174: Resiliency Radio - Dr. Jill talks to biologist Nicole Bijlsma on Healthy Home - Healthy Family

Dr. Jill 00:12
Hello, everyone, and welcome to another episode of Resiliency Radio with Dr. Jill! Today, I have my new friend, a building biologist and expert in environmental toxicity, Nicole Bijlsma. We met several months ago when I visited Sydney, Australia for the ACIIDS conference. And I'll tell you, Nicole, [that] your lecture was one of my very, very favorites of the whole conference. It was amazing. So I'm so excited for the treat that our listeners are in today. Let me formally introduce you and then we'll dive right in.

Dr. Jill 00:44
Nicole is a building biologist, a best-selling author, and the founder of the Healthy Home movement in Australia. She established the Australian College of Environmental Studies in 1999 to educate people about the health hazards in the built environment. Nicole has lectured at tertiary institutions for 30 years, has published in peer-reviewed journals, and is regularly consulted by the media to discuss mold, electromagnetic fields, and toxic chemicals. She lectures in Australia, where I heard you, and abroad about environmental health issues. Her research explores the impact of environmental exposures on human health and the ramifications in clinical practice. So welcome to the show!

Nicole Bijlsma 01:22
Thank you so much. It was so wonderful to meet you and to listen to your story and how we got into it. And I just see people like us [where] it's adversity that gets us into this to realize, especially as clinicians, how we can help these patients and how our underpinning knowledge in our training wasn't adequate to help.

Dr. Jill 01:42
You're so right. And the same with medicine and your field; what we were taught really doesn't go to the extent of the calamity that our patients are experiencing. I want to be sure to hold up your book. I have my own copy here. It's *Healthy Home Healthy Family*. I got mine on Amazon. You can find it anywhere books are sold. But I really want to encourage our listeners: If they want to know more about you after this podcast, they can get their own copy of the book. Let's start with your story,

because [one's] story drives everything. And I'd love to hear more about how you got into this, especially mold and environmental sensitivity.

Nicole Bijlsma 02:16
Well, it began as a result of two events. At the time, I was working as a naturopath and acupuncturist. I was normally seeing that many of my patients with asthma, allergies, and long-term fatiguing syndrome, including some autoimmune disorders, were not getting better by changing their diet or their lifestyle or giving them a bag full of biaceuticals or herbs. It wasn't until we moved into our first home that my husband and I were getting insomnia and sleep disturbances within days. We didn't think anything of it. And then, in the first 12 months, I felt pregnant. I was 30 at the time and subsequently had a miscarriage, a first-trimester miscarriage, and went on to have 10 miscarriages in this home, which was on half an acre on the river.

Nicole Bijlsma 03:08
It was really lovely. My in-laws would refer to it as a B&B. It was lovely, but there was something drastically wrong. To my neighbor about seven years into my infertility, I said, "Has anyone successfully had children in this house that I'm living in?" She goes, "No." And I went, "What? Seventy years old. It's lovely. It's a clinker brick." And then I started to realize: "Wait a minute, wait a minute; the timing of exposure correlated with when we moved in." So I started to look at what was happening in the house and noticed that we were sleeping on the other side of the wall, adjacent to the meter panel where all the electricity comes in. I started looking into that and realized there was a magnetic field. During the night, as a result of the hot water service kicking in, we were exposed to high levels of magnetic fields.

Nicole Bijlsma 03:55
There was a European wasp nest outside of our bedroom window, which in geomancy is a sign of geopathic stress. So I had a dowser come and identify a significant fault line immediately under our bed. I also noticed we were on a T-intersection and started to measure the noxious gases coming from car exhaust and noticed the carbon monoxide levels would triple in our master bedroom closest to the road, even though it was still within exposure standards. It took hours to

dissipate before peak-hour traffic kicked in. So the levels were often very high—carbon dioxide levels, carbon monoxide, nitrogen dioxide, etc.

Nicole Bijlsma 04:35
To top it off, I'd come home and, on occasion, the council were there spraying pesticides on our blackberry bushes because we boarded Park's Victoria near the river. And I'm going, "There are all these factors you cannot see or smell that impact human health." So I started to look at the data at the US EPA's website and I was shocked at how much information was available on your air quality that was never translated into a naturopathic degree or into an acupuncture degree. I realized that there's a whole element of environmental exposures that are having impacts on health that we're not translating into clinical practice.

Nicole Bijlsma 05:14
So I literally spent 10 years researching this off my own back and my husband at the time went, "I can't believe you're spending all this time into it." I said: "I just want to know what causes people's problems. I want to get to the root cause. I'm sick of giving stuff to treat symptoms. I want to get to the cause." I put my pen down and I would do two-hour consultations with my clients and I started to notice, "Wow, your asthma began when you moved into the house and you can see mold. That's the fifth person I've heard." You know, "You have sleep disturbances and you said the meter panels next to your head and you're the eighth person who said that." So I started to take really comprehensive exposure histories and started to notice patterns. I then walked into their homes and went, "Oh my God, this is actually a big thing."

Nicole Bijlsma 06:01
Then, in 1999, I established the college. In 2005, I became nationally accredited [with] government-accredited training and [got] established [in] the building biology industry, which is a two-year full-time course that teaches people to walk into buildings and identify potential hazards in the home from meth—drugs are a huge problem now with vaping, everything that's a whole new story—pests, allergens, dust mites.

Nicole Bijlsma 06:26

The amount of people with allergies in their homes who are allergic to their pets and don't even know it... They've never done type 1 hypersensitivity reactions and they've got asthma, allergies, and hay fever directly associated with their animals. It's extraordinary. As a clinician, I'm thinking, "How could I have not asked about this?" Mold is the biggest thing we do, and of course, electromagnetic fields, which is a nightmare. We're bathed in these manmade frequencies and they're having serious health effects that unfortunately are not obvious because the latency periods are so long.

Dr. Jill 06:59
Yes. First of all, just wow, because you just gave us such a great overview. And I had no idea what you went through personally. But before we started recording, we were just saying that so often the suffering and difficulties in our own lives are a driver for that, especially if you desire to learn like you and I both do. It ends up being a huge blessing, as awful as it was, because here you are, this incredible expert. And like I said, I've heard a lot of environmental experts and you were not only fun to listen to but so knowledgeable on so many levels.

Dr. Jill 07:29
And what you said is so true. I know our people listening are understanding this. We can do all the herbs, the IVs, and the supplements in the world, but if your environment is toxic and you're swimming in toxic soup, I like to say, it is a huge thing. It's also somewhat insidious because we can be in that place and not have a clear idea that that's what's affecting our health.

Nicole Bijlsma 07:52
Absolutely. And this is why your lecture was so powerful—listening to your story, especially in relation to pesticides. When I published the first paper as part of my PhD on environmental chemicals and their impact on human health, I remember my supervisor going, "Just write a paper on that." I looked and went down multiple rabbit holes for months and went: "Oh my God. I don't know where to start." But pesticides came up as the worst. They're associated with neurodevelopmental disorders at one end and neurodegenerative disorders at the other.

Nicole Bijlsma 08:31

The problem with environmental chemicals is that it's not like you've been run over by a bus and your arm's hanging off and you need surgery and you go: "Oh, it was the bus. It was the accident." The problem with environmental chemicals [is that], as you said, they're passed in utero. They're insidious. To show cause and effect is very difficult, if not impossible, because you've got synergistic effects, multiple toxicants on top of gene variants, plus stress and trauma. And then you have the phenotype you see sitting in front of you as a clinician.

Nicole Bijlsma 08:53
It's really difficult, especially with fertility. To me, fertility is the cornerstone of toxicity. I think as infertility rises, we're really seeing toxic loads simultaneously rising, affecting it. And fertility starts with our grandparents. So we need to reduce our toxic load immediately. We need to, as a global audience, reduce our microplastics and our global pollution. The way we affect the environment ultimately affects us. So that's the challenge as clinicians: How do we get that message across?—because it's already in us.

Nicole Bijlsma 09:31
A good example was when I went to my integrative GP recently. I did the GPL-TOX test and looked at my chemical profile. He said, "Nicole, MTBE is really high in your system," methyl tert-butyl ether. And I'm going: "Oh my God, it has to be coming from when I fill up my diesel car at the bowser at the petrol station." When we mapped it to my gene variants, I'm homozygous from my incapacity to deal with that chemical in phase 2. Who would have ever thought? As a clinician, how would I have known without testing that I needed to wear gloves, a mask, or even better, get my teenage kids to fill up the car? I'm not doing it because my load is high and that's ultimately impacting how I deal with other environmental chemicals. This is the challenge we have as clinicians in this space.

Dr. Jill 10:27
Gosh, I love that you mentioned that, because that's one of the ones I see most commonly on the GPL-TOX. And we get it all kinds of ways, whether it's exhaust from fuels or filling our gas tanks. I had a little story from maybe years ago. I live in a condo and my end of the condo is over a hot tub in an outside area with an outdoor natural gas fire pit. And somehow no one knew this, but it was leaking. And just by the way the winds were blowing and my window was open, I was getting

massive [amounts of] benzene from this natural gas right through my window. I was starting to feel bad and I thought it was mold. I ended up doing urine testing, [and] my benzene level was off the charts—high. And we ended up finding the gas leak and figuring out that correlation.

Dr. Jill 11:09
But it's so fascinating—those little things. I just didn't feel well. I remember one night specifically, [when] I was so not feeling well. And back then, I had my dog, who passed away since. I had this intuitive sense. I was feeling so sleepy and so unwell. I thought it was mold. Literally that night, I was like: "I need to get out or I'm going to pass out. I'm not going to do well." I went to my office to work. As soon as I got to my office, I felt 100% better because benzene is a transient kind of exposure. But it was so interesting. And that's me and you, who are experts. And all these patients…

Dr. Jill 11:39
So let's go to you. You're now in building biology. You're teaching and you're doing so much great work. But think about if you're talking to a patient: What kinds of questions would you ask? For the listener, what kinds of things should they think about in their environment? Just give us an overview of the kinds of things that maybe they're not thinking of that could be affecting them?

Nicole Bijlsma 11:57
The most powerful tool we have is exposure history. The timing of exposure is very important. So going back to when your symptoms developed, when you started to get unwell, what was going on at the time? Did you move house at the time? Did you change jobs? Did you buy a new car? Those questions are important. When it comes to water-damaged buildings, what's become clear is that not seeing visible mold and not smelling anything doesn't mean your home is not water-damaged. Unfortunately, if you can't see or smell mold… Some of the worst homes, I can't see or smell it. I walk in and it's clean; it's not dusty. "I think this is not going to be an issue." And the lab results come back and it's horrific.

Nicole Bijlsma 12:42
But what was interesting that did correlate was that when they moved into that house, their asthma or allergies developed or got worse, or their chronic fatigue-like symptoms developed or got worse. Or they had a bathroom renovation

that had significant mold hidden in the cavity because the waterproof membranes were failing. Then the builder ripped off the gyprock, drywall, and exposed all this toxic mold throughout the home, which then caused cross-contamination. And that's when they got sick—after the renovation.

Nicole Bijlsma 13:16
So I've noticed over the years that there are key questions that really make me think it could be mold. And the big ones are if you've got asthma and/or allergies, or chronic upper or lower respiratory tract infections, or long-term fatigue—regardless of your diagnosis of MS or whatever else you have—that's not alleviated by rest and it correlates with when you moved into the home. Or you got a water-damaged car or moved into a water-damaged workplace, and you're better away from those environments. Think potentially mold. Definitely think mold. And 90% of the time, that rings true.

Nicole Bijlsma 13:55
If you see visible mold and odor, then that's just another way of escalating the risk that it could be that. But if you don't see visible mold or odor, it could still be a significant issue. And what's become clear is that until we test the whole house—which is a sample of every room, the roof void, and the subfloor—if you don't do extensive testing, you can't identify where the moisture's coming from, whether the roof is contaminating a habitable space, or whether the drainage problem is causing the problem in little Johnny's room.

Nicole Bijlsma 14:26
If you only do one or two samples, you don't get a picture of what we call conditions 1, 2, and 3 in the house. It's best to put the money into the testing so you know and you've got a baseline, just like a clinician. The GPL-TOX tests are critical to excluding serious pathology and identifying potential root causes. Then you can get the remediator to come and do the proper work. Otherwise, what happens is that you get a restorer or remediator coming in, fogging and doing patchwork that doesn't work and often exacerbates the issue.

Nicole Bijlsma 14:57
Now, if it's due to something else like methamphetamines, grow labs, or clandestine drug labs, which is becoming more of an issue... In Sydney, for example, one of the

largest restorers in Australia, he estimates that about 20% of rentals, including Airbnbs, are contaminated by methamphetamines. That's huge. You can cook and manufacture drugs within six or seven hours now using the steam method, unfortunately. So Airbnbs are often used to do this. But of course, just smoking in those environments can contaminate within three smokes. So this is a huge concern. And that can imprint on the walls.

Nicole Bijlsma 15:46
So how would you know as a patient or clinician? Well, the symptoms are massive behavioral changes within days of moving in, where the kids become psychotic and their whole behavior changes. [They have] skin rashes, headaches, and sleep disturbances. And they're happening within days or weeks, whereas mold illness tends to happen within months and years. So the timing and how quickly those changes happen, especially the skin rashes, the headaches, and the behavioral changes, make me think there's something that could be drug-related in the home.

Nicole Bijlsma 16:19
If it's electromagnetic fields, sleep disturbances are the major symptom that we're looking at. Tinnitus, ringing in the ears, headaches, and sleep disturbances. They tend to find that they can pinpoint where in the home their symptoms are worse, whereas with mold, it tends to be more cross-contamination. With EMFs, it tends to be: "I'm much worse in this room. I'm getting a headache." And sleep disturbances are just prolific. So if sleep disturbances aren't due to stress, trauma, relationship issues, coffee, exercising late at night, and all those other issues, then think electromagnetic fields, especially if you've got any Wi-Fi-enabled device in the bedroom.

Dr. Jill (pre-recording) 17:00
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 17:58
So let's talk about EMFs. A lot of people who listen to me know what they are. They've heard me talk about it. But let's go back to the basics. What are they? Where would they be in a house? Let's talk [about] all things to do with EMF—it's so powerful—especially related to kiddos and kids' exposure.

Nicole Bijlsma 18:14
Yes, now EMFs are one of my favorites and most concerning because they're ubiquitous now—man-made electromagnetic fields. We've evolved on what we call terrestrial radiation, which is the Earth's magnetic field, the sun. We have the Schumann resonance that exists in the atmosphere because of all the lightning strikes and thunderstorm activity happening across the planet at any given moment, which creates a voltage in the atmosphere that's similar to our alpha state, which is in our brain waves and meditative state.

Nicole Bijlsma 18:45
When we electrified Western countries, of course, 200 years ago, it created what we call extra low frequency or 50 hertz or 60 hertz. Basically, you have your building wiring coming into the house and you plug all your devices in. In the US, you're using 60 hertz, which means 60 wavelengths passing per second. In theory, this creates electric and magnetic fields. That only becomes a problem if you're sleeping near a high magnetic field. So if your bed is adjacent to a fridge where the motor's going on and off where it's cooling during the night, it's creating a magnetic field into your bedroom on the other side of the wall and then expanding, contracting, etc.

Nicole Bijlsma 19:31
If you're sleeping near a meter panel where all the current is going through all the electricity and all the circuits and switchboard—all the current is going through, which is a movement of electrons—that creates a magnetic field. So it's unusual; it's quite uncommon to have problems just because your building is wide. That's not normally a problem. The only time is if you're sleeping near the meter panel or

sleeping on the other side of the wall of a fridge or an inverter, which of course is converting sun energy into electrical energy if you have solar panels.

Nicole Bijlsma 20:01
The other one is high voltage transmission lines and power lines if you're in close proximity. A lot of good data since 1979 by Wertheimer and Leeper [shows] that being in close proximity to high voltage power lines within about 400 meters can double the risk of child leukemia in the first 15 years of life. So you need to have been living there for a significant proportion of your young life to escalate that risk.

Nicole Bijlsma 20:29
The real problem was in 2000 onwards, when 3G was introduced. It's a digital technology that is man-made. A man-made technology is very different from natural electromagnetic fields because it's pulsed and modulated, which means it carries information on the waves. This seems to cause more biological effects. Most of the research on electromagnetic fields and health effects comes from mobile phone technology in simulated lab conditions, which do not reflect real-case scenarios. So most of that evidence is actually not helpful. It's about 50/50 whether it can cause brain tumors, blah, blah, blah. But in fact, it doesn't reflect real-life scenarios.

Nicole Bijlsma 21:13
So the interesting thing about looking at the data on electromagnetic fields is that this actually doesn't reflect what consumers are exposed to. Real-life scenarios are hard to do with scientific studies because you've got so many confounding factors that you have to consider. Recently, I did a randomized control trial on the impact of a baby monitor on healthy adult sleep.

Dr. Jill 21:37
I just want to say we heard this. We heard you present this and this was literally where my jaw dropped and I'll let you just finish it. But stay tuned; this is so powerful—the fact that you did the study.

Nicole Bijlsma 21:47
Yes, so I did this four-week study with no funding. The reason I did this study was because my supervisor said to me, "Nicole, what are you seeing at ground level as a building biologist with electromagnetic fields?" And I said: "Insomnia. I see so many

kids and babies that don't sleep that end up in mother-baby units because they've got baby monitors that are emitting very high levels of radiation in the form of radio frequencies." He said, "Well, let's do a study on that."

Nicole Bijlsma 22:14
So I did a four-week study. The first week was baseline, where I got the client to measure their EEG waves at the end of seven days, their actigraphy, which is movement in bed and heart rate variability, and do sleep diaries just to get baseline. In the second week, I then put a baby monitor in their bedroom next to their bedhead for seven consecutive nights, which was double-blind. I didn't know if it was on. I had an IT technician fiddle with it so the screen was not working. So they didn't know if it was on and I didn't know if it was on for seven consecutive nights.

Nicole Bijlsma 22:49
Then they did—at the end of the seven days—their brain waves, heart rate variability, etc. In the third week, we had a wash-out. I know that with electromagnetic field exposure, there's a histamine response, as with so many of these chronic environmental issues—histamine responses, mast cell activation, blah blah blah. So I wash-out and then the fourth week the baby monitor was put back into the room again, double-blind. So in the second and fourth weeks, the baby monitor was in their bedroom. One of the weeks it was active, and one of the weeks it was not active.

Nicole Bijlsma 23:20
When we collated the data, it became clear that the EEG waves were statistically significant in non-REM and their clinical sleep diaries were also statistically significant. And this was [a study with] 12 participants. The heart rate variability wasn't statistically significant but if we had 30 participants, it would have been. So it was reaching statistical significance. Anyway, I've submitted it to eight journals that rejected it. And many of these journals have kept it for six or seven months, knowing I can't submit it to any other journal when a journal is reviewing it. And the reasons that they've come back with are so ridiculous, like, "Your sample size was too small." Now, if it was that small, they should have told me in the first week and just moved on. I was then, ironically, recently looking back at those journals and going, "Well, they've recently published a paper around RCT with 10 participants in the same journal but why not submit mine?"

Nicole Bijlsma 24:20
And my three supervisors are going: "Nicole, this is a really controversial paper. You've shown that a baby monitor, which is designed to be in the bedroom, has had a clinically significant impact." In fact, it reached clinical insomnia in four of the participants within seven days. It's too controversial because this device used a 2.45 gigahertz frequency, which is pretty much most of your Wi-Fi-enabled devices. Therefore, Wi-Fi-enabled devices should not be in bedrooms and should not be in adjacent rooms because they can impact sleep significantly. And sleep is the cornerstone to health. If you don't get the sleep right with any of your patients, they will never get full recovery. They just can't. So to me, this is why it was important research I did because I had a hunch that this was a problem and was able to do that. But I'm still in the scenario of submitting to journals.

Dr. Jill 25:14
And no surprise, because, like you said, even with the cell phone and some of that stuff, I was so thankful. Maybe you can comment. France just came out with a ban on the iPhone 12 because clearly there was an issue and it sent shockwaves because no one else has ever talked about that. Do you have any comments on that specifically and that device? And let's talk about cell phones, kids, and that whole realm.

Nicole Bijlsma 25:37
Yes exactly. So the exposure standards are completely inadequate. They're based on thermal heating effects. Basically, they use what's called a SAR rating for devices that are developed to be next to your person, like cell phones, Bluetooth, Fitbits, trackers, etc. They basically put a cell phone next to a plastic mannequin's head that reflects a 100-kilo US soldier's head and then see how much it heats the tissues, which is ridiculous because we know how electromagnetic fields affect the body at a cellular level. They act on voltage-gated calcium channels in the cell membrane to result in calcium influx, which results in downstream effects, namely oxidative stress and, of course, low-grade systemic inflammation. So to put it next to a plastic dummy's head that doesn't have cell membranes is ridiculous. It's all based on how much it heats your tissues before it can actually cause adverse health effects.

Nicole Bijlsma 26:41

We know over 2,000 papers have shown oxidative stress with radiofrequency exposure. And radiofrequency is the radiation emitted from all your Wi-Fi-enabled devices. So that's really clear. But the people who are developing this standard, ICNIRP, the International Commission for Non-Ionizing Radiation Protection, are a non-governmental private organization in Germany. Western countries are adopting this method, knowing that most of their panel members have strong ties to telecommunications. There was an interesting report by Bukna and Ravasi about the ties of all these small groups to telecommunications that Australia is following.

Dr. Jill 27:29
Protecting their interests, of course.

Nicole Bijlsma 27:30
Protecting their interests. This is the thing with environmental exposures: When you start unpacking why everybody is impacted by environmental exposure, it's because the exposure standards are not adequate. They're done in compromise with industry to determine what's practicable in a workplace that doesn't impact economic activity. And that's where my building biologists, as they come to terms with that in the course, go, "Oh my God, how can that happen?" This is the way the world works. This is capitalism. It's about dividends for shareholders. I know I'm cynical. But what can we do about it? We have to get the revolution at the ground up. We need to teach consumers. They have to take control of their own health because no one else is going to be doing that. The exposure standards for chemicals and electromagnetic fields—they're just not adequate.

Dr. Jill 28:20
Yes, in the US, we have the EPA, and I've often taught that we just can't count on them because they're not doing the synergy of the chemicals. We have to take it into our own hands. Also, the only way that we can actually make change, whether it's through politics, grassroots efforts or just teaching our doctors, our clinicians, and our building biologists—this is where it starts—is awareness.

Dr. Jill 28:41
So three things came to mind as you were talking. First of all, kiddos. Why are kids and their head size and their body size a bigger deal than adults? And also distance. Just explain it for the people who don't understand the distance principle. So basically, children and the effects of EMFs and distance. And what can we do with

distance to make this a little bit easier or better for us? And then also our regular household routers and the ways that we use them. Let's talk about those topics.

Nicole Bijlsma 29:05
Yes. So the good news is that there's a lot you can do to reduce your exposure—a lot. Children are uniquely susceptible because their skulls are thinner. They have more moisture or water in their brains that attenuates radio frequencies. When they're using a cell phone, it's going across the whole brain as opposed to just part of it, etc. Their cells are rapidly dividing. Even with mold, their lungs... Full lung capacity doesn't happen till you're 20.

Dr. Jill 29:32
And I always think about a dog or a crawling child. They're on the floor with that dust and mycotoxins. They get so much more exposure. I'm sure you've seen too that, sadly, dogs in houses sometimes get the sickest with mold because they're on the ground with the dust inhaling and ingesting. The same with babies.

Nicole Bijlsma 29:47
Absolutely. Aspergillus and Penicillium take about six to eight hours to fall, so all the fungal particulate load is on the surfaces. That's why carpets are the reservoirs, the archaeological dig site of the entire house sitting right there, in the breathing zone of the infants right there. So they're at the highest level of exposure with the least lung capacity to deal with it. So yes, that's a whole thing in its own right.

Dr. Jill 30:12
Okay. Side note. Sorry. Back to EMFs. We talked about that. And then what about distance, Wi-Fi in the house, and cell phones as one of the major culprits?

Nicole Bijlsma 30:21
All right. Whenever my building biologists go into a home, this is how I train them, I say: "Okay, the client has an issue with the smart meter, but the reality is that the highest level of exposures occur with the devices closest to your person." And that's going to be your cell phone, so let's start with that. I love my cell phone. I love the fact I can run my business anywhere in the world, not stuck to a desk. But I make an informed choice and I know how to reduce my exposure.

Nicole Bijlsma 30:49

The reality is that most patients can't make an informed choice because they don't understand what's going on. So when you use your cell phone, text instead of call. Keeping it away from vital organs, your brain, your breasts, and your reproductive organs is very, very important. Try and use a landline phone that's hardwired if you can, or Skype is better, or VoIP would be better. Text instead of calling. If you're going to call, then keep it at a distance. Put it on a desk and use the loudspeaker. That's going to reduce your exposure by at least 90%. So keep it away from your brain.

Nicole Bijlsma 31:25
Hardell's research shows that 30 minutes a day for more than 10 years doubles the risk of gliomas and acoustic neuromas. The concern is that these gliomas are increasing significantly because we're right at the door of these latency periods. Two of my close friends in their 50s were diagnosed two months apart from grade four glioma this year. Horrific. It's horrific.

Dr. Jill 31:53
You shared something at the conference. Was it 2012 when things shifted with the technology so that we're on that 10-year threshold?

Nicole Bijlsma 32:00
In 2003, with 3G, when they introduced that into a digital frequency, is when we started counting. Fifteen to twenty-five years is the latency period for these brain tumors. We're right at that doorstep. And it's already [been] shown to be occurring. We know after 60 that the incidence rate is much higher. It's doubled in Australia. People over the age of 60, their incidence of gliomas has doubled in the last 10 years based on the research. But now [for people] in their 50s, it's very, very concerning because of that latency period exposure.

Nicole Bijlsma 32:36
So what was interesting is that one of my girlfriends, who was diagnosed this year, the neurologist said to her: "I don't know what's going on. We're finding so many young people with this type of tumor and we have no idea what's going on." I said to her, "It would be the cell phones, I think." Let alone, let's not talk about the jab and blah, blah, blah. But in terms of using cellphones before 15, from the cradle to the grave, that's never happened in a generation before. They are the guinea pigs. This

generation is the guinea pig for man-made electromagnetic field exposures. And we're now seeing the downstream effects of that and they are pretty bad.

Dr. Jill 33:19
Wow. And you're right. I remember so vividly, this was like 10 years ago, seeing a case study of a woman who held her cell phone in her bra and the tumor outline of the cell phone in her breast. This was a decade or so ago. I remember thinking, "Oh, we are in for trouble." We know the glucose metabolism changes as we get that close to the head.

Dr. Jill 33:40
So there are a few little scenarios I just have quick questions about. One is in my home; I have the meter to check radio frequencies. The thing that shocked me was my Sonos system, which is a sound system. It's a speaker system. I don't know if you have the same thing in Australia, but it's a really, really high-quality sound [system] with Wi-Fi. It was off the charts, like hundreds of thousands of hertz that were coming out of that—bigger than anything else in my house. Any comments on sound systems that are wireless?

Nicole Bijlsma 34:12
Yes, absolutely. My ex, when I go there, just leaves up the road, [inaudible], when I'm there with the kids, etc. And he's got the Sonos system. I just got my Safe and Sound meter and I said: "I need to test this because you're all not sleeping and I think it's the electromagnetic fields. I've just done research on it." The kids go, "Mom, you don't know anything," blah, blah, blah. It's a nightmare as a parent. I've got three teenage kids; just shoot me. And yelling a lot of the time: "Yes, sweetheart, you can use that device, but the only caveat is that I'm going to have the Safe and Sound with the highest volume at the same time going while you're using it." "Mom, you're driving us insane!"

Nicole Bijlsma 34:53
Going back to my ex, he had a Sonos system. He had two routers and they were over a million microwatts per square meter. It was enormous. I said, "You've got to turn this off. If you forget to turn it off, get one of those timers." You know, when you go on holidays, you can put your lights on on a timer? It goes on at night so it looks like someone's in the house. Connect that to your router so it automatically

turns off without you having to think about it and turns back on. Anyway, three days later, he goes, "Oh my God, I can't believe it. We're sleeping better!" And I'm going: "Yes, hello! I've been studying these for ages." Radio frequencies affect sleep because they trick the brain into thinking it's daytime. And that has huge effects on hormones, the immune system, and the gut—everything. Everything. So yes, the Sonos system, he had it, was a [inaudible].

Dr. Jill 35:44
That's what was shocking to me because I have an office at home. Again, I don't have a lot of other Wi-Fi devices, but I was like, "Oh, this is a big deal and people need to know it," and myself included.

Nicole Bijlsma 35:54
Yes. So what we would do is turn everything off and then turn one thing on at a time with that device. And there are some really good devices on the market. I think the Safe and Sound Pro is the best.

Dr. Jill 36:03
That's the one I have, exactly, Safe and Sound Pro. So if you're listening out there, this is a device that measures radio frequencies. The one that I have that you're mentioning is Safe and Sound Pro. I have no affiliation, but it's a good one.

Nicole Bijlsma 36:14
I wish we did. We should get commission from them but we don't.

Dr. Jill 36:15
I know, right? The other question was... Obviously, I'm in Boulder. [There are] a lot of environmentally conscious patients and people, which I love, but solar panels and electric cars have been an issue for some of my patients. Do you want to talk about how that works with electromagnetic radiation and if you were going to do solar panels, how you might do it safely? Just tell us about that, because that's tricky, I think.

Nicole Bijlsma 36:39
This is why Magda Havas and her research on dirty electricity are important. When people install solar [panels] and inverters in their houses, people who are electrically sensitive can no longer live in these homes. The inverter converts solar

DC energy into AC electrical energy and it seems to create high levels of dirty power, which are high-frequency spikes that are traveling in the building wiring throughout the house. So it's not just the inverter. It seems to be this dirty electricity, which are high-frequency spikes from 60 hertz right up until the gigahertz range in fractions of a second, riding along all the wiring in the building. It seems to be riding on the electric field. So the electric field can come out about 1.2 meters. So wherever there's wiring in your walls, some of you have this dirty electricity riding in the air about a meter from the wiring. And now these people are getting tinnitus, headaches, and sleep disturbances. They'll often say, "I don't know what's going on, but I can only sleep in the middle of the room," [inaudible] dirty power.

Dr. Jill 37:48
Yes, in the middle. And what about electric cars? Would that be similar?

Nicole Bijlsma 37:53
Yes. Batteries and magnetic fields are a big issue for a lot of these patients. It's a reason why I don't have an electric car. Now, there is a possibility with solar panels: If it's wired correctly, if the inverter is away from the property, and if you're using coaxial shielded cabling in a meaningful way to reduce the dirty power riding along the house. But, of course, it's going to be more expensive. And you need to find an expert who will be able to do that. But this is the issue.

Nicole Bijlsma 38:24
And in my book, this push towards sustainability—the green movement—has to be done. But unfortunately, it's correlating with far worse adverse health effects for many patients. They're living in tight homes like plastic bags that are full of condensation and mold by [the time they experience] their first winter in a new house because the water vapor can't go anywhere. Secondly, they're importing furnishings from Asia or other countries full of flame retardants and formaldehyde. And now that they live in a tight house, it's reprinting and causing higher levels of chemical exposures that didn't happen in older homes.

Nicole Bijlsma 38:58
And of course, all this push towards these batteries, solar and wind turbines and infrastructure is creating problems for people living in close proximities and issues. So what's made at a political level is often not thinking about the downstream effect

to environmentally sensitive clients. And I want to make it really clear: These environmental exposures impact all of us.

Nicole Bijlsma 39:21
Probably one of the best things I did in my research was interview the top environmental doctors in Australia and New Zealand. One of them said to me, "Nicole in my environmental exposure patients with chronic fatigue, very few of them get cancer." I said, "Well, why is that?" He said: "Because they're the canaries in the mine. They walk past the perfume store and go, 'Oh my God, I'm getting a headache, my body's saying it's poison' so they leave the scene. If you and I go there, we'll die of heart disease and cancer. These patients don't because their bodies are so finely tuned." They're warning humanity: There's something really wrong here. And instead of listening to them, we've put them into a psychology boat, a diagnosis of mental health illness, when, in fact, it's an environmentally induced mental illness. Do you know what I mean?

Dr. Jill 40:07
I so know what you mean. I've written a lot about multiple chemical sensitivities or even mast cell activation, which are both highly related to the environment. In most of the blog comments, you can tell they're like: "I've been told I've been crazy forever. And finally, you're validating my illness and making me understand that this is actually a medical issue and this is real." And that makes me even more sad because, in a way, they're the wisest people, the most advanced of humanity. And we're putting them [in a category], like you said, and saying: "Oh, it's functional. It's in your head. You need an antidepressant." And the truth is, I think this is actually signaling to all of us what we need to do. Thank you for talking about the environmental stuff, because that is such a tricky thing. I'm all about environmentalism. And yet I see that if you don't do it right, there is harm from these electromagnetic fields and people just aren't aware.

Nicole Bijlsma 41:03
Exactly. So I mentioned, in terms of reducing exposure to EMFs, the phone. But the second most powerful way is to look at your bedroom and remove any Wi-Fi-enabled device, including your cell phone, from a sleeping environment. If you can get sleep right, then you can normally have enough resilience to deal with any other environmental onslaught. So the bedroom becomes the most important

room in the house because we spend 22 years of our lives there. The mattress and the bedding are important. I'm always amazed at how old people's mattresses are and [how they're] full of stains. If there's a history of their partner on chemo, well, all of that chemo is in the mattress, and they're absorbing it dermally. These little things like that make such a big difference in the outcome, with patients feeling better. So always start with the bedroom.

Dr. Jill 41:51
Oh, I love that. So let's switch back in our last few minutes on mold because that's such a huge topic. First of all, I think you were the one who quoted, again, when I heard you in Australia, about how many liters of vapor we actually produce as humans each day. Talk to a person who maybe doesn't have a massively moldy home but wants to prevent mold in their home and stay healthy. What would the average person need to do every year, every month? What are some of the practical things that we can do to prevent mold growth and make sure that our homes are safe?

Nicole Bijlsma 42:22
Well, maintenance is the most important thing. Especially in rentals, you need to be clear in that agreement or contract who's responsible for maintenance. If it's not maintained, the person living there is going to be impacted by it, not the landlord. So maintaining, making sure you're removing leaf litter, keeping the stormwater system clear, getting rid of leaf litter in the gutter, and [making sure] the downpipes are adequate. Having enough downpipes to move high levels of water from the roof into the stormwater system. Checking that the stormwater pits are actually clear. Getting rid of vegetation in close proximity to the house that is causing this.

Nicole Bijlsma 42:59
But inside, thinking about water vapor management. Each person is equivalent to around 10 liters of water vapor per person per day. That comes from bathing, breathing, washing, and cooking. You're breathing out. An adult breathes out about three liters of water per day. So if you've got two people in a small bedroom and you've got condensation on a cold surface like a window, it means it's not coping with that water vapor, which is probably either coming from your breathing or if you've got a humidifier, which is pushing steam out. That's a disaster. Don't have

humidifiers in the house. So what you need to do then is either get into a bigger room or, if it's a bunk bed with kids, ideally, get one child out of there.

Nicole Bijlsma 43:42
If that's not possible, then there are two things you can do to prevent that: Bring in a heater to add about 15 degrees to stop what we call the dew point. So by heating the surfaces in the room. When water vapor hits a cold surface, it's not going to condense because the surface is warm enough. The other one would be to introduce a dehumidifier to pull out moisture. When I see condensation on windows, I know the ventilation isn't adequate, especially in bathrooms. So I say to clients, "Get an industrial exhaust fan that's vented to the atmosphere." It's pulling moisture out, not just into the roof but actually through the roof outside. If you can reduce the water vapor in the house, that will significantly stop a lot of the condensation-related mold that we actually see.

Nicole Bijlsma 44:33
So in the kitchen, when you're cooking, where does that exhaust fan go? Is it to atmosphere or is it just recirculating the moisture? That needs to be addressed. And, of course, laundry. The big one is washing clothes. Each basket of wet clothes you have is equivalent to an extra five liters of water vapor per day, per load. So in wintertime, I ask my clients: "How do you dry your clothes? Do you put them outside? Do you put them in the house?"—because if you put them in that room, you're going to have 15 liters of water vapor coming up. And if you don't heat that room, then it's going to hit cold surfaces and condense. So a clothes condensing dryer is brilliant because it automatically pulls the moisture out of the clothes, especially if you can't put it outside.

Nicole Bijlsma 45:20
Other sources of things: Fish tanks. If you live in a humid environment and bring a fish tank into a room, that could be just enough to cause higher levels of water vapor and condensation. That can definitely be traumatic. The other one, of course, is water events. If you have a leak, an overflow of a bath, or a tub, you've only got 48 hours to dry it. If you don't dry it within 48 hours, you're going to get microbial growth.

Nicole Bijlsma 45:45

And what's important to understand about mold is that fungal spores are everywhere, from the Arctic to Antarctica. They're meant to be everywhere because they're nature's greatest decomposers. In a normal healthy home, you can have up to 500 spores per square inch—in a normal healthy home. The mold isn't the problem. The problem is growth. When you have liquid water sitting on a surface for more than 48 hours, or if you have high levels of water vapor and humidity in excess of 70% relative humidity for more than 48 hours, the spores sitting on all the surfaces will start utilizing the moisture in the air to grow.

Nicole Bijlsma 46:25
And when they grow, like humans, they release enzymes to break up the substrate or the surface they're in. Fungi are more like humans and plants because they can't photosynthesize. They have to release enzymes. But in the process, they spew out fungal particulate-like spores and hyphae, full of mycotoxins. And when you breathe that in, that's when you get sick. So you've got to prevent the growth. And the only way to do it is to get to the source of moisture.

Dr. Jill 46:52
Wow! You are such a wealth of knowledge. A couple of little last-minute questions. Here in Colorado, our humidity is actually really low. Usually, my condo runs from 25 to 30%, which is pretty low. But would there be any other issues with that [being] too low?—because I agree with you; I have a humidifier and I don't like to think about that. What's [some] advice for low-humidity situations?

Nicole Bijlsma 47:17
Yes, so anything below 30 is not good. It dries out all your mucous membranes, eyes, nose, mouth, and respiratory tract. They need to be moist to trap allergens and particulate matter. So ideally, you want to keep it between 40% and 60%. If it's below that, you would need to bring in a humidifier to raise it to help with your respiratory system. That's very important. If you could keep it between 45% and 55%, you'd stop allergies, asthma, and everything. So that would be the ideal scenario.

Dr. Jill 47:47
Okay. And do you have any advice if you need a humidifier in this dry climate? Is there anything that you could do to make that water safe? Would you put essential oils in it or anything at all?

Nicole Bijlsma 47:59
The main thing is to clean it out regularly because any moisture left in there is going to support microbial growth, whether it's bacteria and/or fungi. So I would say getting a hair dryer and drying it out completely is best. Yes, tea tree, eucalyptus, thyme, and neroli—they're probably the strongest essentials. But if you're chemically sensitive, your liver isn't going: "Hey, that's an essential oil; you go that way. And if you're a petrochemical, you go in glucuronidation pathways." It doesn't do that. It's all toxicity to the liver. I love essential oils and I can use them because I'm not chemically sensitive. But if you are, then even that could be an issue.

Dr. Jill 48:39
Wow, this is so great. I knew you'd be one of my favorite guests and you did not disappoint. Truly, Nicole, thank you for the work that you're doing in the world. My last question is: Back in the day, when you had that tragedy of all the miscarriages and you really didn't know until all of your research what was going on, what advice did you wish you would have known? What one bit of advice do you wish you would have known then?

Nicole Bijlsma 49:04
Wow! Well, I did have kids. I said to my husband at the time: "There's something wrong with this room. We've got to get away from the meter panel." We moved to the back bedroom. He very reluctantly moved to the back bedroom because of the en suite. So I just said: "Sweetheart, you're never going to have sex again. I'm going to the back bedroom." Two minutes later, he's moving a four-poster bed.

Nicole Bijlsma 49:25
What advice? You know what? I see now the beauty in me going through that. I would never have established the industry. I would never have moved into environmental medicine. And as hard as it was sobbing on the floor after my 10th miscarriage and going, "I can't go on," I can see the beauty in that. I don't think there's anything anyone could have not said apart from, "Gee, it was meant to be; you had a miscarriage." I couldn't cope with that anymore. There's nothing. I see now, like you, that adversity as a clinician is a powerful part of empathy and understanding what other people go through. And because I'm passionate and

you're passionate, I'm very grateful that I do something that I'll do with no money because I love it so much, just like I know you would.

Dr. Jill 50:16
Oh, your energy comes through so right and clear. And again, your wisdom is so powerful. This is literally one of my favorite podcast episodes. So thank you truly for all the wisdom and wealth you bring. And thank you for letting me come and visit you in Australia. I hope to come back one day.

Nicole Bijlsma 50:32
Absolutely. It was so good. Can I also mention I've got a short course coming up in February for clients with mold illness and electromagnetic fields to help the population understand the terminology and prevent these issues? So I'm looking forward to launching that on my website.

Dr. Jill 50:48
Yes. And tell us where. I was going to ask you that lastly. Where can people find you? I want to hold this up again. Everybody, make sure to get a copy of this book. It's such a great resource. You can find it anywhere you buy books: *Healthy Home Healthy Family*. And where can people find you? Where can people find the course? I'll be sure to link to this if you're listening as well.

Nicole Bijlsma 51:06
BuildingBiology.com.au is my personal website. And the college website you can see on my screen—Australian College of Environmental Studies—for training. But yes, my personal website will have a lot of information and I have a newsletter as well. So thank you so much [inaudible].

Dr. Jill 51:20
We will share that and be sure and stay tuned. As you can tell if you've been listening, Nicole is amazing in heart and soul and wisdom. And thank you again for coming on!

Nicole Bijlsma 51:30
Thank you so much, Jill!