'm doing them, I find that I have much more acceptance and faith for what's unfolding, and I think that's as important as almost anything else out there.

Katie: I 100% agree. I find that, for me, sunlight and meditation fix almost every problem as long as I'm not doing anything super bad in any of the other areas. I feel like sunlight just feels like I'm charging, and meditation helps me ground. And together, those two are definitely super impactful for my health. And as expected, our time is, of course, flying by because I could talk to you all day long. I know we've covered a lot, and I'm gonna put more links for everybody listening to go deeper on some of these topics, and I know you also have more information on your website. So I'll put those links, as well as you have special links for everyone listening. But another question I love to ask toward the end of interviews is if there's a book or a number of books that have had a profound impact on your life, and if so, what they are, and why.

Steven: Yeah. Well, definitely, listeners should go check out those links because you have \$15 off and free U.S. shipping for the Wellness Mama community. So, we'll hopefully take care of you all there. The books for me, I would say the two biggest ones are "The Surrender Experiment" by Michael Singer, which for me as a type-A personality who's hopefully trying to help the world, things like that just kind of shows me, like, what happens when you do yoga and meditate every day, and you really surrender to life. And like, you know, he ends up being the CEO of a publicly-traded company that's indicted by the FBI, and like his whole internal journey during this crazy leadership experience. And then the other one is "Man's Search for Meaning." That book is just a regular read for me, just helps me put things into perspective. I think for most people listening, life is probably more intense today than it was two years ago, even a year ago. And I think with all that's going on in the world, we can really get wrapped up in things that are happening. And then when you go read about something like what's it like to go into a concentration camp and survive, to me, it helps put what I'm dealing with in perspective.

Katie: I love both of those books as well, and I think you're right. Viktor Frankl was so great for helping reframe current situation and the stress that we all experience. I've read about him and another member who was in the concentration camps, and both of them their mindset going into it was that they were going to try to be a presence of love for everyone they encountered. And it was amazing when they studied it after how much even their biology reacted differently, and they didn't experience some of the really negative long-term physical effects. I think that mindset piece is bigger than we even understand yet. And lastly, what is one piece of advice you would like to leave with everyone today, could be gut-related or not?

Steven: Yeah. I mean, there's so many pieces of advice I'd like to get out there, but I think that just...you know, when we're recording this in 2021, I think one thing I want people to do is really focus on their mental health. And there's lots of components, and you could take that any number of ways mental health is a...you know, it's not really a very definable word. For me, there's key characteristics of mental health that help myself know that I'm in a good frame of mind.

And one of the biggest ones is holding paradox, just being able to say that, you know, when somebody's on the other side of a point from you, and they're being very vocal or very aggressive, and you're on the other side being just as defensive and vocal, that you're probably both slightly right and slightly wrong. And I feel like we've lost that in the world today for a little while. I hope it comes back. There's actually a component of a true adult or a mature adult can hold two simultaneously opposing ideas at the same time and not make either one right or wrong. And so I think that if we could do that more as even like this, even that this talk is right and wrong for you all at the same time today. I think it's really, really important for us all to be a little bit better at being critical thinkers and then just being positive forces of acceptance like, "Yes, I get that that's important to you, and this is important to me, and we're probably both right a little bit here."

Katie: I love that and the idea that a different viewpoint should in no way take away from your ability to love a person. I think I love that you brought that up as your advice, and the world can certainly use more of that right now and always. So I love that we're gonna end on that note. And, Steve, thank you for your time. It's always such a pleasure. You're so knowledgeable and well-spoken. I learned a lot today, and I know the listeners did too. Thank you for being here.

Steven: Yeah. Thank you, Katie.

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

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