How Does Your Gut Talk to Your Brain? Discover FMT with Dr. Shaina Cahilll! Transcript

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Introduction to Gut-Brain Health

What we get is a shift from the original recipient's kind of negative or dysbiotic state to more donor-like, but it's actually different than the donor.

A hybrid, right? Yeah. So it's a shift away, but it's not directly the same as the donor. And that seems to last long-term. And of course, depending on how long the gut's been dysbiotic and how large the issue is and what the reason someone's doing FMT is, the life of treatment for FMT can differ.

For CEDA, it can be a day. For something like when we're looking at like IBD or IBS, those are longer treatment protocols because of the inflammatory.

This is Doctor Talks. Real talk from real doctors on the issues that matter to you most. Hi, this is Dr. Ed Park. I'm your host of the Recharge Biomedical Podcast.

And today we're very lucky to be joined by Dr. Shayna Cahill. Hey, Shayna. Hey. So she is in Alberta at her company, Novel Biome, and they are providers of fecal microbiome transplant.

Is that correct? Yeah. Okay. So let's get into that. I just interviewed Dr. Sabine Hazan and like you, she believes very strongly that the gut biome is strongly interacting with our nervous system.

And I know you're a PhD neuroscientist, so we'll get into that. But then she believes that the state's dysbiosis or relative preponderance can affect not only our mood, but our immune system and manifest as chronic disease.

Yeah, and we're learning, I think, more about that. I think as both we look at treating dysbiosis in different ways, but also I think as we kind of look outside of, you know, outside of what we traditionally think a condition is and where else it could be stemming from.

And I think a lot of things are coming back to the gut that I think we traditionally wouldn't think about that, not just neurological disorders, but also heart, asthma, and conditions outside of the GI tract are kind of driving back So let's talk about stuff.

I know with Dr. Hazan, we talked about which parts of the gut are sterile, which aren't in preponderance. So for you, I want to talk more neurotransmitters.

So we know that a lot of the neurotransmitters, the big ones being like acetylcholine, serotonin, norepinephrine, dopamine, that there are critters inside largely your large intestine that synthesize these, right?

So there's nobody's large intestine or colon that's ever been sterile. Really, that's not normal. So they have to be making something. So they keep it acidified with the lactobacillus, the bifido.

But how much of our, as you hear this stuff as memes on Facebook, how much of our neurotransmitters come from the GI system?

Serotonin, Dopamine, and the Gut

Yeah, so one of the ones that we know the most about, and that probably comes from SSRIs being created and kind of seeing what some of the side effects of those are, about 90% of the body's serotonin is actually made in the gut.

So it's the one that's made the most in the gut out of all of them. But it kind of explains some of the side effects we saw in some of the earlier SSRIs that came around, or selective serotonin reuptake inhibitors.

And it's shifted our understanding both in serotonin, but also what else is happening from a brain-based perspective. And so we know that Dopamine is produced in the gut.

It's not the main source, but we do know the building blocks of things like dopamine and neuroepinephrine are coming from the gut, and they are both making their own, but also triggering the brain to release some as well.

And so it's not all about them being made in the gut, but it's also the communication between the gut and the brain through the gut-brain access that's altering or changing what the brain itself is doing, both in the immune-based system within the brain, but as well in things like neurotransmitters and different releases and so those that kind of bi-directional pathway which we see you know when you change your mood or when you have a craving for something that's going one way and then you know how your moods impacted by what you're eating and what you're doing or how the gut makeup is is then impacting how the brain is perceiving things so things like We're learning more about how mood disorders as well as things like bipolar as well are impacted by the gut microbiome.

But we're also thinking things like Parkinson's and autism spectrum disorder also are finding ties into the gut. And some of these precursors and some of them are tied into the presentation of these diseases.

Fascinating. It's really, I have a friend who is a gut neuro immunobiologist, which I don't even know what that means, but apparently this is an emerging field where people are trying to connect the dots, but just to dumb it down for people.

So people joke about dopamine being the reward system or excitement, right? They doom scroll or they click or they watch whatever or have addiction. So.

You know, I was watching a Andrew Huberman podcast. He was talking about effects of cocaine or this or that, you know, scrolling. So dopamine is like that reward system, but serotonin that you mentioned is like the being at peace kind of feeling, right?

Yeah, that's why in the past 30 years, people have been listening to Prozac and trying to down-regulate the re-uptake of that. to have a higher level serotonin.

But I guess there was a clue in that carcinoid syndrome, like in the gut, like the serotonin overload. Talk to us about, like you alluded to, but you didn't explicitly state what problems were people having in the gut from the SSRIs.

Yeah, and so, and we see this with a lot of medications that I'm hoping maybe that highlights that we need to look at what the gut's doing when it's taking apart these medications to have them be active, right?

That's what they're all made to kind of go through our system to then be used and utilized. But in SSRIs, I mean, one of the big things that we still hear about now is weight gain, feelings of discomfort, but then also like it not actually always, for some people it definitely did, but for a lot of people it didn't actually.

solve like symptoms. And so that's why we saw a shift away from SSRIs. SSRIs are no longer kind of the primary antidepressants anymore. Bye. It's not a be-all-end-all, and I think it may have to do with depression or anxieties and these things aren't all one thing.

I think you categorize it as you have anxiety or you have depression, but what the root cause of those might be is different. But also some medications, the side effects are so bad.

So SSRIs, I mean, suicidal ideations were quite high for some people, but also GI discomfort and becoming not processing food the same because their GI system just wasn't working.

Yeah, I feel like the motility is influenced as well. Like you have irritable bowel syndrome and you see that just in the wild type state. Like when people are anxious or depressed, like they can't hold their bladder or they have cramps or diarrhea or indigestion, gas.

So I think there is, you know, they say that the gut nervous system is older than the one up top and that we're just feeding tubes with the brain added on later.

But I think, you know, even the language talking about people's gut feelings and, you know, it may be sick to my stomach. Butterflies in your stomach.

Sabine said that we're just sitting here, you know, listening to whatever the little critters want to eat. We're feeding them and we're like the hosts.

And it's interesting because if you really dive into the neurological side, the connection between the gut and the brain, the amount of times you will see in the research that GI symptoms being high and that directly impacting the behavioral presentation of a disease.

So yeah, I think it's, it's, it's critical people's, but you know, we're emotional human beings. And so, you know, people feel alienated and hopeless and despondent or are ruminating over past trauma.

You know, it's always going to affect your gut in some way. But I think that the shift happened a few years ago when someone dared to publish a paper saying, Hey, maybe depression is not a serotonin deficiency.

Maybe it's just you're sad. So talk to us about getting off these SSRIs because I've heard so many horror stories. Why is that? Is that something to do with the gut biome or is it just you get a tolerance or something?

I think anytime you dictate the body to do something less or do something more, your body shifts to do that on it, to kind of follow that.

SSRIs, Side Effects, and Mood

It will start making less of its own because it's being told to do something it naturally doesn't. But I think for pretty much everyone, the focus has to be on what lifestyle factors are occurring around the medication.

I mean, the number of times, especially, you know, being told, be less stressed, sleep more. But a lot of times, A, medications can impact your ability to sleep.

Completely, yeah, your sleep architecture totally messes up. And so, but these are the things that we need to kind of, our body needs these systems as resets to kind of, you know, I think of sleep as from a, from a brain perspective, as your body's moment to kind of figure out all the stuff it ignored.

Because it was doing too much stuff part of sleep is kind of reorganizing and restructuring the brain So when that gets impacted it has has negative impacts But as well thinking about diet and and we're thinking about messing with serotonin That's impacting the gut right because the gut is is really doing a lot of that work Which is why there's probably a lot of these GI symptoms especially like diarrhea's and constipations and stuff when you're taking them because that system is getting dysregulated by changing the serotonin.

But thinking about diet, because we know both your brain and your gut work together, what do you crave? And I always say, if you have a really bad day, what kind of foods do you crave?

If you eat those kind of not great free foods, then you wake up the next morning or a couple hours later, you feel worse. And then how likely are you to kind of eat better or do the right, the next right thing to kind of get out of that funk?

And so sometimes our choices that our bodies kind of like you're having a bad day, we need comfort food. But

unfortunately for some people, you eat those comfort foods and then it makes you feel worse.

Yeah. I feel like maybe, you know, coffee and donuts and pizza and beer are what my biome is craving. And then you eat them and then the next day you feel worse and then you're not really craving like, I should go out and eat like the best salad ever or I should go for a run.

No, I don't know. Well, let's talk about the biome. Okay. So now a lot of people have heard of lactobacillus. So lactobacillus creates lactic acid in the vagina and keeps it acidic, keeps all the vaginosis out.

So we have that a lot of times. In my report, I didn't have a lot. But there's also the bifido, which, you know, I went to a pediatrics conference on chronic disease and they were all about the bifido and it had high nine-year preponderance.

Why is it do you think that older people have less bifido? Is it a lot of reasons? Can I get back to 90% bifido? Yeah, so I feel like one of our focuses on Bifidos because it plays a role in short chain fatty acids, which is one of the precursors for the body's ability to make neurotransmitters, but many other important things.

So short chain fatty acids are one of those things that anything you read or really want to dive into what the gut's doing that's really important. And so from that, you get into, you know, increasing fiber is really key.

The gut really needs that to kind of do anything. That's one of its best starts for being able to build. It's like the oligosaccharides and the organic acid production.

Is that what you're kind of alluding to? Yeah. And you want to focus on its aids because it takes the body longer to break it down, but also the building box that the bacteria get from good fibers is what helps them build short-chain fatty acid production.

And then that leads to the outputs that we see in the body that have the biggest impacts. And so if you want to get back to a balanced gut, we're looking at prebiotics, which are those natural fibers and things like that.

That's so interesting. So prebiotics are bacterial food, and probiotics are bacteria. So as a neuroscientist with a gut focus, Are you in the omnivore camp or vegetarian with supplementation or pure carnivore?

What have you seen? Our thing is diversity. Eating across the board. I think one of the things we're learning now is limiting Taking things out isn't really the answer.

It's eating across the board. Now, I personally don't eat a lot of meat. It's not one of my things. But then I get those from, you're focusing on proteins, right?

So you can get proteins from plant-based or from animal, but you want to make sure that you're eating a wide variety of whatever that protein base is.

You want to eat a wide variety of greens, a wide variety of nuts, a wide variety of fruits. And so one of the things that we kind of use as a numerical benchmark is that you want to work to having 50 different foods a week.

Now, you think in a salad, you could have 10 plus in a salad, right? Yeah, yeah. But the idea here is that what you're putting in your body is what's dictating what's surviving in the gut.

That's so interesting. It's the birth of dying, you're getting to crucify the gut as well. Well, let's talk about basic nutrition. Because in med school, they might give us a couple hours of that.

So we're mainly focused on vitamins as being a disease, right? Deficiency of vitamins. And aside from vitamin D, which you could synthesize from sunlight, Most vitamins are interesting to us because they're something you need to eat, right?

Like even amino acids, we can't make all the amino acids, we have to ingest them. And therefore they're essential. But I guess people didn't really appreciate the extent to which most of our B vitamins, you know, are made in the colon, for example.

So we really couldn't survive without these critters, right? A, your cravings come from the critters in your gut, right? So there, a lot of times you'll really want some kind of food.

So people that are salt deficient will actually crave salt. And it's your body going, it's the bacteria in your gut being like, hi, this is what we need.

But if you're deficient for too long, you lose the bacteria that are there. So that's the thing. And we talk about restrictive dieting and kind of taking everything away.

You can kill off the bacteria that are there. There's such a wide variety. It's not just bacteria. We're looking at fungi and viruses and different things that are living in the gut.

But what you're feeding it is what's allowing it to survive. They have to be fed. By eating a wide diversity of food and not just eating the same foods over and over again, you're allowing for a buildup in diversity in your gut.

And that's one of the things we talk about. That's so interesting. Yeah, I think the internet has liberated a lot of people to be more biohackers and experiment.

And I'm all for like Alcat and whatever elimination diet. And there are some people we need to say who are genuinely gluten sensitive, right? So there's so many moving parts to this and people read articles and they listen to Dr.

Diet, Cravings, and Microbiome Diversity

Gundry or whatever and this, and then they try carnivore or meat, but it's very complicated and there are always inadvertent consequences, aren't there?

So one of the things that's most interesting and why I want to do this is I've had patients say to me, doc, have you heard of fecal transplant? I go, what the heck?

And then I listen to them and go, oh, that's gross. But pretty much most people bring it up, have a really positive anecdote. And we're talking like chronic disease, fibromyalgia, autoimmune stuff, IBS, even ulcerative colitis, the guy told me last week.

And sometimes they say, you know, it only lasted two to three months and I came back and started eating Doritos again. So I think there is a contribution to processed foods and glyphosate and God knows what else, but talk to us about like, that you really think that engraftment can happen, like your basic biome can be shifted through these techniques?

Yeah, so just for anyone that doesn't, has never heard of FMT or fecal microbiota transplantation, what's happening here is we're taking a donor's stool and then purifying it down.

One of the products we actually sell, you can mix it with water and drink it. So that's the level of purification that exists when we're getting down to this.

And so one of the things is we're finding these people and we're looking at hundreds of health and lifestyle factors, blood, Stool urine testing is done and done regularly and finding someone that is healthy enough It's less than 1% of the population that would ever pass the screening to become what?

So if I want to be a fecal donor, it would be much harder than being a blood donor Yeah, I get like four or five questions and it's insane and it's a wide variety.

It's not even just your health, it's your immediate health family history, including things like cancers, any GI issues, neurological issues, if you have sleep issues.

You know, anything we know that the gut microbiome is tied into, we just screen out. Now we can't say that that specific microbiome might cause sleep issues.

Our thing is, is that anything that can be impacted by the gut. we don't want to include in our donors. And so once this is purified down, then it can be taken by a recipient.

So we, you know, traditionally it was colonoscopies and enemas. We've now moved on to capsules since about 2017, which seemed to be about the same efficacy rates as colonoscopy You're saying that the bacteria can make it to the large intestine pretty well?

We do testing. So we have testing on gastric and intestinal fluids. So we know about the time it takes to get through based on how long we know food takes to process down.

We test those out so we know when the release will be. But we do know there is some getting into the small intestine, but there are studies that even show that FMT is helpful with things like SIBO.

So, but FMTs can't cause SIBO, can they? Or I guess it's possible. Yeah, it hasn't been shown in the research that… So for those that know small intestine bacterial overgrowth, because we were just talking that traditionally the gallbladder, the pancreas, the small intestine were thought of as relatively sterile environments.

But if you're able to take a powder and the yield is similar to a capsule, then maybe just the environment of the small intestine is not conducive to bacteria in its usual state.

Yeah, there's been research that shows that FMT can help with SIBO. I personally haven't found anything that says it causes SIBO. So I can't say like, I would personally say it doesn't, but.

you know, don't quote me on it, maybe something. But across the board, we're finding there's been direct comparisons. So FMT is most widely approved for C.

difficile infections. And so of course, yeah, kind of they've done comparisons direct to colonoscopy treatment and capsule treatment. And they're almost exactly the same.

Wow. Okay. So it does get down there. Yeah. I mean, you know, for days. Your it's your brain's perception of it But it it seems to work and and it may be because it's so purified down and like has to be reconstituted but as well There's the the aspect of I think it's that the the gut microbiome is more than just the colon But I think we focus on that.

So it's a whole system that's being impacted. So I think they're all there as well I mean, let's break it down so to speak so I've correct me please if I'm wrong, but the majority of poop is like an indigestible fiber.

Yes. And there's a huge biomass of bacteria actually in the poop, correct? There is. So when you look at dogs leaking cells, and I'm never a big fan of dogs.

you know, kissing me, but I'll let them do it, but they're constantly licking themselves. So, but the idea of swallowing someone's poop, even if they are like in a triathlete, Rhodes Scholar genius, is distasteful to me, pun intended.

So, but like, is it sterile? Is it safe to be swallowing freeze dried poop? Yeah, so I think what you have to picture is that it isn't, by the time it's packaged and ready to go, it's so far away from what you…

So it doesn't have that sulfur anaerobic nasty smell. Well, it's down to… One of our products is a completely white powder at finishing. It's the most best.

But these are processed and spun centrifuged down. We're taking specific parts depending on what centrifuge step we're on. Right, right. So it doesn't smell like poop.

No, and it doesn't look like it. It's a freeze-dried powder. You can think of it like you would look at a probiotic. It's going to look very similar. You could see how that would be giving the ick.

Personally, we would love to rebrand FMT. We're late to the game of changing the name, but the idea that it's a microbial treatment or a therapy. A probiotic.

Part of it. Yeah. And it's different than a probiotic because we know probiotics don't graft. So one of the downsides of probiotics is while you're taking them, they're super effective.

As soon as you stop taking them, they don't graft in your gut. So they're not making systematic changes. So let's talk about, okay, so prebiotic is food for the bacteria.

Yes. Probiotics is your kimchi, your little yogurt drink. But you're saying that those don't natively engraft at a high rate like these other bacteroides.

Yeah. And I mean, in most of the research for probiotics, they're talking about like a pill-based probiotic. So probiotic foods are going to be a little bit different because they're feeding in and supplementing bacteria when you're thinking about in terms of like a capsule you would take.

The studies that have been done basically while you're taking them, they are present in the stool and they seem to be making systematic changes. As soon as you stop taking them, some of those changes go away, but as well, you don't see the presence of those bacteria in the stool anymore.

And one of the interesting things at FMT and why we think it's so different is that basically you have a donor's microbiome given to a recipient. And so if it was purely you get the donor, your microbiome profile would be exactly the same as the donor.

But that's actually not what happens with FMT. What we get is a shift from the original recipient's kind of negative or dysbiotic state. to more donor-like, but it's actually different than the donor.

A hybrid, right? Yeah. So it's a shift away, but it's not directly the same as the donor. And that seems to last long-term. And of course, depending on how long the gut's been dysbiotic and how large the issue is and what the reason someone's doing FMT is, the life of treatment for FMT can differ.

For seethe, it can be a day. For something like when we're looking at like IBD or IBS, those are longer treatment protocols because of the inflammatory.

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What FMT Is and How It Works

TA65 is available now. Go to rechargebiomedical.com slash TA-65 and enter promo code RECHARGE10 to save 10% off. I think part of the problem is that unlike something like say Giardiasis or Ascaris or you know, rotavirus, you have that wonderful Koch's postulate of one disease, one agent, one manifestation.

But we see that there are many ways up or down a mountain of disease, like IBS, IBD, even maybe some of these putative sort of pathways to neurological diseases.

You could have a range of dysbiosis. But I guess the thing that I don't understand, okay, let's say, do you pay money if I have a great health and I want to donate and sell my poop.

Do you, is that available to people like? Yeah. So we have a donor program. And so what that is, is we bring donors in and they're paid for their stools.

Um, and part of that is that they stay, they stay in the program so that we retest them. So part of it is a guarantee that they'll be along for such as a period of time.

So there are just some people that are just gifted with beautiful gut bios. Yeah. So we screen, I mean, we've screened hundreds of people and less than 1% for us right now that actually pass our screening.

Okay. And so on the other end, when you freeze dry it, is it the original representation of that super donor's bacteria? How do you even maintain? Isn't there imbalance in vitro when you put them in the bioreactors?

Are you expanding them or what is the- Yes. Is it a precious resource or do you multiply the flora in a bioreactor and harvest them? No, so we don't do any manipulation past what's naturally there.

The goal is one day that we can get to a point where we know what we want to isolate and then expand on those. But we do confirm kind of on every product that the level of bacteria that's.

So it's a natural entourage product, like, you know, Francois, you know, whatever is like a genius, beautiful, handsome guy in Montreal. He gives you poop and gets money, but it's his stuff.

You're not doing single species in any case. Okay. because we know the diversity and the buildup is what we're looking for. We want that wide berth and we want because A, because it's part, we consider it's a re-education of the recipient's gap, right?

So FMT is going in there and there's some pretreatment involved to kind of try to reduce the negative species that exist in the recipient. And then when FMT is in place, you're re-educating what bacteria should be there over that period of time we're seeing engraftment and a shift in that.

I mean, it's, yeah, it's terribly exciting. I mean, I see stuff, cancer, Alzheimer's, Parkinson's, autism spectrum. It's terribly exciting and the results are encouraging.

So you're saying to me that capsule, powder, colonoscopy, even enema, they all have high rates of delivery and engraftment. Yeah, and it's extremely impressive.

I mean, in one of the areas that there's kind of two areas that I find really exciting is the neuroscientist in me. He can take me out of the lab. He can't take my fascination away.

But from Autism Spectrum Disorder, there is a study that came out basically. They originally treated these kids, I think it was for 16 weeks. And then two years after treatment stopped, went back and retested the kids in terms of their ASD behavioral profile.

their GI shift and it was maintained or got better over that two-year period. I think it's the intuition is telling us and the clinical and the anecdotes is telling us this is a really powerful tool and it's still kind of early in the game so in the FMT world I know Sabine has her practice partner but you make in Canada and get donors in Canada, but you can't sell in Canada.

So like for an American audience, first of all, the question is not covered by insurance, but is this somehow, unless you have C-Diff, right? But is it like expensive?

Is it something that I can get shipped to the U. S. legally? Tell me about that. And so we work with clinical partners so we don't supply directly to patients.

So we're what you consider a contract manufacturer. And so we ship all over the world. We don't currently supply in Canada and that's in partnership with Health Canada.

We have a license with Health Canada to export and we have a GMP or good manufacturing practice facility. So same as any other pharmaceutical grade drug that's made.

But the regulations are a little bit different in Canada than they are in the US or other places in the world. So we partner with a clinician. And they kind of work with the regulators and be that running clinical trials or independent trials or case studies on different things.

So we partner with the clinician and we provide education and product. And then we've kind of got clinics that we've partnered with through them becoming clinical partners with that.

So there's a whole person. So is it mostly in the US, continental US? No, it's kind of pretty much wide. And we work, it depends, I guess, on each individual case and, you know, where the partner is and what they're doing.

But we're seeing kind of growth in the use across the world. Okay. So I assume in-house you use what, some kind of next-generation sequencing? Is that what you do?

Yes, so we, we find species. Yeah. So we do testing. So what we're doing is we're testing the donor and then we test the product, but we don't, we don't say like these five bacteria are highest here.

So that's going to do the best thing. What we're looking for is a healthy donor that has a wide, like a diverse. like a diverse microbiome, we know the kind of foods and stuff they're eating as well as breakdown to if they were breastfed, if they were vaginally born, which are required.

So we're kind of in capturing that everything up until the point they started donating was healthy. And then we're looking for kind of a large diversity, but we don't specify certain bacteria because we don't know which ones are the most interesting.

It's so hard to understand the whole symphony they're selling notes, but Even on my target slot, you could see there's dozens of species there, but overall I did okay with the grades, but I guess it's kind of an emerging field.

We know some stuff is horribly bad, but I guess we understand that when you take antibiotics, for example, where you eat a lot of processed food or glyphosate that you have.

a shift in the flora, right? So we want really a diversity and a lot of the benign commensal bacteria. So what are the big triggers for gut dysbiosis in your opinion?

Yeah, so food is always going to be a big one. I find food is the thing that can make it go wrong the worst, but it can also make it go best. You can see shifts in the gut microbiome within 24 to 48 hours of shifting your diet.

You want to do something tomorrow that's going to help your health. Understanding, looking at your diet and making cognitive choices to eat a diverse diet and eat a healthier diet, you're going to get returns on that.

The other kind of negative ones is, you know, being sentient, so not exercising. We know that's negative. We know it's negative on so many levels and the gut is not saved by that.

Multiple use of antibiotics, but other medications, PPIs, SSRIs have a negative impact, laxatives and things like that can all negatively impact the gut.

And we know the more antibiotics you take, the more the impact on that. So the gut can bounce back from antibiotics, but the more times you do it, the less likely you are to fully restore back to where it naturally was.

So you're a fan of the fermented foods? Yes, and I think it's a good way to start. If you don't eat a lot of fibrous

foods on a daily basis and then you decide tomorrow you're going to wake up and eat a hugely high-fiber diet, it will not be a great time.

Your body will have a hard time because it hasn't actively been doing that job. So one of the things that's beautiful about fermented foods is it's basically like partially digested fiber.

Some of the work is done for you. One of the things you say, if you don't eat a lot of fermented foods or eat a lot of fiber, don't tomorrow wake up and eat a ton of it.

But starting, and I think if you don't, starting with fermented foods is a good way to go because it's part of the work done for you. Gateway drug. All right.

So what, tell us what OAT is, organic acid testing. What's the purpose of that? Yeah, so O testing is used kind of to give you an idea of if your gut's in a dysbiotic state.

One of the things for us is we say testing is not the be all end all. It won't give you the answer, but it can definitely tell you if something is really wrong.

So what does a person give as a sample for OAT testing? For OAT testing, I want to say it's a stool sample, but maybe, yeah. I'll be honest, we don't do a lot of the testing.

We always say if you're not sure if the gut's playing a role, these types of tests are good because they'll tell you if your gut's… way off the rail way off.

Okay. Are there any commercially available male home, male and tests that you would even recommend at this place? I've looked personally at violence testing and one of the reasons I like Viom is because they do a lot of their own They're trying to expand how we look at the microbiome, not just the gut microbiome, as well as the oral microbiome and others, and trying to understand how that could be indicative of disease.

And they've gotten a good way down the road looking at the oral microbiome and different types of cancers.

FMT Delivery, Screening, and Donor Selection

And so they're doing a lot of internal research, so that's a group that I've looked at. But there are a lot of them. And I think when you're doing a test, I think the key when you're looking at what the report says is understanding that We don't know what the perfect microbiome is, but we do know what it kind of looks like when it's bad.

And so in pretty much every condition that has some tie back to the microbiome, we know it's a lack of diversity or an overproduction in some types of pathogens or pathogenic bacterias or too many pro-inflammatory bacteria.

So those kinds of things are what we're seeing. They tend to be a consistent profile. The idea here is if you do one of these tests and it says that you have a really bad gut microbiome or there's gut death biases, it shouldn't be the first time you've thought that your gut is probably playing a role in it.

Brain fog, constipation or diarrhea kind of go together. Funny enough, they seem on the opposite ends of the spectrum, but both tell you that your gut's not doing great.

Sleep issues, skin issues. One of the things that I've read and talked with doctors about, they're like the skin, your outside skin is a good indicator of what your gut microbiome looks like.

It's a good outward presentation of it. So if these symptoms are in play and you do one of these tests and it says your gut microbiome is completely out of whack, the diversity is really low.

You have a lot of pro-inflammatory or pathogenic bacteria. They should go hand in hand. It should be a supplement to what you're already seeing versus a diagnostic.

because I think we don't know enough about it to say that like oh you have xyz bacteria so that means you have a bad gut and if you have these other ones you have a good one we don't know that enough yet mostly because it's it's really how they all work together there are things that we want in our gut that we would consider bad but if there's too much of them it is bad and so it's kind of counterintuitive having you know having Having a pathogenic bacteria is not bad, but only having pathogenic or that being your predominant could be bad.

So C. diff is something like that. We can see people have C. diff or have multi-antibiotic resistant bacteria in their death, but they may never get sick.

they may never see presentation of it because it's not predominant. But this, a shift, it can shift the other way and then you do see it. So I think it's more a supplement and it's a helpful hint that we should look at the gut or maybe gut changes are key.

So diet, anaerobic exercise, trying to get sleep, you know, sleeping when it's dark out, being awake when it's light out. As simple as that sounds, it can be really difficult, but it does have really negative impacts on the gut.

Consistent sleep schedules are key. So generally, if you're a healthy person, you have a healthy gut. And then if you have a healthy gut, you got nice skin.

You're sleeping well, you don't find brain fog and I think we're seeing that like high stress, poor sleep, brain fog are good indicators that there's probably also something happening in the gut.

I think that's what it is because when I hear like some people told me I went overseas to get a transplant and after three months coming back eating Taco Bell and stressing out my flora shifted back.

So I think there are huge host factors. So it's kind of a chicken and egg thing too. Let's say a person is at their wit's end and they want to take a legal faith and they found a GI person and they're willing to try it.

What is the kind of cost, assuming if not for C. diff, it's not going to be paid for, what's it going to run me as a consumer to get a fecal transplant?

Yeah, so the prices across different product types range. But for us, what we sell, our products range about $2,000 for a month's supply. And it depends on the doctor and the protocol they have.

And this is freeze-dried powder or capsules, or maybe if you prefer an enema. Yeah. And so you're looking at, it can range from some people, it's one to two bottles.

Sometimes, I think the average is about four bottles. Okay. So then I need to find a GI to order it. I can't order it directly. No. And it's not functional integrative doctors as well.

It's not just GI doctors that are using this. It's a lot of functional integrative. Mostly. Yeah. Yeah. So if a person does this, I know it's from your protocol, there is, it's not just you take it.

You have to actually actively in most cases, take antibiotics because you're presumably in an unhealthy state. And so that's kind of like fighting fire with fire.

It's like people who, there's a massive forest fire and they burn down forests to prevent whatever. So just to warn people, they got to take antibiotics and then they got to do the bowel crap.

right, which means drinking something that gives you diarrhea for most of the day. And then they take the transplant and then they got to be like not pooping it out because it's a waste, right?

So there are steps. So we categorize it as, and if you read anything on FMT, it's going to be pre-treatment, FM3 treatment, and post-treatment. So in that pre-treatment period, you don't have to take antibiotics.

Not all doctors suggest it. One of the reasons that we suggest it is basically if you think of your gut as having a hundred seats in it, And everyone, you know, in terms of, you know, sitting down to watch a show, and they're all full.

And so you put in better bacteria, now they have to fight to get a seat, or they won't. That's a great analogy. So by using antibiotics instead of all hundred seats being filled, now only five of them are filled.

So you leave all the rest of that room for good bacteria to come in and not have to fight so hard for space. And so it seems counterintuitive, but if you're looking at re-grafting your guts, probably because the gut you have isn't working and we know antibiotics is going to just wipe it out.

So as much as it's kind of like fighting fire with fire, it's just, it's as if, you know, you don't want the fire either. So you wash it completely away and you start with, you know, kind of scorched earth.

Do you say the majority of your practitioners employ a pre-treatment antibiotic regimen? Yeah, and it's one of the things that we suggest not all do. Some of them use natural-based antimicrobials and antifungals as well to do it instead of using a traditional antibiotic.

It depends, especially if some practitioners are very against antibiotics, understandably, if they're not needed. But most of the cases, we know. You'll get a better response across the board.

Oh, it makes sense. Yeah, the cheat analogy is great, but I guess, you know, if you have like some antibiotic resistance, C. diff, plasmids, I guess those would be selected for it, but you're going to quickly usher in the good viewers to the theater.

What about the bowel prep? Do you need to like do that? It's suggested or be fasting. So we also, you could fast for that period of time and do so that basically the goal here is you want to have a gut that's empty and ready to be seeded.

And so that's right before, you know, you do a bowel prep or you do fasting right before starting FMT where the antibiotics are about started. They start about two weeks before and then end 48 hours before you start a long So if people don't know, like these automatic laxatives, like you drink something, a bunch of fluid, and it just cleans you out.

So, you know, I remember in med school, we used to watch these colonoscopies and it was totally clean inside the colon, but you're on the toilet for like 18 hours.

Yeah. And you can't do it naturally using, I think it's magnesium, but don't. Yeah. And so you can do it. The goal is you want to, and especially because a lot of the people that are looking at doing FMT are extremely constipated.

So while doing the antibiotics, if you've been constipated, you want to kind of flush that system out. So you're able to get it. So then you take your FMT and then how in God's name can you not have a bowel movement for several days?

What's the plan? So, for a capsule-based or a powder-based, there's no request to hold. You just go about your normal day, eat, go, live normally, eat normally.

We suggest restricting eating before and directly after taking the FMT, so about an hour before and an hour after, but that's kind of it. The only time we'd suggest holding would be for enomas or colonoscopies, and we say So then if you go back from a scientific standpoint a month later and do the sampling, do you usually sometimes or not often get a complete shift in the flora?

Almost always, look, so if you go in and look at the research where the success rate originally, and we kind of stick with this still, but the success rate of FMT is often determined by the shift in the stool, of course.

to measure what the bacteria profile looks like, but a shift away from the recipient to a more diverse profile and originally used to call it to the donor, but we know it doesn't become exactly the donor.

So now a lot of the papers will say they've shifted to a donor-like. So we see change in species type, change in level of diversity, and that's kind of what's used as an indicator outside of validated measures.

Protocols, Costs, and Clinical Use Cases

So GI symptoms, quality of life, and then specific measures for whatever they're being treated. Amazing. I mean, it's kind of a Hail Mary. It gives a lot of people a weird idea in their head.

But I think it's an emerging field. And like I said, I only go by what patients tell me. And for some people, it's only months and they go back to same old.

But for some people, it's like life changing. I had a gentleman who cured his ulcerative colitis 14 years ago. Very interesting work that you guys are up to.

Yeah, we're seeing full lifestyle changes and one of our hopes and one of the things that we try to push for or kind of watch the research for is that, you know, seeing this as preventative medicine or seeing treating earlier in conditions like, for me, like one of the areas that I found fascinating is like in Parkinson's disease, we know that there's chronic GI issues before the presentation of traditional Parkinson's symptoms 10 to 20 years before.

So it's, should we be treating GI, chronic GI issues earlier because the longer they're in play, the more kind of substantial the side effects could be.

So, you know, can we change how we perceive the importance of the gut microbiome? And I think we're on our way, understanding how tied it is to the immune system it is, to the liver, to the heart, to the lungs, to the brain, you know, more than less.

It's so interesting. Like the dogma that we got, you know, was very simplified. So we're always taught, well, you know, gallbladder is sterile, colon is filled with all this stuff, small intestine is sterile.

But even Dr. Arzahn was like, you know, the appendix might be an original repository for bifidobacteria, you know, in humans. So I think it's a lot we don't know.

If you do like this incredibly sensitive testing in the bloodstream and in the tissues, there's bacteria, which is totally antithetical to what. So I think we do live, I think the bacteria outnumber our human cells.

So there's got to be ways that we can cohabitate with friendly commensal bacteria because you're never going to be bacteria free, right? Yeah, and you don't want to be.

If you look at the studies using like germ-free mice or their bacteria kind of sterile mice and dairy, they're not doing so hot compared to their mice buddies.

And so there's a role that this plays. And I think we're even shifting our understanding of if the womb is sterile. So like are there bacteria in the womb and the impact of early access?

exposure to bacteria, the difference we see in what the gut microbiome looks like from someone who's been vaginally born versus via C-section. And if that's something we should be addressing while we're, you know, if you have to have a C-section or you choose to have a C-section, the heart of it is I think we're starting to understand that it's important and it's not doing you know, supporting it or understanding the gut microbiome isn't harmful.

If anything, it's probably going to shift how we treat, generally, diseases. And that ranges from birth, these early neurodevelopmental diseases and early diseases in, you know, young pediatrics.

all the way to aging and, you know, Alzheimer's disease, dementia, the shift in the gut and the shift in the immune system kind of go hand in hand and those negative effects.

Yeah, I mean, it's very interesting. At this pediatric conference, they were trying to make causation out of correlation and they said, well, you know, old people have less bifida than that.

must be somehow intimately part of aging. But you know, I look at, like you said, that we didn't realize life is not sterile. So when you look at the inferences from the epidemiology, these kids that are less socialized, less in the dirt, rolling around, eating stuff, You know, they have higher rates of allergens, right?

And we don't know if there are like things in the environment or in the vaccine schedule that are creating this higher level of neuroinflammation and autism.

But the thing that kind of was interesting to me, because as a non-peatrician, I'm like, oh, okay. There's like 90 something percent bifido in the newborn.

up until age one or two, and that they have a lot of gut permeability. So one can teleologically kind of say, you know, maybe these childhood diseases, maybe the gut permeability is all a way of the body in training itself immunologically to react appropriately.

So the theory is like, oh, if you're too sterile, then you're more prone to allergies because you're not training your system. What do you think about that?

Yeah, so that's multilayered. So one thing is for a lot of pediatric conditions, especially neurodevelopmental conditions, the rate of GI symptoms is significantly higher in these kids.

For autism, it's three to four times higher than their neurotypical here. The GI system is just not functioning correctly. It's also immature. So the GI profile of kids with neurodevelopmental diseases actually reads younger than their neurotypical peers.

And so one of the things as we know is that the gut starts to become adult-like at about three to five years. So we see the same similar amounts. And similar to the brain, I think what's happening early in the gut is there's pruning of what needs to be there, as well as the intestinal walls becoming less permeable.

Similarly, the brain is doing the same thing. It's fun because the gut and the brain kind of develop similarly. The gut tends to develop a little earlier and the brain tends to follow after.

But we're seeing a shift to a more adult-like but also less permeable gut. And if you go into adulthood and you look at someone who has a highly permeable gut, or a leaky gut, that's negative, right?

So we don't want the gut to just be leaking stuff that's not ready to be going out. And so I think there's a period of time, this early period of time where the body is pruning and changing to get to a state where you're now eating solid foods.

So what you have to process is different. How much work your gut has to do to disassemble and get the building blocks it needs changes, but that kind of coincides with this pruning and shifting to a less permeable state.

Yeah, no, that's beautifully stated. Yeah. I just, just like the gut and the blood brain barrier are relatively open. It's a very dangerous time. So, you know, unencumbered by anything, but these magic theories, I do think it's a positive that we're starting to get rid of the food dyes, maybe the glyphosate and all these like fluoride.

You know, who knows what conspiracy theories stick, but I don't think it's very hard to see that autism rates have increased.

Microbiome Testing and Future Applications

And I don't think it's hard to say that the rate of processed foods in our health care and school systems is higher. So hopefully we can shed some of that, maybe even radios or electro smog has something to do with it.

But I think that. The field that you're in is incredibly exciting. And I have seen some Hail Marys for people who are just at the end of their lines. Yeah.

And I think it's a shift in understanding, thinking of the gut as part of the system, I think is going to change how we perceive disease because I think We're looking, and I mean, you may see this over years, but we're looking more systematically, the whole body versus everything is individualized unit.

And that is shifting how we treat and interpret disease. Cause we're not seeing the brain is completely separate from the gut or the heart separate from the liver versus, cause you know, blood's going everywhere, everything.

I didn't even believe it. got until this one gentleman came in and in two weeks, his eczema, his swelling, his diarrhea, his itching, even barricose veins went away.

So it, the only thing I could think was his tight junctions and his gut sealed. So I am a believer now, but yeah, everything is incredibly complicated, but I think people can do their own research.

They can go to novel biome where you guys, and then you guys have a provider referrals network. Yeah, so if you can reach out to us and just kind of let us know what kind of, you know, what you're looking for and if we can, we'll try to connect you to a physician.

Other things on our website, we've got a really great blog, we have our podcast, we've got YouTube videos. One of our goals is to try to just provide education across the board, what the gut's doing and why it's important to think about it.

So it's a good starting point and there's lots of kind of referenced research and stuff in there that can kind of lead you to maybe lead you to a good resource that could help kind of answer some of your questions, but you could always take a look at our website.

It's very tied to kind of medical professionals, but we do have resources there. You can always reach out and we can try to connect you as best we can with one of our clinical partners.

So in general, you're not an advocate of taking my neighbor's baby's poop and doing an enema with it. I think most people don't know someone healthy enough to be a stool donor.

I think people, I think we want to say that young younger is better. And there is a point to that, but you don't want to take a gut as somebody that isn't adult-like, put it in an adult, that's not going to work.

But as well, if you really think about, do you know someone that was vaginally born, breastfed, exercises regularly, eats a diverse diet, has no one in their family that has cancer, GI issues, any neurotypical or neurotypical things like neurodevelopmental or ADHD or anxiety, depression, and the list goes on.

But, you know, when you think about it, you know, do you really know someone that ticks all those boxes? And probably for most people, the answer is no.

And we know that, you know, negative treats can transfer from a donor to a recipient. So that's why, you know, the donor screen is so high and it's so you know, so tightly monitored because you don't, you know, there was stuff that was done back in the day before we even called it FMT.

And we were seeing traits coming forward to, from the, you know, from a donor to a recipient that were negative. And that's why we start, you know, obesity and metabolic issues and stuff are all screened out.

All right. So be careful whose shit you take on. Yeah. Basically. Okay. Well, Dr. Cahill, thank you so much. We

really appreciate all the enlightenment and there's plenty of resources, but the name of your podcast?

It's Biome Breakthroughs. So yeah. Cool, cool. Just getting started. Take a deep dive there. All right. Well, thank you so much for all the education.

Sorry for the silly questions. We will be in touch and appreciate your help. Thank you so much and always check out our website and send us any questions anyone has if you're listening.

Thanks a lot. Have a great day. Thank you for tuning into Doctor Talks. We hope today's episode has enlightened and inspired you on your path to optimal health.

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