THE MODEL HEALTH SHOW

EPISODE 547

How Your Gut Health Controls Your Weight: Endotoxemia, Inflammation, & More

With Guest Dr. Will Bulsiewicz

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SHAWN STEVENSON: Welcome to The Model Health Show. This is fitness and nutrition expert, Shawn Stevenson, and I'm so grateful for you tuning in with me today. On this episode, we're going to be talking about some dynamic interactions between our gut health and weight loss, between our gut health and chronic issues, inflammatory issues, autoimmune issues, even things like Crohn's and colitis. We'll really be looking at the root cause here and understanding in a massive way how our microbial health is affecting even things like our relationships. It's absolutely mind-blowing. So much incredible information with one of the foremost experts in the world is a physician who focuses on the health of the gastrointestinal tract, and he's also emerged as somebody who truly understands just how much our nutrition impacts the health of our gastrointestinal tract and our microbiome specifically.

Now, contrary to popular belief you would think that he knew this from his conventional education, but that is not so. He shared he was in school for 16 years, and his education in nutrition was a tiny, tiny fraction, less than 1% of what he was taught about, and he specializes in the gut. And so, the biggest influence on what's happening in our gut is what we're putting into our gut. So you would think that that would be a bigger part of education, but it's simply not. Now, that is beginning to change, but for years, people have been suffering unnecessarily and really missing this connective tissue, and for him, he had this incredible insight as to just how much food matters, and it started really with his own health. And we talked about that in his first appearance on the show, but in this episode, we're just going to dig right in and get into how our gut health affects things like our ability to lose weight.

And one of these components is something that we don't talk about much, and we're really going to look at here, because it's starting to shed light on how is it possible that our gut health could stifle our ability to lose weight? And so, really excited about this. Another huge component of what's affecting our microbial health and our health overall is stress. We're going to talk about that in this episode as well, and start to shine another light, a big spotlight on how stress can directly influence what's happening with our microbiome. And obviously, we're existing right now in an incredibly stressful time, and it's not like the stress that our ancestors experienced, like, stress over where are we going to get our food and shelter? You know, protection from rival tribes or from wildlife and things of that nature, which the stress would come and go; today, it's a consistent low-grade chronic stress, where we're constantly inundated with things to worry about with anxiety. And our attention constantly being pulled in multiple directions, and we're outsourcing our thinking, we're outsourcing our peace, and our peace of mind.

Our mental algorithm is getting programmed include into distraction, right? Social media is a wonderful tool, but it's not a very good master, it's not a very good boss. And the influence and seduction that can take place with that, and of course, with our food, and obviously what's coming through... Television has been around for several decades now. But we're living at the golden age of television, if you haven't ever noticed by now, let me clue you in, the writing is immaculate, alright? People are just like, they're competing out here, the writing, their performance, the cinematography it's amazing. And as you just got access to everything all at once right now. I remember a new movie would come out and maybe my family wasn't going to be able to go see it, maybe we didn't have the money, whatever the case might be, and so, I had to wait until it came out on video, alright? That would mean months and months and months, maybe like six months, maybe like a year or something, that felt like a year later when I'll finally be able to see the thing, you know?

I get on my bike and ride to Star Video, that was my neighborhood video store at the time. Well, of course, Blockbuster Video, and that's the only way I would get a chance to see the thing. Now you've got everything, every movie at your fingertips, it's just a completely different reality that we're living in. And our children will never know the real thrill of the hunt of going to Blockbuster Video or Family Video in search of that new release that just came out today, trying to beat out other families or standing by the return box and seeing if the movie you want came in, because it's not over on the shelf, they'll never know what that's like. We were at least getting out... We weren't hunting for our food, but at least we were hunting for movies, we were hunting for something. Now, everything is just right there at our fingertips, there's a beauty in it, but there's also a potential downside when we start to give away our ability to move, to get out and connect with other humans and to think for ourselves.

We're getting inundated with a lot of programming, that there's so much to fear in the world without any context and without any solutions. And so, what do you have when you have fear and imminent threats without solutions? You live in a state of constant terror, and what that does to our biology, what it does to our psychology, it's not okay. Enough is enough. But there is a defensive mechanisms, of course, being able to just tune a lot of that stuff out and focus on things that are health affirmative, but also we've got to make sure that our nutrition is on point as well. And there is nothing that really comes close in the realm of this category that has been discovered recently. Again, our ancestors didn't have isolated nutrients that we're talking about, they just ate foods and they knew which foods were good for which things. But with our modern technology, we've been able to discover, Hey, there are certain things here, we give them these labels, but we don't want to isolate that and take that away from the food itself and the source itself that has the enzymatic capacity and bio-potentiators that make that thing work better.

And the vitamin that I'm talking about, that's most affirmative in our peer reviewed evidence when it comes to stress is vitamin C. According to a study published in the Journal of Nutrition and Food Sciences, both emotional and physical stress may affect a person's vitamin C status, and it can increase the body's requirement for vitamin C just to maintain normal blood levels.

Stress has been found to literally deplete vitamin C within the body, reducing the body's ability to fight infections and also increasing the likelihood of further stress. That's the thing, it starts to compound on itself. And so this is what was published in, again, the Journal of Nutrition and Food sciences. So this is well-established, and they did a randomized, placebo-controlled, double-blind trial. And they utilize vitamin C for people who were put under a specific stress that tends to stress a lot of different people out, which is public speaking, and concluded that those who received vitamin C experienced less stage fright and showed a faster recovery of their cortisol levels, so their cortisol was able to normalize faster. How cool is that, right? So obviously, we know about the tremendous amount of data we have with vitamin C in regards to the immune system.

A study that was published in the journal of PharmaNutrition investigated the impact of vitamin C in relationship to the cytokine activity associated with COVID-19 and found that vitamin C is effective at inhibiting the production the cytokine storm. Right. This information should be front page news, as it's something proactive that we can all do, we can take advantage of. There are wonderful food sources that have a notable amount of vitamin C, botanical vitamin C, but there are also some of the most vitamin C-dense superfoods in the world that are available for us right now. I've been a fan of these things for years, I've talked about them for years, but I never had one place that I can get them from. I'm talking about camu camu berry, which is the highest vitamin C-dense food in the world, it's about 700% of your RDA vitamin C in just under a teaspoon of camu camu berry. Second to that is amla berry, third to that, acerola cherry.

These three things have been some of my favorites for 15 years. But finally, they're all three together in one place with no binders, no fillers, no artificial anything, organic, all done the right way. And this is at Paleo Valley, their Essential C Complex is a must have, it should be a staple in your cabinet. Head over to paleovalley.com/model, that's P-A-L-E-O-V-A-L-L-E-Y.com/model, you're going to get a special 15% off their Essential C Complex. And also, their Turmeric Complex is amazing as well, it's one of my favorite things I keep in my cabinet all times. Their snacks, their food is immaculate, they're doing stuff the right way. Head over there, check them out ASAP, paleovalley.com/model. And now, let's get to the Apple Podcasts review of the week.

ITUNES REVIEW: Another five-star review titled “My All-Time Fav Podcast” by Europe Coffee Lover. "Sound science, well researched, practical and funny, I never miss an episode. Shawn

delivers the goods and empowers his listeners to make informed, intelligent choices to improve their health and overall well-being whatever their current circumstances may be. His expertise in health, understanding of people and heart to serve others shines through every episode and interview. So glad I discovered this gem."

SHAWN STEVENSON: I love that so much, and I also love your handle here on Apple Podcasts, Europe Coffee Lover, that's fire. Thank you so much for leaving that review over on Apple Podcasts. And if you've got to do so, please pop over to Apple Podcasts and leave a review for the Model Health Show. And on that note, let's get to our special guest and topic of the day. Our guest today is Dr. Will Bulsiewicz. He's a New York Times best-selling author of the book Fiber Fueled. He's also an award-winning gastroenterologist and gut health expert and author of more than 20 articles in the top American gastroenterology journals. He's also one of the most creative and inspiring people working in the field today, and he's somebody that I'm grateful to have in my life as a friend and often kicking things back and forth and sharing ideas and supporting each other. This is another important conversation, and much needed for us to talk about in our world today. Let's jump into this conversation with the amazing Dr. Will Bulsiewicz. Dr. Will Bulsiewicz, my friend welcome back to The Model Health Show. How are you today?

DR. WILL BULSIEWICZ: Shawn Stevenson, it is a great pleasure to be here with you today with the Model Health fans out there. I am so excited to dig into some exciting gut health stuff and help these people.

Yes. One of my favorite books, just in recent history, has been your book Fiber Fueled. It's not just the content, it's the style of writing, it's the experience, it's understanding how to leverage human psychology. Because at the end of the day, that's what it's really about, it's about providing people with the tools but also with the mindset and the support to actually help people to utilize those tools. So what was it about your experience in writing the book and what you've done afterwards, why does it matter so much to talk about application with people and actually make people feel empowered to do the things?

I feel like what... The work that I'm doing now is actually what I was supposed to be doing when I set off on this journey as a kid. And so I was a teenager when I decided that I wanted to become a medical doctor. I was super-idealistic. And so in my mind it's like, "I'm going to figure out a way to help people and try to shape their lives, transform them." And I went through a 16-year process to come out on the other side and entered into a system that deprives me of the ability to actually do that. And I'm in there in a room with these patients, and I am fighting with every single person, not fighting with them, but I'm fighting with everything that I got in terms of my passion to try to deliver for these people and give them what they need. But it is

really hard when you're in the constraints of our system with the time limitations that we have and the demands of the system. And so, Shawn, to write a book...

That... It's been while since I've checked how many copies we've sold, but it is well north of 150,000 copies, and have people read this and then it changed their life as a result of this, is an absolute dream come true. And I know that you can relate to this because this is exactly what you're doing. And we're just... We're very similar people in terms of the passion that we have, in terms of what we hope to accomplish in this world, and we may come from different backgrounds or have different educations or different ways that we approach these things, but yet, we're coming at it the same way. And so it's really cool to be meeting here today in the middle to have this conversation.

SHAWN STEVENSON: Yeah. And if people are watching on the video, they could see you've got some pretty nice books stacked up right there, right next to you.

DR. WILL BULSIEWICZ: Yeah, man, I got Fiber Fueled right next to Eat Smarter right here. And I love Eat Smarter. I thought it was a great book. You know that, I said that when it came out, I was so happy to see that it was flying off the shelves. It was the hottest book for weeks on end and I'm sure that most of your listeners have already grabbed their copy, but if they haven't, you definitely need to. There's no question about that.

SHAWN STEVENSON: I appreciate you, brother, and listen, this episode, I want to dive in and take this a step further, you're a very, very experienced and renowned gastroenterologist. This is your specialty, this is where you live, you know more about the gut and the gastrointestinal system than damn near anybody on the planet. And there are so many different dimensions of what our gut health influences in other aspects of our lives. And so today I want to ask you about, how can poor gut health possibly lead to weight gain?

DR. WILL BULSIEWICZ: Yeah, if you asked me this 15 years ago, I would have said, look, it's just calories in, calories out. It's just addition and subtraction and as long as you stay below that certain limit, then you shouldn't have a problem. Clearly, it's more complicated than that. Look at what's happening in the United States today. 75% of the United States is overweight. 40% of America is obese right now. Our kids. Childhood obesity like skyrocketing, going off the roof, what is going on?

And part of our understanding of what's happening is actually in the gut microbiome. Now, I'm not here to tell you that this is the only thing that matters, it's not. But this is part of the equation. And if we want to properly understand our metabolism, then we need to understand our gut microbiome. It goes back to, Shawn, some of the breakthrough studies from about 15 years ago, the very first sort of eye-opening like, whoa, what is happening here, studies that

were taking place with the gut were actually in this space. And what they did was they would transplant the gut microbiome from an obese mouse into a different mouse, and that mouse would become obese. So you could transfer weight gain or a body habitus from animal to animal. And they kept kind of leveling this up, they showed that you could do this from skinny mouse to skinny mouse, and then they said, you know what, let's try this transferring the microbiome of humans into mice, but here's the deal, let's try this where we take actually identical human twins, so they have the exact same genetic code, yet one of them is obese and one of them is lean.

And let's transfer from these two humans, who have the same genetic code but different body habitus, into these mice. And what they found is that when you transfer the microbiome from an obese human into a mouse, that mouse becomes obese, when you transfer from a lean human into a mouse, that mouse becomes lean, and this is despite consuming the exact same number of calories. This is not just calories in and calories out. Shawn, in animal agriculture, in the United States, at least, it is common practice for the animals, the livestock, to receive antibiotics. This is part of conventional farming, 80% of the antibiotics in the United States are not given to humans. They're given to animals. And the reason that this is done, maybe we can pretend that it's to prevent infections, these animals gained 15% more weight being fed the exact same food, the exact same number of calories when you treat the animal with an antibiotic, further evidence that by disrupting and damaging the gut microbiome that you can actually affect metabolism and weight balance.

So if we start and accept this, that gut microbiome is part of the story here, right? If we all mutually agree to accept that microbiome is part of this story when it comes to metabolism and weight gain or weight balance, then let me bring forward three ways that I see in the scientific literature playing out that I believe are creating this connection and explaining why this is. Number one, you wrote about in your book, Shawn, Eat Smarter, you wrote about satiety hormones, things like ghrelin, peptide YY. These are the hormones that are critical to us as humans to let us know when we are full, so that we stop eating and we don't overeat.

And what's interesting is that there is evidence to suggest that the gut microbiome plays a critical role in controlling the release of these satiety hormones, to be a little bit more specific for the nerds at home, or for the people who have read my book, "Fiber Fueled", you will know that I am a big fan of this one particular biochemical, or I should say, family of bio-chemicals, called short-chain fatty acids. Now short-chain fatty acids do not exist without our gut microbes. So any time I talk about short-chain fatty acids, you know I'm talking about the gut microbiome, 'cause they're the ones who create them, and they create them from dietary fiber, and what we have seen, Shawn, is that short-chain fatty acids actually are the linchpin in terms of controlling and regulating these satiety hormones.

That was number one. Here's number two: Let's talk about a topic that you talked about in your book, and that I know that you've talked about quite a bit on your show, which is, insulin resistance. Insulin resistance is the underpinning of Type 2 Diabetes. It's actually the underpinning of many different conditions, including, like, in my space as a gastroenterologist, I take care of people with non-alcoholic fatty liver disease. This, by the way, is soon to become the number one cause of cirrhosis in the United States, it's going to pass hepatitis C.

Well, insulin resistance is the cause of these problems. Insulin resistance, let me just say, is proof of a damaged metabolism. When your metabolism is not working properly, this is what you get, you get insulin resistance. And when it comes to insulin resistance, there are many different factors that play into this, but one of the critical factors, again, is the gut microbiome. They have done studies, Shawn, where they take humans, these are not animal studies, humans, and they transfer the gut microbiome of a person who has insulin resistance into adult men, and these adult men get insulin resistance. You know it sticks around for a few weeks because then their gut microbiome starts to revert back to what they were before. But the point being that insulin resistance is something that is related to our gut microbiome. And by the way, in studies, they did this one study, Shawn, where they took kids, and they looked at what happens when you put kids at a buffet. Alright. So you take these kids and take them to like OCB... If that even exists anymore. And...

SHAWN STEVENSON: Ryan's, there was... Did you guys have a Ryan's...

DR. WILL BULSIEWICZ: We had Old Country Buffet.

SHAWN STEVENSON: That sounds nicer. We had Ryan's, it was the place to go.

DR. WILL BULSIEWICZ: Was that St Louis?

SHAWN STEVENSON: Yeah. And the combinations of foods that people eat is insane. I know being a kid, you get to just get what you want, "I'm getting some shrimp, I'm getting some spaghetti, I'm getting some ice cream... "

DR. WILL BULSIEWICZ: Yeah.

SHAWN STEVENSON: You can get your own ice cream as a kid? Are you kidding me? Like... It's crazy.

DR. WILL BULSIEWICZ: We also had Ponderosa. Did you guys have Ponderosa?

SHAWN STEVENSON: Ponderosa, yes.

DR. WILL BULSIEWICZ: Ah, man, I loved that place.

SHAWN STEVENSON: Oh, Yeah. Ponderosa, yeah. We had "all you can eat" shrimp. I remember that. So just give me my fried shrimp and a bottle of Heinz, and it's on.

DR. WILL BULSIEWICZ: Yeah.

SHAWN STEVENSON: I remember at one time, the lady came to the table, the waitress, she just knew that we were stuffing shrimp into my mother's bag or something, but it was just going all into this little... You know, less than a 100-pound little kid, it was the elementary school kid, I was just shoveling it down, man, those were the days, but now, of course, a lot of folks know there's casinos all over the place. People go for the buffets. So, it's an American phenomenon.

DR. WILL BULSIEWICZ: Some people fly to Vegas, not for the casinos, but for the buffets.

SHAWN STEVENSON: That's right, that's right.

DR. WILL BULSIEWICZ: Well, so anyway, they did this interesting study with kids and... Insulin resistance, again, like, this is basically, when I say this, this is the underpinning of Type 2 Diabetes, and Type 2 Diabetes is unfortunately, massively on the rise in our kids right now. And so they put a group of children in a buffet and they saw what would happen, and what they discovered is that the people who have insulin resistance, the kids who had insulin resistance were the ones who were overeating, those were the ones who were consuming more.

Perhaps because they weren't getting enough of those satiety hormones to know when to stop. But the point being, that with a dysregulated metabolism, or a metabolism out of balance, these kids were basically the ones who were setting themselves up for weight-gain by overeating. And the third thing Shawn, I should mention real quick before I move on to the third thing that, I mentioned short-chain fatty acids before, short-chain fatty acids come from our gut microbiome, they're the product of when we consume dietary fiber, and they've actually shown through mechanistic studies that these short chain fatty acids, they are actually the solution to insulin resistance.

I don't want to bore your listeners with all of the details of lipotoxicity in insulin resistance, 'cause it gets pretty technical, but if you really dig into this and you look at this, what you will discover is that short chain fatty acids have the ability to reverse insulin resistance. So once again, the gut microbiome. And the third thing that I would bring up is...

Damage to the gut microbiome, which produces what we describe as endotoxemia. Our microbes produce something called bacterial endotoxin, and that bacterial endotoxin is not supposed to be entering into our bloodstream in large amounts. But when you enter the gut microbiome, and you enter into a state of what we describe as dysbiosis, dysbiosis meaning an unbalanced damaged gut microbiome, which by the way is what you see in a person with obesity. This gut microbiome has what we describe as leaky gut or increased intestinal permeability. The barriers to leakage in the intestinal wall pop open, and create a channel where things can start to spill through, and what spills through is this bacterial endotoxin, bacterial endotoxin is the direct result of microbes, living inside of our gut. And what we have discovered is that bacterial endotoxin, is essentially synonymous with inflammation. People wonder where inflammation comes from, I'm describing it to you right now, damage to the gut which release a bacteria endotoxin into the bloodstream. When a person comes in, super sick to the hospital, regardless of the cause, if they come in with sepsis, high heart rate, low blood pressure, they're really not conscious, they're completely delirious. And they're breathing about 30 times a minute, and they need to be put on a ventilator immediately, this person with septic shock...

What's happened is that this infection, has overwhelmed their system and caused the release of bacterial endotoxin. Well, the point with bacterial endotoxin, getting back to obesity, is that if you inject bacterial endotoxin into an animal, it will become obese, and the reason why, has to do with activating these inflammatory pathways. When you take a human being and you discover that they have damage to their gut microbiome dysbiosis, they release this bacterial endotoxin and we can correlate with bacterial endotoxin to weight gain, we're shown that there's yet another pathway. So the bottom line, Shawn, is that I think that the science is very clear at this point that the gut microbiome, is a critical piece of how we can potentially gain weight. When a person does gain weight, it's in the presence of a damaged dysbiotic gut, and there are these three mechanisms, the satiety hormones are insulin resistance and they release a bacteria endotoxin that are taking place as a result of these changes that are occurring within the gut microbiome. And the solution to bring us back, has to do... In part, with restoring healthy levels of the short-chain fatty acids, by properly fueling our gut.

SHAWN STEVENSON: This is beyond powerful because, this is starting to shift our knowledge base from... As you mentioned, you came into this saying, "Listen, calories matter, but this idea that the human body is a calculator is a problem." And we're not looking at what is actually... Is more like a really hyper-intelligent chemistry lab, and we're not looking at what are the underlying mechanisms? What are the underlying pieces that are controlling what calories do in our bodies? And bringing to light... And I love this because we have not talked about this in-depth at all. We're at eight years now, I think we're knocking on the door maybe nine years of the show, talking about endotoxemia.

And it starts to answer the question, "Okay, so what's going on here? This certain bacteria cascade, are they grabbing more of these calories and shuttling them into our circulation? Is that part of the equation? Sure, that might play a role." But I think a better thing to kind of shed light on this is, what happens when our bacteria grabbing up some of these abnormal food products? What kind of metabolic wastes are they creating? Because it's not just the fact that this Twinkie is nothing that humans have ever eaten before in human history, and just like it's made up of all these totally fake stuff, what does your body... What do your cells and your bacteria cells produce as a result? And what is the effect that has on our metabolism? And that is really bringing to light a huge part of this equation that is not talked about enough.

DR. WILL BULSIEWICZ: Yeah, totally. I feel like one of the things that's misunderstood about the gut microbiome that I would like to try to correct for people, is that ultimately it's not just the bugs, the bugs matter. But really what it is, this is this combination of what you give to the bugs to work with. And then the bugs that are there, they're like the chefs, they're not magicians, they're not making something out of nothing, but if you give them the ingredients and you got the right chefs, they'll make you a fantastic meal. You give them junk ingredients and you hire some kid who... It doesn't want to be there and is trying to get and sneak out, and he's not responsible at all, and that's your gut microbiome, they're not going to produce something that's high quality for you. So what we want is we want to get the proper balance, not only by getting the right gut bugs, but we also want to empower those gut bugs, by giving them high quality ingredients to work with.

SHAWN STEVENSON: Yeah. So obviously, we talked about this a little bit and I want to dabble on it here. But one of the foundational things in our culture currently, unfortunately, is that we're providing for our gut bugs and for our human tissues, period, is a rampant amount of sugar. And sugar has just been, it's become synonymous with something really bad, and I think that that is a limited perspective, because sugar exists in nature as well, and it has throughout our evolution. But it's just this really this Frankenstein situation that we've gotten into with sugar and isolating it into this one thing. And now we've got all these different variations of what sugar can look like as well, and the amount, the pure amount that humans are consuming now, we're talking about around 70 pounds a year with the average American. And that's a person, that's like a whole... That kid, when I was sitting at Ponderosa, that was my weight.

That much sugar in a year, it can create some abnormalities obviously with our microbiome, so let's talk about that a little bit, and how sugar is one of the things that's wreaking havoc with our microbes?

DR. WILL BULSIEWICZ: Yeah, totally. I think it's important... You alluded to this, but I think it's important to first to make sure that we separate and make the distinction between refines, ultra-processed foods, products, you know, things that don't naturally occur in nature, but that

require us to basically go into a... First, a food science lab, figure out how to make something happen. Food scientists spend 18 months working on a project figuring how to create something, and then we then ship it off to the manufacturer or some sort of chemical plant, and they then do this on mass scale. This is radically different than talking about unrefined simple sugars that exist in natural foods. And I'm not here to argue in favor of a fruit-only diet, that would be ridiculous, and I don't agree with any diet that is so hyper-restrictive. But I also don't think that calling fruit the problem, because it happens to contain sugar makes much sense.

Because we were talking before about insulin resistance and Type 2 diabetes, guess what happens when people consume more fruit? They're less likely to be diagnosed with type two diabetes. What happens to people's weight when they consume more fruit, they lose weight, not gaining weight because of the fruit they eat, they're gaining weight because of the processed food fruit they eat. So, it's important to make this distinction upfront. Because things like fructose that exist in fruits is very different than the fructose that exists in high fructose corn syrup. And so, when it comes to these distilled refined ingredients, we're finding them predominantly in ultra-processed foods, unfortunately, these ultra-processed foods make up about 60% of the calories in the American diet. They're devoid of fiber, they're devoid of nutrients, they're jacked up, not just with sugar.

There's an entire vehicle that is carrying the sugar and it's carrying a whole bunch of other bombs that you don't want to be dropping into your gut. That's what ultra-processed foods are. And we can dig into that more, I think we probably will in a few minutes, but when we focus on the sugar itself for a moment, what we do know is this, that the effect of simple refined sugars and the gut microbiome is an inflammatory effect. Every dietary choice that we make, Shawn, is leading to the rise and fall of specific families of microbes. Some of them get fed and some of them don't, based upon our dietary choices. When we choose simple refined sugars, we are choosing to feed the inflammatory microbes. It tastes great for like, you know, 30 seconds, and then you hit that sugar crash and you feel horrible, and you realize this was probably a mistake yet we go back and we do it again, because there's that addictive potential.

So, I think that the point from my perspective with these sugars is that they're causing harm to our gut microbiome, let's not make any mistake about that. And when we're talking about 70 pounds of these sugars per year, that's disturbing.

SHAWN STEVENSON: Yeah. And by the way, that's added sugars, you know? That's 70 pounds of added sugar, that's not even counting the naturally occurring sugar in foods and the refined carbohydrates and the like that folks are consuming. So, we're not in a good space right now. And again, we could just... It's not hard to just use our eyeballs and look around in our society and see that, and this is part of the issue. And it's not just as simple as like, "This person is just

eating too much sugar, they need to ratchet it back a bit," it's What is this doing to the composition of your microbiome, is it creating a composition to where your metabolism is literally changed, and it's making this greater propensity towards you being insulin resistant, towards weight gain and the like?

DR. WILL BULSIEWICZ: Right.

SHAWN STEVENSON: And this is really... And you know this like again, this is your life and your livelihood and your passion, that this world inside of our bodies is so miraculous and has so many impacts on other things in our lives, and I want to dig in just a little bit more and talk about... So we dabbled in sugar a little bit, and I want to make sure folks also listen to your first appearance on the show, we went through the different types of microbes that live in and on our bodies, and we talked about sugar as well, but what are some of the other things? Because we're looking at a situation where sugar is in these hyper-palatable, hyper-processed, ultra-processed foods, essentially feeding abnormal bacteria, feeding the... What's considered to be more of the unfriendlier pathogenic bacteria, which they... Everything has its place, but it starts to create dysbiosis. Because if we're not feeding our probiotic or friendly flora, our friendly flora the right stuff, they're just not going to be able to stick around, because they don't have their food source.

So we know that was sugar, but what are some of the other things that folks might not realize, that folks are commonly eating or interacting with that could be damaging their microbiome, that could be damaging their gut health?

DR. WILL BULSIEWICZ: Yeah. You know, before we even jump into that, I just want to start by pointing out what is good for our gut microbiome? And you and I both said the exact same thing in our books, which is that we need to feed the probiotic healthy microbes inside of us. We need to make sure that they are getting fed. And we live in a society, Shawn, where the average man is consuming 18 grams of fiber per day when we should be getting 38.

The average woman is consuming 15 grams of fiber when she should be getting 25. This is our most pressing nutritional deficiency right now and fiber is the fuel for these microbes. This is what they want, this is what they thrive on, this is what they use to produce the short-chain fatty acids that we were talking about. So I think it's important to start with this as a point of reference, and the reason that I'm pointing this out is that me, personally, I'm about trying to encourage people to run to the foods that heal. I don't want to create demons, I don't want to create monsters, I do want to be honest. I do want to be honest and tell you which foods can be problematic. We're not going to pretend that every single food is just the same, they're not. That's ridiculous.

But I also want to create an environment where it's about being... It's about positivity, and it's about basically having a mindset where you gravitate towards those foods that heal, and to me, that means focusing on eating a wide variety of plants, the exact same thing that you said in your book, eating a broad diversity. When you eat a broad diversity of plants, you get all the different colors, you get all the different forms of fiber and all of the good microbes, they all get to eat. That's what we want.

So flipside, what are the things that I'm just kind of like, "Okay." In moderation, there's a place, right? Let's not be too hard on ourselves, there's no such thing as a perfect diet, but what are the things that I kind of pump the breaks on? I would seriously start with ultra-processed foods, clearly. And part of that is, this is 60% of the American diet.

SHAWN STEVENSON: That's insane. That's insane. And I put my hand up because that was me as well.

DR. WILL BULSIEWICZ: Yeah, that was me, too. There I was in my early 30s. Here I am 10 years later, but there I was in my early 30s, 50 pounds overweight, and it's because I was opting for convenience, because convenience was what I felt I needed at that point in my life 'cause I was working so hard. So these foods are convenient, and that's part of the reason why they're popular. They're also hyper-palatable, you consume them and you want more. They don't make you feel well.

SHAWN STEVENSON: Yeah, and they're cheap.

DR. WILL BULSIEWICZ: And they're cheap.

SHAWN STEVENSON: For you, convenience; for me, it was cost and taste, so that hyper-palatability and the fact that they are so cheap.

DR. WILL BULSIEWICZ: This is part of the issue. This is part of the issue, is that our food system, we subsidize these foods and we make the ultra-processed foods inexpensive, and then people of lower socio-economic status are choosing what they can afford, and guess what? If it tastes good, of course, that's what I'm going to do. It's less expensive, and it tastes good. And we end up in a situation where these people, unfortunately, pay the price later on with their health, which is not fair. And so with regard to ultra-processed foods and the gut microbiome specifically, if we zoom in and we look at what's happening, what we discover is that, first of all, there are 10,000 additives in our food supply. The FDA has a special loophole called the GRAS, Generally Recognized As Safe, that allows them to approve these food chemicals without human studies.

SHAWN STEVENSON: Right.

DR. WILL BULSIEWICZ: And even the ones that do have human studies, it's like, "Let's give 20 people this for 10 days. Cool. They're still alive. We don't need to do anymore. We've done our work here, we've proven safety." It's like, "Hold on, what happens when people are eating 60% of their diet from this stuff day over day, year over year, decade over decade, and we destroy our gut microbiome because while I'm not here to say that every single food additive is inherently bad, that would be ridiculous, but we don't know, and there are 10,000 of them. And some of them are proving to be bad, things like carboxymethyl cellulose, which if you start picking up the packages in your supermarket, you're going to see this word, carboxymethyl cellulose, major disruptor of your gut.

Polysorbate 80 is another example. And Shawn, it's who's going to pay for the research to study these additives? The food industry is not. Why would they undermine their own business and we've already approved them, they're already in the food supply, and it's really hard to walk it back, and even when you find evidence that makes guys like you and I disturbed, the FDA doesn't step in and intervene.

So the point from my perspective is not to be like fearmongering, the point from my perspective is to be honest and say that I am concerned that ultra-processed foods are unhealthy and disruptive to our gut microbiome. And for that reason, I'm of the belief that at a minimum, we should be reducing our consumption, and in a perfect world... And by the way, I am not perfect. We should be striving to reduce them as much as possible, ideally to none, to be totally honest with you. So I would stop with ultra-processed foods. Anything you want to add to that, Shawn?

SHAWN STEVENSON: Of course. Listen, this one here, if we just address this one thing, we're going to have a revolution with our health, period, and this doesn't mean you can't have a donut or whatever, it's just like making that a smaller percentage of your diet. And you just said another reason why. These things, 10,000 approved additives for food, newly invented chemical compilations and getting this loophole for them to be in our system, in our food system, this GRAS system, is generally regarded as safe and understanding it is... First of all, it's incredibly difficult for data to be done, for studies to be done, for funding to be given to prove that they're bad for us, right? That's the... The burden is on us to try to prove that they're bad for us instead of it coming into the situation where they're proving that they're good for us. That should have been done in the first place, proving, having clear evidence that these things are not harmful to humans and/or good for us, but at least not harmful to us, but that's not being done.

And so we are truly a social experiment when we're interacting with these processed foods, so we have no idea what this is doing to our microbes, what it's doing to our thyroid, what it's doing to... Our meniscus in our knee, we don't have any idea the impact these things are having for the most part, again, in recent years, we've had enough... Some researchers taking the time, scrounging around to get a few dollars of funding to find out, like you mentioned Polysorbate 80.

DR. WILL BULSIEWICZ: Right.

SHAWN STEVENSON: For example, and just like... Or this various food dyes, one of these red food dyes, have these clear implications with contributions to ADHD in children. Right? It takes all of this work, but again and we think about how many years have people been consuming this stuff? How many people have been harmed? And so that's going to lead me into asking you about another one, and I'm just going to pitch it out there to you.

DR. WILL BULSIEWICZ: Okay.

SHAWN STEVENSON: What about Pesticides? Rodenticides? Herbicides?

DR. WILL BULSIEWICZ: That's actually where I was going to go next, to be totally honest with you. Being completely serious. So we in the United States have very open policies when it comes to the spraying of our food with herbicides, and one specifically that I'm concerned about is glyphosate. Which is the active ingredient that you will find in Roundup being sprayed by the millions of kilograms in the United States and the millions of kilograms in Canada. These are practices that are actually being made illegal in Europe, as we speak, like Germany, for example, by 2023 will not allow this at all. Yet in our food supply, this is being done to many different types of foods, a few of the common ones, soy, corn, and we have to be very cautious with our whole grains. Now, one of the important points is that if you can purchase organic, then organic is by definition not sprayed with glyphosate, they're not allowed to do that. But let me just talk about wheat for a moment, Shawn, I think many people who know me or have read my book, know that I have a unique position when it comes to wheat. I'm not trying to be unique, I'm just telling everyone what I see when I look at the science, which is that I think that we've gone a little too far in terms of vilifying gluten, to be honest with you.

And gluten in a person with Celiac disease is clearly a problem. But is it really so bad for me to eat a slice of a really nice sourdough bread? Am I really causing harm to myself in doing that? Do I think that sourdough bread should be the backbone of our diet? Absolutely not. But I also don't believe that we're causing any harm at all, I think that the fiber and the prebiotics compounds in that slice of sourdough, outweigh any concerns that exist with gluten. But this is the important point that I want to make, which is that, do I feel that there are problems with

wheat? Yes. Do I feel that there are some justifiable problems with whole grains? Yes. I just think that we are reacting to what we see occurring to some people when they consume these foods or how we personally feel when we consume these foods. And I think there's something going on there. And the point from my perspective is, I think it's actually this. I think it's that we're spraying our wheat with glyphosate, which is a desiccant used to dry out the wheat, that accelerates our process. And you harvest the wheat, you spray it with the glyphosate, it dries out faster and you move on.

And I'm concerned that this is actually the cause of the problems that exist with these types of foods. When you have wheat that is not organic, is being sprayed with glyphosate. When you have whole grains that are not organic, they're being sprayed with glyphosate, and this causes issues and is disruptive to our gut microbiome. The research is emerging, Shawn, the first study that came out looked at the microbiome of bees, like honey bees, but we have new studies in humans that are suggesting to us that glyphosate does indeed cause harm to the microbes in our gut. And so for that reason, from my perspective, I buy organic whenever possible, and I'm happy to talk more about some of the approaches that I take to make it more cost-friendly, but the point being that that's part of the reason why I do it.

SHAWN STEVENSON: Oh, it's so good. This is... Again, this is a new phenomenon. Glyphosate is a new thing in human consumption, of course, but it's been going on for years now, but it's just a tiny sentence in the evolution of humans to have exposure to something like this, and so we know that there's going to be some implications with damaging our microbiome, which again, it leads to this cascade of other problems, and so folks to be mindful of that, and also, as you know, I wrote about this in Eat Smarter too. I had a little sub-section that was titled, when it comes to bread, there's two sides to every slice.

DR. WILL BULSIEWICZ: Yeah.

SHAWN STEVENSON: And looking at the pros and cons, because we're not here to villainize things, even with both of us were like... "Even with these hyperpalatable processed foods like, Listen, you're not going to die, you know, it's okay, but we need to put this in a proper perspective because we know what that does." But another one of these that I've been mentioning this whenever I get the opportunity and just being able to talk with you is definitely a good time, but Chlorpyrifos is another pesticide wildly used for many, many years, and it's been in and out of litigation; right now, it's caught up in red tape because it was going to be banned here. Because of the well-noted damage that it has been doing to the female reproductive cycle and causing deformities in children, miscarriages in pregnant workers who are exposed to Chlorpyrifos. But most notably, there's a peer-reviewed study that we'll put for everybody in the show notes it's a peer-reviewed study indicating that Chlorpyrifos literally disrupts our microbial gene expression, so not only are we talking about our human genes, but

being able... Our trillions of bacteria that we have, they have their own genes as well, and if we're going gene for gene, 99% of the gene we carry is microbial. And this stuff has been found to cause disruption to the expression of our microbes' genes.

What does that do to our expression? And so taking this into consideration and why... First of all, why was it put into circulation in the first place, and now that we have this data, why is this still going on?

And the bottom line is, and we talked about this before we even got started, the bottom line is, these organizations are making money from it. They found these systems, they've been able to penny-pinch and find a way to provide these foods for themselves, the production cost as low as possible and make the greatest return on these things, and these processed food companies, their goal is not to give you great health, that's not what they're setting out to do, they're there to move products.

DR. WILL BULSIEWICZ: Right, that's what the CEO is judged on. The CEO of these companies is going to be judged on dollars and cents, they're trying to make as much as possible. And when you can create an arrangement that allows for mass distribution of your products, it's all about scale, it's all about scale. If you can create more scale for your products by having mainstream use of genetically modified seeds or the use of this in the food industry on wheat, then that's how you get rich.

SHAWN STEVENSON: If it don't make dollars, then it don't make sense. That's the mantra. We've got a quick break coming up, we'll be right back.

Researchers at Yale University School of Medicine, the research has found that one of the biggest culprits behind our obesity epidemic is neuroinflammation. Brain inflammation increases the propensity of obesity, and obesity increases the propensity, the likelihood of neuroinflammation. They go hand in hand. So we've got to address this. One of the things that's been proven to help to reduce neuroinflammation is cited in a study published in PLOS ONE, in Public Library of Science One, revealed that the super green algae Spirulina has the potential to, one, improve neurogenesis in the brain.

So the creation of new brain cells, specifically the hippocampus, is where we get a lot, and the hippocampus is the memory center of the brain. This is kind of important, and two, the study revealed that Spirulina is able to directly reduce neuroinflammation. It's incredible, it's helping the structural integrity of this master gland, this master organ controlling everything about us, the most complicated object in the known universe is also one of the most fragile. We've got to protect it.

This is why, for myself and my family, Spirulina, Chlorella, Ashwagandha, all of these powerful foods are put together in the incredible blend at Organifi, and this is a regular staple here in my family, for good reason. Spirulina, being one of the highlighted ingredients, not only does it have this benefit for neurogenesis and neuroinflammation, but also has rare nutrients like phycocyanin. The same thing with Chlorella as well, that phycocyanin is one of the few things that can trigger stem cell genesis, the creation of new stem cells. Very few things have been found to do that. And they had Chlorellas in the formula as well and that growth factor, the Chlorella Growth Factor is just remarkable, and also its benefits in helping your body to metabolize and eliminate heavy metals, and the list goes on and on. It's incredible.

But the bottom line is this: It tastes good. It tastes good. I've experimented for at least about 15 years of all these different green formulas, different greens and fruit blends, many of them is not very good. Okay, many of them. They shall remain nameless but I've tried them back in the day before tasting good was an option, just like just get it in by any means necessary, if you got to do the whole pinch the nose and get it done. Whatever.

But now, pleasure leads to longevity, pleasure leads to taking a practice on it and imbibing it and making it a part of your routine, your habits, your daily life. So this is why I appreciate the fact that they created a formula that actually tastes good, all organic, cold processed, so you actually retain and get the nutrients that we're looking for in Organifi. So pop over there, check it out, it's Organifi.com/model. That's O-R-G-A-N-I-F-I.com/model. And you get 20% off, 20% off their green juice formula, their red juice formula, and also their gold as well, so they've got some incredible blends all done the right way, with integrity, again, organic, low temperature processed and yummy. Organifi, you've got that yummy, yummy. Organifi.com/model and now back to the show.

So I want to ask you about this because, again, and first of all, I want to pitch you this question, have you... Firsthand, and I know the answer to this already, but seeing these conditions rise in recent years, but I know that a lot of folks are struggling with this, this could be some of the most difficult, it's really a nuisance in people's lives, it's difficult to deal with, a lot of suffering involved, issues like Crohn's, issues like Colitis.

Number one, have you seen those firsthand, you're there doing this work, seen these issues increase in recent years, and what are some of the underlying causes that are the contributing factors to the increased incidence of these issues that folks might not realize?

DR. WILL BULSIEWICZ: So Crohn's disease and ulcerative colitis, and I think this in a way almost opens up into a larger conversation about autoimmune type issues or what I would describe as chronic inflammatory conditions. Crohn's disease and ulcerative colitis are things that I treat

in my clinic routinely. I see patients every single week that have these conditions, I just want to describe briefly what they are for people who may be at home wondering about this. We describe these two conditions, Crohn's disease and ulcerative colitis as inflammatory bowel diseases, inflammatory bowel diseases. And the reason that they exist is that our immune system actually goes on the attack, but it's not actually attacking us, which is kind of interesting, Shawn. A lot of people believe that these are autoimmune issues, believe it or not, they're not actually autoimmune.

They're actually attacking our microbiome, which technically is not part of us, but it kind of is. And the fallout is that this war that takes place where our immune system is going to war against our gut microbiome. Well, there's going to be some fallout. The fallout is inflammation that exists, like literally exists within your digestive system as ulceration, bleeding, redness, and I see it during a colonoscopy. And there's two types, ulcerative colitis. Ulcerative colitis by definition is only in the colon.

So during a colonoscopy, you will see it there. Whereas, Crohn's disease is a little bit different. Crohn's disease can be different for different people, because it can involve anywhere from the lips all the way down to the bottom. But it's again, an inflammatory condition motivated by the immune system attacking the microbiome. These things are massively on the rise, Shawn... Massively on the rise. And they're not the only ones. There are many others. I see way more celiac disease today than I used to. There's a new condition called microscopic colitis that literally, basically didn't exist when you and I were kids, and now I'm diagnosing it literally every week. So things are definitely changing. And they actually have some data out of Minnesota where they looked at a community where it's like a community that didn't really move around much, and they tracked them, from the 1940s moving forward. What they discovered is that from the 1940s up to the late 1980s, early 1990s, they had more than a tenfold increase in these conditions during that period of time, so like 50 years, tenfold increase.

SHAWN STEVENSON: Oh my god.

DR. WILL BULSIEWICZ: And we're seeing the same thing happen actually in third world countries as they industrialize. So places like Brazil, China, they never had these issues until now. As they have industrialized, they've started to see the emergence of these inflammatory bowel diseases. Crohn's disease and ulcerative colitis.

Where does it come from? Clearly, it is not exclusively genetics, because when you see diseases emerge this rapidly, half of a century, that's not changes in our genetic code. Our code doesn't change that quickly. It is not evolution. Something has changed in our environment. And these are environmental influences. Is there a genetic element? Of course, there is a genetic element. There are people who have families where there are multiple family members that

have these conditions. So this part of it is genetics, but this is not purely explained by genetics, and it's not so simple as, "Hey, check a gene and see if it's there, and that will tell you whether or not this person is going to develop Crohn's disease or ulcerative colitis." That doesn't exist. So it's an environmental thing.

What is it? What is it in our environment? Well, look, I kind of have already alluded to this, which is that the immune system is attacking your microbiome. So this is a change in the microbiome. So think about the things that can leave an imprint or cause a change to the gut microbiome, and the number one thing is food. The number one thing is food. And then we can go beyond food. I'll come back to food in a moment, but we can go beyond food and look at other things that exist within our lifestyle. These conditions we see more frequently in people who live in cities, urban environments. We see these conditions more frequently in people who come from a very sterile environment, very sterile background.

So what I'm talking about is people that did not have pets when they were kids. People that did not have siblings when they were kids. If you had brothers and sisters, if you had pets as a kid, you were actually less likely to be diagnosed with these conditions. Think about the world that we live in, Shawn. The things that we put on our body when we take a shower. The things that we swallow that are in our food system that you and I have already talked about, and I'll talk more about that in a moment. Think about the water supply and how that's changed. Think about how much our life is different today compared to the life that our great-grandparents lived 100 years ago. We hop in our car, drive where we need to go. We consume this hyper-sterile food. We don't come into contact with animals. We spend no time outdoors, we do not exercise. We watch television, or we check our phones all day. Times have changed a lot, and this is probably part of the explanation. When a person is diagnosed with ulcerative colitis or Crohn's disease, I want them to know that you didn't do something wrong.

You, by living in the United States are at increased risk of being diagnosed with these conditions and you can do everything right, and it could still happen. Now, with that being said, there are definitely some dietary elements that we believe are a part of the story. It's a little bit tough, Shawn, because we're talking about conditions that, ulcerative colitis and Crohn's disease, between 1 in 5000 and 1 in 10,000 people per year will be diagnosed with one of these conditions. 1 in 5000 to 1 in 10,000. That's not... There's not a ton of people being diagnosed every year, it's a lot more than it used to be. But because it's such a rare condition makes it a little bit hard to study, 'cause a lot of times the studies that we will do... You're not going to do a randomized, controlled dietary study to see who gets Crohn's disease. You would need a million people to do that. It's impossible. So most of the studies that we have, we have to be very cautious in the way that we interpret them. And the reason why is because a person gets diagnosed with Crohn's disease, and then we ask them, So what were you eating?

And there can be a bias that comes from that. I just got diagnosed with this condition, so I'm going to say that this is what I was eating, because I'm worried that that's what caused it, you know? So nonetheless, here's what we do see. Multiple studies have consistently shown that dietary fiber is protective, and the mechanism makes sense. Dietary fiber comes into contact with gut microbes that produce short-chain fatty acids. Short-chain fatty acids are anti-inflammatory.

So that part, I believe, and I feel that we can lean into that with confidence. More recently, there was a study that came out suggesting that ultra-processed foods are substantially increasing our risk of developing inflammatory bowel diseases. Here we go again. And specifically in that study that you were talking about, polysorbate 80, carboxymethyl cellulose, and you and I are talking about these, but yet there's definitely other parts of the food system that we just don't know about yet. So we're talking about what we do know. There's so much that we don't know, but yet, when you look at this class of foods, they appear to be problematic. And there was also... There's also been concern, Shawn, with Omega-6 fats and inflammatory oils, and it speaks to fried foods. There's a lot of fried food consumption in our society, and there was a signal that came out of a recent study, and there was a prior study in 2011 where it was suggested that the Omega-6s may be problematic.

Going beyond this, whether or not saturated fats and meat consumption are driving this issue, the way that I interpret the studies is this, I don't think that we should be consuming these foods to excess. Can we consume them in balance with a predominantly plant-based diet, and have a healthy diet that reduces our likelihood of developing these conditions? 100%. So, I think it's important to kind of see the full picture, here's the pie as it currently exists, the current pie is sliced up where only 10% of our calories are coming from plants, 60% are coming from ultra-processed foods, and 30% are coming from animal products like meat and dairy. So what I'm just saying is, 90% of the pie right now does not include fiber. And I would like to see it shift towards a pie where most of the pie is food that contains fiber, and with what's left over, say the last 10% or 20%, you can do whatever the heck you want. And because you run a plant predominant diet, it's a healthy diet.

SHAWN STEVENSON: You know what, this is so simple, you know? And it boggles my mind, and you being somebody who's an expert in this field, where we have folks experiencing these really devastating conditions with their gastrointestinal tract, and the way that our system of training for very intelligent, very altruistic people who are willing to help these folks to find solutions, they're trained to target the symptoms. And oftentimes don't even connect the fact that we're literally trying to treat the gastrointestinal tract, not putting the connective tissue together that what I'm putting into the gastrointestinal tract through my food, what I'm eating is causing the problem.

DR. WILL BULSIEWICZ: Right.

SHAWN STEVENSON: You know? And this was a big revelation that you had in a shift in your practice and just your life period, when you realized like, "Wait a minute, what we're putting in here, it's directly in the environment." You said this multiple times the environment...

DR. WILL BULSIEWICZ: Right.

SHAWN STEVENSON: Is causing these issues. And so, instead of symptoms management and attacking symptoms, which again, we want solutions, we want to feel good, we want to get relief, but if we don't remove the underlying cause of what's the underpinning of the increases in colitis and Crohn's, and we're still trying to figure out what those things are, and I know you know this as well, it's going to be different from person to person. It's going to be an expression, like, somebody might have a genetic predisposition towards that being the outcome.

DR. WILL BULSIEWICZ: Right.

SHAWN STEVENSON: Where somebody else, they might have the same diet and their expression might be rheumatoid arthritis or migraines, or whatever the case might be, but here's a thing for us to not glance over, when you mentioned a genetic similarity with folks, if we've got folks who have the same "gene... " I don't even know why I said "gene." Genes are not quotes. But more so I'm saying a gene for colitis, which we... That isn't just one thing. We also have to look at, these folks might have the same genes, but they very likely have the same diet. They very likely are... They're in the same environment, and so you don't just hand... Pass down your genes to your offspring, you also pass down your cookbook.

DR. WILL BULSIEWICZ: Yeah.

SHAWN STEVENSON: Or lack thereof.

DR. WILL BULSIEWICZ: Yeah. It's so true.

SHAWN STEVENSON: And this is really the issue that we need to be talking more about.

DR. WILL BULSIEWICZ: Yeah.

SHAWN STEVENSON: And so, thank you so much for talking about this and kind of shedding a little bit of light on these issues. And it's top of mind for me because in my clinical practice in the last maybe a year before I just shifted to teaching and writing books, I had somebody come

in, she was dealing with colitis for many years, and being able to see such relief and remission by making some changes to what she was doing. She didn't even know it was possible. And this isn't going to be the case for everybody, but if we could start to look at what are the factors that are underlying the condition? And it's not always food too, that's another thing about you that I admire. And I want to ask you about this, at least before I let you go, we got to talk about this, but what about stress?

DR. WILL BULSIEWICZ: Dude.

SHAWN STEVENSON: This isn't something that's talked about when it comes to the microbiome.

DR. WILL BULSIEWICZ: Yeah. No, I think this is a critically important point, and honestly, I'm glad that you brought it up, because I feel like when we get outside of the nutrition space and we start talking lifestyle, we often focus on exercise and sleep, we might talk about meditation. But are we being real when it comes to talking about stress and what's going on in our subconscious? Because the most challenging patients that I take care of are not people who have complex digestive issues, the most challenging patients that I take care of, Shawn, are the people who have been the victim of abuse, trauma of some variety.

That trauma leaves an imprint on their soul, on their subconscious. It's a wound, it's an open battle wound. And it's easy because... It's easy to ignore it because it's easier to just avoid something that was traumatic and that hurt you, and to not turn towards it but instead to walk away from it. And the problem for these people that I've discovered, Shawn, and I think this is directly applicable to people that have inflammatory bowel disease, but I think it's directly applicable to everyone who has complex health issues, what I've discovered is that the solution to those issues is not to focus on your nutrition. The solution is actually to recognize that this traumatic event that occurred to you years ago, or this history of disordered eating and having an unhealthy relationship with your food, this is actually continuing to linger and cause problems.

And it's important to turn your attention directly to it, and with the help of an appropriate care team, like, what, health care professionals who you trust, let us lift you up. But ultimately you need to turn towards this problem and have a solution, have a plan to take it head on, because when you fix that, when you actually heal the wounds from that prior trauma or from that history of disordered eating, then actually true health follows further after. And what I've seen is actually amazing recoveries in many of my patients who suffer and they never get better, and so you actually go and address this specific issue.

SHAWN STEVENSON: That's so powerful, so powerful. Just recently I talked to a mutual friend of ours, Dr. Uma Naidoo, a psychiatrist out of Harvard but also brilliant specialization she has in nutrition, and she's created a department at one of the offshoot hospitals there in Boston where they use nutritional therapy for psychiatric issues and also chronic diseases and the like. It's really great. And she shared with me that... And this was based on a study, this was published in BMC Microbiology, which I had the chance to go and look up after she shared it, that in the study we found that just two hours of psychological stress can create dramatic changes to the bacteria in your gut. And it's just like this stuff, scientists are asking these questions and the data exists, our thoughts dramatically affect our biochemistry, which is, of course, going to affect our microbes instantaneously. And so if we're existing in this state of habitual chronic stress, which again we talked about before the show, that people are just inundated with so much stress and worry and fear today.

And largely, in our society, we've got a lot of creature comforts, like life is good. We don't typically have to worry about a mountain lion jumping on us, or we don't have to worry about a rival tribe. For the most part, there are some people... Again, I come from an environment where there are some different sets in there, there are some potential violence in the environment, but it's nothing like what our ancestors experienced. But they would experience those things in small peaks and then get back to baseline. Today, we just have this chronic, consistent fear, anxiety, worry that is just rampant in our culture, and we don't realize that that is deeply influencing our microbiome, which, as we've talked about multiple times today is, in many aspects, it is the garden from which our health is springing from. And so what is the fertilizer, what is the thought fertilizer you're putting on that garden?

DR. WILL BULSIEWICZ: Yeah. I think you're totally right. I think that... Obviously, we talked about some nutritional elements of things that can be done to try to grow that garden. We talked about eating a wide variety of different plants, focusing less on calories, focusing more on the varieties of plants in your diet. Right? Start counting that. But I do think that you make some great points with regard to this specific topic of stress. And I would just speak for myself... I would be curious, reach out to me on social media, theguthealthmd, and tell me what you guys have found that's helpful for stress. I personally have found that I am a much happier person when I am not engaging with the craziness that's happening out there, and the way that they want to whip me around with emotions, and taking a break when I feel like I need it.

It doesn't mean that I completely disconnected, I haven't. But what I am saying is don't allow it to consume your emotion. Check in when you need to check in, see what's going on out there, recognize that they're trying to whip you around, but create distance, and instead take that time and turn it towards things that bring you great happiness, like investing into yourself, investing into your relationships with other human beings. That's really what life is about. At the end of the day, these events that are occurring out there, they're not going to actually

determine who you are as a human being. You get to determine who you are, and it's your relationships that will make you happy.

And there are actually, Shawn, some pretty interesting studies, like you're bringing up some interesting studies, there are some very interesting studies on this topic where they look at shared microbiome among people that live in a shared place of dwelling, like shared residence, we start to take on microbial characteristics of one another. And they actually parse this out a little bit further, and they looked at people who were in relationships, and whether or not those relationships were high-quality, loving relationships, or whether it was a damaged, on the rocks type of situation. And they found that the people who were in these high-quality loving relationships who felt like they had good social support, their gut microbiome was far healthier than the ones who felt like they didn't have social support because they were in an unhealthy relationship at home. So, the science is emerging to confirm these suspicions that we have.

Another quick one. They went to kids, and they looked at their stress response at school, how much does their cortisol, the stress hormone, spike. And what they found is that if that kid had their best friend at school with them that day, the cortisol barely spiked. But if their best friend was absent, they saw a massive spike in the cortisol. We're social creatures; we're meant to be connected to one another. And so it's important to embrace those connections, and you and I, we both have big social media accounts, but I would rather be in person with you in Los Angeles, having a conversation for real. You know what I mean? And I hope that one day we get to do that.

SHAWN STEVENSON: Alright, it's already done. It's already done, hopefully it's going to happen when you got something really special that is about to happen. And this is the first podcast that you're making this announcement on.

DR. WILL BULSIEWICZ: That's true.

SHAWN STEVENSON: Tell folks about what you have coming up.

DR. WILL BULSIEWICZ: Oh Man, I am so excited. This is a big secret. Is a big secret that I've been holding close to my chest for a year and a half, with the success of Fiber Fuels, I felt like there was unfinished business. I wanted to keep going, I had people reaching out to me every single day, they wanted more, but for every single one of them, they're on their own unique journey. Not everyone is in the same place at the same time. We're coming from different perspectives, and I wanted to create something that would help these people who were reaching out to me, looking for the next step, the next level. And so I decided to create a cook book, but not just any cookbook.

I decided to create a cookbook that actually has a methodology embedded in it. I'm going to teach you exactly the process, to help people fix their digestive health issues and reverse their food intolerances. Because I wanted to create more recipes, I wanted 100 plus more recipes for people who want to keep following the path that I'm describing, who want to optimize their gut microbiome, I wanted that to be available. But I knew that that was a little bit of an exclusive thing, because there are these people who sit in a room with me every single day in my clinic, and they're not ready to eat that way, and I needed something that I could deliver to them that was for them specifically, to help them.

Yeah, this is crazy, man. I wasn't quite fully ready to announce, but here we are. We're going to announce this The Fiber Fuels cookbook is coming out in May of 2022. And it's available for pre-order right now through all the major outlets. And so for everyone who's out there, this book is for you, it has the recipes, it has the flavors, it has food from around the world, you're going to absolutely love the food, and no matter who you are, whether you have a healthy gut or whether you're trying to get a healthy gut. This book will help you on that journey, and so The Fiber Fuels cookbook comes out May of 2022, pre-order your copy now and can't wait to share it with the world. Thank you, Shawn.

SHAWN STEVENSON: Let's go.

DR. WILL BULSIEWICZ: Yeah, man.

SHAWN STEVENSON: As soon as I saw the book true story, my microbiome, my microbes, their attention perked up, their little antennas went up. It's very beautiful man, so beautiful. And that's a big part of our experience with food, is the aesthetic aspect as well, we're not just flavor monsters, contrary to popular belief, but eating is an experience, and the more joy we can bring into the process, the better, and so it's another resource to stack conditions in our favor. And you're one of my favorite people out here in this space, and this is such a great opportunity, I'm grateful that this is coming out in 2022, so we can make this a far healthier year for our families and communities and make sure that 2022 is not a repeat of 2020 too. And that's really the goal. And again, I'm just grateful for you, and I want everybody to definitely pop over pre-order the book right now, at all the major retailers, Amazon, we've got Barnes & Noble, but also is there... Do you have a website for folks to go?

DR. WILL BULSIEWICZ: Yeah, well, you can go to www.theplantfedgut.com that's my website. I'm going to have everything there, ultimately, there will be a website at the plantfedgut.com/cookbook, and there's going to be resources there, there's going to be giveaways there, you preorder this book, I'm going to try to shower you with gifts if I can. And you brought up an interesting point, Shawn, food is supposed to be one of life's greatest pleasures. And it's something that most of us do two or three times a day, and I wanted to

create something that allows everyone to enjoy their food the way that we all deserve to. That's where we all want to be.

SHAWN STEVENSON: That's what it's all about. And again, I appreciate you so much for taking some time and hanging out with us today, and congratulations, this is a really, really special book, and it's a gift for all of us, so appreciate you, man.

DR. WILL BULSIEWICZ: Man, I appreciate you too. Thank you so much for having me on and I look forward to continuing this... You and I could talk all day, my friend. It was a lot of fun.

SHAWN STEVENSON: Of course, of course. And we will, we're going to keep the conversation going. But everybody, make sure you check out Dr. Will Bulsiewicz's, brand new book, new cookbook on pre-order right now. So head over and pre-order your copy and make sure to follow my guys when again, one of the best people on Instagram, he talks a lot about the art of poo, [laughter] as well and so it's always good to see the science and the quips and all the stuff that you share, man, it's really amazing. So you're the man, and I look forward to talking to you much more soon. Dr. Will Bulsiewicz everybody.

DR. WILL BULSIEWICZ: Thank you, my brother, and thank you everyone at home for hanging out with us today, y'all take care. Have a great one. Be healthy in 2022.

SHAWN STEVENSON: Let's go. Thank you so much for tuning into the show today. I hope you got a lot of value out of this. One of the things that really blew me away about this episode, was the correlation that our gut bacteria has on our relationships. That is absolutely mind-blowing. Having a healthier gut integrity, a healthier microbiome is showing up as one of those things where we're seeing this correlation with healthier relationships. And having poor gut health, having poorer relationships. Now, this... Again, this is correlation, not causation. But it's definitely something that should require some more inquiry, because literally, if we're talking about this, we could talk about this from a meta perspective or a metaphysical perspective of those gut instincts, and trusting your gut, and having those relationships, and being able to have good communication all these things. Our microbial network is of the utmost importance when we're talking about communication within our bodies. This is a microbial community, and when the communication becomes awry, so does our health. And so these two things kind of pin-ponging back and forth with our relationships being affected by our gut health, that should just make us all stand at attention and check that out, look into it more.

And really understand how important our gut health really is or every aspect of our health, whether it's our body composition, whether it's our resistance, our defense against chronic diseases, or whether it is in our mental health and our emotional health, and also our relationship health as well. Again, I appreciate you so much for tuning in to the show today. If

you got a lot of value out of this, please share this out with your friends and family and tag me, I'm @Shawnmodel on Instagram and tag the gut in... Tag Dr. B, he's @theguthealthmd on Instagram. Alright, let him know what you thought about this episode, and we've got some incredible guests, master classes coming your way very, very soon. So make sure to stay tuned. Take care, have an amazing day, and I'll talk with you soon.

And for more after the show, make sure to head over to themodelhealthshow.com, that's where you can find all of the show notes, you could find transcriptions, videos for each episode, and if you got a comment, you can leave me a comment there as well. And please make sure to head over to iTunes and leave us a rating to let everybody know that the show is awesome, and I appreciate that so much. And take care, I promise to keep giving you more powerful, empowering, great content to help you transform your life. Thanks for tuning in.