Michael Roesslein:

Okay. And it is now. And we are live with Steve Wright, founder of Healthy Gut, creator of SCD Lifestyle, gut health expert, digestion wizard, who through many years and many thousands of hours of research had to fix his own digestion problems. And we're back for part two of what was an incredibly loaded part one webinar that we did last month. And we intended to get through the whole GI tract and the whole digestion game in one webinar. We got about what looks like about half to two thirds of the way through, depending on how large of a portion of the large intestine actually is. But we went through everything from smelling your food and chewing your food, to the stomach. Talked about H. pylori, talked about low stomach acid, talked about a lot of upper GI issues. And where it seems that we really ended off is the last thing before we talked about the HoloZyme enzymes and the HCL Guard is the process of potentially low acid, low bile, high pH, low pancreatic enzymes, low brush border enzymes is still there at the end of when you try to kill everything with SIBO and then boom, the bugs come back. Everyone's mystified. How did this happen? I was killing them.

So I think what would probably make the most sense ... I've never really done an impromptu part two that we didn't intend on before so I'm winging this. But I think that sentence sums up what you talked about with the large intestine quite a bit. Is low stomach acid, low bile, high pH in the small intestine, low pancreatic enzyme production, and low brush border enzymes and what that actually means and how those things happen. So I don't know. If you can give a ... Maybe we do at the beginning of when you watch a new episode of a show, they get the-

Steve Wright:

Quick recap.

Michael Roesslein:

The quick reboot of what you missed last time. So I know we talked about that stuff for 40 minutes before, but if you could just give a quick flow through from starting with the low acid And ... Hold on. Somebody's saying to speak louder. My volume is turned all the way up. Let me just check again.

Steve Wright:

Yeah. I don't know if it's my volume, but I am in a new work location, but same microphone and everything else.

Michael Roesslein:

Okay. Hang on. All right. My volume's turned up as high as it can go. So let me know if anybody else hears it as low. Okay. She says it's all good. It might be on that person's computer. Okay. If you want-

Steve Wright:

Yeah. So a recap would be just-

Michael Roesslein:

Just roll through it quick.

Steve Wright:

Okay. Yeah. I guess a three-minute recap, hopefully I can keep it under that, would be we spend a lot of time, and I've spent 15 years mostly focused on food, the power of food, gut bugs and infections and we are endlessly not solving the problem for most folks. Some people get better, then they get worse, some people get way better, then they get worse. Some people get marginally better or some people just don't get better. And the underlying thing that's not

being questioned is can your body do the job you're asking it to do? We just assume that it's the food. It's got to be the vegan or the carnivore or the seed oils or the not seed oils or the gluten or the not gluten. Or it's got to be the candida, the H. pylori, the SIFO, the SIBO, whatever it is. But we're still not asking the question, no matter what food was given, can it be digested and absorbed such that the body can work normally? And that I think is a solution going forward.

That's the underlying question to ask of your body and to support those organs, which I think typically at least one of them, if not many of them need support depending on how banged up your health is. And then that multiplies all the other protocols that you do. Whether you're detoxing from mold or you're trying to kill a bug or whatever it might be. And the reason why the infections continue to come back, the reason why the dysbiosis never goes away is these preconditions essentially guarantee that you're going to not get the nutrients you need and feed bugs that you don't want basically. You're creating the conditions for a gut and a life and a health that you don't want every single day if you haven't checked these organs for insufficiency in their capacity to work. And so where that leads us to next is dysbiosis, microbiome, probiotics, prebiotics, food sensitivities, and why-

Michael Roesslein:

The organs you're speaking of are the stomach and the production of bile. What organs are you speaking of as far as deficiencies right there?

Steve Wright:

So we're talking stomach, gallbladder, pancreas, small intestine, villi of the small intestine and the surrounding tissue there.

Michael Roesslein:

Okay. Go ahead.

Steve Wright:

So as we get to the bottom of the small intestine, that's where the food should be mostly gone or a lot of the nutrients should be gone or absorbed. And what's left are your really cool nutrients like polyphenols and flavonoids and prebiotics and fibers because your microbiome begins in the bottom of the small intestine and then the majority of it is in the upper large intestine right where they connect those two. That transition is the microbiome, but that's also the connection of where the majority of your immune system is. That's where the GALT is happening. That's where a lot of action is happening in the small intestine down to the microbiome area of the large intestine. That's the GALT. And I would wager at this point to say the majority of your immune system is right there. And we cannot separate those two. They are 100% intertwined. And I think this is where we step into the next phase of, we could probably say your microbiome is an organ. Is it working correctly? And then of course we have your large intestine and the metabolites of that microbiome.

Michael Roesslein:

I want to slow down. You use the abbreviation GALT twice there. You're talking about ... Is it gut associated lymphatic tissue? Did I get that right?

Steve Wright:

Yeah. Yep. It's essentially there's a bunch of really special cells that are not every other cell. They're like every few cells. Parent cells are the most known, but crypts play a role. There's lots of little specialties in the intestines. And these little cells do lots of specific things. Many of which are either secreting molecules that protect us from incoming

invaders or toxins in our gut, but they're also constantly sampling. Almost like they're reaching out and taking a little dipstick, like checking the oil in your car. Where are things in the realm of activity? Do we need more or less of these peptides or antimicrobial peptides? Things like that. So it's a very interactive experience between the gut associated lymphoid tissue and the microbiome and the contents of the intestine.

Michael Roesslein:

Okay. Yeah. We've got, I think it's about a 90-minute webinar with Kiran from a few years ago where he gets really heavy into ... They have some cool animations that Microbiome Labs created that show the interaction between the microbiome, those specialty cells in our gut lining, and then the immune cells that are behind the gut lining and how if this doesn't communicate with this, that this is okay, then this is going to panic and it's going to set off this chain reaction of ... And then the way that there's far more actually ... Side note, I just interviewed two days ago, Rollin McCraty, who's the head of research at HeartMath .if you're familiar with HeartMath and what they do there. And he was talking about the heart-brain axis. It's similar to the gut-brain axis. And he mentioned that ... Because people always bring up that there's actually more communication that goes from the gut to the brain than there is from the brain to the gut.

So you're saying sampling, getting information, the heart is the same way. It's 80% of the connections between the heart and the brain, 80% of them are going from the heart to the brain. So the heart is informing the brain about your surroundings and where your field is and what's around you more than the brain is telling the heart what to do. And the gut is the same way. It's giving signals to the brain. So you're mentioning you got these little guys in there that are checking everything out saying, oh, we're short on this, or we need more of this.

Steve Wright:

Yeah. Yep. Yeah, 100%. Part of my new thesis is around why do food sensitivities not clear up. Why do we still struggle with increasing intolerance to the world? Hay fever, just allergies to everything. Mold didn't just come about. Mold was here before us. It's a pretty hardy substance. So I think at the end of the day, we're going to find out that mold is a little bit like candida, where it should be inert to our bodies but over the last few years due to the set of conditions around us and our lifestyles and everything, it's become more pathogenic to us. But you can't walk outside without breathing in mold that's floating through the wind. That's just how it is. And so why are we losing this tolerance and why when we address the gut, do we not completely shut off the inflammatory cascades that turn out to be eczema, acne, brain fog, all kinds of these things. Lung related things.

And I think it's because that messaging system that you just talked about isn't being retrained. We're stopping the irritation of it and we're dampening it down, but we're not saying, hey, there's other options now. You can be okay with pollen and certain types of mold again, and just the world at large. Like vegetables aren't harmful. Most food in the world like corn is not harmful. Oats are not harmful. We should be able to tolerate these things.

And so I think that GALT gets trained to be hypervigilant and it gets trained and stuck in some pathways. So the way out of fixing these gut issues, the way of turning on the immune system in the gut again, not only includes what we've talked about so far in part one and down into what we haven't even talked about yet with the microbiome and the butyrate and all that stuff, but it's going to end, the final conclusion is retraining the immune system to sample the outside world and not freak out and alert your brain to freak out and alert your heart to freak out, but instead say, "Hey, it's okay. We're safe. We're dealing with it. We have the proper resources. All good down here. No need for an eczema flare or itchy eyes or nasal issues."

Michael Roesslein:

That's fascinating, the terminology that you're using, because I've recently undergone years actually, the last few years, of pretty in-depth training on teaching your nervous system as a whole to be able to survey the outside world

and not freak out after it was trained to freak out for good reason. You learn to freak out for good reason. Like you were in situations where hypervigilance was warranted. But it's interesting how that's on a macro scale of the organism itself, and you're talking about almost the same thing for these a lot of times single cell in the gut and reteaching it to not freak out and to not see everything as a threat. Because it sees something as a threat, it says, hey, this is bad. And then it sends a signal up and then it starts a chain reaction and there's an immune reaction, and then inflammation kicks in, and then the body's like, oh, shit, we're under attack and all it is a piece of corn, which plenty of people around the world eat plenty of.

And that was an interesting thing when we did The Human Longevity Project film series a few years back. That was at the peak of the, you must eliminate all of these foods or you're going to die basically. You can't eat any gluten, you can't eat any corn, soy, whatever. And our guys traveled to the places in the world that have the healthiest populations, the longest health spans of people in their ... They interviewed a guy who was 105 in Italy who rode up on his bike. And it was actually difficult, and we ran into a lot of resistance within the world of functional medicine and whatever, because the diets of the people in the places where they went were very heavy on bread, wheat, on white rice, which at the time was the devil. You had to eat whole grain anything. And then corn and soy. In Okinawa in Japan, they consumed soy. And so people were just dumbfounded like, how can these people be healthy if they eat all these foods? And it's like, obviously their body is not reacting to it the same way yours is and why? So it's not the food.

It's definitely not the food. There are billions of people who sustain themselves on those foods largely, and they do not have epidemics of histamine intolerance and SIBO and mast cell activation syndrome and all these things. So I'm curious just to take it back a little bit to part one, where does what we talked about in part one about the low stomach acid, the poor upper GI digestion, the low enzymes, low bile production, how does that contribute to this further down the road state of freaking out or microbiome imbalance? Because the microbiome entrains a lot of those cells as to what's safe and what's not safe and what's an invader and what's not an invader. So how does that up the river stuff influence where we find ourselves with this situation here?

Steve Wright:

It's as critical as being upriver from a toxic dump site. It doesn't matter what you do. If your house is down river from a nuclear power plant or a terrible manufacturing company that's dumping in the river, you can't clean it. Everything you do is catch up. And so that's essentially what's going to happen. So there's a study looking at humans. Finally, we're getting data on stomach acid in humans. This came out in 2022, I think, or '21. So very recently, within the last 24 months. If you have a pH of over four, which is not good ... That's high acid or acid insufficiency. You can have a up to 2000 times ... Not percent. 2000 times increase in dumping of toxins called lipopolysaccharides that Kiran has explained many, many times to everybody at the tribe here, into your small intestine, every single hour all day long ... Because it's not coming from the food, it's coming from your oral microbiome.

So if the pH of the person is below a two, you essentially kill all the LPS coming from the bacteria in your saliva. If the pH is above a four, it goes up rapidly, but it's easily 10 to a hundred times for everyone. But for the worst people, it was up to 2000 times increase of toxins that ... This is before food. This is before everything. This is just you are swallowing, which happens all day long. If you throw food into the mixture, then of course that possibility for higher LPS load gets even higher. And so yeah, it's 100% it starts right from the top and it burdens every organ below it and sets every organ up to have to work harder below it. So you're always playing catch up.

Michael Roesslein:

Yeah. We talked about that last time about 2000 times. The human brain is not able to picture exponential math like that just for anybody out there that's trying to think like, oh, 2000 times, that's a lot. 2000 exponential times is numbers that we can't ... Mind is not ... Doesn't make any sense. You talked about ... Oh, the burdening of every organ below. So the stomach acid, when the stuff comes out of the stomach and the pH is too high, meaning it's not acidic

enough, then the organs after the stomach need to work harder to try to lower the pH to get things working properly. And so it's creating this burden. And by the time we get to where we're talking about now-

Steve Wright:

Right. Now we have misshapen proteins. Go Google this when you're done with this. It's really interesting. If you take a 3D microscope and you zoom in on a piece of meat before it's eaten, broken down at all, it's these gnarled ... If you've ever seen a zoom in of some crazy woven shirt, it's like these crazy gnarled messes. And you got to think that at a microscopic level, we're turning that into these really small little eight peptide chains that we need to absorb a lot of times. It doesn't have to be eight, but that's a common number. And so these chains get unfolded by the stomach acid. Then enzymes come and cleave them from this gnarled woven mess into bigger chains and then smaller and smaller as we go down. If those chains get chopped inappropriately or they don't get chopped correctly, you're going to end up with protein nuggets or protein chains too deep into your small intestine.

Now your immune system is reaching out and asking, are we okay? What's going on? And it's finding mis-cleaved proteins. It's finding extra toxins like LPS. It's finding extra fat molecules that weren't absorbed. They weren't bound properly by bile, things like that. And so it's going to start freaking out. It's going to start increasing the amount of immune response to this. And then you can easily see how would celiac happen? This is exactly how celiac would happen. The gluten gliadin complex was not properly cleaved and dealt with up chain, now we're down the chain and the immune system's seeing all this stuff, and it's like, "That's not okay. We got to do something about that." And it starts to attack and it starts to respond. Then this could happen to corn, it could happen to oats, it could happen to ... Ends up happening to strawberries.

Michael Roesslein:

Anything that has a protein in it.

Steve Wright:

Right.

Michael Roesslein:

Anything that has a protein in it. And you mentioned fats. That's because the low production of bile and other enzymes, pancreatic enzymes. So basically these cells are seeing a bunch of stuff that they should never see, that it should never look like this. These food chunks should never be like this. The fat should be broken down. The proteins should be broken down. There's also a ton more toxins present that are the bacterial production toxins. And there's probably a bunch of bacteria present that shouldn't be there too and other organisms themselves, like actual bugs that don't belong there or live there. You didn't mention carbohydrates, but you did last time. And it's that the bugs that shouldn't be there up chain are eating them all because they are now existing where they shouldn't exist because the stomach acid and the bile and the environment is as pleasant for bugs that shouldn't be there. And so they're eating a lot of the sugars and the carbohydrates which get absorbed earlier up chain, right?

Steve Wright:

Yeah. And they can make it this far down. The brush border enzymes are what I believe are causing the majority of bloating and reactions to carbohydrate or plant matter. So FODMAP intolerance, in my opinion, is a faulty ability to deal with all these organs. All these organs could be down 20%, but at the end of the day, the last thing that breaks is you don't have the brush border enzymes to deal with the FODMAPs and you don't have some of the specialty microbiome enzymes like the cellulases, alpha-galactosidases [inaudible 00:22:56].

Michael Roesslein:

Hold on. Hold on a second.

Steve Wright:

Complex plant molecules.

Michael Roesslein:

Hold on. You were really choppy there for a second. I want to just make sure that it's just me and it's not you. Can anyone comment in the chat to let me know if Steve just got really choppy and that got lost, or if I just didn't hear it? Okay, yes, yes. Across the board. Can you just repeat that little segment? Sorry, everyone. I wanted to make sure we caught that.

You said brush border enzyme's, faulty ability to handle plant foods, FODMAPs, carbohydrates, and then you got turned into an alien.

Steve Wright:

So the brush border enzymes and the specialty enzymes from these microbiome like your cellulases, xylanase, invertase, alpha-galactosidase, these are the final enzymes. They don't really work very well until amylase has done its job. But these enzymes are primarily what allows people to recover their plant matter and food sensitivity related issues which includes most of the things people are complaining about these days with their food sensitivities. And what does that typically manifest as? It typically manifests as fermentation and bloating. Fermentation is other bugs eating that stuff when it shouldn't have happened. And so the carbohydrate plant matter stuff is essential for a proper microbiome. That is the fuel for the growth of commensal anaerobic bacteria. We need prebiotic and fermentable matter or fiber would be another way of talking about it. Without that, your microbiome's always going to be a wreck and you're essentially saying, "Hey, go forage out in the wilderness every day and oh, by the way, I want you to be an Olympic athlete. Be really awesome."

But you're forcing it to go out and forage on its own under harsh conditions versus having the organs upstream doing their job and allowing you to eat a diverse diet that includes plants and animals, or if you want to be heavier on one of those, I don't really care. Whatever works for you as long as you can digest it. But getting enough of the polyphenols and the flavonoids and the just generalized fermentable matter, starches, things like that into your body, that's where you get a beautiful microbiome. That's when you get a potent microbiome. That's when you go to a GI map or whatever test you love and you're like, "Wow, look at that microbiome. That's rich. It's diverse." That's what we're going for.

Michael Roesslein:

But for a lot of people, they got to do some work upstream before they're even able to eat those foods because people will read these articles and webinars ... And we have this a lot, when we first started doing webinars with Kiran and he'd talk about the key of diversity in fibers and in tubers and starches and all these things and prebiotic foods and whatever. So people with really bad upper digestive problems and every other problem across the board would be like, okay, cool. And then go eat six different kinds of fermented vegetables and four different types of potatoes and these roots and this thing and this starch and this bean and their bellies would become really, really, really, really bad. And then we would have a lot of angry people saying, "But the microbiologist said that we have to eat a diverse diet of starches to help our microbiome." We skipped over the part about how you need to be able to actually get those things to where they need to go and digest them. So it's like, yes and.

So now we've gotten to where we have dysfunctional brush border enzymes. You mentioning the GALT freaking out, the immune system freaking out at the end of the small intestine, beginning of the large intestine, causing reactions to

everything that's coming in. And I want to point out that if these cells in the gut freak out, those signals go systemic. It's not just that inflammation is going to be located where that thing is. That's sending an alarm bell off that things are bad, and then cytokines get triggered, and then that's why we're seeing-

Steve Wright:

Yeah. You want to hear something that grinds my gears and really pisses me off?

Michael Roesslein:

Yeah. And I want you to use that phrase so much more. Peter Griffin.

Steve Wright:

Yeah, Peter Griffin. So this really grinds my gears. We're so busy trying to get curcumin, at least marketers and other companies. I'm not. But marketers and other people in other companies are trying to get curcumin so deep into the blood with black pepper extracts and all these types of things that essentially poke holes in your gut process in order to sneak the curcumin in. That's what's happening. That's how it works. When the majority ... Like 95 or 98% of all curcumin research has been done without this stuff. And it's most likely because it should turn off the inflammation at the gut wall, at the GALT. That's where the action. If you stop the signal from propagating, why do you need to get it into the blood? Why do you need to get it to the brain? It'll stop the cascade that's happening.

Michael Roesslein:

Yeah. Which it probably does when it's just in turmeric.

Steve Wright:

Right. Yeah. Turmeric and curcumin. You don't-

Michael Roesslein:

The 9,000 extract with the this and the this and the this because then you're trying to get it to my knuckles that are sore.

Steve Wright:

Right. But your knuckles are probably sore because the cytokines and the IgEs and everything that's coming out of your gut.

Michael Roesslein:

Yeah. Yes. I've always been skeptical of the black pepper in the supplements, and I've never been an advocate of that. And I read an article once 10 years ago that I honestly didn't even remember the full breakdown of why they were saying that this wasn't a good thing. At the time it was a little bit over my head, but I trusted the source and I was like ... Because they went deep into the physiology of what the black pepper does and why it's used and how it works and whatever, and why it ultimately probably is unnecessary and may do more harm than good and dah, dah, dah, dah, dah. And I was like, "I understood about 75% of that and I trust this guy, so I'm going to go with, I don't want that." And I've actually done that for quite a bit of my time. I really trust this source. I understand enough of this. Switch a flip or flip a switch. Okay, I don't want that. And then refer to that person when somebody questions me is why. Okay, so how do we solve that situation? Your theory is that it's this freaking out of the GALT and these dysfunctional brush border enzymes and lack of enzymes there. So where's the next-

Steve Wright:

The key to this in my opinion, if there was one cornerstone thing to focus on, regardless of how you get here, it would be butyrate production. I really am agnostic despite the fact that I believe we have the best replacement butyrate product on the market for multiple reasons. There are many ways to make butyrate, but the keeper of the gut and the balancer of the GALT and way to begin to shut off the cascade of these inflammatory markers is through butyrate in my opinion. Everywhere I've looked, butyrate is connected. Whether that's messed up T-cell differentiation, not enough T suppressor and T helper cells, whether it's too much TH-1 or TH-2. Whether it's all these crazy complex things like hypoxia-inducible factor markers, or we're talking about microbiome richness and diversity.

Basically, in my opinion, the core of what's happening to us in this functional medicine, integrative medical area is that we reduce foods that our organs cannot break down. That gives us symptom relief. However, it starves the microbiome of its food and in turn, lower butyrate increases oxygen in the lower small intestine and large intestine, which makes it uninhabitable for commensal bugs. And why that is because 70 to 80% of the metabolic processes of the enterocytes and colonocytes is beta oxidation with butyrate and oxygen. So in other words, the microbiome makes short chain fatty acids and butyrate is one of them and the most beneficial. Butyrate is sucked up by these cells, and then it also sucks oxygen with it, and that's its preferred metabolism. When it happens that way, it sends out cascading anti-inflammatory signals everywhere. All the good ones.

But if it does not have the butyrate ... Everything okay?

Michael Roesslein:

Yeah. Just-

Steve Wright:

If it does not have the butyrate, it'll use glucose metabolism. And glucose metabolism does not suck oxygen out of the gut. And so oxygen begins to rise in the gut. And now we are trying to produce anaerobic bacteria. Most of our commensal species that we want on a stool test or any microbiome test are anaerobic bacteria. It means without oxygen. We are removing the atmosphere that they can actually live in. It would be like throwing us on Mars without oxygen support. We can't live there without support. We don't have the right conditions. And so we get stuck now where we're throwing probiotics and prebiotics and we're throwing killing programs and sometimes even enzymes and HCL support, but we've depleted so much butyrate that until we can restart the metabolism to get the oxygen out, the microbiome's stuck. It's not coming back.

Michael Roesslein:

I was frantically trying to scribble all that down so I could ask an intelligent question afterwards. This is a perfect example of what I just explained happened for me with black pepper about 10 years ago. So I'm following, but butyrate ... Before I asked this question based off my wildly scribbled notes, last time we talked, and I don't remember if this was on air or off-air, you told me there was going to be some wild, really impressive cool research, something related to butyrate that was about to be published or shared or announced or something. Did that happen?

Steve Wright:

I think it's happening this week in Rome. I think it's the 20th or 21st in Rome, so you'll have to go to-

Michael Roesslein:

What's going on in Rome?

Steve Wright:

Or Venice. It's in Venice, actually. I don't know the name of the conference off the top of my head. Yeah, I think it's going to be a neurology paper on butyrate.

Michael Roesslein:

Okay. I'll look it up. It's in Venice or Rome. I'll find it. I'm not going to go to it, but I'll find it and I'll find the information and I'll share it with everybody.

Steve Wright:

I think it's in Venice, but I can get you the name after the show.

Michael Roesslein:

Rome would be feasible. Venice is a little bit further and it's a zoo. Okay, interesting. I'll find that out. Back to this. I followed that butyrate is the keeper of the gut, the balancer of the GALT. It shuts off inflammatory markers at the source in the gut lining. We're talking about the large intestine now. Yes? Largely?

Steve Wright:

And the lower small intestine.

Michael Roesslein:

Lower small intestine. It helps with Treg, T cell balance. Treg cells are basically what regulates autoimmunity among bunch of other things. TH-1, TH-2 balance, which is the type of immune responses in people with allergies, asthma, reactivity. All kinds of things like this tend to have an imbalance there. And it's a signal of microbiome richness and diversity. It's always one of the markers that's looked at to see is your microbiome healthy? Do you have a lot of butyrate present? And so when the butyrate goes down, the oxygen goes up, and we're programmed usually hearing that, oh, oxygen's good, oxygen going up is good. But what you're saying is oxygen going up in that part of our body, very bad, because the commensal organisms that are beneficial to the gut that make up this robust microbiome, they don't like oxygen and literally can't live where there's oxygen so then they can't thrive there.

And the reason that oxygen goes up when butyrate goes down is because the cells in the gut lining use the butyrate as fuel, but the way that they do it is they suck up the butyrate with oxygen, and then that is the preferred fuel. When they get that, their favorite food, they send off cascading anti-inflammatory signals. But when the butyrate is not present because the microbiome's destroyed, et cetera, et cetera, et cetera, the cell lining will use glucose, which it doesn't like very much, and it won't remove the oxygen from the gut. So then there's excess oxygen, which allows bad bugs to live there that we don't want. I don't even call them bad bugs, the wrong bugs, because bugs are just bugs. They're just doing their thing. But some of them are beneficial for us to be there and other ones are not. And that is where my light fell down and I lost the ability to write anymore. It was one of those ring lights.

Steve Wright:

That was pretty amazing. That was a pretty amazing recap.

Michael Roesslein:

Yeah. And it is just scribbled like a mess. Look at that. We did a webinar on butyrate, I don't know, two years ago maybe when you first released Tributyrin-X, which is the product you referenced. And I knew of butyrate. People who were early in the paleo world with real food movement and everything, and butter, certain cheeses, foods that have butyrate in it, and people would be eating a lot of butter and a lot of certain foods and being like, "I'm going to get all this butyrate." But on that webinar-

Steve Wright:

That doesn't work by the way.

Michael Roesslein:

Sodium butyrate is the way that it's often been delivered in supplements. You have to take a ton of it. I'll link the butyrate webinar so we don't have to rehash everything. But then tributyrin is a product you guys have created that has a different delivery mechanism to get butyrate into the large intestine.

Steve Wright:

It's also pharmacokinetically different.

Michael Roesslein:

Yeah. The molecules are different and it's better absorption, and you don't have to take nearly as much of it and it doesn't have potential-

Steve Wright:

It's just time released. It's naturally timely released. That's probably the best thing.

Michael Roesslein:

We'll just say it's better. It is. Then the webinar. I'll share the webinar. The webinar has eight reasons why it's better. So then what I was getting at was that ... So a healthy microbiome makes a lot of butyrate. That's one of the main reasons why having a diverse healthy microbiome is so beneficial for the rest of the system and shuts off these inflammatory cascades and whatever is because it produces butyrate. Taking butyrate, which we'll talk about tributyrin in a minute, does not make up for not having a healthy microbiome. That's not what anybody here is trying to say. What it can do, in my understanding with my gobbledygook here, is that it can help you recreate and reprogram an environment in which a healthy microbiome can then thrive.

Steve Wright:

Well, the studies suggest it will start right away. It'll start in the first or second month. It'll start increasing the richness and diversity just by changing the conditions.

Michael Roesslein:

Yeah. Yeah. Yeah.

Steve Wright:

Crosspollination.

Michael Roesslein:

You can eat more foods that are good for microbiome. You can create the environment where the microbiome wants to be and theoretically would develop a diverse, rich, healthy microbiome, thus reducing the need for supplemental butyrate. And Steve's frozen, so let me see if ... Okay. Now you're back-ish, but you were frozen. Or was I frozen? Did you catch that?

Steve Wright:

Can you hear me now?

Michael Roesslein:

Yes.

Steve Wright:

I don't know. Yeah. Well, yeah, I heard everything, but you froze for me, so I'm not sure.

Michael Roesslein:

Okay. Cool.

Steve Wright:

We're good now.

Michael Roesslein:

I think we're good. We're good now.

Steve Wright:

You said everything correct, and that's what we see in our testimonials and some of our reviews is that people are able to double or triple their diet over the course of 60, 90, 120 days and get in more of those fermentable rich foods, which will turn hopefully into butyrate at some point. And so you don't have to use supplemental butyrate, but most people do to get out of this cascade they've gotten themselves into, and it's just easier on the body. But immediately you should be increasing the richness of vegetables you're eating and fruits and the colors as well as if you can, try to get some starches because resistant starch is the most powerful butyrate producer. Basically polyphenols and resistant starches are your butyrate, supercharged way to do it.

Michael Roesslein:

Polyphenols are the colorful things in plants and fruits and vegetables just for anybody who doesn't know. And then the resistant starches are in things like potatoes and rice and tubers and other foods of that nature. Okay. So butyrate's the super molecule. I'm very interested in this shutting off inflammatory markers, balancing. It's interesting because when we did part one, it seemed like, well, obviously the top of the chain is the place where the most bang for your buck's going to happen if you're trying to influence the entire GI system or digestive tract with the stomach acid and the enzymes and really working on the upper part or else everything later is screwed. But then you hear about this Herculean benefits of butyrate that can't fix anything upstream really ... Well, sort of, a little bit because it would reduce overall inflammation. But I know in the webinar you mentioned on butyrate that there's neurological benefits to it. It's not just fuel to the gut lining. We don't have to get into that now. I'll share that separately.

But now you hear this and it's like, man, this is a big deal here. So it's really coming at it from both sides. We've worked with Microbiome Labs a lot and they have great probiotics, prebiotics, things like that. But I always reference your guys' products as the top digestive support product line. Direct digestive support. If your digestion is messed up, there's things along each step that can be addressed as well as any product on the market from what you guys make at Healthy Gut. From the enzymes to the HCL support. I haven't seen another tributyrin product. I am sure somebody's copied it at this point.

Steve Wright:

Yeah. We have a proprietary source no one else has. Ours is 99.9% pure, and no one else has enteric capsule. But yeah, tributyrin is out there. Yeah. Continue. Were you going somewhere with that?

Michael Roesslein:

Yeah. And then I also wanted to mention before we're going to end here is another way to modify this inflammatory cascade in the gut is the HoloImmune that you guys formulated. We recently did a webinar three or four months ago with Kiran on defining and talking about probiotics, prebiotics, postbiotics and psychobiotics. And the postbiotics, I actually brought up HoloImmune and he really likes the formula and said that the beta-glucans and the additional ingredients that you put in there are really cool and really synergistic and that it works really well. So if you guys watched that webinar that we did, postbiotics has a wide range of things it can include, but it's either dead organisms or the metabolites of organisms that are put in. Like a slurry of metabolites of organisms used. But freeze-dried I believe, or frozen-

Steve Wright:

They're heat killed actually.

Michael Roesslein:

Heat killed. Okay. Killed organisms that when they meet this area of the gut that we're talking about that likes to panic, there are changes that take place and reactions that take place that quell the immune system in some way. I'm sure I'm not doing this very well, so I'd like you to explain that for a few minutes and I'll scribble some more notes.

Steve Wright:

Yeah, I will. But I want to highlight what you said, which is really important because people are going to ask, "Well, where do I start or what should I focus on?" I think you've experienced this, I've experienced this. I don't know if everybody's experienced this, but there are people who can adjust your foot and affect your brain, and there's people that can do trauma or coaching or therapy on your mind and your brain and affect your knees or your foot. And so you can make amazing progress whether you start from the bottom up or from the top down. The point is make sure you hit every step along the way.

One of the steps to hit, in my opinion that is not being addressed, is this HoloImmune. Basically immune system retrainment. So I like to think of HoloImmune as ... I don't have the perfect analogy yet, but it's like taking a out of shape person to the gym. You are giving a stimulus specific dead bugs at studied human dosages. All four ingredients have human trials on them. Many human trials. There's probably like 50 human trials in that one bottle. When the immune system comes out to sample what's in the intestines, they grab these bugs and the receptors on the cell wall, the makeup of the cell wall and the DNA inside that dead bug tell the immune system certain things.

And in these specific ones, they tell them to do anti-inflammatory and balancing things such as make IL 12, make T helper cells, block excessive IgE formation, make plasmacytoid dendritic cells, which are leaders of the dendritic cells and leaders of the communication between the adaptive and the innate immune response.

And so it's really messed up and it's really fascinating actually. I am saying that the live bugs from Microbiome Labs or any other company that's actually studied ... Not the 50 billion or 500 billion in a bottle, 15 strain. I don't think those products work really well. But the stuff that Microbiome Labs has done in other companies have done where they've specifically got a strain with a dose and they can get a psychobiotic result, they can get a lung result, they can get an eye result, that's really cool. The dead versions of some of those bugs or just other dead bugs do different things and better for certain conditions things. And in the case of reprogramming a-

Michael Roesslein:

Hold on. Hold on. I want to just stop real quick. I'm going to remind you of exactly where you were in the case of reprogramming. But it's not that the dead bugs do anything. It's the response of our immune system. The guys that stick their heads out and check out what's going on, they find these dead bugs and the parts of the bugs that they are analyzing and looking at tells them, okay, everything's cool. I'm going to give this signal that everything's cool. We need to turn down these things that are inflammation related. We need to turn up these things that are healthy. And they're responding to finding the dead bug, right?

Steve Wright:

Essentially. Yes.

Michael Roesslein:

Okay. All right. Now you were talking about reprogramming.

Steve Wright:

Yeah. In a way, another analogy for this would be you're giving a software update to your immune system by taking every capsule of HoloImmune. You're giving it a new program of the world is different now and it's safer. You can respond in a healthier way essentially. And so why that matters is remember in the beginning I was saying that our immune systems ... Let's say we do all the work to make our digestive organs working, we get rid of any bugs, any toxins, and we're still having flare-ups of certain inflammation conditions. We still haven't arrested any neurodegeneration or things like this. Why is that still happening? And my belief at this point is that the immune system can get locked in. It can get vigilant or hypervigilant. It can just get locked into responding the same way all the time. When now that the stimulus has been removed and it's actually safe, we want it to respond in a much more diverse and healthy way.

But we don't have a lot of ways to work on that pathway, that system. Dead bugs are a way to work that system every day. And the studies show that four weeks, eight weeks, 12 weeks ... At 12 weeks, changes are still getting better. It's not a drug. So it's not on off it's not that kind of thing. You're literally every day giving information to your body saying, hey, it's okay. You can respond in a more diverse and healthy way. And then the next day and the next day and the next day, and then after 12 weeks, 16 weeks, things like that, the amount of progress you've made on a daily basis gives you this ability to maybe not use Claritin for hay fever season. Or maybe not use antihistamines for your histamine related issues. Or maybe enjoy foods that you were responding to in the past despite taking enzymes and despite doing all these other things. And that has been the response from the users of the product. This is not studied. I don't have the study to show you yet because these dead bugs are like 15 years old. The science on the stuff's only about 15 years old.

Michael Roesslein:

It's fascinating. And I want to just talk a second. You also added beta-glucans into that formula. And just real quick, what is a beta-glucan and what does it do?

Steve Wright:

It's a dead yeast cell.

Michael Roesslein:

Okay.

Steve Wright:

Think about that. It's a dead yeast cell. Not all beta-glucans are, but beta-glucans can come-

Michael Roesslein:

Yeah, yeah. [inaudible 00:52:10].

Steve Wright:

Yeah. It's typically a polysaccharide, but it's a special type of ... It can come from mushrooms, it can come from yeast cells.

Michael Roesslein:

They commonly come from mushrooms.

Steve Wright:

Yeah. Mushrooms or yeast are the two most common. This is a yeast version and it's a 1-3, 1-6, and those are the type of bonds that are in there. It's the most studied type of beta-glucans in the world. Just like different bugs that are dead at different strains, do different things, different beta-glucan types from different sources do different things. And so the mushroom versions, whether they're purified 1-3 or 1-6 do different things depending on how much you take and how you push it and so do the yeast dead stuff. And so I went with the yeast stuff because it's better. It's more generally applicable basically to responses amongst humans.

Michael Roesslein:

There's usually some beneficial reaction within the immune system.

Steve Wright:

Studies show that even at 100 milligrams, which there's 300 milligrams in our product, it increases secretory IgA, which is one of those compounds that the gut is excreting to deal with incoming pathogens. Other studies show increased athletic performance, decreased allergies and immune response. In general, they're still trying to figure out all the mechanisms of how beta-glucans work. And this research is over 30 years old. They still haven't quite narrowed it down, but essentially there's one paper that's almost called Making Your Immune System Fitter, The story of Beta-Glucans or something. And it's this whole paper about how somehow the beta-glucans makes your immune system fitter, meaning more efficient at doing its job.

Michael Roesslein:

Yeah. That makes sense. There's actually a doctor ... I don't remember his name. I found his website not that long ago and I actually thought of you. He's all about beta-glucans. His whole website is beta-glucans. All the info is beta-glucans. He sells a whole bunch of different beta-glucan products. He has podcasts and videos on beta-glucans. He's the beta glucan guy, doctor. I'll try to find it. I'll send it to you probably-

Steve Wright:

Yeah, send it to me.

Michael Roesslein:

I was reading some of the stuff that he was talking about, and it was pretty incredible what different beta-glucans are able to do as far as immune modifications and other things that are happening. So I dig it because it's all plant derived.

It comes from mushrooms, it comes from yeasts. These are not synthetic compounds or anything like that. And it's finding ways to ... I don't know. I have no way to defend this belief, but I believe that the postbiotics, like the dead bugs and the beta-glucans and these kinds of things, they work. Our body responds to them in that way because at some point when we were living in a much more attuned with our natural way of being way, we were encountering those things more. And so we learned that, oh, this is around, cool. We're in a good spot now. Now we live in a place where none of that exists and everything's super sterile and super clean and super this and there's no dirt. That's my theory. I am not a microbiologist. I have no way to back that up, but that's what I certainly think. Let's just get to ... Go ahead.

Steve Wright:

Yeah. I just want to wrap up the ... Because I love that with our shows together, we end up talking super nerd, but we also talk medium nerd, and then we talk just beginning this topic stuff. And so to put it all together, I have implemented a lot of different diets, over 50 on my own body. I've done elimination diets and was a specialist in a different type of elimination diet called Specific Carbohydrate Diet for almost a decade. I tried most of the prebiotics and probiotics on the market. I tried them in other bodies as a consultant. A digestive consultant. And I have many friends who are really intensely relating as digestive specialists. All these things that we were doing didn't seem to quite restore the body's tolerance to food. No matter how many parasites we killed, no matter how many detoxes we did, no matter how many food eliminations and probiotics we did, the tolerance was not coming back.

And so the last four to five years of my life has been asking the question not only why do certain products not work, but also why is my body not responding in the way I thought it would? After all this functional [inaudible 00:57:06], after all this stuff. What are we missing? And so in my opinion, those are the layers to address if you're still stuck. You can work from the bottom up. We have people who take one to four HoloImmune a day. They're an acute situation neurologically or something like that. They can take three to four a day and really work on that. But most people take one or two. And you could work that way backwards and then butyrate and then HoloZymes. And if you need gallbladder, you can try that. And then HCL Guard, things like that. And in the middle, you might even try MegaSpore. Hit the butyrate first and then try MegaSpore and see what happens. And then try MegaPre and see what happens.

And then as you build up the chain there. Or you could start from the other way and come down the chain. Check for low stomach acid and make sure to hit all these things on the way down to retrain your immune system with HoloImmune. And you might think, well, that's complicated. That should take a really long time. That should take 90 days, 120 days. Now, once you find the combination of things that give you the best results, you might need to stay steady at that dosage in those products for three to six months, depending on how messed up you've gotten yourself, because you got to retrain everything. You got to fix everything. But this idea that you should have to wait 30 days to feel a digestive product, that's just absolutely bullshit. You should know. You will know immediately with prebiotics, probiotics, resistant starches, enzymes. I don't care. It's either the product's wrong for you or the dosage of that product's wrong for you.

Either of those things could be true, including our products. The dosage could be wrong. But you should know right away. If the product's wrong, increase or decrease the dose. And within 10 days you'll know, higher dose didn't work, lower dose didn't work, wrong product, move on. Get a refund, move on. And you can knock this stuff out. Find the solutions to your issues. Stay steady on those solutions for, like I said, three to six months. If you've been banged up for a decade or more, it might be a year. There could be other cascading effects. But that's the future, I think, of healing these conditions in gut health.

Michael Roesslein:

I like that approach and I agree that you should be able to tell with something pretty quickly. I always use popcorn as my example, but I know if I eat it and I don't have the HoloZymes, I feel like hell. And if I eat it and I take three of them, I'm invincible and I'm Superman who can eat an unlimited amount of popcorn. Now, I don't have complex GI situation,

but that was my test for it when you told me you made a digestive enzyme. And I'm like, "All right, dude, there's 200 kinds of digestive enzymes, whatever. I'll try it because you're cool." And I was like, "Wow, this has never worked before." And then my wife was able to eat raw salads, which was off the menu for her for a really long time. The first time, the first time she ate a raw salad and took three HoloZymes she ate the raw salad and didn't have bloating. Some of these things aren't things that need to build up forever. So there's a couple questions. Well, there's three from Diana. "What is the best way to commence Tributyrin-X? I started doing one every three days." I would take two per meal.

Steve Wright:

Well, hold on. She's probably doing that. She can comment. She's here live. But for people who are constipated and are using-

Michael Roesslein:

She said severe bloating.

Steve Wright:

Laxatives [inaudible 01:01:00] for constipation. People who are really constipated, we believe have the lowest amount of butyrate, and adding additional butyrate tends to aggravate their condition in the beginning before it helps it. And so one every three days first week, one every other day, second week, one every day, third week, and then two a day, things like that. If you're sensitive, if you're constipated ... I would say Michael and I are ... I think we're actually both extremely sensitive men, but we also are a little reckless and we just pound handfuls of things to find out what happens. Not everybody has the stupidity or courage we have to do that. So that's the slow way to test it. If you're on the loose stool side or if you want faster change, you can start right with one every day with dinner and start increasing. And the majority of people take three to four per day. Or two to four I guess would be the most common range. But if you're having loose stools, you can keep going higher.

Michael Roesslein:

Okay. Thank you for that clarification. And Steve, are you alluding to no probiotics or enzymes until a high tributyrin is present? What I took you saying is that it doesn't matter which side you start on and that some people will respond better to certain starting points and others will respond better to other starting points and it's really about the individual. Starting at the top of the chain versus starting at the bottom of the chain.

Steve Wright:

Yeah. Yeah. I personally think it's confusing and a mistake to start at the middle of the chain, which is prebiotics and probiotics. And the reason why is it's rare, meaning one to two to 3% of the population. But if your gut is messed up enough live bugs, live probiotics can cross into your body and cause real intense issues. Even though they're well studied and from a reputable company and things like that, if your gut is too broken down to defend against anything, a live bug can actually cause serious medical issues. For people who are bedridden and elderly especially, or severely immune compromised, it can cause sepsis. And you can look that up in PubMed.

And then prebiotics are awesome. I wish everybody could start there because like the fuel, right? That's the solution to more butyrate in the long run. But most people are bloated, don't have the enzymes or the HCL or the bile to make it work. And so I just find that 50 or 60% of people just get mad and it doesn't get results. So I'd rather start either top or bottom and then hit prebiotics and probiotics on the way, whichever way you're doing the journey.

Michael Roesslein:

That makes sense to me. Sorry, I was answering something in the chat. That was just answered. That was answered. Resistant to starch. Somebody waking up in the middle of the night with heartburn who didn't go to bed with heartburn. That sounds like an esophageal sphincter problem more than anything. Just inclining until you can get the gut under control.

Steve Wright:

Yeah. Probably also a great red flag to check for low stomach acid.

Michael Roesslein:

Yeah. Yeah. Yeah. Final question. "I have a client. We have cleared mycotoxins, but she now continually has herpes outbreaks. I'm thinking this is a connection. Your thoughts?" That's above my pay grade. I don't know how those two things would be connected.

Steve Wright:

Well, yeah. Basically you removed a potential increasing inflammatory thing with mycotoxins, but the immune system is unable to clear/keep herpes in check inside the body, so it's continually reacting. So yeah, the immune system's out of balance, either TH-1 or TH-2 or T helper cells or something. So I would try Tributyrin-X and HoloImmune. And you can always email us at support@healthygut. We have health coaches who are trained. We also have practitioner programs, and I do practitioner training, so we can always work through tough cases to see if works. It's not like this is continually what we use it for, but it would be a good idea to see if that could stop it.

Michael Roesslein:

Okay. And then the-

Steve Wright:

Resistant starch does not have to be ...

Michael Roesslein:

Go ahead.

Steve Wright:

Yeah. More resistant starch comes from cooking your rice and then not heating it up or cooking your potatoes and then not heating it up or chilling it. If you're optimizing for resistant starch, yes. That's the "best" way to do it. But if you're just like me and you make a big pot of rice or you bake a bunch of potatoes and you don't eat them all and then you eat them the next day and just eat a few cold ones. I guess don't over index on things like this. As long as you're getting starch in your diet and some of it's leftovers, you're going to be doing pretty good as well as including vegetable consumption and fruit consumption in there.

Michael Roesslein:

Okay. All right. I'm 10 minutes past my hard stop for this one. I'm sure we'll have you back again because people love these webinars and I learned a lot of stuff and I want to talk to you after or soon about some of your coaching and practitioner training and I want to get some people trained on our staff to answer these questions too that are really easy.

Thank you Steve, and thank you everyone who attended today live. We'll get this recording out on Friday. And it'll be Friday morning that this will come out. So keep an eye on your inbox and we will send it out then. And yes, we had two questions asked. We will link part one there as well so you can watch them together because the two of them together is about as comprehensive as a tour of the GI tract as you're going to get with assorted shenanigans mixed into it. But right now I hear yelling baby, so I have to go do that and we'll see everybody soon. Thanks Steve.

Steve Wright:

All right. Take care Michael.