Episode 178: A Pediatrician Explains How EMFs Are Dramatically Affecting Our Children With EMF Kill Switch

Child: Welcome to my Mommy's podcast.

This podcast is brought to you by Joovv red light therapy. I have been using therapeutic red light for years, and it's part of my daily routine. So, if you're not familiar with it, red light therapy, also called photobiomodulation, uses very specific wavelengths of light, which are in the 660 to 850-nanometer range, for clinically studied benefits, especially skin health, thyroid health, which is the reason I started using it, and reducing pain and inflammation, and so much more. It also has studies that show it can help hair regenerate and grow thicker and stronger, which is another wonderful benefit that I've noticed, and I've noticed a ton of skin benefits as well. It's definitely become part of my life and my routine. Joovv, especially, they're third-party tested, they're validated by external studies, and they're FDA-approved. They also have several different sizes of these red lights, in combination, that can fit in any sized home or apartment, and they have a new modular design which allows you to build a full-body system all at once or over time. You can check all of that out on their website. Go to joovv.com/wellnessmama. That's joovv.com/wellnessmama to learn more, and you can also grab a special gift with any order. So, check it out, joovv.com/wellnessmama.

This podcast is brought to you by kidslovetoswim.com. I recently found this and absolutely adore this course, and I had to share it with you. We all know how important water safety is and how kids can drown in just minutes or seconds in a small amount of water, and especially if they don't know how to swim. In fact, the inability to swim is one of the biggest factors linked to drowning. This is such an important issue, it's a bigger risk for kids to drown in water than playing alone outside or walking to school by themselves. In fact, two children die every single day from accidental drowning, it's a horrible and big important issue. And for this reason, swimming is so much more than just a sport, it's a vital life skill that all of us need. But, I get it, it can be super intimidating and scary for kids. You already teach your kids their ABC's and how to ride a bike and what foods help their body grow, and now you can teach them to swim safely at home with this online course. You get the skills of a certified water safety instructor and lifeguard and parent. And he teaches you in just five simple steps and in only 14 days how to take your kids to swimming proficiency in a fun engaging way that will increase their water ability drastically, and also their bond with you. Go to kidslovetoswim.com to find out how.

Katie: Hello and welcome to, "The Healthy Moms Podcast." I'm Katie from wellnessmama.com. And this interview is going to be so important, especially if you are a parent, because we're talking all about EMFs, how they affect our body, and especially how they're affecting our children. And I am here with Dr. Amy, who is a physician with over 30 years of practice. She has seen, firsthand, very concerning changes in the health of the general population in the span of her career.

And we're going to talk about a lot of the problems that didn't use to exist, that are now problems in children, and why she doesn't accept that the common explanations of just diet and diagnostic criteria are what's making the difference. And over the past decade, she's done extensive research on EMFs, and is increasingly convinced that EMFs are playing a very significant contributory effect in the diseases of civilization as they call them. So Dr. Amy, welcome, and thanks for being here.

Amy: It's so nice to be here with you here, Katie. I'm excited to talk.

Katie: Me too. I know this is a topic that we're both very passionate about. And I know that it's also a topic that can be very controversial, and one that tends to get dismissed quite a bit, even in the health world. So I can't wait to go deep on this. To start off, I want to make sure we clearly define our terms so that everybody listening knows what we're talking about when we say things like EMFs. So can you kind of just walk us

through the basics of what EMF actually is and what the different sources are?

Amy: Oh, sure, absolutely. There's a lot of confusion, and part of the confusion is that there are multiple terms that basically apply to the same thing. But I'm just going to call it EMF, which means electromagnetic fields, some people say, "Forces." And basically, what EMFs are, with the exception of sunlight, which is visible, it is all of the invisible forces that we're exposed to in this world. They can be magnetic forces as in the North Pole or magnetic forces that come from appliances and items, electrical fields. They can be wireless forces that come from cellphone antennas or cellphone towers. So that's basically it. It's electromagnetic fields.

Katie: And so, like you said, these can come from the sun, which are natural sources, but also from man-made technology which will be everything. Yeah, like you said, from cell phones to WiFi, to all the different spectrums that were exposed to these days. Is there a difference in how those different ones affect the body?

Amy: That's a really good question. All of the science is pointing to non-ionizing radiation, which is these lower level forms that come from wired and wireless technologies. This doesn't include cosmic radiation or nuclear radiation, those are called ionizing. We've known for many, many years that those are damaging and they're damaging quickly and immediately. But the non-ionizing radiation, and that's what's really up for debate here, it's the wired and wireless sources.

All of the science is pretty much indicating that they all affect us in the same physiologic manner, and they all probably cause about the same degree of damage, and damage ourselves in pretty much the same way. So it doesn't really matter if it's a magnetic field, or an electric field, or a wireless field which are sometimes called radiofrequency fields, they all can impact our physiology

Katie: That makes sense. And so that could be, I would guess, like in a good way, for instance, from the sun, that has all the different spectrums of light and infrared and things that our body actually needs, compared to like man-made forms which can be much more harmful, because they're not the natural spectrums that our body is used to. Am I understanding correctly?

Amy: That's absolutely right. So when you look at the spectrum of what's called the electromagnetic spectrum, down on the very low frequency, and you would have the Schumann resonance of the earth. And then about midway up, you would have sunlight. And then up in the high-frequency spectrum, you would have cosmic radiation. And up until about 130 years ago, that's all there was. And that's, you know, from time immemorial, that's what mankind was exposed to.

But over the past 130 years, you know, with the advent of electricity, and now over the past 30 years with the incredible growth in wireless technologies, we have a large part of the spectrum that we historically were not exposed to. And that is...it's not ionizing radiation, it's not immediately dangerous like I was referring to before, but the science is strongly, strongly indicating that it is damaging ourselves over time and that it's all additive.

Katie: So let's go deeper on that because that is the biggest... When I've written about EMFs in any general way in the past, I know it's a controversial topic like I said, but that is the most common push-back that I get from both the medical community and the scientific community, is that it's "non-ionizing radiation." Therefore, it's completely safe, it's not X-ray, or gamma, or any of the ones we know to be dangerous.

And so, they say it's completely safe, and there's no evidence of harm. And my gut...I don't have the medical background that you have, but my gut is, our bodies are electric organisms in and of themselves. Our cells are individually electric organisms, our heart is an electric organism, it doesn't make sense to me that it would have no impact. So I'm curious, from your medical background, what you see is, like, the mechanism of what's happening over the long term. Because, like you said, we're pretty new in this field. We don't have a long amount of data to really study this. The last few decades, it's really taken off. And so, I'm really curious in your clinical experience and your medical background, what you're seeing?

Amy: Sure. Yeah, it doesn't make much sense that something has to burn you to hurt you, does it? I mean, that's basically what ionizing radiation does. It causes thermal injury, and then it breaks molecular bonds, breaks DNA, it causes mutation, it does it quickly. What we're saying the non-ionizing do is that it does those same things but over a very long period of time. In 2013, Martin Paul, he's a researcher at Washington State University, really, probably discovered the primary mechanism of injury.

And what he found is that EMF disrupts the amount of calcium that's inside of our cells. Every single cell in your body has what are called "voltage-gated calcium channels," these really exquisitely sensitive little channels that control how much calcium is allowed to enter a cell. And when he exposed cells to EMF, these were, you know, test tube sort of studies, those little gates were perturbed and they abnormally opened, and there was an abnormal influx of calcium into the cell.

And calcium has to be very precisely controlled in a cell. When there is an abnormal amount inside versus outside, it has a lot of effects. A couple of the big effects were increasing reactive oxygen species. I think most of your listeners would have heard about that and about oxidation being a negative thing. There are analogous compounds called reactive nitrogen species, and they pretty much do the same thing in terms of damaging a cell.

That work has been replicated as well, and it's held up to scrutiny. And that is considered to be probably the primary mechanism as we understand it now. And then, you have some secondary and tertiary things that happened, we're not totally sure of the linkage, but downstream we have breaks in DNA. And DNA is our genetic blueprint, it needs to be exact. We can't have breaks, we can't have the code getting disrupted.

For a meaningful function of a cell, that DNA needs to be exact, or you start to have cancer risk or just metabolic disturbances over time. And this is probably an area where children are more susceptible because they're growing, their DNA is always being replicated and...what's called transcripted, or it's being used as a blueprint for cellular function. Children are also probably more acceptable here to this DNA damage because they're going to live longer and they're gonna...you know, DNA it's going to have to work longer, and longer and it's going to accrue more and more injury over time. So that was one of the downstream effects.

Several of the other downstream effects from the calcium-gated channels are, cellular cultures are known to produce what are, in response to EMF exposure, are known to produce what's called "heat shock proteins," which are now basically just called stress proteins. So that shows you that those cells are under duress. And another thing that happens downstream is disruption of what's called the blood-brain barrier. For a brain to have proper function, the brain maintains its own very isolated environment. It doesn't like things getting in or out very easily. And it's been shown, with rat studies basically, that EMF causes some disruption of this barrier.

So those are some of sort of the basic changes that we've seen. And those changes, we don't really know how

they all translate into organ problems, but a lot of the studies indicate problems in organs, really across the board, from neurodegenerative problems, like, Alzheimer's and ALS, to autism, ADHD and learning problems, from cardiac arrhythmia, glucose control, and diabetes. I think it's not surprising from a physiologic standpoint that multiple systems are affected when you consider that the primary known mechanism for EMF injury is the voltage-gated calcium channel, which exists in every cell in your body.

And, like you said, Katie, we are electric and, you know, some organs are more electric than others, and brain and heart would be at the top of that list. And if you noticed on my list of organ systems that can be affected, a lot of those were neurologic. And there was also, you know, the cardiac arrhythmia noted there. So this is kind of an overview of the impact of EMFs. One area that I didn't bring up was melatonin suppression, and I think this is really, really key. Melatonin, of course, is a hormone secreted by your brain, which is secreted at nighttime and helps you get into that deep, really, really restful sleep.

I would say that there are many good studies on melatonin suppression. By the year 2000, I read recently, that there were 15 great studies. That's what Martin Paul, in his excellent book, states. And I think that if you don't want to accept that EMF may be causing injury in these vast areas, you know, cancer and Alzheimer's and infertility etc., if you just believe nothing else, but that it may disrupt sleep, then I think that's incredibly compelling. Because we all know that once sleep is compromised, that, you know, eventually you're just not well. So that's kind of a really big overview of primary and secondary mechanisms and organ systems that can become affected. And, in my career as a pediatrician, I have seen changes, especially I would say in the last five years, that really our conventional thought has no explanation for.

One of the big ones is the emergence of insulin resistance in type 2 diabetes. When I was in my residency, which was in the late '80s, early '90s, we weren't even taught about type 2 diabetes, because that was "an adult disease," you know, a disease of older, overweight adults. But I routinely see insulin resistance in type 2 diabetes in teenagers, and there may be some link to EMF here. Everyone has always, you know, just tried to tag this on the American diet, which is really poor, I agree with that. But glucose control and diabetes are a couple of the things that are potentially linked to EMF. And that would be through a mitochondrial electron tunneling, sort of, potential, sort of, cause. We know that the mitochondria have to tunnel the electrons and they're charged particle in a very precise way.

Some of that goes awry in those conditions, and it makes sense when EMF is an electric magnetic field, that it could disrupt a very precise electric, you know, magnetic process that happens in your body. So that was one thing that I've seen, that we have no explanation for and is difficult to treat. And the other areas that I have seen tremendous problems, that I didn't see historically, would be in autism. We now know that it's about 1 and 50 to 60 children in this country, which, you know, is a tragedy.

In my early days in practice, I would see perhaps a handful of autistic children a month at the most, and now it's a daily occurrence. And, you know, I've spoken with all of my partners, and all of us really do not believe the idea that the expanded diagnostic criteria are the reason that we're seeing more of these affected children. I would also say I see more attention deficit disorder, learning problems, and just plain old behavior problems. I don't know if there's a connection there, but it may be connected to poor sleep. And I hear parents talking about insomnia in children, and I've never really heard that before. And it's a routine complaint that I hear in the office. So I don't know if that answered your question, but that's just a kind of a really big overview of where I see the potential problems with EMF.

Katie: Yeah, I think that you're right, there so many levels there. And even if the only thing it did, which we know it's not, is to affect sleep. Like, all the stats are so strong on that. If you want to talk about research, we know, if you don't get enough sleep, if you don't get into parasympathetic nervous system, and if you don't have the right melatonin-cortisol rhythm, then you can have the blood sugar, for instance, of a pre-diabetic just from missed sleep. And you can have all kinds of mental struggles just from missed sleep alone. So we're talking about...

Amy: Absolutely.

Katie: Yeah, we're talking about that compounded with potentially all these other mechanisms that you just listed in the body. And I think you're so right because I don't have a medical background, but I have a pretty strong research and statistics background. And I agree with you, I've been looking at the stats, and it does it line up. Because yes, our diet has changed drastically in the last couple of generations, and we have factors like, I would say, the overuse of plastic is a huge factor, especially when you're talking about children and endocrine disrupting chemicals.

But even those two don't completely explain how fast. I mean, we're seeing like a hockey stick rise on these statistics of all these problems across the board, which is unheard of. This has never happened before in history in children. Like, it's expected, right, that when we start hitting middle age, these problems can crop up, but it's kind of unheard of to see this kind of a rise in our children, isn't it?

Amy: Oh, I absolutely agree. And I agree with you, it's almost certainly multi-factorial, which of course, makes it all hard to sort out. I do think the American diet and this, you know, the standard American diet is horrible and contributory. I think that toxins, I think glyphosate, plastics, BPA, EMF, it's probably all a perfect storm, if you will. Yeah, absolutely. And I think the sleep thing is just crucial. And that just reminds me of a study that I just found so fascinating and just so compelling on the whole melatonin that I'd like to describe it to you.

A lot of the studies on EMF are what we call epidemiologic, meaning they're looking at different groups of people and trying to draw a conclusion. You know, kind of an example would be they look at, let's say, a forest ranger versus an electrician. And they would try to maybe go measure their melatonin levels, and if EMF were the problem, the electrician would have a lower melatonin level than the forest ranger, theoretically, because his exposure would be a lot higher.

But in my view, a lot of these studies are flawed because while they control for...if they were looking at profession, you know, they would, theoretically, be controlling for 40 hours a week. But that wouldn't control for the other, I don't know, 120-something hours in a week. And I think that's the reason why a lot of the studies really give a mixed result. But I found this one great study, and we have humans in boxes basically, and we are accounting for 100% of their time. It sounds kind of weird, doesn't it?

We have humans in these high EMF boxes, and then we put them in low EMF boxes. And actually, this study happened in the neonatal ICU, because we have babies in isolettes, which are very high EMF, and when there were well, they were put into cribs, which were documented to be low EMF, and they put the babies back into the isolettes just to double check all of their data. And the data was really strong. The babies in the high EMF environments had much lower melatonin than they did in the cribs. And they also had heart rate variability suppression in those isolettes, which is exactly what you were just talking about. It's a lack of a parasympathetic state or not an ideal parasympathetic state.

You know, heart rate variability is an indicator of stress. So I just love that study because we have complete control over our subjects. You know, we don't have them, you know, we're not looking at their career and the rest of their life, who knows what they're doing. I thought that was a great study. It was done in 2012 by an Italian researcher.

Katie: That's such a good point because, in adults, like you said, these people, that's only 40 hours a week and they could be going home and sleeping with a WiFi router right next to their head, and there's no control for that. It's sad that that study that they were able to isolate that in babies who would be so dramatically affected. And for all the parents listening, I'd love if you could explain medically a little bit deeper, you mentioned HRV or heart rate variability, can you just kind of go deeper on what that is? I know, we, for instance, have a program on our computer that I do when we start homeschooling every day to kind of help train heart rate variability correctly, but explain what that is and how it relates to parasympathetic activity.

Amy: Sure. So everybody thinks, you know, when they put their hand on their chest or they feel their pulse that their heart is beating at a very regular sort of rate. You know, that would be if you were sitting still. You get up and exercise, obviously, it speeds up and whatnot. But actually, the time between your heartbeats can vary by a little tiny bit. And when you're in a relaxed state, it varies more and more, so you have more variability. And when you get into a stressed state, it becomes much less variable. You can kind of think of it as being hammered. It's just boom, boom, boom, boom, there being demands put on it. So heart rate variability is essentially a measure of how relaxed you are or how parasympathetic.

You know, your nervous system has two branches. It has the sympathetic one, which is active when you are under stress. It's probably...it's more active in the daytime when you have to be out doing things and dealing with stresses. And it's actually good to have that. It helps you deal with life in, you know, so many different ways. But that needs to turn off in the evening, and your parasympathetic system needs to activate, and then you are in a relaxed state for sleep essentially. Or, like you said, with your children, you're trying to get them into a nice, relaxed state, so that they can learn better. It's certainly what we activate when we do meditation, when we do yoga. We're in sympathetic drive when we exercise in a typical, you know, cardio weightlifting, sort of, western manner.

Katie: Yeah, I think that's such an important distinction. And, like you said, there're so many factors that come into play there, but understanding that EMF or one of those, I feel like, is very important for parents. And I want to, in just a minute, go deeper on how we can find out if EMFs are affecting our children in our own homes, and how to mitigate it, because that is an elephant of a topic that we're going to have to tackle.

But first, somewhat selfishly, I would love your take on how those of us, including me, can answer the critics who say, "Oh, it's non-ionizing radiation, therefore, it's safe, and you're being alarmist and there's nothing to worry about." Because I feel like there is a growing divide between those of us on different sides of this issue, and I would love to have some insight from the medical community, from your perspective, of how to respond to that in an educated and kind way, but to make that point.

Amy: Oh, sure. So when I first started looking into this, it was probably about, I don't know, six or seven years ago. I thought there would be dozens or maybe hundreds of studies, and I was shocked and surprised to find that there are literally thousands of studies on EMF. And, you know, the defenders of the telecom industry and technology will point out that there is, you know, no preponderance of proof on these studies. And it's

true that the results are mixed. Henry Lai, he's a professor at the University of Washington, and he did an analysis of studies, and overall, there was about a 56% rate that show that EMFs are harmful and a 44% rate that show that they are not. If you break it down by funding, if you take out the ones that are funded by industry, it will show you that about 67% are harmful and 28% are not harmful.

But I would counter that, even if you don't take out the industry, you know, perhaps bias there, you know, when would we ever consider anything else as safe, if 50% of the study suggested otherwise? I can tell you that such a procedure in medicine or such a medication would never be allowed. You know, you wouldn't, not in any other industry, you know, household items, automobiles, etc., would there be an item that would be 50% safe, that's just ludicrous. In my opinion, you know, basically, the telecom industry is relying on the consumer to prove non-safety when it really ought to be in their court to prove that these things were safe, to begin with. These are frequencies that have really never been tested on humans.

Katie: Yeah, exactly. And I hope and I'm sure you share my hope that in the next 10 years, we're going to see more independent studies on this, that can give us more data to be able to use to back this up. But I feel, like you said, that's a perfect point, when half of the data or more than half of the data shows it's not safe, why would we ignore that and then call it safe? That's not even mathematically logical at all.

Amy: Right. You know, my thought is that this industry really, right now, isn't even trying to win the scientific argument about safety, it's just trying to keep this argument going. I don't think we need more and more research. I think we need to put the brakes on things and rethink this and make certain that this is safe before we proceed. You know, 5G is just the perfect example of that.

Katie: Yeah, what's your take on 5G? Because I know that's coming if it's not already there for a lot of us.

Amy: Yeah, absolutely. I've done a little bit of reading on that recently. And so, 5G is going up the spectrum. And when you go up the spectrum, you're increasing the energy, you know, the power there. And 5G will have more power in it, and these are very short little waves, they're called millimeter waves, MMWs. And like the cell phone towers that we have right now, the wavelengths are much longer, these are three to eight gigahertz. The gigahertz range for 5G is 30 to 300, so it's a much more powerful shorter wavelength. And what that means is it has more power in it, but it doesn't really have the ability to bend or turn corners.

So it will really just be a line of sight sort of emission from the cell towers, and that means they're going to have to have millions of them. There's going to be one, practically on every telephone pole, about every 250 feet. So what I think that means is that we're going to have a much denser electrosmog. You know, right now, as you drive around with your cell phone, you'll know, you have one bar, two bars, you know, four bars, what have you, you're not always in that dense coverage. But with 5G, the very technology just demands that...you're probably, either going to be extremely dense or none at all. And I'm really afraid of the former.

Katie: Yeah, and I love that you just use the term "electrosmog," because I studied a little bit in Switzerland at a medical clinic there, and I feel like Europe is ahead of us by far on this issue. And they refer to electrosmog, which you can probably define better than I can, but kind of as the cumulative amount of dirty electricity, WiFi, etc., all these things that we're encountering on a daily basis, but can you expound on that a little bit?

Amy: I would absolutely agree with your definition there, Katie. And I don't...there's no official definition of it, but we all know what smog looks like. There's less and less of that, fortunately, in terms of air quality, but it's

the analogous thing from WiFi towers and from electric and magnetic fields. But mostly, that will be coming from WiFi towers, mostly, especially if you have 1 every 250 feet. It's going to be dense, and there's going to be no escaping it.

Katie: Yeah, exactly. And so, this is an area, EMF sensitivity and EMF exposure, it's an area that I've researched a lot because, like I said, I feel like it's something that our generation needs to address, and it is affecting our children. And sadly, there's not a lot of great information out there. And what I'm seeing is kind of what we saw a decade ago with the more natural health and natural food movement, is that the moms are the ones on the front lines going, "Something is wrong with my child and all the medical professionals are telling me it's fine and that kids are just normally like this, and I don't believe it. And so I'm going to research, and I'm going to change their diet, and I'm going to improve their sleep. And look, they're acting a lot better."

And I feel like moms are now asking all these hard questions about EMFs, and I feel like moms, maybe, are going to be the ones who start mitigating it even before we have, like you said, a better understanding of it and less controversy in the area. I feel like moms are still willing to tackle this right now. So I'd love to get really practical and talk about, first of all, how we can know if EMFs are a problem in our own individual homes.

Amy: Sure. And you're right, it's always going to be the moms. And, you know, you're right. It's part of this ancestral awareness, and 10 years ago it was food. I would bet that a lot of your followers are all in line with blue light and its impact on sleep. And I think this is just the natural progression of that. And in terms of mitigating homes, well, I kind of like to work backwards. I'd like to start with the wireless. And ideally, believe it or not, you're going to go back to having Ethernet cords in your home, that you're going to hook your computer, to your laptop to, that would be ideal in terms of even having WiFi.

Number two to that would be, to turn your WiFi off when you're really not using it, and especially turn it off at nighttime. And certainly any cell phones should be in airplane mode as well when you're not using them when you don't need a call, and especially at nighttime. I would recommend that everyone go back and buy an old clunker corded phone for their home, because the cordless phones, the DECT phones, D-E-C-T phones, are really just about as bad as cell phones. They're constantly putting out signals and the base is communicating with the remote phones.

So those are those are the wireless things that you want to change. You also want to think about baby monitors. I don't know if there is a hardwired solution for one, it would seem difficult to me, but do you really need it, I guess, is a good question to ask. And any other sorts of wireless or Bluetooth things that you have. Game controllers, like PlayStation and whatnot, apparently, those will communicate even in the turned off mode. So you actually have to unplug those from the wall in order to get those Bluetooth communications to quiet. Do you have any questions about any other wireless sort of thing that I could address?

Katie: I think you're spot on. And I've heard the same, in my own research, about the game consoles, and we don't have any of the...we have like the old from my childhood, Nintendo system, that is so pixelated, that it's hardly a video game system. And I'm okay with that one, and it's usually off. But all the new ones, they are. They're always broadcasting. And I've heard people who test houses say that those are some of the highest EMF things that they encounter, are the video game systems. What we do is for both are...where our internet is, and also where our TV is, where everything like, I guess, VCR, or Blu-ray player, whatever it is now, and all that is plugged in, we have both of those on surge protectors and we just turn the switch off when we're not

using it, and it turns everything off.

We also have, at night, we have a timer on that surge protector. So everything goes down at night automatically, and we could also turn it off earlier. So that would be my tip to moms. It's like a $10 timer that you get on Amazon and it makes it easier if you forget to turn it off. It just automatically goes down at the kids' bedtime, so they're not exposed. But yeah, I think that's a great synopsis of the wireless thing.

And I've heard people say, I'm curious if you would agree, that if we can even just reduce our exposure during sleep by that much, that that helps so much because we are trying to get in that parasympathetic and our cells are more vulnerable at night. So if you reduce the nighttime exposure, that's such a big, big factor. And most of us aren't even necessarily in our homes all day anyway, if you got kids at school or playing outside. So that nighttime exposure seems to be very important. Would you agree with that?

Amy: Absolutely. I mean, absolutely. It's all about getting back into that parasympathetic state and making your environment quiet, dark, you know, electronically quiet. And your idea about the power strip and turning it off that...and a timer, that's wonderful. There's another...a little gizmo, that's called a smart plug, where you actually have a remote. It's just like a, you know, your garage door opener or something. And that your device plugs into this other thing that plugs into the wall, and you can remotely cut it off, because I know some people's schedules are not always the same, and you end up, you know, unplugging the timer and you don't reset it and whatnot. Everybody has to find what works best for them, but turning those things completely off at the wall, or unplugging them is the solution.

I didn't mention smart meters, and those are, of course, another form of wireless pollution, and they're unavoidable in many cities. And you don't have any control over that frequently. Sometimes you can pay your utility company an extra fee and avoid that. That's what's happening in my community, and I think it's worth it. You're essentially paying for someone to walk around and read your meter rather than someone driving by with some device that can remotely read it.

But these smart meters have a lot of emissions, they're communicating a lot. And the way to protect yourself and your family from those is with different shielding sorts of solutions. And you would have to go on one of the low EMF sort of sites online and find shielding material that you would put around that, between that in your home, so that it was only broadcasting towards the street and try to really minimize the amount that is being broadcast into your home.

Katie: That's a good point. And, at least, from what I've read on that, the good thing is, if you're able to shield, like you said, between your house and the meter, so it's only pointing out it's...the further you get from it, it declines. The EMFs declined pretty drastically, like within the first like five feet seem to be the most dangerous, for sure. So it's not like you're like beaming dangerous radiation to your neighbor unless they happen to be two feet away from you. It's just you want to block that from coming into your home.

And unfortunately, we are kind of in a world where we have to mitigate this kind of things if you can't opt out, which is...we're in that scenario as well. Thankfully, our smart meters, not as bad as they come. I know there's kind of a varying degree of how bad they can be and how often they broadcast, but another one those things to be aware of, for sure,

Amy: Absolutely, yes.

Katie: And then, so those would be wireless forms of EMFs. And one that I feel like does not get talked about enough and the reason I was so excited to talk to you is wired forms of EMFs because I think it's easy... A lot of us are on board with understanding, you know, our kids shouldn't be playing with cell phones when they're young and they shouldn't be exposed to WiFi as much as possible. But it's harder to grasp potentially the idea that we are also getting EMFs from wires that are in walls, that are not broadcasting anything. So can you explain what's going on there and what we need to be aware of?

Amy: Sure, absolutely. So the wiring in your home does create what's called an electrical field. And a lot of people think that if they're in a bedroom, they turn off the ceiling light, they turn off the lamp, they get a battery-powered clock, that they've done everything they need to do, and they're really unaware that that wiring in the wall is affecting them. Other people think...they take it a step further, and they just unplug stuff. Well, that wiring is still there. As long as that wiring is live, it is creating an electrical field which extends from the wall out, oh, about six feet or so, it's variable, but it's definitely there. And you can measure it, you can measure it with a regular old voltmeter, $20 voltmeter.

And instead of clipping the end on to a wire that you're measuring voltage, you hold it on your body. And as you get up close to the wall, you will have more of what's called body voltage, and as you work walk further away, your body voltage will fall off. These are referred to as AC electric fields, alternating current electric fields, or an increased body voltage. And I said it at one point in our talk here that the science is really pointing that it doesn't matter if it is a wired form of EMF, as in the wired electric fields that come from your home's walls, or wireless, that it's all likely affecting our physiology in the same sort of way and, over time, damaging us in the same sort of way.

So what you want to do is, ideally, you want to turn that power off to your sleeping area at night and reduce all of your wireless forms of emission like we talked about previously. And there are remote cutoff switches that you can get to, you know, kill switches to help with this process. You can go out to your panel, which is typically located in your garage or basement, and turn off your circuit breakers. But I would have the caveat there that you would really only want to do that if your circuit breakers are switch rated.

Most circuit breakers in this country are not, and they're not really meant to function as switches over time. You know, they're meant to be turned on and off for servicing and for troubleshooting problems, but daily turning those off and on can cause them to malfunction, and really represent a hazard. So don't do that, unless you have circuit breakers that are switch rated. But when you do that, you have killed the power to that sleeping area, and that is the best way to eliminate those fields. It's the only way to eliminate those electric fields.

Katie: That's good to know.

This podcast is brought to you by Joovv red light therapy. I have been using therapeutic red light for years, and it's part of my daily routine. So, if you're not familiar with it, red light therapy, also called photobiomodulation, uses very specific wavelengths of light, which are in the 660 to 850-nanometer range, for clinically studied benefits, especially skin health, thyroid health, which is the reason I started using it, and reducing pain and inflammation, and so much more. It also has studies that show it can help hair regenerate and grow thicker and stronger, which is another wonderful benefit that I've noticed, and I've noticed a ton of skin benefits as well. It's definitely become part of my life and my routine. Joovv, especially, they're third-party tested, they're

validated by external studies, and they're FDA-approved. They also have several different sizes of these red lights, in combination, that can fit in any sized home or apartment, and they have a new modular design which allows you to build a full-body system all at once or over time. You can check all of that out on their website. Go to joovv.com/wellnessmama. That's joovv.com/wellnessmama to learn more, and you can also grab a special gift with any order. So, check it out, joovv.com/wellnessmama.

This podcast is brought to you by kidslovetoswim.com. I recently found this and absolutely adore this course, and I had to share it with you. We all know how important water safety is and how kids can drown in just minutes or seconds in a small amount of water, and especially if they don't know how to swim. In fact, the inability to swim is one of the biggest factors linked to drowning. This is such an important issue, it's a bigger risk for kids to drown in water than playing alone outside or walking to school by themselves. In fact, two children die every single day from accidental drowning, it's a horrible and big important issue. And for this reason, swimming is so much more than just a sport, it's a vital life skill that all of us need. But, I get it, it can be super intimidating and scary for kids. You already teach your kids their ABC's and how to ride a bike and what foods help their body grow, and now you can teach them to swim safely at home with this online course. You get the skills of a certified water safety instructor and lifeguard and parent. And he teaches you in just five simple steps and in only 14 days how to take your kids to swimming proficiency in a fun engaging way that will increase their water ability drastically, and also their bond with you. Go to kidslovetoswim.com to find out how.

Katie: And I know that you have kind of a personal backstory with EMFs and how you got into this. Because I know, it's not super common. I've encountered very few medical professionals who are so knowledgeable about EMFs, so if it's not too personal of a topic, can you actually share kind of your own, as a little bit of a deviation from the topic, your own journey into why how you realize this was so important, and then the solution that you have now figured out that is helpful with what you just talked about?

Amy: Yeah, sure. So, you know, like you alluded to, it was a, for me, it was a growing, you know, ancestral health awareness. It started with the dietary changes for myself and my family, and kids, and, you know, and trying to encourage my patients as well. And then it moved into, you know, the blue light and that sort of mitigation. And light and EMF are on the same spectrum, and it just made sense to me, just like it did to you that it's not natural. You know, if we use nature as our ultimate standard, if that's the whole point of the ancestral movement, then we need to address, you know, EMFs in the same manner.

So about five or six years ago, I started walking out to the garage and throwing them at the breaker. In the beginning, I just threw the main breaker, because I didn't know about this body voltage testing and how to be really precise and not have to, you know, cut off refrigeration, and heating, and cooling, and fans, and whatnot. So I just did the whole thing. And then after a while, you know, you would forget and the dogs will be barking in the middle of the night, or you have to get up and go to the bathroom and what have you.

It became apparent to me that even for someone who is really motivated like myself and had a rather simple one-story home, I didn't have to navigate basement stairs and whatnot, that it just wasn't really sustainable. So I met and married my current husband about four or five years ago. And he kind of thought...he scratched my head. He has a background in electronics and industrial control and whatnot, and he thought I was an unusual person to be doing that. Because with his background in electronics, he just wasn't aware of these

problems. But nonetheless, he got on board.

And ultimately, kind of as a honey-do project, he created a remote switch so that we can, from our bedroom, just cut off the circuits. Because really, what you have to do is, you have to mitigate these EMFs, the ones that you can, when you can and where you can. So what, when, and where. You may not be able to control some aspects of, you know, the radio frequency exposure. You know, you may not be able to fully shield your smart meter. You may not be able to fully take care of some magnetic field off of some nearby appliance, but you try to hit all the points that you can, because some mitigation is better than the none, you know, by a long stretch.

So, we have we have that product that we have, you know, just really started marketing here in the past few months, and we're trying to help as many people as we can and trying to make it where it's easy to do. Because it has to integrate in your bedtime routine, it can't be too difficult. And people really need to get on this because this is a big problem.

Katie: I agree. I think, like you said, there's so much research on this. And I'm so glad, when I found you guys, at Paleo f(x), I was so excited, because I had been trying to figure out the same of type thing in turning off circuit breakers and which ones to turn off, and it's not a sustainable thing, and then you forget to do it. So it's kind of like the idea of having the timer on the WiFi or a remote or something, like you may not remember to do it every night or people would at different times. And so, now we're using what you created, what is called the EMF kill-switch, in our house, and it's so much easier. And so I'd love if you could give us an explanation of kind of exactly, basically, what it is and how it works.

And also, when you get one of these, how you need to talk to an electrician or whoever's installing it, because, like I said, I think that's an area that not a lot of them are familiar with, necessarily. I was lucky that my dad is very well versed in this, but I know not everyone has a dad who can install an EMF kill-switch, so can you talk about that implementation process?

Amy: Sure. So the kill switch is basically an accessory electrical panel that you mount next to your main electrical panel, and, like I said, that's typically in the garage or basement. And this little panel, it's about a foot by foot square. It has a big metal cord that then connects over to your main panel. And your electrician doesn't even have to get into the guts of the what we call the EMF kill-switch, which is this little accessory panel, but he just hooks up the wires that come out of there in a really a pretty straightforward way that's very well outlined with good instructions.

And he hooks them up to the circuits that you have determined needed to be cut off at nighttime to bring your body voltage as low as possible. And you have to go through that body voltage testing process like I briefly talked about earlier, where you're holding on to a lead and you're testing your body voltage in your room. But this time instead of moving closer to the wall to see your body voltage go up and moving away and seeing your body voltage drop, you end up turning off different circuits and seeing which ones are in the walls surrounding your sleeping area and need to be turned off.

For example, if your bedroom is up against a study and there's a common wall, then you probably are also going to have to turn off the electricity in the...most of the electricity in the room that, you know, that goes to the study, because those wires are running in a common wall. Luckily, in most homes, you know, bedrooms are kind of grouped and you can take care of more than one bedroom and you won't have to interfere with

other areas that have to be lit up for, you know, for people who stay up later, that may or may not be an issue.

But you kind of have to go through a process where you kind of figure it out. It's not really hard. It takes some time, it takes two people. One person out at the breaker box turning off circuits and the other person in the house, you know, recording measurements. And it's an hour long process, and you'll find out which circuits are affecting your sleeping area. And basically, you know, put little tags on those circuit breakers, and then your electrician comes in and he interfaces those circuits with our accessory control box. And then, once those are hooked up from your bedroom, you have a little remote key, little key fob, just like you open your car with, and when you go to bed at night, you just hit the little button there.

If you need electricity in the middle of the night, you hit it again and, once again, in the morning you turn everything on, you know, right there from your bedroom. There's no running around and doing things. So it's pretty handy. We've had ours going for a year. And I can definitely tell that I have better sleep. Every once in a while, we completely forget to turn it off and I'll wake up and I'll be like, "Yeah, that was..." You know, it's kind of reassuring to actually have a bad night and see why. You know, it's been so helpful to me that I'm really trying to get the word out and have other people get on board with this as well.

Katie: Yeah, for sure. And I recorded some just very rough video when we were installing ours, kind of showing the process and the voltage meter and all that. So as soon as I have time to edit it, hopefully, before this podcast airs, I'll make sure to link to it. But I'll publish that just to kind of show because it really is not a difficult process to install, it was easier than I expected. It does take a little bit of time, but it isn't hard. And I think you've given such a good medical and scientific explanation for why we need to tackle this topic and why it's so important, especially for those of us who have kids in our house.

And I feel like, from a mom's perspective, and certainly, where I was when I first started researching this, it can be so overwhelming, and you can get into that analysis paralysis. And like, I hear from people all the time, like, "Well, everything is going to kill us, so I might as well just not do anything." And so I'd love to hear, kind of, as we start to get toward the end, if you could just wrap up by explaining why...I mean, you've made such a good case, but why we need to put this into action and why even baby steps are so important to get started and where you'd recommend starting.

Amy: Sure. So analysis paralysis, Katie, I see that a lot in my practice too. You know, people will say, "Oh, I want to research that. You know, I want to take time and before I put it in action, really learn about it." And basically, what happens when people tell me that I think, "Oh, no, they're going to do nothing." And that's kind of what happens. And we certainly see that, you know, across the board, when people get overwhelmed, that's kind of a big response. And that's what I'm trying to...I try not to overwhelm people. I probably overwhelm people here with a lot of this data and everything, but I think the real takeaways are that there are solutions for living with our technology, you know, it'll fall short of becoming a Luddite, and living in a cave or tent, like you alluded to.

You really have to be you and your family's advocate for health in regard, you know, in many areas, in my opinion, but, especially in something like this, I guarantee you, your doctor has had no training. You may have an informed doctor and you could speak with him about it but you're going to have to educate yourself, try not to get overwhelmed, the analysis paralysis, and take some form of action and then build off of that. It is highly unlikely that you're going to do anything wrong that can hurt yourself, so don't be afraid of mistakes.

You know, just keep learning about this and implementing small changes, maybe an occasional big change. Keep working on your children so they're not technology addicted. I have people that they don't want to do this because they're afraid of their teenager's revolt, you know, about not having the WiFi on until 2:00 a.m. or something like that. You're going to need to make these stands, and some are going to be harder than others, but I just think it's so important. I think it's such a big health issue.

Katie: I agree. And like you, I think we're going to see only more and more, unfortunately, of this, unless we tackle it, and more and more in the literature. And just, this is such a growing topic, and I think you're doing an excellent job both in your practice and places like now explaining it and getting the word out. And that would be my encouragement to other women and moms as well or anyone listening, is to just start making the baby steps and see because...I know firsthand and I have close friends, have all had the same experience.

You sleep so much better, there is a difference and, especially the difference is we can't see that over time that kids, hopefully, not developing these problems and protecting their DNA as they grow and protecting those voltage-gated bumps that you talked about, things we can't immediately measure, but that are going to have such a big impact on their lives going forward. So I love that you're spreading the word about this. And another question I'd love to ask as we wrap up is if there's a favorite book that's really had an impact on you or changed your life in some way that you would recommend?

Amy: Well, good question. You know, about 10 or 12 years ago, I mean, this is really off topic, but I read Michael Pollan's, "The Omnivore's Dilemma." And, you know, it's about...have you read that book, Katie?

Katie: I have, yeah.

Amy: Yeah. So, you know, it's about taking kind of a different look at, you know, what it means to be a human and being able to eat anything, but maybe not anything and everything is good for you. And I think that kind of was the beginning of my thinking a little bit differently. It was very eye-opening for me. And that sparked my movement into the ancestral sort of movement on food and light and everything. So that was a huge book for me.

Katie: Yeah, such a good book, and I love his quote about, eat real food, not too much, mostly plants. I think, that's one thing I...off topic as well, but I think so much of our arguments in the ancestral health world or the health world, in general, about what type of exact diet is best? And like, at the end of the day, we agree on 90% of stuff. And all of us would say that vegetables are important and good and that we need clean proteins, whatever that means. And I think if we focused on what we agree on and eating more healthy plant sources, even those of us who eat meat, that we would go a long way towards getting a lot healthier, but I love that book.

Amy: Yeah, I mean, It's about, you know, eat real foods. And nature is the ultimate standard here. And, you know, it's our standard in food for organic and non-GMO. It's our standard in food for...it's our standard for air and water quality, you know. And I think, you know, so it needs to be with our exposure to EMR. We need to think about more, what is more of a natural sort of condition. We don't need to give up our technology, but I think we need to make very thoughtful and careful choices.

Katie: I agree. And lastly, if there's a piece of advice that you could spread far and wide, I know you've spread a lot of great advice in this interview, but that you could just pass on to a lot of people, what would it be and

why?

Amy: Well, I think it goes back to those solutions exist, and don't get overwhelmed, take baby steps. It's what inside of your home is what counts the most. This is what building biologists talk about. Everybody gets that overwhelmed, "Oh my gosh," you know, "Google's putting up balloons and my neighbor has, you know, 18 routers," sort of feeling and they just kind of shut down, and that's what I don't want to see happen. I want people try it to change their own personal environments and improve their own...and their family's health.

Katie: I love it, 100% agree with you. And I know we've talked about a lot of different things, all the links to those will be in the show notes, especially the link to the EMF kill-switch that I have installed in my house and, hopefully, the video of how I did it, if it's ready to go by then, and those are all at wellnessmama.fm. So if you're driving or running, or whatever you do while you listen to the podcast, don't worry about writing it down, just check out this episode there. And Dr. Amy, I appreciate you so much, your time. I know that you are busy, both as a pediatrician and trying to get the word out about EMFs, and it means a lot that you took time to be here and to explain this today, and I'm very appreciative.

Amy: I had so much fun, Katie. And yeah, everybody, start learning and start implementing.

Katie: Absolutely. And, like I said, I'll have some springboard links for them to keep researching more and links to the kill-switch in the show notes. You guys can check those out. And thanks to all of you, of course, for listening, and I hope to see you again next time on "The Healthy Moms Podcast."

If you're enjoying these interviews, would you please take two minutes to leave a rating or review on iTunes for me? Doing this helps more people to find the podcast, which means even more moms and families could benefit from the information. I really appreciate your time, and thanks as always for listening.