Introduction and guest welcome

– Hello and welcome to this episode of the Environmental Toxicants Autoimmunity and Chronic Diseases Summit. I'm your host today, Dr. Wendie Trubow. And I'm so excited to flip the switch on the conversation and talk about prevention with Dr. Elisa Song, who is an integrated pediatrician, functional medicine export and mom to two thriving Children in her pediatric practice, whole family wellness.

She's helped thousands of kids get to the root causes of their health concerns and help parents understand how to help their Children thrive by combining conventional therapies with functional medicine, homeopathy and other remedies.

So, Elisa, thank you so much for taking the time to talk to me today. I'm really grateful to have you here. Welcome. – Oh, what an honor because this is such an important topic as we're going to dive into, – Right.

And I mean, most of this summit has been dedicated to reaction. Obviously, if you're listening and you have an autoimmune disease or chronic disease, you want to fix it and reverse it. And we're looking now at starting out earlier in life, how do we prevent these things from happening?

What, what different paths do we need to take So first question is, is autoimmunity a thing in the pediatric community, – You know, very sadly. Yes. And here's the thing for parents or grandparents who are listening, who have an autoimmune disease.

And they're thinking, how do I prevent this in my child or my grandchild? There are many red flags that we can identify even at very young ages. For instance, there is a market called an ANA which men if you guys are familiar with is a very general autoimmune marker. It's an anti nuclear antibody.

And one of the things that is startling is a study looked at different age groups over the past decades, since about the mid 19 eighties to find out in which populations is this marker increasing. And what they found was that for every single population, every single age group, I should say a and A rates are increasing, right? We know that our auto immunity is increasing at every age. However, the most rapid rise in rates of A and A positivity were in our teens in our 12 to 19 year olds, right? So, since the 19 eighties, um, it's almost tripled by 2012, right? That's a 40 year time span.

And then now fast forward another decade. And it's more and when I check A and s and kids, I see positive and is in many, many kids. Now, what's really important to understand is that does not mean your child has an autoimmune disease yet, right. This is an amazing opportunity to say, hey, look, we know that autoimmune antibodies can present sometimes decades before you actually develop any outward clinical signs and symptoms and are diagnosed.

So we know that your child's immune system is already tipping over the edge. Then we can double down and say, hey, what can we do? We can actually prevent them from progressing towards auto immune disease.

And I do see autoimmune disease that younger, younger ages. Unfortunately, now the numbers aren't tracked very clearly for autoimmune disease in Children. But we know that right now, a little over one and two kids have some sort of chronic condition.

And when we talk about auto immunity, we're talking about, you know, I see Hashimoto's in middle schoolers, I see rheumatoid arthritis, juvenile arthritis in toddlers. I had a six month old baby who was diagnosed with Crohn's disease. So, and then talk about the neuropsychiatric autoimmune encephalitis called pans and pandas, which seems to to be skyrocketing now.

And so we need to pay attention to this. And I'll tell you that six little six month old girl who was diagnosed with crone's disease, she's now six years old.

Autoimmunity in children and early warning signs

No Crohn's disease. She's doing awesome, right? We can do this. We just need to know how and we need to approach it with calm and with knowledge and without fear.

– Okay, Elisa, so one thing you said that was caught, my attention is so I have celiac and that's genetic, but it's obviously not just genetics because if it were, everyone would have celiac. So what's so interesting to me is that the juvenile rheumatoid arthritis is on the same H L A subtype as one of the celiac jeans, the D Q eight. And so I'm thinking to myself when you think about autoimmune disease and how it starts in the gut and we're going to talk about that in a minute. You think about kids with J R A could potentially be also celiac or gluten sensitive. And I think about auto immunity as a spectrum.

It's not like you flick the switch and today you have it and yesterday you didn't, it's like there are markers that occur in this area is one of those that you're referring to along the way that give you clues to say, oh, it's coming here.

We are. Okay. So, Hippocrates talked – Actually. So let's just talk about that piece because that is so important parents understand just to hit that point home, even in this particular study where the A N A was increasing.

The authors note and these are very conventional medical researchers, scientist who note that, you know, in the last 30 40 50 years, our genes haven't changed much, right? Our genes have pretty much stayed the same.

So why is it that so many kids now and so many adults now are showing blood markers of auto immunity, clinical signs of autoimmune disease. It's not because their genes have changed. Right.

It's because our diet and lifestyles dramatically changed and we'll dive into what that means for our gut health and, and how that impacts autoimmunity.

But I love, I love that you bring that up money because it's, it's such an important point for parents to understand because when we realize that we can understand that even if, you know, mom had celiac disease and grandma had lupus and you know, on and on and on and it runs, runs in the family, not set in stone.

We have the power to change our and our and our children's epigenetic futures and for Children, especially since they're so young and everything is really so much more adaptable.

– Yes, I totally agree. So let's talk about the gut. Then hypocrisy was talking about credit was saying all disease starts in the gut. So why are we talking about the gut when we talk about autoimmune disease? What's the, what's the relationship there especially as applies to Children?

– Yeah. So this is especially important for chill because the listeners here, you guys are savvy, you know, the importance of the gut microbiome or at least you've heard of the gut microbiome and the importance of a healthy gut for your immune system.

How does that apply to Children when Children are born? They're more or less born with a quote clean slate in their gut. Some of that may not necessarily true because we know that mom's got microbiome even in Utero can impact the baby's developing gut microbiome.

But all of those 70-100 trillion microbes that end up populating your child's got microbiome needs to get started from the moment that they're born through their entire life.

Now, the way that your child's gut microbiome and all of those gut microbiota form and colonize influences how their immune system develops. 70% of your child's immune system is in their gut and your gut microbes, your probiotics or your dis biotic, your admiral gut microbes will inform how your child's immune system develops. So,

let's take an example of, well, you know, we'll talk about um you know, these tonsils like patches, right? We'll have tonsils where we used to write these tonsils like patches also line our, our gut, our entire gut, right? And those are called gut associated lymphoid tissue. It doesn't matter what it's called.

I think of them as tonsils in your gut lining. Okay. Your gut microbes communicate with those patches and tell the immune system in your blood how to respond to things that are passing through.

And we're one large too, right? Everything that we encounter we're gonna also encounter through our gut. And that's the largest interface with food particles, with viruses and bacteria, with environmental toxins.

And as those pass through your gut bugs, take a look at what's passing through and decides, is this friend or foe, should I respond with an immune response or should I let it just go right now, sometimes a signal gets crossed and if you have the wrong kind of bugs in your gut, you might start attacking foods that maybe wouldn't have been allergenic or sensitizing beforehand. Right. So then you start attacking and maybe too much inflammation is called in. Right. That's when we get chronic inflammation and chronic disease. Sometimes though your immune system identifies something as foe that really isn't and then calls in the wrong troops, it identifies that piece of a virus or a piece of a bacteria or a piece of a food as something similar to one of your self, something in your art organ and starts developing antibodies against that particular antigen.

And in the process attacks, you attacks your thyroid attacks, your joints, attacks your gut and you end up with celiac or you end up with Hashimoto's.

So you end up with rheumatoid arthritis. And so that's how autoimmunity can develop. And your child's gut microbiome has this key period, this critical time between 0 to 3 years of age where that foundation is set. We know that antibiotics and anti acid medications given within the first six months of life can increase the risk by the time that child is four years of age of virtually every single allergic and autoimmune disease, right? Eczema and asthma are now known to be autoimmune reactivity, ease, um, pay fever, anaphylactic food allergies, you name it hives. And so what if we understand the shift in the gut microbiome that occurs after a disruptor like antibiotics, fantastic medications. And we know how to then reverse that disruption.

We can impact so much that child's developing immune system and help prevent the downstream autoimmunity that might occur. – You know, it's, I'm struck by you and I are essentially in sister specialties because I used to function as an obstetrician gynecologist.

So I did cesarean sections, thousands of them. And I remember early in my career that one of the old timers, I was horrified, you know, because I had yet to do functional medicine.

And he said to the woman, I'm just gonna inoculate the baby basically and took some of the women's vaginal flora from the C section and put it in the baby's nose and mouth.

And I was like, whoa, hold on here, right? Because you think about once it's come out of the vagina, you don't think about putting it in your mouth or nose.

Why gut health drives autoimmune risk

But he, he said to me, you know, you think about the baby is sterile at this point and it needs those bacteria to develop the healthy microbiome. Now, he's way ahead of his time, right? Because – This time, – It's fascinating. – Now, I mean, that is amazing.

So that's something called vaginal seeding, which now there's been a few small studies. And when you think about it your baby again. Born with a quote sterile gut and relies on the birth canal exposure to mom's vaginal microbiome and gut microbiome, right? There's all sorts of body fluids and poop and stuff going on there, right? And so they rely on that exposure to get colonized to have their gut microbes. Really you know, start off in life. Babies were born by C section have very different gut microbiota when compared to babies who are vaginal birth babies, where my C section tend to have more skin bacteria and also tend to have more abnormal bacteria in their gut

microbiome as opposed to babies who are able to be exposed to their moms, vaginal fluids and all of the fluids as they're passing through.

So that vaginal seeding, I mean, what how cutting edge, right? You know, to expose that baby. Now, we also know, you know, being vaginally birthed and being breast fed starts off the baby's life with a quote better gut microbiome.

However, even that is not necessarily a free path for your baby's gut microbiome because of all of the way that we are living in this world that and all the forces that work to disrupt mom's gut microbiome and vaginal microbiome. The breast fed baby of today, right? The modern breast fed baby, their gut microbiome is very similar to the gut microbiome of formula fed babies a century ago. We have lost most of the beneficial bifida bacteria species in our babies, even in our breast fed babies.

So we all need to work on our gut microbiome. And vaginal microbiome is hopefully before our babies are born. And then once the babies are born, we work on optimizing their gut microbiome no matter.

You know what their history is. – I mean, clearly everyone is enrolled in the idea that the microbiome is the foundation of health. What what are the things, what are the biggest factors that impact kids? Micro bio, aside from Cesarean or breastfeed?

Are there other factors that come into play? – There are. And you know, you're the title of your summit, you know, nails a lot of them, right? We know that environmental toxicity plays a big role in so much disruption, you know, be it becomes sort of a chicken and egg thing because we need a gut microbiome to healthy gut microbiome to support the bio transformation of toxins, right? And also the elimination of toxins.

So if your babies don't have a healthy gut microbiome, then they're not gonna necessarily be able to process and um uh you know, get rid of all of the environmental toxins that we're exposed to. Even if we're living clean and green, right? Just by living in our modern world, we're gonna be exposed and we know that babies you know, pound for pound, they really do, they eat more food, they drink more water, they breathe more air. So and that their skin is more porous.

So there they are absorbing more of these toxicants and they're also not able to really buy a transform and eliminate as well. The other factors though really are the things that we unknowingly might be putting into our children's bodies.

Right. Well, let's talk about the three most common what I've been calling microbiome mischief makers that sometimes just kind of sneak in and we don't even recognize. Okay. The first one are really are the FDA approved food additives that can wreak havoc havoc on your child's gut microbiome and my gut microbiome. I mean, you know, the whole ecosystem of their gut. So it's the bacteria, the microbiota, the organisms in the gut and their gut lining. Okay. And so food additives, especially emulsifiers, emulsifiers are these are these FDA approved additives that keep your food together. So think about, you know, ice cream, right? If you're buying a tub of delicious, you know, mint chocolate chip ice cream, you don't want to open that up and find a goopy gooey mess because it didn't hold together, right? So you might find, you know, mono and dig Lyssarides in the ice cream.

Now, those mono and Douglas rides and other food emulsifiers in other countries have been linked directly with an increased rise in auto immunity. I mean, there's a study of Japan showing this. We know that these multipliers can directly cause gut despite aosis or harm and imbalance of our gut bacteria, you know, towards you know, more pathogenic bacteria and can also disrupt the gut lining and lead to something called leaky gut. So, and what's astonishing is that the FDA actually allows emulsifiers in infant formula at a level that we know is going to be harmful. Now, these are the ready to feed formulas, not the powdered formulas. So we have our FDA food additives that we really want to not necessarily never ever eat out of a package.

But if you're going to, you know, buy packaged foods, make sure it's mental process and learn how to read food labels in a really savvy way. So that you, you're really looking at whole food ingredients, you're getting rid of those, those names that you can't pronounce those things that you have to Google.

Like, what is this? You know, why is this in my food? Right? You know, added sugars have creeped up. And you know, nowadays and, and really, um Children now eat more grams of added sugar than many adults because of the ways that they can sneak in without us even realizing, you know, that, that vanilla Greek yogurt when I remember buying organic vanilla Greek Yogurt, I just before I was really, really kind of reading every single label and thinking, oh, well, I'm giving my kids, this is even as you know, a holistic pediatrician, I was reading, I was giving my kids organic Greek vanilla yogurt.

I thought, oh, there's protein, there's probiotics and there was a great way to start the day. Well, I finally, I was like, let me just look at this label like, oh my gosh, each serving had 35 g of added sugar, added sugar. Okay. one g is four teaspoons.

So you're looking at your kids with nine teaspoons of sugar, much less. You know, I mean, think about if you're putting a little honey on there and granola with added sugar, so that added sugar also directly impacts your gut microbiome. Why?

Because it's gonna feed the wrong bugs in your gut. Now we're talking about gut despite aosis. Why is that so important? These abnormal bugs? Because we know that there are certain bacteria like klebsiella and citrus factor um and proteus that if they take hold in your child's gut can increase their risk for developing auto immunity.

And that's why I always look in the gut when kids have autoimmune disease, even if they don't have any got problems, right? And then let's talk about the number one biggest immediate disrupter to your child's gut microbiome and that's antibiotics and we know that antibiotics can be lifesaving. I mean, they are one of the the hailed as one of the most important public health intervention inventions of the 20th century.

But now we need to recognize we're in a different place, right where antibiotics are getting way over used inappropriately used. And for Children up to 70% of antibiotics may be inappropriately prescribed right up to 70%.

Birth, microbiome seeding, and early-life disruption

And we know that by the time kids are to something like 50-70% of kids have had at least one round of antibiotics. Now, if those antibiotics are necessary, then yes take your antibiotic course, you know, with confidence and complete it, but also understand that antibiotics don't just kill the good. The bad guys are also going to kill the good guys sort of indiscriminately, right? And sometimes they'll even foster the growth of the good of the bad guys, right? At the expense of the good guys.

So that's when you get overgrowth of admiral bacteria like klebsiella or overgrowth of candida and yeast species or, you know, a gut microbiome that is more susceptible to parasitic infections and viral infections because it's not a healthy gut microbiome.

– I want to call out a few things you said Elisa because this is certainly a talk about kids. But as I'm listening, as someone who, you know, you have to be pretty much adult to see me.

You have to be 13 and up 14 enough. So you can't be a baby like once they're born, I would not treat them. So I'm thinking about everything you've said so far applies to both little and big people, meaning care for your gut, don't eat sugar. Watch the ingredients if you can't pronounce them or don't know what they are. It's not food, don't eat it. And if you're taking antibiotics, it's important to rebalance and repopulate the gut.

So really everything you're saying applies to humans of all ages, not just Children, even though right now we're focusing on Children. It's really for everyone, – It's for everyone. And this is where once you start looking at, how can I support my child's gut microbiome so that they have the best, you know, potential to have a healthy, thriving life.

If we make this a family affair, everyone is going to benefit everyone now. And it's not just we're talking about auto immunity and immune dysfunction, but it's not just that the gut microbiome, if you optimize your child's gut microbiome and really support a Brazilian gut microbiome, you're going to support their developing gut brain

connection and be able to impact mood and behaviors and attention and focus and, and, you know, all the things that we worry about as our kids get older, you'll be able to support optimal hormones because there's an intimate gut hormone connection. You know, we have all of these connections where the guy that is really the central focus and the sort of, you know, this outward you know, spokes that affect every single organ system.

And so we want to make sure that, you know, for parents listening, auto immune, auto immunity, autoimmune disease often doesn't occur alone. You may have more than one autoimmune disease. We know that when you have one, it does make it more likely that you may develop another one.

Right. But along with that, you know, many of my kids who have autoimmune reactivity, they also have attention and focus concerns or sensory processing concerns or concerns that are more brain and neurological related and parents aren't connecting it with their immune dysfunction.

Well, if we look at it from two separate pieces and see the rheumatologist, immunologist for their immune condition and maybe see the neurologist or the psychiatrist for the brain condition, nobody's putting the pieces together because they don't have constipation or reflux or tummy aches. They might but not bad enough to be sent to a G I doctor. If you start with the gut and you look at the, you know, the gut brain, gut immune connection, you're going to have those ripple effects and benefits on virtually every single concern that you, that you may have for your child.

– Got it. So we've covered, I think a fair amount of this, but I really want to make sure we highlight the things that you recommend. People do to optimize kids and adults do to optimize their microbiome.

I think we've touched on not having too much sugar and you haven't talked about specific probiotic use or can you talk about the things to optimize the microbiome?

– Yeah. So because that's always where we want to start, right? What can we do? And you know, I think about really, you know, there's five things that your kids they're already doing every single day and we want to support them in doing that in a gut nurturing way. Okay. So the first thing is thinking about what they're eating, right? And we want to think about what they're putting in, but also what you can swap out and remove. We've already talked about the food additives and the added sugars. So those things you can, you can take out, you can make healthier swaps when I talk about healthier swaps because this is one of the most challenging things for, for parents of kids who are older, like my kids are love and 13, they go downtown with their friends, right? I'm not right there watching what they're buying and what they're choosing to purchase and we talk about making healthy choices and yet we want to give them some of that autonomy and sometimes they're going to buy the things that I'm like, oh, you know, but we have to, you know, trust that, that their gut microbiome is going to be resilient right now because they're taking care of their gut microbiome most of the time.

So teaching your kids how to understand um how to re label. So for instance, I mean, I always give this example of talkies for those of you guys listen, you don't know what talkies are there, these rolled corn tortilla chips that have red dye number 40 artificial chili lime flavor. I mean, there's nothing in there that I wouldn't want my Children to ever consume.

And yet my kids friends love talkies. So of course they want the talkies. So we've talked about, well, what are healthier swamps? What can we do in stem?

Food additives, sugar, and antibiotics

And so then, you know, we looked at okay, Trader Joe's has rolled corn tortilla chips that don't that have, you know, paprika coloring and they have, you know, non non artificial flavors. There's still some ingredients that aren't amazing but a much cleaner swap. Okay. And then you have pa keys which have, you know, roll corn tortilla chips with the chili lime flavor, but so clean. I think there's like five ingredients in it.

Now they do have, you know, expel or pressed sunflower oil. So maybe we want to think about the seed oils but it's expel or press and and it's, you know, in terms of the gradient, you know, worst better, best. That's gonna be your best choice, right?

So that your kids can still hang out with their friends and not feel deprived because we never want them to feel deprived. Okay. Now what do we get in?

This is not rocket science. This is where all of us have heard this before. Okay. But we need to make it clear that this is what we understand. Why we understand why it's important for a good microphone. Why it's important for your child's immune system and brain, then it makes it much easier to implement.

But we need to get. There are three Fs to think about. Okay. There's fiber locating our plant based foods. There's fermented foods. So, if your kids are not yet, right? These are direct source of probiotics.

They're not yet into fermented foods. There's a variety of things to try. Look up how to make fermented, lemonade, fermented strawberries, fermented carrots. Right. There's so many different ways we can get that in. And then this is not an f but it sounds like an f it's phyto nutrients, right? This is where getting all of those, those three fiber, fermented foods, phyto nutrients can really pack way more bang for the buck in getting your child's gut microbiome in order than any supplement I can, I can suggest right now that being said, if your child's diet is not yet the most varied, then taking a fiber supplement, a pre y fiber fiber, access prebiotic food for your probiotics to grow and flourish, right? And then also taking a probiotic supplement when you're looking for probiotic supplements are a gazillion on the market, right? You wanna look for ones that really are backed by the sites to have the benefit that you would like.

And there are I mean, there's so much research out and every day it seems like there's more another paper coming out on probiotics. So we're at the tip of the iceberg in understanding, you know, have all the different strains that can impact our gut microbiome for the better and for which conditions. So for the most part, you want to look for a probiotic that multiple strains and ideally strain specific.

So if you're using a probiotic for cavities, right, there are certain probiotics that are dental probiotics that can help specifically to re colonize the gut microbe of the oral microbiome, right? If you're looking for a probiotic for your child who has anxiety or focusing attention prompts, there are specific strains that are psycho biotics that help enhance healthy dopamine and serotonin levels.

So being a little savvy with that, right? And then we want to think about not just what we're eating because there's so many things that affect our gut microbiome, we need to think about how we're living. Okay.

One of the most important things that we can teach our child is how to step back and reflect and be mindful in, in our daily lives and engage something called your vagus nerve.

Okay? And many of you guys have heard of the vagus nerve, but that vagus nerve is that information superhighway between your brain and your gut, okay. Two way street of communication.

But most people don't realize is that 80 to 90% of the communication actually goes from your gut to your brain. So your gut is really the one in charge here, right? When we're thinking about, you know, who's really in charge your guts, nervous system can live without your brain, your brains nervous system cannot live without your gut, right? So just to really hit home, it's who are we, who, who do we need to nurture? We need to nurture our community inside our gut because there's more of, you know, more bacterial cells in and on us than human cells.

So we need to respect and honor that community. And so that vagus nerve, why optimize the vagus nerve, right? Because a lot of us in functional medicine, we do pay lip service or more to, you know, the power of meditation and mindfulness and um you know, humming and singing and loving and gratitude in supporting our immune systems in our gut. But what we want to make sure that we really understand as parents is that when we engage our vagus nerve and we have something called healthy heart rate variability that optimizes your child's gut microbiome, independent of diet. Okay. That's fascinating, right? So that even if your child is not yet the healthiest eater, right? If there's very selective or you're just, you're just trying to kick that. I had this one teenager who was waking up every morning and drinking a Red Bull every morning.

And so, you know, so if you're trying to, you know, just really work on those baby steps and they're not quite there

yet with their diet. Well, you can work on that mindful moment. You can work on breathing exercises, you can work on journaling and gratitude. All of that counts and it's free, right? I mean, you can, you're gonna be teaching your child skills that yes, will help with their anxiety, will help with their worries, will help, help optimize their sports performance or their theater performance, whatever it is, right? Get them where they want.

If their goal is to be the fastest soccer player on the field, optimizing, you know, your heart rate variability in your Vegas is gonna get them there. But it's also gonna have the secondary effect that we want that it's going to improve their gut microbiome.

So, I mean, hands down, that's going to be one of the most important. And then we also know that sleep exercise, hydration, all of those impacted gut microbiome. Now, sleep and exercise are really interesting too because we know healthy gut microbiome, there's a different gut microbiome that high performance athletes have than sedentary individuals, right?

How the gut affects mood, focus, and hormones

And so then the, you know, there's uh this is again another chicken and egg is it that you're healthy gut microbiome, then then enhances metabolites that increase your performance, right? Increase your athleticism and vice versa, right? When you're an athlete and you're living in a certain way that you're exercising and moving that also enhances the healthy gut microbiome. So exercise and sleep can optimize your gut microbiome also independent of dietary intake. So – Fascinating Elisa.

– Fascinating. Right. So, you go there. Right. Yes, we're talking about lifestyle, but it matters, it really matters. Right. And this is where, you know, if we teach our kids that the things that we do and the way that we live in, the way that we think, you know, what we eat all impact our gut microbiome and we'll get them to what they want, what they want, not what we want, we might want them to, you know, have a healthy immune system.

Most kids don't really care about that, right? They care about their skin, they care about, you know, their friendships, they care about their mood, they care about sleep, right? It's gonna all make an impact there.

– God, I mean, this is fascinating Elisa, what are, what are the things? Are there? Are there, is there anything you haven't mentioned that you would recommend for Children whose already have got imbalance or whose microbiome is sub optimal or the kid who says my skin, my sleep, my mood. What are you telling them to optimize?

– So we always go back to the basics but the basics, you know, when your kids are already showing signs of having some gut disruption, maybe they already have some joint swelling or they already have you know, you know, thyroid antibodies and you're thinking, oh, they're heading towards Hashimoto's, right. What can we do there?

That's when we really want to look at the gut more closely and not everyone's going to have access to a functional medicine doctor, run, you know, the functional comprehensive stool analyses and, and run additional tests.

Most though will be able to, well, not most, there are certain things that, you know, I want to optimize first. Right. So, you know, that's the first thing is just to take a look at nutritional deficiencies or insufficiencies. So, and these are blood tests that can be order at very conventional labs like Quest or labcorp or hospital labs and will be for the most part, hopefully covered by insurance.

And so, you know, looking for the most common nutritional deficiencies or insufficiencies in Children are zinc, magnesium, vitamin D, okay. And iron and your omegas.

Now your omega three fatty acids or fish oils. So now your omega three is not very easy to test conventionally, but there is an omega three fatty acid index. But you can measure a ferreting for iron stores. You can measure a red blood cells inc a red blood cell magnesium 25 hydroxy vitamin D. These are really, really important, especially when it comes to the gut.

It's vitamin D and zinc. Okay. Now, why is that vitamin D? I mean, it's not really a vitamin is actually a pro hormone, right? But vitamin D is essential for a healthy gut microbiome. It actually can support almost act like a prebiotic support healthy gut microbiota and also is one of the key nutrients involved in a healthy immune response. So, when you have autoimmunity or you're attending towards that, you must optimize your vitamin D levels, your child, vitamin D levels. – I want to interrupt, I'm sorry for interrupting Elisa. It's also a key substance for regulating the tight junctions. Meaning if your vitamin D is deficient, you're more likely to have leaky gut, which is a requirement for autoimmune disease.

Ways to optimize the microbiome

– Absolutely. – I would wholeheartedly echo that we need vitamin. Everyone needs vitamin D and then, and then especially those like me who are kind of prone to autoimmune disease.

– Yeah. Well, absolutely. Well, and you have celiac disease, which by definition means that you have a leaky cut, right? That your tight junctions and the ville, I write these little finger like projections on your small intestinal cells are not functioning at their best. So, vitamin D is key as is zinc.

Now, why zinc? Because zinc is really important for the repair of any lining, any epithelial lining. So you think of zinc, you know your leaky gut, you need to repair the small intestinal lining.

You need zinc, you have eczema, right? Your child's eczema and they need to repair their skin lining. You need zinc, you know, magnesium, you know zinc, your, you know asthma, you want to repair and heal your, your long lining, your bronchial lining, you need zinc.

And so zinc again, it's such a common nutrient insufficiency and deficiency in Children. And so, you know, really optimizing those first, right? And then we look at okay leaky gut gut, despite aosis, okay.

Those are the two things leaky gut lining and also abnormal gut bacteria. The first thing we want to do is really look at their leaky gut and how do we steal, inhale their leaky gut. This concept is very, it's the same as for adults. Okay. But what I would say now in functional medicine, there's something called the five R's, right, we remove things that are inflammatory and irritating to the gut, which includes goddess bio sis, right? Abnormal bacteria.

It also includes removing sensitizing foods. Now, when you have autoimmune reactivity, you must remove the gluten and the dairy during the healing phase and possibly even life long.

I'm just gonna put that out there, right? If you don't have autoimmune reactivity, then you might be able to tolerate some. But why gluten and dairy? Because gluten and dairy, we know the gluten and the casing proteins can directly harm the tight junctions can directly cause leaky gut. Okay.

And so when your healing and you have this tendency, it might just be that removing those are the key to healing your child skyline. So we want to look at look at removing these, not as deprivation but as an opportunity for healing, the mindset is really important there.

And then we want to repair the gut lining with, we mentioned zinc, right. But also omega threes, you need that for your healthy gut lining. And there's an immuno acid called glutamine.

That can be very important. There are other nutrients there, but those are the foundations. And then when we are re inoculating, yes, probiotics re inoculate me, putting back all the good bucks, right? And so probiotics supplements. Yes.

However, you know, when you look at the studies, the best inoculate er of your gut microbiome is really going to be fermented foods and fiber feed those probiotics.

So you still still really need to get back to your basics, right? If your child is eating a diet that is really um you know, gut disrupting and then you're trying to heal their leaky gut and heal the gut.

Despite this, it's going to be an uphill battle, right? So, and it's not, it's not a race, right? I mean, this is for the long haul, we want to make this a lifestyle for your, for your child and for your family, but you want to try to get all your ducks in a row first because I promise you once you kind of clean up your child's diet and, and really have a gut nourishing lifestyle, healing their leaky gut and healing their gut despite this is going to be much easier right. Now, when we think about the another are right, the fifth R that was added actually after I'd done my initial functional medicine training back in, you know, this is the early two thousand's and it used to be the four Rs and I was so happy that they added the fifth R which is really that restore peace, that rebalancing the gut brain connection. This is engaging the vagus nerve and this can be the most impactful because I have had kids where we've been able to quote, reverse their auto immunity, get them into remission from their Crohn's or rheumatoid arthritis. And yet every little bump in the road, we're on edge because their joints start to swell a little bit or they start to have some cramps and diarrhea. Are they going to tip over and have a flare?

Right. And guess what that usual tip off is, it's usually stress, right? It's usually psychological stress that, that causes their immune system become dis regulated because psychological stress causes as much inflammation and immune disruption as any other toxin that your body can be exposed to. So, if we learn how to engage your vagus nerve, improve the heart rate variability, um That's when the true gut microbiome transformation occurs. So, and these are all steps that you know, if you have a functional medicine doctor work with, that's great.

Right? Because there can be some nuances there to really fine tune the plan.

Repairing leaky gut and restoring balance

But those are the basic elements and there are some things that parents can start even on their own. – Elisa. This is a huge wealth of knowledge, right? I feel like we could probably talk about this for hours and scratch the surface, right? But what you've provided, I think is a really great roadmap for people to identify that there's imbalance, get started and even understand what to focus on.

So this has been fantastic. Where can people find you? – So, the best place to find me is on my healthy kids, Happy kids website on my blog, healthykidshappykids.com. And then also on Instagram and Facebook, it's healthykids_HappyKids on Instagram and I post fun tips and research and you know, everything that I as a pediatrician and also as a mom of two kids myself, want every parent out there to know and understand because we do have we have the ability and the power to see for our kids to thrive in our modern world despite despite all the forces against it. So really, you know, I just, I want to make sure that parents feel empowered um and Children feel empowered because we really can and deserve to thrive.

– I really appreciate that and I really appreciate your commitment in the matter.

Where to find Dr. Elisa Song and closing remarks

So thank you. Thank you so much. And for the listeners, thank you for listening to another episode of the Environmental Toxicants Autoimmunity and Chronic Diseases Summit.

Today, we talked to Dr. Elisa Song and this would be a reason to purchase the VIP package so that you can listen to this because this has the keys to the kingdom Elisa.

Thank you for being here. – Oh, thanks Wendie. So honored.