

[194: Resiliency Radio with Dr. Jill: Protecting Your Brain from Neurotoxins with Dr. Raymond Singer](#)

[Doctor/Patient Movie Trailer]:

00:01

Dr. Jill: When I really knew something was wrong was when I started having trouble walking up the stairs. I was supposed to be grateful and happy and healing and well and thriving, but I did not feel that way. I was so sick. Like always, I wanted to find an answer, and I had to figure it out. And I had to figure it out to save my own life. So I dove in.

00:30

James Maskell: Jill is the leading voice in biotoxin illness and chronic conditions that are driven by toxicity.

00:35

Bree Argetsinger: Oh my gosh, you're dealing with mold? You have to work with Dr. Jill Carnahan.

00:40

Patient 1: Dr. Jill is the first person that actually began to shed some light on the problem.

00:45

Dr. Jill: What I do is listen to the patient, and we together talk about what else is possible.

00:54

Patient 2: I don't know why I'm crying.

00:59

Patient 3: She saved my life.

01:03

Dr. Jill: The deepest lessons and most profound insights come in the suffering, come in the dark moments. Self-compassion is the healing

transition that shifts something inside of us. It's actually the thing that we need most in order to heal.

01:27

Narrator: *Doctor/Patient*—available now at DoctorPatientMovie.com.

Dr. Jill 01:49

Welcome to *Resiliency Radio*, your go-to podcast for the most cutting-edge insights in functional and integrative medicine. I'm your host, Dr. Jill. In each episode, we delve deep into the heart of healing and personal transformation. Join us as we connect with renowned experts, thought leaders, and innovators at the forefront of medical research, empowering you with knowledge and inspiration on your journey to health.

Dr. Jill 02:13

Today, I am absolutely excited to introduce you to my guest, Dr. Raymond Singer, a board-certified forensic neuropsychologist specializing in neurotoxicology. He testified in several groundbreaking litigation cases, expanding the rights of people to get compensation for neuropsychological injuries from neurotoxic chemicals. He served as an expert witness in the landmark Agent Orange Vietnam Veterans Litigation, which resulted in the largest settlement at that time for toxic chemical injuries. He was recently featured in an opinion by the United States Supreme Court. Dr. Singer, welcome so much! We're excited to have you here.

Dr. Raymond Singer 02:58

Thank you. I'm glad to be here!

Dr. Jill 03:00

Yes. We've got a lot to talk about. Before we dive into neurotoxicology and forensics, tell us a little bit about: How did you get into this area of medicine and testifying for clients? How did you get into this pathway?

Dr. Raymond Singer 03:17

It goes back a long way. When I was a graduate student at Washington State University, I was watching TV one day—actually, it was a black and white TV—and I saw an image of Dr. Irving Selikoff at the top of the Annenberg Building in New York

City talking about his work in environmental toxicology. I was so inspired by his words, his actions, his demeanor, and the work that he was doing. It didn't go beyond that at the moment. Until years later, when I was in New York City, I was asked by my sister's—who's a psychologist—friend, who was pregnant and working for Dr. Selikoff, to substitute for her on a trip to Michigan State to conduct research on neurotoxicology. At that moment, I was a postdoctoral fellow at New York University, but I managed to get a couple of weeks off to join the team. We went to Michigan State. I can tell you about the research we did there.

Dr. Raymond Singer 04:38

This was under the direction of Irving Selikoff, the man who brought asbestos to the world's attention. He was, I believe, the premier public health doctor of his day. He brought me into the program. There is where I learned neuropsychology, neurotoxicology, epidemiology, and some more statistics. I was inspired to go out and apply the knowledge that we learned there.

Dr. Raymond Singer 05:19

We went to various places around the country to examine workers exposed to solvents—lead, mercury, pesticides, and Agent Orange. It was my work doing nerve conduction velocity assessments of Agent Orange workers that later led to my being hired on the Agent Orange litigation—because the work I did was, I guess, groundbreaking, showing the neurotoxicity of Agent Orange.

Dr. Jill 05:56

Yes. This is so needed. That's why I'm so excited to be here with you today. Here I am, a medical doctor in clinical practice, and every single day, one of my areas of expertise is how the environmental toxic load and the toxicants and toxins in our environment affect our bodies. And it's something that, sadly, most medical professionals are very unaware of. To me, it's the elephant in the room of all of our immune dysfunction, our brain dysfunction, and our rising rates of Alzheimer's disease. Again, you're going to talk a lot about this.

Dr. Jill 06:27

I'd love to frame this with a quote from your website, which is full of resources, Neurotox.com. It says at the very top: "Neurotoxicity is a cause of brain damage. Common symptoms can include problems with memory, concentration, reaction

time, sleep, thinking, language, as well as depression, confusion, personality changes, fatigue, numbness of the hands and feet," and many, many more things. "Many nervous system disorders could be caused by neurotoxicity, including numerous neurologic and psychological disorders." You and I know this, but for those listening, what percentage of people who are experiencing neurological or psychological symptoms or ones like that do you think could potentially have a toxin at the core?

Dr. Raymond Singer 07:18

It can be very large. In part because, as you know and as your listeners might know, the brain itself doesn't have pain receptors. The covering does—the dura. But the brain itself doesn't have pain receptors. When people are injured by a toxic substance, they won't necessarily feel the pain. Headaches can result from inflammation and so forth—inflammation of the blood vessels and the dura—but it may not be an initial symptom. So, unfortunately, we can suffer from neurotoxicity and not be aware of it. The big problem with lead that we've had in our society—lead paint and lead in gasoline—is people getting injured. It's pretty subtle because the brain injuries are also relatively cumulative. Once you get an injury, it's difficult to recover. Some doctors are well-versed in how to bring about that recovery but most doctors are not.

Dr. Raymond Singer 08:45

The accumulation of a brain injury and possibly the synergistic effect of different chemicals that we might be exposed to—for example, lead in the environment, mold, or pesticides in the food supply—is why I encourage everyone to eat organic produce. Pesticide residues remain in foodstuffs [and there is] the GMO aspect of the food supply. And the Roundup that's put onto the GMOs gets into the food supply.

Dr. Raymond Singer 09:33

This unfortunately leads to an assault on us and the brain—a variety of toxic chemicals that our body has to deal with and manage. If it's a small amount, our detoxification systems will work fine, and we'll be able to detoxify. But if it's a larger amount, then it's taxing, and we may suffer from silent brain damage that can result in all the symptoms that you mentioned. The brain controls all behavior. It controls

the nervous system. It controls the heart rate. It controls digestion, sleep, personality, memory, energy levels, and on and on and on.

Dr. Raymond Singer 10:33

One of the interesting but unfortunate things from a neurotoxicological point of view is that any part of the brain can be affected by toxic substances. Any function of the brain can be injured by toxic substances. Sometimes it could result in strange types of behaviors and strange types of problems. But more commonly, there are problems with short-term memory, learning, reaction time, and psychomotor speed. Long-term memory tends to remain but more recent memories start to fade and new memories for many people can't even be formed.

Dr. Raymond Singer 11:28

Another untalked-about aspect of neurotoxicity is its pervasive effect on personality. This is rarely studied in neuropsychology or neurotoxicology. But in my years of working with people with chemical exposures—I guess probably in the thousands—and administering personality tests to many of them, I can tell you that personality is often affected and often damaged by the exposures. It could be secondary to the loss of function or it could be a primary effect on the brain areas that control personality, which must be pretty widespread.

Did you want to ask a question or should I keep going?

Dr. Jill 12:20

Oh gosh, I love this! A couple of thoughts, and then I want you to keep going. The first thing is, I just want to reiterate that toxic load is the concept that you're talking about that I've talked about a lot too. We're born in this world. Twenty years ago, the cord blood of infants had over 200 chemicals, [coming] from a Canadian study. So we often come into the world with a toxic load. Like you said, I think it's really important to understand that sometimes we can tell, but many times we are inhaling, ingesting, or getting exposed to these chemicals through the skin or the air and don't even know it.

Dr. Jill 12:53

One concept that I wanted to highlight was insight. I've seen this with mold. Insight is the ability, in real time, to understand what's happening. Many times, with

chemical exposures and, in my experience, with mold, you lack insight. It almost sabotages your ability to know, in real time, what's happening. You might look back later and say: "Oh, that was so strange"—that behavior or that lack of memory. You may put it together in hindsight, but in real time, we often don't realize how much it's affecting us. Is that true?

Dr. Raymond Singer 13:22

That's absolutely true. And many of my clients think that they're going into Alzheimer's disease because of what they're experiencing. Actually, the symptoms of neurotoxicity are very similar to [those of] Alzheimer's disease. You could almost say [they are] indistinguishable. Alzheimer's disease is a diagnosis that people get when they have certain symptoms. But the cause of Alzheimer's disease is probably not plaques.

Dr. Jill 14:00

Correct.

Dr. Raymond Singer 14:03

It's interesting that we have similar viewpoints on this.

Dr. Jill 14:05

Yes. Dr. Bredesen, who's a teacher on how to reverse Alzheimer's and is looking at all the underlying causes, will say that one in three of his young people—I'm talking young, 40s, 50s, early 60s—with Alzheimer's are related to mold toxicity. Maybe that's a good transition because we both love to talk about mold. What are maybe some of the interesting cases or things you've seen related to the mycotoxins that mold produces and how it affects the brain, the personality, and some of these things?

Dr. Raymond Singer 14:33

I've seen a lot of mold clients. I started studying mold neurotoxicity in 1999 when a professional nursing organization asked me to give a talk on it. I said, "I don't know anything about it." They said: "Well, find out about it and come and talk to us about it." So I did that. And I've testified in many mold cases over the years.

Dr. Raymond Singer 15:02

Two mold cases come to mind. One was of a family exposed to mold in a region where there was an unusual amount of rainfall and an unusual infestation of mold in their home over a period of time. The little girl in the family developed an autistic-like condition and was quite destructive—self-destructive and threatening her parents with violence. She was just a little girl. She couldn't perpetuate violence. But it modified her personality and emotions, as well as her ability to think. She suffered from that.

Dr. Raymond Singer 16:04

Another mold case that I worked on included other toxic chemicals. But this was a criminal case. A man lived in a moist part of the country in a trailer that was very moldy—visible mold in the trailer. Eventually, he lost his mind. He went out and—I hate to bring up bad things—he shot and killed a bunch of people, including a law enforcement officer who was a friend of his. He said he was cleansing the land for Hispanic people. He was part Hispanic. He got these delusions into his mind that were partly induced by the mold.

Dr. Raymond Singer 17:15

My colleague at the time took samples. We think that there may have been a variation of LSD in the walls and on the pillows from the various mold mycotoxins that were emitted. But I'll talk a little bit more about the case and then we can go on to something else. He was set for the death penalty. We were able to show the court that there were mitigating circumstances that caused him to go insane and commit these horrible, tragic crimes. But we were able to show the court that neurotoxicity, including mold, can alter the brain—the structure and function of the brain—and lead to permanent changes that can alter a person's ability to control their impulses, judge, and manage their behavior.

Dr. Raymond Singer 18:33

In this case, he was spared the death penalty and put into a beautiful psychiatric facility where I had examined him in the state. A very nice facility. But unfortunately, he was still mentally ill. And he got a girlfriend to try and have him break out of jail. The last I heard, he was put in state prison.

Dr. Jill (pre-recording) 19:07

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. Raymond Singer 20:03

And he's probably going to be there for a while.

Dr. Jill 20:06

I've often wondered because some of the most affected water-damaged buildings are civic, like courthouses, prisons, and schools. You and I know how much this can affect the brain. I have several school systems where I work with kids and we know there's water damage. I can document that their learning and IQ have gone down in certain situations.

Dr. Jill 20:27

There's another story I have. I've mentioned this on air before, but I have a friend who had a house that was massively affected by Stackybotrys, which produces some really bad trichothecene toxins. They didn't know this, but later they looked into it: [With] the previous owners, several times back, there were two homicides and a suicide in that home. I have no doubt that it's connected to those mycotoxins because it really does change brain function.

Dr. Jill 20:53

These cases are fascinating. I get it, and it's so real. And I love that you're bringing awareness. Especially my patients sometimes feel like: "What is wrong with me? I can't think clearly." Or a lot of times, I'll see relationships or marriages break up because of personality changes. You and I both know this affects people so profoundly.

Dr. Raymond Singer 21:15

Yes. I would say that very often families break up over—sometimes over mold—neurotoxicity in general. But I've seen a lot of family problems. Even if they realize what's causing it, the changes in personality and behavior are so profound that the spouse sometimes just can't take it anymore.

Dr. Jill 21:46

Yes. I could talk about mold all day long. And we both know there are profound effects. One thing I thought too, when you were saying that, was the Salem witch trials. They think, now in hindsight, that there were some mycotoxins in the grains that affected them, like LSD, which makes sense of that test that you mentioned. Did you come across some of that data from those...

Dr. Raymond Singer 22:05

Yes. That's what I thought about in this case, where they found LSD-like substances. Unfortunately, my colleague, who was the premier expert in mold, Jack Thrasher... I don't know if you know him.

Dr. Jill 22:21

Yes, I do.

Dr. Raymond Singer 22:22

Okay. He passed away. It's a tremendous loss. And also, Kaye Kilburn, another leader in the field. He passed away. Unfortunately, the leaders passed away. Another occupational hazard is that they lose their licenses to practice medicine for diagnosing mold toxicity.

Dr. Jill 22:47

Yes. Fortunately, I think things are shifting a little. It's really crazy because, for those listening, in medical school, we're taught that it's an allergen. That is true. But what we're talking about is this whole inflammatory, innate immune system dysfunction. It massively affects cognition, the brain, immune function, and so many other levels. It's not just an allergen.

Dr. Raymond Singer 23:09

Right. Okay, I'll get back to it. I've been thinking about this—about multiple chemical sensitivity. I've also worked in many of those cases.

Dr. Jill 23:26

What are some of the other common things you see as toxicants or toxin exposures in some of the cases? I'm sure there are solvents, metals, and chemicals like pesticides, like we talked about. Do you want to share some of the different kinds of cases that you've come across that have affected people very dramatically and that maybe our listeners wouldn't be aware of?

Dr. Raymond Singer 23:46

Yes. Pesticides—you do have to watch out for those. I am currently working on a case of people with pesticide exposure from exterminators who misapplied pesticides in their homes. There is another hidden toxic substance I wanted to talk about that can affect modern homes. Beware if you have foam insulation to insulate your walls in your home. If it's misapplied, it can continue to outgas into the home environment and put out methylene diisocyanate. Flame-retardant forever chemicals can also be emitted from these substances.

Dr. Raymond Singer 24:53

I'm working on a case where a whole family was affected by this. It was a family that built their dream house on 100 acres of land. It had everything in it, and they wanted it to be really well insulated. Unfortunately, the people applying the substances applied them too thickly and it consequently took a long time to outgas. It had to outgas a lot. So that's one thing to be aware of in home insulation.

Dr. Jill 25:41

Have you had cases with other materials in the home, like formaldehyde, off-gassing of things on cabinets or flooring, or maybe flame retardants? We want the home to be this wonderful, safe place. But what ends up happening is that if there's water damage or new materials that we're not aware of, sometimes the home can be the problem because it's off-gassing or contributing to the toxic air quality inside.

Dr. Raymond Singer 26:09

Yes. For sure. Formaldehyde is less of a problem these days. I think it's because we raised such a fuss about it when it was first so widely used a couple of decades ago. We participated in litigation against the formaldehyde uses and companies. And

now there seems to be much less of it used in products. But I would be careful in mobile homes—I'm not sure—because that's a pretty closed environment.

Dr. Jill 25:50

We mentioned before we got on here that sometimes psychiatric drugs can have effects. I know I've seen cases. I'm sure Ambien is one that you've seen do some strange things and maybe the SSRIs. Do you want to tell us a little bit about how these drugs may have unintended effects and how you might have seen that play out in the courtroom?

Dr. Raymond Singer 27:10

Yes. Sure, okay. Psychiatric drugs—read the labels very carefully, because a lot of times you could find warnings on the labels of what could possibly happen. For the drug companies, it's good to put them on the labels so people can know that. Many of these psychiatric drugs that are designed to improve mental health have been linked with violence, aggression, hostility, and reports of homicide. If you look... I forget what the acronym stands for.

Dr. Jill 27:50

Reportable injuries from meds.

Dr. Raymond Singer 27:51

Yes. If you look on the reports, which I did... I've been involved in several criminal cases where people committed murder. I was able to link that to the psychiatric drugs that they were taking. The typical scenario goes like this: A person is not feeling well. They have some depression or—whatever the problem is—anxiety. They go to their doctor. Typically, it's a GP, a general practitioner, and maybe not a psychiatrist. They have prescribed the drug.

Dr. Raymond Singer 28:41

They come back to the doctor [after] a little while, and they say: "I'm feeling worse with this drug. What can you do?" Then they may double the dosage or more. They may add another drug. Then the person who's taking the drugs is taking way too many drugs that are causing mental disturbances. Then the practitioner may suddenly take one of the drugs away, which leads to withdrawal symptoms—the abrupt withdrawal syndrome from the abrupt withdrawal—and then maybe add another drug. Anyway, this goes on.

Dr. Raymond Singer 29:34

Unfortunately, sometimes it's a spouse who could become the victim of a person who develops a psychotic break, goes into a rage, and commits murder. I've worked on these cases. Another interesting aspect of the case is that even when we can demonstrate that the person had diminished responsibility for what they did, the person still has remorse. They did it. They know they did it. And maybe a drug impaired their ability. But here they did it, and then they suffer the terrible loss of someone that they loved and still love. It's a terrible tragedy all around.

Dr. Raymond Singer 30:39

I just encourage people: If you're taking psychiatric drugs and have adverse or worsening effects, talk to your doctor and tell them that you're not feeling well. Ask the doctor to consider whether it's an adverse effect of the drug. Don't stop taking drugs without a doctor's supervision, because that itself can have an adverse effect.

Dr. Jill 31:07

Yes, you're right. These things are very, very powerful. And I couldn't agree more. As physicians, we need to monitor if our patient is taking them. I'm a general practitioner and I know my limits. So in some cases like those, I would make sure a psychiatrist or an expert is involved. And that's another thing you could do as a patient if you're out there and concerned about your medications—you could see an expert in that area to make sure that you have good, proper supervision. So I really like that you mentioned that.

Dr. Jill 31:44

Agent Orange and some of those things—I want to talk a little bit about that. But there are these cases, like some of the trains that exploded—the chemicals in the environment. Have you been involved in any of these places where there are a lot of people in an area affected by a certain chemical?

Dr. Raymond Singer 32:05

Not that many of that. Typically, I'm hired now by a lawyer who represents an individual with a problem. One of the problems, just generally speaking, with class action litigation is that often the individual gets lost in the shuffle. Maybe the group

gets money and the lawyer gets lots of money and they settle the case. That's great for them. But the individual may not get the compensation that they want or need.

Dr. Raymond Singer 32:50

I did want to talk about another general topic, which I would call the neurotoxicity of warfare. That's a huge source of neurotoxicity in our society. And just to review the Agent Orange litigation—some of your listeners may not be as old as I am and may not remember what went on—Agent Orange is an herbicide that was used to defoliate the forest so that the American pilots and bombers could see the Vietnamese adversaries, the Viet Cong, as they traversed the Ho Chi Minh trail and other places. They would use tremendous amounts of these herbicides to defoliate the forest. The land is still contaminated with dioxin from these efforts. And, of course, the Vietnamese were affected by Agent Orange.

Dr. Raymond Singer 34:01

Dioxin is a contaminant of Agent Orange from 2,4,5-T to a large extent. It wasn't meant to be there but it got there. Dioxin at the time was considered and maybe still is one of the most toxic substances known to man. I feel sorry for the Vietnamese who have been exposed to it. But also our servicemen and women who were there were exposed to Agent Orange handling it, loading up the devices to spray it, and during the spray of it.

Dr. Raymond Singer 34:43

The manufacturer didn't tell people that it could be neurotoxic. There are some studies that show it in rats and so forth. They knew or should have known that it was neurotoxic when they were giving it such a widespread application. So that's how the Vietnam veterans were able to sue the chemical companies for this problem. The servicemen were unable to sue the federal government for negligence, even though the government was negligent in using this product.

Dr. Raymond Singer 35:26

But that's just one of the substances. And then there was the Gulf War syndrome that took place. That was a variety of substances, including the burning of waste material. They would put their garbage into these big pits and burn it.

Dr. Jill 35:47

And would that include chemical garbage, excess stuff that got burned, and plastics?

Dr. Raymond Singer 35:50

Yes, anything. Anything would go into it. In fact, President Biden refers to his son, Beau Biden, as being injured by war in the Gulf War. He's been criticized: "Well, his son was not shot." But his son was exposed to these chemical toxins, developed brain cancer, and unfortunately passed away. So, President Biden was correct in that analysis, in my opinion.

Dr. Raymond Singer 36:33

Other sources of neurotoxicity from war include the shells that are used to fire against tanks to penetrate tank walls. These shells can be made with hardened uranium from the refuse from nuclear power plants. They take the waste and use it to harden the metal for these shells. Then shells explode and leave the radioactive material all around there, contaminating the soldiers and anyone who comes upon it later.

Dr. Raymond Singer 37:26

In addition to that, I've worked with veterans from Camp Lejeune and other bases where there was a contaminated water supply. The federal government is not subject to OSHA—the Occupational Safety and Health Administration—laws. So they can pollute with abandon. And unfortunately, the federal government has done that in the past—contaminating the water supply for the service workers. I've worked on a number of those cases and helped those veterans get their compensation. Now, though, the government has opened up the compensation window. So now many are able to get compensation for these injuries.

Dr. Jill 38:27

What kinds of things were in the water supply? Was it multiple chemicals?

Dr. Raymond Singer 38:32

Solvents—tetrachloroethylene or trichloroethylene. That was, I guess, used for degreasing aircraft or armaments. I think that was the main contaminant in the water supply.

Dr. Raymond Singer 38:55

Just to round out the cases, I've worked on the case of a veteran who was tasked with cleaning out the fuel tanks of jet planes. The government did not give him adequate respiratory equipment. He would go into these chambers, come out and pass out, and get high from it frequently. This went on for a long time until one day he had some dental work done and was given, I guess, opiates to relieve his pain. But between the opiates and the neurotoxicity that he had suffered from the years of exposure in the gas tanks to gasoline fumes and degreasers, he, unfortunately, got involved in a homicide. He didn't mean to. It was a very unfortunate event. But he was in that homicide.

Dr. Raymond Singer 40:30

He was represented by Laura Udall. Laura Udall is a famous name in Colorado and Arizona because she's from the Stuart Udall family. We've had Senator Udall from New Mexico and from Colorado. Anyway, Laura Udall. Luckily, he was represented by Laura Udall. She brought me into the case. I'm going to spare you the horror of the case. It was a horrible case involving... I'm not going to tell you. But we managed to educate the jury that there were mitigating circumstances to this man's behavior. They did spare him the death penalty. He was not going to get a "not guilty by reason of insanity." Although, I have had such a case. I don't know if you want me to talk about that case.

Dr. Jill 41:29

Sure.

Dr. Raymond Singer 41:32

I've had a couple of cases of neurotoxicity where the verdict was not guilty by reason of temporary insanity. One was a murder case; one was an attempted murder case. The murder case involved a man with exposure to pesticides. It was a complicated case. He was poisoned by pesticides in a very unusual way and became psychotic and delusional. It was completely out of character. He hadn't had it before the exposures. Afterward, as I was saying, he was acquitted. He was judged temporarily insane. He spent many years in a psychiatric hospital. He recently contacted me. He's out of the hospital and trying to resume his life now. It was horrible because it killed a family member.

Dr. Jill 42:42

Oh, wow. It just goes to show. I think the moral here is that these chemicals in our environment have such a profound effect on our health. In the case of what you witnessed, they have a profound effect on personality, mental acuity, cognition, and even memory. I bet there are some cases where many of these people under a certain influence of chemicals can hardly remember what they even did. So it's really profound. And like I said, I think our awareness around it is important because, as medical doctors, we want to help patients clear this from their system and get out of exposures.

Dr. Jill 43:23

At the beginning, you talked about breathing clean air. I always say clean air, clean water, clean food. It's up to us to make sure. Our government isn't going to protect us, unfortunately. They just don't have the bandwidth and are not checking chemicals in synergy. And they're not really doing due diligence on a lot of these things that are being put into the environment, as I'm sure you can tell. So it's up to us. It's up to us. If you were to talk to our listeners, whether they're patients or people who are living in this environment, what would be your big takeaway for everyone listening?

Dr. Raymond Singer 44:07

I would say a couple of things. One is that it takes a while for the medical establishment to understand the effects of toxic substances. When I started out in my practice, there were exceedingly few doctors who had any knowledge of this or any willingness to study it. And nowadays, there are doctors like you and a handful of others who do have this understanding. So if a listener thinks that they have a toxic chemical problem and is seeking out medical help, I do urge them to seek out doctors who specialize in this area. Otherwise, you're going to get blank stares because the medical doctors don't know. They don't understand. They're not really paid, in a sense, to understand this. Well, I don't know. Let's put that aside.

Dr. Jill 45:09

The training. And I'm 20 years out.

Dr. Raymond Singer 45:11

The training, yes.

Dr. Jill 45:12

There's no training. There really isn't.

Dr. Raymond Singer 45:15

When I was at Mount Sinai School of Medicine, what I learned was that the average medical doctor had four hours of training in environmental or occupational medicine. I hope it's changed since then.

Dr. Jill 45:28

Yes. Maybe a little more. Maybe 8 or 12, but not much more. And everything that I've learned about this kind of medicine has been mostly postgraduate. So it is true. You have to really understand. Part of my passion of being here with you is educating. We have a lot of practitioners who listen, too. The more doctors who can get curious and start to say, "Well, what if..." Even if they don't know everything about it, if they can just see a patient's symptoms...

Dr. Jill 45:55

I'd love to hear your thoughts on this, but history is everything. If I say, "At this point..."—either in a new environment, a new house, or a new exposure—and that changed a behavior or symptom dramatically from that time forward, that could be involved. So if you take a great history, you can often tell if there's an environmental exposure that could be at the root.

Dr. Raymond Singer 46:16

Yes. In fact, as my practice in neurotoxicology has evolved over the years, I rely more and more on history and the details. If someone is in litigation and comes to see me, they spend a day and a half or two days in my office with me and my staff getting tested and talking about: What exactly happened? What are the symptoms you have? When did they start? What are they like? I find that that gives me more information than the tests sometimes.

Dr. Jill 46:54

I could not agree more. I am a mold expert, so I diagnose a lot of mold toxicity. I would say 100% of the time, in the history, I usually know the diagnosis. That's not science-based. Well, our intuition may be a little bit. But I actually prove it with the test. So I go back and make sure that we're really dealing with that. But my staff

jokes about my percentage of accuracy being almost 100%. When you're really listening to the patient and you put it together, you can usually have a pretty good idea of what is causing or contributing to their illness before you even prove it with the testing. And I'm sure you do the same just [by] listening.

Dr. Raymond Singer 47:32

I totally agree.

Dr. Jill 47:35

Amazing. I am so grateful for you, your time, and your work in the world. I'm assuming people can find you at your website, Neurotox.com. We'll leave that link. Is there anything else you'd like to share with our audience or anywhere else where they can find you or get more information?

Dr. Raymond Singer 47:55

They could pick up my book, *Neurotoxicity Guidebook*, which is available on Amazon. I wrote this book at the beginning of my career. But when I look back and read it, it still rings true.

Dr. Jill 48:10

These things do. So *Neurotoxicity Guidebook*—we will link to that. I'm going to get myself a copy. So, thank you. Thank you again for the work you do in the world, because this is hard work. And from the experience you've shared with us, these are not easy cases. You've dealt with some really tough subjects, but I'm grateful there are people out there like you doing this work.

Dr. Raymond Singer 48:34

And I'm grateful for you, who's doing the work of treating all these patients who have nowhere else to go, really, and who find help with your services.

Dr. Jill 48:47

Thank you. Please go out and buy a copy of Dr. Singer's book. We'll link to that. And thanks again for being on the show.

Dr. Raymond Singer 48:55

You're welcome.

Dr. Jill 48:56

Thanks so much for tuning in to this episode of *Resiliency Radio*. I hope you enjoyed the interview with Dr. Singer as much as I did. Stay tuned for future episodes. We release a new episode every week. You can watch us on YouTube. You can listen on iTunes, Stitcher, Spotify, or wherever you listen to podcasts. And please do stop by; leave a review. It helps us reach more people. Join us again next week for another guest. If you want more information, transcripts, or downloads, you can go to JillCarnahan.com. For products and services, go to DrJillHealth.com. And I hope to see you again next week!