Your Gut's Role In Blood Pressure Balance Transcript

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Introduction to Gut Microbiome and Cardiovascular Health

Welcome back to the summit. And today I'm very excited to introduce a dear friend James Marin he is an integrated registered dietitian and has some amazing insights on our gut microbiome and how it interplays with our health.

So how are you today, James? I'm doing great. I'm excited to get into this topic and educate a lot of folks. Yeah, it's great. Fantastic. Well, you're very good at education.

You distill things down and explain well. So I'm excited for everyone to really understand a few things. Regarding the gut microbiome, it's a real hot topic, but maybe we can start with what is the current understanding of the relationship between the gut microbiome and hypertension and cardiovascular health in general?

Yeah, I mean, this really there's always this access. So I think a lot of us have heard of like a gut something access a gut brain gut environment. So really the gut is the nexus of all health on the planet that we say.

And and really when it comes to cardiovascular health and blood pressure, it's no different, right? So there is a gut nervous system access where we are seeing a lot of really, really solid data and research show that the gut microbiome and specifically microbes in our gut will affect our blood pressure, will affect, in essence, our nervous system and our stress response to a lot of the things that can happen.

Right. And really, we we break it down into chemical, physical and emotional stress. So everything in this world can fall into one of those three categories, which we can expand on.

But yes, most definitely these factors are playing into the gut microbiome, which is then playing into blood pressure, hypertension and cardiovascular health for sure.

So can we get into the specifics of how gut bacteria actually play in their role? Of course, A certain. Maybe it's the metabolism of compounds or what exactly is going on.

Right? So so there's there's a nervous system induced hypertension. And so really, this is where your brain is maintaining a high level of pressure in the body.

And this really speaks to the gut microbiome creating about 70% of our neurotransmitters. So that is one major, major aspect in and of itself. So where the microbes in your gut are responsible for these neurotransmitters that help regulate everything from appetite to your mood to the pressure systems in your body?

Another big aspect to this is what's called the sympathetic and parasympathetic nervous system, right? This is the fight or flight, but really it expands into fight or flight freeze or fun, right?

So there's many layers to this which we can explore, but really it's how you're responding to stressors. So this can be through your diet, this can be emotional trauma, this could be physical.

Like you just get into a car accident and you're like, Oh my gosh, your heart, your heart beats racing, your stomach hurts. You're definitely not thinking about eating a big meal after a car accident.

You're definitely not thinking like, I got to use the restroom right now. Right? You're kind of all tensed. You're tightened up.

Gut-Brain Axis and Stress Responses

You're probably not going to have a bowel movement unless it's something really scary. And it may have a bad

movement, but typically we're in this we're in this fight or flight response.

We are not not an arrest and digest. Right. We're not digesting. We're not eating. We're not using the restroom. So unfortunately, it doesn't take a wolf or a car accident or really much to put us in that in that kind of state of mind.

Really. It is an email from a boss. It could be an overabundance of desk work or it can be, you know, something happening in the family that really stresses us out and almost mimics that kind of response.

So that is, in effect, shaping what studies are showing, shaping the microbiome in your gut, shaping the population in your gut, killing off some of the population while enhancing others.

It's also going to shape how we eat. Right? So typically when we're when we're more stressed and in that fight or flight, the after effect is to replenish.

And it's typically what we're finding with especially the US population is I'm going to replenish with some alcohol, I'm going to replenish with some nice sugary and salty and crunchy foods, right?

That really hit that bliss point, which is an industry term for a really hyper palatable food. And what that does is it elicits just a wonderful effect on our nervous system.

Right? It gives you that just dopamine that helps to counteract that cortisol. Cortisol, and it helps us kind of relieve the stress in your body really in a fast way, but not necessarily in a healthy way.

So then you get that really right there. And then is a double whammy where you've you've kind of had actions in your life that alter the gut microbiome and then you follow it up with a quick fix that continues to alter the microbiome in a negative way, leading you somewhat down a rabbit hole where you're just kind of digging yourself deeper into the hole.

And what we find is as you continue down these kind of unwanted habits, it becomes harder and harder to pick yourself back up out of that hole. Because as you continue to do damage to your gut microbiome, it's harder to bounce back from that stress, from that anxiety.

And this is where we find people in kind of a depressive state in that depression. Right. It's really your gut microbiome has been hurt. You're maybe not doing anything to help it replenish as well as it could.

So now when life stressors come, it's harder to get back out. Right. And this speaks to not just depression, anxiety, but it really speaks to then that hypertensive state to the health of the rest of your body.

Most importantly, that cardiovascular system that needs a healthy and specific balance to function properly. So I know it's a lot there, but, No I think it speaks to the importance of understanding.

There are many layers to a complex disease, especially when it comes to cardiovascular disease. So hypertension is usually, you know, it is the actually number one killer.

If you look at it across the entire world because of what it causes, increased risk of heart attack, stroke, renal health, all these different things.

And it's a silent progression of it that's so deadly. And when we get to the microbiome, I really I really find that the mental health piece, the stress anxiety, that parasympathetic sympathetic balance, it's such a fascinating topic.

So can we speak a little bit to the gut brain axis? Like what's going on that, you know, the brain in the gut or speaking to one another? How does that happen?

And then what can we do to make it a better environment with our microbiome? Because you said there was as difficult to replenish. How do we even start?

Yes. And really, that story really began. And so something called the vagus nerve. So we do have this very, very it's one of the it is the largest cranial nerve and it really resembles a tree root.

And that's it's very, very symbolic because really the gut we're kind of like this inside out ecosystem where the outer ecosystem resembles our inner ecosystem, which is our gut microbiome.

And it's fitting that we have this like big tree root that's coming from the base of our skull into basically the rest of our body. Definitely the gut.

And this vagus nerve is that superhighway, that connector, that that communication. And this is where you'll see people with severe like functional GI disorders.

And one of the treatments, it's not not as common today as it used to be, but you can cut your vagus nerve and just go, Well, hey, your TV's not working.

Let's unplug it and leave it unplugged. You're like, Well, wait a minute, that doesn't fix my my TV or my electrical problems. Just cut the power or cut the plug.

And so you find like, okay, your symptoms are gone, but now you've lost this, this extremely important connection of communication. So the story is communication of your brain and your gut.

And there's actually more signals going from your gut to your brain than in your brain to your gut. Right. So as we've been learning this over the past two decades, more and more and diving deeper, we're finding one specific genus that that really stands out, which is Firmicutes and the really cool thing here to understand is there's not one type of genus of microbe that's like they're bad, even if you I think some of the more common ones is commonly known bacteria is E coli.

Or if we think of like Klebsiella or, you know, these common names that we hear about in the news, that's not to say let's kill them all. Let's let's just do away with these bad guys that are that are wreaking havoc and maybe can lead to high blood pressure.

So in this case, that's the Firmicutes So where we do find certain strains of Firmicutes that are higher in the gut due to antibiotics, due to poor eating habits, and the list can go on and on with those stressors.

That's sad to say. Let's let's do away with all the firm recruits. Right. Because on the flipside of that, the same genus can have species that are beneficial that can also help to lower blood pressure.

So it's really understanding that this is a really complex ecosystem. And just like in the outer ecosystem, rats can be a problem, rodents can be a problem.

But we're not going to say, let's kill all the rodents because they're food for beneficial animals. They're they themselves can be cleaners and be beneficial to the environment.

Right. So it's really important to understand when we're talking about really helping the gut microbiome and we're talking about helping all of the microbes, even the ones that are bad and good and really helping them find a balance.

So then the question is like, how to help them find a balance, right? And it really is finding that homeostasis and in the gut it's called the you biases, where all of these microbes are just are just happy with one another.

They're helping to balance each other. And we're really finding that.

Repairing the Gut with Fiber and Plant Foods

So so the simple version of this is going really, it's about adding more food. And I know a lot of our patients are like,

what do you mean, add more food?

Like, that's that's kind of crazy. You want me to eat more? And it's like, yes, you can eat more, but it's eating the right types of foods. So, you know, this, this, these types of microbes really thrive on resistant starches, on foods that kind of resist digestion and make it to the colon where most of our microbes are located in our body.

And so when we're talking about what foods specifically you're talking about things like sweet potato, you're talking about definitely well researched foods that are prebiotic.

But really all these plant foods are prebiotics in various ways. But we're definitely talking about the potato category of any purple, sweet white yellow potatoes.

You're talking about other starchy vegetables like carrots or rutabaga. You're talking about squashes. One of my favorites is Caboolture Squash. It's just a beautiful, nutty, a sweet and starchy squash that you can enjoy, that your microbes love to eat.

So when you're eating these colorful, starchy and again, they don't always have to be starchy. But what's special with starch is that a lot of this starch is resistant.

It gets to the colon and it feeds these beneficial microbes. What's happening then is the microbes are eating this food. The microbes can be what's called a probiotic, meaning they elicit a beneficial effect.

And that beneficial effect is making a gift that we call post biotics, which then you absorb in the lumen of your colon and in your gut it goes into your bloodstream and it can have a direct effect on your bloodstream.

It can be everything from nitric oxide production. It can be basically even the epithelial cells of of your cardiovascular system. It can be the blood itself and everything in between.

Then helping you in this case, our focus is talking about hypertension. To have a better basal constriction or dilation of the cardiovascular system. It can help with blood flow, it can help with heart rate.

So all of these post biotics are doing amazing things. In this case, we're talking about the bloodstream and the cardiovascular system to help with blood pressure.

Even very much connected to that is the liver and liver health, right. We we're talking about the huge portal vein that's connected to the liver and understanding how the liver plays a role.

But really, the surrounding organs to the gut get this diffusion of these post biotics, which can help with your pancreas and your blood sugar, which can help with liver and your portal vein, which can help, like I said, with blood flow and the list goes on and on.

So really it's like it's like, wow, eating these plant foods. It's really this just diffusion of benefits and post biotics that flood your body and then we can get into the flipside of that.

What happens when you're devoid of this fiber and this plant foods and the starch? Well, then you're not getting this diffusion of benefits, right? You're not getting all these post biotics.

You're then lacking in nitric oxide and other beneficial B vitamins and phytonutrients. And so you're you're on a deficit and then your arteries are a little bit harder.

They're not moving like they should. You know, your veins aren't moving like you should. Your blood isn't moving like it should and your heart isn't pumping like it should.

And unfortunately, if you're not working with, let's say, an integrative doctor or dietitian to kind of help you understand this, you're then given a prescription and going here, just stay on this and good luck to you.

Have a nice day. Right. And that's not the end of the story. That's really the the beginning of your symptoms is really understanding like, okay, I have these symptoms.

What are they telling me? You know, really symptoms are your body's way of speaking to you and it's taking time to listen and to understand and then to translate those symptoms.

That's where someone like you comes in, you know? Laurie, that's where an integrative dietician comes in. That's where we can we can really find a care team that helps us understand our symptoms and really get to the root that is integrative care.

And yeah. Oh, that was fantastic. Fantastic answer. So I want to go down the one pathway where you mentioned like being devoid of these very beneficial post biotics.

Yeah. Talk to us to kind of what's going on in the environment of, you know, the colon, the GI system is like what are the triggers that cause this dysbiosis or this breakdown of this really complex society?

Basically, and what's the sequelae? And then maybe we can back up and okay, this is how we can start the repair, because I imagine a majority of people listening are probably in in a situation where they need to focus on improving their gut health.

So can we just maybe walk down how we get there and then how we back up? Yeah, and I know and we've been talking about this for a while and really in this and in our practice of our dietitians doing this one on one.

And I think one of the best analogies I can give is really do have a garden. I think a lot of us either have seen a garden, maybe, you know, one of you out there watching gardens or we know someone that gardens.

So we can kind of relate. And I think it's a perfect analogy where essentially what happens is it's like a garden that you've been mismanaging, right?

So imagine during the winter and you just see the soil's bare and it doesn't have a top cover. So the soil is just exposed to the sun and the elements.

That's essentially what happens in our gut. And for us, bring it back to to us humans. I would say one of the top three things we can do that's a detriment to our gut garden that would really leave that soil bare and make sure nothing is growing, is one not eating enough fiber?

So we can think of that. And let me just back up really quickly and say 95 to 97% of Americans based on USDA data are not eating anywhere near the recommended amount of fiber.

Right. So so that's a large, large percentage. And so when we're not in a fiber, we are essentially it's like not composting or adding mulch Tiergarten.

Right. To protect that soil. So what ends up happening is in our gut, the microbes are hungry for fiber. So what are they going to eat? They're going to eat your mucosal layer of your gut.

So we have this protective layer made out of carbohydrates, essentially like a fiber, a carbohydrate. And so the microbes like, man, there's nothing to eat.

We're not getting fiber. Maybe we're on a keto diet, we're on a low carb diet, we're on a carnivore diet. You know, we're going to eat the mucus. So then we start to eat the mucus and we start to just lose that top layer protection, right?

And that really opens the floodgates to what's called leaky gut, right, gut permeability, gut hyper permeability. And then we start to get Allard cheese right or intolerances to food because of this leaky this, then this leaking, it starts to create an autoimmune response or an immune response right in that gut, because right underneath our gut

lining is as a massive immune system network, right where we can start to get inflammation, we can start to get a cascade effect into that autonomic nervous system.

And the list goes on and on and on. You develop an autoimmune disease on top of hypertension and high blood pressure and issues with your cardiovascular system.

So going back, you think of like, wow. And then when you are exposed to beneficial bacteria and other microbes while your soil is dry, what happens when you throw great seeds?

So this is usually what people do is go, Well, I'm just going to take a probiotic supplement. I know I've been messed up, my gut. I've been on a carnivore akito let me just take these pills probiotic supplement that I found at Costco or Target or CVS.

Right. Well, that's like throwing seeds on your hard dead soil. What's going to happen? Or probably a bird is going to come and eat them, right. Or something.

They're going to or they're just going to roll away and blow off in the wind and nothing's going to happen. So now you're spending money on nothing happening and then you get frustrated and then you're like, nothing's working right?

So if we go back and analyze that, well, okay, these are things that are doing a detriment to our gut. Right. So you mentioned low fiber. Another one I'll add is antibiotic use.

It's very similar to synthetic pesticides and herbicides that we use on our soil when we spray that, we're killing vegetation, we're killing microbes.

So when we're doing that for people, the same thing is happening. We're losing that diversity. And then the third so again, top, top three things you could do that's really hurting your gut is the neurological aspects.

So in this, I would probably say in the US it's diabetes. We don't think of diabetes being connected with gut damage, but about, I believe the latest study when the statistics about, you know, 75% of diabetics have constipation.

And it makes a lot of sense because we think of diabetics as having neuropathy. Right. They can't feel their fingers in their toes. You probably know someone like this.

Maybe you're related to this or you're having issues with this. But, you know, and they also have issues with high blood pressure because of this, you're losing nerve function that happens in the gut as well.

Basically, one of the biggest nerve clusters is in the gut, outside of the brain. And you also get that interact with the in the gut. So you're killing nerve endings in the gut, leading to constipation, leading to really like kind of a halt of your gut where things just slow down right?

So a lot of times people aren't just having one of those things. It's all three of those things and there's even more. So now we go back to this garden picture and you soil's hard and dead.

You're not replacing the compost and mulch and then you're not active actively. They're trying to help. So your garden just just done, right. Really like that analogy.

But this kind of gets us to the next point here. So, James, please share with us now what's the next step that you were describing? Oh, my goodness. There's so much going on in the gut.

There's so much going on. But but, yes, but we go back to the garden analogy and we go, okay, what is the first step to rebuilding the soil? And here's the good news.

The good news is that just like if you if you see a empty, vacant lot, right?

Fermented Foods and Probiotics for Microbiome Diversity

And if you just leave it alone, meaning you're not you're not still, you know, removing the fiber, you're not adding the pesticides and herbicides, which in our case is antibiotics.

Right? In your act, you don't even actually have to sorry. You don't even actively have to be there. Right. So that third point of that neurological issue, in this case of the garden, you can just leave it alone.

So really, the first two, as long as you're not removing the fiber and you can lay off the antibiotics, think of it like an empty lot. When you leave it alone, what starts to grow some weeds and you start to see little plants grow.

And pretty soon if you continue to leave it, they get bigger and bigger. Maybe some trees start to grow. You see insects coming, which brings birds and then brings coyotes because rabbits are coming cuz ecosystems start to come back.

And really as long as you just take away the inputs that are doing harm, your gut can come back as well. And again, this is this is not a one size fits all medical advice.

This is obviously there's variables to this, but generally speaking, this is what happens. Now, if you also add positive things to that. So if we imagine that empty lot or that empty garden now if on top of leaving it alone in terms of not doing harm, we then start to add compost and mulch.

In this case, if you start to slowly increase your fiber intake, maybe you start with even something as simple as half a cup of beans or half a cup more of of healthy fruit like a dragon fruit or even apples.

And I tend to like more soluble fiber fruits, like, like a dragon fruit like kiwi, right? Where it's slimy, it's gooey. You can think of chia seeds fall into this category even though it's not a fruit okra, which is more of a vegetable technically a fruit.

But, you know, there's these slimy, wonderful, beneficial foods that you slowly start to add back in. It starts to feed those microbes, it starts to then rebuild that mucosal layer of the gut where microbes can thrive and live.

You start to really essentially repair that leaky this in the gut. And over time, if you really just keep doing that, it's just like you're planting and seeding that garden.

Over time you start to say, Oh, I never I didn't know wildflowers are going to grow this season. Oh, cool. I threw those seeds last season and it didn't grow.

But this season, wow, there's corn and there's watermelon, there's wildflowers and there's herbs. And so just as you see the diversity in the garden and all the plants that we have, the same thing happens in the gut.

Just just in the firm, acute. So like I mentioned, there are hundreds of species, right? So it doesn't have to get too complex in terms of like, oh my gosh, I have to eat all these types of foods now, especially if you're if you're starting like the average American in a fiber deficit, it's really as simple as like adding one new food a week and then go from there, right?

So it can really be small and it starts to ramp up and it can have massive and massively positive effects on your gut microbiome. So yeah. So I think that's really great to think about.

You're just stop doing what's so harmful. Get out of your own way. The body wants to do its thing, let it, and then you can put some inputs that will be beneficial.

Accelerate the growth and repair. But you had mentioned fiber multiple times, which, you know, I think the RDA

depends on the men or women, 25 to 35 grams, which I think is an anemic recommendation anyway.

Yes, but we're only getting what, 12 to 15 grams in the American population per day. So can you explain what exactly fiber is in the different types of fiber because you're exposed to the resistant starch soluble fiber and you know, can we just understand what that means exactly?

Yeah, of course. And that's a great question. And really, I mean, I love to talk about this because I think we should start calling fiber the essential carbohydrate. So really, carbohydrate fiber is a carbohydrate, right?

So we all know carbs and there's a lot of us out there. Like I said, carbs are bad. They make me they make me gain weight. They I don't like carbs, but really we should like carbs.

Carbs are great for you and fiber is a carbohydrate. And really I call it the essential carbohydrate because we don't make it in our body. Right. Plants make it.

We have to get fiber outside of our body. And so just like in the same way, we have essential amino acids and essential fatty acids, meaning we have to get that from our diet, we have to get fiber from our diet.

So that's first off, it's a carbohydrate that we need from our diet. And really you'll find it in every plant food, right? So from beans, peas, lentils to seeds and nuts and fruits and vegetables.

Right. So the fiber that we need now, there are different types of fiber. There's soluble fiber which we can think of like a mop. So it's wet and gooey and there's insoluble fiber, which is which is hard like a broom.

And I like to describe it that way because they kind of act in those functions in the gut, really, the insoluble fiber. The broom acts as a broom. It's sweeping your gut, it's cleaning, it's moving things along.

It's really it's more tough and durable and it's going to move. It's not going to get digested very well. Think of like corn skin. I think a lot of us can relate to that evidence of going acorn and I'm seeing corn.

So it's not the skin is not getting digested, but corn is also really great because inside is a more soluble, starchy fiber that does get digested and used by us and our microbes.

And so really you need both you need that broom fiber. And for many, many of us, we don't need we kind of can get too much of the brewing fiber. We tend to be like, I need fiber.

So you go to the you go grab that supplement. I won't name any name brands, but you grab usually it's a psyllium husk that's more the broom and you can kind of overdo it with that.

And now you're like, I'm constipated, my brooms are all stuck together, right? So that's what you need. Then that mop where the mop is also just kind of soaking up toxins.

It's it's also cleaning and helping with the movement, but in a different way than the broom. And that's going to be kind of like I mentioned, Dragon Fruits, one of my favorite kiwi okra chia seed.

So there's lots of that, just that sticky, gooey oats can be like that where it's just really anything that gives you that that goodness to it. And then kind of in between that you have resistant starches, like I mentioned, and you have other starches that aren't they're kind of in that they're definitely a carbohydrate.

They act somewhat like a fiber, but they're more of what's called, like I said, a resistant starch where they're also not getting digested, which can kind of sound like a bad thing.

But really it's a benefit because we are mostly microbes. We're superorganism, and that means we're one organism made up of many organisms. So in that case, we want to feed these organisms and we're feeding the organisms with fiber and with resistant starch.

So if you've ever noticed, when you make white rice and you're cleaning the pot, you made it in and there's really a hard, you know, sticky film on that white rice or a potato.

You notice the potato has a film on it and you kind of like I can almost like peel it off from the top of like your big potato. So that is resistant starch.

So when you eat that, that is essentially feeding a lot of these beneficial microbes that do everything from make you B vitamins to help regulate your blood pressure and help keep you calm and help regulate your nervous system.

So, yeah, this fiber is essential. This fiber is found in plentiful amounts in plants. And that's where if you start to eat plants, you start to eat more plants.

If you started a broader diversity of plants and you can do this slow. And I usually recommend what we call low and slow to do this, especially if you're not used to eating plants.

It's slowly helps to seed and nurture that garden. And that's why I go. That's why I like to put that garden out there and I go back to it because you can expect to harvest your garden the next day.

It is a slower process once you start caring for your garden and some time, let some time and some patience happen and you start to then be able to pick fruits and vegetables from your garden.

And the same is true for your garden, essentially. Yeah, but do we need to be worried about. So we're growing this special garden, the diversity because you mentioned, you know, we just leave it alone.

Is there anything that we need to be paying attention to or thinking about doing to introduce different types of strains or increasing diversity? Is there benefits to that?

Yeah. I mean, one one big recommendation. I mean, I'm not going to sit here and say never have a probiotic supplement. I think probiotic supplements definitely have their time in their place, but it's safer.

And I would say more general option is fermented foods. There's been wonderful meta analysis done on fermented foods showing, I mean, just how beneficial they are, everything from hypertension to even other neurological issues to diabetes to obviously IBS, Crohn's disease, I mean, showing the benefits across the board.

So and one of the studies did recommend ideally you're getting six servings of fermented foods a day that could seem pretty high to those who aren't eating fermented foods.

Dairy, Toxins, and Gut Health

So definitely the story of fermented foods then comes into play and going really if you think about it, all of our ancestors ate fermented foods because we didn't have freezers and refrigerators, we didn't have vacuum seal and all these preservatives to keep our food fresh.

So we fermented it right? And so we our guts that have been passed on and our gut microbiomes have been passed on to us are used to fermented foods. So we are seeing and there's there's some really cool research coming out that we've been talking to one of our gastroenterologist friends showing that in a study done with about 500 participants about about I believe it was 85%.

This is preliminary, but it'll be out soon. 85% had zero to minimal lactobacillus species. And so lactobacillus is one of the most dominant, prominent and beneficial species in our gut.

And it helps in so many different ways. And to see people that have 0 to 2 just extremely low levels is highly alarming. So that really speaks to the need of many out there to get in lactobacillus and other beneficial genes and species.

And you're going to do that from fermented foods. So some of our fermented foods is an actual really great yogurt, fermented yogurt. Kieffer So it could be as easy as adding some of the yogurt to a smoothie, pouring some of the key fur into your bowl of cereal sauerkraut.

So sauerkraut pretty much goes on top of any savory dish, whether it's like an Asian pokeball or you're doing some type of other casserole dish, just throw a little blah, blah sauerkraut on it or sour cream I think a lot of people like.

And that goes, well, I'm Mexican and you can pretty much throw sour cream on anything. So an actual sour cream that isn't pasteurized and killed two deaths.

So we need to then understand how are we finding healthy fermented foods? They shouldn't be completely pasteurized where you're killing off all the microbes, you still get some benefits, but you're usually finding these in the refrigerated section usually, and finding them that are saying they're not pasteurized, but they're maybe they've been they've been help with high pressure, high pressure pasteurization, which is a different technique than just heat.

They're still alive and in the refrigerator are some of them aren't pasteurized, which is fine, but they're tested for their microbial levels. A different way to make sure.

Oh yeah, it's mostly lactobacillus, which is safe and it's going to have a benefit into your body. So we could do a whole talk on just fermented foods, but getting those fermented foods in is key number one tip for sure.

So perfect in mentioning sour cream, of course, probably want to focus in on the non dairy type research. Yes. Or some of the other so to speak to. We can make this the last question and I've been keeping you longer, but can we talk about dairy?

Because I find that the one thing when I introduce the whole plant based diet is dairy seems to have such a profound effect on the ice. And so in this case, if you can speak to that a little bit.

Yes, most definitely. One thing I'll say with with the gut microbiome is it's one of our primary detox. It's hard to call it an organ, I guess. I mean, some are calling the microbes in our gut and organ system because they're so, so important which which I'll go with.

So it's one of our primary detox organs as well. And the number one source of dioxide and which is one of the number one toxins that we are exposed to, is coming from animal sources of food, primarily dairy.

And there's a lot of research that that is being done, and there's more that's not being done because we're not liking what we're finding. We're not only we finding really, really harsh environmental toxins in dairy, but we're really finding harsh forever chemicals in dairy like PCBs and PBDEs.

So there is hard because it's like we're touting the benefits of a dairy, right. Animal based dairy or not factoring in. There's also huge, huge detriments to it because it is a breast milk.

We are getting whatever that cow or goat or whatever type of of dairy or consuming essential like to call it whatever type of breast milk you're consuming.

That animal that mother you're consuming it from was likely highly contaminated. And you were going to get that in that breast milk. And so you have to factor that in on top of the fact of really the the sugars and the the other nutrients in dairy is not conducive to most gut.

Right. Sure, you could take a Lactaid supplement. You could take supplements to help you digest dairy properly. But once you do that, then then where are those nutrients going?

Right. It's usually causing some more stomach upsets, usually causing a dysbiosis in the gut on top of then adding in more environmental toxins that then your gut microbes have to detox.

I will speak to the fact that then people say, well, you have to do raw dairy, you know, don't get it pasteurized. That's the problem. They're killing off all the beneficial microbes, you know, in dairy.

That really doesn't factor in for the fact that, one, it's not your milk. There's more than just microbes there. There's hormones and there's other nutrients that aren't conducive to human health.

But even if we stick on the microbes, why, you know, coconut kefir and cashew kefir and, you know, cashew based sour cream will still be hugely beneficial in terms of the microbes.

And then you don't have to get it from an actual, you know, animal. You're getting it from a cashew or an almond, right? So you get the benefit without the risk.

And really that's the name of the game. If I can have less risk and more benefit, why wouldn't you opt for the healthier plant based fermented dairy options?

Right. So it's kind of a no brainer. But yeah. You know, I think this service and if anyone there's a really interesting YouTube video just on this so it's called dairy Is Scary.

Yeah. So it's a really interesting YouTube video watch. And if you still want to consume cows, look at that. And I don't think you're human. Is that the one switch for good?

No, it's a different one. It was a YouTuber put together. You have to check it out. Dairy is Scary I got to check it out. Yeah. Yeah, that's. That's funny.

But it yeah, it's just it's really fascinating. You know, just on a physician side of things, you know, they teach you I mean, I went to medical school decades ago and yeah, they always like when you have children, right?

When you're taking care of young children, you need to be monitoring for anemia. And the first thing is, if they are anemic, you pull back on their dairy consumption.

So they sit and think about that. So, number one, why are we encouraging this liquid form to grow a cow in a very rapid form, £12,000, I think, or something like that.

In this first year in children that can cause anemia and the subsequent issues that come with anemia, in children, childhood is a big deal. So it's it's a it's it's insane to me.

And. The whole thing. And since you brought that up, I have to say, even the cascade effect of that, because it doesn't end there when dairy is kind of hindering iron absorption in the gut or causing that dysbiosis, which was one of the effects as a hindrance of iron absorption.

Where does that iron go? Well, it can stay in the lumen. And guess what Likes the iron fungus, fungi likes the heavy metals. So there's this massive and lots of studies back this up, which is very, very interesting because we get patients who have these fungal overgrowth and get oral thrush are seeing this in kids more and more.

So you have this kind of this almost like a proliferation of iron in the iron, just staying there. Your body's always trying to help you. So your your fungus is they're going like, well, let me help with this, but it doesn't seem like a help because then you're getting just a fungal overgrowth as this may manifest in different forms, it can kind of make you itchy down there.

It can it can lead to like a vaginal dysbiosis. It can lead to fungus in and around the skin, especially in the genitals or on the feet it can be that.

Okay, said that oral thrush, it could be an itchy ear where you're just like your ears itchy for kids. We see this as chronic ear infection, so it's like you're giving them iron.

It's just not getting to where it needs to go and then it can cause a cascade of negative effects. So yeah, I have horrible allergies when I was a kid and I loved milk as soon as I went totally plant based literally within days I had no symptoms of allergies like it.

It has been over 12 years and I have had maybe occasional like if I go and travel somewhere that was like really cool, but then it's only for a few days and I'm fine.

It's just like, Holy moly, I if I had a known. Yes, yeah, same. Oh, goodness, goodness, goodness. Well, thank you, James. I feel like we got to continue talking and got an entire dissertation on the gut microbiome, which is fantastic.

So thank you so much for sharing your information with us today. Thank you so much for having me. I really enjoyed it.