

**Emerging Ideas About Autism and the Environment:
A Special Interview With Dr. Martha Herbert and Peter Sullivan
By Dr. Joseph Mercola**

JM: Dr. Joseph Mercola

MH: Dr. Martha Herbert

PS: Peter Sullivan

JM: Welcome, everyone. This is Dr. Mercola here, helping you take control of your health. I am recording another interview with the celebrities here. I'm at the Academy for Comprehensive and Integrative Medicine in Orlando, Florida. We're recording this in November of 2018 at their annual convention. It's just an unbelievable event. I look so forward to coming here because there's absolutely – Every year, I know I'm going to learn a minimum of one, but maybe half a dozen different important pieces of information that's going to change my life, and hopefully yours. I certainly did this year.

We have superstars, like the people here, who you can meet up with. If you're watching this, you might want to definitely check your calendar for November of 2019. It's pretty much every year in November. Anyway, my guests today are Peter Sullivan, who doesn't have any medical training. I'm really fond of Peter because he really is passionate about EMF, electromagnetic fields. Along the same line, we have Dr. Martha Herbert, who is a Ph.D. MD, because she got a Ph.D. first. She's based out of Harvard, or was. I'll let her tell the story.

They both have massively interesting stories. What I want to do is ask them a few questions. We're filming with one camera. We only have two or three cameras when we do our shoots, so the camera's going to move a little bit, so don't worry too much about that, because you're here for the information. Peter, why don't we start with you? Since you're closest to me. Give us a history of who you are and how you got interested in this, because I do know that he had electromagnetic hypersensitivity (EMH), or still has it to some degree. But [inaudible 01:54]. That was the primary motivation. But he's a wealth of knowledge. I love this man. He's totally committed to sharing truth and information.

PS: I was a software engineer in Silicon Valley. In the '90s, I was really all about personal technology. That was my passion. I studied in Stanford. I did all kinds of human-computer interactions. I worked at multiple companies: as a troubleshooter in Silicon Valley, an engineer and a software designer at the very end. I worked at Netflix and some other companies people would know of.

I started having some fatigue in the early 2000s and food allergies. My kids were going through some developmental delays at the time. I was starting to link them all up. I realized that – At that time we've started looking at the enzymes and autism, and kind of autism symptom things, and looking at how to biologically treat those. I started looking at toxic metals. I found out that I was toxic. I had toxic metal levels of mercury. My kids had some issues as well.

I eventually just took time off from work, in about 2005. I just said it's ridiculous for me, with all these things going on, to have two people in the family working. I was focusing on my kids' health and my health and really had some time and energy to really go deep and find out what was really out there. I had a great doctor, Dr. Raj Patel, who has stuck with this family of folks, doing all these comprehensive stuff.

JM: An integrative medical doctor.

PS: An integrative medical doctor who really would talk about candida overgrowth, mercury and all that stuff. He really got us on track. But eventually, the kids kind of slowly got better. Even after detoxing, I did not. I kept getting worse. I got down to 131 pounds. I became electrically sensitive. My brain kept telling me, "All the stuff is safe and well-tested. I love technology." My body was reacting like there was something really wrong. I was catching myself just throwing a cellphone away, feeling cellphones and then transformers when I plugged them in.

It took me a while to even find the resources for EMF and all these things. I finally figured out one of the aspects of electromagnetic fields. Dirty electricity was a big factor for me in 2009. Once I figured that out and started managing it, my weight came back like 10 pounds in about a month or two, and I just started kind of an upward spiral. I continued to improve my electrical environment. I wonder how many – eight or ten years – since I've been doing stuff. It's just a constant process. We're just trying to share the information, make the field credible, because it's very credible, and make sure people don't have to suffer.

JM: Your motivation, I think, is intriguing because you actually created a tent, an EMF-free tent that's free from magnetic fields, electrical fields and radiofrequency fields. You bring this tent around to different conventions – not conventions – seminars and conferences. You've created an oasis that people come into. Because normally the problem with these conferences is that they're typically in large hotels and you're bombarded with very large EMF fields. You create this oasis, free thing. And you do it at your own cost. You're not selling anything.

PS: Yeah. My major role is environmental health funder, so helping to fund people working in environmental health, especially in EMF. I started out with toxic metals and worked on mercury. I was looking at different scanners but ended up working with the Natural Resources Defence Council (NRDC), some United States Environmental Protection Agency (EPA) policy stuff in the U.S. and funding a little bit for the International Mercury Treaty [Minamata Convention on Mercury]. But after this, the International Mercury Treaty, which I never imagined would have ever happened, governments are involved. I'm kind of a small player. I really said, "I need to focus on something where I can have an impact." I really felt that EMF had not been made as credible. People need to become aware of it and need to be credible and solid, so I put all my effort on that.

JM: Great. One of the people you funded the research for was Dr. Herbert, right?

PS: We're still working together, yes.

JM: Okay. Good. Why don't you discuss your history?

MH: Oh, sure. I still remember when you and I first met in person. We took this great walk in the park at the northwest corner of San Francisco.

PS: Yeah.

MH: We were on that plateau.

PS: The Hidden Labyrinth. Yeah, yeah. Exactly.

MH: We were both at that time associated with Cure Autism Now. It's an organization that was taken over in a somewhat hostile takeover by Autism Speaks.

PS: Exactly.

JM: Autism Speaks.

MH: Autism Speaks.

PS: Yeah.

JM: Are they still around?

MH: Autism Speaks is still around. Cure Autism Now is not.

PS: Yeah.

JM: Okay.

MH: That was kind of a big turning point in that field.

JM: And what year is that?

MH: 2007.

PS: I think we talked on the phone in 2007. Maybe it was later. 2009.

MH: We actually met in 2009, and that had already happened. But you were still – You hadn't really been –

PS: I haven't figured out.

MH: You were just talking about mercury.

PS: No. I was just talking about – I was talking about environmental factors and autism. I was like –

JM: You definitely owe us an introduction.

MH: Yeah. I was just going to.

JM: Go back to why you're focusing on autism, because you didn't really mention that.

PS: Yeah. I don't really talk about it a lot, because my kids are both grownup and at Berkeley. Their symptoms are all gone and they're recovered, but those kids had a hard time with that. I remember thinking, "I don't know where autism and mercury are related. But it doesn't hurt for us to start measuring and managing mercury and toxic metals in kids." I was looking at ways of doing non-invasive screening for toxic metals.

JM: Okay.

PS: And we were talking about all these toxins. We were talking about these things.

JM: You're still passionate. Actually, I met Peter at the Bulletproof Conference almost two years ago now. No. A year ago.

PS: A year ago. Yeah.

JM: It's about a year ago. It was an interesting story. We were going to dinner with David Asprey with the speakers. There was no transportation. We had to take an Uber. I didn't even – I've never met him. I've heard of him. We just said, "Are you coming? We're coming to dinner." We did and joined them. We just found out it was Peter Sullivan.

PS: I knew it was you. I knew who you were, obviously. It was a perfect opportunity to talk.

JM: It was just really incredible serendipity. So, Dr. Herbert.

MH: Yeah. Sure. I have a life-long passion about the environment. I owe it to my mother, who was a big Rachel Carson fan. She grew up in the wetlands in outer Brooklyn and had life-long ire at the way that Robert Moses ripped the whole place up. She was constantly talking to me about environmental desecration ever since I was this high.

It became something of my own not just because of her. I was sensitive even in the early days of Earth Day that we really didn't have enough resources on the planet. A lot of the stuff that we were being taught in school didn't make any sense because it wasn't taking that into account. I went to medical school in my 30s after I got my Ph.D. I got a Ph.D. in History of Consciousness in University of California Santa Cruz (UC Santa Cruz), Intellectual History, in a very beautiful environment in the Redwoods and the ocean.

I decided to go into pediatric neurology. I had done my dissertation on development and evolution. I was very interested in development. I remember friends of mine in the environmental side of things saying, "What are you doing neurology for? That has nothing to do with the environment." You know?

JM: The shift.

[-----10:00-----]

MH: I fell into working in autism because I inherited magnetic resonance imaging (MRI) scans from the first MRI study that have been performed in autism, where they started scanning in like 1989 [inaudible 10:03]. It turned out, after a whole lot of work, I found some – I was one of the first people – not the only one – to identify white matter abnormalities in autism through brain imaging, not through gray tissue.

That really violated the paradigm that behavior comes from the cortex. In the sense that – It put me – I was already kind of a whole-body person. I figured out through – I was seeing patients. Nobody had these rare – Maybe every now and then one of the rare neurogenetic diseases that you're trained in pediatric neurology. But everybody was coming in with diarrhea and eczema, and they couldn't sleep. It was almost like primary care in neuropsychiatry. That's where I sort of edged my way into the whole-body approach.

I had an epiphany in 1999, where in like within three months, these pivotal events – First, there was a major environmental influence on Neurodevelopmental Disorders Conference held at The Medical Society of the State of New York (MSSNY) that people, major figures that we know now, like Michael Lerner, Ted Schettler and other people who are in the environmental health movement helped set up.

It was pivotal for me because I had this gigantic epiphany that all the stuff that I was seeing in my patients really could connect with the environment. I'll leave aside the two others because that would be a different rabbit hole. I started putting together and figuring out that this was really a systems approach to these conditions. At the same time that I was doing this, I was on the board of directors of a non-profit called the Council for Responsible Genetics (CRG). That was the first non-profit watchdog group for genetic engineering. I had stellar people. I mean we had two Noble Prize winners on the board.

JM: What year was that?

MH: Actually, before I went to medical school in the mid-80s, I was asked to be the first executive director of the organization, based on what I was doing then.

JM: And where did you go to medical school?

MH: Columbia University.

JM: Okay. Did you postgraduate train in Harvard?

MH: First, I did pediatrics at Cornell New York Hospital (New York-Presbyterian/Weill Cornell Medical Center), and then I went up to Mass General for the Pediatric Neurology, and I stayed there.

JM: Why did you go and stay there?

MH: I actually got pulled out of the pile. My father died in my last year of medical school. I was very distracted because I was extremely close to him.

JM: Traumatic.

MH: Yeah. It was traumatic. I also inherited two farms. It was complicated. I got pulled out of the pile because of 15 years of experience prior to medical school in systems biology and systems research, all the way back to my training with Gregory Bateson when I was a graduate student.

JM: You know what systems biology is, but I would say 99 percent of people watching this do not. Could you help us understand?

MH: The simplest way of talking about it is everything's a web. Things are connected when you tug one part of the web and the rest of the web changes. But in the standard way of doing science, you pick out one thing and study its effect on one other thing. That's how clinical research is designed. That's what people are expected to do. They're expected to study the impact of one thing at a time on one other thing at a time.

JM: And isolating all the other variables.

MH: We're looking for pure forms of disease. But mostly in these conditions that we're talking about, it's a mess. It's like I caught sort of the mess diseases. Everybody has a bunch of different things, some of which are more prominent than others. When you take enough of a history, you find – Like, early on, in like figuring out about autism as a systems problem, I was looking at so-called specific language problems or developmental language disorder.

If you look at these people carefully, they have coordination issues. They have a whole variety of subtle versions of things that you see in a more fleshed out, bigger way in autism. You see, this subtle breakdown of the precision and fine-tuning of the brain. I'm speaking now from a perspective that I wouldn't settle this way 15 years ago. But I feel like what happens with the environment and its impact on the brain is that it degrades the precision and the fine-tuning of the integration. It narrows our focus because we don't do long-range connections so well.

So now, jumping back to things I'm thinking about now, I mean, I just finally, after looking for somebody to talk about it, I found a great article about how the networks that are described in the brain that are messed up in psychiatric illnesses, not just autism, schizophrenia, depression and so forth. The hubs of these networks have very high-frequency gamma frequency, gamma frequencies like 40 or higher. It turns out that this gamma frequency is driven by cells that are very high-energy demand mitochondrially centered cells.

JM: In the brain.

MH: What we're having now is after years of all these people studying these networks with no connection to metabolism, we have enough studies showing that, actually, the metabolic stuff going on in the brain match onto the networks going on in the brain. The proportion of network disturbance in some of these cases has been shown to be proportional to the amount of mitochondrial dysfunction. My passion for the last 6, 8 or 10 years, as I've gotten into the systems stuff, is to look – because I developed a brain – I have a brain research program at Mass General called Transcend: Treatment, Research and Neuroscience Evaluation of Neurodevelopmental Disorders. We have MRI, magnetoencephalography (MEG) and electroencephalogram (EEG).

JM: What's an MEG?

MH: An MEG is like an EEG, but it's a magnetoencephalogram. It measures the magnetic activity of the brain. Now, the EEG measures the electrical. When you have electrical activity, the magnetic is at 90 degrees. They measure the same thing, but in somewhat different ways. I did a research study on – My hypothesis was that autism is not something you're born with. It's something that you develop.

In order to study that, I started studying babies from the time they were in their mother's wombs. We got biosamples from the mothers. We got biosamples at birth, and then until the mothers stopped nursing, we're getting biosamples from them. And then biosamples, plus EEG, plus autonomic, we could only get electrodermal — the sympathetic at that time, using wristbands. To see how things deteriorated in the kids who developed autism. At this point, what we found was something that could be interpreted in a variety of ways. We're working on publishing this. We have EEG dated of two-week old babies, predicting their outcome at 13 months.

Now, I just finished saying that I think that autism is something you developed. That would sound like something you're born with, but you can't say that they have autism. The way I think about it is if their brains are really excited and irritated, so it matters very much what happens.

JM: So they're more predisposed.

MH: They're more predisposed. And they're also –

JM: And you can predict it. They identify these individuals.

MH: So then, if you can predict that early, then you would want to do something about it, which leads to a small number of primary care pediatricians doing whole-body approaches to children with autism, the parents and pregnant mothers in those families, showing that when they initiate a whole-body lifestyle modification, wellness promotion, avoidance of toxins, avoidance of allergens, just about none of the babies who are born develop autism.

There's only been one paper published on this. I am yanking the chain of somebody who has data on this so I can get the revisions of the statistician. My feeling is what we need is a public health intervention where people are taught how to keep healthy from preconception to pregnancy to infancy. That when these babies are born and if they get this EEG that says that their brains are irritable, you don't want to do a drug. I have disagreement with some of my colleagues about this. You want to do safe and healthy things, because that's the problem. From our point of view, that's the problem in the first place.

[-----20:00-----]

PS: Exactly.

MH: That leads to – Peter and I are working now on setting up a database online for capturing – because Peter has a Facebook group for families of children with autism, who want to learn about Wi-Fi, because there are a lot of anecdotal stories.

PS: Right.

MH: [inaudible 20:35] yesterday.

PS: Exactly.

MH: From Bob Dennis. That when you reduce the Wi-Fi, the symptoms abate a lot. I know a woman who – the kid was stimming like crazy. He liked to stim by the dishwashers. Guess what, there was dirty electricity in this dishwasher. They fixed it and he stopped that, and a lot of the symptoms remitted.

PS: Yeah.

MH: And so, we want to capture. People have been doing this, but we want to give them a place to aggregate the data so that we can say look at all these people. And also, Dr. Dietrich Klinghardt did a study measuring –

PS: A long time ago.

MH: A long time ago, but it has to be followed up, where mothers of babies who became autistic compared to mothers of babies who didn't, measuring the EMF and the dirty electricity in the sleeping room of the mother was like, what? Eight times higher?

PS: Well, actually it wasn't dirty electricity. It was electric fields and microwave.

MH: Okay. But it was substantial and higher.

PS: It was dramatically higher. Yeah.

MH: And that's never been followed up. What we're trying to do is setup enough of an infrastructure that we could follow it up in a systematic way and actually have real data.

JM: That's great. I'm intrigued with the screening mechanisms you developed to identify the infants who would be at risk. If you can answer that question, I have a follow-up question.

MH: Well, yeah. You know, right now, since we didn't publish it, I can't really give you the exact details, but I can say at the generic level that I would interpret it as a measure of brain irritability.

JM: Okay.

MH: And that the measures that we're using are really basic.

JM: It's a simple strategy.

MH: Do an EEG. Really basic, yeah.

JM: Simple strategy.

MH: At least the math, but you can setup an algorithm.

JM: Okay. Good. Say you've identified the subgroup of infants who were recently born and then you're going to implement an intervention – Both of you are so good at this because you've been in the field for a long time and you're speaking to the parents of autism frequently. I'm wondering if you could quantitate or rank order the risk of factors that could contribute to this. The three big ones that most people talk about – or I've heard you talk about, Peter – are the vaccines, glyphosate and EMF.

PS: My personal experience would be that the EMF and the glyphosate might be more – A lot of people talk about the vaccines. I think that the EMF is going to be bigger, but we haven't updated yet.

MH: Honestly, I would add food. I mean people are eating all this sugar. They're eating all this crappy foods. They're eating allergens. Just simply reducing allergens in the mother's diet from preconception to pregnancy is a really big deal.

JM: Well, there are two components of food. One is the metabolic, where you're finding some resistance and mitochondrial dysfunction. The other is the allergen.

MH: In the immune. Yeah.

JM: In the immune.

MH: Because the immune, if that immune stuff is going on when the baby's brain is developing, you're biasing the brain toward a more irritated state. I call it being closer to the edge of the cliff. We want to pull these people away from the edge of the cliff.

JM: Would you agree with Peter's assessment that EMF and glyphosate exceed the toxicity of vaccines and would rank order them higher than vaccines in the intervention? I mean, ideally – Give us your take.

MH: The way I'm – For me, I'm working on this project called "Documenting Hope." Patty Lemer, she's written *Outsmarting Autism*. She has a new version coming out, a new edition. We talk about total load. It's really –

JM: [inaudible 24:23]

MH: I'm a total load girl. I think you were a total load guy.

PS: No. I was very mercury-only. You convinced me.

MH: I undermined you.

PS: No. She was like, mentally, a ninja. She was just basically – She got me into total load. I influenced you on EMF.

MH: He's the one who got me into EMF.

PS: Yeah. We influenced each other.

MH: Actually, I have a friend who got me, who did a seminar on this in 2002. She was the editor of [inaudible 24:53] Review years ago. I've done something in 1999 with her.

By the way, I should say, the reason I allowed myself to finally be talked into writing this autism and EMF paper was, when we talk about metabolism and the brain or immune in the brain, it's kind of indirect. Somehow, metabolic and immune changes change the way the brain operates. It's going to have to change your electromagnetic activity, because

that's what the brain does. But EMF is in the same language as brain waves. It's waves. It's oscillations. It's clearly oscillations compared to biological ones.

JM: The figures are quite different, typically.

MH: That's the point. That's the point. But it's still in the same kind of biophysical level.

JM: Sure. Domain. Yeah.

MH: I just thought, I mean I care about EMF, but I was actually interested in figuring out whether by learning about this, I would get a better understanding of how the brainwaves are getting changed in neurodevelopmental, neuropsychiatric disorders, because how environment impacts brain waves.

JM: Okay. In an ideal world, we would have this screen that's done routinely.

MH: Yeah. Every –

JM: You've done the due diligence. It's published. It's accepted. It's conventional medicine.

MH: Along with the baby-hearing screen, you get this.

JM: Right.

MH: In the baby nursery or wherever.

JM: That is an ideal world. But we know that's not happening next year certainly, and probably may never happen.

MH: It will probably happen, but not quite –

JM: Yeah. But say we have this, in some ways it almost doesn't matter because, I mean, everyone needs these changes.

MH: That's exactly right.

JM: It's a moot issue.

PS: Right. It's not just autism. It's everybody. There are some people who –

MH: The Documenting Hope Project that we're just getting close to launching – We've finished up the second IRB –

JM: An IRB is an Institution Review Board.

MH: IRB is the human subjects ethics approval fit, right?

JM: [inaudible 27:06]

MH: Yeah, I know. Thanks for always asking me, but I'm always ready to explain.

JM: Okay.

MH: We're finishing that up. Basically, we're looking at all the epidemic of all pediatric chronic illnesses, major ones, not the ones where we know some kind of very, very specific genetic error or problem. But all these things are crazy high: one out of two children having some kind of chronic disease diagnosis in the United States. That's ridiculous.

JM: That's the stats today.

MH: Yeah. For me, I decided a number of years ago that you can't understand autism without putting it in a working context, because there are more commonalities than differences across the chronic illnesses.

JM: What would some of those other chronic diseases be?

MH: You know, asthma, obesity, depression –

PS: Fibromyalgia.

MH: Not so much in kids.

PS: Oh, in kids. I'm sorry.

MH: Kids. You know, even the kind that you know are moving towards arthritis, idiopathic arthritis. What we're saying is that families are becoming their own case managers and getting these kids totally better. We want to study how these people get better and what that's about. There's never been a prospective study of recovery before.

A definite part of this is going to be inspecting the home, building biologists going in, looking for EMF, looking for all the toxic products under the sink, all those stuff. We have already launched an – Parents can enroll now to the CHIRP study, the Child Health Inventory for Resilience and Prevention. You get a very detailed report of your child's history that you can take to your practitioner.

JM: How does someone enroll in that stuff?

MH: I'm sorry?

JM: How does someone enroll in that stuff?

MH: They can go to the Documenting Hope website or look up CHIRP. There's an enrollment place on the website.

JM: DocumentingHope.com.

MH: DocumentingHope.com.

JM: Okay.

MH: We also have a really cool trailer about the film that's going to be coming along with the study.

JM: When will filming –

MH: The film is going to be – We actually started out planning to make a movie. Social media has changed so much that we may dribble it out over time, and probably will. But we will be starting to do that in the next calendar year.

JM: Okay.

MH: 2019.

JM: Alright. Good. When you compile the whole thing, maybe we can run it on the site too.

MH: Yeah, yeah. Sure. That would be fabulous. Even when we start dribbling, you can have a link to that.

JM: That would be great.

[-----30:00-----]

MH: But anyway, just as we were talking about total load, I think there are like tens of thousands of things that injure your mitochondria. There aren't 10,000 different ways to injure mitochondria. It all piles up. All these little seemingly innocuous exposures add to the pile, so they all matter. I go around. I wrote this book, *The Autism Revolution*, whole body strategies for making life all it can be. At that time, I started going around and saying, "Make every health choice a healthy choice." I would say you would say the same thing.

PS: Yeah. We just did a booklet. In the last couple of autism conferences, we did a book called *Simplifying Autism Improvement and Recovery*, and another talk called "Simplifying Autism: Removing Barriers." We have this little booklet. We've got these talks. They're all online. I come up with a list of suspects. But I think in the short-term, in the next year or so, if parents just started looking at this list of suspects – I don't want to be too attached to the order or sequence, because they're going to be different for different people.

MH: It depends also on their own circumstances and to what's accessible for them to do.

PS: Yeah. I just think I want to move the conversation away from what doesn't cause autism and to have people start talking about what are the environmental suspects and what can I do. A lot of doctors I've talked to also say, "Anything that is a health risk, like premature birth and low [inaudible 31:14] range of options, even air pollution, is an autism risk factor." Anything that can impact your health can increase your risk for autism. I think the one we're also concerned about for dads, because it's usually – this is big, we've talked about this, which is cellphone in the pocket for dads. We think de novo is a big issue.

MH: De novo. We know about de novo mutations is they found that a lot of people –

JM: Wait. What is a de novo mutation?

MH: Yeah. That's what I'm saying. A de novo mutation is the kid has a mutation that neither parent had. De novo means "new." Novo is new.

PS: Right.

MH: The kid has this mutation, and all the geneticists just say, "Oh, it just happens."

JM: Of course.

MH: "Environment doesn't have any –" I swear they all said this.

PS: Or the age of the dad, the older dads.

MH: They will always it isn't genes or environment. I wrote a paper in 2007, "Autism and Environmental Genomics." It's fault.

PS: Right.

MH: Then people say, "Well, could the environment –" But the cellphone mutates the genes.

PS: Right. Exactly. And also –

JM: We know the mechanism.

PS: We know the mechanism. We talked about it.

JM: Yeah.

MH: Yeah.

PS: We've got to get the cellphones out of the pocket for guys. We have to get the whole family –

JM: It can stay in the pocket, but it's got to be in airplane mode or off.

PS: Exactly.

MH: Well, they shouldn't even have it in their pocket. They should figure something else out.

PS: Yeah.

MH: I mean they can mutate the genes, and then they get testicular cancer. Neither one of them is very good.

PS: But I think one of the things you've talked about is the shift for you. It's people think autism is something bad that happened in the past, whether it was genetic or some sort of damage. You've got me thinking that autism is a state of overload and that we need to start undoing the loads.

MH: Right.

PS: Just start unloading, getting rid of the risk factors for the men so that the genetic risk factor before birth, but then for the whole family, lightening that whole load. We did learn from that Stanford twin study that everyone assumed autism was a placebo. Some people still assume autism is 100 percent genetic, which is ridiculous. It's laughable.

The Stanford twin study showed, on average, looking at identical twins, some identical twins, one has autism, one does not. They did all the stats that prove it. They did all the stats, that it's 38 percent genetic contribution and 62 percent environmental. We could be really tying down on autism right now by dotting down these environmental factors and not just one of them, but a range. We were saying that if there's one we're laughing, if there was one thing that was really broken, it's really the regulation, the lack of real actual safety regulation.

JM: Yeah. Dr. Herbert, you had mentioned that there are thousands of variables that contribute to mitochondrial dysfunction. Would you assert that mitochondrial dysfunction is a major contributing factor for autism?

MH: Yeah. I think it's a major contributing factor to everything right now. Every major disease, and even if it's a very specific genetically determined disease, it still doesn't help if you have mitochondrial dysfunction on top of that.

JM: Yeah. You're going to die prematurely.

MH: And it's going to make everything worse.

JM: You'll most likely suffer painlessly.

MH: And have complications.

PS: Right.

JM: What would you list as a top 5 or top 10, not necessarily rank-ordered, but things that need to be considered?

MH: Well, I mean toxic exposures, EMF, inadequate antioxidants in your diet –

JM: Not necessarily supplements.

MH: No. Not necessarily. No. You need multicolored foods. You need a rainbow community.

JM: The biochemical from the foods.

MH: And to have food that – Even if it looks like it's the right kind of benefits, if it's been raised in a mineral-poor – If it didn't have the opportunity to generate all these chemicals that are good for us –

JM: Not grown in good soil.

MH: Exactly. Those are things. I mean what I said in my book are food, toxins, bugs and stress. All those things eat away. They create demands on your system. You need the antioxidants. You need the good fast to handle all these things. When the demand gets ahead of the supply, the supports, the suppressors get higher than the supports, you're in trouble. So, you want to get the supports up and the stressors down.

JM: Let's get practical now, because you've both been doing this for quite some time. You're in the trenches, you've seen people who struggle with this every day. You're out there lecturing. I'm wondering if you could describe the most common confusions that you see, or the steps that people aren't taking and they should be.

PS: I'll say people assume that it's a problem with the child. They jump in and start treating the child. They assume it's genetic or whatever, and they're doing behavioral therapy. The things that I would do again for myself if I could do it all again is I would start with the environment. I would start with EMF, especially at night. We turn off a baby monitor, a cordless phone base station, Wi-Fi, and even sometimes a circuit breaker for the bedroom. Just give yourself an experience.

JM: Are these baby monitors becoming more pervasive?

PS: They're becoming a little bit worse, because they're not just sound baby monitors now. They're adding video, so that's more bandwidth.

JM: And now they're adding artificial intelligence on top of that.

PS: Right. Some of them are not because they're voice-sensitive. Some of them are constantly emitting wireless radiation, and then some only emit after the child makes noise, which is almost like negative reinforcement for speaking if you think about it.

JM: But is it possible to have a safe baby monitor? Maybe a wired baby monitor?

PS: A wired baby monitor is safe. There is an older baby monitor. I can't remember the exact brand now. It's not just all wireless. It's the digital wireless pulses. The old analog signals that were like radio and FM radio are biologically less active than these digital pulses. We started shifting kind of in the mid-80s for the phones and the baby monitors.

MH: As you keep saying, failure to implement. Turning off your Wi-Fi –

JM: It's a term that I use at these events that accuse the people – the physicians, typically – at the conference. We have these lunches, and I see them eating crap. Knowing them, they absolutely know better, but they choose not to implement. I say, "You're guilty of FTI, failure to implement."

MH: Yeah.

PS: Right.

MH: People of course, they mean well. They just barely got here and "they're playing."

JM: But they know they're going to be there. It's not a mystery that you're going to have to eat when you land.

MH: But just to turn the router off at night. I mean we wouldn't make it civil. I tell people – I have a friend who lives in a one-bedroom apartment. All her stuff is in her bedroom. Plug everything into a strip. Put the strip in the wall. When you go to bed, just pull out this one thing, and then pull it back. It's not hard.

PS: Put it on a timer.

JM: Yeah.

MH: Either way, whatever it is, you'll have to make it easy.

JM: The timer works well for the router, because typically it's not in the bedroom. Hopefully, it's not.

PS: There are a lot. I've seen that happen a lot. I would say it's a state of overload not just for the kids, but for the entire family. These people are just overloaded and overwhelmed. I just said it's almost like cleaning up the house, the magic of tidying up the house. There are a million things you need to do. The key is in the sequence. Do the easiest things that get you the most impact. That's why we're starting with EMF. Because once you reduce that, you start sleeping better, and then you start to have more capacity. You want to build a spiral of capacity. You start an upward spiral.

MH: I think that's really. I would totally concur. You really have to buy life bandwidth.

PS: Exactly. You give yourself more capacity so that you have the capacity to implement. A lot of people have good intentions. A lot of people don't. But a lot of people do have good intentions, but they are just so overwhelmed they lack the capacity. I see it all over the place now.

JM: That's valuable information.

MH: Yes. Building really is.

JM: That's a really good pearl.

PS: That's happens to be it. I know –

JM: Is this from personal experience?

PS: Especially if you have mitochondria. If your mitochondria is wack, you literally don't have the energy to do this and change. I was telling a friend, "Change takes energy." You've got these old wires. You need to rewire things. Change takes time, energy and resources. Anytime you have to change, it's an investment in your physical energy, real estate and resources. Change takes energy. You need to kind of step in a sequence.

JM: You've got to have an energy surplus.

PS: Exactly, exactly.

MH: You have to have – The genetic kind of people say, "The apple doesn't fall far from the tree," but the bottom line is if the kid is having problems upstairs, the parents are probably overwhelmed. Sometimes it's hard to figure out complicated things. Some of the practitioners who give parents on the first visit a list of 45 things to do, none of them get done. And then I see them six months later and nothing happened.

[-----40:00-----]

JM: Yeah.

PS: We don't want to overwhelm them.

MH: Simple. In the beginning, just to get enough change that you feel a change. You will have an investment –

PS: A return in investment for your time and energy.

JM: I would add to this. I would like to have your feedback on it. Because one of the first steps that I would demand of anyone seeing me as a physician would be to commit to removing soda and sugar from their diet, which is a simple thing to do and has a magnificent metabolic return. I would put that probably on the same level as EMF, maybe even easier. Maybe not easier psychologically, but certainly easier from pragmatic advantage.

PS: We've had a lot of parents talk about getting rid of screen time. There are all these elements. What I advise – this is my experience – is that people get these addictions because it's just not changing, but there are addiction elements going on – the screen time and the sugar in the foods. What I say is that if the EMF reduces at night, everyone's start sleeping better.

JM: You would put that above sugar?

PS: I would.

MH: Yeah. Because it's at night. You don't have to fight with anybody who's addicted, because they're all sleeping with the intervention.

PS: You don't have to touch the child. You're just going to pull off. They don't even know what's going on. Now, they're sleeping better. Now, they have more capacity to change and to deal with these.

JM: That's a good point.

PS: That's my advice. Because I hear some people say, "Let's go and reduce screen time," or something. No. That could get really contentious and give you power control. Everyone's fighting. Get everybody sleeping and kind of decompressed a little bit. There gets to be more space.

JM: Very valuable advice, because it's very simple, but it's so profound.

MH: It's very profound.

PS: All these families, we all fight. My wife and I used to fight over the foodstuff. One of the reasons I ended up doing a lot of EMF is that I wanted to do food interventions, and my wife was resistant to it. I kind of boxed out a little bit there. My kids are resistant to it. But once I figured this out, I was like, "I could help them without even touching them. They don't even know what's going on." It served me a little bit in that way.

JM: I'm just curious. What was your experience in doing when you implemented that strategy? Did the knowledge improve and you didn't tell them that you were implementing the change?

PS: They could see me doing stuff, and then my wife always complained when I would turn the power off. I would be playing with certain breakers and my wife would be like, "Why did you turn the internet off?" We still, here and there, fight about it a little bit. But things have lightened up so much. We were all really intense. A lot of families with autism end up getting divorced and also bankrupt. It's an overwhelming situation.

JM: It's just getting worse.

PS: It's just getting worse and worse. I think that it's a big impact on your psychology. I mean Martin Pall's paper on neuropsychiatric effects from microwaves and EMFs, it's a big factor. And sleep, because sleep and inflammation are fundamental to good mental health. Anytime you can improve there, if this is just – I like this whole concept. Especially if you put all these things on a timer or something and have it done automatically, you've got a one-time intervention that has long-lasting implications. It's like doing one push-up and being health.

JM: I would be very curious with your perspective on the next step, which is the ideal, which is to make the transition to wired – obviously more complex and costly action and investment. How would you sequence that and stage it?

PS: You know, we're just coming up with – We're doing this database and I'm coming up with these little protocols and stuff. We're coming up with – It depends because we kind of have to measure. It's just like with biology.

I think step one is you do the shotgun technique, which we just talked about, where you turn off these things. And then you might get some feedback that this is working good, and you want to go to the next step. We're looking at a couple of different meters that we're recommending. They're on our website, ClearLightVentures.com. You'll see EMF meters. And then we have some simple instructions and little ways of logging the data. Soon we'll be putting it in the database.

JM: When do you anticipate the database?

MH: A few months.

PS: Hopefully, yeah. A few months.

MH: We have to do a lot more research.

JM: Our backlog for getting these interviews out is probably in 4 or 5 months.

MH: We'll get in touch.

JM: It will be up on –

MH: Okay. We could get you the addendum to put it in writing.

JM: Sure.

PS: Yeah. But it depends on what's high. We put it on this little radar graph: magnetic fields in the highest. I'm going to have a little instruction on on here's what you do next. It's kind of a hybrid between what building biologists generally do and what some audio folks do or grounding experts like Alan Maher, and my own experience. It'll be kind of a living document. We'll debate it. There'll be different people. Hopefully there will be choices. But I'll try to get people a range of choices and make it simple, cheap and as easy as we can make.

JM: Okay. Is this available on your site?

PS: We're moving in that direction. The EMF and autism group might be the first place that we start to share it. We'll start –

MH: We'll beta test it with them.

PS: Yeah. We'll beta test it with a smaller group. The meter and the meter instructions are there now. The mitigation instructions, I'm working on right now.

JM: Okay.

PS: Yeah.

JM: That's great. That would be a valuable resource to so many people.

PS: Yeah.

JM: It's wonderful. Any other strategies or recommendations that you'd like to add to these? Excellent ones?

MH: I mean –

JM: Based on your experience.

MH: With the food, one thing that's helpful with kids and even with anybody is a kid who may not want to eat certain things, who is difficult in whatever way, you may buy a bunch of fruits and vegetables of all different colors and let them play with them and make a mess and do all the stuff. And then they develop tactile and visual familiarity before you force them to ingest it. You need to kind of make kids play.

JM: What age does this occur? Because I've read some reports and studies that speculate that when you give a child – I forget the age, it's been a while since I read that – if you've exposed them a certain number of times – 7, 8, 10, 12, I don't know what the magic number is – then it may be objectional initially, but after you continue with their exposure, they become accustomed to it and they actually enjoy it. That preference actually remains lifelong. Has that been your experience?

MH: It's funny because you're saying that and it triggers this other thing going on. I think that people – I know families where they've never had sugar in the house. Kids are just used to having all these foods. It's not an issue. If you have somebody who has all of the tactile and sensory issues toward and into the autism spectrum, it gets a little bit more complicated. But I think keeping it light. I think the other thing is that it works best if the whole family makes a commitment and not just isolating one or two individuals.

PS: I think the one thing that's coming to mind is you talk about all these different factors and it makes parents feel overwhelmed. The thing I talk about in my simplifying talk is that, going back to your genetics study, you looked at all the genes in autism in 2014 and the map came – the energy signaling came up, but the No. 1 cluster was calcium channel, which had come down in Martin Pall's study.

JM: Which is interesting.

PS: I try to talk about – To try to simplify this for parents, I try to think about autism as an overload of the calcium channels, too much calcium getting in. Calcium channels excite the cell and make it more likely to fire. I think of it like a tuning peg and a guitar, making it a little more high-strung. It feels like to me, it feels like an overload of excitotoxins. EMF is one. Glyphosate also raises intercellular calcium. Even caffeine, of course, there are multiple factors, multiple things that dial those up and down.

If you could think of autism as a state of overexcitation, an overload of excitation or excitotoxicity, that might help simplify it. Anything that's kind of calming, anything that parents discover that's exciting for the child and gets the child a little over riled up, put that on the list and kind of dial it down.

MH: You know, Peter, listening to you say that, I really went into a really calm space. I felt almost like we were in the –

PS: In the zone?

MH: Because it was just so calming to feel how much work you've put into and thought you've put into it, making it simple for people because, honestly, if the kid in a family, if there's excitation, if it's dialed up too much, everybody is going to be more or less dialed up. You must come up with these calmer strategies and come in in a way that doesn't trigger. Because socioemotional stressors trigger that kind of dialing up too.

PS: There's a whole stack of those things, all those physical things, and then, yeah, the socioemotional. A lot of Annie Hopper's work on the limbic system and the body getting –

JM: Annie Hopper is a person I'm also interviewing.

MH: Here. Yeah.

JM: Her interview will be done after this one. I think I'm interviewing her in a few months. But I met her in your tent in Dallas, at the Generation Rescue Autism event.

PS: Exactly.

JM: Powerful tool that she has in restructuring the limbic system that gets damaged. We're actually rewiring the brain –

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

MH: There's this old German term called "Zeitgeber." "Zeit" is time, "geber" is giver. It has to do with the things in our daily lives that give us a kind of a reliable rhythm every day. One of them is going to bed and waking up at the same time. One of them is having regular times to eat – Certain things like that where your body isn't kind of being jolted around each day.

PS: Right.

MH: That's something that a lot of people don't have. It's another thing that even if you just have people say that there is an intention, to say that there is an intention that that's the way we're going to move to the direction of having more regularity, there's something, again, calming about it. We need to find the part of ourselves that's capable of being calm. I think the way that a consumers society works is it keeps us revved up, so that we're just very vulnerable to advertising and buying all kinds of stuff.

PS: Literally. Like when the calcium channels excite, it's more like of you to fire. In so many times I've gone into a store all jacked up and all excited and I just buy too much. I come home and, "Why did I buy the stuff?" My brain was overexcited. Right.

JM: I want to thank you both for your massive contributions and work in this area, for all the work you're going to be doing, and the benefit that you've provided to so many people. Can you give the name of your website again?

PS: ClearLightVentures.com.

JM: ClearLightVentures.com.

MH: I have Higher Synthesis. HigherSynthesisHealth.com and HigherSynthesisFoundation.com.

JM: Okay. Great. Alright. We look forward to seeing everything you've compiled and your recommendation list. It'll be great. Thank you for sharing your wisdom with us today.

PS: Thank you very much.

MH: Thanks.

[END]