Dr. Jill Carnahan, MD - **00:00**

Hey everybody. Welcome to Resiliency Radio, your go to podcast for the most cutting edge insights integrative and functional medicine. I'm your host, Dr. Jill and with each episode we dive into the heart of healing and personal transformation. Join me as I interview innovators, medical thought leaders and movers and shakers in the world of all type to help take you on a journey to optimal performance and longevity. And each week I bring you new guests and people that give us tips and clues and things that you may not know about the human body or about performance or about just basic nutrition or detoxification. And if you're listening and haven't yet subscribed here on YouTube, we have over 720 or 30,000 at this point subscribers. But I know a lot of you listen and haven't yet subscribed.

Dr. Jill Carnahan, MD - **00:51**

So if you would, it would sure help us out. If you hit that subscribe button, hit the bell to be notified of future episodes. And we just appreciate you listening and sharing with your friends and family as you see fit. Many of you already know, but if you don't know, we have a curated store, DrJill Health.com you can find literally hundreds of products and services there. You can purchase things like the ultimate detox bundle. We have an Epstein Barr formulation. We also have a treatment for SIBO and sifo, small intestinal bacterial overgrowth and fungal overgrowth and really anything you need for brain, body, mind or spirit. I also want to mention that on that site we have the new line Dr. Jill Beauty that has been just going gangbusters because it was formulated to meet the need in the market for something.

Dr. Jill Carnahan, MD - **01:46**

You know, years ago I found there's all these natural products for beauty and anti aging and they're so clean you could eat them, which is lovely, but they didn't have the power of retinols and prescription grade products that I had used before that were toxic. So I created Dr. Jill Beauty specifically to meet that need. These products are powerful. They're medical grade ingredients such as peptides, retinols, bakuchiol, hyaluronic acid, you name it, we've got it in the different products and they are designed to be clean so they're non toxic but they really work. Literally almost everyone who's purchased and tried these products out has got raving reviews. I myself use this literally every day and I put together Dr. Jill Beauty Favorites packet of the things that I use the most.

Dr. Jill Carnahan, MD - **02:32**

It's the Biopeptide beauty cream, the HA collagen booster which just showed you and the Vita CE serum and those are like my go tos like don't go home, don't leave home without them. I travel with them and I just love them. So if you're not sure where to start, you can start with the Dr. Jo favorites. You Might Also like the advanced retinol 5x with bakuchiol which is a really powerful anti aging product that has retinols in it but I find it doesn't dry. The skin in my state of Colorado is super dry in the winter as much as a plain old retinol and it's free of parabens and phthalates so check that out@doctor Jill health.com this is coming out around the holidays so if you need to buy yourself a holiday gift now would be a perfect time to go over.

Dr. Jill Carnahan, MD - **03:14**

Get your 15% off on Dr. Jill health.com and I will see you there. Okay so the other thing I want to mention is that my

clinic, Flat Iron Functional Medicine in Lewisville, Colorado, many of you don't know but we are accepting new patients. I have an amazing physician associate Fawn and nurse practitioner Hannah and they are both brilliant clinicians that dive deep and do complex chronic illness like myself. I help coach and mentor them on all the cases so you get my brain power involved. And we are seeing new patients. We're taking on new patients. So you are welcome to call and schedule either an introductory call with one of them to get to know them, see if it's good fit or schedule a new patient appointment. You can call 303-993-7910 to make that contact and get scheduled if you are interested.

Dr. Jill Carnahan, MD - **04:05**

Okay, so let's get on to our show and Let me introduce Dr. Emily. Dr. Emily Gutierrez is a doctorally prepared nurse practitioner with formal education from John Hopkins University and the University of Texas at Austin. She holds board certifications in Functional Medicine, Clinical Nutrition and Primary Care Mental Health and is a Fellow of the Medical Academy of Pediatric Special Needs. A published author and national speaker, she lectures across the US Educating healthc care professionals on the clinical applications of nutraceuticals and functional medicine in patient care. You are going to love this interview with Dr. Emily. So let's get to the show.

Dr. Jill Carnahan, MD - **04:42**

Dr. Emily, it's so good to have you here on the podcast and some of our most popular episodes have been about kids and kids nowadays and how do we keep our kiddos well and how do we deal with the complex chronic illness. I treat a lot of adults, but I'm family medicine Trained. So I see kids, too. And what I see is just like there's so much stress on parents nowadays and even more so when their kids are struggling in school or they're, you know, having cognitive difficulties or they're having insomnia or food allergies or gut issues or. We just talked before. There's been a lot of things in the news. We're going to dive in. So stay tuned. Because Luca Vorin, if you heard about that, you're going to hear about what is the deal with that.

Dr. Jill Carnahan, MD - **05:21**

You might hear a little bit about Tylenol, you might hear a little bit about just all of these things and the incredible rise in mood disorders in our children. Right. So welcome to the show. I cannot wait to dive in with you today.

Dr. Emily Gutierrez - **05:34**

Awesome. Thank you for having me. It's a major honor for me to be here with you.

Dr. Jill Carnahan, MD - **05:39**

Oh, thank you. It is an honor for me as well. And you're in Austin, Texas, which is the, were just saying, kind of the capital of functional medicine. There are so many practitioners and people that I love and know there and we have a lot of mutual friends. But let's dive in. Let's get people get to know you a little bit. I always find it so fascinating, our journeys, because we often start out and we don't have the end of where we end up in mind and it ends up being the most beautiful journey. Tell us a little about how you got to be doing what you're doing in functional medicine with kiddos.

Dr. Emily Gutierrez - **06:09**

Yeah, well, I started off in allopathic care, so I'm a doctorally prepared pediatric nurse practitioner. But when I was in primary care and being in Austin, Texas, the motto is let's keep it weird. So when I got out of practice, I graduated from UT Austin. You know, I was equipped. I went to one of the best schools in the United States, ready to, you know, do everything per the algorithm. And very quickly I became disenchanted that the algorithm was really just treating the symptoms. And, you know, our community wanted a different approach to health. They didn't want another medication. They wanted to ask me about, you know, essential oils and vitamins. And, you know, we have a lot of just tree hugging, crunchy mamas. And I wanted to provide health care for them no matter how they defined health or how it was defined.

Dr. Emily Gutierrez - **07:02**

So it set me on a journey. I went to Johns Hopkins and I started studying how to integrate integrative medicine into allopathic care. And that's what my doctoral focus was on. How can we do this in A way that is evidence based and safe and effective. And, you know, I'm sure as you when you first started studying integrative medicine really leads you to functional medicine. So I started off, once I graduated from Hopkins, I started one of the first pediatric functional medicine practices in the. In Texas. And we've been open for 13 years since. And all the things that you just said about kids and their chronic illnesses, that is our patient population.

Dr. Jill Carnahan, MD - **07:47**

Yeah. And people are so desperate for that nowadays because they know there's enough access to information for parents now that they know just another antibiotic or another prescription or another. Just the worst, I think, is the pat on the shoulder from the paternalistic doc that's like, oh, you know, you're maybe thinking a little bit more. Maybe everything's normal. I have had so many moms come into my practice and tell me that their pediatrician basically blew them off when they were worried about their child's constipation or they were worried about their child's lack of sleep or their reflux or whatever thing. They were like, I'm a mom and my mom says this isn't normal. Right. And so how beautiful that you have kind of these mothers and fathers and families where they're at with their children and said, you know, what else is possible?

Dr. Jill Carnahan, MD - **08:29**

And, I love that.

Dr. Emily Gutierrez - **08:30**

Right.

Dr. Jill Carnahan, MD - **08:31**

That's really how we get to learn. And I really love your journey. I might just take a moment and explain, which you and I both know, because many of our listeners may not know. Integrative, functional. You said they kind of lead to one another. I did the same thing. I looked at Dr. Andrew Weil's program. This is like 20 plus years ago, and that was integrative medicine. And what I found is we have this, you know, at the core, the allopathic medical model, which is still drugs and surgery and maybe a few supplements. And then integrative would say, okay, let's refer to massage therapy or acupuncture, sacral, or let's refer to an osteopathic manipulation or all these things, these sources, these resources that are amazing. And still I use all of these modalities, not myself, but I refer to the experts, right?

Dr. Jill Carnahan, MD - **09:10**

So then we make this circle and we're all working together for the patient. And I think that's the integrative model, which is amazing. But what I wanted to do is what do I do as a medical detective like you in practice, right. And say, how do I go deep and actually find solutions? And then we found functional medicine. Which is really root cause medicine. And it's like what the doctor does. Not just the referral base, which is that integral integrative circle, but the functional is like what you and I do in clinical practice every day, which is dive deep, do the testing, look way more at the metabolites. So speaking of that, how do you assess? So say we have a kiddo, you know, an 8 year old who's starting to struggle in school, starting to have sleep issues.

Dr. Jill Carnahan, MD - **09:49**

Mom says, you know what, I think he might have depression or anxiety. I'm just not sure. He's not himself. He's also complaining of gut disruption, diarrhea, constipation, stomach aches. Where would you start on this, kiddo?

Dr. Emily Gutierrez - **10:03**

Well, I would start with first validating the family and the mom saying, you know, this might just be Miralax and, you know, Benadryl to go to bed, or behavioral coaching to get a kiddo to bed. And you might have been told that this is normal and you just need tolerate it. But, you know, after a very comprehensive evaluation and everything from prenatal history to birth history to what have you tried? Where have you gone? What have people told you to? Then a comprehensive exam from head toe looking at the child, we start to do a systems based analysis. And I love how you really depicted between integrative and functional medicine. I've been doing it for so long, I thought, you know, I mean, stopping and actually describing that is so important because it is, it's the framework of why. And.

Dr. Emily Gutierrez - **10:53**

And we don't always have the answer to why, but functional medicine is the framework on how to look for it. And so then it begins, you know, okay, so you have an upset tummy and constipation. You know, what have you done

for this? What are you eating? What was your exposure to antibiotics if you ever had surgery? So we just keep really understanding the comprehensive why and everything or the comprehensive history. And, you know, typical allopathic visits are 10 to 12 minutes. And there is no way you can get all that information in 10 to 12 minutes. So often with our initial evaluation, we'll take, you know, 60 to 90 minutes to really understand. And then we say, okay, well, how can we evaluate this? You know, are there labs that we want to consider doing?

Dr. Emily Gutierrez - **11:41**

And in pediatrics, it's very, very rare that you are supposed to draw blood on a child. In fact, if you have fever for seven days of unknown origin, maybe then you'll draw blood. But not often will a pediatrician say, huh, you have tummy issues. Well, I wonder if you have any sensitivities or food allergies or I wonder if there's any kind of bacterial dysbiosis in your stomach. So, you know, we do an evaluation and that can be anywhere from genetics to stool studies to blood. We partner with the parent and I can tell you what, the parent is always, usually petrified of blood work and sometimes you can get away with not doing it. And sometimes parents are just really like, you know, tell me what to do and I'll do it.

Dr. Emily Gutierrez - **12:28**

And I don't have money for labs and we can begin there as well. So it just depends on the family preference.

Dr. Jill Carnahan, MD - **12:34**

Well, I really love that outline because the first thing in most docs will just skip right over. This is just building the trust, getting to know the family. And with kids you have two or three patients, right? Because, yeah, you know, but you're really working with the parents, one, two single families, whatever kind of situation that is, and helping them to. Because obviously they're, they'll, they give the, you know, they put them to bed, they have the schedule, they do the food, all the stuff that you need to integrate in the program. Do you find. I just want to kind of validate those parents out there that maybe have had these experiences that are not so great with medicine.

Dr. Jill Carnahan, MD - **13:10**

But do you find that most parents that are sincere in wanting to help their child are pretty accurate in either their description of what's happening or their concerns about like, we always hear these histrionic, like, you know, stories in medicine. Like, oh, the parents are, you know, they don't know what they're talking about. They kind of invalidate the parents. But I'm just wondering on a day to day basis, would you say that most parents actually do know what they're talking about?

Dr. Emily Gutierrez - **13:34**

Yes, and I always encourage that. In fact, I was talking to a provider up in the northeast today. She works in cancer oncology for kids and wanting to really follow the Luke of Orange study for her child with autism. And she's like, you know, my gut just tells me something needs to be done. That's more they're seeing psychiatry, they're seeing, you know, she's talking to the head of developmental pediatrics in Chicago and everyone is just kind of dismissing what she's feeling and thinking. And you know, we can go into it a little bit later when we talk about the Luke of Warren story. But she was right all along. And so provider or mother, I think God gives us an intuition in our gut about our children. Now we also can be more anxious about our children than our other patients.

Dr. Emily Gutierrez - **14:22**

I will always say I'm better at taking care of other kids than my own because I don't have that mama brain in me. But when you have a nagging intuition about your child, I think that it deserves an evaluation and it certainly deserves the parents to be able to sit down, talk about it, have their feelings validated and not be gaslighted by their provider, which unfortunately, that can happen. It doesn't always happen, but it certainly can happen. And so then they're tagged that they're just, you know, they're creating a vulnerable child or they have some type of, you know, emotional issue about their child's health. But in all honesty, they're watching them suffer. And you know, as a parent, your children's suffering can really be some of your own suffering too.

Dr. Emily Gutierrez - **15:08**

Especially if it's this chronic nagging, day to day thing and the allopathic solutions aren't working, the ADHD medications actually making them worse and they're sleeping worse and more irritable or you know, the Miralax is just causing horrible diarrhea and they can never get off of it. And it's this chronic cycle of always being constipated. So yeah, it's complex. But the. But what you said about establishing a partnership with your families and validating where they're at is the beginning of therapeutic relationship. It's the beginning of care. That's where we should all begin.

Dr. Jill Carnahan, MD - **15:44**

Hey guys, just a quick moment to interrupt our show and remind you that if you have not yet read my book, Unexpected Finding Resilience Through Functional Medicine, Science and Faith, it is available on Barnes and Noble, Amazon, or anywhere. Books are SOL and I really encourage you during this holiday time when this podcast is coming out or really anytime you're watching this episode to grab your copy of Unexpected or if you've already read it, share a review, share it with a friend. My purpose in writing that book was to journal on my own story, but also just to give you inspiration and fuel and practical advice for your own health journey. And we all have a journey.

Dr. Jill Carnahan, MD - **16:24**

I'm no different from you, but I find that through the sharing of our stories we can encourage one another and help one another to find healing and new life. So check it out. You can get that at anywhere your books are sold and if you want a signed copy, just go to Dr. Jill health.com purchase the book from there, we'll ship it from my store and I will personally sign it for you. I love it. And I, I can't say it enough because even if we said it, every single podcast that we produce, it's important for patients to hear or listeners out there, whether it's mothers or daughters or whoever, to realize that it's okay to be heard and it's a right to be heard. And part of what you said is maybe some

of the parents might have anxiety, that's unfounded.

Dr. Jill Carnahan, MD - **17:08**

But just you listening and saying, you know what, let's check this out. And on this realm, you know what, I think that's actually normal perspective of behavior and you as a, you know, provider can validate the concerns and then also maybe bring that reel in some of the anxiety. Because like you said, when it is our child, certainly there's a little bit more invested. And so it's perfectly normal to be a little bit more anxious. Lots of things are rising in children. There's a huge increase incidence in things like Crohn's disease, which never used to happen below the age of 20 and now it's astronomical. Lots and lots of functional gut disorders. And we used to use that term, not functional medicine, but just when doctors didn't know what to do with it right now, placebo, sibo, whatever. And then the mood.

Dr. Jill Carnahan, MD - **17:52**

There's a lot more kiddos that have anxiety, signs of depression, even bipolar. And now you and I know there's often, in fact, I've often been said to say with these anxiety depression in adults or children, I almost don't have any cases that don't have some root cause. Right. There's almost no, just purely organic depression anxiety. Without something that I can do to modulate that. What are you seeing in kiddos, whether it's cancer, inflammatory bowel mood disorders, autism. What's your perspective at this 30,000foot view with you seeing, you know, kids and being one of the first functional practices in Austin, Texas. What have you seen in the last several years and is it concerning?

Dr. Emily Gutierrez - **18:31**

Well, certainly it is concerning. And I, and I also want to say, I know I have a skewed patient population because of what we do. So when parents are looking for an alternative to putting their kids on medications or just doing therapy for autism and they want to really understand the root causes, they come to us. But what I'll say that I've seen a rise in for sure is kids are younger and younger with concerns with mood disorders. You know, I, we have had three year olds with pants pandas that pediatric autoimmune neuropsychiatric syndrome. We have seen it very Young, we have seen depression and anxiety. You know, in early elementary school, it's not so uncommon. Almost every third grader or eighth grader, that or eight year old that comes to us, there's almost a ubiquitous concern with attention and focus in school.

Dr. Emily Gutierrez - **19:28**

In fact, that's a rarity that somebody is not having problems with attention and focus and they're super focused and super on task for school. So it seems like there's more of it, there's more comorbidities. So they'll have depression, anxiety and ADHD or autism and oppositional defiant disorder. And it's happening earlier and earlier.

Dr. Jill Carnahan, MD - **19:52**

So let's talk for those parents out there that might be listening and saying, oh yeah, this sounds like my kid. First of all, pan, as we've talked about before, you and I know very clearly what that is. But if someone's out there and says, I'm not sure what that is, I don't know if my kid might have it, what would you look for as a set of symptoms that might lead to a diagnosis of pan or pandas?

Dr. Emily Gutierrez - **20:12**

I'm so glad you asked me. Because it can often be misdiagnosed as just someone having an acute just developing anxiety. And so the immune system is so intricately tied with how the brain functions. So when there's immune mediated inflammation in the body from either unresolved infection, like you got strep and you didn't have a big red throat and a fine rash and fever, but you had, you have strep and you're carrying strep, or you got strep and it wasn't adequately treated because the antibiotic failed, or maybe they didn't even change their toothbrush so they re expose their self or their sibling habit had it. So any type of infection in your body that's unresolved can lead to this inflammation. And there's different pathways for inflammation that can really cross into the brain and cause symptoms. We call it basal ganglia encephalitis.

Dr. Emily Gutierrez - **21:06**

So what typically you'll see is someone will change when they have a pretty abrupt change. Sometimes it's overnight, sometimes it's over several weeks, sometimes it's over a few months. And what you'll see is usually this rapid onset of OCD because immune stress in the brain creates more glutamate causes more ocd. So they have ocd, they have a restrictive eating. So often kids will get really picky and only want a couple of foods or they'll start refusing foods, or parents will Start to get worried that they're developing an eating disorder. So that's a manifestation. Having a hard time regulating their behavior too. So they might be real aggressive or real angry. They also might have a deterioration in schoolwork. They can't focus. Their handwriting that used to beautiful might look like they regressed for a couple of years.

Dr. Emily Gutierrez - **22:00**

So other symptoms, and you can have three of these, you can have five of these, you don't have to have all of these. Other symptoms, sometimes we'll see is like urinary frequency urgency or wetting the bed in absence of constipation or having a uti. So if your child has this rapid overnight deterioration ocd, restrictive eating, separation anxiety is a big one. They're wetting the bed, they're not doing well in school. I think it is very reasonable for you to ask the question, is their infection playing a role in what's changing my child? And that is becoming more and more recognized by medical providers all over the United States, thankfully. And right now, I think if you miss something that classically presents, ten years ago it was like, oh, that diagnosis, that doesn't exist today.

Dr. Emily Gutierrez - **22:53**

It's like, well, you know, you might actually be negligent as a provider if you don't ask the question yourself and at

least do a throat swab. You know, sometimes strep can live around the anus. And you know why it does? Because it's in the gut. Yes, a lot of these kids have terrible gut dysbiosis. Exactly, exactly.

Dr. Jill Carnahan, MD - **23:12**

Oh, I'm glad I asked because that was one of the best clear, concise definitions I've ever heard. And so I'm sure those listening, if they do have a child that's suffering from that, you know, now they have maybe a name where they could ask their doctor or find a specialist or someone like you. Which is amazing because a lot of parents, I mean, I've treated a lot of kiddos with this and what I see is, oh, it's so hard on the parents too. I mean, granted it's hard on the kids, obviously, but especially when there's like aggression.

Dr. Jill Carnahan, MD - **23:36**

I've seen some where there's like a, you know, a 10 year old boy and I mean, or whatever it is, but he might be strong enough to actually cause, you know, harm to the parent because he's in that aggressive phase of the pandas and he doesn't know what he's doing. It's not, he's not trying to be difficult or hurt his parent, but in those rage or some of those manifestations that we see. And then the OCD and the eating. Like you said, parents can be really stressed because they don't know what's going on in there, like what happened to my child overnight. So thank you for being so clear. Now, autism is a little different, and many parents have heard of this spectrum, and it's increasing incidence. Do you want to give us a framework for that, too?

Dr. Jill Carnahan, MD - **24:12**

And then we can dive into kind of how they're different situations, but in some ways from a functional perspective, you're looking at the gut and the brain and the immune system on both levels, right?

Dr. Emily Gutierrez - **24:21**

Yes. And actually they've discovered that in autism, about 60 to 70% of kids with autism will have a panspandas episode in their lifetime. And that makes perfect sense to me because autism is so immune. So there's no one cause for autism we don't have. You know, this is this gene and it's this pathway, and this happens. It's really a heterogeneous.

Dr. Jill Carnahan, MD - **24:46**

Let me just say it just. Just Tylenol.

Dr. Emily Gutierrez - **24:48**

Yeah, absolutely not. Absolutely not. It's a. It's a combination. It's a. It's a messy VIN diagram, if you will, of oxidative stress or stress on the body, stress in the immune system, nutritional insufficiencies, autoimmunity toxicity, and then a genomic predisposition for some. All of those pathways to go aberrant if there is a stressor that incites them. So it is very. It is very common that you'll see a kiddo with autism that has multiple things going on. And so, you know, right now, in standard or mainstream medicine, we're really good at diagnosing autism. We're really good at it. In the treatment is two antipsychotic medications and a therapy called applied behavioral analysis. And that's all we offer families, is therapy and antipsychotics. So not a lot of people ask the question, why, you know, why is the child autistic? Why did they have a regression?

Dr. Emily Gutierrez - **25:58**

And you can have autism that starts from infancy, which is more rare. But most kids regress or have an episode. They have some type of inflammatory episode, and then there's a regression. And that regression usually happens around 18 months to 24 months. So you can have a happy, healthy, well, developing child. An event happens, and then they start to lose their eye contact, their skills, their language, and they go into this world that is inside of them, and they stop connecting with the world. And it is heartbreaking for families to See, it's almost like they lost their child even though their child is still right in front of them.

Dr. Jill Carnahan, MD - **26:37**

Wow. Once again, that was a really good overview because again, any parent who's listening, who's suffered or had their child been suffering from this, they know how painful that can be and how helpful it is to have someone like you who's saying, oh, well, what if there are some ways we can shift? And I know, I'm sure you've seen as well, maybe at the end we could talk about a few cases that you've seen. But I've seen these things like I can. Makes me want to cry right now of like the over time with functional medicine approach. These parents seen their child come back in a very real way and like this. To me, they're miracles, every one of them. And I'm like, I get so excited because I'd like to be part of that. What joy in life, right, that we get, right?

Dr. Emily Gutierrez - **27:15**

And once you see it, once you see that and have that experience, you can never unsee it. It changes your. It changed my world dramatically. You know, and when we started this practice 13 years ago, I didn't say I want to start an autism practice, right? But you know, who came to me was the people that they're like, what we're doing isn't working. We need something else. You know, parents with kids on the spectrum, especially more severe autism level two and three, they will fight and fight for their kids. They are fighting for answers. And so functional medicine, you're like, well, what we're doing really isn't working, you know, or it's working minimally and it's not really addressing the why. And they want to understand the why. And functional medicine is a great framework to look for it.

Dr. Emily Gutierrez - **28:03**

And you said it beautifully when you said, well, if it's pans, Pandas or autism, but the framework on looking for what's going on with mental health and neurodevelopment is very similar. No matter what you call it schizophrenia, ocd, odd depression, anxiety, you name it. We're still trying to look at that systems based approach to figure out where's the dysfunction in the body, how can we take away the stress and then how can we replace with what the body needs so it can get to this homeostasis or balance? And kids are so beautiful to treat because they can be so resilient. You know, you can see a kid that looks toxic and need to be hospitalized and two days later their virus is gone and they are playing around the room, they are jumping up and down.

Dr. Emily Gutierrez - **28:49**

You know, a lot of adult providers are like, I don't want touch kids. They're so fragile. But really, honestly, Dr. Jill, they are resilient. They are resilient if they get what they need.

Dr. Jill Carnahan, MD - **29:01**

So I love that as well because I've seen the same thing, like kids are so they like mold toxicity, bounce back, parents double or triple the time. Speaking of, I always think of there's toxic load, infectious burden and these guys kind of interplaying in our adults and children into creating immune inflammation and some of the behavioral manifestations. There's gut involvement, there's infection involvement, there's mold involvement. Do you want to go through just a few of those, like where you're looking for the root cause and like how often my big thing is mold, Obviously I see that playing a lot of times. How often is it like strep or tick borne infections versus mold or both or what's your perspective on what you're seeing as some of the or gut dysbiosis? Right. Where are you seeing the root causes manifest the most in your kiddos?

Dr. Emily Gutierrez - **29:48**

Well, it's very rare that there's just one thing. Often there's multiple things that you're dealing with. And you know, in Austin, we are, I feel like were in the tropics last week because it was humid and hot. There is so much mold in these buildings here. And then old schools, you know, elementary schools that are 100 years old here, you walk in and you just are hit with the smell of, you know, must. And you know, kids get mold toxicity for sure. And, and that's something that I've seen in younger and younger children. A children that was, you know, born in a moldy house. You know, they typically come out with the worst eczema you've ever seen. Losing and weeping and bleeding skin. And their gut is a mess as well. So we definitely.

Dr. Emily Gutierrez - **30:38**

Mold is something we're always looking for, especially because of our demographic of where we are and just where we live in Austin, Texas. So I'm looking at all of it. I'm looking at gut, I'm looking at immune. With immune, there's opportunistic infections. You know, children will get strep throat a lot and sometimes strep isn't adequately treated or they have a recolonization of strep or their family members have strep or there are some parents that are like, I don't want to give my child antibiotic even if they. They do have strep, and I don't advise that because I know what can happen if you have an infection untreated. And then just like, you know, if you have a lot of physiological strep, too, you can have viruses that you had before that reactivate, and we'll see that in children as

well.

Dr. Emily Gutierrez - **31:26**

And now we have this wonderful. I'm being sarcastic. We have this. This curveball that were thrown, you know, four or five years ago now of COVID and long Covid, so spike protein injury, you know, reactivated viruses, long Covid bacterial infections, Mycoplasma pneumonia is a lot of them. They would think, too, in. In the Southwest and where I am in Texas, you know, we do have the Lone Star tick. But a lot of providers say, well, you live in Texas, there's no way you could have Lyme. And as you know, it doesn't matter if you don't live up in the Northeast, you still can have Lyme disease. So we do see that as well.

Dr. Emily Gutierrez - **32:09**

One of the things that I see kind of across the board and is really emerging research that I think is so fascinating and has been so helpful is, you know, I explain it to my parents like this. Hashimoto's thyroiditis. You know, you have a thyroid that's functioning, but you have antibodies that are preventing the free thyroid hormone going into the cell and giving us energy. Well, that's happening to the brain and folate. So there are parts of our brain. If you cross into the brain through the choroid plexus, some people call it the blood brain barrier. There's two pathways, and those pathways are encoded by two genes. Sometimes you can have variants in those genes, sometimes you can't. But if there's a lot of autoimmunity, you can create those antibodies that either block or bind the folate getting through into the brain.

Dr. Emily Gutierrez - **33:00**

So, Dr. Jill, if you were going to test somebody's folate and they were young, and you said, oh, well, I know how wonderful and important folate is for a child to grow. It might look sky high in the blood. In fact, it might look, you know, like, gosh, if you're taking folate, you better stop. It's too high. But research has shown around the world, not just in the United States, that if you tap the spine of these children, you'll find in their cerebral spinal fluid in the central nervous system, they are actually extremely deficient in folate, because the process of getting folate into the brain is not happening. And folate is the Most beautiful nutrient. I believe that God created. You know, we know that if you're pregnant, you should be taking folate.

Dr. Emily Gutierrez - **33:44**

Hopefully you're taking a methylated form of folate, not that toxic folic acid. But folate is life giving. Once you get it into the brain, then you methylate it into the methylated form. And that methylated form is what the neurons love. And that methylated form is also what every neurotransmitter is built off of. So it's really important to see or to understand what's the folate absorption into the brain and then how can we support methylation once the folate is there. And that is what they got up and talked about and with, you know, Kennedy and HHS and you know, that leucovorin treats autism. Leucovorin is folinic acid. Leucovorin is a reduced form of folate. It's. I wish they would have said there are vitamins that can help your brain get back on track.

Dr. Emily Gutierrez - **34:39**

So a lot of people went away thinking it was a drug and it is a reduced form of folate. And there's just a lot of nuance with how you look for it, how you give it and what you could see once you do it. So I feel really passionate about that these days because I have seen wonderful things happen to neurodevelopment and depression and seizures and chronic fatigue and people not sleeping as soon as we really support their, their central nervous folate needs.

Dr. Jill Carnahan, MD - **35:12**

Okay, once again, you are so articulate because you did such a great job of giving an overview of something so critical. And on this other end, another methyl donor is methyl B12. Right. And I see the same thing. In fact, years and years ago, I have pretty much all of the B12 intracellular SNPs that prevent me from getting B12, absorbing B12, getting. And so what would happen is I would look high in the serum, just like you said with folate. And I was severely deficient. I think years ago that was probably a piece of my puzzle with my cancer. Five, because I was not absorbing or getting B12 anywhere near the nervous system. And so now I have to inject it just because of my genetics, I have to do injectable B12.

Dr. Jill Carnahan, MD - **35:52**

And you can actually do some of that with the other bees as well. So parents who are out there, this can be. I think the methylation cycles for me have been so powerful, but also some of the most complex. So obviously we're not going to do a PhD level. But for someone wondering, like, how Are you testing that? Are you doing intracellular, extracellular? Are you doing SNPs around this? How would you assess a child to see if they needed methylfolate versus folinic acid in the levels?

Dr. Emily Gutierrez - **36:19**

Yeah, that's a really great question. So it depends on access to what they want to do. First of all, there are tests that you can test to see if there's those folate receptor antibodies. It's called a frat test. From right now, I think there's one lab in the United States that does it. So if you do, if you Google frat test, you'll find it. Otherwise, I bet you anything in the next couple of years we're going to see more lab companies testing for it. So you can test for it. If you do a red blood cell folate, you're not going to see it. If you want to tap the spine and look at the cerebral spinal fluid, you can do that. A lot of parents don't option for a spinal tap. And you can look at some of the genes.

Dr. Emily Gutierrez - **37:01**

You know, there are some gene variants that have high associations with folate receptor antibodies. You know,

maybe surprisingly, maybe not to you is the MTHFR677T homozygous variant has a higher likelihood of these antibodies. If you have a diagnosis of pans pandas, you have a much higher likelihood of these antibodies. So, you know, folate is such a low cost, high reward therapeutic that, you know, if I were going to do one of these tests, I would want to do it to kind of understand how high I might want to dose it. So right now the kind of standard for dosing is 2mg per kg of body weight divided twice daily. But you know, you usually max out at 25 milligrams twice a day. And here's a nuance to that. Over the counter you can get products with folinic acid.

Dr. Emily Gutierrez - **37:57**

Please make sure you're not getting folic acid. It's folinic acid. But the government, you know, because we can prescribe folinic acid at 5 milligrams per dose. Most companies go 2 1/2 milligrams are less because it's half the dose of what's prescription. So you can't really find a lot of high dose folinic acid over the counter. And then for those that if you were to find a product, you know, I've talked to some pharmacists that are pretty concerned about the stability of a powder form because folinic acid also has to be kept, you know, not exposed to light and it, and you definitely don't want to leave it in your car and let it heat up in the summer because it has stability issues.

Dr. Emily Gutierrez - **38:40**

So, you know, if I were going to treat a child, I might do, you know, we might do genes, we might do the test, or we might just try it empirically. We might say this is folate for your brain and it could have a really profound effect on your child's development. Do you just want to try it and see how it goes? But here's the nuance and this is so important and I hope every provider that's listening knows this or will remember this. If you give a child if, say they're 90 pounds and you're like, well, they max out. They're 25 milligrams twice a day. And you start with 25 milligrams twice a day, you are going to have a very irritable child.

Dr. Emily Gutierrez - **39:21**

You will have a child that is going bonkers basically, and parents calling you, saying, you what did you give to my child? They have not slept in days.

Dr. Jill Carnahan, MD - **39:29**

Days.

Dr. Emily Gutierrez - **39:30**

So you have to start low and you have to go slow and titrate up. It might take me three months to titrate up to that

dose of my patients. And I've asked the researchers, Doctor, Dr. Fry, Dr. Fry is a PhD MD that did a lot of the research in the United States. And Dr. Quadros also talks about this. And they would say that you are creating, remember when folate gets into the brain, all of a sudden you have lots of availability to make your neurotransmitters. So you're making more serotonin, you're making more glutamate, you're making more dopamine, all of these things, you're making more. And your body needs time to go into homeostasis. So you need that and you need the vitamin cofactors. You got to do that. B12.

Dr. Jill Carnahan, MD - **40:18**

Yes.

Dr. Emily Gutierrez - **40:18**

I'm so glad you're doing injections. I'll prescribe injections in a three year old. I will.

Dr. Jill Carnahan, MD - **40:25**

Now. Right. You don't need to do these.

Dr. Emily Gutierrez - **40:28**

That's right. That's right. Sub qing. Get them pre filled. Methylated.

Dr. Jill Carnahan, MD - **40:33**

Yeah.

Dr. Emily Gutierrez - **40:33**

So you need the cofactors too. And I think that's really important. You need B6, you need B2 riboflavin and you need B12 along with it. So once it gets into the brain, it can then be methylated.

Dr. Jill Carnahan, MD - **40:48**

I'm so glad we're talking about this because I think this is a very untapped area, even in our practitioners that are our colleagues. I really think many of our colleagues don't really understand. And I have a few questions just for those to clarify, you know, if they're listening or whatever, any of those. First of all, in my experience with a 1298C and C6777T, which are the two big MTHFR mutations, I'd love to know if this is true for you. But just clinically, I feel like the A1298Cs are a little more sensitive to methyl donors and some of the folates. And do you see any difference in those? And would there be any difference in approach to. To the MTHFR mutations and how. Number one, and then number two, I always think of you gotta have B12 before you really push folate.

Dr. Jill Carnahan, MD - **41:31**

So if my order of operations, I think B12 makes sure that's okay, and then really work on the folate and kind of like you said, you can really. And I see for detox, if you really ramp up, same as neurotransmitters, you can actually create almost like a Herx or a toxic crisis when you ramp the folate. Because I'm working better with detox as well. So those two things. So first of all, absolutely. Methylation genetics, is there any big key players in how you treat? And then second order of operations and all the methyl donors?

Dr. Emily Gutierrez - **41:59**

I think that's so such a great question. So I do believe that order of operations is really important for clinical outcomes. And if you start in the wrong place, it might not go as smoothly as you want. So at the Medical Academy of Pediatric Special Needs, we often do B12 injections in children, and there are some that believe you should start B12 injections for at least a month before you start folinic acid or increasing some of the other methylation factors. So, you know, B12 is really complex and I do love doing genomics around it because there's so many genomics around how it's metabolized, how it's absorbed, how it's transported, even how it's transported through the mitochondria. So it's very complex and B12 is so incredibly important.

Dr. Emily Gutierrez - **42:50**

So if you start with B12 first and then you can start adding some of the other methylation cofactors. And I don't titrate up on B2 or B6, but certainly I would titrate up on folinic acid and methylated folate. And there's something in the brain that I think is also really important to understand is just that redox stress, that homeostasis of our brain. So when our bodies are super toxic and there's lots of oxidative stress, that stress, you know, can go through that blood brain barrier. So there are different gene pathways that are involved in that. And also just if the degree of oxidative stress or that reactive oxygen species, that toxicity when the body is really high, some of that inflammation gets to the brain and the brain has an order of operations too.

Dr. Emily Gutierrez - **43:40**

I believe a brain cannot be toxic before it creates neurotransmitters. So I believe a brain will shift to something that

we call redox homeostasis and it will start to create cystathione and cysteine and glutathione to balance the oxidative stress first so it shifts away from the methylation cycles. So always in the work, you know, when I first see a patient, I want to understand where the fire is, where is the oxidative stress? You know, often in a little child, it's what they're eating. You know, it's like, oh well, they're eating fire foods, you know, processed, packaged, non foods. Well, we got to get rid of those as much as we can. Or even maybe they're eating eggs and that's a fire food for them because they're allergic to eggs. So we try to find the fire.

Dr. Emily Gutierrez - **44:31**

Is it in the gut, you know, is it in the air, is it in their food, is it an infection? And we put out the fire first. And often I'll focus on inflammation first in my patients. And there are lots of great things that you can do other than removing is you can support the body with, you know, things like palmitylethyl olimide or high doses of omega 3 fatty acids or one of my favorites is specialized pro resolving mediators.

Dr. Jill Carnahan, MD - **44:59**

You know, love PRMs.

Dr. Emily Gutierrez - **45:01**

Yes, love them. They work so well. If you dose them high enough, they have a steroid like effect without the side effects of steroids, which is beautiful. So I do think the order of operations is important and really figuring out where the fire is, putting the fire out and then supporting B12 pathways and supporting other methylation factors after and you slowly, gradually get the child there. So I hope that was helpful for.

Dr. Jill Carnahan, MD - **45:30**

That was brilliant, brilliant. I want to talk about a case that you've maybe seen recently. Before we do B6, there's a paradox. We've seen a lot of doctors who are terrified of prescribing. I've seen a tenant neurologist in a patient that might actually need B6 for neuropathy to say don't touch B6. Tell us just a brief synopsis of the B6,6 paradox and I think you have a reference, a paper that we should all be reading as well.

Dr. Emily Gutierrez - **45:55**

Yes, it's actually called the B6 paradox and it was done in cell culture and I found it. So I did a teaching on the B vitamins for I lads and I thought, oh well, I'm going to teach on all the vitamins. And boy was that was an overreach because just my hour and a half lecture on B vitamins, I probably spent 40 hours creating it and I found the B6 paradox. You know, the thing is why does B12 or B6, excuse me, toxicity, have the same symptoms as deficiency? And this paper explains in cell culture they saw that pyridoxine, or it competes for an enzyme that competes to get

it into pyridoxine 5 phosphate. So if you give the non methylated pyridoxine that the enzyme can be competed for and actually cause the cell to die, cause program cell death or apoptosis.

Dr. Emily Gutierrez - **46:50**

So giving the wrong form in cell culture actually created a deficiency. And that can make sense. Right, so you give B6 and then over time you have deficient symptoms. Well, are you killing the ability for B6 to be broken down into that form and then B6 goes away so you actually do become deficient. You know, the National Institute of Health has upper tolerable limits for B vitamins in the form of B6. The other ones are water soluble. You don't have to worry about high doses with any form of toxicity. But you know, the upper tolerable limit for adults is 40mg a day of B6 and often that is way too low to give someone, so you know, they might benefit from 100mg of B6. I wouldn't probably give anyone more than 1000mg a day.

Dr. Emily Gutierrez - **47:40**

In fact, I've never really given anyone more than 100 milligrams a day. But there are some of my patients, especially my patients that have problems with sleeping, that need more gaba, especially that have lots of anxiety, that they do really well on B6. And you know what, Dr. Jill, there is a deficiency in ADHD. There's some papers showing that magnesium and B6 can be one of the primary root causes of ADHD. So Basics is very important and it's a little complex.

Dr. Jill Carnahan, MD - **48:13**

Yeah, it is. We need to all go hear Your lecture, those doctors, maybe they can get the IOD to purchase that, because that. That's a really powerful thing. And one of those things that clinical conundrums, even for a lot of functional docs, don't understand it. So before we wrap up, I had mentioned a case, because I know you probably have hundreds, but share with us a little example of maybe a kiddo that you've seen an incredible success with.

Dr. Emily Gutierrez - **48:36**

Oh, gosh, you know, these are the cases that keep you going. These are the cases that you say, you know, this is hard work, and I work a lot when I'm not in front of a patient. There's a lot of work that goes on behind the patient. But I had a little girl come to me. She was two and a half. And, you know, I know that your audience knows a lot about mold toxicity, and in fact, I've learned a lot about mold toxicity from you as well. And this little girl came and she had seen every specialist that you possibly could. She was covered from her head to her very tippy toes in eczema. And the eczema, you know, was so severe that she was constantly scratching her skin. Her skin was open and broken and wheezing and oozing.

Dr. Emily Gutierrez - **49:20**

She had super infection everywhere, and nothing touched it. No biologic medications touched it. No antihistamines touched it. And this little girl was miserable. And she was. She always came in pajamas because her parents would never let her fingertips touch her skin. And, you know, she came and not only was she mold toxic, she also was eating a lot of the foods that she shouldn't have been. And, you know, we got her out of the house that had mold toxicity in it. We got her on the right diet. We got her some anti inflammatories. We started gently detoxing her body. And over time, she became better and better.

Dr. Emily Gutierrez - **50:02**

And one of the things that was the most difficult for this family is she would wake up six or seven times a night for three years, and the parents were distressed and they were, you know, there was a lot of stress in their home. And we got her sleeping through the night. We got her to where she doesn't have to wear pajamas 24 7, because she's allowed touch her skin. Her skin is healing like it never has before. And parents just have this sustained. They. They have hope. And the. The harmony in their household is also much better because their little girl that was been sick for so long that nobody had answers for, is getting better and better.

Dr. Jill Carnahan, MD - **50:43**

Oh, my goodness, what a great case, especially for our AUDIENCE because we always talk about mold and many people don't know that the manifestations of skin and the brain and it affects all of those. So how awesome. And I can just see in the way you talk about your patients that you love what you do and you bring that heart of compassion and healing and it's just really beautiful to see. And like you said, it kind of keeps us both going in the long hours because it's so rewarding to see these cases.

Dr. Emily Gutierrez - **51:11**

It is. I often wonder when I'm going to retire and I don't think it's anytime soon. I have adults, the nest and I'm like, well, I have all these other children to take care of while. But it is rewarding work and you know, honestly it's, it is a privilege. And I know that the way that I've been able to see families have kids talk that weren't talking, have kids sleep through the night, have them grow, have them get out of their special, you know, services and into mainstream care over the years it's been a tremendous honor and blessing to be a part of these families. It really honestly has.

Dr. Jill Carnahan, MD - **51:50**

Yeah. It shows in every word that you say how much you love what you do. So people want to find out more about your clinic, about your products. Give us the websites and again, if you're driving, don't worry about taking notes. This will all be in the notes, but go ahead and tell us where to find you.

Dr. Emily Gutierrez - **52:04**

Yeah, so our practice in Texas is neuronutrition Associates and we have providers that treat children and adults. And I did create an autism module online. So for those that can't get in to see me or don't live in the state, you know, it's a three part module that I go through all the science on autism that I created just to support parents and to spread the news on what functional medicine can do for some child that is struggling with neurodevelopment. And I do have a supplement company, it's NeuroNutrients. And you better bet I put a lot of folinic acid in many formulations. Our attention support or methylation support, our mood support, all have it in there and I designed it for children. But you can, it's through the lifespan, children and adults.

Dr. Emily Gutierrez - **52:52**

But you know, there's powders that are palatable and it's not a gummy with low therapeutic doses. It has doses that actually do something. I'm, I'm big on science and research and everything is peer reviewed and has a reason for the ingredient and it's a great. It's a great start to methylating the brain.

Dr. Jill Carnahan, MD - **53:17**

Fabulous. Well, Dr. Emily, this has been an absolute joy to have you on the show. Thanks again for taking the time.

Dr. Emily Gutierrez - **53:23**

Yeah, thank you so much for having me.

Dr. Jill Carnahan, MD - **53:25**

Hey, guys, I hope you enjoyed that interview with Dr. Emily as much as I did. You can just see in her ability to go deep with these complex chronic issues such as methylation, brain inflammation, infections, that she is just a joy to listen to and so informative. And I hope that, like I said, you enjoyed it as much as I did. As we are releasing this episode right around the holidays, I hope that you and your family are together and you're just appreciating the many blessings that you have in your life, whether it's health or illness. I wish you the very best in healing and I hope that each time that I put a podcast out, it is helpful and good information to sustain you and help you for optimal performance, longevity, and just having a happy, healthy family.

Dr. Jill Carnahan, MD - **54:15**

As you know, we release new episodes every Wednesday, so stay tuned for the next episode and you can find all

products and services special curated by me@drjill health.com so be sure and visit that at your leisure. And I will see you again next week for another episode of Resiliency Radio.