# Is Autoimmunity Preventable? Dr. David Brady Reveals the Truth Transcript

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## Introduction and Guest Background

So a meteoric rise in the incidence of all these autoimmune and chronic inflammatory disorders. It's not a genetic thing. It's an environmental thing, clearly. Right.

So it's it's something about our environment that we're bathing those genes in has dramatically changed because that can change quickly. The genes don't change quickly.

So it's not that the genes aren't involved, it's just that they're not the dynamic element of it. They're just the fairly static element of it. And when you look at the incidence changes, they're so rapidly going upward that it almost to two.

And epidemiologists they look at and go oh my God this is an infectious outbreak. Welcome to Doctor Talks the podcast where every episode leads to a healthier you.

Join us as we navigate the world of optimal health, uncovering groundbreaking strategies to conquer chronic disease. In each episode, we'll bring you the latest insights from leading health experts, medical innovators, and wellness warriors.

If you're seeking to transform your health journey, or if you're looking for answers to burning questions. You've come to the right place. Get ready to unlock the secrets of lifelong health and vitality.

This is doctor talk. Real talk from real doctors. Only issues that matter to you most. Hi, everybody. Instructor Nancy O'Hara. And I'm thrilled to welcome Doctor David Brady.

You know, David's been in practice with an integrative medicine for over 30 years, 25 years in health sciences academia. He's a licensed naturopath in Connecticut and Vermont, board certified in functional medicine, clinical nutrition, fellow of the American College of Nutrition, chief medical officer of Diagnostic Solutions, designs for health and in Private Practice in Integrative medicine in Fairfield, Connecticut.

He's a former long term vice president of the Division of Health Sciences and director of the Human Nutrition Institute at the University of Bridgeport, and in Connecticut, where he continues to serve as director and professor emeritus of nutrition.

David and I met years ago and and really got to start working together when we were lecturing at a conference in Vermont and have worked together in many capacities.

And, David, I, I really appreciate you being here. I love working with you and love to hear all about what you're doing. Oh my pleasure, Nancy, I would never not do whatever you asked me to do.

I owe you a great debt in so many ways, professionally and personally. And and it's always a pleasure to talk to you. So it's great. Thank you. Thank you.

And I would love you to just tell the story of how you got to functional medicine, because I love hearing it. And I, I'm sure our listeners and viewers would too.

Yeah, I could probably take the whole hour, but I'll give you the really a Cliff notes version, I guess. Well, short story, I, I grew up, you know, with my mother battling breast cancer my whole youth basically through the 70s and, you know, getting 1970s style chemo and radiation at Sloan-Kettering in New York, you know, and I think they were trying to do the best they could, but it was pretty, pretty darn brutal.

You know, and even as a kid watching that, it was pretty evident that that wasn't that was an ideal, you know. And so it, it, it did always even back then and get me thinking, there's got to be a better way to do things than this, you know, and more humane and actually a family, friends of ours, they're they're very good friends of me and my brother and sister.

Their dad was kind of in parallel, going through a prostate cancer battle. This was in the late 70s now. And they found Laurence Burton down in the Bahamas doing the first immunotherapy stuff.

You know, extracting people, you know, taking blood every day and blood and banking all the different subsets of lymphocytes and immune cells, and then introducing them back and trying to keep an optimal level of immune cells as a, as a sort of a, just in a very early elementary way of doing immuno therapy.

And I was fascinated by Burton because I went I remember going to a lecture with him so long before I had any training in medicine. I was quite young.

And, you know, I found out he was one of the guys at Sloan-Kettering back in the 60s, early 60s. That really kind of refined what at that point was the current chemotherapy model.

And he I remember him saying this distinctly. He said it was like shooting a shotgun straight up in the air and hoping a duck flew by, you know? Yeah, yeah.

You just shoot anything and hope and hope it's what you're aiming at. And he said he he realized he created a monster and that it wasn't the way to go.

And he he really was convinced the only way to do this was to get the, the human body's own immune system, to be able to differentiate better and fight the fight.

And so that made an impression on me. And but then I went off into electronics and electronics engineering and I worked for an aerospace, I worked for McDonnell Douglas Aerospace, now part of Boeing.

And but somehow through that, I found my way into using like, computer aided design and manufacturing and all these things that we were doing in aerospace and applying it toward a medical context.

We were using these computer aided design and manufacturing systems to develop the first custom made, total joint replacements. So hips and knees and things, but they're pretty easy.

But we did the first wrist, actually, because the wrist is a very complicated joint in many ways. Yeah, not just a ball and socket or a hinge joint. It's got a lot of subtle different motions and checks and balances on different planes of motion.

And we did that at the hospital for Special Surgery in New York City. And at the time it was very early in joint replacement, and it was really off the shelf sizes, which by and large, it still is.

You know, we'll give you a large or an extra large or a medium or whatever. They get a little bit more honed in on millimeters and things. But this was actually digitizing someone's plane films and early advanced imaging and actually right in the hospital making their joint replacement in a semi sterile machine shop with inert ingredients that wouldn't amino react.

And it was just really cool. And that got me into, you know, the same boy, I'd love to apply my engineering background to the human experience, you know, not rockets and planes and stuff like that.

Yeah. And I looked at going into orthopedics, but at the time it was it was a lot of work to pods, and they weren't real favorable on the profession because we were coming out of the HIV experience.

And it was a very blade sharp, you know, thing. They were all kind of scared, frankly, at the time. And I was working

with a lot of teams. And somehow through that, I eventually I wanted biomechanics like applied and human biomechanics training.

I ended up going down to Texas, to Houston, and went to chiropractic college first because they had early like gait analysis and Olympic athletes, and they were working with all of the a lot of pretty cool folks in the Houston Medical Center.

And it was very progressive there as far as chiropractic training at the time. And it just happened. I ended up there and I had a mentor there who sent me off in a different direction.

## Autoimmune Disease Trends and Environmental Drivers

He was originally a registered dietitian, was very into botanical medicine, ended up becoming a chiropractor, but he was the nutrition instructor there and it really made an impression on me.

And I was kind of getting almost like naturopathic medical school within the context of chiropractic school. And so that once I graduated, I really was more and I stayed on and did a whole year residency and hospital rotations in or diplomat in internal natural management of internal disorders, believe it or not.

So wow, that was really cool. And then I went into practice. I found functional medicine in the very early days. I think I was at the second annual conference of Functional Medicine.

I think they're on their 30th one or something like that. So I found, you know, this, this crazy, brilliant guy, Jeff Bland, many, many, many years ago and started following him around like a puppy.

And, and ended up on the first faculty of AFN and got very embedded in the functional medicine movement as it matured, started working with nutraceutical companies and education as a kid as well, and then formulating products and and then I ended up I got a graduate degree in nutrition, and then I ended up saying, you know, I'm going to just go back and do the deep dive.

And I went back to medical school and did the, you know, whole naturopathy, medical, modern naturopathic, medical school education and residency and, and just been in been in it for so many years.

I it's all a blur. Wow. Well, I find that fascinating. I've learned new things about you that I didn't even know what it was originally. It was that they had all the guitars back there.

I still yeah, I still can't kick that habit. So I and I love hearing it and seeing it on social media. So and and you know, you've become such an expert in auto immune disease, you know, from those early days to now, I mean, you wrote a great book on the five root facts and many articles on fibromyalgia, on the microbiome and autoimmune disease.

And, and you know, this is about Pans and Pandas, but that's just another autoimmune disease. And from your perspective, do you think that that inflammatory and autoimmune diseases are on the rise?

You know, what what is the data say about that? Oh yeah, I have some great charts and some of my lectures and presentation showing the epidemiological incidence curves from, you know, early 20th century tell, tell present.

And it's it's a meteoric rise across like like that, like a steep curve across just about not every but just about every autoimmune disorder, whether it's classically considered and maybe in the old parlance, one dominant to dominate topic.

No, it doesn't matter. They're all going at a steep rise in. I usually make the point, you know, everyone's so tuned in to genetics and genomics. And they say, well, autoimmune disease is very, you know, genetically determined and inherited.

It runs in families. And all of that is true. There's definitely, you know, inherited predilections and your immune

response and HLA types and all these different things that we know about now.

But it's clearly how that immune system dances with the environment. And the genes don't change very quickly. They change very slowly, glacially almost, you know, compared to what we're used to and how we frame things up.

So a meteoric rise in the incidence of all these autoimmune and chronic inflammatory disorders, it's not a genetic thing. It's an environmental thing clearly. Right.

So it's it's something about our environment that we're bathing those genes in has dramatically changed because that can change quickly. The genes don't change quickly.

So it's not that the genes aren't involved, it's just that they're not the dynamic element of it. They're just the fairly static element of it. And when you look at the incidence changes, they're so rapidly going upward that it almost to to an epidemiologist, they look at and go, oh my God, this is an infectious outbreak, right.

Because nothing else changes that quickly. Even the environment, although that's probably reframed in the last 50 years with how many kids. Yeah. So how many things just come at it. Rapid fire.

But but you know, you can really and not in every case because there's various triggers and there's various external or environmental influences and antigens in the exposures they call it.

But by and large, a lot of autoimmune diseases, as you know, are infectious diseases. Right? Right, right. They're viral or they're whatever these all these post-viral syndromes that we're dealing with now, you know, I'm just I, you know, I, I'm just personally in my case of my lovely wife and just so many patients and just a whole experience out there with long haul Covid, it's just another post-viral, autoimmune, chronic inflammatory driven, you know, variant, you know.

Right. So yeah. Yeah. And you know, like you're saying, you know, genetics may load the gun, but it's all the things in the environment infectious toxic otherwise that that lead to all of this.

And I also find it fascinating not just historically but also geographically. I mean, the difference in autoimmune disorders in developed countries versus developing countries.

And I think that's a fascinating look at, at what are the things that are really affecting these autoimmune disorders. Yeah. And you can even parse it by latitude.

Right. Like you know. Yeah. And the levels and things like that, incidence levels, you know. But you're right. The biggest determinant is, you know, where you were born and where you're growing up, basically what your environment and this modern autoimmune epidemic, if you want to call it that, because it is an epidemic, is really one of the industrialized, developed world.

If you go into sort of the Third World under developed world, you just don't see it. You see other things, you know, great, you know, right? To poor hygiene and, you know, and lack of sewage management and all that.

But you do not see, you see much less autoimmune disease, maybe partly because of what I just said, because they have a much more wider exposure in use when their immune system is learning tolerance.

Right. We kind of like stem I semi sterile environment that we've created. But what I find most fascinating about the incidence difference between like the classic industrialized Western countries and the underdeveloped world, the stark differences in autoimmune rates is there's a middle ground, there's a mid cluster.

And those are the countries that kind of have a Western modern industrialist lifestyle. But they have clung a little bit more to traditional diets and ways, and they're far enough away from us that they're not fully poisoned by us. So it's funny, if you look at countries like Japan, South Africa, Australia, New Zealand, they're in a middle ground, right?

Totally agree they have it, but they don't have it like the United States or like or like, you know, Western Europe has it. Yeah. Yeah. No. So agree. And and I think diet does play such a role and, and the lack of, of immune tolerance is so affected by what we're eating.

I mean, do you see that as one of the big reasons for the growth or, you know, toxins, infections. What are the biggest reasons you see for this big explosion?

I think it's a combination of a lot of things. Yeah, it truly is one of these perfect storm things. Right. You mentioned some of them. I think generally I if I had a pick the the three biggest factors, I think one is diet.

Of course, you know, the industrialized countries just eating all this crap processed food. And finally, finally outside of just this bubble we live in with these wellness people and functional integrative medicine savvy, you know, tribe and, and the kind of patients that kind of find us in the wider general public in the Western industrialized countries.

There's finally an awakening and an awareness that diet makes a big difference. And all this stuff that they're poisoning us with and this stuff, this in, like the American version of the food that's not in the even the European version or the Canadian.

Oh, I know American companies poisoning Americans intentionally. Like, you know, what's going, you know. So finally there's a reckoning and you finally saw a red dye free pulled, you know, net.

But make the list of, you know, 60 others that you know should be on it. But I think poor diet, you know, like a computer, garbage in, garbage out. Right. You just have poor metabolic outcomes.

People are obese. Obesity lends itself to an inflammatory bias. And, you know, dysregulation of the immune system. So diet is a big one. The other is just the exposure to chemicals, plastics, herbicides, pesticides.

You know, all the junk in our environment that has just exploded in the last 100 years, but certainly even more so in the last 50 years. And so the the exposure to just an exhaustive, never ending level of new chemicals that the body of a human body has never confronted before.

Thank God, we have a fairly nonspecific, adaptable detoxification system built in. Or we would long be gone. Right. So yeah, bad diet, toxic exposure.

But the other thing is, I think those two things combined and other factors have pretty much eradicated many of the beneficial commensal, very important organisms in our microbiome that live in us, on us and around us, and particularly so the ones in the gut.

So the GI microbiota, if you look at the microbiota composition in the gut of people, like in blue zones, let's say like on a on the Greek island blue zones, or in the Bulgarian blue zone or wherever you go in the Japanese blue zone, their GI microbiome is very different, and they've preserved more of these organisms that have been part of a normal, healthy GI microbiota composition for the whole evolution of humans on the planet and the people in the living.

This modern Western, high stress, high inflammatory kind of existence have eradicated many of them. There's much less diversity. There's much, you know, you have a strong bias toward only on smaller number of organisms.

And many of them aren't the most healthy ones. Right, right. And I think it was you, when we lectured together back in Vermont, that you were the first person I heard say something like, probiotics are like peeing in the ocean, you know?

And and it's so much more than just replacing the beneficial flora. It's the complete breakdown and the the commensal relationship between fiber and the microbiome and so much more than just, oh, well, I'll eat like crap and throw a probiotic in and I'll be fine.

## Microbiome, Probiotics, and Gut Health

Yeah, because people have a very distorted view of what probiotics are and what they are not. And I will add doctors to that list. You can add the medicine doctors to that list.

There's a perception you can take a conventional probiotic and your replacing the good bacteria. No you're not because the really good important bacteria in the human microbiota composition are not the ones you're taking in the probiotic.

Things like Lactobacillus genus Bifidobacteria. I'm not saying they're not useful and helpful because they are they do great clinical benefit. We know that.

But they are not normal parts of the human GI microbiota at any appreciable level. They're super, super low levels. And they're there because we exogenous we consume them in some way.

Yeah. They're not the core beneficial bacteria, the keystone commensal organisms, those are anaerobic organisms. Those die in the presence of oxygen. So up until recently it's been impossible to put them in a pill and give them to people. Right.

You can't do it. Those organisms die. They make up 90% or more of the microbes in the human GI tract. So when we give a conventional probiotic like Lactobacillus bifidobacteria, these were first found and understood by people like mentioned, the coffee, you know, bluesound in Bulgaria, right.

Like the fact of the cells was lactobacillus, Bulgaria's name doctor, right here in blue zone. Right. Because he heard he was in Russia, he found out in Bulgaria, there's these people that live up in the mountains and they live like, you know, at the time this was, you know, 125 years ago, they're living past 100, right?

They're live in the 110 and they're healthy the whole time. Well, what's going on? And went and studied them. And of course, they lived in a pristine environment.

They had these, you know, beautiful cows that had very good genetics that were feeding on these, you know, organic pastures, you know, in the mountains.

And they were taking the dairy products. They were culturing and making like keepers and yogurts and things like that. And he was convinced that it was something and that that was the magic elixir of health and youth, you know, and that's when they first, you know, early microbiology.

He found like the bacillus and Lactobacillus vulgaris specifically. And that was the first probiotic. But, you know, that's one little sliver of the microbiome.

Right. But they were able to. It was in these culture products because it can survive in oxygen. Right, right. They were able to put that in some kind of medicinal like a pill, you know.

But they were able to do these commensal. So now there's we're just starting to be able to do these next gen probiotics. You see commensal is out there like a necromancy or something.

But it's still you know, the science is still a little bit fuzzy around the edges on that, like a necromancy a for instance, we know it's a commensal.

It's important to maintain the mucus layer on the gut and things like that. Right. You know, it's a U-shaped curve. The two little Aquaman's here is associated with obesity, metabolic syndrome or metabolic health and all that.

Conversely to high acromion is at least associated with, you know, not necessarily causality, but association with higher incidence of autoimmunity like M. S.

So, right. You know, now there's a rush all let's put out these things. Now that we can put them in, we can lay off all these, these organisms and keep them away from moisture and banned them in a capsule and put them out now okay. Well a little is good, a lot better.

Let me take all as much of that stuff as I can get. It's may not be the thing to do. And again, I don't think one organism is the key. It's it's the community effect of these commensal organisms playing together.

So exactly. That's why fecal microbial transplantation works the best of any of it. Because you're taking a you're getting a community effect of the myriad of these important commensal and putting them.

You're introducing them together as a network that's much different. It plays out entirely different when you look at the metabolic expression of the gut, whether it's in simulations like robot gut simulations or in actual human subjects.

But yeah, you know, it's it's not easy to go get fecal microbial transplantation, right? Right, right. But it is about the whole gut, the whole trial, the whole picture trying to myopically narrow it down.

Right. That's the pharma thinking. We're guilty of that in functional and integrative medicine to the latest supplement, the latest nutraceutical. The last thing is the bomb, right, right, right.

Usually there's a good element to it. There's a there's a real story there. There's a mechanism of action. There's all that. But rarely do things produce dramatic, incredible transformational changes in a complicated system like human physiology.

Right. And in the same way with precision medicine or genomics, you know, we can't say this snip means this supplement, and then you're going to be all better.

It's more of the interplay of everything. Yes. So what do you tell, you know, people or parents for their children? What do you think helps defend against, you know, these autoimmune disorders, the chronic inflammation.

What are the most important things from your perspective? Well, you know and you know, you know this far better than I. But I just think you can't change the genes.

Right? So you can't get hung up on this or engineered, you know, we can't change the genes. Maybe someday we'll be changing genes. But if you think, you know, pharmaceuticals have been side effects, wait till this ain't around.

Right. You know that. You think I still remember the first day of pharmacology class, Nancy. And this was before medical school. This is my pharmacology instructor in chiropractic school.

I think he came in a pharmacologist. And I remember we went to the lecture and he says, okay, I'm just here to tell you that pharmaceuticals and drugs do not have side effects.

Everybody looks at and kind of laughs and he goes, they only have effects. We like to call the ones we call, the ones we find inconvenient side effects.

Right. Exactly. Then we develop the medication for that side effect because, yeah, it makes you so sleepy. So let's say it helps you with sleep. But he made his point, buddy.

He was because I remember he also said once use a new drug as soon as it comes out before it develops side effects with your left side right, a drug developed side effects.

No, it didn't, but always had. But back back to the answer to your question. I think you know, parents have a hard job to do. I mean, weeks, my wife and I try to manage this as best as we could because I was a functional medicine doctor, right?

And a nutritionist. And she was very health conscious, you know, professional dancer, real into diet and health and very good, you know, physical condition and all that.

We did the best we could with our kids. But it's hard, you know, and we had a very picky one of our boys was an extremely picky eater. Like had these food issues, food phobia.

Right. And you know, it's not as easy as, oh, well, you know, eat this or go hungry. You'll eat. Try again tomorrow and see if you like or even just not eat.

I mean, I think before you eat something that he had a thing with, right. So we did the best we could and managed it. And now he's much, much, much better as far as his eating and and and things.

But I, I know how hard it is. But I think you really need to first of all, those early exposures and early experiences are just so so important. So if you know a unless there's a reason, a good medical reason why it can't be the case, natural childbirth is just so preferred to, you know, a C-section and then, you know, even seeding of, you know, the right bacteria into the infant, particularly if they're C-section.

Right. A good old perineal picnic. Yeah, exactly. And then, you know, breast breastfeeding is so important if you can and if you can't pumping and then if not, you know, the optimal best types of form formulas, you know, make sure you test for sensitivities before you just start gym and some kind of a formula.

It has to be used into the child and pay attention to how they react to it. You know, it's, you know, dermatitis, skin disorders, all these things and, you know, these manifestations in kids and colic are not necessarily just things to oh, they'll get over it is fine.

It happens to everybody is you know, no, it's the body telling you something. Right? Right. You know, it's sort of like the, the concept of, oh, the minute any kid gets a fever, we'll give him Tylenol, suppress that thing.

Well, nobody's doing the fever for a reason, right? The body, the immune system is probably sitting there when mom's reaching for Tylenol, going like, well, what do I got to do here to get the message?

Exactly, exactly. Not to mention, the decrease included bone with the acetaminophen. And absolutely. I know there's a time that you have to manage your fever.

I get that right. But there's a time when you gotta let it roll too, right? So and there you discernment of that at this point. But and then just, you know, healthy real fresh foods when, when the child starts, you know, on on a solid diet is so important and there's so much commercial pressure, there's so much peer pressure, there's so much, you know, to manage with trying to get kids to eat good foods.

It is hard, but, you know, it's not impossible. I mean, you look at kids in other countries, even in Europe, even in Western Europe, I mean, they do not eat like like American kids, right?

Right, right at my family stuff. And it's just not an option. Exactly. So, you know, but my family's still doing an intervention on me for, for the things I was like, no, he can't have that easy to he doesn't need to have, you know, that junk.

But they're just bathed. And that's being the normal is really, really hard. But that stuff does, you know, that does do damage. But keeping the, you know, child as healthy as possible and not having these constant exposures to things that are making them have an allergy response or a sensitivity response, because that by definition, is creating a distortion, dysfunctional immune system.

Yeah. Then what happens when they confront the pathogen, which they invariably will, you know, whether it's a ubiquitous virus that we all get exposed to, like, you know, Epstein-Barr virus or HSV or whatever it is, or Lyme or a co-infection or something like that, you know, the scenario will play out very differently.

If they have a balanced immune system and they're very healthy, then if they're not in into play role, but you can't change the genes. So it's right. Right.

So and as you talked about C-section and breastfeeding and all of that, it reminded me of a lecture we were both at with the who Sheldon Feld, through design trials and Cassie, that you had organized.

And you, Hooda was standing up there talking about being responsible for his daughter's perennial picnic. And for our listeners or viewers that don't know what that is.

When you have a C-section, if you take a swath of the mom's vaginal mucus and rub it all over the baby, you are in some ways reproducing what they might get from a vaginal delivery.

And and he was so wrapped up in emotion, he said he forgot. And he showed a picture of his dog lolly, you know, licking all over the baby afterwards and, you know, pants and, and being outdoors and, and dirt and all of these things all go into that microbiome of our bodies.

Yeah. That's a great point. There's actually multiple really good studies that kids that grow up in households with pets, you know, dogs or cats even there's more on dogs actually healthier immune system have less autoimmune disease.

We know that children who have grown up, even in this modern industrial age, the kids that grow up on more rural farm environments, that they're exposed to farm animals and manure and all this stuff have much less a topic disease, you know, they have less, you know, skin issues and reactive airway and asthma and all that kind of stuff.

There's one exception to people who grow up on farms with autoimmune disease, and it's actually with Crohn's. They have more Crohn's. And it turns out that the some of the, you know, bacterial organisms that can create that granuloma like degradation of the of the, of the middle of the GI barrier.

Yeah. Which is a hallmark of Crohn's. You know, when you do the biopsies and look on imaging almost like a TB you know, where you get those graduating cascade and kind of give up.

You can't get biotics, right. Because they're walled off. And then, you know, if you open them up, it's like, you know, cottage cheese and they're it's disgusting.

It's like a big abscess. The, the, the bacteria that can cause some of the, diseases in, in cattle. It's what is it again? Para yeah, I'm blanking on the organism, but I know me too.

Yeah. That organism they can get exposed to from cattle and and if they're genetically susceptible, it can create crumbs. Interesting. I just I always learn something new from you, Dave.

It's it's it's great. And, you know, one of the things in kids with pandas is you mentioned your boys, you know, one in particular being so tough with diet, you know, so many of these kids with that particular autoimmune disease also get restrictive eating disorders.

So the actual disease increases their are fed or their reactive the feed forward kind of positively manifesting it. Yeah. Yeah. But you know my other my other boy you know was like 20 months younger had him was much much better eater and ate a much wider palette of a better foods.

But they both got Lyme and co-infections, you know, you know, and they both got some variant of pans. Right. They presented a little differently. One more, one more persistent kind of fatigue and flushing and that kind of thing.

And the other more neurological, you know, with the ticks. And even for a while there was one point you probably remember, I don't know. But he couldn't go down the stairs.

He was going I on his but he couldn't use his light like intermittent like out of nowhere, you know, and then

everything would kind of normalize. So luckily they've done so great.

And I thank you for that because I think it was certainly your care that made that possible. But they're thriving, you know, young young adults, young men at this point.

But it was it was a tough one you know. Yeah. And it it takes a village I mean and and you guys were such a part of that village and it's, it's just these kids can get better even when we can't do all the wonderful diet things.

We one or every supplement or medication, whatever it, you know, you raise them in a very supportive environment that then allowed them to, to flourish when their bodies could heal from the autoimmune disease.

So and it's amazing, even when you have when you lose those battles with kids on diet and all that kind of stuff because of all the external pressures or because of their food issues or whatever.

Yeah, it's still all the lessons and the effort and the attempts pay off because it comes around. So even our, our older one, who is the picky eater and only still, you know, a has some issues with really expanding his food palate.

But man, it's so much better. And he's literally making concerted efforts and trying.

## Raising Kids for Immune Resilience

I mean, he knows the the message was sent and it was it it got through that, you know, you got to eat healthy to be healthy. And he wants to be opening up commercial pilot and all that stuff.

So he needs to be healthy. He needs to, you know, some medicals and all that kind of stuff. So you know, he's working out, he's eating goodies, paying attention.

He's not having, you know, not eating that bad food choice. So it's kind of fun to see that, you know. Yeah. It comes around it. Exactly. It comes around and not forcing the kids, not making it such a battle.

But but showing them and and and still saying, hey, you know, this is a way to get healthier and, and I'm going to do it. Your mom's going to do it. You know, modeling that can also be helpful.

And and you know, even if they go through a long period in childhood where you can't make the changes that you would like to, but they often come around to it later, as, as your guys do.

So yeah. Yeah. And I think it's even more once they get a little older, you know. Exactly. Definitely makes a difference in the whole psyche about all of that in actual adulthood when they get there, you know, that effort, like if they had parents that paid attention to that and, and, and planted those seeds, you know, but, you know, also, you can't be so fanatical about it that it's penal like, hey, you know, we're not perfect either.

I, you know, they see us really trying to eat really well and be healthy and do all the right things. But hey, we have our moments and our splurges and we, you know, we're not perfect, but.

Well, but when we're not, we don't just say, oh, it's over now. You know, I get to get back on a horse the next day, you know what I mean? Right? But I always talk about being perfectly imperfect because the the perfection is, is in it is also damning, meaning the the stress that it comes from, from trying to be perfect yourself for your kids to be perfectly or whatever decreases your glutathione, increases your your fight or flight, your stress, etc.

and is no better that then you know, being, you know, as good as yes, yes diets should be like you were talking about the you know, the these problems themselves can create the food issues.

Well they certainly we know create anxiety. They create hypervigilance like a sky is falling, like, you know, a kind of scenario in your central nervous system unconsciously.

Right, right. Could just create that bias. You get microglial inflammation and you get a lot of changes in the central nervous system. And you don't need to add to that anxiety and stress.

And you know, you're right. It's I'm almost that's a baked in element when the when the immune system is just hijacked and gets over overactive. Right.

Whatever it is, it's always important to ask how important is it, you know, that he takes this pill in this moment or it eats this piece of broccoli. You know, let's look at the big picture of of the stress of all of this too.

And I think that's important. That's hard to frame when you're young, you know, I mean, listen, I'm just getting to the point, you know, and you know, now, you know, where I'm framing things different.

You know, now when people ask me, you know, like, how are things going? You know, I haven't seen someone like, I haven't seen, you know, how are things going?

I usually my responses, all the important stuff is good. Yeah, because that's what matters. You know what I mean? The other stuff is just doesn't matter.

It's maybe it's a temporary annoyance, but it used to be sort of this crisis that you had to get anxious about or something immediately. And, you know, there is wisdom with age, but we're dealing a lot, especially in your case with, you know, patients who don't have that perspective yet.

Right? Right. But just an extra breath, an extra moment of this too will pass. Or we can do this can help even in those moments. So yeah for sure. All right.

Back to back to, you know without philosophizing too much back to autoimmune disorders. When you're looking at somebody with an autoimmune disorder, a child or an adult, what kind of testing screening do you do for to find the disease or those who are at risk?

Yeah, I mean, admittedly, I treat I treat mainly adults, right? But I think all of what I'm about to say is pretty much crosses over as conservative for no matter what age you are, there's, there's, there's specific challenges in dealing with younger people and children that you're great at and gave me, shared some of those hacks or tricks over the years when I when I do have younger patients.

But what's, I think, kind of cool and liberating about the functional integrative medicine model when it comes to autoimmune disease is it almost doesn't matter which one you have.

You know, I know that there are uniqueness is, you know, in HLA patterns and immune predilections or even trigger things or microbiome aberrations in specific autoimmune diseases like M. S.

versus lupus versus rheumatoid arthritis versus, you know, all sort of colitis versus pans versus whatever. But there is way, way more in common than there is unique.

Right? So true. You need to decline in functional medicine by definition, we try to climb upstream, as upstream as possible to get to the foundational root of where things start going wrong whenever possible.

It's not that we're never dealing with the ultimate symptoms and trying to make people feel better, but that's almost the exclusive. That's almost where conventional medicine has just become a management of the ultimate expression of the disorder with an agent.

Right? Right. So my name is Amy. Team at medicine. Yeah. And part of that is actually unfortunately and by intention, I think, you know, decades ago, I think modern Western pharma decided we're not in the game of curing things anymore.

We're in the game of managing things because that's where the money is, right? I hate to be that cynical, but if you

can have a large population that's still alive, so they're technically still potential customers, but they're miserable and chronically ill, and they need a whole bunch of things every month to make them feel like they can get through the day.

Well, then you got a wonderful business model, because it's almost like selling the the inkjet printer that cost you, you know, 150 bucks to make for 20 bucks because, you know, you're going to be selling them way overpriced inkjet cartridges forever, right?

Forever. So yeah. So in functional medicine, we we try not to follow that. Yeah. Kind of logic although it happens you know there's a lot of green substitutions for medicines.

You know I'll use this herb instead of that. Draw it or I'll use this nutraceutical instead of that or this. And and sometimes we do that just because it can be helpful.

It can help the patient's existence and their quality of life. But you can't only do that right. You gotta try to whenever possible. Something is it's not possible.

You got to seek. I'm trying to go upstream and getting to the heart of the matter, if you will. And that's what we do in autoimmune disorder. So we need to find out where where are those tipping points?

We we know we can't change their their genes. We can use the genes though to test, to find out either diagnostically or what their predilections are, even in a proactive way.

So you can look at, you know, autoantibodies and HLA antigens and all that and go, well, this person I know it all lines up that they're going to be much more susceptible to rheumatoid arthritis, let's say, unless they clean up their heart or unless they get their gut cleaned up, or unless they, you know, clean up their diet or what have you, and you can do that across, you know, most autoimmune diseases, there's actual, you know, tremendously accurate actuarial data.

If you line up with certain autoantibody profiles in HLA patterns and things like that. We know that if you live a typical Western existence, diet and lifestyle that within, let's say, eight years, you know, 8 to 10 years, you're at an 83% chance of having rheumatoid arthritis.

That's how bad. Absolutely right. Not that those kind of tests are being broadly used in clinical conventional medicine because they're not you know, they would be in the realm of rheumatology, but I don't see them being used in that manner very much.

There are some of those are used to confirm a diagnosis that they think is there from clinically, you know, from the presentation of the patient. But I don't see proactive screening like, yeah, we've done like that saying, hey, you know, you got it in your family history.

When we do these tests, you're going to get it too, unless you do x, y, z. That's right. I don't see that in conventional medicine. I don't think right.

So in functional medicine, not all functional medicine doctors do it, but a lot of us do, right? Particularly if the patient is willing to to go through that testing and is willing to make changes.

But I think consistent with the whole paradigm of functional medicine, we really put a lot of importance on the gut and the health of the gut. But you can't really be healthy fundamentally with with a gut that's not healthy, with a microbiome in the gut, this unhealthy because the dominoes start to fall immunologically, often in the gut, not exclusively there.

You know, there's autoimmune diseases that are very driven by viral exposure. Let's say that right. Don't necessarily. It's not like the main dominoes start to fall in the gut, but there's no question that we have more exposure to potentially antigenic meaning can trigger the immune system substances in our gut than anywhere

else.

Because, you know, there's this many, at least bacteria and microbes of various types, phases, you know, protozoa, helminths, viruses, you know, bacteria, you name it all through our gut that we're having to deal with and come up with in a kind of an agreement with, well, we'll tolerate you being there because maybe you're not going to kill me.

And you might do a few things for me, like produce some nutrients or help me digest my food or whatever. But then, so you have to tolerate some things because you can't react to everything, but you also then have to be in a position to act.

If there's an overt pathogen that can really, you know, threaten or threaten your existence, you know, right, get an overt pathogenic infection with Clostridium difficile or salmonella or something like that.

You've got to be able to react to it immunologically, but it's finding and maintaining that balance of tolerance and and aggressiveness when you need to.

And then having the discrimination to know, you know, self from non-self. And that's how things really start breaking down. So if the gut is constantly this frenetic area of immune amplification, because the microbiome is not in good shape, that you have a lot of the bad or opportunistic bugs there that we know are associated with this tuning the immune response and creating actual autoimmune phenomena.

And there's a bunch of mechanism by which that can happen. I won't get into the boring part of those, but we have molecular mimicry and where, you know, a bug can have a protein on it that looks a lot like a protein on your own tissue, and that can cause a crossover particularly.

It's also leaky gut. Again, problems in the gut with hyper permeability AMP and leaky blood brain barrier and yeah, you know, same thing. You know, a lot of microbes in the gut produce enzymes that can modify proteins or amino.

They change an amino acid on a protein. And they do it because the microbe needs that as part of their physiology. But then if the microbial community overgrowth that produces that enzyme, they secrete it.

Or when they break open, they release it. We can get that systemically and that can alter our own host peptides. So right, a lot of a lot of microbes in the gut, opportunistic ones associated with autoimmunity, can produce an enzyme called Pat for which can actually citrulline a plus peptide.

So it will it will take a on certain proteins. If you got let's say an arginine hanging out there, it can pull that off and put a citrulline in its place.

It's called citrate patient or citrulline nation. I can never say that. And when it does that it slightly changes your own protein. And when that happens, your immune system now looks at that protein that used to.

That's part of you right now it says and now it's foreign. That's foreign. I'm going to attack that. So that's used in conventional clinical medicine all the time.

So doctors when they when someone comes in and say oh my joints are hurting their middle age or they, you know, they think they might have rheumatoid arthritis, they do a rheumatoid panel might have rheumatoid factor on it and C-reactive protein and Z rates and all that.

But it also usually has a test called CCP or a CCP anti cyclic citrulline peptide. They're looking for this phenomena of from Asian. But all they learned in medical school is hey do this test.

And if it's positive it supports your clinical hunch that they sort of thrice. But if you ask them why do you actually do that test? Why are you looking for a Citrulline rating?

You know, product I've hosted? They have no idea. Right? Right. So it's because of this connection to microbes that are producing this and they find citrulline nated peptide, you know, host peptides, which once you change your own protein, it's called to happen.

Right. They find these citrulline. It happens in atherosclerotic lesions. They find them all through the brain in dementia and Alzheimer's. They find them in autoimmune disease all over the place.

They find them. In the end, the filial lining in, you know, vessel disorders. So it's it's a real issue. So we test the gut a lot. We're looking at the composition of what microbes are there.

Right. Are there enough good ones. Are there no overt really bad actors. And then most of them are neither the overt good ones or the bad ones. Most of them are some shade of gray.

In between that, given the opportunity, they can overgrow and create these enzymes, or do molecular mimicry and do some damage. Those are called opportunistic organisms.

And we scout out, you know, we screened for them. And if we find them, we're trying to nudge the microbiome composition back to a better composition. And that could be with dietary changes.

It could be with prebiotics, probiotics. It could be in some circumstances with a substance that will get rid of the bad organisms. That can be everything from a botanical to an oil to a prescription antibiotic.

Right on the what bug, how bad it is, what's going on strongly. I strongly favor using standardized botanical vegetable oil combos with probiotic probiotic afterward, rather than even locally acting prescription prescription antibiotics is you do too much collateral damage, right?

So you do too much collateral damage with the natural agents. So you know, you don't use those willy nilly. I don't like you see a lot of hammer and nail practitioners.

Unfortunately, even in functional integrative medicine, everyone is right. Everyone is this. Everyone is put on these antimicrobials. I don't think that's a good thing at all.

I agree. And also going back to that U-shaped curve you were talking about, when we push that to the nth degree, we're going to swing the pendulum the other way and make other things worse.

So I was like, I'm going to give you all these, biofilm busters, right? I'm not saying they're they're never useful and they're never appropriate, but why would you do that for?

I'm, you know, keep in mind, when you're breaking biofilms, like in the gut, it's not only the bad organisms that live in the biofilm. It's the good point, right?

By burning down L. A to get rid of some criminals, you know. Right. You know, you take that a lot of good stuff, too.

## Testing, Treatment, and Functional Medicine Approach

So you got to be very, you know, strategic when you do that kind of stuff. And there's a place for it. But it's not like, you know, everyone you know needs this. And.

Right. That's what you see out there in the wild west of the internet. You know, I mean, on social media, you see all this stuff on social media. I mean, people are all of a sudden gastroenterologist or endocrinologist because they had a problem, right?

And they did some things that got better. I'm thankful they did. And I'm sure they're well-intentioned, but it's it's more nuanced than what you see out there. Exactly.

And it's not about this thing is going to help everybody with this disease. Even everybody is an individual. Right. So back to the question that we do.

Yeah, pretty intensely not only the microbes in the composition, but are you digesting or are you absorbing. Do you have enough immunoglobulin production on the gut lining for the entire nervous system, like IGA?

Are you producing? IGA said the wrong things like gluten or gliadin. Do you have what's called leaky gut or are you inflamed in the gut lining so you you kind of clean up that whole house, right? Right.

Gotta improve their diet if they're eating crappy. But honestly, a lot of people that come to doctors like us are already making good dietary changes.

You just need to dial it in a little bit, or maybe test and find which foods that may be considered generically healthy for them. Don't work because their immune system reacts to it.

So fresh off some testing that's not conventional food allergy testing we're not looking for Iggy's likes to strawberries and shrimps and peanuts. And then that stuff's pretty no brainer, right?

Right. But there's some testing that we can look at how the body's immune cells react to specific foods. Right. Dude, does it deep regulate the cells?

Does it create a innate immune response, which is an inflammatory response? And some people can have those negative reactions like that to foods that would be considered generally healthy, you know?

Right, right. And at the same time, using those tests when there's a plethora of them, what I don't want parents to do is to say, oh my gosh, he's allergic to 30 foods, let you remove those all off.

And that that plethora of sensitivities, not allergy, but sensitivity is from the gut and from a leaky gut. I don't even do those tests straight away.

I don't listen where they circle back around to immune food reactivity testing, depending on how this rolls out, but I'm not doing that right away. I'm fixing your gut first, because if I fix your gut, a lot of that fixes itself.

Exactly. And that's what we find. Absolutely. Exactly. So that's just common sense. Right. But common sense is not so common sometimes. But, you know, and but the other thing is trying to and this is where you said it takes a village is where I need colleagues to help me with it.

But, you know, trying to deal with issues of hypervigilance, you know, anxiety, panic. Yeah. That and that, that kind of neurological dungeon of dysfunction, that chronic inflammatory immune dis regulatory disorders sends you into.

Right. And that fight or flight. Yeah. It's hard to climb. And yeah. Well, if you're always like waiting for the next shoe to drop in and hypervigilance that that in the nuts in and of itself takes a lot of energy.

And it's hard to recover. And when you're like that you don't sleep well and you don't go into regenerative stage three and four delta wave sleep. So you never regenerate.

Even if you sleep, you wake up on refreshed like you get in classic fibromyalgia and chronic fatigue and long haul. You know, they can say, like in fibromyalgia, patients have told me a million times, I'll sleep 14 hours.

But I get up and I feel like I never went to bed, I never slept, you know, not getting that restorative sleep. It's not the time sleep. It's the quality and the cycles of sleep that they're just getting disrupted by this hyper vigilant effect.

So there's a lot of things you can do with brain retraining that you can do with more, more in the realm of, somatic work. And like, you know, it's sort of variants of psychological approaches, you know, whether it's mindfulness, mind body stuff, and there's a million, techniques and ways to do it.

And not one works for everybody. You got to find the one that works for that person, right? That's harder in children, I think just inherently because.

Right, right. And and it is. And I talked to parents all the time about using techniques, just simple breathing techniques, simple yoga techniques that kids can do.

And also, you know, there are now like literally vibrators that, that that improve vagal nerve stimulation that you can do with little kids to almost mimic what you're trying to do with the lifestyle changes that, that they may not be able to access at their age, little vagal nerve stimulators all the time, those gaming.

And there's other ones. I mean, there's a lot of different options out there. There's even lower tech ways to do vagal nerve therapy. And, you know, but yeah, all that stuff makes a makes a big difference.

And because some of those things, especially when you get to mind body stuff and, and even breathing and stuff like that, you know, it doesn't seem like it would make a big difference.

But when you do it as a ritual kind of practice over time and it makes a major difference. Yeah, really a simple thing for me. Like ending every shower with a cold shower because, you know, I can't do a cold plunge every day.

But but that simple thing has been a reset that that makes a difference. You know, I know that's the one I hate the most. Nancy. Though I know it's not fun in 20 degree, but weather, but you know, anyway, I was lecturing over in Copenhagen in November and they it was funny, they had all the public like in the rivers through, you know, Copenhagen.

They had all the stands where people would just dive in, plunge in. Yeah, take off their, you know, down to their bathing suit and plunge and then get in and, you know, put the clothes back on in these little huts and then go to work, you know, like, yeah, part of their normal even in the like the nightclubs, like the bars and the restaurants, they had little hats and they'd all get together in a group and they do and they all plunge in the river and then they come back and it's crazy.

Yeah. And the same thing for the kids, you know, they're not allowed inside. Oh yeah. The entire time they are out all the time. And and that's something we need to, to work on here.

But you know you and I agree on diet on sleep, on lifestyle, on all of these other things. But the couple interventions, I think we also agree on just nutraceutical, you know, curcumin and vitamin D fish oil.

Are there there any others that are in your top three five. They yeah in autoimmune disease. And you can see this running through many of my formulations with designs for health in the nutraceutical realm which is I use glycol mix a lot which so I'm using different types of sugars, basically muga polysaccharides and jags and things like that to block immune amplification because we know they work very well at doing that.

One in particular is an acetal glucosamine or what we call neg. And you'll see that in a couple of products. I've, you know, designed many, many years ago for gut healing and barrier integrity, and even newer ones as well for autoimmune disorders, because these are things that they're not unhealthy sugar.

It's not like, giving like, you know, candy here. This is a specific micro polysaccharide formulation that will actually get in the gears between is a little technical, but when you have a an antigen, it could be, you know, a foreign peptide from a food or a bacteria or whatever.

And the immune antigen presenting cell grabs it, particularly if you have an immune system with the right presenting antigens like HLA antigens that make a big fuss about whatever the substances.

Yeah, possess it to a primed T cell that it has to dock. It's like a lock and key, right? It's it's a structural thing. And these micro polysaccharides, when you take them in the gut, they actually coat those those ears, if you will, and they form a almost like a glycolytic like sugar lattice on them.

Yeah. And it means when the antigen gets presented to that prime T cell, it bounces off. It's almost like putting chewing gum in the lock. You can't get the key in to pop the lock.

And popping a lock is what makes the immune system amplify, right? Right. Oh, it's a really cool trick in the body uses that biologically. We figured this out through, you know, normal physiology, but it's just harnessing it in a medicinal way.

And, you know, naturopathic and botanical medicine has done this for probably, you know, centuries if not millennia without knowing that they were doing that.

So when you look at all these traditional or traditionally used herbs in naturopathy medicine for, for sour stomach, they call it, or for upset stomach or gastrointestinal problems, they were often these herbs that they would refer to as miscellaneous herbs because they had a lot of mucin in them, which is Mika polysaccharide.

It's these glycolic glycolic agents. And these are the slippery, slimy things. So like if you ever cooked okra, it's got that like snot kind of stuff.

That's the gold right. So okra cat's cat's claw which is used in lime and all those things. Right. Slippery elm. It even has. Yeah. In the name. Right.

So there's all these great botanicals that can do that. Or you can use in more of a nutraceutical. The actual gag, which is anecdotal to me, so that I mentioned that one.

All the ones you mentioned are great, but that that's just a novel, one that not as many people use in autoimmune applications kind of keep people on some level of that, even prophylactically long term, if they have ever had autoimmunity.

And even in some patients if they don't have an autoimmune disease, but it's strong in their family and they have all the the predictive markers, we can really clean up their gut, keep them with a good barrier.

Integrity, good gut lining, no leaky gut on a really good diet. Get them off. Foods that we know are particularly antigenic like gluten and or maybe dairy.

Depends. And we just keep them on a background level of these micro polysaccharides. That's great. That's great. Another good tip. Yeah. Well, David, you know, I could talk to you for hours and hours and and listen and learn.

But I wanted to, to leave with one of two things. You know, I often ask, is there anything else you want to leave our listeners, our viewers with? But on a podcast you did.

I heard somebody ask you, what is it that you have changed your mind about? So either leave them with a pearl or leave them with what you've changed your mind about.

What would you say to either of those questions or both? Could I say the same thing as I said? Absolutely. I think yeah, I think I know what you're talking about, because that would kind of put me on the spot.

But I just I've changed my, my is part of it goes to this different perspective as you get a little older, you know. Yeah. I changed my mind about being right so much.

You know like I, I, I'm totally okay with being wrong about something and changing my mind much.

## Changing Perspectives and Closing Thoughts

I, I love that you said that by saying it to me what I do, I I'm right, you know, like the I guess it's a young ego kind of driven thing, but, you know, sometimes we just have to rethink it all, you know, and I, I think in one podcast I gave this example, I've had really difficult patient I get patients coming from other functional medicine doctors, you know

like, you know, I don't get easy stuff.

I get stuff that's really harder. Would have been taking care of all the low hanging fruit has been picked. Right. And the reality test and supplements. Right.

So I and I've been patients where I've just gotten in that scenario and I've, they've been a patient mind for a while. We've been working with them. I'm frustrated.

They're frustrated because they're not getting the right kind of outcome that I would have hoped for. And I usually get. I've gone in and introduced myself, as you know.

Hi, I'm Doctor Jones, what's your name? And, you know, no go. Well, what do you mean, what's my name? You know, I'm I'm like, no, you're not married today.

Pick another name. And your doctor, right? No, I'm Doctor Jones. Doctor. Right. No idea what's wrong with you? Clearly. So we're going to start again, you know, as Doctor Jones and whoever, because we need to just rethink this. Yeah.

A mentor of mine once said, you always have to go through the door, not the window. Right. You know, and you, you you may have to rethink it. And, and Syd's mentor always said to him, you know, Doctor Sydney Baker, you know, have we done enough for this child?

And that's. Yeah, we're not always right. We don't have all the answers as long as we keep looking. Yeah. And I don't mind telling people I don't have all the answers.

Not some magic. You know, puberty cures things. We're just. We're kind of coaching you through and trying to help it out and uncover it. And these are complex things.

We're not dealing simple. You know this for that kind of medical scenario. These are complex, multifactorial, chronic metabolic, issues that are not easily solved or, you know, we wouldn't be doing what we're doing.

Yeah. Well, David, it's been a pleasure. Thank you for for all your words of wisdom and for all you do in the medical community and the research and nutraceutical and lab communities.

And and just for your post on all the fun stuff you do, too. Oh thank you. Thanks. I'll get back to you. I'll get back to having fun. It's all right. All right.

Just this was fun, too. Well thank you. Good to see you. Thank you for tuning in to Doctor Talks. We hope today's episode has enlightened and inspired you on your path to optimal health.

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