



PEMF Therapy for Healing Trauma

Guest: Dr. William Pawluk

Niki Gratrix: Hello everybody, and welcome to the Trauma and Mind Body Super Conference. We're here with Dr. Pawluk. Dr. William Pawluk, welcome to the conference.

Dr. William Pawluk: Thank you for having me at your conference. I really appreciate it.

Niki Gratrix: Thank you. This is one of my favorite interviews because I think this is the most exciting topic, one of the most exciting topics on this whole Summit. Yes, this is big.

So for the audience let's share a bit more information about your background. You're essentially probably a world leading expert and authority on pulsed electromagnetic frequency. You are a medically trained physician, you've held previous academic positions at John Hopkins University of Maryland.

You've also trained in a lot of energy medicine techniques and training like homeopathy and hypnosis as well so you have a really well-rounded experience

You have also been on nationally syndicated TV shows and radio shows like Dr. Oz and Coast to Coast.

You've got a book, an author, a published author as well and we're going to share, this is an important book, we'll share that at the end. But this topic people need to understand about physics and stop focusing on biochemistry all the time. I just started with my little rant.

First of all, let's just talk about pulsed electromagnetic frequency and we talk about PEMF devices. So I'm going to throw you in at the deep end. What is PEMF therapy?

Dr. William Pawluk: And actually that PEMF. So people say P.E.M.F or PEMF and there's a lot of confusion about frequencies. And intensities. And so PEMF stands for pulsed electromagnetic fields. Which can be frequency, but they don't have to be frequency.

Niki Gratrix: Interesting.

Dr. William Pawluk: We do talk about EMFs, environmental magnetic fields or EMFs that are in the environment. I use the word EMF to mean environmental fields as opposed to PEMFs which are pulsed magnetic fields that are designed for treatment.

So pulsed magnetic fields means that you basically instead of having a magnet that has a steady field like a fridge magnet, or shoe magnet, or a magnetic necklace, or magnetic bracelet that a lot of people do have. Those are what we call static magnets.

Once the magnetic field is made, it's there permanently. Unless you destroy the material. But basically the magnetic field is there permanently. So that's called a permanent magnet or a static magnet, static in the sense that it doesn't move, it's not in motion.

So a pulse or what we call time varied magnetic field means that the magnetic field is in motion, moving back and forth. So one of the ways to visualize a pulsed magnetic field is it's the wind in the trees.

The wind is just sitting there because there's a wind. Where there's land, there's the wind. Right. So a static magnetic field is like no wind. In this sense. But a pulse magnetic field means that there's motion to the magnetic field.

Niki Gratrix: Does that mean it's, is that having. Does that have a resonance impact or is that something else?

Dr. William Pawluk: There are many mechanisms to magnetic fields and how they work. And the way I look at it is there are two primary mechanisms. One has to do with resonance. Now a static magnetic field still has biologic effects. So it has many effects of magnetism in the body, but it's not in motion.

Once you start to move it and you move in and out of the body, it creates a much more dynamic action. Again, at the wind, you can't tell the wind is there unless the leafs are moving. So you either have a gale or you have a breeze or you have somewhere between. Right?

So we want to control that magnetic field. And the way that it's interacting with the body, the more it interacts, the more it works. So resonance basically is the degree within which it's moving. So it's either moving very slowly or it's moving extremely slowly or it's going to beeee, like that.

So a cell phone is going beeeee like that. It's high frequency, what we called megahertz or gigahertz. So hertz is the term that's used, a scientific term used for frequency, its pulses per second.

So EMFs environmental magnetic fields, cell phones and cell towers and Wi-Fi and all those kinds of devices basically produce, I call them EMFs. Which is extremely high frequency magnetic fields, whereas the magnetic fields for therapy are very low frequency magnetic fields. Extremely low frequency magnetic fields, under 100 megahertz, most typically under 1,000 hertz.

Now, when it's at a residence, let's say a 1,000 hertz, that can resonate with things in the body at that frequency and can produce effects at that frequency, and the way I use it for the most part is for the brain. Resonance can be used in a sense to help to heal the tissues and to heal the body. But we know a lot less about resonance. And the problem is we can't separate the effects of resonance from the effects of the magnetic field.

Niki Gratrix: Interesting.

Dr. William Pawluk: Because you can use resonance with sound, you can use it with light, you could use it with touch, you could use it with all sorts of mechanisms. Tapping, in their own way or resonance, the beat of the heart is resonance. The number of cycles of breathing is a resonance because that creates action in the tissues in the body at a certain rate.

So resonance is not something that we entirely focus on when it comes to magnetic field therapy, although it will be relative to your topic which is trauma. But relative to magnetic field healing, the most important parameter appears to be the intensity of the magnetic field. Think of it this way, I can whisper at you, I can talk to you very quietly, very gently and I can put you into a hypnotic state by doing that.

Now, if I do that, you're going to be more relaxed if I start yelling at you, that's not going to put you in a relaxed state, is it?

Niki Gratrix: No.

Dr. William Pawluk: So as you increase the intensity, you increase the dynamic action in the body and that's based on a law, physics, Faraday's law. The stronger the magnetic field, the faster it reaches its peak and the more dynamic it is the body, the more energy it creates in the tissues.

So you can have low energy fields, you could have high energy fields. But the ones that have the highest energy get actioned the fastest.

So most of the time we tend, in terms of healing work in the body, tissue healing we think in terms of charge and intensity. When it comes to sort of just coaxing the body to move in a certain direction with feelings and thoughts, mental states, emotional states then we can talk more about resonance. But you get better resonance action when the field is strong enough. If your mind is chattering away and I'm whispering at you. You can go la-de-da le-de-da and not listen.

But I'm at higher intensity now you start to listen. You can still try to ignore it, but it's harder to ignore it when you really can't ignore it because it's capturing your attention. So we do that with a residence pattern. I'm going to talk real slow. How long will it take to put you to sleep? But if I do that loud, it's going to happen faster than if I do it.

Niki Gratrix: Yeah. Okay. I love this. Now, let's just talk for a second. I mentioned in the pre-interview I'd come across what I thought were a large number of science papers on PEMF. I said there were about 3,000 papers and I thought that was substantial. And you've mentioned, I'd come across 30,000 papers.

There is a tremendous amount of mainstream science papers on this topic in relation to human health. Right?

Dr. William Pawluk: Amazing amount. So this stuff has been studied extensively since the 1960s and 70s, early 70s. I wrote a book actually co-authored a book called *A Review of Magnetic Field Therapy in Eastern Europe, a Review of 30 Years of Science*. And I published that book in 1990 ish.

Niki Gratrix: Interesting.

Dr. William Pawluk: And in 1990, that was already 30 years of research.

Niki Gratrix: Wow.

Dr. William Pawluk: And that was published research. So how long had it been in use actually, even before that? So we didn't have that knowledge. I managed to get a hold of that manuscript, worked with this doctor in the Czech Republic, and they already had 30 years of knowledge. And we were just putting our toes in the water at that time. Just beginning to put our toes in the water.

I took a trip to Europe, but I talked to people on the street about magnetic field therapy. They said, I know about that. Oh, yeah, I know about that. That was like 9 years ago.

In the U.S. Do you know what magnetic field therapy, how many people today know about magnetic field therapy in the U.S.?

Niki Gratrix: It's insane. It's crazy. I read a paper recently in stem cell research and the researchers were saying that they were trying to figure out why it's not more well known about the impact of PEMF on stimulating stem cells. And they said within the university and academic communities, they don't think the university's department understands what this is and that it's safe to use. And they even said we think other researchers are just thinking that PEMF is ionizing radiation.

So it would be really interesting to talk just briefly about the spectrum, the electromagnetic spectrum. You touched on it, right at the low end is therapeutic, the middle end where all the nasty EMFs are and that's not good for health. And at the far end you've got ionizing radiation, right?

Dr. William Pawluk: Sunlight.

Niki Gratrix: Yeah. And people don't know that.

Dr. William Pawluk: Which is good for us. Ionizing radiation causes harm because it burns cells, it destroys DNA and so on. That's why we get skin cancers. And we use radiation and chemotherapy within the treatment of cancers, we try to kill the cells with the radiation.

So cell phones are radiation too, and what is a cell phone? It's microwaves. So the distinction between EMFs and PEMF is the wavelength. So the wavelength with microwaves is shorter than the width of the body, it's often shorter than the width of a cell. And when that happens, it's absorbed by the body. And that's why when you put food in a microwave oven, it heats it. Basically, it's destroying it, it's cooking it. When you put a cell phone to your ear. Your ear is being cooked.

Niki Gratrix: That's great. It's really important. Yes.

Dr. William Pawluk: As the microwaves get absorbed they heat up the ear, you can see that you're turning red. If I held something against my other ear, let's say something silly like this, which is a foam brain which I massaged regularly. I put that next to my ear. Will it turn red?

Niki Gratrix: No.

Dr. William Pawluk: Minimally.

Niki Gratrix: Okay.

Dr. William Pawluk: But I take it away it'll be maybe a little bit red because I've included the evaporation of it, but not allowed the heat to escape from the body. When I put a microwave to my ear it turns bright red, a big difference between passive and active.

So microwaves are absorbed and they heat and that's why they're damaging. They don't absorb because an ELF frequency is hundreds of miles long. Literally. They're extremely long wavelengths. When you use a wavelength from an ELF therapy system, it's going complete through the body, way out into the air. So it doesn't get absorbed at all, so there's no heating caused by it.

And that's always been a big question for scientists, if it's not heating then what's it doing? That's why universities say, I'd never heard of this, why would it do anything? And the reason they believe that is because they haven't looked. And when you look all of a sudden, as you said, there are over 30,000 abstracts on the effects of EMFs on biology.

Niki Gratrix: Yes. And talk about some of the main areas, you mentioned, a tremendous impact on stem cells, stimulating stem cells. What are the areas?

Dr. William Pawluk: I tend to wander so thank you for bringing me back. Some people call me Professor Pollock. So stem cells are everywhere, every tissue of the body has stem cells.

What do stem cells do? They replace dead cells or dying cells and stem cells have a number of cycles of regeneration. So what happens when a cell dies? It's got to be replaced and stem cells that are there, resident in that tissue, the ear stem cells, and then nose stem cells, or the eye stem cells, or the brain stem cells, the skin stem cells, fatty stem cells, fatty tissue stem cells and so on. So their job there is to cause regenerations to help to replace and regenerate tissue that's dying. As we get older, the number of stem cells that we have that are active decreases.

Now, magnetic field therapy has actually been found to increase the production of stem cells by upwards of 400 percent.

Niki Gratrix: Wow.

Dr. William Pawluk: Right. So stem cell therapy doesn't work very well because what you're doing with stem cell therapy is, here let me give you some stem cells. Cross your fingers, let's see what they do.

Problem number one, you can't grow a garden in a swamp. So you're putting stem cells into a place that's damaged, inflamed and injured, and you're trying to coax that tissue to heal itself. Whether its arthritis or Alzheimer's or you name it all the different uses of stem cells these days.

So the problem is you're putting stem cells into an environment that's not ready for them. So ideally, you fix the environment as much as you can, you heal it to allow you to grow a garden.

Then when you put the stem cells there, then you add the magnetic field therapy to coax them, to give them more energy, to stay alive. To stay alive long enough to turn into the cell of the compartment that you're putting it into, a knee joint, a brain, wherever we're putting it into the body, skin.

So then if you aim magnetic field therapy to that compartment, let's say I'm putting stem cells into your chin and your cheeks, then they need to be able to turn into cheek cells. Well, a lot of them become renegades. They decide to leave that area and they go to your butt or they go to your brain or they go to your hair. They go somewhere else wherever they want to go.

But we want them to turn into skin cells, new skin cells, so you have to coax it. So once you've coaxed that to turn into skin cells, onto the cells that you want, then they have to survive there. They have to live long enough to take and grow and live and survive for a long time.

So if you're using magnetic field therapy all along the entire way, you're much more likely to get a benefit from those stem cells because PEMFs on their own increase stem cell production by upwards of 400 percent, whatever the tissue is.

Now some tissues have more stem cells than others. Some tissues grow stem cells more readily than others. The brain, the human adult brain doesn't grow stem cells very well. It does, but not as well as skin.

Niki Gratrix: Very interesting. Fascinating. So this is really relevant in terms of mental health for example, for people who want to do brain regeneration, they can use PEMF therapy on the brain.

Just talk about it in that context, building new brain cells. Even if they didn't have actual stem cell therapy, they could use PEMF therapy to stimulate Alzheimer's, dementia, neuro degeneration.

Dr. William Pawluk: Brain trauma, brain injuries, Parkinson's, MS, ALS, any kind of brain damage, a history of encephalitis, a history of stroke. All of those will help those brain cells to repair and regenerate. So magnetic field therapy does basically, let's say, for things in the brain. More than that, let's say.

Number one is it decreases inflammation. Any injury to the brain causes inflammation and that inflammation can be long standing. So they found that people with TBIs 10 years ago, if

you biopsy the brain, you'll still see inflammation in that brain, so you decrease inflammation.

Number two. You improve function by increasing the energy in the tissues of the body, and ATP is one of our primary molecules for energy. Well magnetic field therapy is found to increase ATP by between 200 and 600 percent or more.

Not for very long, but it does so even temporarily it increases the amount of ATP that your brain now has available to do its work and it helps to regenerate the tissues, and it does that by regenerating by increasing the generation of stem cells.

It increases circulation to the brain. So people with Alzheimer's disease, often people with all kinds of trauma, psychological trauma, even depression can decrease the amount of circulation to the brain.

So PEMF increased circulation to the brain. So they wake up the brain, they increase ATP, they do all these other things to the brain, none of which you control. The brain is going to do whatever it wants with the energy you gave it. And that's the miracle of PEMF; it's completely natural. It just says, Okay, here's the wind blowing through my tree, it blows through my brain. And then your brain says, Okay, I like this, I want more. Okay, wait a minute I had too much. I want a little bit less.

So the brain will use whatever it needs to do, whatever repair work it needs to do. So certain processes of the body are low hanging fruit, for example, improvements in circulation are like that. Reducing inflammation takes longer than increasing circulation. So the repair work takes a long time. If you break a bone, how long does it take to heal? No matter what you do, how long does it take to heal?

Niki Gratrix: Yeah. Weeks.

Dr. William Pawluk: A long time, we can accelerate the healing process by giving magnetic field therapy to those bones. But it's still going to take the time it takes to do the job it needs to do to rebuild the bone, you can't build a house overnight.

Niki Gratrix: Yeah. But it's all good, everything we do that naturally enhances. You said that's four impacts on the brain, is the other one to do with tuning the brainwaves?

Dr. William Pawluk: Well that's part of the function. Okay. So if you increase circulation and then you increase ATP and now you, we talked about the resonance. Now you start to change the resonance.

So if you're depressed, there's a good chance that you have too much delta or theta going on in your brain. So the brainwave frequencies, basically the bands are delta deep sleep, theta light sleep, alpha relaxation, beta basic thought judgement and function and then gamma.

So what we're doing then is we can tune the brain using magnetic fields, we can pulse the magnetic field at the rate that resonates with that frequency in the brain. So now you can put the brain to sleep.

They did experiments with Salamander's where they actually anaesthetize Salamander's with magnetic fields, and they did surgery on them.

Niki Gratrix: Wow. Okay. So this is total physical proof of the power of PEMF therapy that's a good example. So depression, anxiety, and I presume PTSD, so this aspect is functional. So we're actually through resonance we're tuning the brain to move out of these incoherent fields and waves and flows in the brain.

Dr. William Pawluk: Well they're wrong coherent fields so they can be coherent, but they're the wrong ones. So if you're trying to learn a lesson, if you're trying to listen and judge and learn and make assessments and so on about what we're talking about.

You want to be in beta for the most part. So if part of the brain is in alpha it's ready to fall asleep. You're going to have a hard time learning. So what we can do is we can perk your brain up to be able to learn. So we can use frequencies that are in beta or gamma. If you're trying to fall asleep, but your brain is in beta, well, you're going to have a hard time falling asleep. In fact, one of the most common problems with sleep disorders is the fact that the brains are in gamma.

You have to quiet them down in order to be able to get them to go to sleep. So there's more of a problem with being wired than there is with being lack of sleep.

So you can use it for depression. Depression has too much let's say theta or delta in it. The brain has slowed down, if you do FMRI studies or brain metabolism studies that have depressed brains, you'll tend to find a lot lower metabolism. There's less circulation and there's lower metabolism.

So now if I projected a magnetic field through that brain, then all of a sudden you increase the charge and the energy in the brain and the brain gets a chance to wake up. And that's the basis behind TMS and NeuroStar, which is used for treatment resistant depression, which is high intensity magnetic fields. You have to go to a facility that has this very expensive equipment. And they think that, what all they are doing is what they think. They think all they are doing is to increase the charge in the brain, it's like electrocution, like ECT.

This TMS has replaced ECT because they're thinking that all we want to do is to increase the charge of the brain. But there's much more going on than that. I just mentioned all the things that PEMFs have to do with the brain. So these magnetic fields where they use their extremely high intensity fields, that you have to go somewhere and pay a lot of money to get. Or you can own your own machine and you can do similar sorts of things in the brain by tuning it.

Now, do you tune this part of the brain? Do you tune this part of the brain? Do you tune that part of the brain? Where are you going to tune? That's part of the decision making process of tuning. So if this part of the brain is in beta, this part of the brain is in theta when you want it to be in beta, then you have to wake it up. So then you're going to give that part of the brain beta. And like we talked with tuning resonance, now that the brain begins to oscillate and resonate to that frequency and the biochemistry begins to shift and change to that frequency.

Niki Gratrix: So that's so interesting because now I've been learning a lot from you, it's wonderful. So we've got the resident side, the tuning, but I'm just clarifying bits. So the function is also improved because the PEMF is also doing things like boosting, I mean, its mitochondrial function, right. Which people forget is electrons, its electromagnetic processes.

I mean, people just overlook that, but it's also why red light therapy would work. Right? You're boosting mitochondrial output because we are not just biochemical beings we are electrical beings.

Dr. William Pawluk: We are electromagnetic. So what was the first energy in the universe?

Niki Gratrix: Light?

Dr. William Pawluk: Electromagnetic, well light is magnetic.

Niki Gratrix: Yes.

Dr. William Pawluk: Electromagnetic spectrum. That's light. So chemistry came long after physics.

Niki Gratrix: Yes. The basis of chemistry is physics. So it amazes me. There is this amazing like it's almost like a media blackout as well as academic blackout on the physics solutions for health problems and I think these are some of the most powerful.

It's just coming to a point, like I saw happen with functional medicine and the Jeff Band who's on the Summit and so on, the founding fathers of functional medicine. This took off because the evidence, the science backed evidence became so big, you just can't deny it anymore and this is gonna happen with PEMF and light therapy, sound therapy.

Dr. William Pawluk: Absolutely. Electromagnetic spectrum therapies. And they all have their place and they all have advantages and disadvantages. And so one of the amazing things about PEMFs is you have the ability to use a spectrum.

And as an MD who has worked for 50 years in medicine and now 30 years with magnetic field therapies, and I purchased hundreds of thousands of dollars of all kinds of devices because I want to learn everything. And I said, let me find out everything I can about all these different technologies. So, which one has the most value?

Niki Gratrix: Yeah. That's the 64 million dollar question.

Dr. William Pawluk: Which one carries the longest, the farthest for the money that you're going to spend? You talk about light therapy. Red light therapy is great, but how deep does it penetrate into the body?

So I can't treat tissue deep in your brain with red light there, I can stimulate indirectly. So I do light pulsing that's going to stimulate my retina, which is going to stimulate my visual cortex. But the light doesn't go deep into the brain so it's affecting the brain indirectly. So it's informational only basically.

Niki Gratrix: So I heard that the longer the wavelength, because I was going to ask you this, the longer the wavelength, the more likely it's going to get through the skull. Is that right?

It's going to pass through the skull. So I've heard the infrared, for example, would be better for the brain than red light, but that's light therapy.

Dr. William Pawluk: That's correct, but the frequencies of light in general are way, way, way shorter than the frequencies of EMFs.

Niki Gratrix: Right. So a PEMF device, we can show one, we have you'll show as well. But a PEMF device will go much deeper.

Dr. William Pawluk: All the way through.

Niki Gratrix: Yes. Because it's really long, radio waves. Is that Schumann resonance?

Dr. William Pawluk: So the Schumann resonance thing is, we glom onto one idea and we kind of stick to it and it explains everything, the universe, right?

Niki Gratrix: It's like saying one gene causes everything. I know.

Dr. William Pawluk: So the Schumann, there are actually about five or six Schumann resonances. So Schumann resonances are basically the lightning storms in the envelope of the ionosphere of the planet. So that's a concavity, that's a bubble around the planet. And a lightning strike in Sri Lanka emits all these wavelengths and those wavelengths, because they're so long from Sri Lanka to the East Coast to the U.S. within literally seconds. Because there are lightning strikes going on, on the planet all the time.

We have essentially a lot of motion of different lightning strikes and different places and we start to add them together and you average them out one of the major average peaks happens to be what they call the Schumann resonance, which is at 7.8.

But why do we have 3 as our residents in the cavity as well? Why do we have 32 or 65? They are harmonics, and we have those, if you happen to look at the brain they're all the brainwave frequencies.

Niki Gratrix: It's amazing. So we are saying that the general Earth frequencies, like the Schumann resonances attune the brain.

Dr. William Pawluk: They're tuning our brains.

Niki Gratrix: So when we go, lose the Schumann resonance for any reason, but maybe we spend too much time not getting exposed to it, or we're an astronaut. They suffer, health suffers and that is one of the examples of the power of these fields.

Dr. William Pawluk: Magnetic field and the resonance is on the field, etc. Yes

Niki Gratrix: They are essential for health.

Dr. William Pawluk: Well our biology completely depends on it. We wouldn't be who we are without those resonances. So therefore we need those resonances to keep us optimized to the extent that we possibly can.

So, yes, if you happen to be blasting yourself with heavy metal all day long at a reasonably loud intensity, you're going to be out tuning. You're going to tune out that Schumann resonance. So your brain is going to go bonkers or as you folks say, the U.K. wonkers.

Niki Gratrix: Yes, exactly. So it's really interesting to talk about that, as it's another example of why it's so important. PTSD, specifically there's good evidence for PTSD and PEMF therapy.

Dr. William Pawluk: Yeah, there is and there is more research going on all the time.

So there's a spectrum of research having to do with tuning. And again, you can tune with extremely low frequency, low intensity magnetic fields which you have to work harder at, it's like whispering to you to try to get you to listen. As opposed to talking at a louder tone, louder voice, louder timber and you'll listen better. So now they're using these very high intensity systems like we do for the depression we mentioned, to try to treat PTSD because the brain listens better, faster.

But the problem is it doesn't cure it because whatever the cause of the PTSD is, was not dealt with. So I don't think you can treat PTSD solely with magnetic field therapy. It can help magnetic field therapy, you can help PTSD with magnetic field therapy, combined with emotional therapy, cognitive therapies, etc.

Now if you happen to have been standing next to a bomb blast, you've got PTSD. There's a lot of components to that. One is the psychological component of the shock. The second is the physical trauma of that shock. And then there's the consequences of that trauma, which is the dislocation that you've suffered as a result of that, that you've suspended your personality. When you do shock therapy, electroshock therapy you're basically trying to do the same thing as you would with the cause of a PTSD problem. It's just slamming, slamming you.

When I did my homeopathy training there was a case presented to the class of this little dog. The guy was out walking his little dog and his bigger dog came by, grabbed the dog by the scruff of the neck and shook it violently, and the dog's personality changed immediately.

It didn't go to the bathroom, it became constipated. So the remedy for that situation happened to be not cocaine, poppy seed. Poppy. So, poppy they used to have these dens where in the Orient where you can smoke these.

So what poppy does is it causes a psychological dislocation. Your bodies, your spirit in a sense separates from your body. You become dislocated or what we say in psychology, disassociated and then you have to reintegrate. That may happen easily or it may take a long time, in this case, the remedy, the homeopathic remedy for poppy was the treatment. As soon as they got the dog the poppy, the dog went outside and had a poo.

It had been traumatized and been living with that trauma for a long, long time.
So this disassociate of state that often happens with PTSD.

Well, when you think about rape, or you think about surgery, or you think about any kind of traumas, there's all of these factors going on. But what are the key factors in my mind about PTSD is you hold onto it. You relive it. If you can stop reliving it, if you can let it go, then it doesn't have the grip on you and then you can do the healing work because if you don't let it go then you're basically re-traumatizing yourself continuously.

Niki Gratrix: And that's where I would just say, because other people are talking about this on the Summit, but EMDR. would be great, like bring that in and potentially PEMF therapy as well.

Also I was gonna say for attachment, attachment developmental trauma, which is more of a relational type trauma where it's, actually our brains have been entrained to be in a sort of like depression, like this over years of like verbal or physical abuse that happens on, on and on. I think this is also where we've talked about why and hows about it already. That's where PEMF therapy I think is a great component to treatment as well, it will be very supportive. So the big question...

Dr. William Pawluk: With PTSD what happens, the value of PEMP and PTSD and anxiety disorders and hyperactivity disorders and hyper vigilance disorders; all of that has to do with the tuning again. That what you try to do is to retune the brain to be in a specific pattern. So when you experience a gobby, when you have experienced joy and happiness, you have that experience, it's in your memory banks. You can draw that back out again and re-experience it, so when you're re-experiencing it, you're really resonating.

Niki Gratrix: Yes. Tuning into it almost.

Dr. William Pawluk:: But that's voluntary. You have to do it. You have to be able to do it.

Niki Gratrix: Cultivate it.

Dr. William Pawluk: The good thing about PEMFs is that you'll have to do it. The PEMF is doing it for you till you can learn to do it on your own and own it.

Niki Gratrix: Yes. This is lovely. This is what I use, this is just one tool. That's what everybody's going to be saying is, is it the Wild West out there? In terms of do we have enough research people to be able to make decisions about the right products?

So this is one I use and I have it on a sleep setting every night, all to keep my system entrained, I use it tremendously. So it's a part of my toolkit, my health toolkit. Everything, if I've got a wound, a cut. I'm amazed by what I've seen.

We didn't even talk about this, but if you get a physical wound, and just putting it on a physical cut, the speed of recovery and how it will heal so much faster is phenomenal. It's like magic that we didn't touch on healing did we.

Dr. William Pawluk: It is a magic wand.

Niki Gratrix: It feels like that. But this is where your expertise is very important, your experience with all the different products out there. How do people share some of the overall ways people, apart from buying your book, but what are some of the big pictures of people choosing the right devices? Are there devices that are reliable out there right now? It's just there's different ones for different things. Right?

Dr. William Pawluk: So, again, a big part of the problem that people have, the challenge, that most people buy devices for the wrong reason. Money. They make the decision based on what it's going to cost. Not on what it's going to do.

Niki Gratrix: Mistake.

Dr. William Pawluk: And how effective it's going to be and that's a big mistake. And this is why we have so much information on www.drwpawluk.com on my website. So we educate you about PEMFs and as you said, the book *Power Tools for Health*, the book does that, I'm going to show it to you right now.

Niki Gratrix: Great, very good, here we go guys.

Dr. William Pawluk: *Power Tools for Health*. So there's lots of information in there about that.

So the key is really a good part of the time, the point that most people are missing has to do with intensity again. There's two laws of physics, to go back to physics that relate to this and most people don't get it.

So I have a video on my website, 'Intensity Matters', that explains the physics.

There's two principles of physics, Faraday's law and the inverse square law. Faraday's law says the higher the charge, the higher the energy, the magnetic field, the higher the pulse of the magnetic field, the stronger the magnetic field and the faster it goes up. So a magnetic field going up like this is not going to produce the same response in the body as a magnetic field goes up like that. Same intensity, they get to the same place, but the one that's going up gradually is not going to produce the same amount of charge in the body as the one that goes straight up. That's Faraday's law.

The second one is inverse square law and the inverse square law we all know about. Everybody knows about the inverse square law, they just haven't heard it called that. You stand right next to a light, it's the brightest, as you move farther and farther and farther away, it dims and it dims in relation to the inverse square law. So for every millimeter or centimeter that you move away from the light source it drops off dramatically. By the square root, inverse square root, that's an extremely low number there.

So you could start off, for example, with a 1,000 gauss magnetic field. Gauss is a measure of magnetic field intensity. Start off with 1,000 gauss at one centimeter you've lost 75 percent of your magnetic field.

Not because it's used up, because it's a natural law of physics. Whether it's sunlight or cold or heat or sound or whatever, it's a principle of physics. If you know that principle, if you know those two principles, then you're going to make the better choice.

There are people selling machines out there for 6,000 dollars. And they say all the dramatic things that they do and how wonderful they are, and all you need to do is eight minutes a day. Well you know how much gauss those machines produce.

Niki Gratrix: No.

Dr. William Pawluk: 6,000 dollars. One gauss.

Niki Gratrix: Wow.

Dr. William Pawluk: Now TMS machines that we talked about are 8,000 dollars.

Niki Gratrix: Wow. Okay. So this is where it's the Wild West.

Dr. William Pawluk: That's why if you listen to the wrong people, if you listen to people who are not authorities, they're just selling you something. When they go to sell you something, ask them, have you read Dr. Pollack's book? 95 percent of them will say no or 99 percent of them will say no. And those who did don't want to talk about it, because now we're putting into question what they are doing.

Niki Gratrix: Exactly. And this is why I had you on the Summit, because I wanted somebody who has the big picture, has looked at everything, and isn't just tied to one product because of that exact reason. And so there are different things to different people and situations.

Dr. William Pawluk: Absolutely. So as a clinician, as a doctor I know that there's no such thing as one size fits all. Now, if you do believe that I have a bridge to sell you or other things to sell you. But also, you're not going to get the results that you need. But if you do believe that, then you haven't read, you haven't done your due diligence, you haven't learned and you're probably not listening to this to this conference, to this Summit. You're not listening.

If you're listening, then you're already eager to learn and you're going to pick up information that's critical for you to make the right choices. So most people who do this are not doctors. They have one machine and that's all they're selling is one machine. So as a doctor, I know that and the reason on www.drwpawluk.com I have so many devices, it's another contribution to confusion. But there are so many devices that the reason you have so many devices is you need one for your skin wound. One device might work very well. You don't need an 8,000 gauss machine to treat a skin wound.

You might need an 8,000 gauss machine to treat the brain if you want to do it fast and you want to spend a lot of money. But you could get by with a 200 gauss machine like this one. So this is called, this is a New Generation Flexpulse, it's called the Flexpulse, it doesn't have a pulse on there, but it's called the Flexpulse. This is 200 to 300 gauss, so 200 to 300 gauss, 200 to 300 gauss is strong. So you think 6,000 dollars for a 1 gauss machine, you can spend 900 to 1,000 dollars for a 200 gauss machine.

That's portable battery-operated. So this is going to solve a certain set of problems. It's not going to solve all the problems. If you have a bad back, or if you have Parkinson's, this is probably not going to work well enough.

Niki Gratrix: Right. You need more gauss?

Dr. William Pawluk: You need more gauss, you need more intensity to be able to, because of the inverse square law. Because you got to lose so much energy going from one side of the brain to the other, you're going to have lost almost all your power. And so you can get this part of the brain maybe an inch away or two inches into the brain, you get a lot of benefit. But when you go to the other side of the brain way out here, how much magnetic field do you have? Almost none.

Niki Gratrix: So what would I guess machines, devices, what are they good for?

Dr. William Pawluk: Somebody pockets.

Niki Gratrix: They're good for nothing then.

Dr. William Pawluk: Well, they're good for the person who sold it.

Niki Gratrix: Wow, so you wouldn't even bother ever using 1 gauss?

Dr. William Pawluk: Well, I can't tell you that it's not going to work as I'm sure you're gonna have listeners who have one. And say, but it works for me. Well, first of all, if you spent 6,000 dollars, you're going to believe it works.

Niki Gratrix: Placebo. Yep. We cover that on the Summit.

Dr. William Pawluk: Number one. But number two, because you're stimulating a larger area of the body, even though it's very superficial. The acupuncture points and meridians in the body are very superficial, so when you're treating, when you're lying on your back against the whole body magnetic system, you're basically turning on the acupuncture points and meridians.

Niki Gratrix: Right. So usually the 1 gauss ones like mats.

Dr. William Pawluk: They're whole body.

Niki Gratrix: Whole body. Yep.

Dr. William Pawluk: So you're just turning on a lot of cells with a little bit of stimulation, turning on a lot of cells at the same time.

Niki Gratrix: Got it. Yes. In a shallow kind of way.

Dr. William Pawluk: In a very shallow way. So it's not going to heal that well. You could feel better with it, your brain's going to be fooled by it and you may be happy with that, but that's what we do in narcotics we fool your brain, and SSRIs and so on.

Niki Gratrix: So just going to the middle level of 200 to 300 gauss, that Flexipulse machine. What sort of conditions would that be helpful for?

Dr. William Pawluk: Well it's actually okay for tuning, it's not necessarily the optimal machine for tuning but it's better than nothing and the rule is that if it's lower than you need relative the inverse square law and Faraday's law, it's going to take longer to get a benefit, it just takes longer.

So you have to wear it for longer, use it for longer periods of time to get the same benefit as you would with a higher intensity system. So I've consulted www.drwpawluk.com people call me and ask me what the right device is for their problem and as a doctor, we would go into their history and figure out what their problem is and what machine.

So then they usually have several options. Say, well, here's the options that you have. Don't bother with the 1 gauss machine, forget about, don't think about it. But you might want a 200 gauss machine, you may want a 1,000 gauss machine, you may want a 5,000 gauss machine.

Each one is going to give you a different benefit at a different rate, but the cost goes up and you have to decide whether it's worth it for you.

Niki Gratrix: Okay. And so what's the top band range of priced devices that you, for example, you recommend for certain conditions?

Dr. William Pawluk: Well, again, we're going to eventually write a book about this and there's some discussion of that in the *Power Tools for Health* book. We have devices on our website that are 350 dollars all the way up to 26,000 dollars.

Niki Gratrix: Wow. OK. Fair enough.

Dr. William Pawluk: The 26,000 dollar machines call a Hugo. So it's for people who really want that whack, they want to be whacked, they get a good bang out of that one, that was worth the time.

Niki Gratrix: Okay. They're going to be a walking stem pump.

Dr. William Pawluk: So what we do then is really again, the floor is about 200 gauss. And most of the devices that I tend to work with in terms of brain stimulation are going to be somewhere between 200 gauss upwards of about 4,000 gauss, in that ballpark range of intensities.

So the more damage you've got, you've had brain trauma, you have PTSD from an explosion or a concussion or other kinds of head injuries. Then you're going to need higher intensity to do the job better, because of the depth of penetration of the magnetic field.

I have a blog on my website about adenosine. And the blog talks about that you need about 15 gauss at the tissue, at the target tissue optimal to reduce inflammation by stimulating adenosine. So there's a chart there on the density of the magnetic field that you need depending on how deep you want to go.

So if you're going to treat brain trauma side to side, for example, so how wide is a head for most people? It's going to be four to six inches. If you have to go from one side to the other with your magnetic field then you need a magnetic field that's strong to deliver 15 gauss from the applicator on one side to the other side of the brain.

Niki Gratrix: Got it.

Dr. William Pawluk: And you need calculation based on that, and then you know what devices you should use.

Niki Gratrix: Interesting. Okay, fascinating. So is there anything else that you want to share?

I'm just thinking, it's absolutely been fascinating, I loved this interview, so I think we've covered everything. I mean, and essentially the next step really then is people need to come to your website, read the book. If they want to find out more, I fully recommend for people to go to your site and get your expertise.

That's the lesson, it is the Wild West out there right now, that's the downside of something being cutting edge. So you really need, buyer beware and do your research and get educated. That's the message that you're handing out, isn't it?

Dr. William Pawluk: And you get the advantage of 30 years of experience.

Niki Gratrix: Yes. You've spent all the money, you've bought every device that is probably out there.

Dr. William Pawluk: And done all these treatments of thousands and thousands of people. And so we know what's going to work and what's not going to work.

So when people say, well, it didn't work for me. Unfortunately, the people who sell the 6,000 dollar machines for 1 gauss, those individuals unfortunately are going to eventually say, I wasted my money and they're going to say, PEMFs don't work.

Niki Gratrix: So it's bad for the whole profession.

Dr. William Pawluk: The whole idea, the whole concept and the benefits that you could get if you got the right equipment. So getting the right equipment is really important.

Niki Gratrix: So this is an investment. Step 1, probably get Dr. Pawluk's book, number two, do you actually do, can people book in a consultation with you on the website?

Dr. William Pawluk: Yes they can

Niki Gratrix: Great.

Dr. William Pawluk: As a doctor, it's a consultation, so it's a half hour of an expert's time. So we don't want to be wasting time for somebody who can only afford or only wants to spend \$350 for a machine.

Niki Gratrix: Yes, so bear that in mind.

Dr. William Pawluk: You don't need my expertise to buy a \$350 machine.

Niki Gratrix: Yes. But for people who want serious help they have some money. Then they want to put some of their treatment money on a device, book in with a consultation, read your book, get booked in and get the right thing.

Dr. William Pawluk: You can go to drpawluk.com to set up a consultation.

Niki Gratrix: Lovely. That was brilliant. Thank you so much, Dr. Pawluk:.

Dr. William Pawluk: Let me just say one final thing, partly related to what we just talked about. We've been doing this for a long, long time and so it does take some expertise and if you set the wrong expectation and if you particularly if you make your decision based on money then you're most likely not going to buy a device at all or your expectations are not going to be met.

One of the things I do in the book and also my website is to teach people how long it takes to heal. When can you expect to see healing? If you break a bone long it's going to take to heal that bone? How long will you have to treat yourself? So some problems are going to be lifetime and some problems are going to be two to three weeks.

When you talk about PTSD or anxiety often it's a chronic disorder that's going to be treated for a long period of time. So you don't expect to have a miracle happen in a minute? It happens.

Niki Gratrix: Yeah, can happen.

Dr. William Pawluk: We love to see that. But in our experience, most of the time, it doesn't happen that fast it takes a lot of work.

Niki Gratrix: Yeah. Months, years.

Dr. William Pawluk: Months, years. I know people with PTSD who are still reliving their trauma 10 years later, 15 years later.

Niki Gratrix: Okay. I hope they know about EMDR and some of these techniques as well.

Dr. William Pawluk: Well, but what you're doing is important and what I'm doing relative to drpawluk.com is important. But I've learned an expression over the years, you can lead a horse to water and then you start an IV.

Niki Gratrix: I like it, that's a new take on it, I love it.

Dr. William Pawluk: You give advice to a ton of people and many people will take your advice, many people will take your advice but not use what they learned and not do it.

So all you can do is just provide people the opportunity to help themselves and then it's up to them to take advantage of it.

Niki Gratrix: Exactly that and that's what we're just trying to do with the Summit, give people a smorgasbord of information so they can pick what they need.

They'll resonate with something and realize it's for them or not, I couldn't agree more. So Dr. Pawluk, thank you so much for your time.

Dr. William Pawluk: A pleasure.

Niki Gratrix: Thank you.

Dr. William Pawluk: Get back across the pond soon.

Niki Gratrix: Yes, I'm still in the U.K. in lockdown.

Dr. William Pawluk: I have folks in Canada, so I'm locked out of Canada, too.

Niki Gratrix: Yes, fun and games. So thanks everybody, take care and hope you enjoyed it as much as I did and we'll see everybody in the next episode.

Take care for now.