



Dr. Jill

Your Functional Medicine Expert®
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[#98: Dr. Jill interviews Dr. Debby Hamilton on Environmental Toxins and Treatment](#)

Dr. Jill 00:12

Hello everybody again. I am here with Dr. Debby Hamilton, who's been a long-term friend and colleague and has been in our state for quite a while. I will formally introduce her in just a minute or two.

Dr. Jill 00:25

Just a little background: If this is your first time tuning in, you can find us on YouTube at my YouTube channel. We're just nearing 100 episodes. I think we're on number 98 or something like that. You can watch all kinds of other videos with wonderful professionals like Dr. Hamilton on lots of topics. Lots of them include Lyme-related illnesses, mold-related illnesses, and all these complex chronic conditions that both Dr. Hamilton and I see frequently and [that] are sadly increasing from our environmental changes.

Dr. Jill 00:56

We were just talking before we got on here live—she used to live in my community—about the damage that's happened in Louisville and Superior and how now, [with] the smoke and the wildfires, I'm definitely becoming more aware of those environmentally toxic things. We'll probably touch a little bit on that because it's related to the air quality and that's a huge environmental piece of the puzzle.

Dr. Jill 01:15

You can also find me on iTunes, Stitcher, or anywhere you find your podcasting, and you can listen to all these episodes. It's just audio there. If you need any free resources, I've got loads and loads of articles at JillCarnahan.com, and you can visit DrJillHealth.com for products.

Dr. Jill 01:31

For full disclosure, Dr. Debby Hamilton works for Researched Nutritionals—one of my very favorite companies that provides nutritional support. We're coming here with great education for you, but we may mention products because these are

things that I use in my clinical practice. And I told Dr. Hamilton, feel free to mention [them]. She's formulated a lot of these products. And I have the greatest respect, not only for her as a clinician but also for the fact that some of my favorite stuff that she's helped to formulate comes from Researched Nutritionals. We might talk about that. You can find more information at their website at ResearchedNutritionals.com, but you can also find the products on my website, DrJillHealth.com. And of course, I'll link up to those.

Dr. Jill 02:12

Let me quickly introduce Dr. Hamilton and then we will jump right in. Dr. Hamilton is a medical doctor with a master's of science in public health. She treats hundreds of children with autism and ADHD. She's triple board-certified in pediatrics, integrative medicine, and physician nutrition. I've heard her speak all over. She's a wonderful educator. What I love about you, Dr. Hamilton, is that you have a humility and way of going about this. You certainly don't proclaim your own greatness, but you are amazing and I really respect you.

Dr. Debby Hamilton 02:48

Thank you, Jill. I appreciate that.

Dr. Jill 02:49

I really do. I have the greatest respect. Especially in these tough cases with children, you treat a lot of children. I love story, if you want to share a little bit about: How did you get into medicine? How did you get into autism, ADD, and your board certifications? Tell us a little bit about your journey to where you're at today.

Dr. Debby Hamilton 03:08

I am in medicine because I was born with a heart defect in a time when some of the heart surgeries were early. I had a female pediatric cardiologist and I wanted to be like her. Nobody in my family is in medicine, health science, or anything. But I thought about my whole life. I majored in research in nutrition and I did my public health, so I've always been interested in nutrition. I had some of my own health problems and family issues, like most of us who get into integrated medicine. I'm from Connecticut. I had Lyme disease, and it went into rheumatoid arthritis. Then I took one of the medicines and ended up with a salmonella infection in my blood and almost died. So it was like, "Okay."

Dr. Jill 03:56

Was this for medical school or during? What time period?

Dr. Debby Hamilton 03:58

This was after I had my child, so 20-plus years ago. Then I have family members with a lot of learning issues: ADHD, dyslexia, and sensory integration. I used to joke that I saw all the different practitioners in Boulder, like, "Oh, let's try acupuncture" and "Let's try naturopathy." I finally ended up at the AHMA meeting, and I was like, "Oh my God, there are doctors like me." I felt like I found my tribe. So I thought: "Okay, I'll just open the practice."

Dr. Jill 04:33

I love that. I don't know any of the great doctors in our realm, in our world, who haven't had a journey either personally or with loved ones. We've got a great medical education. I always say that I'm very proud of the fact of my medical education and yours too, because we have this great foundation and a system that does a lot of good in trauma and acute illness or heart attack. However, what we all come up against is the limitations of drugs and surgery. There's a place for them, but then there are also places where there are huge limitations with chronic infections or psychiatric diagnoses like you mentioned.

Dr. Jill 05:13

I always think of it as the infectious burden and the toxic load, and there's a lot of talk about those two pieces of the puzzle. Unless you go deep and look at the root cause, there are not a lot of solutions with drugs. They have their place, but it's not the answer. And it's not usually the cure. It sounds like your journey was very similar.

Did you choose pediatrics based on your experience as a child and then go into that?

Dr. Debby Hamilton 05:37

Absolutely. I thought about family practice. Then I realized that "I really like kids, and I really want to treat kids." Especially the elderly, I'm like, "I don't know." It was a natural fit. At one point I thought: "Okay, I'll be a pediatric cardiologist." And then it

just fit. Then I did some holistic primary care and I practiced in Boulder. Some of it came out and then I became much more of a consult. Now I just do chronic kids. In the 17-plus years of doing this, kids are getting sicker and sicker. I feel like we have so much more in our environment that is affecting these kids.

Dr. Debbie Hamilton 06:21

And 20 years ago, regressive autism—there were a lot of kids with whom you were like, "Okay, they have recovered." They'd get better. And I feel like maybe the longer you practice, the harder kids you get, or the harder patients. People refer you—some of the patients that are the most chronic. I hear that from my adult doctors too—that people are just getting sicker and sicker.

Dr. Jill 06:42

I could not agree more. Yes, I remember back about 20 years ago when I started in integrative/functional medicine, there'd be some with hormone imbalance or Hashimoto's thyroiditis, and three months later, they were better. They didn't have to come back and see me, and now it's just over and over. Adults as well. But like you said, the children are bearing the brunt.

Dr. Jill 06:59

Let's talk a little bit because this is definitely going to be part of our conversation today: Environmental toxic load. I agree, that's the elephant in the room. It is exponentially increasing. We think the EPA is protecting us, but it's not testing every chemical. The bigger thing is that a lot of these are synergistic so there are thousands of combinations of chemicals. We know from the research that there's this biphasic curve where very low levels of synergistically [interacting] chemicals can affect our hormones in a hermetical way that is not measurable in the toxicology literature.

Dr. Debby Hamilton 07:31

Right, completely different.

Dr. Jill 07:33

Talk a little about environmental toxic load and how you see it playing into your [practice], especially with these children.

Dr. Debby Hamilton 07:40

The other thing is that from a pediatrician's standpoint, if you think about a baby, a baby is about seven or eight pounds. If you think about the exposure based on body weight, things can be so much more toxic. Their detoxification pathways aren't mature. They're not able to handle as much. You're also developing your growing brain. You have this whole neurologic system. You think about [how] a lot of these chemicals aren't studied for neurotoxicity. I think that's added. Or you think about the exposure of pregnant women and babies in utero and their exposure and how that all adds up.

Dr. Jill 08:18

I think like 20 years ago out of Canada, there was a study on cord blood that showed 200+ chemicals when a baby's born. They tested the cord blood, and the babies were born with 200+ chemicals. This was two decades ago. I can't imagine how much worse it is nowadays. Do you ever talk to mothers, preconception?

Dr. Debby Hamilton 08:38

I do. I don't know if you remember, but I did write a book. I saw these healthy Boulder moms and then I saw my kids with chronic autism. I started to look at the moms and their histories, and the moms were sick. They all had autoimmune disease, asthma, and all that other stuff. I think preconception is very important. I do talk to moms about that or pregnancy because you have to have a mom-to-be healthy. Anything in her body is going to be transferred to the baby.

Dr. Jill 09:08

Yes. Let's talk about this for a second. Say we were talking to those listening out there and they are thinking about having a family or maybe they had one child and they want several more. What kinds of things would you bring to their awareness if they want to get pregnant and have a healthy baby? Because you and I, I'm sure, agree that during pregnancy, we don't want to detox a lot.

Dr. Debby Hamilton 09:25

No, absolutely not. That always frightens me.

Dr. Jill 09:30

Yes, me too. What would you tell a mother-to-be about environmental toxicity or what she could do?

Dr. Debby Hamilton 09:38

One of the number one things I always talk about is organic foods, especially if you look at how glyphosate levels have increased and some of the rates of some of our diseases, including autism, celiac, Alzheimer's, and all of this. I go back and go: You have to clean up your diet. You have to eat organic foods. You need to check your levels. What's your vitamin D level? What are your iron and zinc [levels]? What are you going into? Starting a good prenatal and omega-3s.

Dr. Debbie Hamilton 10:08

Then getting your gut in good shape—the whole microbiome. When the baby is born, they get all that good bacteria from the moms. If the mom has chronic IBS or problems, the baby's going to start life with an abnormal microbiome, essentially. And then all the toxicity: What are you putting on your skin? What are you using to kill weeds in your garden? But I think about all those personal care products and sunscreen and how much you absorb. Environment, gut, and nutrition are essentially the basics.

Dr. Jill 10:43

Yes, great, great things. Most of my listeners have heard I had breast cancer at 25, and I'm in the midst of writing my book, which is a lot about my history. I have my dad's chemical record. I grew up on a farm.

Dr. Debby Hamilton 10:57

Oh, I was about to say, I know you're from the Midwest.

Dr. Jill 10:59

Yes. We found his handwritten journal of the chemicals he used in the year I was born. And it reads like an addendum of the toxic endocrine disruptors. For those of you listening, endocrine disruptors mean they have hormone-like effects on the body. For someone like a young woman, breast cancer risk is definitely affected. Those breast cells get stimulated by chemicals that look like estrogen to the body. Atrazine was on there.

Dr. Debby Hamilton 11:26

Oh, wow!

Dr. Jill 11:26

Yes, it was a form of atrazine, which is absolutely a massive toxic chemical.

Dr. Debby Hamilton 11:32

Right, toxic, yes. That's interesting. I've had moms who've had severe pesticide exposure and had kids with autism. We couldn't find other things. A lot of infertility. You're right—the hormonal effects. The same thing.

Dr. Jill 11:46

And you think about 25-year-olds with breast cancer. Those cells started to do weird things probably at [age] 15 or 10—years before.

Dr. Debby Hamilton 11:53

I have no doubt. [inaudible]

Dr. Jill 11:57

Exactly. I probably had exposure in utero. I don't have evidence, but it's very likely. Who knows? But either way, it's interesting to learn because then we can talk to moms and those kinds of things. I love that you started with organic food because a lot of the source is from pesticides in our food supply.

Dr. Jill 12:15

I was just reading an article today from the Denver Post about PFOA—the Teflon, basically—in the water supply. These are permanent. They're called forever chemicals; they don't break down. Some of the companies—I won't mention any names—were caught dumping these things in our water supply. With the drought, they're finding traces, and it's hard to get rid of.

Dr. Debby Hamilton 12:39

They're very hard to get rid of. When you mention the Environmental Working Group study, they found chemicals in babies' cord blood that hadn't been produced in 20 years. They weren't even actively used anymore, but they're still in much of

the environment that moms are carrying them and transmitting the babies. That always struck me, like: "Oh my gosh!" You're right, you can't get rid of these.

Dr. Jill 13:02

Yes. Agent Orange and some of the old chemicals [such as] DDT and stuff that are not around, they're still in our environment. Maybe talk a little bit about, for our listeners: What are these persistent organic pollutants? What does that mean? Because that's a big piece of the puzzle of the persistence of the chemicals.

Dr. Debby Hamilton 13:17

I always think of some of the persistent ones and some of the hormonal things. But I think they get into our fats and our fat cells and they're stored there. If you think about heavy metals and lead in the bones and stuff, I feel like our body can only get rid of as much as it can, and that varies by individual. What it can't get rid of, it tries to store away from circulation. In some ways, I think it's trying to protect us by storing it. But then you still have ongoing effects from it because they're still in your system. You still have it in your body. That's how I think about it.

Dr. Jill 13:50

Perfect. Say you do think you have a toxic load, which honestly, we all do.

Dr. Debby Hamilton 13:57

I agree. We all do. Absolutely.

Dr. Jill 14:01

To some extent. I'll give a personal example. Last year, I had a little bit more mold exposure with a friend, so I've been detoxifying. I'm in good shape now. But what I noticed [was that] just a year ago, I would do sauna, no problem—30 minutes, pretty high temperature—now I think my load is up a little because when I do sauna or anything where I'm pushing detox, I will feel tired and not well unless I take the binders right away. Way more than I used to. What happens with those is we're sweating and excreting them from the tissues and they can go into our bloodstream before our kidneys, lungs, and liver excrete them out of the body through the stool, the urine, and the sweat. For my example, I was probably mobilizing them and yet not excreting them as fast as I needed to and I didn't feel well.

Dr. Debby Hamilton 14:50

Right. Basically like a die-off. We consider that a die-off reaction. Your body can't get rid of it. That's what we see with a lot of our patients because their detoxification pathways aren't that good. That's why we can all be exposed to the same thing and some people are sick and some people are not as sick. Or not yet, maybe. That's what I think about when you say "the toxic load." A toxic load in one person, they can tolerate it. The people who are 90 and still smoke cigarettes. But that's not most of us.

Dr. Jill 15:23

Yes, genetics play a lot into this, like you said. That's why some children develop autism, ADD, or other symptoms from the adults that develop autoimmunity or more gut issues, neurocognitive issues or early dementia. A lot of times those are the canaries; those are the ones that are much more susceptible. I'm one of those. We talk about a bucket. I'm sure you talk about this with your patients as well. It's almost like we're all born with a capacity to detox a bucket and we all have different-sized buckets. When that bucket starts to fill up over our lifetime, it starts to spill over the top with disease and illness and some of us have smaller containers so that it doesn't take as much for us to overload and spill over the top.

Dr. Jill 16:01

We'll switch next to some of the things we can do about this. But one of the ways that we decrease load is if we can decrease that load in the bucket and lower the water level, all of a sudden we create margin. Once we have margin, we can function. Our bodies are made to detox; we are created as detox organisms if we just help and assist in bringing that level down. Let's talk about some of your favorite ways [to detox]. Let's say you have a child with autism that has a toxic load. First of all, maybe testing. Do you do testing?

Dr. Debby Hamilton 16:30

Yes. In some ways, like you said, sometimes you just assume. I have done different urine panels for mold, mycotoxin panels, and urine panels because, in a child, urine is easier to get than blood. Like I've been telling you, you start with nutrition and start with allergies and treat the gut, and then look into the mold, the chronic infections, and the toxins as I go along. But do look at it. But when I've done the test, I've never found anyone who doesn't have some toxin burden, so I feel like, "Is

that right?" I also look at heavy metals and I do challenge tests and hair tests and all that stuff. I find a lot of that also done in myself. I grew up eating seafood on the East Coast. I have mercury; I just do. I grew up in old houses. I have lead.

Dr. Jill 17:27

Yes. I love that you said that because that's the truth too. No matter who I test, including myself, I've never gotten a test that has no toxin at all; you don't see it. We know we're all swimming in this toxic soup. In the beginning, I loved that you talked about a clean organic diet. I always talk about clean air; I'm sure you do as well. Water, clean air, clean food. Sometimes it gets overwhelming to either doctors or patients, like: "Okay, what do we do? There are like 10,000 toxins in the environment and this toxic load." It can feel overwhelming not only to the patient but to the clinician.

Dr. Jill 18:03

I always think, "Gosh, let's start simple." Like you said, you start with just eating clean because a lot of it has to do with what you put in your body. If you can keep that in a good space—you're eating organic, you have air filters in your home and workplace or wherever you sleep at least, and you're drinking clean water—just that alone is a huge thing to decrease the burden. Granted, there are other protocols that are more complex to detoxify, but if you're limiting what comes into your body, that's a great way to start and it's not very hard.

Dr. Debby Hamilton 18:31

With my population—kids with autism with sensory issues and eating issues—that's not always as simple as you think. We have kids who come to me and I'm like: "You eat five foods and they're all white." You have to look at things and the organic. But as I said, you can't get around that. And the parents who can make diet changes and clean up the kids' diet—even if it's five healthier foods—these kids do well. Or, like I said, what you put on your skin too, [inaudible]. As I said, I'm always trying to start with the basics and start with the gut because I want to make sure they're absorbing their food if you're giving them good food. Also, if you're cleaning up their system, at least to start, hopefully, they'll start to naturally detoxify. I do use glutathione; I use things that support the liver and kidneys. Glutathione is one of my big ones. The first visit I probably don't because I don't know all of [inaudible].

Dr. Jill 19:28

Let's mention that briefly because Researched Nutritionals has a great product with glutathione. The best thing is the taste, right?

Dr. Debby Hamilton 19:35

Right. I wish I had that one but I didn't. We do have taste tests in the office. It's called Tri-Fortify Liposomal Glutathione. One of the containers looks like it's a suntan lotion but it's not. But there's watermelon or orange. And glutathione is a sulfur-based compound, so it really doesn't taste good. But you need it in some form that your body absorbs. Liposomes have the fat. But watermelon or orange. And watermelon tastes—maybe I'll age myself—like a Jolly Rancher candy, honestly. I've been able to get that in. And there are other glutathiones that I literally couldn't get in the kids. And sometimes you can mix other stuff in it because it's sweet. So open up some of the other supplements and mix it to get that in kids also.

Dr. Jill 20:19

That's one thing I love. If you saw me looking around, I'm just making sure. If you're listening live here, I'm going to put the link there so you guys can see what this is. I was putting that in our chat box and you can share that.

Dr. Debby Hamilton 20:38

Yes. Oh, good. Okay.

Dr. Jill 20:29

So that's there. Like you said, watermelon—people love that. I always say it tastes like watermelon Jolly Rancher.

Dr. Debby Hamilton 20:34

Yes. It's a little sweet for me. I prefer the orange. But the kids in general always start with the watermelon because that seems to work the best.

Dr. Jill 20:43

Like you said, glutathione by nature has a bitter [taste]. It's sulfur-based, so any of those things are not very tasty. It's hard to hide it. And I don't know of anyone else on the market that has a better-tasting product.

Dr. Debby Hamilton 20:55

I have not seen one either. Like I said, I've had kids, and I've tried every one. It makes a difference.

Dr. Jill 21:02

So that's a great place to start. I want to talk about mold, specifically, in a minute because you've got some unique new things. But talk about a general detox. You said liver support. Is there anything specifically besides milk thistle? What would you use?

Dr. Debby Hamilton 21:14

I always think of glutathione. I do. And I have used what I call drainage formulas in terms of kidney, liver, and lymph. Those are easy. You can do a few drops in terms of kids. I want to make sure that their vitamin D status is good and they've got a good immune response. I see a lot of low zinc. I was trained in researching zinc.

Dr. Jill 21:40

Zinc and magnesium for the metals are so critical and so many patients are deficient.

Dr. Debby Hamilton 21:48

Right. And those are the number ones. I use zinc and magnesium all the time with my kids. As I said, I do want to get them in a healthier state because if they already have poor detoxification... What I've seen in my kids is that if you start and detox them right away, you're going to make them sick. You have to open up their pathways. I also think about getting inflammation down, and glutathione is also for oxidative stress. All those free radicals—I think of them like attacking tissue. Apples turn brown; they're rusting. Getting inflammation down, getting oxidative stress down. In some ways, getting them ready to detox so their bodies are as strong as they can be in order to detox. One thing you mentioned with kids and autism is they have a PON1 so they can't detoxify pesticides very well. I think pesticides are worse for them. They've done studies on it and have shown that it's pretty high. And I've seen that.

Dr. Jill 22:45

That's a gene you're talking about—PON1. I know I have one of those too. We were

talking about mutations before. But you're saying that [with] children in general, even if they have no mutations in that gene, it doesn't function as well. Is that what you're saying?

Dr. Debby Hamilton 23:00

Oh, no. [inaudible] doesn't function well either. We have to think about [how] these are not small adults.

Dr. Jill 23:08

Yes, exactly.

You mentioned inflammation, and there are two products in your line that I love so much and want you to talk a little bit about: HistaQuel and CytoQuel. Those are great products.

Dr. Debby Hamilton 23:17

Oh, yes. I can't take credit for CytoQuel, but we did do a study on inflammation. CytoQuel is a combination of curcumin in a highly absorbable form, resveratrol, EGCG, NAC (N-acetyl cysteine). As I said, we did have a study that showed that it decreased pain in people. We had people with chronic pain and inflammation and also some of the fibrin. It affected von Willebrand factor and fibrin in terms of inflammation and muscle health and decreased blood pressure. I think of it also as cardiac support along with anti-inflammatories. HistaQuel, as I said, I did help develop that in terms of mast cells. Half of it is flavonoids. Quercetin—people know. [It has] a form of quercetin that you can absorb better because a lot of times if people just take random herbs, you don't know if it's absorbable.

Dr. Jill 24:15

Yes, turmeric and curcumin, in general, are not bioavailable unless you put in a liposome or something that helps enhance absorption, right?

Dr. Debby Hamilton 24:23

Right. Exactly. As I said, quercetin is the same way. People are like, "I've taken something; it doesn't work." The more I've learned about it, you really have to take stuff that is high quality, the right doses, and the right combinations, or it doesn't

work. Then people are like: "Oh, it doesn't work," and I'm like, "No, it does, but you have to..."

Dr. Jill 24:42

It does but maybe I shouldn't mention retailers that are in the corner stores, but they don't have as good [a product]. Really quickly here: There's professional grade, like the company you work for and others that we use and then there's supplement grade. There's a big difference in quality, so you want to make sure you're getting that professional grade, either from a pharmacy, physician, or some reputable company. Some of them are direct to the consumer now; it doesn't have to be through a doctor. But the quality really does matter.

Dr. Jill 25:11

I love HistaQuel for the mast cell kinds of stuff like you said. You mentioned this earlier, but you almost have to do it in order. You have to calm the mast cells and calm that inflammation often before you do heavy detox. Let's say someone has a mold-related illness. You have to make sure that the mast cell histamine component is under control because otherwise, it'll react to your treatment protocols. And the HistaQuel is really good for that. Even something like heartburn could be histamine-related—often the congestion, the sneezing, the itchy eyes, skin rashes, eczema, allergies, atopic stuff. And then gut permeability is driven by histamine, so a lot of kids will have this massively permeable gut. And until you calm that histamine response, you can't do much for the gut, right?

Dr. Debby Hamilton 25:54

Right, because as you said, they react to herbs; they react to everything and you don't get anywhere. And these are the really sensitive patients.

Dr. Jill 26:02

I love that you started there.

Dr. Debby Hamilton 26:03

Right. You have to calm the system down so it doesn't react to treatment but also so people feel better and get better. But it is step-by-step. The other thing about HistaQuel is it does have other flavonoids like luteolin and perilla.

Dr. Jill 26:20

I love perilla.

Dr. Debby Hamilton 26:22

When I make a product, ingredient by ingredient, I look at the research. What is the research on quercetin for mast cells, allergies, eczema, and atopic disease? Perilla is one that I didn't know about before. I looked into this and I was like, "Oh," and then luteolin. The combination of quercetin and luteolin has been studied a lot in autism. Then thinking about mast cells, when they release histamine, histamine binds to receptors. You think about antihistamines like Benadryl. What are natural histamine blockers? Think about the stinging nettles. That's kind of like a histamine blocker. So I thought, "Okay, well, if we can block some of the histamine and do things that..." The flavonoids inhibit the mast cells from releasing their mediators, histamine, and a lot of other inflammation markers. That was the goal behind it. So it's nice to hear that—

Dr. Jill 27:17

It is wonderful. And like you said, if we think about medications, we have mast cell blockers and mast cell stabilizers. That would be like Singulair, Montelukast, or ketotifen. Those are often used in clinical practice. Then we have the H1 and H2 blockers like Zantac and Zyrtec, Allegra, Claritin—and those on that end—and Benadryl. This is like a natural product that tries to combine all of the different pieces of that. I love that because we need both pieces. The mast cell is upstream so if we can stop them from blowing up... Otherwise, we're mopping up the histamine afterward, which can be helpful, but...

Dr. Debby Hamilton 27:55

Yes, it's like allergies; if you want to treat somebody with seasonal allergies, you start ahead of time to prevent everything from going on. The idea behind our products is that we want multiple-mechanism action. We think about: What are the mechanisms in action here? How do mast cells cause issues? In what ways can you treat that? So it's based on that. Our products are like: Okay, there's a problem with mitochondria; there's a problem with mast cells. What are the ways we can target it? And what does the research show?

Dr. Jill 28:26

Yes. And they're well thought out. I want to briefly talk about CytoQuel because we just got through a pandemic that's all about cytokines. I feel this is one of those things that's been helpful either during or post-viral infection to calm that cytokine response, especially even for some of the long COVID patients that have this perpetual cytokine. That's common not just to this virus that we've been talking about but to other viruses, other infections, Lyme disease, co-infections, etc. That cytokine response is almost like a runaway train. When the body starts to do this, it's a vicious cycle. And unless we block or stop that cytokine response... It might be the virus, the infection, or the Lyme is long gone—it's not always inactive—but that body's ability to go crazy with the inflammation is one of those things that's hard to treat. What's in the CytoQuel? You mentioned turmeric.

Dr. Debby Hamilton 29:20

Yes. Curcumin, a form of resveratrol, EGCG, tocotrienols—the more active vitamin E—and N-acetyl cysteine.

Dr. Jill 29:31

Awesome. And then mold. We know that you can get charcoal over the counter. That's great. I love charcoal, but I feel like with mold and toxins, binders are so key. Maybe start first with: Why do we need binders? Why is the gut a critical place for this to happen? I definitely want to talk a bit about ToxinPul and MycoPul because they're fairly new and they're well thought out. We're loving these.

Dr. Debby Hamilton 29:59

Oh good, that's great to hear! I think with the binders, your body is naturally trying to get rid of things, as you said. The GI system is a major issue. The problem with the GI system is it's designed to save bile [and] not get rid of resources. It reabsorbs things. The body's like: Okay, I'll get rid of that mycotoxin, and it's bound to bile. And then it's reabsorbed in the body, and it's like: Oh, I need that bile. What the binder does is displace that mycotoxin and bind the mycotoxin so that is not reabsorbed and is taken out of the body. That's how I think about it: Enterohepatic circulation.

Dr. Jill 30:39

In other words, I always say it's like a merry-go-round and it works really well. You

have to grab it outside of that cycle and pull it out through the stool. Our bile is made to absorb the cholesterol and reuse it but also toxins. It is a reservoir for toxins. And if we don't interrupt that with a binder that has a charge that grabs on and escorts it out of the body, it's just recycling and recycling really efficiently, but we're not getting it out of the body, which is what you were mentioning.

Dr. Debby Hamilton 31:08

Right. Your body's trying but you're right; it's also designed to preserve resources, essentially.

Dr. Jill 31:12

Tell us the difference between ToxinPul and MycoPul. MycoPul is a little more mold-related.

Dr. Debby Hamilton 31:10

MycoPul is designed specifically for mold, the mycotoxins. There are different kinds of mycotoxins. There are more different kinds of molds. Different mycotoxins bind to different binders. Some have more affinity. The idea was: How can we look at what are the major mycotoxins and what are the binders that are best for them? And then the other idea of the MycoPul was that a lot of these binders are from the soil, dirt, and everything else, and there could be toxins in there. So you want to make sure your binders don't also have toxins. We wanted to make sure we cleaned products and there weren't extra lead and all the other stuff. I talked to different doctors who treat mold. One was like: "If I built a mold binder, I'd want this and this and this." Then we looked into this, and that was how we looked at that.

Dr. Debby Hamilton 32:21

ToxinPul is partly an update of another product that was designed for heavy metals. Looking at the pesticides, specifically glyphosate, how do you get rid of some of these? There are some different ingredients, and humic acid and folic acid, which are in both. I researched about binding the glyphosate, and they use it in agriculture to protect the animals. We looked at some ingredients that, if you're trying to get a detox, there are ingredients to support the liver and there are ingredients to support the kidneys. Looking at the research for glyphosate and then heavy metals. And then thinking about aluminum is a huge issue. It's in vaccines. It's in deodorants. It's in a lot of things.

Dr. Jill 33:09

I want to stop really quickly. Clinicians, if you're listening, or patients, if your doctor doesn't check your aluminum level, you can check whole blood aluminum fairly easily in any lab. And of course, urine excretion is all great, but if you want a quick and easy way to check an acute level, it's worth checking. I have seen a lot of people with high aluminum levels and it's not even in the common five-metal panel on Labcorp. It's something that you can write in, but it's super important. I'm seeing a lot more aluminum toxicity, and we know it relates to dementia and Alzheimer's and it accumulates in the brain. So I love that you mentioned that.

Dr. Debby Hamilton 33:43

Yes, I see aluminum a lot. And I've seen it on hair tests. I've seen it on a lot of different testing. Our kids are exposed, and it is a neurotoxin. The other thing about it is that if you have it with glyphosate, glyphosate damages the gut. And it helps the aluminum pull into the system, which is how I think it increases the issues of Alzheimer's. In a lot of ways, autism has a lot of the same neuroinflammation as patients with Alzheimer's. You really want to [inaudible].

Dr. Jill 34:12

It's very parallel, isn't it? It's like brain inflammation in all stages of life.

Dr. Debby Hamilton 34:16

Yes. Which I think is frightening when you think about some of your earliest stages of life and how much neuroinflammation they have. There are many layers.

Dr. Jill 34:24

Exactly. A quick funny story about the ToxinPul: When we first talked to your company about the newer products—this was maybe six months or so ago—the next day my brother, who's still farming, called me or texted me and said: "Hey Jill, the tank of chemical dumped on me." They're mostly organic and they're all non-GMO, but they still use some chemicals. Once in a while, they have a spill and he's like, "What should I do?" In the mail that day I got a sample of the ToxinPul and I was like: "Take this." I sent it right off to my brother.

Dr. Debby Hamilton 34:58

Yes, that's great. That's great. And the other thing is, in terms of ToxinPul, when I detox people, I use glutathione also. They just go together, in my book.

Dr. Jill 35:08

Yes. That's a great point because if you have a binder and you're not pushing the toxins, that doesn't do any good. If you push the toxins, you need something like a mop or a sponge to help your body. That's a great, great point. And then if we are using glutathione, we need the binders and vice versa.

Dr. Debby Hamilton 35:23

Right. Then, as you said before, I don't detox pregnant women.

Dr. Jill 35:26

Yes. Yes, exactly. Do not, because you're going to just [inaudible].

Dr. Debby Hamilton 35:30

But if you can get a woman six months to a year before and do a good detox, think about going into pregnancy in such a healthier state.

Dr. Jill 35:39

Absolutely. Let's talk a little bit about one other thing that I love and that you guys have: Formulas for mitochondria. They're some of my favorite ones. Do you want to talk a little about some of your favorites for energy?

Dr. Debby Hamilton 35:51

Yes, ATP 360. We had ATP Fuel, and there's research on that. The ATP 360 is the next one. We do have research on that in terms of helping fatigue, so clinical symptoms, and also helping mitochondria. It's great because I've been treating mitochondria. That's a dysfunction. That's a huge issue in a lot of people—a lot of kids and adults. I was like: "Oh, I want this ingredient. I want this ingredient." And you put here and there. And there are some other formulas that I saw complete. I was like: "PQQ, we learned more about that, and some NAD, CoQ10, and Carnitine. But also all those cofactors, all those B vitamins." We were able to put it together and then do research on it. That's the one that [inaudible].

Dr. Jill 36:42

And I love it. It's my go-to when someone is saying: "I'm really tired." They might have all the other things going on. But I know that mitochondria are key. I want, like you said, carnitine, NAD, and the B vitamins. What's great about that is that it has everything in one. It makes it easy to get them. Here's a product; try this. I see really good results with people. People come back and say they feel better with more energy, so I love those.

Dr. Debby Hamilton 37:08

And the phospholipids. I almost forgot the phospholipids. If you think about the mitochondrial membrane, it's made of phospholipids like phosphatidylcholine. Part of the mitochondria not working is having that cell membrane damage. That's where some of the final energy production is—getting those phospholipids too. That's another multi-mechanism.

Dr. Jill 37:30

That's so key. For mold, especially. Mold and chronic inflammation, infection, all these things we're talking about. Let's shift just a little because I know you and I both sadly see more and more cases of tick-borne infections and infections in general. Like I said at the beginning, toxic load and infectious burden are at the core of almost all the chronic complex patients that Dr. Hamilton and I see. We have to deal with the toxic load for sure, but often because the toxic load weakens the immune system, these underlying infections could be Epstein-Barr, CMV, herpetic viruses of all types, and Lyme like *Borrelia*, *Bartonella*, and *Babesia*.

Dr. Jill 38:10

I mentioned this before: I started using a couple of products for my Lyme patients, especially the more maybe not complex ones and I've had good results. One of them is a liquid tincture called BLT. Like I said, I've had good results. And then Microbinate—did you help develop my Microbinate?

Dr. Debby Hamilton 38:27

No. Microbinate is the more general antimicrobial, and that's in capsules. Now we have a yeast tincture that came out, Elim-A-Cand, that I helped develop. We have Myc-P, which is mycoplasma. But if you look at the ingredients, it's great for *Bartonella*.

Dr. Jill 38:44

I love Myc-P!—because I see these mycoplasmas, IGM, IGG, or whatever. If you have Lyme or co-infections, almost 90% or more of patients with that also have mycoplasma, or Chlamydia pneumoniae, which are atypicals; they often reside in the lungs. They typically start with atypical pneumonia, and these are tough, and they can contribute to chronic fatigue. My one-two punch for mycoplasma: Myc-P drops and the Transfer Factor PlasMyc. I love those two products. Let's talk Transfer Factors. I almost forgot.

Dr. Debby Hamilton 39:21

The other thing: The Myc-P and the PlasMyc are my go-to for PANS/PANDAS. The PlasMyc covers Borrelia, but it covers mycoplasma, staph, strep, EBV, a lot of the viruses, and candida.

Dr. Jill 39:39

Oh, amazing! Yes, I have real success with it.

Dr. Debby Hamilton 39:40

Then the Myc-P—a lot of these kids have multiple infections because their immune system isn't working, so they have all these different infections. Sometimes it's hard to figure out what they're reacting to. That, to me, has been some of my best combinations. I use the Multi-Immune, the general, Transfer Factors also. So I use both of those.

Dr. Jill 40:01

Transfer Factors. You guys have all kinds of transfer factors. That's very unique about the company, and they're super helpful. What we just talked about is these things that weaken the immune system. We fight the infection with some of these herbal formulas, but one of the other things we need to do is [consider] How do we support that immune system?—because that immune system, if it kicks in, sometimes the patients don't need forever treatment if their immune system gets back on track.

Dr. Debby Hamilton 40:22

Right. It's like you're getting their nature back so that their body works the way it

should. The way I describe Transfer Factors is that a lot of people know that the immune cells, B cells, make antibodies. That's what we measure. That's one part of our immune system. But T-cells make transfer factors. They're like small little antibodies but for different parts of the immune system. Our immune system was designed that way. They're good in terms of the T-cells that help fight viruses—that first-line infection. They help increase natural killer cells, which is also one of our first-line infections for viruses.

Dr. Debbie Hamilton 41:01

For a lot of people, their immune system is imbalanced and they can't fight these infections. Transfer Factors are great at getting the immune system up so the person can fight infections. They're even good acutely, and you can dose them up. We have the Multi-Immune, which also has colostrum, mushrooms, astragalus, and all sorts of different ingredients. For acute infections, three [capsules] three times a day—it's amazing. You can get through a cold.

Dr. Debbie Hamilton 41:30

And we do have research that shows that it increases lymphocytes, both B and T cells, and increases natural killer cells. It even has some modulating effects, increasing interleukin 10, which helps balance our immune system. That's one of my basics too in terms of getting the immune system and then doing PlasMyc targeted ones, which are very specific for infections.

Dr. Jill 41:56

Yes, so the PlasMyc is more of that mycoplasma. But like you said, it covers a broad range. Then there's the L-Plus. Is that right?

Dr. Debby Hamilton 42:02

Yes, L-Plus.

Dr. Jill 42:03

I love that one as well, and I'm using that one for reactivation of Epstein-Barr as well. In the pandemic, we've had a lot more reactivation of Epstein-Barr. I think a lot of patients who are suffering after maybe being infected are having reactivation of old viruses.

Dr. Debby Hamilton 42:24

Yes, and reactivation of Lyme too. But yes, a lot of Epstein-Barr. And that's my go-to combination, the PlasMyc. And I dose that high. It's two capsules a day, but I dose that higher. And I've used [inaudible], and I've used both together.

Dr. Jill 42:39

Beautiful. Would you do four or six a day?

Dr. Debby Hamilton 42:42

The Multi-Immune—I've gone up to 9 a day acutely. The PlasMyc also helps for herpes; people who get cold sores. Yes, up to six a day, easy.

Dr. Jill 42:56

Fantastic. This is so fun because, like I said, I do love that. Any other tips or tricks? We talked about detox and we talked about some of the things there and some of the latest and greatest. We started with MCAS, mast cell, and histamine. Then we went into detox.

Dr. Debby Hamilton 43:13

It's a lot of things.

Dr. Jill 43:14

Right. Anything else that you've seen in clinical practice or that you feel like we haven't touched on?

Dr. Debby Hamilton 43:25

Candida overgrowth is very common.

Dr. Jill 43:27

That's a good one. That's so huge, yes.

Dr. Debby Hamilton 43:30

The Elim-A-Cand—cinnamon, clove, and berberine. We didn't realize how powerful it was. You've got to start slowly. Don't go too fast. But I think that that is something that we just came out with. We do have some brain formulas, the BDNF Essentials. I made it so as a calming formula. I made sure there were no ingredients that people

could have an adverse reaction to or get agitated with. It's great for ADHD. It's very calming. I've had some good success with it for people post-concussions.

Dr. Jill 44:05

Wow. That's great because the BDNF is one of the growth factors that helps after brain damage or concussion.

Dr. Debby Hamilton 44:12

Any kind of brain damage—autism, ADHD, Alzheimer's. But Alzheimer's, as you get older, you're like, "What's that word again?"

Dr. Jill 44:20

Exactly. This is fantastic. You are such a wealth of knowledge for us and so appreciated. It was fun because we're in Boulder. And you're still mostly in California, taking new patients in California and Colorado? Tell us a little bit about your practice.

Dr. Debby Hamilton 44:38

I was in Colorado for the long term and then came to California, but I still go back once a month and see patients. I have a license in California but I haven't seen anybody in person around the office here. But I am doing telemedicine. I definitely do that too. One benefit of COVID is that people have better access. So that's good.

Dr. Jill 44:59

Fantastic. And where can people find you? Do you have a website or a page they can visit?

Dr. Debby Hamilton 45:03

Usually by email. I do have a website that's been updated. In terms of Researched Nutritionals, my email is dhamilton@researchednutritionals.com or drdebby@holisticpediatric.com. Those are the best ways to reach me.

Dr. Jill 45:22

Fantastic. Thank you so much for your time and your wealth of knowledge. Most of all, you're giving tools to us, like myself, practitioners in the trenches, and I know you're using them too. I have a lot of appreciation just because I can't do what I do

without formulas from companies like Researched Nutritionals and others because those are some of the tools in our toolbox. Thank you for all the work you do on every level. We are so grateful!

Dr. Debby Hamilton 45:44

Thank you. Jill, it's always great to talk to you. I always learn something from you and love hearing you speak. I'm actually going to see you in a couple of days at a conference so that'll be nice. I appreciate talking to you. It's always a pleasure. Thank you.

Dr. Jill 45:59

Thank you!