Effects of Electric and Magnetic Fields on Human Health:
A Special Interview with Peter Sullivan
By Dr. Joseph Mercola

JM: Dr. Joseph Mercola
PS: Peter Sullivan

JM: Welcome, everyone. This is Dr. Mercola, helping you take control of your health. Today we’re in for a real treat. A good friend of mine, Peter Sullivan, who is a former canary for electromagnetic fields (EMF) and is also an articulate activist and spokesman to help people and you understand why it’s damaging to you – He’s an interesting guy. You’ll fall in love with him in a moment. He brings this travelling EMF-free tent to events that we speak at. It just gives the people an experience what it feels like to not be bombarded by EMFs. Thank you so much for joining us today, and welcome.

PS: Yeah. It’s my honor to be here. Thank you so much for inviting me.

JM: I know your story, but why don’t you share a little bit about how you first became interested in this area and developed your expertise?

PS: I’ve been – I’m in Silicon Valley right now. I’m in Los Altos Hills in this house. I’ve been here since 1990, in this area. I was working – I worked at multiple companies in Silicon Valley. I started Silicon Graphics. I worked at another company called Excite, Interwoven and Netflix. I think most people would know my work at Netflix. I worked my way up from a customer support person to engineer to software designer. I got a masters in computer science with an emphasis on human-computer interaction.

My passion in the mid-‘90s, as I was going to school, was personal technology. I really liked seeing things go from the computer scale down to things that you could put in your pocket, put on your body, like the Oura ring et cetera. I had all the gadgets. I even had some of the wearable tech in the mid-’90s, some things measuring your heart rate. I was writing papers about this at Stanford. I was getting exposures to these things way earlier than most people.

Also, one of my jobs, when I was working at Interwoven, I was next to a military base, that it turns out was the Onizuka Air Force Station. It turns out it was a space radar under this blue cube. I was getting really hammered by the space radar. I was one of the closest people to the space radar and getting hit by that.

My health – I was doing everything right health-wise. I was eating well. I was exercising. My health just kept declining. I kept having issues with fatigue, etc. I would say the exposure that people are getting now, I was getting probably about 10 years ago. It really took me a long time to figure it out. I would say it probably took me 10, 12 years to really sort out and accept that this was a factor.

JM: You’re a smart guy.
PS: Well, yeah. Thank you. That’s nice of you to say. But I feel like I honestly did everything backwards. There are some really, really brilliant people out here, and they’re all making this mistake. We’re all making this mistake and making assumptions.

I think one of my big breakthroughs was watching some of the climate change people talking about – people working for the energy industry in Texas and saying that they’re denying it because they’re getting paid by the industry. I said, “I need to really be objective. I don’t want to be that person who doesn’t look at their own stuff.” I started including EMF in the environmental factors and the health factors that I was looking at.

Honestly, I didn’t do that mentally first. I did it because I started feeling things. My brain was telling me, “I love this stuff. This is all great stuff. It’s really fun,” and my body was saying, “Oh my God. I don’t like that. I’m – whatever.” It was really strange. It was a strange thing. You feel kind of weird about it.

I remember putting a cellphone next to my head one time and just feeling that. A couple of times, crawling under the desk and plugging in a transformer and getting a headache and feeling kind of whispy and weird on that front. It took me several years to get to the point where I started accepting that this was a thing. I think I was more focused on that at that time. I didn’t perceive it as being EMF. I perceived it as being noise. I was getting a little bit of tinnitus or microwave hearing. I can start to hear little noises that would annoy me.

If you’re in this camp where your flickering light is annoying you or noise is starting to get kind of an issue, you don’t like fan noise and these sorts of things, harsh noises, you’re probably getting into this realm, especially if you’re having sleep disruption.

Basically, I thought I was doing everything right in about 2009 – eating well, exercising, training, everything, avoiding toxins, avoiding mercury. I really just focused on toxins for a long time. That is what I thought was the main thing for probably about eight years or so. I checked all the boxes. I was avoiding everything, doing everything. Clearly, something was still going on. I got down. Right now, I’m about 157 pounds. I was down to 131. I’m pretty skeletal.

JM: How tall are you?

PS: I’m 5’10”.

JM: Okay.

PS: Looking pretty skeletal, I had a friend see me walking down the street and say, “Are you okay?” I said, “Yeah. I’m okay. I’m doing fine. I’m doing this. I’m exercising. I’m so and so. I’m just thin. I’m really thin and I’m really healthy.” Then I got home and I kind of looked in the mirror and I really knew that I just lost something and she was right. I had to kind of reevaluate things.

That’s when I started really very diligently going through everything, of like toxins, light, noise, all these factors, the air quality. This house, actually, I bought this house as kind of a model healthy
home to try to prototype that experience. What’s the healthiest environment that you can live in for not just health but for human performance in your work environment? My anticipation would be air quality and getting rid of all the chemicals and so forth.

It turned out, coming into this building, I would turn off a lot of the electrical and play around with circuits. It turned out that the electrical, by far, was the biggest factor for me. It made sense. But you had to really feel into the experience. I can talk to you about this all day, but unless you’re in the tent or you’re in this building and you kind of feel into it and experience it for a little while, it’s kind of hard to believe.

**JM:** Yeah. You did. You had the motivation to find an answer and a solution. You eventually did. I’m wondering how you found this solution. Did you do it through independent research? Did you have a clinical consultant who advised you? How did you become or discover the strategies to eliminate the symptoms you were having?

**PS:** I first started out with an EMF expert in Southern California. I think he was the only one I knew in the area at the time. He would come up once in a while. He started measuring my home. He recommended a meter. I ended up getting like a meter just to measure magnetic fields. I ended up at the time realizing that this was one of the mistakes. You kind of think it’s one meter and one thing. You need to measure probably at least four things if not more.

**JM:** Yeah, yeah.

**PS:** That was a good start. I started with magnetic fields. I thought, “Well, I’d go around.” Actually, when you become sensitive, the magnetic fields are usually one of the things that are kind of a big factor. They go really through your body, like an magnetic resonance imaging (MRI). If you feel a magnetic field kind of in the middle of my head.

I had sat in front of like a large, 20-inch screen. Through the early ‘90s to mid-2000s or so, early 2000s, I sat in front of like a 20-inch monitor, which was a big magnetic field and a big electric field. It kind of basically pointed at my head. Maybe I became sensitive through all the years of that or the multiple variables for why you become sensitive – some genetic and some environmental. We’ll talk about some of that as well.

I mean I definitely had some dental stuff going on. I had a silver filling touching a gold filling, which had a conductive battery effect. I had a dentist measure. The kind of activity you see is like 10 times higher than my brain’s activity or my brain’s amperage. I had silver fillings. I had mercury in my mouth. I had a root canal on this tooth. I had cavitations. Some of my biggest immune system loads were dental.

**JM:** Yeah.

**PS:** As those got repaired, my sensitivity – As a matter of fact, in the last couple of years, I maybe spent the last year – I still feel things. I’m still sensitive, but I don’t react. I don’t feel pain anymore. I just feel like, “Oh, that’s not an ideal environment.” But there was a time when the worst was
maybe 2009 to 2012 or 2013. I was pretty sensitive. I’d drive by a cell tower and I’d feel it in my head.

**JM:** How long did it take you to resolve it? Was it a matter of months or was it longer?

**PS:** You know, now I think we could do it pretty rapidly. It took me several years, I think. I think some of the dental stuff was really holding me back. The root canal, I think, especially. So what happened was I found an expert. He helped me a little bit, and then a building biologist moved to the area, Alex Stadtner, who founded Healthy Building Science.

I started working with him in 2009 on a couple different properties, learning more at that point about magnetic fields, electric fields, wireless. Even after he started helping me, the thing that really tipped me over – I was still struggling a little bit. The information that really helped was when Sam Milham came out with his book, *Dirty Electricity*. I was literally reading his book that day. I walked around and started measuring things. That was, really, I think, the key tipping point for me. It was how to manage dirty electricity that was really affecting me at night.

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**JM:** Complex topic, dirty electricity. I previously interviewed Dr. Milham. He really is a pioneer in his book. I think it’s an important read, just from historical perspective, because he’s a board-certified epidemiologist and really has that science to evaluate the influence of electrical fields on the population of the United States, which was primarily almost all urban, initially, for 50 years. The farm rural areas weren’t electrified. It’s an interesting study that they didn’t design by intention, but nevertheless, compiled some really intriguing results.

**PS:** Yeah. He’s fantastic. I mean he’s done some great work. I funded a study that he was working on in schools, which is interesting. He wanted to measure neurotransmitters in children. He was just looking for a little bit of funding to pilot this.

Basically, what we found is that when he measured a baseline of the kids in school, and then he measured it with a Stetzer meter and Stetzer filters – that’s what he uses. He put those in, retrofitted the classroom, and then he went back over several months and measured again. He noticed that the neurotransmitters changed dramatically. I believe the ones that dramatically changed the most were dopamine and phenethylamine (PEA). PEA is related to self-control. If you’re a teacher, you kind of want your kids to have a little bit of self-control.

**JM:** Just a skosh.

**PS:** Yeah. Just a skosh. I think I would say even a lot of adults are losing self-control right now.

**JM:** Sure.

**PS:** Yeah. I think dirty electricity is a very key factor. He really talks about – He gets into cancer a lot, but clearly a lot of immune system issues. My wife had a little bit of an issue with T-cells for a while. One of the things you do was I didn’t want to use wireless, so I was using some of the Ethernet over power line adapters at about 2010 or 2011, maybe even 9. I was having my wife use
that. She went in and had an elevated T-cell count. They said, “You might have cancer. You’d want to check it in a month.” I was reading this book at the time and reading about elevated T-cells. I said, “Oh my God.” I switched that out and did regular Ethernet cable and other things. The next time she had her T-cells measured, she was within the normal range.

**JM:** Yeah. It’s a little more expensive to have dedicated Ethernet cables as opposed to using your power cables, but it’s certainly a lot safer. Let’s go back to the basics. You had mentioned the four different types of EMF exposures. I would assume that would be the radiofrequency fields, magnetic fields, which you mentioned. I think that’s really the one I first became familiar with and personally tested. I had a TriField meter. They’re really easy to test. The accuracy is pretty good in most of the meters, unless you really have to be precise. But that’s not a hard one. The other ones are harder tests, but electrical fields, radiofrequency, magnetic and then dirty electricity.

**PS:** Exactly.

**JM:** Yeah. Those are the four big ones. There are some meters that combine them, but probably a dedicated meter for each would be best. Why don’t you discuss those in your journey through them?

**PS:** Yeah. Me too. Like I said, we started with, just like you, I started with magnetic fields. When someone started talking about electric fields, I went, “What are you talking about?” I think magnetic field is just like magnet. It’s an electromagnet. There’s a motor that’s generating a magnetic field, just like there’s a magnetic field with field lines and those go kind of right through your body.

The next thing I started measuring was electric fields. I think an electric field – you can think of it as like invisible lighting. It’s like electrons trying to go to ground. A lot of things, like a normal light next to your bed, even when it’s not on, you could think of it as electrons leaking off the power line, basically. It’s another way to think of it. They’re leaking off. These field effects are kind of like wasted power, if you think of that in that regard.

Wireless, I tell people to think of it like it’s light at a lower frequency than you can see, but pulsing very rapidly. If you could see it, you could see it flickering. It would be kind of quite harsh. In these environments when we play with the acoustic meter and these meters that could translate it into physical noise, noise that you could here, you’d hear kind of a “ta ta ta ta” with Wi-Fi and so forth. These are kind of harsh flickering lights. They’re also of a different polarity than natural light or natural EMF.

Then finally, I think, the other factor to look at, I would say that I looked at – I did magnetic fields first, electric fields second. I looked at dirty electricity. I would kind of measured wireless a little bit, but I honestly was thinking that it was the last thing that I could believe that would be harmful because –

**JM:** You didn’t want to believe it.
PS: No. It’s the last thing I did. We finally had an event at the Commonwealth Club here in San Francisco. Dr. Sam Milham was there. Joel Moskowitz, a lot of the scientists in this field. I never heard of scientists speak about this. They started talking about sperm damage, and all these from just wireless. Halfway through the meeting, I reached into my pocket. This was 2010, and turned my cellphone to airplane mode. I haven’t had it in my pocket intentionally on since then, basically.

JM: Wow. You’re really an early adopter on that one.

PS: Well, or late compared to – You just do what you do. I would say, honestly, it took me a while for that one to really kick in. I still had kind of Wi-Fi going. I still had a cordless phone going. We were fighting with my wife and kids about having the cordless phone on and off and Wi-Fi and that sort of stuff. It took a while to get people to buy into it. I think my family still hasn’t totally – They’ll go along with me most of the time, but publicly they don’t like to talk about this stuff. Yeah.

JM: How would you prioritize now with respect to the potential damage that can cause to biology, if you can rank order them?

PS: You know, it’s tricky. I still think magnetic fields are pretty intense, because they can go right through your body, unlike – To me, we’ve had electric fields and magnetic fields for 100 years or so, but we haven’t had – I’ve been looking at autism and some of these other modern things going on. We’ve had magnetic fields and electric fields. But to me, it’s the dirty electricity. I consider dirty electricity to be pollution of those fields. The body doesn’t do really well with these digital square waves. Our body likes analog things. Kind of harsh digital signals, they sound harsh to us, if you listen at a square wave or a triangle wave or whatever.

Magnetic fields with noise in them, especially, I think a lot of people have been measuring – some building biologists have been measuring magnetic fields greater than 2,000 hertz. Our normal electricity is 60 hertz. When electrons accelerate and decelerate, they create a magnetic field. Ideally, you would never see anything above 60 hertz. You would just see pure 60 hertz and it would be a nice sine wave. I use this meter. It’ll measure above 2,000 hertz, between 2,000 and 100,000. This is magnetic field. We’ll measure this. The area’s sensitive. It’s even more sensitive than the meter you and I both have, the NFA 1000.

JM: Really? Is this a new meter? It’s gigahertz solution, clearly.

PS: It’s the same gigahertz solution. Here’s the one you and I both have. I love this meter. Great meter.

JM: But it’s expensive. It’s 2,000 dollars.

PS: Exactly. It’s a little too much for most people. You know, what’s in this environment, I’m in a shielded room here. In this third of the house –

JM: Except for the transparent windows.
PS: No. Busted.

JM: I have – They’re covered.

PS: I have film on those. This is strange. I’m actually getting hit by the same space radar that I was working next to, and I’m 5 miles away from it. It was going through all the shielding. The curtains you see right behind me actually have shielding material on them too. I use this office as a sleep lab too like once a week. I would sleep up here and get some incredible sleep. I’ll go to the second level and I’ll shut all the windows and close everything down, then you’ll get some really pristine sleep and focus in this environment.

Magnetic fields and kind of cleaning up that dirty electricity has been really helpful. Yeah. Getting rid of just big magnetic fields. If you’re sleeping near a transformer or a little transformer that you plug in or a power box, like a circuit breaker box, those are some big sources of magnetic fields.

JM: Or a refrigerator on the other side of your bedroom.

PS: The refrigerator. Exactly. Those are some of the common sources. What we’re telling people to do with some of these things is – you don’t even have to spend a lot of money. If it turns off and away – My friend Wendy says, “You either turn it off or move it away.” Every time with these, because the field is spread out in a sphere, every time you double the distance, you reduce the exposure usually by about 75 percent, whether it’s magnetic field or a wireless signal or whatever.

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I say you kind of create some space for yourself usually at night. You really want to sleep well. One of the most common symptoms of too much exposure is, of course, sleep disruption; Martin Pall’s paper. I like to make sure people create space for themselves – kind of a non-electronic, free zone – around their beds. The most common source of magnetic fields in a bedroom would be like a light-emitting diode (LED) clock radio, really big magnetic field source. Kind of move that to the other side of the room, turn it off or use another source, like a battery-powered one. Again, start with magnetic fields.

Electric fields, usually the most common source near the bedroom would be a plug-in reading light near your bed. Even when it’s not on, it can be leaking off a big electric field. The wiring in the wall can be a big electric field. That’s a big factor in my bedroom. Again, if you’re near a circuit breaker box in your bedroom or the power, like a smart meter, on the other side of the wall would be really bad too. You can’t necessarily move those, but you could move your bed. You could move to a different room.

There are some strategies when you can’t control it. If you can’t turn it off in a way, then you can move away from it. We’ll tell people to do. This is a quick protocol that Dr. Toril Jelter came up with here in California, mostly for autistic kids. But what you do is you turn off your – mostly the wireless sources in the house. You turn off a baby monitor if you have one. That’s a big suspect for us with autism. Cordless phone base station – the base station is constantly emitting, like a cell tower. You turn that off and your Wi-Fi off. You just turn that off at night to start, ideally more.
What you can do is – At that point you could still have dirty electricity and all kinds of stuff in your wiring in the bedroom. You could play around with turning off one or more circuits in the bedroom. Sometimes it would be one circuit for the whole bedroom; sometimes you might have one for the lights around the bottom or the circuit around the bottom where you plug the outlets in. Then you might have a separate one for lights. Go around and play and find those circuits. Maybe for a couple of weeks, turn those off and see how you sleep. Some people will find that they sleep better right away. That’ll help you without spending any money. See how much this is impacting your body.

JM: Yeah.

PS: Again, that’s a quick and dirty protocol without measuring. That may give you a nice 80 percent solution. Then if it feels like it works out well for you, then you can either buy a meter or work with a building biologist or environmental hygienist and all these other experts.

JM: Yeah. Those are great recommendations into this, simplified. The magnetic fields, in my experience, they drop pretty rapidly as you mentioned. They’re a lot easier to address. Even though they may be the most significant, in my experience, they’re pretty simple to remediate against, because it’s just identifying and avoiding them. You can easily avoid them by moving away from them. But the others are a challenge. One comment on that LED light, what I like and I use in my bedroom personally, because not only do you have the issue with the EMF from that LED light, but you also had another form of EMF, pollution is the light that comes out.

Now, yes, you can get an LED and that’s not going to suppress your melatonin, but wouldn’t it be better to have no light and be in complete darkness, which is what I do. It’s on a really obscure website called Amazon.com. You can get a talking clock that has a giant blue button that’s like this big. You just hit it down and it verbally tells you what the time is. It’s designed for blind people. That’s the way I figure out what time it is, because you need to know what time it is. Well you don’t need to, but it’s helpful to know when you want to wake up.

PS: If you have to get up, you’ll worry and you want to find out without having that light exposure.

JM: Yeah.

PS: I totally agree.

JM: Yeah. It’s another form of EMF. It’s typically not a dangerous form, light, but it can be at the wrong time.

PS: Well, they both suppress melatonin.

JM: Yeah.

PS: It’s a key factor. I would say one of the things that we’re learning more and more when it’s coming into the bedroom is that people are plugging in their smartphones and using them as alarms. Because, first of all, it’s easy. It’s really easy to set your alarm. Right now, you can say, “Hey,
Google. Set my alarm for whatever,” “Hey, Siri. Set an alarm.” Plug it right in there. But they usually have a charging and on right next. It’s like worst-case scenario. Then people say, “I’m not sleeping well.” I’m like, “Step one, are you using your phone as an alarm clock?” It’s usually yes. There are ways of doing that. I mean you could ideally put it in the other room and you have a jingle and you have to step up.

**JM:** You can put it in airplane mode. It doesn’t have to be connected. People don’t realize that.

**PS:** Right.

**JM:** They’re charging their phone because a lot of people need to charge their phone once or twice a day. But if you’re using the phone like you and I do, I don’t know about you, but I charge my phone once a week or less.

**PS:** Right.

**JM:** Less than once a week typically.

**PS:** Yeah. I don’t use it very much. I mean, like you, I kind of have it on airplane mode most of the time. Although people need to realize – It used to be turning airplane mode and all the radios would go off, but now you’ve got Bluetooth on and you’ve got Wi-Fi on. You have to learn how to turn those on and off pretty quickly to get things to work.

**JM:** Even if you do address those, the phone company and the surveillance companies have other things that are on that you can’t turn off. That’s why I put my phone – it’s next to my bed in case I need it for an emergency, but it’s off and it’s in a faraday bag. I don’t want any signals coming through that thing.

**PS:** Yeah. Exactly. I did notice, like you were saying, I did notice. This room is completely void of any EMF. Then there are times, once in a while, I’ll bring my phone up and I’ll accidentally have it on or something, then I’ll measure it and feel it. But there were times when I would be just double-checking on my work and I had to have everything off. My phone would be completely off. Then I’d be hearing a little pinging. I get a little “pop, pop, pop” kind of thing and it was coming from my phone. It was my phone. I have Find My iPhone on, and it’s trying to send out the signal.

Actually, I think, actually, even if Find My iPhone off, it’s still sending out the signal. I notice that it sends that signal more when the phone is moved. If the phone is stationary for a long period of time just sitting there, you won’t get that little beaconing signal that surveillance or Find My iPhone, or whatever that is, going on. You can put it in a little bag or do whatever, but, yeah. You have to be pretty advanced to notice that stuff. That’s probably not a big factor for most people, but they should know.

**JM:** Yeah. Well, the big one is keeping your phone on in your bedroom. That should be outlawed. I mean there are, I guess, circumstances where you may need to have availability of the sick child or something, but those circumstances are few and far between, not every night certainly.
PS: Exactly.

JM: You know, the problem with those radio frequencies is that they go out so far. You can probably get personal anecdotal experience because you’re a biological meter, which is more accurate than any of the meters you’re going to purchase. But in my measurements, I find they go at least 30 feet or so, which is not the experience you’d find with electrical fields or magnetic fields

PS: Yeah. No. You do find out. I’m surprised how much a cellphone can impact you. A cellphone even on the other side of the house, when it’s on, can really impact the bedroom environment. My wife and I would charge our phones maybe about 50 feet from our bedrooms. I’ve had times when my wife has left it on and I kind of measured it. It had an impact when I was really sensitive.

JM: Yeah. 50 feet.

PS: Yeah. Exactly. It depends on the phone. I always tell people it depends- Whoops, I’m shaking the desk.

JM: Yeah.

PS: But the other thing that people have been bringing to the bedroom a lot lately is the fitness trackers and the sleep trackers. A lot of them – You and I’ve got the Oura ring, which can go on airplane mode. Same with the Apple Watch. It can go into airplane mode. But a lot of people had been doing the Fitbits. There are some other trackers that don’t even have an option. They’re on 24/7. Some of them are quite – They say, “Oh. It’s low-power Bluetooth,” but some of these low-power Bluetooths are really high-powered, and they’re right next to your skin and body. It’s a big factor at night.

JM: Yeah. There’s no question about it. Even some people who have the Oura ring and are not EMF-literate don’t recognize that you have to put it in airplane mode. It doesn’t do this spontaneously. They’re doing that for their benefit, but they don’t do the due diligence of actually putting it in a protective mode and then taking it out to get the data. That’s a big concern too.

Yeah. With those other fitness trackers, you’ve just got to stay away from them. There are even other strategies to stay healthy, like meditation. I was using this Muse headband, which is a meditation app where it actually senses your brainwaves and can help you change your brainwaves. It turns out – It’s right on your head, and obviously it’s communicating to your mobile device.

When I initially used it before I had the measuring tools, I assumed they were safe because they were using low-power Bluetooth. Well, I got their new version. They sent me this new version of the Muse 2, and I actually measured it. It was like a minimum of 1 to 2 volts. It goes up to 6 volts, but it’s only on your head.

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**PS:** Exactly. I was surprised. That was one of the things, just like when you talk about these wireless stuff. The last thing I was denying was like, “Bluetooth, that can’t be that bad.” Especially Bluetooth in your car, Bluetooth on your head, even I actually was running with a heart rate tracker.

**JM:** Same thing.

**PS:** One that I’ve got now is a Garmin that just measured the heart rate off your wrist without broadcasting the signal. It has Bluetooth but you can turn it off.

**JM:** Nice.

**PS:** I’m happy with that. But this stuff – It really takes some effort to start avoiding these stuff. But what I can tell you is that there’s a good return on investment for avoiding this, especially at night.

**JM:** Yeah. The reason why that heart rate monitor and tracker is so important is because it’s just going over your heart. There are two tissues in your body that have the highest densities of these voltage-gated calcium channels, which is where most of the EMF mediates their damage. One is the heart, the other is the brain. You’ve really been passionate about helping the autism community understand the impact of EMF. I’ve heard you speak on this topic before.

From your perspective, as I understand, there are two primary issues. Vaccines play a roll, but they’re not as big as the two others, which would be glyphosate, or Roundup exposure, and EMF. Can you talk about that for a bit?

**PS:** Sure. I came into the community. I had two kids who were mildly on the spectrum. But it turns out – We treated them biologically. I had a great doctor in this area. We started looking at toxins, toxic metals. I was really focused on toxic metals and toxins in general for environmental health. This was one of the last things that I came to. I want parents to realize that, “Don’t fixate on one thing. Don’t even fixate just on EMF.” I want you to look broadly at all these factors that are impacting health, that are increasing the rates of autism, child developmental issues and chronic health issues in general.

Let’s see. I got off-topic here. Yeah, the different factors. Let’s see. I tell – I’m trying to find a page in the book here, and I can’t find it. Here it is. I found that parents tend to fixate on one thing when they’re in this state. I think when you’re in chronic health condition, you tend to fixate on one thing. There a lot of fixation now on vaccine, vaccine ingredients. Again, that’s a tricky topic to talk about. But people aren’t looking at the 80,000 chemicals in commerce, including pollution, EMF issues and even lifestyle issues, like getting a certain amount of sun and other factors. There’s a lot –

**JM:** That graph you’re showing is something your organization put together?

**PS:** Yeah. I put this together for my talk. I probably want to redo it a little bit to talk about how much evidence is behind each one, which one is kind of suspect and which one is really solid. It’s
from my talk called – multiple talks at University of California (UC). My latest one is probably “Simplifying Autism: Removing Barriers,” which I gave at AAS. You were there for that.

We’re trying to get people to realize that it’s not one thing. This is something Martha Herbert has influenced me on. It’s just moving towards total load. Patricia Lemur, who wrote this book, Outsmarting Autism, has also, I think, really coined the term. It’s that even if you have a really bad gene or you had a vaccine injury or something bad, low oxygen at birth and you’ve had some bad exposure in the past, it doesn’t mean that you are – You don’t get a Get Out of Jail free card for EMF exposure.

At any day, I think this is one of my big mental lessons in this. It’s that I was trying to focus on one thing. Because when you troubleshoot computers and everything, it’s usually one thing. But our bodies are so resilient that by the time you see a symptom, you’ve really had multiple things fail. Like in cancer, they always say, “You’ve really had about nine systems fail, redundant systems. Now you’re into this.” Now, you’re focusing on the last person who tackled you, but really, there are all these stuff going on.

Everything. We need to be focusing on infections. We need to be focusing on mold, chemical toxins, some of the dental stuff that we talked about, and food allergies as well. There’s a lot going on. Glyphosate. I think the two factors that are most suspect from a rising perspective would be wireless and glyphosate.

JM: Yeah. Because we’ve had the exposure. I think it was Zen Honeycutt’s new book I was reading. She had mentioned in there – It’s kind of obvious. We’ve had electrical field exposure for about 100 years or so. We didn’t have this epidemic rise in the risk of autism until like the ‘90s. That’s when the glyphosate, the radio frequencies and the wireless communications really started to exponentially rise.

PS: Exactly. I would say late ‘80s, I would say too. That’s when we started switching. When I looked at it I said, “If wireless was involved in – If EMF was involved in autism, what would be the consumer items that really changed?” First, I had Martha Herbert, Dr. Herbert, review all the science. She called me back just going, “Oh my God. What is all the stuff that’s going on?” Basically, she wrote a paper. If you search for EMF and autism, you’ll find her paper. It was originally 100 pages and 550 citations. It basically said, “The major known symptoms of autism are known to be caused by EMF.” She underplays it and says, “It’s plausible that EMF could play a role.”

JM: She’s a horrible scientist.

PS: Terrible.

JM: You wouldn’t expect anything less.

PS: Exactly. That’s perfect. That’s what she should do. I started thinking, “Well, as a parent, what do I need to do?” If EMF did play a role – We’ve had magnetic fields and electric fields for about
100 years. Why didn’t we have autism? But what changed in the mid-‘80s is we went from analog. We had cordless phones in the ‘70s and ‘80s and so forth.

But what changed in the mid-‘80s was we went to DECK digital phones. So we went from these nice, smooth analog signals that our cells are used to dealing with to these pulsed square digital waves that can impact the calcium channels, can impact the vibrational receptors on the outside of the cell.

Then we also switched to – Literally, we went to power supplies that were these big supplies that went from AC to DC. We went to these little power supplies called switching power supplies. They chop up the power in a way that creates little transients.

What I tell people to think of these is when you start and stop a hose and you hear a little bit of a vibration? When the hose is starting and stopping. That’s what electrical transients are. That’s essentially dirty electricity. Instead of having a nice, smooth sine wave, you’re getting all these little spikes. Those are biologically active, right? Those are small from a power perspective. The power companies think all those are really nothing, but from a biology perspective, when your cells are running at 25 millivolts, those are quite large impacts.

I think that’s really kind of the key factor. I think looking at switching power supplies and going to these pulsed modes and also for baby monitors, going from analog to pulsed. And then more of these stuff is so that the devices are becoming closer to our body. They’re becoming more constant. Our power is getting more and more polluted by these things. Again, every time these things start and stop, they’re kind of creating a kickback through the power system and almost creating, I would say, like a pollution or a digital pollution on the wiring. I’ve had some houses where I plug in a green wave meter where you can hear what it sounds like, much like a Stetzer meter, and I’ll hear a radio station, which is pretty crazy.

**JM:** I’m currently in the process of writing my next book on EMF, which will focus a bit on 5G, but also try to seek to consolidate the story and make it understandable. In that process, I expand on the similarities between tobacco smoking and cellphones. In fact, I think it’s pretty accurate to state that cigarettes are indeed – or cellphones are indeed the cigarettes of the 21st century. Along that line, I’m wondering, with respect to the wireless – Oh darn. I forgot my train of thought there for a moment.

**PS:** You’re talking about smoking. I know where you’re going. I think we can talk about it a little bit. Let’s talk about smoking versus wireless and kind of what’s the same and what’s different.

**JM:** Yeah. That’s good. Let’s go there.

**PS:** Because there are some interesting things about –

**JM:** I wanted to go to another point but I’m thinking about the analogy I forgot. But let’s start with this.
**PS:** I did the same thing as I kind of go. It’s part of the thing. Smoking, there’s a bit of an analogy here. It’s a concern. You’ve got smoking and lung cancer. But smoking also increases the risk of a lot of other diseases, because it’s increasing oxidative stress. That’s similar. EMF is creating more oxidative stress in the body. I would say one slight difference is that cellphone in the pocket is a big risk factor for sperm damage. There’s about 30 or 40 studies on this, showing decline and damage in the sperm, including DNA damage.

In autism, part of the situation is de novo mutations, mutations that are uninherited. This is a gene that was not in you or the mom, or in the father or the mother, and now it’s in the child. We’re looking for one of these factors that could be causing a de novo mutation. One of the suspects, of course, is cellphone in the pocket. There’s science to back that up.

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Mostly sometimes, it comes from the father’s side. We really do as parents – The dads need to start taking some prenatal or pre-pregnancy responsibility for their side of the equation to make sure that their sperm is not damaged and mutated. That’s a big factor. That’s one difference. I don’t think that there was a lot of sperm damage or genetic damage associated with cancer. One of the other differences is in how the government plays in this.

In cancer, at least we had the U.S. Food and Drug Administration (FDA), kind of, in the government and the Surgeon General advocating for consumers. In the cellphone world, it’s quite the opposite. The Federal Communications Commission (FCC) is selling the licenses. This is the equivalent of – Imagine the government was selling tobacco licenses, what would happen? The FCC is raising tens of billion of dollars by selling air, basically. They’re not a regulatory agency, really. They’re really a sales agency in the commerce department. They try to have the appearance of being a regulatory agency. They’re not a regulatory agency. They’ve got literally like one guy looking at this and he’s not empowered to really speak about this.

The other factor is – The FCC, the government’s really not on our side so much. In that regard, at least the FCC. The industry was a little bit smarter than the tobacco industry. Apparently, they realized that the science caught up with the tobacco industry. They funded fake science, basically. This industry science. There’s a great letter that The Nation article brought up from Motorola that says, “We believe we’ve successfully wargamed the science.”

But what was interesting, when I actually physically talked to the FCC, they had answers for all kinds of things. When I brought up the sperm count, the sperm damage factor, I noticed things were kind of quiet. I actually didn’t even notice during the meeting. Just so, when I was flying home in the airplane, I said, “Oh. They didn’t have a quick answer for that. They were just kind of quiet.” Then I realized that they didn’t fund anything. No one funded fake science on the sperm damage thing, because they didn’t think of it.

The weight of the science around the sperm damage is pretty incriminating. That’s, I think, a weak link. I think the cancer thing is easy for them. There’s a lot of Merchant of Doubt ability in that realm, which creates confusion. But on sperm damage, it’s pretty crystal clear and fast. I think that’s kind of the chink in the armor and a weak area.
JM: Yeah. The other variable that gets really invested in the tobacco industry is that the federal regulatory agencies have this revolving door impact. As an example, Tom Wheeler, who was the head lobbyist of the wireless telecommunications industry for many, many years, was appointed as the head of the FCC. If that isn’t a classy example of the fox guarding the hen house, I don’t know what is.

PS: Exactly.

JM: How much more blatant example would you want? But extending back to tobacco, we had the federal regulatory agencies sticking up for us. We had the Surgeon General, the FDA, the Environmental Protection Agency (EPA) saying that smoking was dangerous. Do not do it. But the tobacco industry implemented the Merchants of Doubt story that was discussed, and created doubt, essentially. For three decades, they delayed it.

PS: Right.

JM: We don’t have that here. Unless people arm up and become informed, it’s going to take longer, most likely, until there’s a lot of people in the grave or are seriously damaged as a result of this exposure.

PS: Yeah. I’m with you. I really thought as an advocate, the real strategy is not going to be a policy strategy. It’s not going to be a government thing. It’s really going to have to be a grassroots effort by people who take action to protect themselves. I think the good analogy would be the gluten-free movement, the fact that some people try something – Who’s behind the gluten-free movement? Nobody really. It’s just that it worked for people.

If none of the things that we’re talking about work for people, and I’ve had enough experience knowing that they do, but I want you – don’t trust me or even Dr. Bullet, do it yourself. Try it yourself. Have the experience. If it works, keep doing it and share it with your friends. That is a movement that is really hard to – When you have a personal experience, when you have a felt experience and you sleep better and you’re sharper and you know you know something that way, then that’s really hard to refute.

JM: Now, you’re almost the ideal person to ask this question, because you have been personally affected by this or impacted. You also have quite a significant experience within the tech industry. I’m wondering – It’s a little bit different than avoiding gluten, which is relatively easy to do. Especially with the introduction of 5G, which is going to be pervasive.

The major danger of 5G is it’s going to radically increase your exposure. It’s unavoidable. I mean it’s unavoidable now for the most part unless you’re in your home. I’m wondering – It’s difficult. Even if you can inform the entire public, but because of the convenience factor, we’re not going to get rid of this thing. I’m wondering what your thoughts are on making the technology safer. Do you think it’s technologically possible and do you think it’s a practical solution?

PS: Yes. Exactly. The actual – as an advocate – You don’t want to fight against these big industries. What you really want is you want to focus on what you want. Wouldn’t it be ideal if
these things actually were perfectly safe as we assumed? I think that we’re going to – Step one is we’re going to start quickly avoiding them, especially at night. But step two is we need to start making – Very much like seatbelts in cars in automotive safety, safe technology has to become a market requirement. It has to be something that we demand and ask for, especially in schools and other environments where we can’t control. We have to start asking for reduced exposure.

There’s a product in the market right now called Eco-WiFi. I wonder if you’ve heard of that. It’s a special Wi-Fi where the firmware has been adapted, so that you can lower the beaconing frequency. The beaconing frequency basically – It’s the thing that says, “I’m here. I’m here. I’m here.” It does that about ten times a second. That’s the tut-tut-tut sound you get from Wi-Fi. Now, that can actually be dialed down to once a second. That doesn’t slow your Wi-Fi down. It just slows your connection, fractionally slower whatever, if not even at all. It’s barely noticeable.

Radiation can be reduced 90 percent by dialing that down to like once a second, or even two or three times a second. That’s an easy thing to do. I just found out too that a company, Aruba, which I think is a Hewlett Packard (HP) company, has an adjustable setting for their beaconing system.

There’s a school system in Palo Alto. We’re working with them, and we’re going to try to lower down their Wi-Fi levels. We should be able to get there. They’ve already lowered their power levels down as low as possible. They’ve turned off Bluetooth and their whole setting. Now, the next step we’re going to try to take to lower exposure even further is to get that beaconing frequency down. They’re a little hesitant to do that. I’m going to have to loan them an Eco-WiFi and keep working on that. We’ll see.

Definitely, there are going to be some ways to reduce the exposure. Clearly, these things don’t need to be on all the time. That’s just kind of laziness on our part, and it’s also wasteful electrically. We want to start reducing the exposures on our end, but also want to start having things that kind of turn on and off, almost like your screen blanks and turns off to save power. There needs to be some signaling and protocols that start reducing all these beaconing frequencies that are going back and forth. I do think also that there are some ways – I’m actually actively looking at this right now. I can’t talk about it too much, but I think I can only say that we’re looking at ways of making it safe. We think that there are ways.

**JM:** That’s the key. I just wanted to give it a really obvious illustration. But most people aren’t aware of it. When you have to charge your phone every day, you’re recharging that battery, you’re putting energy from the AC current into your phone. Well, if you charge them once a day, all that energy has been dissipated. It’s dissipated primarily in the form of radio frequencies. If you’re near your phone all day long, you’re getting exposed to that.

You’re essentially taking that energy from the wall, radiating it into your environment and getting damage from it. That’s why it’s an obvious illustration. It explains really the high importance of putting your phone in airplane mode at all times, unless you absolutely need to use it.

**PS:** Exactly. What people don’t realize too is that – I just saw my dad the other day using his phone next to his head. Oh my God.
JM: Oh.

PS: What people don’t realize is that the manufacturers themselves don’t test the phones right next to your head. They don’t even pass the FCC if they’re touching your head. And the FCC limits are not even safe.

JM: That’s on thermal basis.

PS: Yes.

JM: They don’t use biological safety limits with these.

PS: Yeah. It’s basically like meat cooking. You can literally get hotspots doing that. Everybody does that, and it kills me when I see – It really pains me when I see people doing that. To me, it’s like watching someone smoking. Putting it right next to their head or ear. You don’t want it right next to your body. You should read in your phone – I think on the iPhone, it’s like General, About, Legal, and there’s a radio frequency (RF) section. They’ll tell you –

JM: It’s in the settings on your phone.

[-----50:00-----]

PS: I think it’s General, About, Legal, and then there’s an RF thing at the bottom there. It’ll tell you, “Don’t have it any closer than like point some inches or millimeters.” The manufacturers don’t test it as it’s being used. That’s how they’re being debated. Please don’t put it next to your head. Don’t put it in your pocket. Put it in a purse or a backpack, or put it away from you when you’re using it. Even I would say, “Don’t even hold it up.” As soon as I’ll use the phone, I’ll have it in my hand as a speakerphone.

JM: Which is still far safer.

PS: It’s far safer. But my hand would still hurt from holding it.

JM: Really?

PS: Yeah. My hand was very sensitive.

JM: Wow.

PS: Yeah. Exactly. Now it’s getting less and less sensitive. Another strategy is when a lot of people become sensitive, they’re only focused on reducing the exposures. But I would say too also, also strengthen your body’s immune system, especially your pH and antioxidants. I think Dr. Tennant’s protocol is quite intriguing. Healing as voltage protocol is an interesting protocol for strengthening and recovering from some of these things.

JM: Yeah. My favorite antioxidant is molecular hydrogen, because it’s a hormetic antioxidant. It doesn’t necessarily go in there and directly reduce it, but it causes your body to make its own
through different pathways, like Nrf2 and nicotinamide adenine dinucleotide phosphate (nADPH) oxidase suppression. That’s a lot safer and a really wiser strategy, I think.

**PS:** I’ve been using that more and more since last year when you talked about it last year at the Bulletproof Conference.

**JM:** Yeah. I neglected to mention that in the intro. The way I met you for the first time, I’ve heard of you. We were both at the Bulletproof Conference in 2017. Are you going this year too?

**PS:** Yeah. I’m going.

**JM:** Okay. Good. I’ll hang out with you there. But we were going to the dinner at night with the speakers – a VIP dinner. It was in a location that was maybe 5 miles from where the event was being held, so we had to take an Uber over there. I’ve gotten one and I was with someone else. You were like 10 feet away. I didn’t know who you were. You said, “Would you come on and join us? We’re in a car.” You jumped in the front, and I jumped in the back. We got to talking. It was great. That’s how I met you.

**PS:** Yeah. I knew at that point – My friend, Sabine, who was working on the film Generation Zapped had been working with you on the film. I knew of you and I could – That’s why I wanted to talk to you about that whole thing.

**JM:** Yeah.

**PS:** That’s another thing. That’s a great way for people to get an introduction to this topic. It’s Generation Zapped. It’s on iTunes and Amazon right now and DVD. That’s a good topic, a great conversation starter for schools and different organizations.

**JM:** That probably is one of the primary places where we need to place some activism, because this is the future generation – the kids. They are so vulnerable. For anatomical and physical reasons, they’re particularly vulnerable, more vulnerable than adults are to this radiation. We’re exposing them in this environment like eight hours a day. Really, if we’re going to invest some time, effort and energy, that’s really a good one to do it in.

**PS:** In the schools, you mean? Or in the kitchen?

**JM:** Absolutely. Yeah.

**PS:** Yeah. That’s been one of the strategies to focus on reducing the exposures to schools is one of the areas that’s featured in the film, one area that I’ve worked on for a while. It’s a complex area though, because I think it’s easier. I think schools tend to be a little bit laggard on things, even though they shouldn’t be. They should not be doing things that are not evidence-based, and evidence is not in a good position in schools. They’re just rolling this stuff out, assuming that it’s been safe and tested, and it’s not.
I think you’ll get – The first traction will be at home, especially at night, in the sleep environment. Then it’s getting groups of parents together, screening films like this, talking about it, and then coming to schools as a group. We found that if you go in as an individual, you kind of get dismissed. But there’s strength in numbers to come in with groups and start talking about these topics.

I mean people have been talking. People already know that schools are pretty sensitive about screen time. They think that this is wilder than screen time. Its screen time is actually probably – It’s definitely a factor: blue light and all the addictions and so forth. But there’s less science and I think less impact, from my experience, less impact on the science around those factors. I would say screen time is maybe 10 to 15 percent of the equation. That exposure – the wireless exposure is much more. As a matter of fact, you can follow all the rules with screen time and still get hammered by a lot of wireless exposure and dirty electricity and not see the impact because of this kind of uncontrolled exposures that we really get.

JM: That’s a beautiful strategy. I hadn’t heard of that before, but it makes perfect sense now that I hear it. When you get this group of concerned parents together in the school, how or where would you recommend that they go? To the principal? To the school board? To the parent-teacher associations (PTA)?

PS: You know, it’s tricky. I think one of the successful folks in the country was Cece Doucette, who was like me. She was working with – We had donated a lot of money to a local school. One of the things they did with the money was they bought all the new computers and Wi-Fi and routers. I think that was a great thing at the time.

Cece is in Massachusetts. I think she was the chairman of a school foundation or whatever. She started hearing about some of the science around wireless exposure and looked into it, and then was a bit mortified. She said, “Oh my gosh. I’ve been working for years to push this on people and brought this in.” Now she’s doing the opposite.

I’m a bit the same way. I was pushing this technology on people and have a conflict of interest. I still divested from a lot of telecoms. I still have some investments in this stuff. But I’ve switched from being “All tech is good,” to having a more rational view of this, looking at the actual science. It’s quite a bit of science. There are about I think over 20,000 studies on this topic. Some people feel like –

JM: It’s showed concern or documented –

PS: There are over 20,000 – I think it was over 22,000 studies. A lot of the studies, some of the studies are industry-funded. No surprise at the industry-funded studies tend to find nothing. That was kind of Joel Moskowitz – Joel Moskowitz is interesting at UC Berkeley. He came into this pretty neutral like me, or thinking like it was all fine. He had studied tobacco for decades or worked on tobacco as a public health official.

One of his students was looking at this topic, or one of his researchers. He started looking at the evidence. Then he was like, “Oh. Oh, okay. This is interesting.” It was good to have him in it
because he was not biased anyway. He doesn’t cherry pick things. He kind of said, “This is the same sort of stuff.” He also had years of experience working with Merchant of Doubt tactics. You could not see what was going on here and you need some of that skeptical ability that most of us didn’t have when we started with that. He’s a great resource. His website is SaferEMR.com and JoelMoskowitz@UCBerkeley. He has resources for schools.

Cece Doucette, I think, has a website. I’m forgetting her website’s name. But if you search out her name, you’ll probably find it. She eventually advocated and got her school to put up a message saying that when the tech is not needed, the Wi-Fi system should be turned off. Now, do they do that? No. Right. Step one is to kind of put up a label. Get people to recognize it. Step two is to start dialing down these exposures. It’s become an issue for some parents who’ve had kids who are electrosensitive, are having a hard time getting their kids in school and they’re having a hard time being believed on this topic.

JM: Great. I think we’ve reached the end of the time that we had allotted for this dialogue. You’ve mentioned some resources already, but would you like to add any additional ones where people want further information. I imagine – Are you speaking at Bulletproof this year?

PS: No. Not at Bulletproof.

JM: But we’ll have the EMF tent there?

PS: Amanda and I are trying to get the tent in. I think we’re working on it.

JM: Okay. But then The Autism Community in Action (TACA) – You’ll be talking at Atlanta, right?

PS: I don’t know if we’re going to be in TACA either. We’re definitely probably going to AES and Autism One again.

JM: Okay. Great.

PS: Are you going to TACA in Atlanta?

JM: Yeah. I will be there. Yes.

PS: When is that?

JM: I think it’s in April.

PS: Oh, April. This year. That was the East coast one.

JM: Yeah. East coast.

PS: Let me see. I’ll add it to the agenda. We’ll see if we could make it work.
JM: Okay. Are there any other recommendations?

PS: Let’s see. We talked about Generation Zapped. I have some of the meters that we’re working on. I’m working on simplified instructions for parents with meters and meters that we recommend. Those are on my website, ClearLightVentures.com, or CLV.us. They both go to the same place. I have some wireless safety cards that we did, that we handed out to parents and organizations that kind of give you some tips. We talked about the different symptoms and some of the basic science, so it makes this a little bit more credible in a quick handout to people. This is online on my website as well, on the front page is a link to it.

JM: So you can print them out?

PS: People can print them out as long as they don’t modify them. I’m happy if they print them out. I’d appreciate that. We’ve talked about the Eco-WiFi. Those are kind of my main things. I’ve done also this booklet for if you’ve got any children on the autism spectrum. I did a booklet called “Simplifying Autism Improvement and Recovery.” It’s a short little booklet. It goes along with my talks, “Simplifying Autism Improvement and Recovery,” that’s online. You should be able to find that on my website. But my most recent talk is this “Simplifying Autism: Removing Barriers,” right? Put a couple of talks together and that should be a pretty good talk if you could find that on my website as well.


PS: Yup. Thank you. Thank you very much.

[END]