Mental Health Crisis in Kids

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And during the pandemic, childhood mental was called into a state of emergency, But we've really been in an emergency for a very, very long time. and I'm just hoping that this is really the light that needs to be shined to really make it a public health.

This is Dr. Talks. Welcome back to the conversation I have today, Dr. Elisa Song. Thank you for being here. Oh, thanks, Laura. It's always my honor. I know.

We're going to talk about pediatrics today and specifically pedatrics and a lot of mental wellness and mental health we're gonna cover today. And it really is important to that inflammation talks that we are having and the root causes of what's happening with our kids and why we've seen this rise of anxiety in our children.

and depression and suicide attempts and all these things. So this is really important that we're covering this. You are, you know, America's pediatrician.

and you have an integrative pediatric practice called Whole Family Wellness. And you've helped thousands of kids. I would say your reach is so far, because those are just the kids that you're seeing, but the multi thousands whose families tune in to learn from you and listen to you.

And you really help families get to the root cause of their health concerns and you empower parents and that's a big one. You empower the parents to help their children thrive on all levels.

It's not just about solving an inflammatory problem in the body, but this is about helping them with their mind, their spirit. That's the holistic approach.

So I love this. I wish I would have known you when my big 1 was a little one, she actually graduated from pediatrics. So let's start off and just talking about the mental health state of emergency that we're in right now in the United States and around the world, but specifically we can speak about One in three teenage girls has an anxiety disorder, but it's not just girls.

By the time kids are 18, one in two teenagers is actually going to be diagnosed with any mental health disorder. And during the pandemic, childhood mental was called into a state of emergency, But we've really been in an emergency for a very, very long time.

And I'm just hoping that this is really the light that needs to be shined to really make it a public health priority. So the suicide attempts are really, and the Suicide Completions are what are so devastating.

One in five teenagers, when surveyed, has seriously considered suicide. and one in 10 have actually tried. And when we look at ER visits for suicide ideation, suicide attempts during the pandemic, those numbers went up significantly.

Now, when look the leading causes of death, which is such a morbid thing to do, but we have to kind of put this into perspective. So among our youth, our young adults, 15 to 24 years of age, I mean, they're just barely young adult, teenagers to young, adults.

Suicide is the third leading cause of But guess what number one and two are? Number one is unintentional injury, which often goes along with the risk-taking behaviors that go along mental health concerns.

Number two is homicide. you know, that when we look at the statistics from this is from last year, or actually, this was from 2020. So around 6,000 15 to 24 year olds died by suicide.

When we'll look a COVID-19, which I'm not making light of COVID 19, but 501 youth died from COVID19. 6000 died. By suicide, right? So where are we prioritizing our public health dollars?

And the kids who died of COVID had probably pre-existing health conditions for the most part. Many did. These were not perfectly healthy children. They had similar health problems.

Why Conventional Treatment Falls Short

And this is, you know, I'm so glad that you're shedding light on this and speaking about it so matter-of-factly and candidly, like these are things we cannot ignore.

The conventional treatment of anxiety and depression isn't working for our kids. or for adults for that matter. So if you're an adult listening to this without kids or your kids are grown up, listen in because this is probably pertinent to you as well.

I mean, pediatrics are just little adults, right? So a lot of what affects them affects us as Well. But can you talk about what's happening here? Why are our treatments not working?

Well, I mean, as any of the listeners know, conventional medicine, there is a time and a place for conventional medicines. I'm not saying that there's never time for that.

However, that conventional treatment doesn't look at really why and how kids, teenagers, adults got to this place of mental health crisis to begin with.

And many times when we look, it goes way back. When we looked at the main medicine used for treatment, For depression and anxiety, those are SSRIs, selective serotonin reuptake inhibitors.

And for our youth, they have a black box warning that they can actually increase the risk of suicidality when you start with kids and teens. That's exactly what we want to prevent in the first place.

For many kids, and many adults who have been on SSRIs, They have this experience. It helps at first. It helps lift some of that depression and some that anxiety.

But after a while, it stops working. Guess what? SSRIs, which are meant to trick the brain into thinking that there's more serotonin around than there is, actually over time can deplete your serotonal levels.

And if we're not repleting, replenishing, building up seratonin levels, there isn't anything for that SSR to even work on. So it makes sense. that there's not really a long-term fix with most of our psychiatric medicines.

And then when I think of children, so most kids with one psychiatric disorder, they don't just have one. They may have anxiety and ADD, and then maybe they have OCD or even ODD.

I mean, all of these acronyms pile up. So then they're on you know, Prozac for their anxiety. And then they're on Ritalin for the depression. Then they are on maybe Risperdon for ODD and the list goes on and on.

So they were on this polypharmacy of psychiatric medicines that then may have interactions. We don't know what the side effects are, what kids' behaviors are and so we can see it becomes this around and around vicious cycle.

Like I said, sometimes there are cases where medications really do help and are needed, but the vast majority of the times, they're just kind of slapping a Band-Aid on what's going on and they are not a long-term fix.

This is rampant in so many areas of trying to treat the human body. I mean, in this specific talk, we're talking about

teens and kids with anxiety and depression and, you know, moods that aren't stable.

But if you think about the way Western medicine approaches a lot of these things, it's band-aids without solutions. So I'd love to actually unpack what's really going on here.

What's the beauty of your practice is that you are integrative. You have all the training and the learnings of a Western Medicine pediatrician, but you also bring this functional aspect and this part of you that is curious and inquisitive about What is the root cause?

And that's what this summit is all about is root causes and, you know, anxiety and depression. This is an inflammatory process in the body. So what is a root-cause from a functional medicine approach to child and teen anxiety?

So when we look at the root cause, I will say, just as a caveat, there typically is never just one root. Right. There are typically many underlying factors and there might be one thing that stands out in that parent's mind or stands in that child's mind as that was when this happened.

And that is basically the straw that broke the camel's back. I mean, when we think about pans or pandas, where a strep infection may trigger the sudden onset of OCD, anxiety, tantrums, you know, cognitive regressions.

Well, yes, it was that infection that triggered it, but there was a whole background likely of immune dysfunction that was simmering underneath that inflammatory response that you can't see because I can look at you and see how much inflammation is inside there.

I might conjecture, right? But we really have to take a look and and how far back can we go to discover some of these root causes and kind of peel back the onion and decide where can intervene?

And the first and most important root cause to understand for child and teen anxiety and mental health concerns is really the gut-brain connection. We need to figure out what is disrupting that connection?

What are the nutrient deficiencies? Where do the toxins that kids are being exposed to?

Root Causes: Gut-Brain Connection and Nutrients

what are all the sources that are causing a dysregulated gut brain connection and that's where we can do some digging from a functional medicine standpoint.

I would love to do that today. Can we dig? So we've got this gut-brain connection that's so important. And I know you've spent a considerable amount of time researching this and even developing strategies to support children in gut health.

I mean, you're really a leader in this area. So, we're thrilled that you can be here talking about this too. In terms of nutrient deficiencies, Is it different than kids and adults' mental health?

Is there something specific that you're looking for in kid nutrient deficiencies? So what is that? And is there is something unique about kids that sets them up for this?

The same nutrient deficiencies that are really common in children are likely also common. In adulthood, but for kids, it's, you know, we have to think about children and teenagers.

They need nutrients to grow and repair. As adults, we've mostly stopped growing. I mean, yes, our brain is plastic and hopefully, you know, where we're growing in all the right ways.

But there, but we kind of we stopped. Growing in terms of our, your development, immune system development or our gut development. And so now it's all about repairing that dysregulation that can occur from living in our modern

world.

For children, they need to grow and thrive and also repair All of the toxic assaults that are facing us in our ultra modern ultra processed world. So in a sense, they need even more.

I mean, when you think about kids and what they take in, you know, pound for pounds compared to adults, kids eat more food, drink more water, breathe in more oxygen.

I would say they probably think more thoughts, and I think that's probably true. But all of these inputs, I mean, kids just need a lot more of. So you can see why it would be much easier for kids to become deficient in certain nutrients.

And, you know, across the board, but especially for kid's mental health and teenage mental heath, there are certain nutrients that we really want to focus on.

These are the top nutrient deficiencies in children. So vitamin D, I mean, that's a common nutrient deficiency, even in adults, but we know how important vitamin d, which is actually a pro hormone is for brain development and mood and cognition.

Same thing with omega threes are essential fatty acids are EPA and DHA, we really have to get from fatty fish. But most kids, many, kids don't need a single serving of fish or seafood in a week.

Right. Like any in my lifetime. We didn't eat seafood in the house growing up. It's so interesting. I mean, sometimes we have cod, maybe. Yeah. That was a relatively cost-effective way to feed a big family.

But we weren't eating salmon every night. And when it finally was introduced to me in teens, I hated it. And so my mom would make it for my dad and her, and she'd be like, you can have a hamburger.

And if you don't like this salmon, it's like filet mignon price, right? I was like give me the hamburger because I didn't. Yeah. That's where we really have to introduce these flavors, I mean, my daughter loves salmon roe, but that's, she liked it long before I did because didn t grow up eating it.

So we just introduced her early. Another big one is iron. What's really fascinating is even for teenage girls who are not outright anemic, their hemoglobin looks fine, but their ferritins are lower on the very low end of normal.

Just by bringing their Ferritin's up to maybe 40, 50 or above, significantly reduced anxiety and depression and improved mood and cognition. So iron is really, really important.

And then we have magnesium and zinc are essential minerals that are really necessary for brain and mood and calming and neurotransmitter production. Zinc in particular, a lot of kids with mental health concerns, they also have sensory issues.

The tags bother them, the sounds bother, mom chewing bothers them. Everything's just too much for them and so zinc is important for any sensory issue that often go hand in hand.

you know, for instance, with kids with ADD or kids, autism and zinc, especially is important for teenage boys because you need zinc for testosterone and appropriate puberty.

So all of these nutrients, when we think about it in terms of kids' mental health, we need to make sure kids are either getting them as supplements and measuring their levels or trying to find foods to fill that need.

I think that people listening right now are just as surprised as me. Do you mean my kid who can't handle tags and seams and the sock has to be on just right, that that could actually be his thing?

Oh my gosh, Laura, a thousand percent. I know when my son needs more zinc, when he starts complaining that

his shoes aren't tight enough and he takes like 15, 20, 30 minutes to tie his shoe on, right?

Even, you know, sounds, the kids who cover their ears because the blender, or the vacuum cleaner, public toilets, kids, who are picky eaters because they only like certain textures.

I mean, I'm not going to say a hundred percent is going fix everything for your child, but if you make sure that their zinc levels are appropriate, so many of those sensory issues melt away.

I'm just saying I know adults like that. Yeah, and I sure they need zinc too. They just get grouchy. It just becomes like who they are, right? Now they're just like the be quiet people.

I mean, I can tell I need more zinc. When the very same I have a sweater that I wear when it gets chilly in the office, when that tag starts to bother me, like, oh, okay, because it only bothers me sometimes.

Or when like my husband chewing and smacking his lips, it drives me crazy. I'm like, all right, I need more zinc. I happen to know that I tend to run low on zinc because, you know, I run functional medicine tests on myself and I know I'm chronically always low in zinc and then I ran my DNA and found out I've got zinc metabolism pathways that don't work.

And I am one of those people that gets super irritable about sounds, textures, noises. I always just thought it's because I was analytical and intense, right?

No, it probably isn't. It's the zinc. Get off this. I'm going to go take some zinc, I have lots of zinc! See, the thing with zinc is you have to take it with food.

When I take zinc on an empty stomach, it makes me sick. It is true. And that could be like if you ever give your kids zinc in an open stomach they'll never want to have it again because they feel like they want it to throw up, right?

Yeah. So take your food, take away from your iron because zinc and iron will compete for absorption. A trick that a mom taught me I mean I was watching this kid her zinc levels when I measured they went up so incredibly well after a few months and all mom and reading no supplements because they made her tummy feel too upset she ground pumpkin seeds into fine powder and put them into everything meatballs soups salads oatmeal, I'm in whatever it is and her sink levels went out.

Wow, so you know, you can eat it. You can do it with food. It is possible. Okay, this is great. Now I want to shift into any more nutrients before I shift in the toxins here.

Those are the main ones, yeah. So in last five minutes that we have, and I know I'm like putting a time, if you could do this in five minute, but we can keep talking.

But in this first part of our talk here, in 5 minutes, If you dig into the chronic toxins, or the, excuse me, the Toxins that cause chronic inflammation and disrupt our kids' gut microbiomes because really if the brain function is so influenced by the gut, we really need to think about what's affecting that.

And I think kids have some unique exposures over adults too. Yeah, absolutely. So I categorize the toxins into three main categories. So the first is the food we're eating.

I mean, the foods we are eating in packages for the most part, it's poisoning us, is poisoning our brains and we can dive into that. These ultra processed foods, especially those with too much added sugar, those artificial colors are poisoned to kids' brains.

Your kids have any attention, behavioral concerns? Just take out the artificial colors and I guarantee you will see a lift in what's going on for them.

Emulsifiers, the monodiglycerides, carrageenan, those things that keep our food together and prevent it from being

in a goopy mess. And by the way, are allowed in infant ready to feed liquid formulas.

They are known to directly trigger zonulin release, cause leaky gut and gut microbiome disruption. Can you give some examples of kid foods that have that?

Because I'm thinking of adult foods like, for example, coffee creamers, like nut coffee cremers, oat coffee creams, full of these, it's just garbage. What about kid food?

Where would we find that, pudding or something? Ice cream? My kids wanted ice cream the other day and I said, sure. I say, you guys go, they're 12 and 14, to the freezer aisle and pick me out, pick out an ice-cream that you decide on the flavor and you know that I will be happy buying.

Right. And so they came back and like, Mom, look, this one had mono and diglycerides and ooh, Look, This one has the carrageenan.

Toxins, Medications, and Chronic Stress

I mean, you can see I've been talking with them for a while, right? But they chose, guess the ice cream they choose. It was organic. So I think it was Strauss's vanilla icecream.

it had sugar, cream, vanilla. That's it. Right? But there are many, many ice creams that have the mono-diaglycerides and the carrageenan to keep it together.

So that's one. Some of the protein bars that kids think are so healthy or yummy and eat them, just look, they may have emulsifiers in them. What else?

I mean, yes, puddings, but even some of solid foods. You just have to look at the labels. I means, it's astonishing. how many foods have. And, you know, the FDA allows a particular emulsifier in infant formula at levels that are well above what are known to be dangerous.

I mean, it's just, because really when we think about the gut-brain connection and the future metabolic health, brain health of our teenagers and young adults and adults, it starts in childhood.

And so we need to be really aware of what's going on there. For teenagers, and older kids, medications are probably the most acute. microbiome disruptor and disrupt to the gut-brain connection, especially antibiotics.

Antibiotics are, I mean, they immediately, They'll kill all the good stuff right along with the bad stuff. And so if you're not replenishing and restoring your gut microbiom, there's one study that showed that just one round of antibiotics could increase, as an infant could, increase the risk of that child developing a mental health disorder when they're older kids or teenagers by up to 50. Yeah, 50%. And the more rounds of the antibiotics, the higher the And the risk was highest if that first antibiotic was given under six months of age because of the profound effect that the gut microbiome has on our baby's developing brains and the downstream synapses and everything else that's going to lay the foundations for the future.

But it's not just antibiotics. So step back and think about your teenage girls, right? Maybe they're on a little doxycycline for their acne. right? Microbiome disruptor.

Maybe they're on birth control pills, right, for their skin and also maybe for birth controls or their PMS. That's another microbiome disrupter. May be they are on SSRI because they were anxious and depressed, like all of their friends are.

So that's a microbiomes disruptor, and then if they on steroids or ibuprofen or reflux meds, those all disrupt the microbiom. Now I will say, so these are more acute, we can see them, know, all right, your kids are on them.

Let's do something to help restore their gut microbiome. But one of the hidden most common, you know

inflammatory sources for kids and teenagers and for adults is chronic strike psychological stress, right?

Chronic psychological. Stress is what I would call the the biggest, most important chronic microbioma disruptor. And toxin. And toxin, yep. We need to treat psychological stress as much as a toxine as any environmental toxins, as many as glyphosate, mold, heavy metals, infections.

In fact, some say that psychological triggers a higher inflammatory response than physiologic toxins. What's fascinating is that physiological stress can trigger zonulin release.

can cause leaky gut within a matter of hours and can directly cause gut dysbiosis. And if leakey gut's happening, then leakie brain is happening. 100%. The same thing that breaks down the gut barrier breaks the brain barrier.

That's right. We have zonulin in our brain and our gut and in kidneys. I mean, so many organ systems. So guess what else, like you said, is being broken down?

everything. So let's give some, you know, I want to wrap up here on this, but I before we let our audience go to the second half of our talk here, what are some of the psychological stressors and in particular what was so big about COVID and the pandemic that really unveiled what you said has already been there?

We've already in a crisis, this really unveiled it. There was a lot of psychological stressed there. Yeah. Well, some kids sailed through the you know, the kids with social anxieties, maybe that was actually better for them.

But for most kids, especially for our youth and our teenagers, social connection is so important. And Zoom remote connection, it's not the same. It's fascinating how many of my kids and how other pediatricians are telling me so many their pediatric patients developed OCD during the pandemic.

just being stuck in your own head, in you own world, you know, just really, really triggered all sorts of mental health concerns and that lack of connection.

I have kids who had to be sent to residential treatment because they just could not manage the psychological stress of not being in the world with their community, with the people, and with our friends.

And then to top that off, so what did they turn to? Right? Sure, they're texting and chatting with friends, but then social media, right? And we know that for the most part, when you go off of social, media you feel worse about yourself than when.

Right. And so, you know, that, and the pressure there, so for boys, it was mostly gaming. So they would communicate on discord and game together. For girls, there was, mostly, Instagram and texting.

Great ways to stay connected. Yes. However, what it does to the brain chemistry and how it changes the synapses and your dopamine centers. We need to think long term.

Okay, now we're out of the pandemic. we need real back in that screen time that took a pass during the Pandemic because it's not helping your kids brains at all, you know, for development into the future.

I mean, boys brains develop at least into their late 20s, right? And we know that the same explosions of those synapses, those brain connections that occur in infants in the first few years of life when you turn around and you can see your baby's wheels turning and they learn a new skill all of a sudden, that same explosion is happening during our preteen teenage years.

But you don't get to keep all of those synapses, right? They explode. And think about a rose bush just going crazy, Right? You have to prune it. Right.

If you're a gardener, you know you have pruned and just trim and you just really get rid of some of these buds so that the ones that remain are filled with all the nutrients and thrive and really grow the most beautiful flowers.

However, We need to make sure that all of those synapses are laid down in the appropriate way. So think about, you know, as your kids grow, whether they're toddlers or whether their teenagers, what connections do you want to foster and grow because they are not going to get to keep all them.

Hopefully they grow the right ones and they keep the ones. Gosh, I have so many comments and questions. Dr. Song, real quick before we shift into vagus nerve, we could probably talk about the psychological distress of the pandemic for an entire hour.

There's that social isolation piece, but the other thing that I'm assuming had a huge impact on our kids was watching the adults be in complete fear. There was a fear that gripped the world, not just our country and our community, but everyone was afraid of dying, or their loved ones dying.

And our children watch how we respond. When we're responding, and not knowing what to do, stressed out, short-tempered, disagreeing with family members, each other within our household about how should we handle this.

you know, yelling at the TV or having that on and, and I mean, families were divided over this. I'm assuming that this took, made a huge impact on our youth.

A huge. And when we think about that, that secondary trauma that occurs, because there is a pandemic and kids. You know, not through any fault of parents, but really, you know many received a lot of secondary trauma, as you said, because of maybe what they were watching on the news, right?

We had the News on 24 seven for a time or the conversations they might have heard you having, with your with, your spouse. or the fear that they could feel in you, right?

And so that second, kids take their cues on how they should respond to a stressful event from their parents. We know this from 9-11. From 9 11, there was that trauma, but then there were just those weeks of repeated trauma and repeated emotional upheaval that kids could sense and feel from the parents and now we know, okay, we need to As parents be able to model as best as we can, how to manage under the stressful circumstances.

Now, the pandemic wasn't just a one off event, though. I mean, it was years, right. Years, you know, two plus three years. of this. And, you know, unfortunately, I still have some families who continue to live in fear, and it's the young kids, right?

It's a kids who they grew up, they kind of came to be toddlers during the pandemic. That's all they knew up until that point, or maybe they were too young and they don't remember a time before when kids weren't and when everyone wasn't masked when you weren t afraid to touch things or hug people or, you know, scrub your hands before you did anything.

Pandemic Trauma, Screens, and Family Stress

And so, for those young kids, I often, some of them, they really, are afraid, to take off their masks. They're afraid. To touch or hugs. I had one little kid say, well, i don't want to kill grandma, right?

And you know those are some of the that's some the wording the language that that the media was saying right that we need to undo and it's going to take some time and I remember my first flight once things were really kind of lifted and i took a lot of flights during the pandemic because my mother was sick and dying of cancer and so my 1st flight though when i did not wear a mask i remember it was this you just have these flashbacks.

It's like this, this PTSD of going in to the terminal. And I was like, okay, I can do this. I could do. This, it was, just wild to watch myself go through this process of really kind of exposure therapy, right?

Being okay with it. But now so many kids have, and teenagers have not. had to have that kind of exposure quote therapy and they're still stuck in this fear and a lot of adults are too.

So I 100% agree with you that that's going to be a. Lot of the trauma that we need to and then of course there was the Trauma of how many kids need a lost grandparents and lost parents and you know, so there's there is.

trauma all around. And so, you know, it's now, folks like you doing the summit and, all the trauma work that are really going to help us move forward with that.

They will. It's going be very interesting, 15, 20 years from now when these toddlers grow up, and they are adults, we see what happens then. This is going to be a very interesting human experiment, if you will, to see, what happened.

I know this is a total sidebar to our conversation, but I think it's very important because parents do shape how our children react. something struck me when you were talking about getting our kids off of their devices now that the pandemic is over.

Well, guess who it starts with? It starts us and our habits. And have we picked up a habit where we sit for hours in front of a phone or a pad or computer just mindlessly surfing when we could be connected with our loved ones?

Are we setting the pace? 100%. And when we think about that, you know, chronic psychological stress and the trauma, just to really bring it back to that inflammation piece, what is fascinating is that stress, we know that these stressful events and these ACEs, these adverse childhood events, can change our epigenetics.

So they can alter the path that our genes might take that then predispose us to diabetes, metabolic syndrome, heart disease, cancers later on in life.

But guess what? I mean, just like genes are not set in stone anymore, we can, as we learn the tools to reverse and heal from some of this trauma, We can undo a lot of that epigenetic imprinting.

The sooner you start, the better, though. which is why it's so important for parents and adults at any stage in their healing process to understand. It's never too late.

it just gets harder the longer it goes. And so, you know, this is now, now's the time to work on it, right? It is never, never to late I'm so glad you're bringing this up.

We have one particular talk on this summit by Jason Prahl, where we're talking about neuronal, so brain, neuron, patterns and rhythms that can be shifted, like we can create new brain pathways.

If you are someone who feels like you've been stuck and no matter what you do, you can't get better. No matter your children, that you have done all the things with your kids, but they're still stuck, this may be a worthwhile talk.

to listen to because it's reprogramming those brain pathways as well. Your discussion about epigenetics reminded me of that. There's so many things we can shift.

We get into these patterns, right? Absolutely. And we shift that, and I'm sure you use brain retraining and rewiring with your families as Okay, so I promised we were going to talk about some vagus nerve here.

So we've been alluding to the fact that the gut and the brain are connected, especially in this mental health space. Tell us a little bit more about the vagous nerve in kids.

I always think of vagal nerve, you know, parasympathetic state is healing state, right? If you can't get there, then it's going be hard to heal. But, it is one thing for an adult to decide, okay, I'm going to get into parasympathetic state by doing Wim Hof breathing and by meditation, but that's not as easy for a kid.

If you're not going for meditation for 20 minutes. You have some very motivated kids, but yes, it's a bigger lift. Okay, so let's talk about the gut-brain axis and why this is so critical to supporting this mental health crisis that we're in and then what you can do as a parent to help your child get into this healing state.

So the gut and the brain communicate via a two-way information superhighway called the vagus nerve, as many listeners know. But one thing that listeners may not be aware of is that 80 to 90% of this communication actually occurs from the guts to the brains.

vast majority of communication is happening from the gut. So who's in charge here, right? We really need to think about that. In fact, our gut has its very own nervous system that looks like the brain's nervous.

And it's actually larger than our brain. It's called the enteric nervous systems. Some of the glial cells in our got look very similar to the astroglial cell in her brain, so I just learned this that I was fascinating that our guts enterics system can live without our brains.

Our brain cannot live with our enterica nervous I mean, that is wild, right? Well, the opposite of what everybody. That's right. Also what they taught us in biology class.

So we're calling the gut our second brain, but really, like, which is first, Right. And the guy makes the vast majority of many of our neurotransmitters, Which we think of as brain chemicals, But they're actually guts, chemicals that influence the brain.

so, you know, 80 to 90% of all are serotonin, which is implicated in anxiety and depression and sleep. is made by our gut microbiome. Same thing with, you know, dopamine.

At least 50% of all our dopamine, which is our attention, focus, reward, motivation neurotransmitter, is, made, by, our, gut, microbiomes. More melatonin is make by gut micro biome than our brain.

and acetylcholine, which is implicated in dementia, you know, cognitive decline. Most of that is made by our gut microbiome. And so we need to really be, pay really good respect to the power that our got microbiomes have to make us feel well or not.

And so, and as I mentioned, psychological stress also can trigger leaky gut and gut dysbiosis, which then if you don't have the right bugs in your gut to make the neurotransmitters for your brain, there's no way your mind is going to feel good.

So when we want to improve this communication, right? We call it vagal tone. And another proxy for that is heart rate variability, which some people have an aura ring that measures heartrate variability.

Some teenagers love their whoop, you know, for athletic performance and also heart-rate-variability. So more and more wearables are measuring heart rates variability because that's actually one of the best biomarkers of health in kids and adults.

And so, you know, one thing that we know about heart rate variability is when we're in a state of stress and when, we are sick with an infection, our heart-rate variability declines, right?

And I'll have, so when I listen to a child's heart over here on the left side, and I have them take a deep breath in and out, I'm not just listening to their heart separately and to the lungs separately.

What I am listening for is how do they work together? So as you take it deep, deep slow breath-in, Your heart rate should speed up. And then as you exhale slowly, Your heart rate should slow down.

That's the variability of your heart rates, depending on whether you're breathing in or breathing out. I mean, in simple terms, right? And so when we can engage that vagus nerve and improve heart-rate variability, that can improve all of our markers of health.

It improves inflammation. it improves our ability to detoxify. So it reduces the risk of so many chronic diseases. The way we want to stimulate that, improve vagus nerve function is first of all, to figure out how to get out of sympathetic, right?

Vagus Nerve, Healing State, and Practical Tools

So when we have our sympathetic nervous system, which is fight or flight, flee from the saber-toothed tiger, we are almost in a perpetual state of sympathetic overdrive in fight-or-flight.

Like almost every day right and almost Every moment of the day there's a deadline there is a school project their school drama there was a soccer team player.

Now, we want to step back and know that not all stress is bad right that's another thing that we have not done well to really help. ourselves and also our kids to understand is that stress can be really good.

Stress keeps you motivated. There's a certain amount of stress that we need to have optimal performance and optimal health. It's just when stress gets unmanageable and too hard that it becomes inflammatory.

So by avoiding all stress, That is not a good thing, right? As a parent, do not make your child's life, quote, too easy and stress free. That's not the way to health.

Okay. Yes, that's right. And, and I did that, you know, especially with one of my children. We, we Gen Xers, We kind of like screwed up. we were, kind have raised ourselves.

Who were the latchkey kids. Hang out at home alone a lot. Lots of chores, lots of responsibilities. Yeah. Yep. So now we want to not just enable our kids with everything they want in life, but enable, our kid's with the tools to manage stress that comes her way.

So, but that's really challenging to do. So we also need exercises that then can engage our parasympathetic healing state so that we can spend more time there.

And when stress comes, we know how to manage the stress, get the sympathetic, But we, also know, how, to bring the parasympathy up and say, Hey, sympathetic you've done your job.

Let's settle down again. And so you mentioned, you know, Wim Hof breathing, meditation, mindfulness, all of those. Absolutely. Yes. And it can take a little while for kids to get into, right?

There are some really cute Elmo for your younger kids has a YouTube video that teaches kids how to belly breathe. He sings a song with rapper common and singer Colby Kelly.

So that's, that one way to kind of get. There there are kids apps. The calm app has some kids app second. help your kids get into a flow state and meditate before sleep or do some breathing exercises.

Another app that I really like is the Oak app, like an oak tree. In fact, a 12 year old is who showed me that app. It has some Breathing and Meditation apps.

Now, one of the things because we know the gut-brain connection, right? What is fascinating is that when you engage your vagus nerve and improve heart rate variability, that improves your gut microbiome, independent of diet.

So, while I would love for kids to eat five to nine servings of fruits and vegetables a day and never eat out of a package and, you know, eat whole grains and no more than 25 grams of added sugar in a Well, if changing food is one of the more challenging things to think about, you can improve your child's health, lower their inflammatory burden, just by working on the vagus nerve and improving heart rate variability.

So I give concrete exercises for parents to do. There's one easy one called the loving kindness meditation that improves heart rate variability is basically a gratitude exercise.

It's so simple. it's just four sentences that you repeat to yourself. You extend that loving-kindness out to your family,

your friends, Your neighbors, anyone in the world, Anyone you want to.

And you just say, may you be happy. May you Be healthy. may You feel safe. Just those four sentences. And we always start with ourselves. So I always say, look, first, extend that loving kindness to yourself.

This is the most important thing, because some of the meanest, harshest words we hear about ourselves are the ones we tell ourselves, right? So you always, say may I feel happy, may feel healthy, May I live with ease.

and then you do the same thing for everybody else. I mean, what a great thing to do at the dinner table or at bedtime, Right? Yeah, right. And you know, the other thing I do, I use, and I teach, acupuncture in the office, but I also teach parents how to do acupressure.

So there's a point called Shen Men, which is on your inner wrist crease, just down by your pinky side. And that is heart seven, or Shenmen, that we know can help stimulate the vagus nerve.

And better yet, there are essential oils that have been found to improve vagous tone. So lavender essential oil, sandalwood have found in studies. You just put a dab on your finger and just hold it right there.

There are also ear points that I'll use. They have little crystals or little seeds that you can put in to stimulate those points. So those are more passive ways to engage your child's vagus nerve so that they can more easily get out of fight or flight and practice loving kindness or practice a five senses meditation with you.

I do also use, I use an Apollo neuro device. It's a wearable vibrating device on my wrist. In fact, i'm wearing it right now, but that is one that has been studied in kids.

Has been found to improve heart rate variability. Is used in adults for mood and sleep and performance. And for kids, it's been to be helpful for attention focus and calming.

And so that's another way to improve your child's heart rate variability in a passive way. So we need these things in passive ways that can get kids out of fight or flight so they're more receptive to the tools that you're teaching them and they know how to access them when they are stressed.

Dr. Song, we are coming to a conclusion of our talk, and I would love for you to have the final words here on what you would say to our parents who are feeling like their child, their teenager, or their younger one.

that something is not right with what's going on with their mental health. That they feel maybe overwhelmed, that this is a lot, like, how am I going to do this?

How am i going get my child the help they need? I know you have lots of resources. You can't possibly see every child in America, but you've, you, have a way for, for parents to get resources and to be helped.

And of course you see kids in your practice. Do you I do, but they have to be seen in the office though first. Yeah, because you run a standard. It's a brick and mortar.

So there is hope and you do put out a lot of content to really help our families. Can you share some words of hope, and also share with them how they can get connected with all the work that you put out in the world.

And I know you have all kinds of stuff in The Pipeline. You're working on a line of probiotics for kids. I think you're writing another book right now.

No, I'm publishing my book. It's launching in May. Let me get done with this one first, Laura. Okay. So, you know, it can seem like things are spiraling.

It can be really hard for kids and teenagers to open up when they're feeling overwhelmed and when their feeling stressed. And I find one of the best places to have a conversation, interestingly enough, is actually in the car.

you're driving and maybe they're in the back seat, right? And then you just have a casual conversation because when you are not saying, okay, look at me and let's have face-to-face conversation, which is really overwhelming, many times kids will be more available, more open to opening up.

And sometimes it's just making noticing comments. Hey, I noticed that, you know, that you've been a little distracted lately, and then just leave it at that.

Hope, Resilience, and Parent Resources

Right. Or, hmm, it seems like you're not enjoying the things that that used to. I'm here to talk with you anytime. So you making these noticing comment, but you not grilling.

And then you just letting them know I notice and I care. If you want to speak about it, i'm hear to listen. Right. And eventually, not always, but eventually some little nuggets will drop and it'll be at times when you least expect it.

Like when your, you know, going grocery shopping together and they drop a bomb and you're like, what? What did you just say? Right? Because it's safer.

It's open. You're not in this tiny intimate space. That's when they're going to drop it is when you got a hundred other things going and it feels like it could easily be ignored and maybe they'll get away with not talking about it.

Yeah, absolutely. Absolutely. And there is and even if your children are already on medications, they may need to stay on them. But many times when we incorporate some of these tools, it's so much easier to see them thriving and resilient and happy in the way that you want them to be and potentially wean off of their medications.

So always moving forward. And so I do have resources on my website. That's Healthy Kids, Happy Kids Instagram. I post a lot of useful information for parents.

It's healthy kids underscore happy kids. and I have my book. it's called Healthy kids, happy, kids a whole healthy, Kids Happy kids and integrative pediatrician's guide to whole child resilience.

that is coming out May 14. So be on the lookout for it. I love it. Well, first of all, I loved that you just said, we need to have, and I noticed this conversations.

I think that would go a long way for adults communicating with adults as well. Yeah. And the fact that, you know, titled this book about resiliency as Interesting, earlier today, Ari, our mutual friend Ari Whitten and I just did a full talk on resilience.

That's actually a passion and a project of his right now. And it's fascinating. I'm just so thrilled that you're teaching about resiliency because it is so critical.

Thank you so much for always being a yes to every project we do, for being the voice for parents and pediatrics on all these summits that seem to be overwhelmingly geared towards adults.

And thank you for just tirelessly creating and putting work out there and taking such good care of your families and our families, I would say America's families because you do help so many people.

Your reach and your ripple effect is wide and far. Thank you so much for having me. It's always an honor to speak with you. Until next time, everyone take good care.

Bye now. Stay connected, stay healthy, and join us next time on Doctor Talks, real talks from real doctors on the issues that matter to you most.