Introduction and Guest Background

Hi, and welcome to another episode of the Healing Lyme Disease Summit. I am your host, Dr. Myriah Hinchey. 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.

I'm super excited about our guest expert that's joining us tonight. he's going to 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. Neu Please tell our audience a little bit about yourself.

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

So I've been in practice in Ann Arbor, Michigan since 1988. I 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 by practices, 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 Lyme. And that brought me into this whole world of pediatrics. So I'm originally 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 and really, most of what I know is, has been through the many, many years that I've been in practice, learn from my patients.

So, most of what I'm doing now is, integrated management. I still have a board certification in emergency medicine. I think it might be expiring soon.

And now I'll have to stop saying that afterwards. but I'm a board certified in integrative medicine, so. And I am, like you said, the president of the Medical Academy of Pediatrics, special needs or MAPS.

I mean, that's sort of, one of the things I'm most excited about is moving things forward. And 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 of the underserved, understudied populations, when it comes to chronic tick borne illnesses. And I think that we are still missing the boat in just how much these, these chronic infections are not picked up on and how much 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, them selves impact our gut and gut health. Well, the biggest thing that's going to happen, the, the tick borne illness itself can affect the gut.

But primarily what it's going to do is, is alter the immune system function, create inflammation. and then that inflammation is going to alter gut permeability.

It's going to and that's just the, you know, the lining of the guard has to be very tight. It can't let things in that shouldn't get in when that, gets leaky, when it lifts things into the bloodstream that shouldn't get 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, the biome, what we call a it's the bacterial ecosystem in the gut.

So we call that the microbiome of the gut. And it will actually alter that microbiome. some of it may be, you know, the microbiome trying to help the person, deal with the infection.

but some of it, is as a direct impact of that inflammation. Yeah. And so what symptoms, like, what would this look like? What symptoms does this cause?

Well, the trouble is, it can be anything across the board. I mean, it could be something obvious, like, you know, somebody who's having abdominal pain or they having bloating their diarrhea or whatever.

But but primarily what we see and especially I, you know, I deal with a lot of kids on the autism spectrum.

How Tick-Borne Illness Affects the Gut

I deal with kids that have these syndromes of pans, pandas syndromes, where they get brain inflammation. You get a lot of behavioral changes. sometimes you'll just get a behavioral change, you'll get anxiety or you'll get OCD or you'll get aggression.

so it's not necessarily just, the abdominal symptoms. and then the other thing is you can just have it 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 being more gas. So it'll be a different texture than what it was.

so all those things would clue in that, maybe there's something going on there, right? And so then what happens when you throw antibiotics and then especially, you know, a lot of times, like we need heavy duty combination antibiotics for long periods of time, you know, very, very much longer than, than a standard course, of antibiotics.

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

oral antibiotics that we use in the US, I mean, we typically treating for, you know, 2 or 3 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, you know, the Borrelia spirochete or after the the Bartonella or whatever, what the co-infection might be.

They're going to go after anything that might be sensitive to that, that particular antibiotic or antiseptic or and unfortunately, there's a lot of, you know, collateral damage when you do that.

And you can you can significantly disrupt the gut ecosystem. So we will routinely see, you know, one of the things we measure when we look at the gut 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 minimum would be maybe 350. But you can see that diversity go from 4 or 500 down to maybe 200 after a round of antibiotics.

And the important thing to remember about kids in particular, and this, you know, adults we're 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 at center, throw it 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, because that system is not as locked in as it is as an adult. When you come in with antibiotics, you could potentially permanently alter that microbiome with those antibiotics.

And, you know, this is something the younger the kid, the more likely 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 ten day round could could cause that to happen.

You got a kid that's three, 4 or 5 years old and you're treating Lyme and it's more chronic and you're doing 30, 60 days of antibiotics. You're very likely to alter that ecosystem forever if you don't do something to try and bring it back to some state of balance.

Right? Okay. So, are there any particular are there any particular treatments that you would recommend doing, like 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 prevent or, you know, fungal overgrowth, Candida, things like that. Yeah.

Well, the I sort of when I prescribe antibiotics or if I'm doing the, antibiotic, herbs, I always will include something that 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, the cephalosporin type antibiotics, but they're pretty broad spectrum.

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

So whether it's using a prescription like nystatin that's a non absorbable antifungal for the gut, using a medication like fluconazole or using some of the, you know, myriad of antifungal or, supplements that we have, you know, the Laurisine and or the pau d'arco or any of the herbal combinations that are out there that, that are going after this as well.

So routinely I'm going to do that just prophylactically. I'm not going to wait until they have a fungal problem. I'm going to add that in the other big thing.

And it's and it's we do a lot of what are called prebiotics. So prebiotics are these mainly soluble fibers. they're they're complex carbohydrates, things that we don't necessarily digest ourselves.

So we don't have the enzymes to break them down. But these services, food for the probiotic bacteria in our gut. So making sure that somebody has a decent amount of either in a, 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're they're not going to want to eat those foods, but if you can get a good food grade, otherwise it's supplementing with these things. And these would be things like inulin or the Forest Hills, even some of the grain based ones like psyllium.

Antibiotics, Herbs, and Protecting the Microbiome

there's a number of different, prebiotics that we use. We, I tend to add those in early on. And then what I'm going to do optimally, I'm going to 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 Lyme, I'll reevaluate and see where it's at. So at least I know what I'm trying to get back to after I'm done treating them.

So if I'm going to mess up that ecosystem, how do I get that back to what it was to start out with? and by doing that, you can you can usually recover that ecosystem.

even, you know, I always say it's it's, eating you're going to come in and sort of carpet bomb and then when you're done, you're going to rebuild the city.

You know that that's kind of what you have to do with, particularly the sicker kids. Make 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 prebiotics that have been studied and shown to help, like certain populations. Are there ones that are more broad spectrum, or do you really feel like, you know you need to rotate through all of these?

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

All right. So this is, just FDG there's a number of brand names out there, but that's the one that sort of has the broadest spectrum. It tends not to feed things.

You don't want to feed it. 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 little 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, bacteria. And most of my patients, not just kids, but most of my patients that are chronically ill have low this in off live species.

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

You know, other things out there like blue common and that's Konjac root. that stuff is, is great broad spectrum prebiotic. But it can also feed, some of the sort of bad lactobacillus that are in the stool sample and actually feed some of the fermentation.

So you'll, you know, you'd start somebody on something like that and all of a sudden they're, they're getting bloating. They're they're gassy, they're having a lot of flatulence.

You know, they're just telling you that you're overfeeding some sort of fermenting organism. So by doing, you know, by starting with something broad spectrum, we, we can help balance the ecosystem without necessarily having to do testing.

But, you know, I've got M. D. after my name, I'm allowed to do this stuff, so I always will do the testing before I start. So I know what I'm targeting with those prebiotics before I 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 sixteens RNA sequencing. that particular technique will identify all the bacteria in a sample.

And if you can 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 biome site.

The others called Bray. They, they'll do this kind of sequencing and then they give you the bacteria based on, you know, the frequency. Now, we have a specialized program that we use that takes that data and says, oh, you have, you know, 0.0 3% off it off Lowe's.

And that's too low. It should be 3%. So it's the relative amount of each one. So that's become my favorite. There is. So are you saying they actually make the probiotic to go along with the test or they just give you.

They the companies themselves do. But you know, 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 16 is RNA. So it's it's a more expensive test. But the advantage to DNA sequencing it's not just bacteria.

It's sequence is anything that has DNA in that sample. So that would include yeast and include parasites. So you do get more information. And again they will tell you based on what's in that sample.

Yes. You should use this or that. Prebiotics. Of course they're going to tell you their prebiotics, but it gives you an idea of what you should use. So, you know, there are techniques like that out there.

There's also, you know, there's a lot of we we use a lot of the, Genova has a stool sample that uses PCR testing. we use GI maps. That's PCR testing, 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 you're bufferovrflw, this level is really low. Okay. You probably have a little bit for office and you need to do something about that.

So, there are pluses and minuses to all this testing, but it's, you know, this is something that's developed over years and years and years of, of doing this kind of work.

Can you comment on the difference between, like, the importance of having an astronomical amount of cfas or colony forming units for the audience? you know, 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 the different species.

Because if you can seed as many different species as possib ble, and then you can 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's so many places with diversity matters. You know, it matters in so many situations.

And this is true of the gut. So, you know, one of the things that we have this term, alpha diversity, alpha diversity means the number of different species in a single stool sample.

And then the data diversity is the difference between source samples. So like if I do a stool sample today and I do a stool sample two months from now, theoretically, if I'm eating the same thing, the beta diversity should be the same.

It should be very low, whereas the alpha diversity is a number of different species. So we sort is set the minimum at 350. that might be a random number, but and to me that seems like it's pretty low.

500 is kind of what we're targeting. Now, if you look at sort of where we came from, you look at the hunter gatherer diet. There's very few of these, populations left in the world.

But if you look at their gut biome, it's not 350 or 500 bacteria. It's more like 1200 bacteria. But again, when you're a

hunter gatherer, it's not like, oh, it's, you know, Wednesday it's, Prince Spaghetti Day.

No, it's it's we're whatever we gather that day, right? We're going to eat whatever we hunt, whatever we kill, whatever we're able to catch. And, you know, that's what we eat that day.

So because of that nature sort of demands diversity in nature, forces the diversity in the diet.

Prebiotics, Testing, and Gut Diversity

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

It's chicken McNuggets, fruit roll ups. It usually some, you know, peanut butter jelly kind of thing. and there's just no no variety at all. There's no vegetables.

You know, if it's a fruit, it's grapes. There's just not a lot of anything in that diet. And so this is the problem with kids is you're not nuts. You know, the best source of 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's a whole world of root 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 past the carrots, and, and, you know, when you walk past something, it's like, what's that?

Buy it and then figure out how to make it all right. Because that's what you need. You need that diversity in your diet to get the diversity in your gut.

And then the other thing, you know, I always joke that I do all my hunting at Kroger. That's our local supermarket, you know, and I'm 100% successful.

Well, unless the shelves are bare. But, you know, it's not like that. We didn't come from that history, right? It's not like you went to hunting and you brought home meat every day.

You know, you you you you were successful sometimes and not successful in other times. Right. And so it's always a matter of nature required that there was there was variation in your diet.

And then there was also the seasonal variation. You know, you weren't eating the same thing in January that you're eating in June. whereas now, you know, again, you can get strawberries in January and oranges in Michigan in February.

I mean, come on, you know that that's not at all the way it was. And so we don't have the diversity of our diet. And without that, we don't have very good alpha diversity in our in our, stool samples.

And without that alpha diversity, you're not going to have very good immune function. And that is the key, especially in kids. That's the key to dealing with most of these tick borne illnesses.

Right? I mean, you have you have areas where you know, where like I'm just going to pick on and not necessarily co-infections, but where Lyme is endemic, right?

Places where Lyme and is endemic. If you check blood work on kids, about 15% of them will have antibodies against Borrelia, against the lives pierogi.

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

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

So can you elaborate a little bit further? You mentioned, you know, 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 to go to the brain and we're going to talk about the gut brain connection and how everything that is going on systemically, you know, coming from this leakiness of the gut going back into systemic circulation, how that impacts the entire body and then the brain.

Yeah. So yeah, I'll start with the gut is gut immune brain. They're all basically one super system. They're all intimately linked with each other. So you you, you start with this idea that one of the functions, I mean, we all understand the gut function is to get nutrients out of our food and, and try and 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 proteins into our system?

So I always say, you know, if you took whatever you had for lunch or whatever you had for breakfast or dinner and you threw it in the blender and you injected it, Ivy, your immune system would freak out, right?

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

So it starts with the stomach. I mean, we 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 these medications we have to get rid of stomach acid is such a bad idea.

we need that stomach acid 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 would need anything else. But as one of my autistic children pointed out to me, doctor, do, everything is not perfect.

And so we have to have backup systems. and one of them is when, 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 we're nowhere near as effective as the pepsin in the stomach. That's trypsin and kind of trypsin.

And so those to help break down 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. It's too big to get absorbed. So that's another defensive mechanism. But ultimately what what protects us the most is the lining of the gut.

So 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 you 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 to set off an immune response.

So if a protein is less than 100 amino acids long, it's never going to set off an immune response. Immune system is

not going to see this as foreign. If it's over maybe 3 or 400 amino acids, the immune system is going to see if it's that range from 100 to 300, where maybe it does, maybe it doesn't, that those are the protein ranges we're talking about that could fit through a open gap.

So when the these tight junctions open up we call that leaky gut syndrome. Or if you want to be technical we call it impaired intestinal permeability.

But that's allowing those proteins to get in. Now you 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, immune system's going to react. And and the trouble is, the more inflammation you have, the more of these gap junctions that open up.

And so the process just starts snowballing to the point where you'll have people that can eat anything. Yeah, no matter what they eat. If they eat something more than 7 to 10 days, all of a sudden they're allergic to it, they're reacting to it, and that's impaired gut permeability.

And it's really important to understand that concept. And again, back to what we started with. That's part of what happens with the infection itself. And definitely part of what happens when you disrupt, the ecosystem of the gut.

I know there's an upcoming Maps seminar that I'm going to be out as well. So I would just like you to share that information with our listeners here. So my my office is actually called Bioenergy Medical Center.

I'm in Ann Arbor, Michigan. So my website is just bio bio energy medical center.com. phone is (734) 995-3200. And we also have a Facebook page. but really the website is 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 it's, March 14th through the 16th. We are always trying to cover Saint Patrick's Day. so I get to wear a green suit.

but yeah. So it's March 14th through 16th. It will be in, Charlotte, North Carolina. And, you know, information for that is at the maps website and that's Med MAPS medmaps.org.

and you can get lots of information on, you know, for anybody who's a practitioner that's listening a lots of information on, you know, integrative pediatrics, how you can 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 here. I I'm really concerned about who's going to take care of me.

so it's actually a very selfish thing that I'm doing. I'm trying to help the kids. So I have people to take care of me here. So funny. Yes. So death 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 I think we were talking about, impaired intestinal permeability. We are talking about leaking these proteins in basically, igniting like this, this immune response.

Right. And so I 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 thing in our environment, and that's what we put in our mouth. So if we can 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 the immune 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's been shrunk or hold it into remission.

Leaky Gut and Immune System Activation

Right. So recovering from tick borne disease, to me, the immune system is key. It's the ultimate end point of trying to heal a patient. Right. And then I think that was, you know, I've, I, I arrived here because I opened the practice in 1988.

You know, the tagline for Bioenergy Medical Center was treating illness at its source. So, you know, I was always looking at because immediately you start seeing chronically ill patients.

I mean, I started with adults, and, 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 Islands. Yes, there was an islands back then. that, you know, this is the international Lyme Associated Disease Society. So, you know, going to islands and learning some of these things and then learning about the antibiotic protocols and started to use them.

And then, you know, this set of patients who get better in the set would what, what what's going on with this? So why are they not getting better? Oh, well, maybe there's some problem with their digestion and their gut.

And really, you know, the integrative medicine starts and ends with the God. I mean, that's the one thing that we have the, the most control over. And and it influences everything.

So that's what what got me rolling into the, the whole tick borne illnesses. And of course, you know, you start treating parents and it's like, well, you know, I've got this kid and he's five and you know, he has some of the same symptoms.

I have. Could he have Lyme? And, you know, then I start testing these kids and they're positive. And, you know, that's what got me sort of involved with all this.

And then it's like, oh, you know, you should, you should check out this, autism organization. And, you know, that's how I got involved with Dan. And then, you know, Dan was to feed autism now.

And then from there got involved with maps when maps started. But all this stuff goes back to when you have a tick borne illness. And this is something that the, you know, Infectious Disease Society of America is just, is never going to understand, right?

It's not just we need to kill the buck. Right. It's almost I tell my patients, you know, this idea that bugs caused disease, I think is just not true.

You know, our response to bugs causes disease, right? So that's a big part of what? Infectious disease. Wow. 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's certainly not true with any of the viruses.

You know, we saw with Covid, even, you know, those initial waves where you'd have 60, 70% of people that were asymptomatic, you know, that that just didn't have any symptoms at all.

And then you had people on the other end of the spectrum that died, you know, so it was there's a huge difference in that immune response. And 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 cells. It's like, well, what does that mean? probably they burn them killer cells out because they've been trying to fight this infection for ten years and and been able to do it.

And then you start looking at food sensitivities and it's like, oh my God. They got, you know, 40 different foods that are reactive to, and then you start looking at, you know, antibody levels.

And they have high, either high or low antibodies depending on where they're at in the state of the disease. And then they have adrenal burnout. And they've got, you know, all these digestive complaints and they have skin problems.

And, you know, as long before I knew what and what nasal activation was, you know, you know, now it's like everybody has stumbled on mast cell and, you know, the the pot stuff, the postural orthostatic tachycardia syndrome where you just have vagal dysfunction and the autonomic nervous system doesn't work. Right.

And, you know, you walk around with a pulse rate of 120 all the time, you know. So these are all things that manifest because the gut stop working. Right.

And to try and explain that to a cardiologist or explain that to an infectious disease specialist, it's like, you know, they don't get it, they don't get it.

And if you can get the immune system on your side, the battle's about 80% won. Just with that and the way you get your immune system on your side is you work on the gut, you know, plain and simple.

I you can do all the testing you want in the world. You know, 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 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 the list. But mainly these are foods that are, you know, the seeds the grains, the legumes these things.

You know, sorry to all my vegan friends, but you know, a lot of these lagoons just are very inflammatory and, particularly to a person that has that sensitivity, you know, if, if you're Chinese or Korean or Japanese and maybe you can handle soy, I can't, you know, I mean, it's one of the most it's always almost as bad for me as gluten, you know, it's just a very inflammatory food.

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

Yeah, I couldn't agree more 100%. There's, there's two tests that I do on almost every single patient that I have. And that's a white blood cell micronutrient analysis and a food sensitivity panel.

And a lot of patients are like, wait, what? What does this have to do with anything? And I'm like, it has everything to do with everything. You know. And unfortunately, you know, we can't just go in a linear fashion.

You know, we have to tackle all of this at once. So while we're trying to shrink the infectious load, we have to work on healing the gut because you can't heal a gut that's infected.

Right. And we have to get the foods out and we have to detox and, you know, do all of these things to move the patient in the right direction. But, you know, I think you're 100% right.

80% of it has to do with the gut, with the immune system, with the ability to detox and kind of keep things where they're supposed to be kept, you know, calm everything down.

so I'm going to go back to the brain. So how does all of this impact the brain and specifically, like, not specifically with children, but do you see this affect the brains of children more than adults?

And do you 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 4 or 5 year old, the brain circuits are developing.

The brain is full of stem cells. The 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, stable. And this way it's a much more stable situation with the brain. It's not as plastic.

There's still neuroplasticity, you know, where the brain can change, but it's not as plastic as a, as a 4 or 5 year old kid's brain is. The second thing is this whole concept of the blood brain barrier, where again, the brain is we call it immunologically privileged.

The brain. It doesn't really have white blood cells. It has these cells called micro glia. 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 brain, you have to have a barrier between the blood and what's in the brain. Right? Because your brain is not bathed in blood, your brain is bathed in cerebral spinal fluid.

So that's sort of the brain's blood supply is the spinal fluid. And so there has to be a barrier there. So the blood brain barrier is not as well developed in children as it is in adults.

And this is particularly true with very young children. Right. If you talk in infants and children less than a year or two years old, that blood brain barrier is not established the way it is in adults.

Gut-Brain Connection and Pediatric Neuroinflammation

The other thing that, you know, they're sort of saying as goes the gut blood barrier as it goes, the gut permeability. So goes the blood brain barrier.

So the same things that affect that 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're getting things directly into the brain. So you start looking at the brain and there's antibodies there.

Like what Hector's antibodies get. How did they get it? You know, they're way bigger than the pores in the gut brain. in that gut brain, that'd be a heck of a barrier in the blood brain barrier.

you know, how did they get it? Well, because you blew up in the the permeability, you know? And so you'll find antibodies in the brain and this is where, particularly with younger kids, you know, their behaviors haven't been as, as established.

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

You practice 2 or 3 hours a day for 20 years. That's what you do. And what you're doing is you're you're just cementing those pathways into your brain, right.

When you've got a 4 or 5 year old, 8 or 10 year old, they have some of that cemented in, but it's nowhere near what an adult does. So it's 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. You know, pandas is from strep. You can get pans from from, wine. And this is the pediatric, acute neuropsychiatric disorders, where you have a kid, you know, maybe they're on the spectrum.

Maybe they're completely neurotypical. But overnight, their behavior changes. You know, all of a sudden they become OCD. They become anxious, they're drooling. They don't want to go to school.

They're crying. They're miserable that are aggressive. you know what happened? Well, it turns out their brains are inflamed. Where is the inflammation coming from?

Well, part of it can be a direct infection from something like, really, you know, neuro really osis. But a lot of times it's a secondary thing, you know, where you've got the gut, the gut is messed up.

The immune system's on fire, and the immune system starts making autoimmune antibodies against the brain. And you can measure these in the blood and you go, whoa, you know, why are you making antibodies against your dopamine receptors?

Why are you making antibodies against your neurons, against your serotonin receptors, against the structural proteins of your brain? You know, that's what Pans and pandas is all about.

And we know that that Lyme is one of the things that does that tick borne diseases. One of the things that does that and, Bartonella is the worst. Yeah. Right.

You get a kid that I mean, I just had one last week. It's it's, you know, kid comes in and and it was, it was actually a zoom appointment. Right. And there's a kid that I've been seeing for other problems, and he's so much worse that he's this dad, and he's aggressive, and he never was before.

And, you know, the the teachers at CBT center are saying that he's, you know, he's trying to bite, the therapists and he's, you know, pushing other kids.

And it's just not like him. He's like a different kid. And it's like anything else different. Well, he's got this rash, so he's got these red lines on his back.

I go, okay, I know what that is. That's Bartonella. Right. So, you know, you you have to be looking for these things. You have to be aware of these things.

And and I live in Michigan. At least you're on the East Coast, at least where you're at, people understand there's Lyme right in Michigan. There's there's the Nile.

You know, in Connecticut, there's Lyme in Minnesota, there's Lyme in Indiana, Lyme in Illinois, there's Lyme in Ohio. They're Lyme in Pennsylvania. But there's no lab in Michigan because apparently the the text has come up to the Michigan border and they go, oh, no, we can't go there.

You know, and if you if you're not trained, if the if the if the practitioners are not trained to recognize this stuff, they're going to look at that go, well, that's interesting.

You know ye Austria buffalo it straight up right. You know he has stretchmarks. Why is an eight year old of stretchmarks, you know, a not a morbidly obese eight year old, a normal eight year old.

Why all of a sudden do they have stretchmarks and, you know, the stretch marks came with the behavior changes. Let's try to be a little bit holistic here.

You know that. Yeah. Those two things are connected to each other. And again, when we look at, what's going on with the gut and you know, you don't have to go any further, then how do you feel when you have belly pain?

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

Are you going to even want to 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 this leaky gut stuff, you get the wrong biome, and we'll get to what the bacteria do.

But you get that immune system flamed up and and any autoimmune antibody you have comes along for the right. You know, rising tide raises all boats. Well, some of those boats are immune antibodies.

And then you raise those up and all of a sudden you have 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. You know, the thing with the bacteria in the gut is it's not just that they're you know, we forget that these bacteria without a we would die.

I mean, we we need them to provide specific nutrients like all the vitamin K we get as well. Unless you're taking it vitamin K, we get our for bacteria in our small intestine.

Right. And 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 our food that the bacteria help break down.

I mean, people know about oxalates. Oxalates can cause kidney stones, gallstones. Well, there are bacteria in our gut that break down oxalates in our food, you know?

So if we don't have the right balance in your actually levels high, you know, then yeast makes oxalates. So now you're getting kidney stones because you have too much fermentation going on.

So bacteria will help us break down toxins in our food. Bacteria can, you know, the wrong ones can make toxins. So some of that's a good thing. There's something called the lipopolysaccharide that's 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's a problem, but you want to have the right amount just so that immune system isn't, you know, 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 then their case reports.

But, you know, that's just an example in yeast because 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 their 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 propionate into a mouse brain, the mouse becomes autistic.

You know what makes propionate? Clostridium? What? That's a bacteria. And what you know, what do 80% of kids on the spectrum have an overgrowth of in their gut?

Clostridium, right. You know, so are there connections there? So the bacteria will make toxins that affect us. They will make, they will affect the short chain fatty acids, either good or bad.

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 serotonin is made by gut bacteria and dopamine, norepinephrine and some of these other neurotransmitters.

They're not mainly made in the brain. They're they're made outside of the brain. And a lot of it's happening in the gut. So the better that gut balance is, the better the brain is going to work.

Less inflammation, better neurotransmitters, better short chain fatty acids, fewer toxins. Yeah. It's, just a great you did a great job of just kind of tying all of that together there.

And it all goes back to the gut more and more. It's 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, you know, if it's a kid, find a map doctor, because we're all familiar with the stuff, you know, you want to look up this idea of, pans of pandas and see who in your area, knows, what that's about.

Again, if you look up a maps practitioner, you're going to you're going to find people that are aware of of, pans pandas. And, you know, sometimes we'll, you know, somebody will evaluate your kid.

It's like, okay, you're out of my league. I need to send you to, you know, somebody else that has more expertise in this, but at least they'll recognize it.

All right.

Practical Advice for Families and Closing Remarks

So a lot of, you know, if you go to a standard pediatrician, they're going to send you to a psych, you know, pediatric psychiatrist, and they're going to treat you pans, pandas, you know, tick borne illness with Abilify.

You know, you're not going to treat the underlying cause. They're just going to treat the symptom, which is the behavior. If you want to get somebody that knows what they're doing, you know, as an adult.

Yeah. Go find an ILADS doctor. Find a, you know, 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 and a big part of it is work on the 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, and you can significantly improve the bacteria that make butyrate the bacteria that help balance the ecosystem.

You know, we call them keystone organisms and a bunch of those keystone organisms are fed by that partially hydrolyzed guar gum. And they're some very good, products out there.

Again, you don't necessarily need a practitioner to move forward with that. and then, you know, again, you have to

deal with whatever the underlying issue is.

If you have sudden behavior changes like that, always be thinking infection, not just tickborne, but, you know, infection, that there's some kind of infection that's setting off an immune response and that immune response is creating the behavior changes that you're seeing.

Right? Okay. 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?

Yeah, I just want to I try to be this, of all the practitioners at my office, you know, there's a biochemical reason for all the behaviors we see, right?

So, you know, if you have, particularly with children, you know, if you have a child that all of a sudden is anxious or you have a child that all of a sudden is, you know, obstinate or oppositional, you know, well, yeah, that could be a behavioral problem.

But usually there's some biochemical reason why that's happening. And, and you really want to find somebody that understands that and is treating that cause, you know, 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 to address the underlying issue that's going to be ongoing. And remember, that child's brain is developing. It's not a you know, it's not a done deal.

You're not dealing with a 50 year old. You're dealing with a brain that is actively developing. And the more, negative you do to that brain, the more likely that 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, you know, diverse diet, clean things up. You know, there's a good reason why they have organic food out there.

I know it's expensive, but, you know, find out foods that are worth buying. Organic. The dirty dozen, the dirty 30. Don't eat any of those foods if they're not organic.

If you're going to eat animals, don't eat animals that are 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're going to eat fish, then, you know, make sure it's wild, make sure it's caught in water.

That's not, you know, you don't want to get eat your fish if it's caught right off the coast in new Jersey. I mean, you know, you want to have fish that grew up in reasonably clean water, right? Or, you know, Gulf of Mexico is another big one.

I mean, it's it's, you know, 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 sure whatever treatments you're doing are treating at that level, not just up here treating a symptom.

You have anxiety. Oh, here's some Klonopin. No, you have anxiety. And oh by the way, you've got problems and oh 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.org And also could you please just state your practice information one more time for our listeners.

Or 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 and what we do and how to contact us and all that.

Okay. Thank you so much. Thank you for being here with us. Thank you so much, Myriah