Introduction and Dr. Songu2019s Background

Dr. Elisa Song, thank you so much for joining me for the MS and Neuroimmune Summit. Now, Elisa and I have known each other for many, many years. Elisa is one of the earliest pediatricians to become certified in functional medicine.

She has been a beacon of hope for families whose children have issues related to a neurologic problem, a autoimmune problem, or any kind of chronic non infectious based, disorder.

and she's the person I turn to when I have a question. or I get patients who are children and like, I can't take care of them. I have to send them over to Elisa, who is expert and does a really wonderful job.

she's created, this, healthykidshappykids.com It's a really great resource for anyone who has children that you're trying to help stay healthy and thrive.

Elisa, did I leave anything off there? No, no, I mean, this is. That's great. I'm. I'm so humbled. And I'm really grateful to be on your summit to chat with everybody.

So one of the first things I ask everyone to do is to give us a story, about a patient or a family who had some big health issues that you were able to help really turn around because I want, so many people are so afraid and frightened about their future.

I want them to feel hopeful again. Yeah. So, you know, in thinking about who might be, you know, I don't know. I mean, there's a quote, best example to give, but there are so many and very sadly, in our, in our youth, autoimmunity, you know, is on the rise and the numbers aren't tracked very well, but I've heard somewhere on the order of maybe 1 in 12 or 1 in 13, teenagers has an autoimmune condition.

of course, if we think of eczema as autoimmune reactivity, then certainly there be a lot more. and, and we know that, you know, a and a, which is something that I measure in my kiddos when I get a chance because the, antinuclear antibody, which is as many of your audience is so nonspecific, it's just a little red flag.

Hey, something's going on with my immune system, but the rates of RNA positivity has increased in the US overall in all age groups. but most significantly, that the biggest jump from the the 1980s has been in our teenagers, 12 to 19 year olds.

Autoimmunity Trends in Children and Teens

So, from, from when they first started measuring in the 1980s, to the early 2000, the rate had doubled. And now as of like the mid, you know, 20, 20 tens, the rates have tripled, and so faster than any other age group.

So we need to be aware of this, which is why I'm so grateful that, you know, you're you're really helping, folks, parents and children and practitioners really understand what we can do for autoimmunity because there is so much that we can do to help our patients who already have autoimmunity.

also prevent autoimmune disease from occurring, in patients who maybe have a positive and a there's no clinical symptoms. So they're not diagnosed with anything.

But that's sure a red flag to me that if we're if we keep going along this path, something is going to happen. Absolutely. I consider that part of the program for developing multiple sclerosis, in which arthritis, inflammatory bowel disease, Hashimoto's.

So, I tell my patients you're in the program, and if we start now, there's a great chance we can make all of that go away and get you back, to your full health.

Yeah. Yeah, I love that. So instead of being afraid of it, we say, oh, thank goodness we found this now, right before anything else happened. Right? so in terms of, you know, case that I'd love to share with you, it's really it's a family.

And it points to the environmental impact, on our immune system because, you know, here in the Bay area where I live, there was a, you know, a lot of land used to be farming land.

So, you know, soil is contaminated, our waterways are contaminated. And so this family lived, nearby my practice, but in an area that was all used to all be orchards, of course, heavily sprayed orchards.

And they lived near a stream, with a lot of water runoff. And so the, they first came to me with their daughter, who was, you know, a preteen, and she had been diagnosed with Crohn's disease and rheumatoid arthritis at that young age.

And so, you know, they were really hesitant. They were trying to manage, you know, they read some a diet, someone lifestyle. She, she was on some and said, but they really didn't want to move into, additional medications.

and her main Crohn's symptoms was actually constipation. So we actually, you know, did a whole functional medicine workup and mostly focused on her diet because she didn't have a terrible diet.

But she did include, unknowingly, a lot of inflammatory foods. you know, she she, of course, loved gluten and dairy, but she had a lot of corn and corn.

Ended up being her major trigger. and of course, she, you know, she was having mostly I'm I'm going to guess GMO corp because she, they weren't necessarily eating everything organically.

and so, you know, just just simplifying her diet, going to an anti-inflammatory diet, including a lot of, you know, of course, from the was protocol tons and tons of phytonutrients and, you know, mitochondrial restoration foods, she did a lot better.

But what's interesting is her first tool analysis looked actually pretty good. And I was really surprised. I mean, she had some inflammation, but I was shocked to not really see much in the way of dysbiosis.

And so we kind of put her stool analysis aside. Still did some still work. but, you know, she just something wasn't moving the needle. She was just still having joint pains.

And, you know, her, her, GI symptoms were not significantly improving beyond a certain point. She had plateaued. So, I decided to run another stool analysis.

And sure enough, at that point, she. Her stool grew a Klebsiella. And so we treated the Klebsiella, which we know Klebsiella is one of those gut microbes that can predispose to autoimmunity.

So I always look, for Klebsiella or Citra back there, or Proteus, you know, some of the, bacterial organisms that can predisposed to autoimmunity. And the second, we treat the Klebsiella and I as an integrative pediatrician, I, you know, I really try to use antibiotics judiciously.

But this was a time I said, you know what? We're going to do the antibiotics because I want to make sure it's gone. And so we treated her with with septra.

And, you know, within two weeks, no more joint pain, her gut symptoms resolved. She was doing normally and she actually never flared again. I mean, she went into complete remission.

So so that was you know, that was remarkable.

Environmental Triggers and a Crohnu2019s Case Study

That was the first time that I'd seen. Wow. Just treating this dysbiosis made a huge impact so that her younger brother, who had had concerns, who had some behavioral concerns, started presenting with joint pain and and, you know, multiple areas, mostly his it was his left knee and his right side joint.

And so, I mean, mom came back because she was hesitant about going to the rheumatologist and getting another diagnosis because she didn't want you know, she didn't want to go down that whole, rabbit hole of fear for him.

But, you know, mom had joint pains. The little, little one was said to have joint pain. So we thought, okay, something something is going on. you know, environmentally.

And in fact, in that neighborhood, there were several families in that same neighborhood who developed autoimmune diseases and also, cancers as well. So, they started looking into trying to clean up the environment.

But for this kiddo, but we did for him, you know, he was a little harder to, to manage his diet because he was a little older at the time, and he was going out with his friends and just really not that interested in eliminating some of, you know, teenagers favorite foods.

So it was hard pressed because when he did really clean up his diet, and focused on the gluten and, the gluten in the corn for both for him, he could feel his joints are better.

He play basketball better. So he knew I mean, he knew that those are his big triggers. and then the same thing for him. we really worked on his gut, and he had Klebsiella.

And again, with a second, we treated Klebsiella. His symptoms resolved now, but he kept his symptoms. Did he didn't did not go into remission, though.

And I think a couple of different things for him. He just was a different temperament. So he, manifested stress in very different ways. And we know how inflammatory stress is.

In fact, you know, one article I read, I my eyes just kind of opened wide because, you know, it showed that psychological stress can trigger zonulin release meaning for folks listening trigger leaky gut within an hour.

And so, you know, this kiddo who had lots and lots of psychosocial stressors and also, you know, a different response to stress, not necessarily as, adaptive a response to stress.

was constantly having this source of, of gut disruption. And so for him, it was really working on vagus nerve supports and working on calming his nervous system.

That, I think was one of the final pieces in helping him to to truly heal. Well. And so what kind of vagal support did you do for him? so, you know, my vagal nerve supports have kind of changed over time.

I, you know, for kids, I and teenagers, I really I've been searching high and low for a more passive way to help support their, their vagus nerve, because a lot of kids are not as interested just yet in sitting down to meditate for even 15 minutes or, you know, doing some breathwork, which is so important.

I do tell kids that that is at teenagers that that is something that they that they must learn that it is part of their prescription because these are the tools that they're going to need for the rest of their lives to regulate their nervous system and reduce inflammation.

And I make sure that they recognize that psychological stress is as much of a toxin to their bodies as, you know, environmental chemicals or any infectious disease or, you know, any, any physiologic toxin that can come their way.

and so that, you know, understanding how to manage that psychological stress with diaphragmatic breathing, with, you know, laughter, with gratitude, with, you know, with, with meditation is very, very important.

But sometimes, you know, for kids and teenagers and adults, we're so used to being in the sympathetic kind of alarm state all the time that we just need something.

I mean, it's almost like we just need like a splash of ice cold water to snap us out of it and then be able to use our tools. So one thing that I have found really helpful, it's called the Apollo Neuro.

it's just a device that you were. I mean, in fact, I'm wearing what right now, I have I have no ownership stake in this, by the way. But, it uses vibro acoustic frequencies, set to really have different, different effects on the body.

And I have kids. I have one kiddo who, significant sleep issues, and she has an intractable seizure disorder. And when she doesn't sleep, her seizures get worse.

And, she's old enough now that she actually wears an aura ring. And mom said as soon as she started, wearing the Apollo for sleep. Her sleep scores went right up, and so did her heart rate variability, which is which was great to have that data.

because for for children, there's not a lot of devices that will measure heart rate variability for them. even I mean, I will tell teenagers to go ahead and use the, the aura.

But, you know, when you speak to aura, they say, no, it's not for kids. It's only for people 18 and up. EFT emotional Freedom technique, tapping, using acupressure points with certain affirmations.

You know, I think is another way that can really just more passively, you know, even if kids, even if kids aren't into it, you know, just doing the tapping can really help to calm the nervous system has been found to improve heart rate variability.

there there are certain essential oils that in the literature have been found to improve heart rate variability. So, lavender, which of course, you know, that's one of the most common and safest ones used in children and also sandalwood.

And so, you know, with, with lavender or sandalwood, you can also as a parent or as a child, stimulate some acupressure points. because acupuncture and very specific acupuncture points have been shown to improve heart rate variability and vagus nerve functioning, equally when compared to, you know, auricular vagus nerve stimulators.

And so one point is heart seven or Shan men, the spirit gate. And that's on your inner release inner wrist crease on your pinky side. And so you'll feel a little depression there.

And that's heart seven.

Vagus Nerve Support and Stress Regulation

And so teenagers or kids, when they're feeling a little anxious, having to and falling asleep, they can just push on this point, breathe into it, and better yet, have a dab of lavender or sandalwood and just kind of hold it and take slow, deep breaths to slow down their nervous system and, improve vagus nerve tone.

I mean, they're not thinking of it that way, but they're they're slowing down. So that then they can be more apt to say, I will now be willing to do some breathing exercises to, you know, really get engaged or do some meditation.

That is wonderful practical advice. And I'll tell people that, I've been using and, Apollo Neuro because I'm so easily activated. They have a lot of stuff I want to do.

And yeah, and it can be a challenge to quiet my mind, and fall asleep. So, that's been very helpful. Yeah. You know what other thing I want to talk about is the, early life, challenges with the premature birth, stressful birth.

and I'm thinking about, you know, one of my kids had an early, birth, spent time in the ICU. what what does that do for, And I know there is an epidemic of stressful births that are happening with, you know, emergency C-sections, and kids that are in the, the queue for a variety of reasons.

Yeah. What what happens? So, you know, we know that the infant's, developing gut microbiome in those first two and a half years of life or so. And really, when we think about this critical stage called the first thousand days, that encompasses, you know, pregnancy.

So while babies are in utero all the way until they're about maybe 2 to 2 and a half years of age, and during that time, their gut microbiomes are really taking shape and their gut microbiomes look very different from an adult gut microbiome.

And we know that how that gut microbiome develops and shapes in the influences on the gut microbiome, especially in those first six months of of life, can can imprint, have a profound effect on babies developing immune systems.

and their developing, brains. And also they're developing, you know, hormonal, metabolic systems. And so it's really important to understand this, if your kids are already born and they're older, there's nothing we can do to go back and change whatever's happened.

But we can know. You know what? Maybe this set the stage for having a little, a higher autoimmune risk. and so now we really want to look them back again, I think.

Gut microbiome. So, we know that the method of delivery, whether you were vaginally birth, birth or cesarean section birth, whether you're full term or premature, how you are fed, you know, whether you're exclusively breastfed or fed with formula or whether antibiotics or other medications were received either in utero through mom, you know, let's say for a sinus infection or a UTI or around the time of birth, many moms have Group B strep, which I would say absolutely take the antibiotics.

But we need to understand that that's going to, can significantly affect the baby's developing gut microbiome because we know that, you know, for babies who are, vaginally birth, whose mothers have optimal gut microbiomes and who are full term and breastfed, they have very, very different gut microbiomes than babies who received antibiotics, either in utero or around birth, who are C-section babies or formula fed babies.

And, you know, the the babies who have a gut microbiome that is not in an optimal state, they are more at risk for immune health concerns later on in life.

in fact, there was one really large study was a military study that looked at their records. And they have, you know, they can keep track of all of their families.

so nearly 800,000 children. And they looked at infants who received antibiotics or antacid medications, all microbiome disruptors, within the first six months of life and found that that the risk of virtually every single allergic disease, including eczema, asthma, anaphylactic food allergies, hay fever, hives was, significantly increased by the time they were four years of age.

So that we know and of course, you know, along this this continuum in the spectrum, you know, I bet if they'd followed along, they would see that that many of these kids are going to be more at risk for autoimmunity later on in life.

we also know the developing gut brain axis and so many kids with autoimmune conditions. And of course, there's something called pans Pandas, which is a neuropsychiatric autoimmune encephalitis.

But even still, you know, many of our kids with autoimmunity also have some neurodevelopmental concerns. And so that same impact on the gut microbiome in those early stages, in fact, antibiotics given in the first six months of life, especially, but any time in early infancy can sometimes it can increase the risk of virtually every mental health concern.

Anxiety. Depression, anxiety, depression, ADHD, you know, in in kids when they're older and teen. So it's all interconnected. So, we probably have, some mom and dad's are thinking like, oh my goodness.

this is all these things have happened. but I want to reassure you, Elissa is going to tell us now that we now that we've been sensitize you to like how important this is, the gut microbiome, and you realize that your, your, your child had these risk factors, but there are some things that we can do now.

Yeah. When the child's older. Yeah. What might those be. Yeah. And so 1,000% because I always step back and tell parents look you know especially you know, as, as a, as a mom carrying your baby inside you, you think back to every little thing, you know, that, that you might have done or didn't do.

And did that affect the baby? And, you know, even as a pediatrician, I think I, I joke, but I say I tell everyone my daughter is 14 and I still think about that tuna fish sandwich that I just had to have when I was pregnant with her and wondering, you know, what impact that could have had.

But both of my children had antibiotics when they were under two months of age. So my daughter had had a urinary tract infection. She was only to 2 to 3 weeks of age.

and so, you know, I would tell any mother you she needs those antibiotics, right? There's no I mean, that is absolutely medically necessary. It's not an inappropriate use of antibiotics.

Early-Life Microbiome Risks and Immune Health

and my son had we had strep exposure from visitors, when he was just about a month old, and he developed this. This, year discharge is really about your discharge.

And when we cultured it, it grew out group strep. And so of course we did the antibiotics for him. Now fortunately at that, by that time, I did know and understand, the disruption to the gut microbiome that occurs after antibiotics.

So I was able to support them. You know, at that point they were breastfeeding. So they got receive, you know, all of the great kind of prebiotic, substances from breast milk and then also, got extra probiotics.

But regardless, wherever you're starting from, if even if your kids are older, and they're way past, you know, their antibiotic courses or antacid courses, we can still always, always, you know, resolve their, their gut microbiome disruption.

It might take a little longer, but we can always move forward. and one of the things, you know, to know if your child is showing signs right now, some health concerns, and we're looking at correcting their gut imbalances.

we need to know, are there some organisms that need to go out, you know, like the Klebsiella that I mentioned? So we can only tell that with a stool analysis, a comprehensive stool analysis.

I can't just look at your child and know, you know what what organisms, microorganisms are in their gut. So now I'm curious. Do you ever do, salivary?

so I do both. I do salivary microbiome and I'll do stool microbiome. You know, I don't, but I'm so fascinated because I was actually speaking with the company that you do the salivary testing with and I thought, oh, my gosh, I need to look into this because we know how important the oral microbiome is for our brain and immune health. So I think that's fascinating.

Yeah. You know, in our research trials, we've switched from, the poop to analyzing the oral microbiome, in part because people can't poop on command in a research study.

Yeah. It's just it's just not easy to do. But we can get saliva in command. Yes. Well, and also in a, I'm sure in a research setting because it's in the clinical setting.

Sometimes I'll give patients a stool, a stool test kit to bring home and months, months, months later, sometimes even a year later, I, I think I'm ready to do it now.

But the test kits expired, right? Whereas as far as the saliva so easy to do. So I love that. now, and you know, there are certain ways that that, that I will help to resolve whether there's gut dysbiosis, abnormal organisms in the gut or leaky gut.

I mean, we have all sorts of, nutrients, that we can give to heal a leaky gut lining. But I will say, regardless of whether your child, you know, already has some gut microbiome disruption, or, you're just looking to prevent, future disease, and you're trying to optimize their gut microbiome.

we still need to start with the foundations. Okay? There's no. If your child has a disrupted gut microbiome. Yes, I can I can quote not me, but we I mean, we can work together to quote, heal the leaks in the gut and to resolve the dysbiosis, get rid of the abnormal bacteria.

But but what we really need is for that microbiome to be healthy. The microbiome is that sort of, community in your gut where these microbiota, hopefully beneficial organisms will thrive.

And so, you know, if your gut is already disrupted and you're just throwing, you know, glutamine and fish oils and zinc and probiotics at, at the gut and hoping that it's going to create this beautiful garden of microorganisms, it doesn't work that way.

Right? It's like trying to throw, you know, tomato seeds. I mean, you know, I tell kids it's your gut is not like Jax. You know? Jax. Magic beans. You can't just throw sprinkle stuff in there and expect this beautiful community of microorganisms to want to grow.

We need that foundation and that foundation of, you know, that that terrain, that beautiful wall. You know, that underlying soil that we want, that's all that's food and nervous system regulation.

And I tell you what, I've been thinking in my mind, okay. What what would move the needle on kids health? Because now with nearly 1 in 2 kids with a chronic health condition, we need to act now.

I mean, there's there's really not any time to waste, but, you know, if all kids and adults could really understand, you know, how to nourish their gut microbiome, either with the, with the right foods to do that or what to take away that is harming their gut microbiome.

and in that sense, since many, many kids are really eating so many packaged foods, and for many families, eating 100% home cooked is a goal, but not necessarily going to happen anytime soon.

Then really, really being savvy food label readers, I feel like if kids learn how to read food labels and choose foods that were not ultra processed that serve their gut microbiomes, their health would be completely different.

And I also given the the gut brain connection, I feel like learning how to regulate the nervous system is the key to keeping our gut microbiomes healthy.

To, you know, my my message on the ultra processing is sugar sweetened beverages first thing to take out. Yeah.

Repairing the Gut Microbiome in Older Children

And then, the flour based products that make, cereals, pastas, breads, porridge is they get into our, bloodstream too quickly. they fertilize the wrong bacteria.

but eating vegetables, eating root vegetables. eating, fruit and, good protein, that will fertilize more of the health promoting bacteria. Yeah, absolutely.

So that's we want to think what what do we want to do? What kind of fertilizer do we want to use? We're not we don't want to use, you know, pesticides like glyphosate, right?

We we want to use, you know, the most nutritious, fertilizers. And so, you know, making sure kids don't get nearly enough fiber. And a fiber is so important because that's a prebiotic, like, it serves as fuel to feed our organisms, but also the color.

I mean, you talk all the time about the color. Well, guess what? You know, phytonutrients. These colors also can act as prebiotics to support our probiotics.

and then, of course, most people don't get nearly enough fermented foods. But if we're thinking about, you know, fiber, phytonutrients and fermented foods, how do we get more in at every meal?

Just a little bit more at every meal? It doesn't have to be this, you know, huge, huge endeavor. But, you know, when I talk to parents about is just thinking, what, what what's one more thing you could add?

One more thing you can add to this? This food that could be a little bit more phytonutrient rich or a little bit more fiber, or maybe try some fermented foods.

And I mean, I'm just I'm so, such a fan of fermented foods as you are. I know we're going to have kimchi tasting conference contests soon. Yes, yes. You know, one of the things that I'd like to do is so we like to have a lot of soups and stews, and I, put a a generous you start with a little tiny serving, just a forkful in your bowl, and then you ladle in your soup.

Not so hot. That's going to scald your tongue. And, and, and they will disappear in your soup and people won't know. Then you can gradually increase the amount.

Yeah. Or you can be a really sneaky mother and put the kimchi or sauerkraut in the soup after it's cold a little bit on its way from the stove to the table, and no one will know that you've added a little dollop of fermented food.

I love that too. And I also do it into a skillet meal. I will stir in, some kimchi. I think kimchi goes really, really well with skillet meals. Oh, yeah. Oh.

It is so yummy. Yeah. And, you know, I used to. I used to wonder, about, heating up these, these cultured foods and wondering if they lost their benefit.

But here's the thing. you know what I tell families? Absolutely not. Because, I mean, sure, if it's too hot, maybe some of the probiotics content will be destroyed.

However, I mean, more and more research is pointing to the benefit of fermented foods is not not so much their probiotic content, but their posts abiotic content, which you're not going to destroy with heat.

I mean, think about it. So what are post biotics? They're the fermentation byproducts, you know, of whatever that whatever the products you're eating.

And they're things like Gaba and serotonin and vitamin B12. And I mean, all these are butyrate. Yeah. And compounds and the viruses. we have. Yes. the viruses are the most abundant life form on Earth.

And, part of why I think the fermented foods have, have so far outstripped the benefits of probiotics is that you get

the bacteria and you get the viruses.

Yeah. and that those viruses are probably also part of the health benefits. Yeah. Well, the I mean, it's. Yeah, I could talk about this forever with you because as viruses, I mean, if we think about it, I mean, virus, you know, of course has become a bad word, but not not really.

I mean, these viruses are, you know, they are these, these ancient, like, these, they're called phages, right? That actually help destroy the pathogenic bacteria.

And so I just, you know, I love it. And. they're part of a of the Healthy gut garden. You want to have the right viruses? Yes. Yes. And they also bring their genetic information to help us run the chemistry of life.

Yeah. Yeah, I love it. Well, this has been wonderful. You and I could talk for hours again.

Diet, Fermented Foods, and Building Resilience

you have such a wonderful gift, giving hope to families. and, as you improve the diet for the whole family, you're improving the diet for your children.

So have no guilt that you're asking your children to also improve their diet, support the adults, or for the adults to improve their diet because they're supporting the children they love.

Elisa, how do people find you? And, I'm going to let you also, don't you have a wonderful book that's going to be coming out? I think I did. Too, yeah.

so the best way to find me is either on my website, HealthykidsHappyKids.com I'm most active on Instagram, and my, my handle is @healthykids_happykids And, yeah, I have a book coming out, in May, May 14th.

It's called Healthy Kids, Happy Kids and Integrative Pediatricians Guide to Whole Child Resilience. And so much of it is a exactly what we spoke about today.

How do we build a foundation of resilience from a microbiome standpoint, from a vagus nerve, you know, nervous system standpoint, so that your kids become resilient to whatever hits come their way, whether it's an infection or a psychological stressor or, you know, that that ultra processed food that is eventually going to make it into your child's mouth at some point if they're a teenager.

Right? And so, you know, build building that resilience so that kids, kids can bounce back and thrive and not, you know, proceed along this steady slope that many kids are on heading straight towards immune autoimmune problems and metabolic problems.

So by the time the summit is airing your book will have been out and hopefully on the New York Times bestseller. and this and I'll put a plug out for everyone.

I love this book. and I think anyone who has children with their lives, or grandchildren, this would be a wonderful gift to give to that family. so they could help their children, your grandchildren, survive and thrive.

Thank you. I will tell you, I've heard from many families already that it is, when they read it, especially with their kids or in parts of it, it makes it so much easier for the kids to see.

Oh, now I see why I should have more. You know, of x, y and z or y. I shouldn't have the artificial dies and your kids can become their own best advocates if they understand why.

They have to understand why. because, we want them to be, masters of their future. Yes. And it would be so much easier for them to embrace what the adults are doing to improve their health.

and, the easier for them to continue to make good choices when they're away from the adults. Yeah, absolutely. Okay. Well, thank you, Elisa. And I can't wait till we get together and can have some, kimchi together.

Yes. Me too.