

[161: Dr. Jill interviews Kashif Khan on The DNA Way: A Story of Hacking Genomes & Reversing Disease](#)

Dr. Jill 00:13

Well, hello everybody, and welcome to another episode of Dr. Jill Live. You probably know by now that you can find all our previous episodes on my YouTube channel, on Stitcher, on iTunes—wherever you listen to or watch your podcasts. You can do video, audio, or whatever platform [you choose]. But wherever you watch it, if you found [some] benefit or enjoyed some of the content, please go by and leave a review for us. That helps us reach more people.

Dr. Jill 00:36

Today, I have a friend who I have known for quite a while in many different circles. Super excited about his new book. We're going to talk about his book, his story, and the power of genomic testing. I think this is one of the most powerful things that we can do in our functional practices in the new era of artificial intelligence, just knowing our individuality, because so many times there's never a one-size-fits-all.

Dr. Jill 00:59

I've been one of the biggest advocates in functional medicine... People are always like, "Dr. Jill, what are your protocols for mold?" "What's your protocol?" I'm the one who's like, "I don't do protocols." I just don't. It's the individual patient. And never is there a more important area of this than genetics because genetics is so individualized. Again, we're going to dive into that today. Thank you again for joining me, Kashif.

Kashif Khan 01:22

It's a pleasure. What you said is exactly [right]; it's like this personalization that's removed from everything that we're doing, which is so easy to bring in if you know the tools to use. But preaching to the choir, so...

Dr. Jill 01:33

Totally! And we were going to talk about some of the cool tools that you have brought to the world. Let me just formally introduce you. Kashif Khan is the chief executive officer and founder of The DNA Company, where personalized medicine is being pioneered through unique insights into the human genome. Growing up in Vancouver, Canada, in an immigrant household, he developed an industrious

entrepreneurial spirit from a young age. Prior to his tenure at the DNA Company, he advised a number of high-growth startups in a variety of industries.

Dr. Jill 01:59

As he dove into the field of functional genomics as the CEO of DNA Company, it was revealed that his neural wiring was actually genetically designed to be entrepreneurial. However, his genes also revealed a particular sensitivity to pollutants. I can relate to that. Now, seeing his health from a new lens, he dove further and started to see the genetic pathways that led to his own family's challenges and the opportunities to reverse chronic disease. So I always love [it] when the story involves your experience. Clearly, you've done entrepreneurial stuff, [and] you've led companies. But it got personal, didn't it? So tell us your story.

Kashif Khan 02:35

Like you said, there are a lot of circles floating around in this functional medicine world. And when you do that, all of the great stories seem to be rooted in somebody healing themselves. First of all, being failed—I forgot step one—by some healthcare system, finding their own way, healing themselves, and then screaming from the rooftops: "Oh my God, my life has changed. Everyone needs to know." That's kind of what I went through. I wasn't even in the industry. I ran a marketing company. I helped startups grow. I helped them find out what they didn't even know they didn't know, and I helped them develop themselves. We had a lot of success there. And then I got sick, and I had never been sick before. So all of a sudden, at the age of 38, I had five chronic conditions all at once.

Kashif Khan 03:20

The question I would ask is: "Why? What did I do wrong? Did I eat something wrong? Did I breathe something wrong?" Just straight logic. And the answer I was getting, if I were to paraphrase, was kind of like, "We don't do that here." It's more like, "We're going to tell you what you have, and here's what pill you have to take. And let's just watch this and see how it goes." And that's what pushed me down this path of self-discovery and self-healing—learning that my own genome had a lot of support that it needed. Some of my problems were solved by supporting a broken genetic code that just wasn't instructing biological function properly. Therefore, I wasn't able to cope with the same thing that my colleagues, my friends, and my family were able to, and that's what got me sick. And here I am in front of you. No

conditions, no sickness. I don't even get a common cold anymore. So that's where we got to.

Dr. Jill 04:12

I want to dive into so many topics. Let's start here, though, with your story, because there are two things in your bio that you mentioned that I want to talk about. First of all, the entrepreneurial gene—what is it? I'm assuming there's some dopamine involved here. Tell us about this genetic tendency. I think I might have it too.

Kashif Khan 04:29

Yes. I would call it more of a profile than a gene. If you look at my neural map, it speaks to what we call 'warrior genetics', meaning that I'm a highly reward-seeking individual. And I'm wired for leadership. It's very hard for me to take direction, but it's very easy for me to see the plan, lay it out, and have a team get on board to get it done. Why is that? Yes, to dopamine. That's one of a few pieces. So the way I experience pleasure or reward... And by the way, dopamine powers both. Ultimately, satisfaction is what you're striving for and what drives us. But you can get it from one of two sources: Pleasure, [like when] eating some tasty food or drinking, or reward, [like] achieving something at work. And you only need one of the two, by the way, to get that hit.

Kashif Khan 05:18

The DRD2 gene—I had the lowest possible density of receptors for dopamine in my brain because of that gene, so I'm not able to experience pleasure at the normal intensity level. So whatever's going on, everyone's like, "Wow, this is great!" And I'm like: "It's not really what you're saying. It kind of sucks, actually." So that's one. Now, one thing is intensity, the other is duration. I also have hyperfast clearance, so I'm feeling it at a very low level, and it doesn't last long enough. That can lead to depression, which, by the way, I did experience at one point. It could lead to addiction, which, by the way, I did experience at one point. Or it can lead to achievement because you're only needing either pleasure or reward. And that's what I'm doing now—now that I understand myself. So that's one layer to it.

Kashif Khan 06:09

I'm also deleted for a portion of a gene that drives your adrenaline response, which means I'm much more likely to imprint trauma and emotional stimulus because of my adrenaline response, which makes me somewhat more emotionally tuned in.

Literally, I'm full of trauma and PTSD. That's what I'm wired with now, but that doesn't necessarily mean it's a burden. It speaks to EQ, being able to work with people, being able to relate, etc.

Kashif Khan 06:38

The last piece of this, I would say, is that my serotonin response is completely dysregulated, so I'm constantly annoyed and frustrated by every little detail of everything that's going on because my brain can prioritize all of these incoming stimuli. One person is like: "Blinders on. I'm getting my job done." For me, it's like: "Don't make that noise; get out of the room." But the converse of that is in my work. I see every little detail. So that combination leads to this drive and warrior mentality, [with] which I was designed to do things, build things, and build companies. So that's what I do now.

Dr. Jill 07:13

I love it. And I'm sure people listening can relate because we have a lot of doctors, entrepreneurs, and people like that on the podcast. But I love that you described the different pathways. I've recently read Anna Lembke's book on *Dopamine Nation*, and she does such a good job of describing it. They actually used her in the social dilemma—that big Netflix hit. One of the things she talks about is exactly what you described—the pathways with dopamine. One is all about addiction. If you're not careful, it's highly addictive.

Dr. Jill 07:41

And it's funny because I always thought I had that same pathway. I thought, "Oh, I don't have addictions," until I realized work was my addiction. But then the other pathway makes someone like you or myself achieve because that gives you that reward, and it can be very successful in society. And you can actually delay gratification with that. So you actually delay that. But it's so interesting how you laid that out. So, obviously, you found this out. Now, you also talked about environmental pollutants and your sensitivity. Tell us more about that pathway.

Kashif Khan 08:10

So there are multiple layers to look at. But the one that sort of screams out for me is the glutathione pathway. There are multiple phases—and you know this better than anyone—to detoxification. There's phase one, and then there's phase two. There's clearance. So my ability to deal with airborne toxins [such as] mold [or]

chemicals is not so bad. My gut, however... There's something in genetics that people aren't familiar with called 'copy number variation'. We're often looking for what's called a SNP, meaning a spelling error in a gene, which means that it doesn't do its job efficiently. There's also what's called an insertion or deletion, meaning that there's a paragraph that's missing entirely or there's an extra paragraph. So imagine the implication of the function of that gene. It's like you're reading a book and there's a whole paragraph missing. Or there's something called 'copy number variation'. You don't even have the gene; you never got it from mom or dad, or you have an extra copy. So imagine the implication on your biology of that.

Kashif Khan 09:08

When it comes to the gut, GSTM1 is one of the genes where it's possible to have a copy number variation. It's not possible with all genes, by the way. And it's a primary first line of defense for the gut. So when it came to me eating what I was eating downtown... And when I say environmental, it's also the packaging, the drying agents used to dry food, and the solvents. Everything that's involved—the heavy metals that the foods are processed on, the cleaning chemicals that are used on those heavy metals—my gut has zero ability to prevent any of that from entering my bloodstream. It just gets in and causes inflammation. So I had a leaky gut. I had gut dysbiosis. [My] inflammatory tract was leading to a leaky brain and brain fog. All of this stuff was sort of a cascade. So that's one piece of it, but there are multiple pieces we can talk about.

Kashif Khan 09:59

There's also methylation. Now that we know how I'm dealing with toxins and the ensuing inflammation that's caused, how efficiently do you deal with that? I did it horribly. Methylation has two components: Actually methylating things, like breaking them down and making them water-soluble, which I don't do so well. And then for the actual removal, there's a gene called COMT, which is the tail-end methylation that helps you remove things, including hormones, neurochemicals, and lots of stuff. So a combination of these, again, starts to paint a picture of a profile. And you drop me in downtown Toronto, where I was working every day, breathing things in, eating things, not sleeping properly—all of these things—it's no wonder I had five chronic conditions. My body was so burdened at the cellular level by all this nonsense that it couldn't thrive anymore. I was barely surviving, in fact.

Dr. Jill 10:46

Wow. And are you homozygous for two mutations or...

Kashif Khan 10:51

Yes, so I'm not doing the best. Thinking about methylation, my COMT is actually very quick and efficient. It's the methylation and precursor to that that are not doing well. My COMT here are like: Hey, let's get rid of everything—when there's nothing to remove. Nobody packed up the garbage to get rid of. So that's kind of what's going on for me.

Dr. Jill 11:09

Okay, very good. So then, how did you get from there, where you were not feeling well and not really knowing the genetic and personalized components, to discovering the genetics and then creating the DNA company? Tell us how that happened.

Kashif Khan 11:24

Yes. I didn't even understand what the genetic tool was for, and the people who were providing me with the DNA reports and the science also didn't really understand what it was for. They thought they knew, and they were telling me things like: "You have an 80% chance of this." "You have a 30% chance of this." I was like: "You just took my genetics, my human instruction manual, which instructs every one of my cells on how to do their jobs, and we're only getting to 80%? How are we not certain?"

Kashif Khan 11:57

This is my human code, and we're still at 80% because the data is built disease-centric. You have an 80% chance of [getting] Alzheimer's because we've seen that 80% of people with Alzheimer's get this gene variant, but we still didn't ask, "Why did they get Alzheimer's?" This gene is responsible for putting cholesterol into the brain to reduce inflammation. None of that tells us why you got the inflammation to begin with.

Kashif Khan 12:24

So step one for me was learning that genetics was a phenomenal and wonderful tool, but it wasn't being used properly because the research was being funded by trying to work with disease as opposed to systems. Then this stuff is too hard to

use. Unless I had a PhD sitting in front of me, it was a different language that made no sense. So those were the two missions. How do I take all of this—

Dr. Jill 12:47

Especially when we go back to RSIDs, right? In the literature, there are these RSIDs that are numbers and have no meaning. And when we talk about the GSTP1, GSM1, or MTHFR, you and I kind of know what it means, and there's more of a language around that. Even then, it can be complicated because there might be 20 variants. I just want to frame this because I know patients who are into this know as well as we do... And what you've done with your company is taken the complexity out of it. So keep going. I didn't mean to interrupt you, but it's so important.

Kashif Khan 13:15

No, you're right on because what I learned is that there's a ton, ton, ton of data. What I also learned is that data is dumb. It is useless unless you know what question to ask. The insights are what are valuable. So thinking as an entrepreneur coming in, trying to solve the problem as opposed to academically being told, "Here's how you do things," I said: "Well, what's missing here is... We already know what the genes do. Clinicians in the functional space are really good at understanding the conditions at the root cause, like yourself, and understanding environmental health. If we could put those two things together, that's kind of what's been missing." So we set up a clinic, and we spent three years with 7,000 patients. One by one by one by one by one, anecdotally solving their problems to get to the 100% every single time. Then we would learn something and put it in the inside bucket, and we would learn something and put it. And we just kept learning and learning.

Kashif Khan 14:10

We got to the point where we really, truly understood how to use the genomic map as a compass for why two of the exact same genomic maps in two different people, one got sick and one didn't. The difference was their environment, nutrition, and lifestyle. So you have to be able to understand: Here's the genome, which is not supposed to tell you that you have a risk of disease. It's supposed to tell you there's a certain biological function that's off, or maybe it's a little too good. That's all you should be doing with this tool: How am I making hormones, making neurochemicals, clearing toxins, etc.? Understand the biological function. Then you understand that if I paired that with my habits, environment, nutrition, and

lifestyle, that equals conditions or it equals living to 120 with no conditions. But you now know exactly what to do, and that's kind of where we've gotten to.

Dr. Jill (pre-recording) 15:00

Hey, everybody. I just stopped by to let you know that my new book, *Unexpected: Finding Resilience through Functional Medicine, Science, and Faith*, is now available for order wherever you purchase books. In this book, I share my own journey of overcoming a life-threatening illness and the tools, tips, tricks, hope, and resilience I found along the way. This book includes practical advice for things like cancer and Crohn's disease and other autoimmune conditions, infections like Lyme or Epstein-Barr, and mold- and biotoxin-related illnesses. What I really hope is that as you read this book, you find transformational wisdom for health and healing. If you want to get your own copy, stop by ReadUnexpected.com. There, you can also collect your free bonuses. So grab your copy today and begin your own transformational journey through functional medicine and finding resilience.

Dr. Jill 15:56

Yes. And what's neat is that I've seen [it] from the very inception; I think it was like a year before you came out. I think I did some of the testing on myself. And it's come such a long way from then. The kind of data that you have now, even from when I first saw it, is unbelievable, which is why I love what you do and having you here. We want the physician to weigh in, but even a patient without a physician, which we have direct... You can order these directly as a consumer, is that correct?

Kashif Khan 16:21

For sure, yes.

Dr. Jill 16:22

Yes. So you can get some information. And what I was going to say is that what I remember way back in the beginning was hormone pathways. All of our hormones have certain pathways, from cholesterol to pregnenolone to either DHA, testosterone, or estradiol. And what I saw in the way you framed it was stops and goes, like "this is slower," "this is faster." Literally within five minutes of looking at that report, it was like, "Oh, no wonder," because I knew what my hormones tended to be. I had breast cancer at 25, and I started to look at the patterns. And the way you, as an entrepreneurial mind, took this medical data that I've known for years

and put it into a report that was really legible, readable, and understandable was really well done. And that was your first iteration. Tell me—just because I'm not even sure that I know—from that very first [test and] some of those pathways, where have you gone and what kind of testing do you now have available?

Kashif Khan 17:11

First of all, yes, that's some nostalgia right there because those were our research reports, which even then still needed some interpretation and guidance. But, of course, they were far better than what was out there. Our intention is: How do I hand somebody who's never even seen the word 'genetics' before something where they get it, they can take action immediately, and they know what to do? It should be as simple as, "Here's what's wrong, and here's how you fix it." That's it. That's all I need to know. Science is there. Great. I can trust it. But just tell me this. We kind of built the tool that I wished I had when I was sick but didn't exist. So kind of reverse engineering: "I wish this was like this, and if I could..." It would have made things much easier.

Kashif Khan 17:58

So, first of all, people don't need a report. They need to know that for a problem like anxiety, should I be on the keto diet? Estrogen toxins—what is my body doing? I don't need to know the DRD2 gene, which we talked about earlier for dopamine. I need to know: Addiction—red flag, and here's why, and here are the supplements you take. Here are the habits to adopt. We might tell that person: Focus on reward instead. So, now we can understand them. The reports are laid out more in [terms of] problems. But even then, another piece that I wished I had, piece one, is: Tell me about the problems, not about the genes.

Kashif Khan 18:38

Piece two I wish I had is that now that I know this, teach me a little bit so that I can not be fed a fish but learn how to fish. I want to be able to use this tool. Because guess what? Your DNA doesn't change. So once you get this data, I want to be able to go back to it with whatever next problem I'm facing. Going from puberty to fertility to menopause—those are three different realities that have three different sets of problems solved, but your DNA hasn't changed. So if I had this test, I should be able to use it for the rest of my life. So in that, we created what we call GeneCast, which is this personalized podcast driven by AI that reads your results to

you and tells you what each gene is so that you can then use that as a tool and apply it to whatever you're working on.

Kashif Khan 19:22

The third thing that I've realized people need is a contextual shift in terms of how we think about problems, so we've added a bunch of videos to teach you. Before you start working on this stuff, you may not even understand the problem properly, and now that we understand the human body the way we do, we're going to teach you to rethink. As an example, when it comes to cardiovascular health, we don't think of cardiovascular health as a heart disease. We think of it as an artery disease. It's an arterial inflammation disease.

Dr. Jill 19:55

Yes. It's all about the endothelium. I keep preaching that. I could not agree more.

Kashif Khan 19:59

Exactly. It is an endothelial disease. That's what it is. The heart will keep going till the very last second, until you abuse yourself so badly that the heart is suffocating from blood and the ticker stops ticking. Meanwhile, what we need to know is: What is the quality of my endothelium—genetically predetermined—and its resilience capacity to inflammation? What toxins would cause me inflammation? How well do I transport lipids and cholesterol? Why would it build up? How do I deal with oxidation, which then actually oxidizes the cholesterol and causes it to build up and get me into something that we call cholesterolemia? So if you start to understand the root, we're teaching you how to rethink the problem so that you also look at the solutions differently. It's no longer about heart disease; it's more like, "I should never have inflammation in my endothelium." So that's another big layer that I wished I had in the beginning, which is now part of the whole reporting system.

Dr. Jill 20:53

I love it. For example, do you produce nitric oxide? Do you not oxidize [inaudible]?—or those kinds of things. Again, I couldn't be a bigger fan because you and I know cholesterol itself is inert. It's not the damaging thing. It's when it's oxidized by stress, EMFs, chemicals, toxins, a bad diet, a lack of sleep, and stress levels. And then the same way with cortisol. Cortisol is not a bad thing, but if you overproduce it or underproduce it, those can lead to conditions as well.

Kashif Khan 21:20

Exactly. There's plenty of evidence out there. If you look at, for example, Switzerland, they have the highest per capita cholesterol numbers in the EU, but they also have the lowest level of heart disease because they're healthy. They're not toxic. They eat all this cheese and fat all the time. They have plenty floating around in their blood. But they're not inflamed, and they don't have free radical activity in the blood oxidizing the cholesterol. They're fine. So you have to think about it contextually. Correct.

Dr. Jill 21:53

Yes. And just to reiterate, because if you're listening, you're like, "Wait, my doctor says... " First of all, the best state of mortality as far as the least risk of death was found for cholesterol levels 200 to 220—not 140 and not some of these levels—because we need cholesterol to make the hormones in our body and help our brains. And like you just said, just to reiterate, it's not the cholesterol itself; it's the damage to cholesterol, which is oxidation. So reactive oxygen from our environment, from our food, and from all the things that we do that abuse our bodies can create oxidative stress and damage to the cholesterol. And then it's [either] the sticky lining of the endothelium that gets damaged or there's not enough nitric oxide. And you're looking at genetics around: What is your predisposition towards endothelial damage, lack of nitric oxide, oxidized LDL, or even plaque like Apo-E, or a statin?

Kashif Khan 22:42

Yes, exactly. We have these people whose Apo-E gene is not functioning properly, so their baseline is just higher.

Dr. Jill 22:49

Yes. And those are the ones who may want to decrease their saturated fat intake—that small percentage of Apo-E4, 4.

Kashif Khan 22:55

Exactly. Yes.

Dr. Jill 23:02

What kinds of panels and things do you have to offer?

Kashif Khan 23:05

Yes, so again, going back to my journey... And I hate to sound selfish, but the way I healed myself took me through this journey of now understanding what people need. There are 22,000 genes in the human genome. We don't really know what we need out of that. What I'm trying to do is curate it down to what is highly actionable and solves most problems—chronic disease, aging and performance today, libido, energy, etc. So what genes are important? It's the functional genes, the systems, and the pathways—not my ears connected to my head or "I have a [inaudible]"; all this kind of stuff we don't need to know. We need to know: How do my hormones function? Etcetera.

Kashif Khan 23:47

So the six big systems we look at are everything about mood and behavior. How do you make neurochemicals? How do you bind them? How do you clear them? And you can then start to predict exactly how you behave, how you react, and how you perceive to make yourself mentally healthy, because we find a big chunk of healing happens here. Including myself, because I'm serotonin dysregulated and because I have this reward-seeking behavior, I burn myself out. I try too hard. I'm overly compliant. I'll take too many supplements, and I'll overdo it. And that was hurting me. I also overthink it, which also hurts me. So that's a big one: Mood and behavior.

Kashif Khan 24:24

The second is diet and nutrition. Should I be keto? Should I be vegan? Do carbs matter? Vitamin D [or] C. How do I do all of these little jobs? Very clear. If I take the vegan example, you need very specific enzymes to break down chickpeas, lentils, and legumes, and the genes that do that job are very clear. So if you're not doing well there, which, by the way, most people aren't, then you're not going to do well as a vegan longitudinally. You might feel good in the first few weeks, but if your gut cannot actually produce the enzymes to make that food digestible, you're going to struggle. So that's another one.

Kashif Khan 25:01

The third one is everything around sleep. And this is a big area, which, again, I know you speak a lot about and every functional medicine practitioner talks about. If you're not sleeping properly, forget about everything else. That's your recovery. That's when you're healing. You need to fix that. So we figure out what is blocking

someone from having an efficient circadian rhythm and clock, being able to not wake up at three in the morning, being able to sleep through the night and actually feel rested, and getting that deep, high-quality sleep. There are multiple different problems to solve, and we can solve all of them.

Kashif Khan 25:32

Three more systems. One is everything around chronic diseases [like] Alzheimer's, diabetes, and cardiovascular [disease]. The way we just talked about reframing cardiovascular disease, we looked at all major conditions like that. And the next one, number five, is everything around the innate health of the cell—detoxification, inflammation, glucuronidation, antioxidation—all these things that are a load on our cellular health, which ultimately speed up our aging. The intention here is: How do we slow aging down?—which is what I've done for myself.

Kashif Khan 26:02

The last one, of course, is hormones, [which is] another sleeper in terms of your average allopathic health care plan. Hormones are ignored when they're so implicit in every problem we're dealing with, especially when it comes to women's health. And the last thing I'll say is that we then take all of this and reinterpret it in the context of longevity: How do I take all of what I just learned and use it to add 10, 15, or 20 years to my life that I maybe wouldn't have had if I had the wrong habits? And the funny thing is, with the book that we were talking about earlier, I literally wrote it as this: My seven systems and who I am; what I had to change; what habits I adopted; what habits I removed. And it's literally laying out: Here's how I did it. And now you can start to see yourself in the story and do it for yourself.

Dr. Jill 26:48

I love that. We both talked about our books, [which] this spring were published. And the same thing; the story is that it's not really about you or me technically, but it gives a platform for other people to see themselves as a reflection of our journeys. And they're very, very similar. I was like, "It's really not about me. It's not really about you. It's about you showing the world and showing people who can use this genetic testing what's possible for them. And the same with me; I totally, totally understand.

Dr. Jill 27:15

You guys have created a landing page for clients and patients of mine. So if you're listening now, I want to say this, and we'll say it again, but you can actually go to drjill.dna.clinic and order your own test directly without a physician's order. So go check it out for sure. And again, we'll get the website for your book too. I want to talk a little bit more about your book. But if you are just joining us and are like, "I kind of want to do this," you can actually get this directly from the DNA company.

Kashif Khan 27:41

Yes, for sure. And that was one of our intentions: We removed some of the diagnostic stuff that makes it difficult for the consumer to access, which we really don't need anyway. It was [about]: How do we focus on the big problems [such as] chronic disease and aging? And because of the way we designed it as an educational tool, you can access it directly.

Dr. Jill 27:58

Yes. And I've ordered it for a patient. So if you're a patient of mine, you can get this order, and I can help you. But again, the way you have done it is so user-friendly. So if you are interested, no spaces, no underline, drjill.dna.clinic. You can get your own test there. So we talked a little bit about your story. We jumped into the testing that you've done. But now you've got this book out, and it sounds like it's your journey. I want to make sure people know about that and get a copy if they want [one] as well. But is there anything else that we haven't talked about with your book? Was it just in May that it was released?

Kashif Khan 28:29

It was just this past May. And for me—you know this very well—we're talking about May, but the book started a year and a half ago.

Dr. Jill 28:37

Yes, it's been a long journey.

Kashif Khan 28:39

Yes. So a year and a half ago. And we met sometime before that, actually. At the time we met you, we were still a research company; we weren't really a testing company per se. Yes, we had tests because that was our research tool, but the intention was to learn and document these insights and then work with partners. We became a testing company because of my niece, who sort of had a mental health

crisis, which, based on her genome, I realized was not at all a mental health crisis. It was actually a hormone issue. It was a hormone, vitamin D, and dopamine issue, which was being labeled as anxiety, for which she was being prescribed a pill, to the point where she ran away from home. And what I really learned is that she just didn't make hormones properly. This happened during peak COVID in Toronto, where we had the world's longest lockdown in the middle of winter. She hadn't been outside in like five months, and she got zero vitamin D. And the genetics of her vitamin D cascade are the worst possible.

Dr. Jill 29:40

The VDR, probably, right?

Kashif Khan 29:42

The VDR. Also, I think it's CYP2R1, which converts D2 into D3. And then in between VDR and that, there's a gene that transports. So the three steps of vitamin D metabolism genetically: Take D2 and turn it into D3. That's one gene. The second gene then transports it to the cell. Then there's the VDR, which then binds it at the cell. And for all three, she had the worst possible version, so she needs a heavy, heavy dose of vitamin D. So three months of anxiety attacks like clockwork at the very beginning of her cycle. She was being prescribed a pill. And when I realized it was happening at the beginning of her cycle, I looked at her hormones, looked at other things, [like] vitamin D, and looked at her dopamine pathway, which is just like mine, slim to none. I realized it was a vitamin D problem that was layered on top of her hormone problem.

Kashif Khan 30:29

But it happened now because of her context. Remember, environment, nutrition, and lifestyle. She hadn't been outside. So we fixed it. We fixed it the very next month. She has never had this problem again. It's been two years. She would have probably still been on medication today if I hadn't known this. And that's what launched me from [thinking]: "Wow, this is not a research tool. This is something that everybody needs." So one of our patients was actually the founder of this publishing company. And so I said: "Here's what's going on. The world needs to know this story." At that time, I didn't know what kind of tests we were going to have in 2023. I just knew that there was information that needed to get out there. And he said: "Yes, let's write this book. Let's do it." So I started writing.

Dr. Jill 31:09

I love it, love it. I love—in so many ways—that you've taken your entrepreneurial [spirit] and your genetics and kind of optimized them in the best way to help the world, my patients, my listeners, and everyone out there. And I really love that we ended here with your niece's story and on mental health because, [as] I have long said: I don't know—if it is, it's rare—that there's a pure depression without a cause, right? Whether it's a mold insult or a toxic insult, whether it's genetics, whether it's hormones, there are so many reasons why our brain... And we put that in the bucket of psychiatry. Then we use some drugs, which are perfectly appropriate to stabilize or treat. But so often, I would say maybe 90% of the time, just like your niece, I will find a very clear root cause, treat that root cause, and get patients off their medication. They feel amazing, whether it's depression, anxiety, or bipolar [disorder].

Kashif Khan 32:00

Yes, over and over and over again. The same story on this side. Over and over again. The best depression medication only works 40% of the time—the very best possible one that we have available today. Something like walking or exercising works twice as efficiently. This is published science. This is not just a random number. These are the actual numbers, right? So we know that there's a causation. You weren't born depressed. You weren't depressed when you were 11, 12, or 13. What happened? Something changed. So you've got to do that detective work. And working with someone with your brilliance is a blessing to do that reverse engineering. But we always seem to find a cause. And when you find that cause, all of a sudden, you're able to reverse instead of treat.

Dr. Jill 32:41

Love it. Love the work you're doing for the world. What's one takeaway—we've gotten so many pearls today—that you'd like to leave our listeners with today?

Kashif Khan 32:48

Well, if you take me, for example, when I started this journey, when I had five chronic conditions, I couldn't get out of bed. I was 38 years old, biologically 43. I learned about biological age testing when I started to figure out: How do I fix this myself? So I was 43 [biologically]—five years older than myself. I am actually 43 now. It's been five years since the day that I got sick and collapsed, and my biological age is now 33. There's one thing: How do I solve my problem? How do I become the best

version of myself? Then all the way to: How do I reverse time and literally get 10 years back? I screwed up and made some mistakes, but now I had the time back to start over again. So that's what potential is. If you look at the innate physical structure of DNA and the telomeres, the caps that are designed to protect your DNA, it looks like they're designed to last 120 years. So my belief is that we are here with 120 years of life, and it's the choices that we make that take years away. So if we did everything right and always made the right choice, [being] 120 [years old and] dancing at a wedding should be your reality. You should die of old age. But what we do and why our life expectancy is now 75, I think in the U.S., is because of the choices we make, the foods we eat, etcetera, etcetera. So just start making the right choices. Your DNA will help inform [you], among other things that can help you. And know that that is optional. It is a choice to get to that or not get to that.

Dr. Jill [34:25](#)

And data is power, which is what The DNA Company is doing. If you want to read your book, it's [on] TheDNAWay.com, right?

Kashif Khan [34:33](#)

Yes.

Dr. Jill [34:34](#)

And then, if you want to get your own test, you can go to drjill.dna.clinic and order your own test. I'm such a fan of patients getting data like this, which is one reason I love what you're doing. Thank you for taking your journey and making it such a powerful story to help the world, and then taking your entrepreneurial spirit and creating The DNA Company. Like I said, I've seen you all the way from the very beginning, and what you've done is really amazing. So thanks again for coming on today!

Kashif Khan [34:59](#)

It's a pleasure, Jill. Thank you so much!

Dr. Jill [35:01](#)

You're welcome!