Podcast Introduction and Guest Welcome

If you can get the immune system on your side, the battle's about 80% won. And the way you get your immune systems on you side is you work on the gut.

You can do all the testing you want in the world. I always tell my patients who are chronically ill, look at one of the autoimmune diets because that's what those diets are about.

They're trying to minimize the inflammatory impact of food. If got enough inflammation with your tick-borne illness, you don't need to add to it. Hi, and welcome to the Lime Bites podcast, where we shine a light on the misunderstood science of Lyme and other vector borne diseases, as well as the truths that many still miss.

I'm Dr. Mariah Hinchy, naturopathic physician and fellow of the Medical Academy of Pediatric Special Needs. I specialize in treating chronic Lyme disease, as well as other complex inflammatory conditions.

In this podcast, we break down what's working and what is not. We share the facts that most people miss, challenge outdated thinking, and give both patients and practitioners the tools to heal smarter.

So let's get into it and change the way we heal Lyma. Hi, and welcome to another episode. I am your host, Dr. Mariah Hinchy. And tonight, we're going to talk about how tick-borne diseases themselves affect the gut and gut health, as well as how certain pharmaceutical treatments can further disrupt the microbiome, leading to a whole host of issues.

So I'm super excited about our guest expert that's joining us tonight. He's going help us navigate through all of this. My guest is Dr James Neuenschwander.

He is a medical doctor and president of the Medical Academy for Pediatric Special Needs. Welcome, Dr. New. Please tell our audience a little bit about yourself.

Well, thank you so much, Mariah. I'm thankful that you invited me here. Um, I am a integrative physician. And I actually, um, was brought into this world from, treating Lyme with my patients.

So I've been in practice in Ann Arbor, Michigan since 1988. Originally was board certified as an emergency room physician. I started doing this work because I was looking at How do you actually heal patients rather than just throw drugs at them?

And basically my practice is chronically ill children and adults, including those, obviously, if you have people that have chronic illness, you're going to run into people with chronic Lyme disease.

So it actually started with Lyne and that brought me into this whole world of pediatrics. So I'm originally a graduate of the University of Michigan. I think they want nothing to do with me at this point, so I might have to stop saying that, but I'll say go blue.

And really, most of what I know has been through the many, many years that I've been in practice, learned from my patients. So most what of I am doing now is integrated medicine.

How Tick-Borne Illness Affects the Gut

But I still have a board certification in emergency medicine, I'd think it might be expiring soon, and I will have stop that saying afterwards. Board certified in integrated medicines.

And I am, like you said, the president of the Medical Academy of Pediatric Special Needs or MAPS. I mean, that's sort of one of things I'm most excited about is moving things forward in this whole idea of integrative treatment of children, because we definitely have a crisis there.

We do. And they're definitely, from what I can see, one the underserved, understudied populations when it comes to chronic tick-borne illnesses. we are still missing the boat in just how much these chronic infections are not picked up on and how it actually affects the health and behavior of a lot of these kids.

So let's start out by talking about how chronic Lyme disease and other tick-borne infections themselves impact our gut and gut health. Well, the biggest thing that's going to happen, tick-borne illness itself can affect the gut, but primarily what it's gonna do is alter the immune system function, create inflammation, and then that inflammation is gonna alter gut permeability.

And that just the lining of the got has to be very tight. It can't let things in that shouldn't get in. When that gets leaky, when it lets things into the bloodstream that should get it in, it creates all kinds of problems.

And again, inflammation created by these chronic tick-borne illnesses can cause problems with that digestive tract. And it will alter the biome, what we call the bacterial ecosystem in the gut.

So we called that the microbiome of the guy. It will actually alter that microbiomes. Some of it may be, you know, the micro biomes trying to help the person deal with the infection.

But some of that is a direct impact of inflammation. Yeah. And so what symptoms, like, what would this look like? What symptoms does this cause? Well, it's trouble if it can be anything across the board.

I mean, there could be something obvious, you know, somebody who's having abdominal pain or they're bloating, they have diarrhea or whatever. But primarily what we see, and especially, I deal with a lot of kids on the autism spectrum, these syndromes, the PANS, PANDAS syndrumes where they get brain inflammation, you get a lot of behavioral changes.

Sometimes you'll just get behavioral change. You'll get anxiety or you will get OCD or get aggression. So it's not necessarily just the abdominal symptoms.

And then the other thing is you can just have a change without getting too graphic or gross here. You can just get a change in the characteristic of the stool itself.

You know, all of a sudden it'll have a different smell, there'll be more gas, it will be a differ texture than what it was. So all those things would clue you in that maybe there's something going on there.

And so then what happens when you throw antibiotics in there? Especially a lot of times like we need heavy duty combination antibiotics for long periods of time, very much longer than a standard course of antibiotics.

Well, and it's not just antibiotics. It's also antiseptic herbs. I mean, they're not as destructive to the biome, but, you know, we do testing now and you can tell when somebody's been on one of these antisaptic herbal combinations or if somebody has been especially a big gun.

oral antibiotics that we use. And yes, I mean, we're typically treating for, you know, two, three months at least for some of these patients that have chronic symptoms.

The issue is these obviously are not smart bombs. They're not just going to go after, the Borrelia spirochete or after the Bartonella or whatever what the co-infection might be.

they're going go to after anything that might sensitive to that particular antibiotic or antiseptic herb. And unfortunately, there's a lot of, you know, collateral damage when you do that, and you can significantly disrupt the gut ecosystem.

So we will routinely see, one of the things we measure when we look at the guts is what is the diversity? How many different bacteria are there in that stool sample?

So ideally, it'd be around 500, something like that, and minimum would be maybe 350. But you can see that diversity go from 400 or 500 down to maybe 200 after a round of antibiotics.

And the important thing to remember about kids in particular, adults, our gut ecosystem is much more stable. It's been in a certain way for much, much longer.

So if we come in with antibiotics and throw it off its center, throw out of balance, we're much more likely to bounce back with some simple interventions or maybe just on its own.

With a kid, because that ecosystem is not locked in, and it really depends on how old the kid is, too.

Antibiotics, Herbs, and Microbiome Disruption

Because that system is as not as locked-in as it is an adult, when you come in with antibiotics, you could potentially permanently alter that microbiome with those antibiotics.

And this is something, the younger the kids, more like that is to happen. So if you can have a kid that's like less than a year old, you know, even one round of antibiotics, a 10-day round could cause that to happen.

You got a kids that three, four, five years old and you're treating Lyme and it's more chronic and your doing 30, 60 days of antibiotic, your very likely to alter that ecosystem forever if your don't do something to try and bring it back to some state of balance.

Okay, so are there any particular treatments that you would recommend doing in conjunction with antibiotics or antimicrobial herbs to prevent things like C.

diff, right? That's probably the most commonly known infection that we're trying to present or fungal overgrowth, candida, things Yeah, sort of when I prescribe antibiotics or if I'm doing the antibiotic herbs, I always will include something that's anti-yeast.

I mean, it's almost a guarantee that if you're going to do 30 days of especially something like doxycycline, With kids, we tend to use the cephalosporin type antibiotics, but they're pretty broad spectrum.

So when you're using those kinds of antibiotics it's almost guaranteed you are going to get a fungal overgrowth. I typically will add some anti-fungal to my program.

Whether it is using a prescription like Nystatin, that's a non-absorbable anti fungle for the gut, using medication like Fluconazole, or using some of the myriad of anti-fungal supplements that we have, you know, the lorocitin or the paldiarco or any of those herbal combinations that are out there that that is going after this as well.

So routinely I'm going to do that just prophylactically. I am not going wait until they have a fungal problem, I will add that in. The other big thing, and we do a lot of what are called prebiotics.

So prebiotics are these mainly soluble fibers. They're complex carbohydrates, things that we don't necessarily digest ourselves. We don' have the enzymes to break them down.

But these serve as food for the probiotic bacteria in our gut. Making sure that somebody has a decent amount of either in a food source, which is always hard with kids because, you know, they're not going to sit down and say, gee, mommy, can I have a bowl of broccoli and some Brussels sprouts?

You know they are not gonna want to eat those foods. But if you can get them food, great. Otherwise, it's supplementing with these things. And these would be things like inulin or the FOS, GOS even some of the grain

based ones like psyllium.

There's a number of different prebiotics that we use. I tend to add those in early on and then what I'm going to do, optimally, I am going try and get some sort of gut profile before I'm throwing them on all these antibiotics.

So I'll do a baseline evaluation, then we'll treat, and then when we're done treating the line, I will reevaluate and see where it's at. At least I know what I am trying to get back to after I've done treated them.

If I mess up that ecosystem, how do I get that back what it was to start out with? By doing that, you can usually recover that You're going to come in and sort of carpet bomb, and then when you're done, you are going rebuild the city.

you know, that's kind of what you have to do with particularly the sicker kids. Makes sense. So as far as prebiotics go, are there certain prebiotics that are good for most different species of normal flora?

Like I know that there are some pre biotics that have been studied and shown to help like certain populations. Are there ones that or more broad spectrum or do you really feel like, you need to rotate through all of these?

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Prebiotics, Testing, and Gut Diversity

The way we manage probiotics, first of all, just to answer the question, I think the best probiotic out there or prebiotic out is partially hydrolyzed guar gum.

All right, so this is just PHGG. There's a number of brand names out there, but that's the one that sort of is the broadest spectrum. It tends not to feed things you don't want to, it will improve the production of most of the healthy bacteria in a stool sample without necessarily going after other other organisms that you don't want.

Some of the other prebiotics are a little bit trickier, so without actually knowing what the ecosystem is, it becomes a bit more difficult to determine, does a person need that?

But that's one of them. The second is I'm a big fan of using acacia. Acacia root is something that feeds Bifidophilus bacteria, and most of my patients, not just kids, but most patients that are chronically ill, have low bifidophilus species.

It's rare that you'll see a high level. So that's another one that is pretty safe to add in. And it doesn't really feed a lot of the other bacteria that we worry about.

You know, other things out there like leukomanin, that konjac root, That stuff is a great broad-spectrum prebiotic,

but it can also feed some of bad lactobacillus that are in the stool sample and actually feed some of the fermentation.

So you start somebody on something like that and all of a sudden they're getting bloating, they are gassy, having a lot of flatulence. It just tells you that you're overfeeding some sort of fermenting organism.

So by doing, you know, by starting with something broad spectrum, we can help balance the ecosystem without necessarily having to do testing. But, I've got MD after my name, and I'm allowed to this stuff.

So I always will do the testing before I start. I know what I am targeting with those prebiotics before we ever start with the antibiotics. Right. And just a quick question because I know the listeners are going to want to know this.

What are your favorite labs to actually evaluate the various probiotic levels? Well, there's a few different ways to do it. I mean, what we're doing now is something called 16S RNA sequencing.

That particular technique will identify all the bacteria in a sample. And if you identify all the bacteria, then you can determine the percentages of each bacteria.

So we're using, there's a couple labs, one's called Bioncite, the other's Called Ombre. They'll do this kind of sequencing and then they give you the Bacteria based on the frequency.

Now we have a specialized program that we use that takes that data and says, oh, you have, 0.03% bifidophilus, and that's too low, it should be 3%. So it's the relative amount of each one.

So that has become my favorite. Are you saying they actually make the probiotic to go along with the test, or they just give you the tax? The companies themselves do, but again, we're using that data a little bit differently than what the companies report out, so we have a separate program that we use.

There's also microbiome labs. They do a different technique. It's DNA sequencing rather than 16S RNA. So it's a more expensive test, But the advantage to DNA-sequencing, it is not just bacteria.

it sequences anything that has DNA in that sample. That would include yeast and include parasites. So you do get information and again they will tell you based on what's in that sample, yes you should use this or that prebiotic.

Of course they're going to tell use their pre-biotics but it gives you an idea of what you could use. So there are techniques like that out there. There's also, you know, we use a lot of the, Genova has a stool sample that uses PCR testing.

We use GI maps, that's PCR. PCR will tell you the amount of an individual organism. but because you're not measuring every bacteria in the sample, you don't know the percentage.

So that will still give you an idea. You know, if you do PCR testing and your bifidophilus level is really low, okay, your probably have low biphidophyllus and you need to do something about that.

There are pluses and minuses to all this testing, but this is something that's developed over years and years of doing this kind of work. Can you comment on the difference between the importance of having an astronomical amount of CFUs or colony-forming units for the audience versus having more species and more strains.

Because I think people get so hung up on the number. And I just, as long as you are in agreeance, I want to kind of get across the point that it's not so much about the numbers.

It's about different species. Because if you can seed as many different spaces as possible, and then you give them the food, they're going to do what they do best and multiply.

So can you talk a little bit about that? Absolutely. I mean, there are so many places when diversity matters. You

know, it matters in so may situations and this is true of the gut.

So, you know one of things that, we have this term alpha diversity. Alpha diversity means the number of different species in a single stool sample and then beta diversity is the difference between stool samples.

Like if I do a stool today and I'd do stool a sample two months from now, Theoretically, if I'm eating the same thing, the beta diversity should be the saying.

It should very low. Whereas the alpha diversity is a number of different species. So we sort of set the minimum at 350. That might be a random number, but to me that seems like it's pretty low 100 is kind of what we're targeting.

Now, if you look at sort of where we came from, you at the hunter-gatherer diet, there's very few of these populations left in the world. But if look a their gut biome, it's not 350 or 500 bacteria.

It's more like 1200 bacteria, but again, when you're a hunter gatherer, its not like, oh, Wednesday is a Prince Spaghetti Day. No, we are going to eat whatever we gather that day.

We're going to eat whatever we hunt, whatever kill, that's what we eat that day. So because of that, nature… sort of demands diversity, and nature forces the diversity in the diet.

Gut Permeability and Immune Activation

And the best way to change the adversity of the gut is to just change diversity of diet, you know, I deal with kids on the autism spectrum, there's an autism diet right?

It's chicken McNuggets, fruit roll ups, usually some, peanut butter jelly kind of thing, And there is just no variety at all. There's no vegetables, if it's a fruit, it is grapes, There's just not a lot of anything in that diet.

And so this is the problem with kids is you're not, you know, the best source of these kinds of fibers in the diet are root vegetables, and there's more to life than potatoes and carrots.

You know you have to, there is a whole. old world of vegetables that most people haven't even heard of. You know, I always say you go to the grocery store, you know walk past the potatoes, walk pass the carrots, and, when you walk passed something, it's like, what's that?

Buy it. And then you figure out how to make it, alright? Because that's what you need, You need that diversity in your diet to get the diversity, in you gut.

and then the other thing, i always joke that i do all my hunting at Kroger, that our local supermarket. And I'm 100% successful. Well, unless the shelves are bare.

But it's not like that. We didn't come from that history. It's like you went out hunting and you brought home meat every day. You were successful sometimes and not successful at other times.

And so it is always a matter of nature required that there was variation in your diet. Then there is also the seasonal variation. You weren't eating the same thing in January that you were eating in June.

Whereas now, again, you can get strawberries in Jan and oranges in Michigan in February. I mean, come on. That's not at all the way it was. And so we don't have the diversity of our diet.

We don't have very good alpha diversity in our stool samples. And without that alpha-diversity, you're not going to have a very immune function. That is the key, especially in kids.

The key to dealing with most of these tick-borne illnesses. I mean, you have areas where, we're lying. I'm just going to pick on Lyme and not necessarily co-infections, but where Lymen is endemic, right?

Places where lymen are endemics. If you check blood work on kids, about 15% of them will have antibodies against Borrelia, against the Lyman's Spirochete.

So it means they've been exposed. It means that they had a Spirachete infection with Borrelia, But almost all of the are asymptomatic. Why? Because their immune system did what it was supposed to do.

And a big part of that is the health of the gut ecosystem. Right. Yes, that's such an important point and something that I'm very, very passionate about and is something I include in almost every single talk that do about tick-borne disease.

So, can you elaborate a little bit further? You mentioned increased intestinal permeability, tight junctions earlier. So going back to that disruption in the gut, when that happens, how does that affect the entire body systemically?

And then I'm going to ask you to, you know, just start there, but then we're going go to the brain and we are going talk about the good brain connection and how everything that is going on systemicaly, coming from this leakiness of the got going into systemic circulation, How that impacts the body and then the So, yeah, I'll start with the gut.

It's got immune brain, they're all basically one super system, and they are all intimately linked with each other. So you start this idea that one of the functions, we all understand the guts function is to get nutrients out of our food and trying to eliminate waste.

But one really important function of the gut, and if you think about it, is how do we protect our immune system from the foreign proteins that we're eating?

Because we are taking foreign protein into our system. So I always say, you know, if we took whatever you had for lunch or whatever we had breakfast or dinner and you threw it in the blender and injected it at IV, your immune systems would freak out.

It would react, you'd have allergies and all that sort of stuff. So one of the things that the intestine is designed to do is sort to shield the immune system from seeing those foreign proteins that are in our food until they're broken down to a state where they are no longer recognized as foreign.

So it starts with the stomach. I mean, this is why it's so important to have good stomach acid. Why all these, you know, antacids and proton pump inhibitors and H2 blockers, all of these medications we have to get rid of stomach acids is such a bad idea.

We need that stomach to break down those proteins. So most of that protein digestion should happen in the stomach. We have an enzyme called pepsin that goes along with it.

If everything was perfect, then we wouldn't need anything else. But as one of my autistic children pointed out to me, Dr. New, everything is not perfect.

And so we have to have backup systems. And one of them is when stuff comes out of the stomach, we have enzymes that break down proteins in the intestine.

They come from the pancreas. It's just they're working at a neutral pH. So they are nowhere near as effective as the pepsin in stomach. That's trypsum and chymotrypsm.

And so they'll help break the proteins. We have what's called secretory IgA. These are antibodies made by the lining of the gut, they can find foreign proteins that haven't been broken down and they'll bind it and make this complex that's too big to get absorbed.

So that is another defensive mechanism. But ultimately, what protects us the most is the linings of gut. The cells are closely bonded together. We call this a tight junction.

There's actually little proteins that hold it together, and if something happens to that junction and causes it to open up, right, so now you have a space where there's a protein that hasn't been fully digested that might be small enough to fit through that space, but it's big enough set off an immune response.

So if a proteine is less than 100 amino acids long, it is never going to set of an immunity response, the immune system is not going see it as foreign.

If it's over maybe 300 or 400 amino acids, the immune system is going to see it. It's that range from 100 to 300 where maybe it does, maybe doesn't. Those are the protein ranges we're talking about that could fit through an open gap.

When these tight junctions open up, we call that leaky gut syndrome, or if you want to be technical, you call it impaired intestinal permeability, but that's allowing those proteins to get in.

Now you've got a problem. Because if this gets in and sets off an immune response, now the body is sensitized. It's like you've created a food sensitivity to that particular protein.

And the next time you eat it, the immune system is going to react. The trouble is the more inflammation you have, more of these gap junctions that open up.

So the process just starts snowballing to the point where you'll have people that can't eat anything. No matter what they eat, if they ate something more than 7 to 10 days, all of a sudden they're allergic to it.

They're reacting to. And that's impaired gut permeability. It's really important to understand that concept. Again, back to what we started with, that is part of what happens with the infection itself and definitely part what happen when you disrupt the ecosystem and the gut.

Yeah, it's such a big problem. So I want you to hold that thought. This is going to conclude the complimentary portion of our interview. And I wanna make sure before this gets cut off that our listeners know how to get a hold of you if they would like to, as well as give you the chance to…

I know there's an upcoming MAPS seminar that I'm going be at aswell. I would just like you share that information with our listener. Sure, so my office is actually called Bioenergy Medical Center.

Gut-Brain Connection and Pediatric Neuroinflammation

I'm in Ann Arbor, Michigan. So my website is just bioenergymedicalcenter.com. Phone is 734-995-3200, and we also have a Facebook page. But really the website's the best way to get information and learn more about the center.

The MAPS conference is going to be coming up, I believe it's March 14th through the 16th. We always try to cover St. Patrick's Day, so I get to wear a green suit.

Yeah, it will be in Charlotte, North Carolina. Information for that. is at the MAPS website, and that's medmaps.org. And you can get lots of information on, you know, for anybody who's a practitioner that is listening, lots information about integrative pediatrics, how you get involved.

We're trying to get as many people involved as possible because there's such a huge demand for better care for our kids. You know this is our future. And if they're growing up sick, what chance do we have?

You know, you can see the gray hair. I'm really concerned about who's going to take care of me. It's actually a very selfish thing that I'm doing. I am trying to help a kid so I have people to take care of me.

You're so funny. Yes. So also for patients who are listening, MAPS does have a find a practitioner function too. so you can find someone local in your area or someone that you, can do telemedicine with to, help you if you have, a

child with special needs or with tick-borne disease.

So let's jump back in. So I think we were talking about impaired intestinal permeability. We were taking about leaking these proteins in, igniting like this immune response.

And so when I'm talking to my patients, I always say, look, we want all of the immune resources that we have available to fight this infection, right?

Like we can control pretty much one thing in our lives, one things in environment, and that's what we put in your mouth. start to drain that bucket that's overflowing by omitting certain foods that are triggering the immune system, you know, we can go a long way to not only calm down theimmune system but to give back some of that energy and resource like to the Immune System so that it can actually pitch in and fight this infection.

Because in my opinion, like in the end, it's the immune system that has to either completely eradicate this infection after it has been shrunk or hold it into remission, right?

So recovering from tick-borne disease to me, the system is key. It's an ultimate endpoint of trying to heal a patient. Are you suffering from Lyme disease or another complex chronic illness and aren't sure who to trust when it comes to herbal supplements?

Hi. I'm Dr. Mariah Hinchey, founder of Lime Core Botanicals. As a naturopathic physician specializing in complex, chronic, infection-driven illnesses like Lyme disease, I needed herbal medicine I could truly trust.

That's why I formulated LIME Core botanicles. where our herbal tinctures are handcrafted in small batches right here in Connecticut. We use the whole herb, Never Isolates, to preserve the full spectrum of medicinal compounds.

Every single step from sourcing to extraction is done with precision to ensure maximum purity, potency, and consistency. These are the same herbal formulas I used to heal myself and have used for years to help my patients and family members heal too.

And now I'm making them available to practitioners and patients everywhere. Lymecore Botanicals, herbal medicine you can trust from a doctor who lives this work.

Learn more at LymencoreBotanicles.com I think that was, I arrived here because I opened a practice in 1988. The tagline for Bioenergy Medical Center was treating illness at its source.

I was always looking at, because immediately you start seeing chronically ill patients. And I live in Michigan, so it wasn't long before I started seeing patients that had tick-borne illnesses.

Now, at the time, I was kind of clueless. God bless ILADS. Yes, there was an ILAdS back then. This is the International Lyme-Associated Disease Society.

So, going to ILads and learning some of these things, and then learning about the antibiotic protocols and starting to use them. And then, you know, this set of patients will get better and this one wouldn't.

Well, what's going on with this cell? Why are they not getting better? Oh, well, maybe there's some problem with their digestion and their gut and really, integrated medicine starts and ends with the gut.

I mean, that's the one thing that we have the most control over and it influences everything. So that is what got me rolling into the whole tick-borne illnesses.

You know, you start treating parents and it's like, well, I've got this kid and he's five and, he has some of the same symptoms I have. Could he have Lyme?

And then I start testing these kids and they're positive. And that's what got me sort of involved with all this. Then it

was like you should check out this autism organization.

That's how I got involved Dan. Dan was Defeat Autism Now. And then from there, got involved with MAPS when MAPP started. But all this stuff goes back to when you have a tick-borne illness, and this is something that the Infectious Disease Society of America just is never going to understand, right?

It's not just, we need to kill the buck. I tell my patients that this idea that bugs cause disease, I think is just not true. Our response to bugs causes disease.

That's a big part of what infectious disease is about. And that's why there really is no disease out there that I know of, even things like Ebola. where a person that absolutely everybody that gets the bug has the disease.

And it's certainly not true with Borrelia, it certainly is not with any of the viruses. You know, we saw it with COVID, even those initial waves where you have 60-70% of people that were asymptomatic.

that just didn't have any symptoms at all. And then you had people on the other end of the spectrum that died. So there's a huge difference in that immune response.

What I found with all my chronic Lyme patients, and again, this was adults initially, was when you started doing immune testing, what did you find? Low killer cells.

I mean, very low killer It's like, well, what does that mean? Apparently they burned them killer cells out because they've been trying to fight this infection for 10 years and haven't been able to do it.

And then you start looking at food sensitivities. It was like oh my God, they got, you know, 40 different foods they're reactive to. you know, antibody levels, and they have either high or low antibodies, depending on where they're at in the state of the disease.

And then they had adrenal burnout, they've got all these digestive complaints and their skin problems. It was long before I knew what nasal activation was, you now all of a sudden it's like everybody is stumbled on mass cell and you know the plot stuff, the postural orthostatic tachycardia syndrome where you just have vagal dysfunction and the autonomic nervous system doesn't work right.

You know you walk around with a pulse rate of 120 all the time. So these are all things that manifest because the gut's not working right And to try and explain that to a cardiologist or explain it to an infectious disease specialist, it's like, they don't get it, and if you can get the immune system on your side, the battle is about 80% won just with that.

And the way you get your immune systems on you side is you work on the gut. Plain and simple, you can do all the testing you want in the world. I always tell my patients who are chronically ill, look at one of the autoimmune diets because that's what those diets are about.

They're trying to minimize the inflammatory impact of food. You got enough inflammation with your tick-borne illness, right? You don't need to add to it.

So what are those foods? Well, sugar's the top of list, but mainly these are foods that are, the seeds, grains, legumes, these things, Sorry to all my vegan friends, but a lot of these legumes just are very inflammatory, and particularly to a person that has that sensitivity.

If you're Chinese or Korean or Japanese, then maybe you can handle soy. I can't. Soy is almost as bad for me as gluten. It's just a very inflamatory food.

Getting that calmed down while you're working on getting the gut ecosystem balanced and then working the tick-borne illness, that combination can move you forward and get you into a state of health.

Yeah, I couldn't agree more. There's two tests that I do on almost every single patient that have, and that's a white blood cell micronutrient analysis.

and a food sensitivity panel. And a lot of patients are like, wait, what does this have to do with anything? And I'm like it has everything to with everything.

Unfortunately we can't just go in a linear fashion. We have tackle all of this at once. So while we're trying to shrink the infectious load, we have work on healing the gut because you can heal a gut that's infected, right?

and we have to get the foods out and detox and do all of these things to move the patient in the right direction. But I think you're 100% right. 80% of it has to do with the gut, with immune system, the ability to detox, and keep things where they're supposed to be kept.

calm everything down. So I'm going to go back to the brain. How does all of this impact the Brain specifically? Not specifically with children, but do you see this affect the brains of children more than adults?

And do see it affect children in a different way? Well, yes. I mean, again, back to this idea of, you know, if you've got a four or five year old, the brain circuits are developing.

The brain is full of stem cells. A brain hasn't fully developed. You alter that environment positively or negatively. You can change that child's brain for the rest of their life, right?

So, you know, as opposed to an adult where it's a much more stable, well, stable in this way, it is a more much stable situation with the brain. It's not as plastic.

There's still neuroplasticity, where the brains can be changed. it's not as plastic as a four or five-year-old kid's brain is. The second thing is this whole concept of the blood-brain barrier, where, again, the brain, as we call it, immunologically privileged.

It doesn't really have white blood cells. it has these cells called microglia. So these micro glia are modified brain cells that take on the function of a white-blood cell.

So if there's inflammation, they get all excited and swollen up and all that sort of stuff. But the brain doesn't typically have like B cells or killer cells, or the stuff that the rest of the body has.

So in order to protect the, you have to have a barrier between the blood and what's in the. Right? Because your brain is not bathed in blood. Your brain bathes in cerebral spinal fluid.

So that's sort of the brain's blood supply, is the spinal flow. And so there has to be a barrier there. The blood-brain barrier is as well developed in children as it is in adults.

This is particularly true with very young children. right? If you're talking infants and children less than a year or two years old, that blood-brain barrier is not established the way it is in adults.

The other thing that, you know, there's sort of a saying, as goes the gut blood barrier, so goes to the blood brain barrier. So the same things that affect gut permeability will affect the blood brain barrier.

So if you blow open that blood-brain barrier, you have the same problem. Except in this case, You're not getting things into the Bloodstream. You are getting directly into to the brain.

so you start looking at the Brain, and there's antibodies there. Like, what the heck do those antibodies get? How do they get in? You know, they're way bigger than the pores in the gut brain, not gut-Brain.

That'd be a heck of a barrier! And the Blod-Brain Barrier, how do THEY get it? Well, because you blew open the permeability. And so, you'll find antibodies in your brain And this is where, particularly with younger kids, behaviors

haven't been as established.

The language hasn't as been established, we don't have these, the pathways that have just been drilled down. You know, when we create pathways to do things, if you want to become a concert pianist, what do you do?

You practice two, three hours a day for 20 years. That's what you'd do. And what your doing is you're just cementing those pathways into your brain. All right?

When you've got a four or five year old, eight or ten year-old, they have some of that cemented in, but it's nowhere near what an adult does.

Practical Advice for Families and Clinicians

So it is so much easier to disrupt those pathways with whatever gets into the brain. And that's why with kids we'll see these syndromes like pans or pandas.

Pandas is from strep, but you can get pans from line, and this is the pediatric acute neuropsychiatric disorders where you have a kid, maybe they're on the spectrum, they are completely neurotypical, overnight their behavior changes.

All of a sudden, they become OCD, anxious, drooling, don't want to go to school, crying, miserable, aggressive. What happened? Well, it turns out their brains are inflamed.

Where is the inflammation coming from? Part of it can be a direct infection from something like Borrelia, neuroborreliosis, but a lot of times it's a secondary thing.

You know, where you've got the gut, the got is messed up, that immune system's on fire, and the immune systems starts making autoimmune antibodies against the brain.

And you can measure these in the blood and you go, whoa, why are you making antibodies, against your dopamine receptors? Why are making it antibodies?

Against your neurons, your serotonin receptors, Against the structural proteins of your brain? You know, that's what pants and pandas is all about. And we know that that lime is one of the things that does that.

Tick-borne disease is just one thing that it does. That and, and Bartonella is the worst, right? You get a kid that, I mean, It's, you know, kid comes in and it was actually a Zoom appointment, right?

It was a kid that I'd been seeing for other problems and he's so much worse and this and that. And he was aggressive and never was before. The teachers at his ABA center are saying that he is trying to bite the therapist and pushing other kids and is just not like them.

He's like a different kid. It is like, anything else different? Well, he has got this rash. I'm sure he's got these red lines on his back. I go, okay, I know what that is.

Spartanella, right? So, you have to be looking for these things. You have be aware of these thing. And I live in Michigan, at least you're on the East Coast.

At least where you are at, people understand there's lime, and Michigan is just denial. There's Lime in Connecticut, there is lime in Minnesota, There is Limes in Indiana, Lines in Illinois, limes Ohio, lime Pennsylvania.

But there's no lime in Michigan because the ticks just come up to the Michigan border and they go, no, we can't go there. And if you're not trained, if the practitioners are not train to recognize this stuff, they're going to look at that and go well, that's interesting.

You know, he has stria. free eye? No, he has stretch marks. Why is an eight year old have stretchmarks? You know, not a mortally obese eight-year-old, a normal eight years old, why all of a sudden do they have a stretch mark?

And you know the stretchmark came with the behavior changes. Let's try and be a little bit holistic here. You now, those two things are connected to each other.

And again, when we look at of what's going on with the gut. And you know, you don't have to go any further than how do you feel when you have belly pain?

You know? you get abdominal pain, You have cramping, how kind and sweet are you going to be? How irritable are your going be, are going you to able to think things through?

Are you even going want to want think about anything? No, because your gut pain is drawing all your attention there and you can't function. That's a real simple example.

What I'm talking about is you get this impaired intestinal permeability. You get the sneaky gut stuff, you got the wrong biome and we'll get to what the bacteria do, but you.

immune system flamed up and any autoimmune antibody you have comes along for the ride. You know, rising tide raises all boats. Well, some of those boats are all immune antibodies and you raise those up, and all of a sudden you've something that wasn't a problem because the level was too low.

Now it's reached a certain threshold where it is causing problems. So that's the gut permeability. The thing with the bacteria in the guts is it not just that we forget that these bacteria, without them we would die.

I mean, we need them to provide specific nutrients, like all the vitamin K we get is, well, unless you're taking it, vitamin k we are for bacteria in our small intestine, right?

They're made. And there's other nutrients that bacteria make for us. There's nutrients to it. We need the bacteria. In order to absorb it there are toxins that are in your food that the bacterial help break down.

People know about oxalates, lates. can cause kidney stones, gall stones. Well, there are bacteria in our gut that break down oxalates in your food. You know, so if we don't have the right balance, all of a sudden your oxalyte levels high, you know.

And then yeast makes oxylates. Now you're getting kidney stone because you have too much fermentation going on. So bacteria will help us break-down toxins in food, bacteria can, the wrong ones, can make toxins.

Some of that's a good thing. There's something called the lipopolysaccharide that is made by a certain type of bacteria. That sort of helps keep our immune system on alert, you know, so it's ready to go.

We're locked and loaded. Obviously too much of it is a problem, but you want to have the right amount just so that immune systems isn't, in a coma when you need it.

It's, ready-to-go. But there's also make toxins that directly impact our brain, right? I mean, the classic is. Alcohol. Now, there are actually people that have organisms in their gut that make alcohol.

There are case reports. But, you know, that's just an example. Yeast makes alcohol, alcohol technically is a toxin that affects our brain. there Are many, many toxins like that that are made by gut bacteria, by yeast in the gut, That will affect our behavior.

And then the bacteria affect what are called short chain fatty acids. The most important of those is something called butyrate. So butyrate is like brain food.

When people do ketogenic diets, they produce these ketones like butyrate and the brain could use those very, very efficiently. So we know that the balance of the short chain fatty acids affects mood.

It affects the way we function. And there's a whole mouse model of autism where if you take a different short chain fatty acid, something called propionate.

If you inject propione into a mouse brain, the mouse becomes autistic. You know, what makes proponate? Clostridia. What? That's bacteria. And what, you know what?

Do 80% of kids on the spectrum have an overgrowth of in their gut? Australia. So are there connections there? So the bacteria will make toxins that affect us.

They will affect the short-chain fatty acids, either good or bad. uh, you know, butyrate, feel better, propionate, not so much. And then you have to remember that the majority of our, particularly our serotonin, something like 80 or 90% of all our Serotonins is made by gut bacteria and dopamine, norepinephrine and some of these other neurotransmitters, they're not.

mainly made in the brain. They're made outside of the braid and a lot of it's happening in gut. So the better that gut balance is, the badder the brains going to work.

Less inflammation, better neurotransmitters, a better short chain fatty acids, fewer toxins. It's just a great, you did a job of just kind of tying all of that together there and it all goes back to the gut more and more.

All about the poop. All right, so what advice do you have for parents or caretakers that have a child that has like this abrupt change in behavior? Well, I mean, first of all, if it's a kid, find a maps doctor because we're all familiar with the stuff.

You know, you want to look up this idea of pans and pandas, and see who in your area knows what that's about. Again, if you look up a MAPS practitioner, you're going to find people that are aware of pans-and-pandas.

And, sometimes, somebody will evaluate your kid, it's like, ooh, okay, your out of my league, I need to send you to somebody else that has more expertise in this, but at least they'll recognize it, all right?

A lot of, you know, if you go to a standard pediatrician, they're going to send you to, like, pediatric psychiatrist, and they are going treat your PANS, PANDAS, tick-borne illness with Abilify.

You know they, are not going the underlying cause. They are just going, to treat the symptom, which is the behavior. So you want to get somebody that knows what they doing.

As an adult, yeah, find an eyelash doctor. Find a doctor that has some training in integrative medicine. and understands these syndromes. That's very, very important.

The second thing is start working on the gut. I mean, you don't have to have a medical degree to do something about this stuff. And a big part of it is work on a diet.

Don't feed fermentation. Add in some prebiotics. Like I said, the partially hydrolyzed guar gum is a great place to start because you're probably not going to cause any harm.

You can significantly improve the bacteria that make butyrate, bacteria to help balance the ecosystem. You know, we call them keystone organisms and a bunch of those key stone organisms are fed by that partially hydrolyzed guar gum.

And there's some very good products out there. Again, you don't necessarily need a practitioner to move forward with that. And then, you know, again, we have to deal with whatever the underlying issue is.

If you have sudden behavior changes like that, always be thinking infection, not just tick-borne, but, infection. That there's some kind of infection that's setting off an immune response, and that immune responses creating the behavior change that you're seeing.

Well, thank you so much for joining us. It has been an honor to have you here and to talk with you. Any last words of advice or anything you would like to say before we conclude our interview?

I try to beat this into all the practitioners at my office. You know, there's a biochemical reason for all of the behaviors we see, right? So, you know if you have, particularly with children, if have a child that all a sudden is anxious, or you a have child all sudden that is obstinate or oppositional, Well, yeah, that could be a behavioral problem, but usually there's some biochemical reason why that's happening.

And you really want to find somebody that understands that and is treating that cause. Please don't take your child to the psychiatrist and put them on medication without exhausting your other possibilities.

because the medication is only going to create more problems. It's not going address the underlying issue. That's going be ongoing. And remember, that child's brain is developing.

Not a, you know, it's a done deal. You're not dealing with a 50-year-old. If you're dealing a brain that is actively developing, and the more negative you do to that brain, the most likely that the child is to have problems for the rest of their life.

So it's really important that you jump on the stuff you find somebody that understands the underlying causes. And again, I'm predisposed to sending people to maps, but you know, find a maps doctor because they will help you understand why your child is doing what they're doing and help.

You find some of the solutions. Like I said, the biggest thing we can do, diverse diet, clean things up. There's a good reason why they have organic food out there.

I know it's expensive, but find out foods that are worth buying organic, The Dirty Dozen, and TheDirty30. Don't eat any of those foods if they're not organic.

If you're going to eat animals, don't need animals that aren't fed. crap, you know, they need to be free range and grass fed. They're not just buzz, buzzwords.

they actually mean something. And it's the same with fish. If you're going to eat fish, which is kind of iffy, but if you going eat, fish then, make sure it wild, makes sure its caught in water.

That's not, You don't want to get your fish if it caught right off the coast of New Jersey. I mean, fish that grew up in reasonably clean water, right?

Gulf of Mexico is another big one. I mean, it's pretty polluted there, and you want to make sure that you're eating clean food. Feed your kid quality food, good nutrition, organic, all that stuff.

Find if they're having problems, find somebody that understands these links, these underlying causes, And make whatever treatments you are doing are treating at that level, not just up here treating a symptom.

You have anxiety. Oh, here's some clonopin. No, you have an anxiety and oh, by the way, your gut problems and ooh, what's that rash? Oh you, have a tick-borne illness.

Let's treat that. Right. Thank you so much. So medmaps.org, M-E-D-M-A-P-S dot org, and also could you please just state your practice information one more time for our listeners.

Sure. It's BioEnergy Medical Center, and the website's just bioenergymedicalcenter.com. Our office phone is 734-995-3200. Again, we have lots of information on our website on what we do and how to contact us and all that.

Okay. Thank you so much. Thank you so much, Brian. If this episode gave you an answer, brought you new insight, or made you think differently, subscribe to the Line Bites podcast and share with someone who's ready to take control of their healing journey.

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