



Your Functional Medicine Expert®  
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## [#24: Dr. Jill Interviews Dr. Mary Shackelton of Holistica Integrative Care](#)

Dr. Jill 0:12

Hey! We are live, Dr. Shackelton. It is always a joy to talk to another friend, and we've both been in Boulder for a long time. I think you've been here longer than I have, but welcome to our live show! And I'm so glad to talk to you today about environmental toxicity.

Dr. Mary Shackelton 0:29

Thank you!

Dr. Jill 0:29

Before we start, just a few housekeeping [items] for everybody listening, and then I want to introduce Dr. Shackelton. The basics are that you can find me on my website, [JillCarnahan.com](http://JillCarnahan.com), with tons of free resources there. [DrJillHealth.com](http://DrJillHealth.com) is the retail store. And if you need any information or [have any] questions, those are always available. We also have a brand new YouTube channel. If you just search my name under YouTube, you'll see all of these videos and more, lots of fun stuff with friends, and lots and lots of great topics. It's all free, so go there and just subscribe if you'd like.

Dr. Jill 1:01

Today, I have an awesome friend and just someone I respect so much because we just have such parallel practices in Boulder, Colorado, and a lot of the types of people that we see. We both have a few stories around some of this environmental toxicity that we'll share today. This will be recorded, so if you miss the first part or want to share it later, you can. It'll be on the Facebook page as well.

Dr. Jill 1:20

So, Dr. Shackelton, I want to introduce you first. She is a naturopathic doctor who practices environmental medicine with an emphasis on women's health. She's a member of the American Academy of Environmental Medicine, with a focus on chronic disease, conditions associated with environmental toxic exposure, and chronic hidden infections, such as Lyme, mixed bacterial infections, and immune dysfunction. She has a blog in which she writes about her passion for the environment and its impact on human health. Where can they find that? What's your website, Dr. Shackelton?

Dr. Mary Shackelton 1:49

MaryShackelton.com is where my blog is, and then they can also find me at HolisticaCare.com.

Dr. Jill 1:57

Awesome. Very good. We'll mention that again at the end, and we'll talk about what she's been up to and what's upcoming in her life. Well, here it is. She's just completed writing a book on the impact of environmental toxins on neurodegenerative disorders in the unborn fetus. I am really excited to get to that topic because a lot of people don't really think [about it]. They just [react by saying], "Oh, I'm pregnant. This is great!" But they don't think about that pre-care. So we will dive into that as well. I love to start, though, with [one's] story. And I'd love to hear a little bit about your background, how you got interested in medicine, and your path to this career.

Dr. Mary Shackelton 2:31

Well, that's a good question. It was circuitous, for sure. I started dabbling in medicine; it didn't feel like it was the right course for me. I ended up getting a Master's in Public Health. That never felt like the right fit for me at the time. Either I was working in the wrong public health department, I'm not sure... But then, literally, when the lightning bolt strikes, you go, "That's it!" I saw a poster on a phone poll, really, and it was advertising: Southwest College of Naturopathic Medicine, Doctorate Degree, four years. I never knew you could get a degree in naturopathic medicine, so for me, it was a slam dunk. I had all my prerequisites done. I couldn't wait to be done. And it really started for me, the love of my life, which is practicing naturopathic medicine. And it really has been. It was made for me. So I love going to work every day. I'm always much more energized when I get home from seeing patients. I love the complexity of what's happening. And that's part of what inspired this book: Realizing that there's so much happening in the environment, and it's impacting women's health pretty significantly. So it's like, "What can I do about this?" And this book was born from that kind of question.

Dr. Jill 3:54

Wow, I love that. And have you been in Boulder your whole life?

Dr. Mary Shackelton 3:58

No, I moved here in '99. I've had my practice here for about 22 years. It's wonderful working here with people who are extremely knowledgeable about their health and are

interested and motivated. And then there are a lot of people here who are not well. So it's a great place to work and live.

Dr. Jill 4:15

I couldn't agree more. Gosh, it's exciting to be here. I always joke, because in Illinois, you'd have people on three or two liters of Diet Coke per day and McDonald's. And I rarely see people who aren't already doing 80% of what they need with a healthy diet and lifestyle. So that makes it easy because the foundation... There are definitely tweaks, right?—because some people need a little help. Diet is kind of a core [piece] of what we do, but a lot of times, at least, they have the basic healthy lifestyle there.

Dr. Mary Shackelton 4:45

And I attribute a lot of that to the internet. You know, there was a time that the internet wasn't as accessible, and I was really teaching a lot of basic foundational stuff. Now, people know so much before they sit down. I used to have a live talk radio show—this was in 1999–2000—and those questions were really from educated healthcare consumers, and I loved it. But even more so now, people can access anything online.

Dr. Jill 5:14

Yes, it's amazing, isn't it? So first of all, let's go through what's happened recently a little bit. How has that affected your practice and your patients that are coming in? You're probably doing more virtual [visits] than before. Tell me just a little bit about how the shift in your practice has happened through this pandemic.

Dr. Mary Shackelton 5:32

Right. It was so touch and go in the beginning. We have a lot of cancer patients, some of whom are getting their chemo through our office and are really immunocompromised. So we decided to stay open only for those folks and, really, not let anybody else in the clinic. So those were big decisions in late March and early April. And then everything went online—all patient appointments—and I realized, "Wow, we really can do a lot online."

Dr. Jill 5:58

But you have IVs, so tell us more. What different types of IVs are you offering?

Dr. Mary Shackelton 6:02

We have, goodness, Myers' cocktails, amino acids, alpha lipoic acid, IV curcumin, phosphatidylcholine, glutathione, ozone, and we also have a laser. So we have a lot of

different things. I might be leaving a few things out, but we do a lot. We can address most things with that complement of IVs. We stayed open for only a handful of cancer patients. Even for the folks that wanted to do immune support, we just said no because we couldn't control everyone's exposure. So now we are still pretty much online, seeing some patients, but we really have to keep the clinic to less than 10 people, and we have one IV per room, where we used to have three in a room. So we're spreading it out and getting people in as we can.

Dr. Jill 6:47

Good. With the IVs, you've got to have them in person, right? We mostly went virtual and didn't do a lot of IVs. We didn't have people who had critical needs. And we have a much smaller IV population than you do. We did all Zoom for a while and then got back live, and it was really no big deal. Now, the same thing, there's a limited number [of patients] who come into the office. One thing I wanted to talk to you about for sure was, gosh, the impact... We've talked about the virus and the impact of that on human health and everything, but what people are not talking about, and I think is maybe a bigger issue, is number one, social isolation, and that effect on the immune system and health, and then the mental health of our kids, our young adults, and even our adults. What are the effects? Are you seeing people with more issues with mental health or more issues with anxiety?

Dr. Mary Shackelton 7:38

Yes, I'm actually kind of surprised, because I started to really get curious with patients and just ask every single person: "How are you doing?" And "How has this impacted your life?" And I was shocked to understand the depth of anxiety that people are experiencing, and I think part of it is the isolation. I didn't even realize the full impact of social isolation on myself, and I imagine that everybody's experiencing their own thing. I think that people are actually really terrified of getting this virus, and there are so many different sides to this entire experience that it's very complex. They might have had chronic asthma as kids and been fine for 20 years, but this is a real trigger for them. So they're triggered around their health, and they're isolating. I have a patient who is living in the mountains by himself because he's so afraid of contact with other people.

Dr. Mary Shackelton 8:36

Then, to answer your question about how it's affecting our immune system, our immune systems learn from contact with viruses and bacteria. So you can take a certain amount of supplements, but that doesn't create antibodies against infection. And that's what we need. Kids are good at that; they're getting exposed all the time, and their immune systems can be fairly robust. Yet as adults, our immune systems are not getting exposed to or seeing any infection, so we're not giving them the chance to learn how to respond. Yet it's very

complicated; we do need to stay home for a little bit longer, we do need to wear masks, and we do need to wash our hands. The whole concept of hand sanitizer, I've written so many blogs about [saying]: "Don't use hand sanitizer because we want these microbes." Now [with] the triclosan, which is actually related to reduced fertility, I just keep seeing these gallon size hand sanitizers everywhere. We are all at a point of surrender for now. We have to surrender [inaudible].

Dr. Jill 9:35

I love that you bring that up. Triclosan—this is toxic. Tell us a little bit more about that toxicity.

Dr. Mary Shackelton 9:47

So they found that this was responsible for infertility in a lot of women. Triclosan is an endocrine-disrupting hormone that's found in most major brands of hand sanitizer. Endocrine disruptors are things that get into our bodies; they look like hormones. They confuse hormone messaging. The daily use of a hand sanitizer is just going to contribute to this complex, hormonally confused messaging. I keep telling patients: "You know what? We're going to just follow the rules for now. We're going to wear our masks and use our hand sanitizer. We're going to wash our hands and just do it. It's not forever." So that's kind of the pep talk I've given patients: Just do what you need to do to protect yourself mentally and emotionally from this, and be as careful as you can.

Dr. Jill 10:35

I love that balance, though, because that's where I'm at. I'm not saying that any of the regulations are wrong, bad, or any of that. We need to do what we need to do. I'm washing my office down between patients. I'm taking all the precautions like you are. But the truth is, I know that our microbiome inhabits our space, our body, our skin, and our mouth, so there are all of these places. And I just wonder... I saw a commercial the other day for United and Clorox. They were so proud of this collaboration between United and Clorox. They showed these people who were fumigating the planes, and they were just pouring the Clorox. And I thought: "Ugh! For our chemically sensitive patients, this is going to be a nightmare to start traveling with the chemicals right on the planes." And again, they're trying to do the right thing. But for example, you have a two-year-old in the garden grabbing a dirty carrot and eating it. That's how their immune system is trained as to what's dangerous and what's good. Our contact with dirt as children is actually training for our immune systems. Then, as we get to be adults, the contact with germs on a constant basis is how our immune system detects good versus evil, right? So I agree with you. I'm like: "How in the world?!" In a year or two or more, maybe a decade, or probably a lot less

than that, we're going to see the manifestations of this trial of sterilization of our environment, which is really, really quite unhealthy for us.

Dr. Mary Shackelton 11:52

It is. I think it's also an opportunity to really talk about [how] there's a lot being taken away from us right now, but I also think there's a huge opportunity to have a conversation about what is in our control. And what's in our control is what we put in our mouths—what we choose to eat. There's no substitute for a good diet. You cannot take supplements and superimpose that on an unhealthy diet. I think, as we all have read, that patients with comorbidities are the ones that are at the highest risk of dying from COVID. So this is an opportunity to reign in our health, to lower our inflammation with a good diet, to exercise, to reduce our weight, and to reduce our hypertension. This is the best time that we're ever going to have, and the best reason that we have to enact some personal changes in our own behaviors is because it's protective.

Dr. Jill 12:48

Yes. I love that because a lot of times I talk about the germ theory, [which] was years ago. And it's still real; there are germs, and they cause illness. But the new theory is terrain, because if we have a healthy terrain that we live in and inhabit and we choose to do things like clean air, clean water, clean food, weight loss, appropriate food intake, and all those kinds of things that we can do, we really do have more control than we think. And that's the fine line between fear and taking control of what we can control. One thing you mentioned that I think is important too is, like you said, the mental health [effects] of isolation. At least for me, I'm seeing younger kids and stuff and the whole school debate. I won't get into how I feel about that; I have a lot of compassion for those of you who are parents and dealing with decisions and all of that. And you mentioned you're going to take your kids on the road a little bit more.

Dr. Mary Shackelton 13:38

Yes. I mean, the last 10 weeks of school were a disaster in my house. My son is 17, and he had one screen with his video game and one screen with his teacher.

Dr. Jill 13:49

Unbelievable.

Dr. Mary Shackelton 13:51

You know, total disengagement. There was nothing I could do about it. I was busy trying to keep my own business afloat. My husband was doing the same thing. I knew the schools

were not going to start in-person learning just by watching the numbers rise. So we really have planned to do some online classroom time outdoors. And again, I feel like the outdoors is very healing for us and great for our immune system. If you can walk outside barefoot, you can actually absorb the vibration of the earth. It's the counterbalance to EMFs and being on a computer. So I'm going to really hope that we can find some good adventures where we can also do several hours of classroom time. I'm going to try to figure out how I'm going to work it into my schedule, but I'll figure it out. But that's kind of our strategy.

Dr. Mary Shackelton 14:42

And well, not everyone can do that, I know. But I really want to say to parents—I've had this conversation over and over with my best friend, who's a social worker in high school—that every parent is struggling. If you feel like you are failing at X, Y, or Z right now, just know that every single mother and father is feeling the exact same way. This is so unprecedented, and nobody really knows what to do. I just really believe that everybody's doing the best they can. And that's kind of been the refrain in my mind when something feels frustrating, I don't understand it, or I can't tolerate it. It's like everybody really is just trying to do the best they can. And some people need to give themselves a lot of permission to not be perfect right now and just get to the other side.

Dr. Jill 15:22

I love that. I think that's something to just pause on. We're doing the best we can. And whether you're anxious, sad, overwhelmed, or depressed, we really need compassion instead of judgment and instead of all the stuff that's happening on the other end. I think that's so important. And even for patients, just to create a space where they can be where they're at, and... You know, it's funny; I've talked about this before, but the things that raise cortisol are novelty, unpredictability, threat to ego, and sense of control. And we're kind of engaging all four of those right now, right? So it's definitely stressful on all of us—I think just the unpredictability and the unknown.

Dr. Mary Shackelton 15:59

Yes. Humans don't do well with uncertainty. I'm certainly one of those people.

Dr. Jill 16:02

Right. Me too. I like [inaudible]. Well, let's talk about... So you wrote last year, and hopefully that'll be published very soon. But I know how this goes with COVID. With my own book I'm writing, things are a little up in the air with the publishers. Tell us about your upcoming book and a little bit more, because I want to dive into that topic. I think people will find it really interesting.

Dr. Mary Shackelton 16:23

Okay, so I wrote a book on environmental toxicity and how to prevent having a baby on the autism spectrum. The genesis of the book really came from seeing woman after woman plop down in my chair in my exam room and say: "I want to have a baby next month, and I want to do a detox this month." And I was like: "No, no, no. No, no, no." If we think of having a baby as a marathon, the first 18 to 20 miles really should be planning for conception: Detoxing. Looking at your personal environment. What can you do to clean out what we've stored and then not put any more in? That's a process, and it takes some time. I also think of the detox machine like a wheel. If you get it spinning and then get pregnant, that baby will be exposed to everything you've now unrooted or pulled out of hiding. So the goal really is to have a good year—12 months—to detox before you get pregnant. It will increase your chances of having a healthy baby. It will increase your fertility and increase the chances of the baby's brain being neurologically intact.

Dr. Mary Shackelton 17:29

It's a concept that I really want women in their early fertile years to grasp because their fertility is greatly affected by what's happening in the environment. And what's happening in the environment is happening so rapidly that it's impacting our genes and the way we are actually having babies. I think there were something like 20,000 babies born through IVF in 1998. And in 2012, it went to 60,000. So that's not going to change, and part of that is the environment—of course, not all of it. But part of that is due to environmental changes.

Dr. Jill 18:02

This is so interesting because I can go back to a little bit of my story. [I was] 25 years old [with] breast cancer. And there's no doubt that I had in-utero exposure to toxic endocrine disruptors on the farm—atrazine and organophosphates. I mean, classic. Ten years after my diagnosis, when I was in remission, I remember looking at atrazine, really understanding it, and then realizing it's banned in Europe. But in Illinois and in the United States, it's still being used, and [I remember] being like: "Oh my goodness, how in the world is this chemical, which we know is so toxic, still being used?" Then I'm like, "Well, let's see where the concentration of use is." And I looked up "map of the United States and atrazine use," and I literally fell off my chair, Mary, because right in the hottest red spot of the use was where I grew up—central Illinois. Like, [it was] a little bubble of red that was solid as solid can be.

Dr. Mary Shackelton 18:54

I just got the chills.



Dr. Jill 18:55

Yes, right in the central Illinois farmland. And I was like, "Oh my gosh, there's no doubt." And we had a well with well water. There are so many things I could talk about. But talk about in utero—I have no doubt—my mother had migraines, chronic fatigue, and Hashimoto's thyroiditis. And I remember being really depleted. She had five children, and I was the second. So there are so many things now. One little thing that I also didn't put together until very recently was that I had precocious puberty at five. Breastfed development. It went away. The pediatrician was like, "No big deal." Duh! That's when the breast tissue had this estrogenic effect. And I think it was probably starting in utero. So had my mom known... She didn't know any better, and she was doing the best she could.

Dr. Jill 19:36

And now my family is one of the first families in Illinois that is organic soy and corn, and all non-GMO. So I'm excited that my experiences were actually transmitted to the farming community and made some changes there. Doesn't it make sense as you're talking about toxicity and my own breast cancer in what you're talking—

Dr. Mary Shackelton 19:53

Oh yes. And atrazine in particular is interesting because they've studied frogs with exposure to atrazine, and they exhibit both male and female reproductive characteristics. Males can actually have ovaries. Males can have babies. It's confusing the entire hormone messaging system. So how can we really even expect to have a baby on the first attempt or a healthy baby if we don't really try to reduce our exposures somehow?

Dr. Jill 20:21

Yes, it's so important. And again, my mom was doing the best she could. Nowadays, she's done detox; she knows all about that. But if we could have caught a young mother like that and had her go through a year of detox like you're recommending, it might have made a difference in the cancer of a 25-year-old woman, which doesn't seem possible but is totally related in my mind.

Dr. Mary Shackelton 20:40

Oh, mine too, for sure. And the other thing that you mentioned, which is interesting, is that with multiple children in one family, unless the mother is very intentional about putting nutrients back in, that last baby gets the least amount of nutrients—in terms of essential fatty acids, minerals, and all these [other] things that are really important for neural development. So that's another thing about preconception planning: Is this your first baby or your fourth? If it's your fourth, these nutrients that we take orally are really critical.

Dr. Jill 21:11

Are there any recommendations or tips about timing between pregnancies if a woman is planning her family?

Dr. Mary Shackelton 21:18

Well, I don't know about that. I mean, certainly, a year to give your body time to recover, and in that year, definitely stay on your prenatal, vitamin D, probiotic, and fish oil. Those are all really important nutrients to feed your cells and get your cell membranes back to being really resilient. Those are the big ones. And then, dietarily, absolutely: Dark, green, leafy vegetables, eggs if you can tolerate them, grass-fed protein, animal meat if you can tolerate anything like that. So those nutrients are really, really important to replenish. I mean, it's not just like you have your baby. That takes a lot out of a woman. It takes a lot. And then you nurse. I mean, that's 600 to 800 calories a day that you're expending to keep another human alive. So you really have to be intentional and get some support around that.

Dr. Jill 22:05

Yes, gosh, I love that. So say someone does come to you and say: "I want to get pregnant in a couple of years. What should I do now?" What would you do? What kind of workup or testing? Or what would you do for that woman?

Dr. Mary Shackelton 22:16

That's great. I would do genetic testing, for sure. I would look at their MTHFR status, because if that were a problem, we'd know we have to kind of back up and do maybe even a little bit of extra detox for this person that shuts down phase two detoxification in the liver. I would do a nutrient panel, for sure, just to see where it is looking, and then I would do a clinical intake with them and figure out what their risk of exposure is. Did they grow up on a farm? Did their grandmother grow up on a farm? We do know about transgenerational toxic exposure. So your grandmother also probably had some toxins that she gave to your mother that she gave to you. So doing an entire family history is often really illuminating to see: Where are your potential risks? And what can we do now? Heavy metals, stool testing, depending on how they're doing, because the microbiome really is critical, and women share that with their babies as they come through the vaginal birth canal. And I don't know about you, but we probably rarely see anybody with an intact microbiome these days. But it's a good teaching tool for people to see. This is why diversity in your diet is so important, and this is why avoiding all the things that deplete the microbiome is really important. And certainly blood work.

Dr. Jill 23:28

Gosh, I love that. And I love the gut that you talked about because it really is inoculation of the baby through the vaginal birth canal. And with C-section babies, a lot of midwives and holistic practitioners are actually inoculating newborn babies with vaginal fluids because it's such a key to getting that ingestion of the microflora.

Dr. Mary Shackelton 23:46

Yes, I really encourage people. The goal is to have a baby, right? So whether you can have it vaginally or not—okay, you have to surrender at some point. But if you don't, to really advocate for yourself, do a vaginal swab for the baby's mouth, because that's really, really important for life.

Dr. Jill 24:02

I couldn't agree more. Yes, exactly.

Dr. Mary Shackelton 24:05

It's incredible if you think about how we're designed. That is such an incredible design.

Dr. Jill 24:11

It really is. It's crazy fascinating. And the studies that I've looked at on C-section babies may never completely... Granted, there are emergencies, and we want to have a healthy baby, so I have no problem with C-sections. But if it's scheduled around the OB's golf schedule, maybe that's not a good idea. Because what we see is that these C-section babies have a different flora from birth, and it may never completely regain to [the level of] that of a vaginally born infant. So there's much more skin flora, like staff and strep, and those in the baby's gut versus our typical bifidobacterium and lactobacillus.

Dr. Mary Shackelton 24:47

Yes. I usually see a lack of lactobacillus with a C-section baby for life.

Dr. Jill 24:51

Yes. It's amazing, isn't it? So I always ask, I'm sure you do too when you're with your patients... They could be 8, 18, or 80 [years old] and I'm like: "So how were you born? Was it vaginal or C-section? Were you breastfed or bottle fed?—because those are important even if they're in their 70s or 80s.

Dr. Mary Shackelton 25:05

Yes. I know, it's fascinating.

Dr. Jill 25:08

Yes. So you would do the testing, and then you would probably get them on some nutrition. Would you tell them to potentially wait to actively try to get pregnant while they do the detox? Tell us more about that.

Dr. Mary Shackelton 25:19

Yes, I would. I would. So first, I want to always make sure that their five pathways of elimination are open. Are they sweating when they exercise? Or if they sit in the sauna, how long does it take them to sweat? If it takes more than 20–25 minutes, then I say, "Oh, okay, then your sweating mechanism is weak." How are your bowel movements? One a day is the minimum. Ideally, three per day. It's a major way to get toxins out of the body. How's the liver looking? Looking at certain genes that potentially govern phase one and phase two detoxification. Kidney—are you thirsty? Do you have a lot of urination? And lymphatic—if they don't exercise, then we know that that's a hindrance to moving toxins out of the body as well. So I always make sure those five pathways are discussed and addressed. And then, what was your question? Sorry.

Dr. Jill 26:07

So that's perfect. That was kind of it. Say you were going to take them through detox. You have to check those pathways and say: "Let's not plan on trying to get pregnant for the next six to 12 months." You said ideally 12 months, right?

Dr. Mary Shackelton 26:21

Ideally, yes. If they have the time, which is why I really want to get this book in the hands of young women so they can plan because they're already planning. They're planning around their fertility by using birth control. So they can plan to wean off of that, detox, and give themselves enough time because these women are educated. They've gone to school, they've created a career. They want to have a baby when they want to have a baby. And I'm always saying: "I want you to have a baby when you have a baby, but not if it's not safe for you. And you might not have as much control over that if you're full of toxins, actually."

Dr. Jill 25:53

Yes. Is there anything in particular that you've seen? I mean, I've seen different things, and I'd love to... But I want to hear you. Autism is on the rise, massively. And definitely, I loved

your bio because you said something I've always thought: Toxic load and infectious burden are at the core of what we do, right?

Dr. Mary Shackelton 27:12

Yes.

Dr. Jill 27:13

And when we talk about autism, it's those systems that are the weak links of one in a thousand kiddos that have poor detox, and you load them with toxic load, and you see this weakness, and it can manifest as this communicative disorder with autism. But tell me more about what kinds of things you see that contribute to that diagnosis.

Dr. Mary Shackelton 27:30

Definitely the mother's history. I think the MTHFR gene is really key. It is really key for phase two detox. It's one of the four steps. And if that's working at 70% or even 30% with a double SNP, then that is a huge risk for autism. So we want to address that and give a lot of folate and B12 for neural development. And autism is modifiable. So once somebody has a diagnosis, you can actually change that, but you have to really work hard to get that brain to be less inflamed and to actually let that brain detox. So yes, definitely look at all those factors that are involved in autism.

Dr. Mary Shackelton 28:17

The other thing that's really related to autism is exposure to glyphosate. Stephanie Seneff has done a lot of work on this topic, and she works at MIT in the AI department. I just love her. I'm so grateful for her work because she has documented what we all see in our clinics that we don't have the time to document ourselves. Her documentation is really solid around exposure, the use of glyphosate, and the rate of autism; it's parallel. Glyphosate is very toxic, and it's spread over the entire globe at this point, so we have to be very active in avoiding that. And that's part of the educational process. And that doesn't happen overnight either, which is why we would ideally like several months to get that out of our houses and out of our bodies. And glyphosate goes away pretty rapidly, actually, when you avoid it. It can be gone—not detectable—within a week.

Dr. Jill 29:12

Yes, gosh, I love that and the encouragement because there are some things like MTBEs, which are like... Some of these things are fairly quick to get rid of if you just don't get exposed, right? At the core, decreased exposure is one of the principles. If you're listening, you might think: "Oh my gosh, what's my toxic load? What do I have to do? It's super

complex." Yes. But just clean air, clean water, and clean food can be huge. A little interesting story about glyphosate too, because I remember after my mold exposure, I was like, "Oh, I've got to test my glyphosate and see what's up." I had been eating organic for probably a decade—almost 100%. I thought, "Oh, I'll be super clean and great." And I remember—you might have heard me tell this—I was three times the level of a study with farmers on application day, meaning they had just applied it. So I was like, "What in the world?!" It was really high. And this was before we had standardized access. It was a lab that was just doing research. So they compared the levels of the people who put in their urine samples to different studies. On the dots on the graph, I was three times higher than any of the study levels.

Dr. Mary Shackelton 30:15

Wow!

Dr. Jill 30:16

Yes. And of course, I got that out of my body. I have two dogs. I'm in a condo where I don't control the lawn care, and they spray glyphosate, and the dogs sleep with me. And we found out that organic wines in California have traces of glyphosate. So it's not safe to just have organic. I think the dogs were part of it. So taking your shoes off when you enter the house [can help]. Make sure the dogs are clean and are not walking on glyphosate-[treated] grass. But it's amazing, right?—because I would have thought that I would have been the role model of someone who had low glyphosate. And here I was, not at all. And probably my detox pathways were not great either.

Dr. Mary Shackelton 30:50

But was that from what they were spraying where you were living, not from your diet?

Dr. Jill 30:55

I really don't know. I don't think I had much dietary exposure because I was really careful about [eating] organic. The dogs were my first thought. Could it have been past exposure?—because I grew up on a farm where glyphosate was everywhere. Now, like I said, they're GMO-free, so they don't spray glyphosate at all. I don't know. Do you know how long it lasts in your system?

Dr. Mary Shackelton 31:17

I think it's out pretty quickly. So that must have been an ongoing exposure, maybe from the grass and the dogs, like you said. I think that's all—

Dr. Jill 31:24

And maybe I happened to test right after they sprayed. It might have been just a timing thing because ever since then I've been like zero, undetectable, so it's been good.

Dr. Mary Shackelton 31:30

Yes. Oh, that's good. I mean, what I really want to impart to people is as heavy as this information is... Trust me, I was a little depressed writing this book. It's kind of heavy; it's kind of overwhelming. But the truth is, there is a lot in our control, like this. This goes away quickly. Heavy metals take a long time to come out. Mold is a little in between, depending on how healthy you are and what your genetic landscape looks like. But some of this stuff really can shift quickly. And I walk through personal care products and what we can do about that. Really, it does take time to go through a home and identify the things that are putting you at risk. Compared to 20 years ago, there are so many amazing products available—I'm astounded. So there's almost no excuse. And these are not expensive anymore. They used to be really out of reach financially for a lot of people. And now we also know that vinegar and water are really great cleaning supplies. So I try to give people really manageable suggestions and things that will work for every person.

Dr. Jill 32:34

I love that. I can't wait for this book because it's going to be such a big deal for patients and for my patients too. So I'm excited. And right now, there's no 'for sure.' The timeline's a little bit—

Dr. Mary Shackelton 32:44

No.

Dr. Jill 32:45

Yes. I know how this goes.

Dr. Mary Shackelton 32:47

I wish I could say. Maybe I come back when it's ready. I don't know. I wish I could say it was ready. But I mean, the other reason I wrote this book was that I've been seeing, I'm sure you have too, so many people in their 40s and 50s with cognitive decline who are otherwise healthy. And that, to me, is... If I had one tattoo, it would be 'Why?' Why does this 40-year-old have cognitive decline? That doesn't make any sense. And I really backed it up too. Well, they probably came in with a lot of this. So if we want to change the generation coming behind us, we want them to come in healthier. So it's an educational process, and we'll get there.

Dr. Jill 33:23

And I'm sure you talked about the core blood studies that showed babies being born into the world. Is it like more than 200 chemicals are able to be detected in their cord blood?

Dr. Mary Shackelton 33:32

And I think 180 of those were neurologically toxic.

Dr. Jill 33:35

Oh my goodness.

Dr. Mary Shackelton 33:38

And we don't know how they act together. So nobody has studied that. We used to think of the placenta as this magic gate, but the placenta is just as porous as the brain barrier. So we have to assume that anything that we are exposed to or have stored will be shared with the fetus at some point. So that's a big motivator for a lot of people to think: "Okay, I can't just get away with this because it's going to get to the baby." They say, you know, "This drug is a classy drug, and it's pregnancy safe," but it still gets to the baby.

Dr. Jill 34:08

Right, exactly. So you have to really be thinking about that. In our last few minutes, I'd love to just briefly talk about mold because you and I both have stories. I won't go into mine, but I had my office totally full of mold. I had to leave, start over, and get something similar. Tell us just a little bit about your story.

Dr. Mary Shackelton 34:23

It's very similar—very similar. I was in an office in Boulder for six years. I don't work every day, so it wasn't like I could track it. And I thought, "Oh, I just have low blood sugar," but I would have these visual changes. And at the end of the day, I couldn't read my own writing; it was so impaired. I would often drive home feeling like I had been drinking, and then [I] couldn't sleep and [experienced] anxiety, depression, and insomnia, none of which is normal for me. So this was in 2017. We did an air spore trap test in the office because all our mycotoxin patients kept coming in, saying: "Why am I dizzy in here?" Or "I have had a headache for three days since being in your office." We're like: "That doesn't make any sense. This is clean." The air spore trap test was negative, and then we did a dust sample, and it was off the charts.



Dr. Mary Shackelton 35:12

So then we had it cleaned, and I couldn't go back in after it was cleaned because I would get dizzy every time I went back in. And I'm pretty healthy. Previous to this, I have been very strong, resilient, and healthy. I have exercised. I've been a runner for 30 years and came in fourth in the "Bolder Boulder" years ago. I've been pretty strong, but I went down hard. I had tested my HLA-DR in 2015, and I said: "Oh my God, that's funny. I have that gene!" And I laughed it off. Then I was like: "Oh my gosh! Now I see." In my MTHFR, I have one SNP. So you put all these pieces together in the review mirror when you're sick and you think, "Oh, okay." I do believe there's a gift in every single illness. I mean, look at what your gifts have been, this journey that you're on, and where you are. Would you have ever chosen that? No! But it has really honed my skills at working with mycotoxin patients and detox in general. So I got through it. I still have a little bit of residual. I've just been lazy. I need to clean up. But for the most part, it took six months to find a spot in Boulder that didn't have mold in it because we had a flood here and there are so many—

Dr. Jill 36:22

Lots of properties.

Dr. Mary Shackelton 36:23

Yes. So yes, we have a clean office, which I'm super happy about.

Dr. Jill 36:29

I love it. I have to come see your new space.

Dr. Mary Shackelton 36:32

Yes.

Dr. Jill 36:35

Well, yes, [it's a] very similar story that everybody's heard of my own as well. And what I think was interesting is that I've had a lot of colleagues—mostly colleagues, a few friends, a few patients—that have had infertility or miscarriages. We later found out they had massive mold exposure. So as we were talking about fertility and that, this could be an issue too if you're having infertility issues or if you've had multiple miscarriages. Mycotoxins are teratogenic, so they can cause birth defects. It's funny because a lot of the studies... Because they affect grain production and then livestock, a lot of the studies around mycotoxins and mold are done on cattle and pigs. But it's super clear that it has a fertility effect and has an effect on the fetus. So this is a really big deal too. And this is one that you may or may not know. So one thing I've seen with COVID is that people are at home more.

When their home is toxic, all of a sudden I'm seeing people who are like, "Oh, I'm getting so sick!" Right?

Dr. Mary Shackelton 37:30

I know. I'm so worried about this.

Dr. Jill 37:33

Yes. Have you seen more people who are noticing because all of a sudden they're at home and their home is moldy?

Dr. Mary Shackelton 37:37

Yes, yes, yes, yes. Early on in the pandemic, I thought, "Oh no, all these people are going to be stuck at home." And this was still winter, so the windows were closed, and I was really worried about that.

Dr. Jill 37:50

I mean, I saw not tons, but maybe 10% or so of people that really got sick. But it was kind of interesting because, like, "Well, what changed in March?" The buy-in for them was easier because, like: "Oh yes, I've been home a lot. Yeah, I've been feeling worse." So they kind of put it together because part of the issue with mold is for the patient to actually believe there's a real issue, right?

Dr. Mary Shackelton 38:09

Oh, for sure, for sure. And I think you've probably seen the same number of people with mycotoxicity and cancer diagnoses.

Dr. Jill 38:18

Yes.

Dr. Mary Shackelton 38:18

When they try to unpack, like: "Why did I get this? Why? Why? Why?" And it's like: "Well, let's just do a little dust sample of your house. We do not need to look too far." Mold is insidious and quiet, and it touches every area of our lives, quite honestly. I think it does.

Dr. Jill 38:36

I remember at the very beginning, I'm like, "Well, not everything's mold." But then, as I would dig, I kept finding these cases that were presenting with autoimmunity or neurodegenerative [diseases], like we said, Alzheimer's or dementia, or massive chronic fatigue or migraine headaches. And I kept finding, like, "Gosh, is everything mold?" And it's not, but there's an awful lot of it that goes in that [inaudible], right?

Dr. Mary Shackelton 38:55

I'm actually kind of glad when I see somebody with MS. I'm like: "Oh, you might not have MS. You're presenting like that, but it might just be really treatable mold." I don't mean to take it lightly because it's very destructive to your house, your office, or whatever, but at least it's treatable. At least it's not something that's happening to you that nobody has an explanation for. So I love it. At least it's a layer. It's absolutely a layer, if not the top cause. That's kind of how I get it.

Dr. Jill 39:20

I totally agree. And then, fertility. Say you have a young woman come up: "Hey, Dr. Shackelton, I want to get pregnant. I heard you're great at this. I want to know what you want me to do." As you talk to her, maybe you do some testing and find out she has mold in her home. Would you treat that pretty similarly as far as [recommending a] detox for a year? What would you do with that patient for a pregnancy?

Dr. Mary Shackelton 39:40

I would say we want to retest and get a negative mycotoxin test before you conceive. Take all the steps that we do to clean the house, remediate in every way possible, and then treat for six to 12 months, depending on the burden, and see how she's doing. As we both know, you can clean it up; you've just got to know how. So that's one of those things that is a blessing in disguise. Like: "Oh, this is what it is, and it's super treatable. It's just going to be a pain for about a year."

Dr. Jill 40:10

It's a pain in the butt, but it's very treatable. And like you said, it's a huge blessing because all my knowledge comes from... I mean, not all; there's a study afterward. But as far as my interest, I always joked because I was like, "I'm not going to treat Lyme or mold." Well, guess what? We kind of have to treat both, and that might be the majority of my practice because there are so many people who aren't doing those two things. It's probably similar for you, right?

Dr. Mary Shackelton 40:31

I remember reading the word 'Stachybotrys.' In my master's in public health, I took a toxicology class. But they really were talking about environmental disasters, like the Minamata Bay mercury contamination and the subsequent mercury poisoning of the people in Japan. So we looked at that kind of stuff, but never low-grade environmental exposures or chronic exposures. So, wait, where was I going with that? Sorry, the brain.

Dr. Jill 40:50

Exposures and toxicity and... [laughter]

Dr. Mary Shackelton 41:06

[laughter] It's Friday! We were talking about women getting pregnant and chronic low-lying exposures.

Dr. Jill 41:12

Oh, that's right. Public health and just how it's so insidious, and you were seeing... Oh, Stackybotrys is the worst.

Dr. Mary Shackelton 41:17

Oh, thank you, thank you. So I remember reading that word and thinking, "Oh, I don't ever want that." And boom—got it.

Dr. Jill 41:26

Was that the one in your...

Dr. Mary Shackelton 41:27

[nodding]

Dr. Jill 41:27

That was the one in my office, too.

Dr. Mary Shackelton 41:29

Yes. I was like, "Ooh, I don't think I'm ever..." I just associated it with the East Coast. You know, that's a big myth: You can't have mold in Colorado because it's so dry here. Well, it's an epidemic here. So, yes, whatever you don't want, be careful because you're going to attract it on some level. [laughing]

Dr. Jill 41:43

Yes. I always say, "I never chose to treat mold; it chose me." I was like, "I've got to do this." This is so fun. I love it. We talked about where people can find you, but go ahead and repeat those websites for everybody.

Dr. Mary Shackelton 41:55

So the clinic website is [HolisticaCare.com](http://HolisticaCare.com). And then my blog is on [MaryShackelton.com](http://MaryShackelton.com).

Dr. Jill 42:07

Awesome. I'll be sure to share those links. Any last words of wisdom? I mean, people are still in the midst of a little bit of chaos. The kids are starting to go back to school—some of them. Any bit of advice you'd like to leave us all with?

Dr. Mary Shackelton 42:20

I think right now—and this is just my personal feeling because I love summer and spring so much—[that it's beneficial] to be outside as much as possible right now. I mean, we do have a pretty big forest fire here right now, so the air quality is not great. So if you have asthma, don't listen to me. But [my suggestion is] to be outside as much as possible right now because it helps recalibrate everything about us and counteract the wireless exposure that we're having. Do the things that you can do, and then be really gentle on the stuff that you don't feel good about right now. And just be kind in your mind. Those are my [inaudible].

Dr. Jill 42:54

Oh, I love it: "Be kind in your mind." I love it. Thank you, Dr. Shackelton. It has been a treat to talk to you today.

Dr. Mary Shackelton 43:02

Thank you. It's so fun to see you. And we are literally just a few miles apart, but we never see each other. So hopefully, that'll change.

Dr. Jill 43:09

Sounds good.

Dr. Mary Shackelton 43:09

Thank you for having me!

Dr. Jill 43:10

You're welcome!