The Microbiome Reset That Changes Chronic Illness Transcript

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Introduction to Lyme Bites and microbiome recovery

Welcome back to Lyme Bites. Rebuilding immunity, reversing inflammation and redefining recovery. The gut microbiome is a master regulator of immune function, controlling inflammatory signaling, maintaining barrier integrity, and ultimately determining whether the body can restore immune competency and clear chronic infections like Lyme and other vector borne diseases.

Today, I'm joined by Jason Clop, founder and CEO of Novel Biome, who brings over six years of hands on experience using fecal microbiota transplantation, or FMT, and is now leading efforts to advance microbiome based therapies for clinics and research worldwide.

Welcome, Jason. Thanks so much for joining us. Thank you. Excited to be here. All right. So let's start off with this conversation here. You know why on a limb and complex chronic illness focused podcast and summit are we talking about fecal transplantation.

Great question. I mean, I think this category of patients and people struggling with Lyme and chronic complex illness as a baseline, all of them are dealing with some immune microbiome dysfunction.

There's an imbalance there. Something is off. And a lot of times that particular audience of patients are the ones struggling to get out of this cycle of, you know, GI problems, symptoms as well as their immune based ones which have body wide, you know, results.

And so they're just classified in some category of disease. But ultimately there's something deeper going on. There's something keeping them from being able to break out of their sort of locked in symptoms.

Right. And they're in this category. They're struggling to get out. And for some of them, the key can be fixing the gut microbiome.

Why gut health matters in Lyme and chronic illness

Right. And the biggest link there, at least in my mind, is a healthy microbiome. And a diverse microbiome is actually going to be able to manage the inflammatory cytokines cascade.

So bring down the inflammation in the body. And it's often these various chemicals of inflammation that are actually driving the immune imbalances that we see.

Whether that is a patient that is having a suppressed immune response or those patients that are actually tipped more into an autoimmune response. So I think a lot of people miss that connection, that your gut health, and specifically the microbiome is dictating a lot of the immune function, the immune surveillance, the immune training of all of these immune cells in the body.

And I am always saying to my patients over and over and over again, this is not something that we can just focus on killing these infections change our terrain.

I want you to talk about this study where there's actually a signature microbiome in Lyme disease patients without even taking antibiotics. But, you know, it just goes to show how capable these infections are of changing our cells, changing our terrain.

And then we have this downward spiral of various effects. And if we just focus on killing the organism and not healing any of those other things, most patients really aren't going to ever get better.

Right. And I think that's such a key aspect in something. When I was treating patients that I really had to have that discussion around. It's a whole mindset shift, right?

Like our whole culture, conventional medicine only thinks about like there's a bug and, you know, the evolution of antibiotics in the yeast and in their life saving. Right?

I mean, they've been such a gift to humanity, but it got us to think like bug disease. And so we can just identify the bug, kill the bug, no disease. And that does work in some contexts, in some settings, you know, C difficile, in a lot of cases it works.

You just take a drug bug that symptoms gone same for like a strep throat. But we're seeing these carry on effects where that's no longer working. So the bugs are learning to evade antibiotics.

But yeah I think that at such a foundational level, shifting the thinking away from the body is this miracle thing. You know, it has this ability to maintain like a homeostasis.

It wants to be balanced, it wants to be healthy. In many cases, it has a memory of what that looks like and it wants to get back there. But something is getting in the way of that recovery.

And what it is for each individual patient, of course, varies, but if we're only approaching it with the mindset, we just have to kill our way there. And so when I was dealing with patients, I'd tell them, like, look, we can't just kill our way to health.

Like, health doesn't like health doesn't have the word killing it. Right? Like it's about balance. It's about peace. It's about happy. Like there's all these different ways you could think about health and getting to kill herself.

There is not going to be working. And so in some cases, a part of the treatment can absolutely include that. But long term we need to think about okay, what building blocks does the body need to recover to actually do what its intended nature intended it to do, to come back to health?

And for some people, the, gut and the microbiome is a really foundational piece. And a lot of times people sort of forget the interplay between the immune system and the gut.

Right? Like the majority of our immune system is actually around the gut. It's got associated lymphatic tissue. It totally surrounds the whole digestive tract.

And it's having conversations between the gut. And so I think underactive and overactive and I think overactive is probably a bigger problem. Right. It's imbalance.

The one two balance is totally off and skewed. And so then when it becomes too overactive for too long, it starts fighting itself. And that's where you get this autoimmunity.

And the picture sort of goes on from there. But that study reference was really interesting because this is the challenge in Lyme. Right. Especially is understand like how do we diagnosis, how do we find out who's truly dealing with line if we've gotten rid of the bug.

Right. If that's the theory, there's a bug and we get rid of it. Now of course, you know, there's multiple bugs. It's not just the br da for a bug, but if that's the way of thinking, we get rid of the bug.

It's not showing up on any of the PCR testing or whatever we're doing. Why is this patient still dealing with anxiety, depression, fatigue, pain, malaise, all of these different things?

There's something going on. There's something underlying. And so in that study, it was really fascinating. I think it was John Hopkins that did the study.

And they looked at healthy controls. They looked at people with post. Lyme disease is diagnosed by some standard.

Lyme microbiome signatures and diagnostic clues

And then they also looked at ICU patients. And the really curious part about including the ICU patients is because they wanted to rule out this just because they have antibodies.

Of course, someone in the ICU is absolutely on an IV drip. I mean, I don't think you're in the ICU without being on an antibiotic. And so what they identified looking at Lyme disease patients, healthy controls and ICU patients is a it doesn't rely just on the fact that there's an antibiotic in place.

The ICU patients sort of prove that point. And then the controls of course it's just healthy to know okay, this is what a healthy microbiome is and this is what an unhealthy one was.

And they could identify with 80% accuracy what was up you know post treatment Lyme disease patient. And there were two bacteria actually that stood out.

One was elevated. I'm going to butcher the name bloody if I'm probably saying it wrong. The other one was low Bacteroides and the low Bacteroides. One is really interesting because that bacteria, as do most of these back to they have they produce something, they make something that's good for us.

And in this context they're making Gabba Gabba a neurotransmitter too low amount of Gaba, you know, can cause issues like anxiety and depression. And so really, really fascinating a there's an opportunity for diagnosis here.

We could look at their microbiome and understand, okay, who truly fits in this category. But then it also gives us clues as to the symptoms. The other one they noticed, and I don't know if it was in this study or another one, but actually low amounts of short chain fatty acid production, which again, our gut microbiome is producing these short chain fatty acids.

And if we don't have them we see increased inflammation. We see leaky gut. And when that happens, you see all of the inflammation that goes body wide, including the brain.

And a lot of these symptoms I think can come from neurotoxicity, neuroinflammation. Yeah for sure. So what exactly is a FMT. We'll start there because I'm sure everyone listening has an idea of what it is.

And so I think it's good if we walk through exactly what it is and get some of those images out of people's heads, right? Yes, exactly. I mean, you know, the the branding is definitely not the best.

We'd like to call it microbiota transplant therapy. I think it's much more appropriate to where we are today. As far as how the product is made. Nonetheless, all of the research refers to it as FMT or fecal microbiota transplant.

The only accurate part of that is that it does originally derive from a screened, exceptionally healthy human stool. And so there's that aspect. But the way that it's being done today, compared to even ten, 15, 20, 50 years ago has changed dramatically.

So, you know, our lab, for example, were based in Canada or licensed by Health Canada with the drug establishment license. We have a GMP license to do what we do, which means that we're regulated and working on this product as if it were any other drug, which, you know, there's a whole different level of like cleanliness and standards that come with that.

And the end product looks nothing like the starting product in the sense that most of the medical value comes from the microbes themselves. Right. We talked about this Bacteroides and other butyrate and shortening added fatty acid producing bacteria that's in the microbiome.

But a lot of the weight of the stool is actually fiber and other waste products. We're not trying to give someone a prebiotic here. We're not trying to give them fiber.

We're trying to concentrate for the microbes within the microbiome. And so there's a lot of filtration and processing that goes into play to get it to that point.

Our product is also freeze dried. And so it's a it's a dry powder. It's basically shelf stable. We do suggest long term storage in a fridge. But this is what it looks like.

Like it looks it looks like a no different than a probiotic. You know. And there's no taste. There's no odor, there's nothing. And so what is left in the capsule when someone is going to take it.

What is the final product that is in there. Yeah. Part of our release testing. You know, there's a quality department and we do all this different testing standards, but we're actually looking at anaerobic bacteria, which are the hardest ones to keep alive in a processing environment.

And so we're testing for certain bacteria. But the reality is is that it's the whole microbiome. It's not.

What FMT is and how it works

And this is really the advantage of FMT over something like a probiotic probiotic post biotic is it's the whole microbiome. And so that would include of course bacteria.

And that's mostly what people think about when they think about the microbiome. But the microbiome also includes viruses and includes parasites. It includes the whole the fungi.

There's a whole bunch of healthy fungi that are involved, and then the metabolites that come along with that. So the microbes themselves produce metabolites, which can be very healthy to reset.

And the idea then with that FMT is, is that we're trying to the transplant part of the word is what we're in essence trying to do. But again people think about transplant and they think like, oh, you're cutting someone open and you're putting something new in.

No, I mean, it's literally a probiotic type pill that you just ingest. And the the transplant idea is generally the treatment does include some pretreatment.

So we're trying to like get rid of the overgrowth. The imbalance, the pathogenic the bad microbes. And you can do testing. You know there's different stool testing or urine testing looking at metabolites to understand what's all going on.

The idea generally though, is like, let's wipe it out. Let's clean slate so that when we do this transplant, we're putting in that whole healthy live microbes.

And that's the real distinction. Yeah, this is live. It's the whole thing. As soon as this powder gets exposed to moisture, they wake up from a metabolic standpoint because they're basically sleeping.

Now when they get exposed to moisture, they wake up again. And and we're then putting in all of these new microbes. And there's definitely an interplay of what the patient's microbiome is and what the donor's microbiome is.

Because at the end of all of this, the patient's microbiome looks different than when they started. It looks more like the donor, but they developed their own.

It's a unique signature to them. And there's a lot of of course, environmental inputs. What are they eating? Where are they living? What is their lifestyle like?

We'll define what lives on, but the core premise or goal that we have for patients is really to expand their diet, to have more diversity in their diet, to support these new microbes.

And so one of the biggest differences then, between our FMT and taking a regular probiotic like beyond the scope of the various genus and species of good bacteria that you're getting, is that these are actually going to wake up and start living in the body as opposed to most probiotics are just having transient effect.

Correct? Yeah, that's a little bit more about that. Yeah. So I mean, to be frank, we would love the ability to have a synthetic version of FMT that worked.

And even half as good. It just doesn't unfortunately. And I think there's several reasons for that. Like the body just doesn't recognize the synthetically grown thing.

Also, it's just a very small part of like eat, you know, some probiotics. They may have billions of bacteria there, but it's a few strains. And the example that I often will use in the context of talking with patients is like, imagine you had to rebuild the Amazon rainforest, but you could only take five trees and start somewhere fresh with five trees just not going to work. Right?

There's this whole micro and macro environment and that's what we're getting and that's what we're putting in. And the body has this you know not this is self recognize it as oh this is healthy I know what this is.

And it can start and graft and take hold. So that's really the key distinction is one actually and graphs and can stay there. The other one is just goes through has some transient benefit.

Like there are studies that do show benefit when taking certain probiotics. It's just that when you stop the benefits gone. And for many of these really chronic patients, it's just not going to be enough.

It's not going to be enough to shift their microbiome environment or their immune environment in a dramatic way, as would be needed to really shift their disease state.

Okay, so for the average patient that's doing all of the right things to prepare for this, like to get the overgrowth of opportunistic bacteria or fungi like back into check.

And we also have like root cause. So whether there's vector borne disease changing the microbiome, secreting inflammatory cytokines, etc., the person that's doing everything right and then they're using FMT as a tool.

Roughly how many months of therapy would it take for that. Sort of like, you know, good enough seeding with the transplantation for it to actually remain inside of them if they continue to do all of the right thing.

Right? Yeah. I think in part the calculus depends on like how long and how severe their illness has been. So that will be a factor. But I would say constantly in 2 to 3 months you're going to see a significant shift and what can be a permanent change.

Again, assuming they're doing the lifestyle things to support it, they're avoiding antibiotics and other things. But yeah, you're going to see a pretty dramatic shift, you know, in the context of C death, which has the most research, the shift is in days like we're shifting and very quickly the difference is, though, that these patients are you know, it's a very acute illness.

This is not someone who's had ten, 15, 20 years of total immune dysfunction. Right. And so there is some calculus on that part, but they'll absolutely begin observing improvements before them.

So within the first month, someone should have a very clear idea this is working. You know, I'm seeing improvements in my dad just of symptoms, whether that's more consistent regular bowel movements, you know, less gas or bloating, abdominal pain, cramping.

And then as that begins happening, as the theory goes, we're beginning to heal the gut lining. We're beginning to reduce the inflammation. And I think that's primarily how FMT is working, is shifting the inflammatory sort of cascade that's happening within the gut, which then affects the whole rest of the body when it comes to the production of the neurotransmitters and all the anti-inflammatory components and the hormonal components and everything else.

And so as that happens, we begin to then have an effect on the brain. And so the whole leaky gut, leaky brain, I believe in that very strongly. So as the gut lining begins to heal, we can then start to heal this leaky blood brain barrier situation.

And as that heals, we're seeing less inflammation in the brain. We start to see changes there. And my background was treating a lot of kids with autism, who many of them have vector borne illnesses as well.

But it was just dramatic to see first GI improvements, then all of the neurological changes. And then from then we're seeing this across other diseases like Parkinson's, which we always thought was a brain thing, you know, until more recently, we're starting to realize, oh, wait a minute, there's a microbiome signature here, M. S.

Alzheimer's, you know, so it really there's there's a huge GI aspect when it comes to all of these chronic diseases. Absolutely. So I have a couple logistical questions.

So number one, is it a one size fits all like formulation in the capsule. Or do you do some like matching of someone's had, you know like a GI effects or fill in the blank.

Right. For CDs. Say that's done an evaluation of the microbiome. Is there a matching or is kind of and I don't mean this in a bad way, but is it like a standard one size fits all?

Yeah. Currently that's the approach. It is a one size fits all. What we do do is that in the course of a patient's treatment, we would try to give product from at least two different donors to get a broader like overlap and broader exposure to the microbes that that patient might need, and they'll take on what they need to to get the benefit.

The feature, I believe, at that FMT and, very sadly, we just recently got, turned down for a grant, by the government, which, as you know, probably in the U. S.

as well, is really tightening their belt when it comes to funding science. But we we really think, based on some of the early research, especially, there was a study in ulcerative colitis where a certain group of patients got better outcomes and remission compared to another group, and it was donor dependent.

So, you know, there's certain elements of just broad donor screening that would improve one's chances dramatically. Like all of our donors are minimum under 30 years old.

Treatment timelines, donor matching, and safety screening

You know, we look at whether they're breastfed vaginally born, you know, we look at all these parameters that we know contribute to a healthy diet. And then, of course, we're doing all of the screening to rule out anything pathogenic, infectious, inflammatory, you name it.

However, I do think there's something there. And that's been my instinct since the years of starting with that. FMT but as a scientific medical community, we just haven't yet identified what precisely that is.

And so it's a matter of time. I mean, we will get there and we hope to play a role in understanding that science. But as of right now, I mean, with the success rate generally being very high, it would only hopefully improve the success rate further.

And and again, the safety profile, it's exceptionally safe. So we wouldn't really change that. I think the real opportunity and this is kind of full circle to what we discussed with line, is identifying who would be an ideal

recipient, because that's a right now we don't really know, you know, okay, we have microbiome disruption.

We have dysbiosis. We have too many of some not enough of others. But how do we really identify who's going to be the most likely responder. And you know, we're in the context of chronic disease here.

But like cancer is another use case where there's some really exciting stuff, where using FMT and fixing the microbiome allows the patient to begin responding to a drug they were previously nonresponsive to.

And so how can we then better identify who's going to be the ideal candidate for FMT. And almost like predictive of their outcome. That would save people a lot of like, you know, trial and error for any treatment.

Right. Like this is individual response. And that goes for antibiotics and a whole lot of other categories. It'd be great to know before you take it, is this going to work?

Right? I mean, and it's also like, you know, the immune system plays a role in inflammation, you know, immune dysfunction and inflammation in pretty much every single chronic disease that exists, you know, whether it's cardiovascular, whether it's obesity, whether it's autoimmunity, cancer, neurodegenerative, like, right.

All of it is some combination of inflammation and immune dysfunction. But I'm so curious. Okay. I have more logistical questions. I have them that I'm sure that means some of the listeners do.

So number one, like do you do you screen and make sure that, like your recipients have not been vaccinated for Covid and things like that, like what is your screening criteria.

Yes. Yeah. So there's the standards. So like Health Canada, FDA, the MHRA in the UK, the TGA. And they all have different but broadly overlapping standards.

And because we work with practitioners around the world, we seek to at a minimum, comply with the standards as set by these different regulatory bodies.

However, in my opinion, their standards are like very easy to get through and in many cases a donor could have received an antibiotic 3 to 6 months ago and still make it into the donor program.

And so to me, that's just not acceptable in the context of C diff. Thankfully, even a really horrible donor can shift someone's C diff and put them into a cure very quickly.

But when you get to these more chronic, complex cases, that just isn't going to cut it. And so there's a lot more on top of that that I think is really important, which does go back to and I mentioned it briefly like breastfed vaginally born.

We're looking at their lifetime use of antibiotics. We have many donors have no lifetime use of antibiotics. But we do allow because there's really exceptionally healthy people that might have had a course of antibiotics for an infection when they were eight, and that really had no impact on their microbiome or their overall gut health.

So we limit the amount of lifetime antibiotics, no vaccines at all, a minimum of a year before being in the program, as well as at all during the course of being a donor in the program.

Of course, we want our donors to stay with us long term. We do look for Covid vaccine history. We check for spike proteins. We do have not many, but we do have a few donors who have had a Covid vaccine previously.

And so we've looked at their spike proteins and we see, okay, these are they're in a sort of healthy range. But as a physician, the physician can choose, hey, I, I don't want a donor who's had a, you know, vaccine with that Covid vaccine in their history.

And that's something that a physician can choose. And we would only release in the future any product to them that

would come from a unvaccinated donor, from a Covid vaccine standpoint.

Oh that's great. And then, okay, so just to understand a little bit more deeply. So this is not like there was an original donor and you've extracted these bacteria and now you are lab growing these bacteria.

Correct I wish I wish right. No. Like every single capsule is coming from bacteria that has come from a real live screened donor that is been for lack of a better like ultra washed.

Purified. Yes. Yes. Okay. Yeah. We literally have a yes. He's not technically full time but essentially full driver that's driving every day picking up samples.

And the majority of our donors are donating daily. So we're accepting samples six days a week. Yeah. So every day. Wow. Okay. There's just aspects of the microbiome that you can't regrow on a plate like, oh, we can only grow what we know about and we can only grow with the medium that grows those bacteria.

But the reality is, is like, we don't even know all of the bacteria and fungi and viruses, all of the things that actually exist in the microbiome. And I think the microbiome is so much more than the bugs, like there's so much more going on.

It's just like saying a forest is all about the trees, but not right. Not appreciating that the soil has a whole lot more to do with the help of that forest and the trees themselves than the actual trees themselves.

So yeah, it's this whole living dynamic, ever changing, daily changing sort of large organism. It's almost its own organ, you know. So it's it's a fascinating thing.

So what makes novel biomes your company's approach different to other FMT companies and products that are out in the market? Yeah, I think that the one part being, I think really key is that the manufacturing process that we have, you know, being regulated by Health Canada, which is probably one of the harder regulatory bodies to get approval from, from a GMP drug manufacturing standpoint, I think that's really important, having third party oversight and making sure that what we're doing is all aboveboard and and being done appropriately with that, with GMP and why I sort of stress that GMP is because there's so many things that need to be done to be a GMP manufacture.

Like just as an example, you know, we're talking about the donors in the screening. Of course, there's all of the donor screening that comes into that.

And we could talk for a half hour just about that. But every that that we make, we're keeping a portion of it as a raw sample. We're keeping a finished product from it as a retention sample.

So any product that when any pill that we have, there's several that can be drawn on to retest in the future should there ever be an issue, there's checkpoints at every point along the way to even release a product.

Everything made between screening is held within in quarantine, so there's no release of product until all of the follow up donor screening every three months is completed.

You know, we have a microbiology lab run by microbiologists who are doing all the testing on the product to release it at every point along the way. Anything that goes into the product is tested.

We have a whole environmental where this is all being done in clean rooms. Each batch is produced in a clean room that's completely cleaned every time a new batch is made.

So a new donor product comes into it totally clean. And we do environmental testing on it just to make sure there's no growth of fungi, bacteria, molds, etc.

and that's being done repeatedly. We're testing the water system all the time. So we have we're testing the city

water. We're testing the water that comes out of our ultrapure water.

We we autoclave everything. Everything is used. I mean, it just the list goes on and on. Binders full of SOPs and documentation and everybody's training to a certain standard.

And it's drug is action. So that, to me tells us a lot about the safety of the FMT, because a part of it comes from the donor and donor screening. And the other part comes from the manufacturing.

Just making sure nothing from the environment can come into the product, which is really important. And then, you know, I think what makes us unique as well is my background as an acrobatic doctor.

So I spent many, many years treating hundreds of patients. And so we bring a lot of that clinical experience as well as all of the scientific knowledge.

Novel Biomeu2019s manufacturing standards and product formats

And our whole role is to try to educate and train doctors to become better at understanding the microbiome and how to potentially shift it with that FMT and then we have several product types.

So we as I mentioned, we actually treated a lot of pediatrics. And so we developed an oral powder. And this is you know it's pretty magical. It's substantially colorless, odorless and tasteless.

You know it's hard to even see, but it's in a small vial. And you could just open this up, mix it with some water, juice, milk, whatever. You know, a parent would normally give their child.

And that will have a similar effect as an oral capsule, which a lot of kids cannot swallow. So several different product types. And again, as I mentioned, you know, basically shelf stable at room temperature.

Although our stability studies as they stand right now, that's another thing. Stability studies you know. So we're tracking batches every year. We're pulling new batches that we're tracking from a stability standpoint what's happening over time.

And we're stressing you know we've different stability trials that are running. But but just to make sure that the product is, is at the same standard as when we released it from the bacterial counts and other things.

So it can just easily set transport fridge temperatures suggested for long term storage. But that's a huge advantage to many years ago when it was, you know, needing to be with dry ice.

And there's, you know, some studies comparing the outcomes when doing like a frozen fresh product versus a freeze dried product. And the outcomes are similar.

And then shelf life of minimum. That's where we're at right now. Two years we've done testing on products that are 4 or 5 years from when we made them.

But again, because it's not we have to start a new stability study on a new product. We can't just decipher shelf life on an old product that didn't have the same testing as the release.

I mean, it's there's there's a lot that goes into this, but but yeah. So it makes it easier for a physician. And then of course, their, their patient to be able to travel with it, go home with it.

They don't need a fancy -80 freezer at home and so on and so forth. That's great. So what about especially like with the liquid form that you were just talking about with children.

Like how does it bypass stomach acid? Yeah, there's so it doesn't what we suggest in what's being done in a lot of the research is using actually a PPI.

I hate PPI as a general statement as I do antibiotics, unless they can be life saving. But in the short term use, putting a patient on a PPI, we haven't seen any differences.

When we were treating autism, we were collecting a lot of data. We've written some of it up. It's not been in formal publications, but we've written up our own reports, and we saw no difference between a capsule treatment group and an oral powder treatment group.

I was convinced in my head, like, oh, absolutely, we're going to see better outcomes for these kids who are doing the oral capsule, which is in coated, which we know gets through the stomach acid.

We do capsule disintegration testing on every batch that we produce. So we know they don't open up before 60 minutes in that to, you know, stomach acid scenario.

But, we saw no difference in outcomes between the groups, but they would be on, ten, 15, 20mg of Prilosec that would be taken before the FMT dose each day.

They were through going through treatment. And in our protocol, they were typically doing four months of treatment overall. And then we just have them taper off of the PPI.

And from our, you know, vantage point, we didn't see any negative consequences to that. Of course, you know, it's a short term. We're not doing this for years, which a lot of patients are doing.

You know, PPI is around them for ten years in many cases. And the doctor never tells them to go off, even though the label very clearly states this is meant to be a short term treatment.

So yeah, that is way not necessary to be able to do this or that's an optional thing. Or is that part of the protocol we said, yeah, I mean, you know, in medicine you're always trying to weigh the pros and cons, right?

I think there's an advantage just thinking through the physiology and how everything works. I think there's an advantage to doing this. We did have some, you know, parents who would say, I really like to avoid this.

And we would just, hey, why don't you do like 1 or 2 teaspoons of, of baking soda that'll lower the pH of the stomach acid. And you could do that instead.

So there are, you know, cases where, where patients would do that as a, as an alternative. But, you know, purely looking at what's happening in the research, in the research, they are using the PPI as an example.

And when I started this, I was very skeptical on the use of antibiotics as a part of the pre treatment. I was like, I don't know, I think we can do this better or as good with herbs.

And so when I was initially treating pain in the States back to early 2018, I was, you know, relying more on herbal antimicrobials. But when we started observing patients that would do the antibiotic approach, the outcomes were much better.

And this is, you know, anecdotal. This is just my experience. What types of organisms were you targeting? Are you talking about like loss ratio or. Yeah, cluster time is the you talking about especially in the context of autism.

Like a lot of these kids have a lot of clostridium overgrowth. Yeah. And so we would be using vancomycin commonly. Yeah. To deal with that. And again it's a pros cons thing. Right.

In the in the absence of FMT I would be very concerned about putting some of these really vulnerable on an antibiotic just for the fun of it. But in the context of FMT, you're following it up immediately with the full replacement.

And the the example that I often use is like we're trying to get to the top of a mountain and having too much dysbiosis and overgrowth and pathogenic bugs just increases.

Like the how steep the mountain is, how steep the climate. So we may be able to get that, but we're just increasing our odds. If we're lowering a how hard it is to get to the top.

So we're more likely to get there and or get all the way versus part of the way. And so part of the lake could still result in really meaningful changes.

But it might not be the significant change that we're hoping for. Right? So when someone has something like Sibo, how is this impacting Sibo. Because you know, we all hear right, that when you have Sibo you shouldn't be doing probiotics because of the backwards sort of like motility in the intestine being like the the driving causes.

Tell me your opinion on using FMT and people who have like chronic Sibo. Yeah, FMT and research has shown in my own clinical experience is actually showing resolution of Sibo.

And I've seen this time and again, I don't think the way we think about Sibo today is really all that accurate. I think it's more of a large bowel dysbiosis, and that then translates and sort of migrates up into the small bowel and has it because if if Sibo was purely just an overgrowth of bacteria that made their way into the small intestine, everybody doing oral FMT would get Sibo, not the case at all.

And this is again what I see. But also we'd be seeing all of these people as a side effect of oral FMT treatment, getting bloating, distention, diarrhea, you know, all of the typical Sibo symptoms.

So yeah, those are really fascinating study. And there's been more since originally where these patients had chronic obstructive bowel disorder. So basically like they're just severe constipation.

And when it gets so bad they need to be, you know, hospitalized and treated and so on and so forth. And naturally, it's pretty easy to understand that these people develop Sibo.

And so they were treating them with oral at them. T not only did they resolve their chronic obstructive bowel disorder, they actually, on pre-post breath testing resolve the CPM.

And so I think especially in these chronic relapsing cases, the dysfunction or dysbiosis of their microbiome is why they keep relapsing. And so when I was still treating patients, I would still put them on a Sibo treatment protocol.

Whether that was an antibiotic one or an antibiotic herbal or just an herbal one. And then we would go into the FMT. So I wouldn't just treat them without trying to bring down some of the overgrowth.

But for many, many patients, that would be the ticket for them, is that we've now fixed their microbiome because that's typically a part of most natural or functional health type protocols for Sibo.

It's like you kill it, you then rebuild the microbiome with the probiotics.

FMT protocols for SIBO, immune dysfunction, and complex cases

But as we discussed earlier, these probiotics, in these severe cases where there's just not a lot of my gut diversity to begin with, there's nothing to regrow because there's nothing there like full strains and species of bacteria.

And they have been completely eliminated due to their overuse of antibiotics and potentially diet and other lifestyle things. Okay, so we've gone through the safety of your facility.

We've gone through the safety and the screening of the donors. Are there any other safety concerns that one should think about? You know, if they are considering using FMT as, you know, a piece of their therapeutic puzzle when dealing with complex chronic illness?

Yeah. Great question. So I've treated kids as young as three and adults into their 80s. So I don't think there's like an age thing. And there's been research on the use of FMT on newborns, literally like first feeding, comparing like a

C diff born to vaginal born and at six months having the same microbiome as if they were vaginally born.

So in theory a newborn child could could do FMT from the small amounts of studies that we have. So I don't think age is in any way a factor, I think immune system overall.

You know, there's been 1 or 2 cases now where a patient that was elderly and had no immune system actually died with that FMT, but predominantly because the donor had an antibiotic resistant bug.

And so now any of the screening, this was years ago. Now all of the screening rules out antibiotic resistance to, certain bacteria. There's lots of patients are humans that are thriving, but they have antibiotic resistant bugs.

They just don't know about it. Why would you like. There are a lot of patients that have H. Pylori, but no symptoms or right beyond illness, but actually no symptoms at all.

And it may be beneficial for them. So it's not clear your screening for all of them. Yes yes yes yes yes. So many years ago. But at the same time there were studies being done that elderly patients with.

And I'm not talking like low immune folks, I'm talking these people I know immune system. Yeah. And so there was one case study or one report and this was not from our product or anything. And this was years ago.

And the FDA, you know, put out a notice and this needs to be added to screening. But there was a person who was elderly and who did die, and they assumed it was because of this antibiotic resistance, but they had essentially no immune system, not essentially, they had no immune system.

And so, you know, it's pretty easy to understand that connection. So in that context, like if someone was elderly and, you know, had no immune system, like they had a mean immune disease that had required that that resulted in no immune system.

I'd be cautious. But this is being done in cancer, this being done in Pans Pandas, where they have real immune dysfunction, low white blood cell counts, all of the things.

And broadly speaking, no problems at all. That would be the one caveat. And when I was treating, I was always like cautious of the cancer patients. And I would be more involved in like the post cancer treatment.

But the research now is just gung ho ahead on using FMT during cancer treatment protocols, which to me is it's fascinating. Yeah, it really is. Okay. Is there anything else that you would like our listeners to know about Novel Biome or about FMT in general?

Yeah, I mean, I've talked a lot about patients, but we don't treat patients anymore. So you're going to have to work with someone amazing like Doctor Hinchey, bring your own, provider, health care provider to the table to work with us, to collaborate with us.

Yeah. The the only thing that I would think about is like, I get it, you know, I get this feeling of hopelessness and, you know, the daily waking up with this uncertainty about the future.

And although FMT is is not like a magic bullet for everybody, I think for those people that are in that situation that just have no hope, they have no, you know, feeling that there's anything available to them.

There's no doctor, there's no medication, there's no supplement, there's nothing that can work. Sometimes an FMT can be life changing. And of course, as you pointed out, you know, it should absolutely include appropriate preparation and all of the lifestyle things that come along with it.

But, but yeah, I think there's there's a real opportunity here for those people that are, you know, struggling and they don't have anything. There's no obvious disease there, right?

Like there they don't have Lyme anymore, but there's just immune dysfunction. There's microbiome dysfunction. They're dealing with all of these symptoms.

I think those patients there's hope here. There's hope that shifting their microbiome can dramatically shift their quality of life and improve their their overall health and well-being.

So don't despair. Keep trying. And there is a light at the end of the tunnel. The body is a magical thing. If you give it what it needs, it can it can absolutely transform and it doesn't have to take forever.

You know, this doesn't have to be ten years. This can happen in weeks or months. I couldn't agree more. And yes, like hope is such a precious, extremely helpful and necessary tool to getting better when you have a complex chronic illness.

So tell our listeners before we wrap up how they can find more information about Novel Biome. Yeah, our website has a lot of resources, even for patients who are interested.

But of course, for physicians as well, we do tons of blogs. So novel by Rom-com, we're on YouTube and all of the different social media platforms where we have our own podcast as well.

Just again, that novel biome and all of these different places. Yeah. And if there is a practitioner in the audience who is interested in learning more, we spend a lot of time on education.

So whether that's training the provider themselves or their team, if there's certain areas of interest that there's research available, we share it all.

We write up a lot of protocols on the use of FMT in areas where there is a decent amount of research, everything from IBS, Sibo to, you know, neurological diseases like autism, Parkinson's, ulcerative colitis, oncology.

And we keep developing more and more resources and tools to give to doctors to help them in helping their patients. So yeah, reach out. Thank you. Thanks so much for your time.

Thank you for educating us all on this. Very interesting. But I mean really hopeful and effective treatment. Thank you. This is a lot of fun. It was okay.

And for all of our listeners at home, thank you for being here with us. If this episode was helpful, please share it with others because together we all heal stronger.