



## How EMF Harms and PEMF Heals the Brain

**Cheng Ruan, MD**  
with **William Pawluk MD, MSc**



### **Cheng Ruan, MD**

William Pawluk is an MD and holistic practitioner near Baltimore and we're gonna talk about something interesting today called pulse, electrical magnetic field frequency and PEMF is a short term for it. And so what we want to understand from a technology bases is that, well, what are some of the things that are out there that are new things that are out there that can improve brain healing? Dr. Pawluk has previous university appointments in Johns Hopkins, the University of Maryland and his training is family medicine, acupuncture, homeopathy, hypnosis, body work and energy medicine and functional medicine, nutrition. So a lot of things anything to improve brain health, Dr. Pawluk probably has a tool for it Over the last 30, some odd years. He's really used pulsed electromagnetic field devices to really try to improve the health of chronic disease and the brain. And so he's the owner of drpawluk.com..

So, D R P A W L U K dot com and author of the most comprehensive book on healing with pulsed electromagnetic field, which power tools for health and also super charge of health with the PEMF therapy. And he's written chapters in scientific books and many peer review articles and has many podcasts, including Dr. Oz past co-host of to holistic health radio shows for over 10 years. also he was featured on the pain solutions summit And received a lifetime achievement award in 2019 for work on Electrical Magnetic Field Therapy. And so really happy to introduce Dr. Pawluk to talk about this in the context of brain health. Well, awesome. Welcome to the summit. I can't wait to talk about this. So let's kind of dive right in kind of already gave people your background. So let's dive right into pulse electrical magnetic field. So what does that mean? And what is it? What is the therapy?

### **William Pawluk MD, MSc**

So pulse electromagnetic fields are basically magnetic fields that are created by current flowing through a wire. That's based on Faraday's laws, based on Maxwell's equations. Maxwell's laws and it's based on something called the right hand rule. So let's say my thumb is the wire. And let's say



the current in the wire is flowing in that direction. So what happens is that current flowing in that direction is basically creating a magnetic field is perpendicular to it. So my fingers are the magnetic field wraps around the wire. So it's three dimensional around the wire. As the wire pulses, the magnetic field in a sense pulses with it. Right? So the magnetic fields in a wire do not really have many wavelengths to them. Okay, it's a frequency is still a pulse rate. That's why they're called pulsed electromagnetic fields as opposed to broadcast electromagnetic fields. And that's the difference between therapeutic pulsed magnetic fields and electromagnetic fields in the environment. Or E. M. S., E. M. S. Was broadly speaking, or broadcast into the environment. Like a microwave antenna broadcasting from the cell tower or radio waves, tv waves or radar. They just go out into space. They're non directional. They can bounce through the atmosphere come back down to the earth. But basically they broadcast out. So that's called open loop current flowing through a wire is basically a closed loop.

It does not go anywhere except around the wire. It stays in proximity to the wire. One of the key attributes of magnetic fields is they pass through almost everything. So magnetic fields are the second force in the universe. It's the biggest force in the universe. It's not the strongest but it's the biggest because it's everywhere. Light is electromagnetic like colors electromagnetic and we know about X rays and gamma rays and neutrinos and the magnetic fields of the poles of the earth etcetera. So all of this electromagnetic but here we're talking about a very constrained magnetic field that's around the coil. So the control unit produces a voltage into a wire. That wire then goes out and is put into what we call an applicator or a coil. And it's a magnetic field in the coil is what does the work. And it goes through the body as if the body wasn't even there. So I basically tell people that the magnetic field doesn't care about the body. The body cares about the magnetic field. So as the field is passing through the body it generates charge production. It generates then all kinds of downstream actions that the body has in response to that induced charge that the magnetic field creates.

### **Cheng Ruan, MD**

How do we harness this this power if you will for for brain,

### **William Pawluk MD, MSc**

How do we harness it for the brain? So again, the brain is no different than any other part of the body. Right? It's a tissue that the magnetic field goes into. So if you apply a coil to the side of the head, established magnetic field therapies that are FDA approved are approved for treatment resistant depression using something called TMS transcranial magnetic stimulation. Those devices, they are very powerful. They get up to about one Tesla about 10,000 gauss. And they're

put over the motor cortex and over the motor cortex there the stimulation is increased to a point where you get contractions of the hand on the opposite side of the body. Once you get that, that's called the motor threshold, Then the current protocols basically have to take that motor threshold jack up the intensity by another 20% and put it over the frontal cortex, there's a lot of prefrontal cortex right basically right there and that's 120% of the intensity of the intensity to cause the muscle contraction. So it's going into the brain. And as the magnetic field passes through into the tissues of the brain it stimulates charged and it's that charge production that causes that hand contraction. So it's powerful enough to go into the brain. And yet it's safe enough, millions of people have been treated millions of hours of treatment with PMS supply to the brain with no no negative consequences fundamentally.

### **Cheng Ruan, MD**

So, you know earlier, you kind of mentioned, there's E. M. S. And there's PEMF'S. Right? What is really the difference is one harmful is one more helpful? What is the difference?

### **William Pawluk MD, MSc**

They're the primary difference between broadcast E. M. S. Is the wavelengths again, with magnets in a wire, magnetic fields in a wire, there's no wavelength per se. Okay, so there's a pulse, the E. M. S in the environment are extremely like microwave E. M. S. That you get with cell phones are extremely short wavelengths And because they're extremely short, they don't pass through the body, they pass into the body and they create heat. So a very long wavelength, they have a wavelength that's 3m long. It will completely pass through the body. So it does not get absorbed. It doesn't cause a problem. But the wavelengths that we have that we worry about are like 5G or might again, wifi. They are very, very short frequencies that then get absorbed and cause heating and cause the risk of harm to the tissues. So basically doing a cell phone to your ear is cooking your ear and the brain next to it. Right? People who have their cell phones to their ears on a regular basis for hours a day. Fundamentally, we found an increased risk of acoustic neuroma because those wavelengths are becoming absorbed and cause heating and cause DNA damage

### **Cheng Ruan, MD**

Theoretically, can you harness the power of pulse electromagnetic field to combat against the harmful effects of E. M. F.



### **William Pawluk MD, MSc**

That's an important question. So the answer is you cannot deflect, you cannot block right, block the field entirely. So what happens is that because magnetic fields are healing to the body, they help the body to repair. So if I have a cell phone to my ear and I actually I could use a magnetic field to the other side of the head, potentially to block some of the heating action and the tissues. But basically what you're doing, if you're heating the tissues you want to undo the damage. And when you're heating the tissues, what do you do? You create inflammation, inflammation is part of the cause of the damage. So right after you do a cell phone to your ear, to your ear or to your head? If you did a magnetic PEMF therapy to your brain right after that, you basically undo the damage or the inflammation very quickly very rapidly.

### **Cheng Ruan, MD**

It's interesting. And so what other brain conditions can be treated cause we know that there's FDA approved modalities for like TMS to treat drug resistant and depression. And now obsessive compulsive disorder. But what but what does these PEMF therapy is what else can we do for the brain?

### **William Pawluk MD, MSc**

Alright, so again, those are FDA approved for specific indications using specific protocols and specific technologies. They're still P E. M. F. Okay, still E M. F. So what we're doing is with the devices that we can use therapeutically for ourselves to treat the brain. They're considered wellness. It's not really for therapy but wellness doesn't matter what the condition is treating the brain and not the condition because you have 27 different actions of PEMF'S on the body including improvements in circulation, including improvements in neural stem cell stimulation including a TP production, decreasing inflammation. So and all of these are outlined in my book Supercharge your health. So there's 25 different actions including we recently discovered that PEMF'S also stimulate the endocannabinoid system.

### **Cheng Ruan, MD**

Oh interesting. Okay, CBD CBD

### **William Pawluk MD, MSc**

marijuana so we can activate the CBD receptors we can activate, we can stimulate serotonin production. GABA production in the brain but we're also doing healing. So we have micro micro glial or astro glial damage or inflammation that's caused by whatever whether it's cellphones or whether it's toxins like heavy metals or insecticides and pesticides. Get into the brain, viruses,



bacteria, Anything that's causing inflammation in the brain can basically be assisted by PEMF'S but you have to have the right intensity of the magnetic field. So the research is showing that you need to have an optimal intensity. About 15 Gauss. The Gauss is the measure of magnetic field intensity or we can say milli Tesla. So milli Tesla is a common term as well. So 1.5 milli Tesla equals 15 Gauss. So the optimal magnetic field intensity to decrease inflammation is 15 Gauss. That means if you're gonna treat from one side of the brain to the other, you have to do a dose calculation. So you need about 4000 Gauss to go 6" across the head to get anti-inflammatory action across the whole brain.

### **Cheng Ruan, MD**

Okay. And are these I guess these PEMF devices are they specific for conditions or are they general? General PEMF'S?

### **William Pawluk MD, MSc**

Well you can do that. You can you can basically do research on any condition And you can say, well what are the optimal magnetic field parameters to treat the condition? But again, because we have 25-27 different specific physiologic actions in the body. We know as clinicians most pathologies share similar pathologies, similar, similar physiological actions or reactions in the body. Basically any condition is going to share a lot of these different actions that PEMF'S have in the body. So that means you're not taking a unidirectional Univ Aryan approach to treat the brain. You're taking a multivariate approach which is a really brilliant thing because what happens then is the body takes from the stimulus. What it needs to take from the stimulus. So that is one of the first things that you'll approve right away is is in circulation improvements. It takes a little bit longer to increase ATP production. It takes a little bit longer to decrease inflammation. The inflammation is a gradual process as you continue to stimulate the inflammation gradually decreases. So it doesn't you can't shut off inflammation just like that all at once. But you improve circulation almost immediately.

### **Cheng Ruan, MD**

So what you're saying is makes sense because the same thing that can occur with the brain can create different disease states, right? Let's say there's a little blood flow to the brain. It can cause mild cognitive impairment dementia later on parkinsonism. It can create a lot of brain fog, fatigue, post covid syndrome. All that stuff. Right. The same thing. Yeah. When the brain doesn't generate enough power to the production of A. T. P. Which is it's energy sub unit that also leads to very similar diseases. And mental health disorders. Brain fog A. D. D.



That's a huge one. bipolar tendencies and major depression anxiety as well and panic disorder. So getting to the root of the physiologic mechanism, right? Rather than just treating the condition. But physiology mechanism can improve overall health and a lot of these different states of the brain. And what's great about the brain is the brain is always like on a spectrum. You know, it's not like you're classified as one disease and you have that everything's on a spectrum, right? And if we could shift the spectrum the other direction, you know, that'd be really nice. And so

### **William Pawluk MD, MSc**

if I speak in a spectrum, I was just watching a video just the other day about the value of PEMF'S in depression. So we use antidepressants right? They're most commonly because it's a chemical, we think it's a chemical reaction. But why does it take two weeks for an antidepressant to begin to work or longer? Because it has, it has to do with actually those freak those molecules react with the electrically active brain to produce electrical changes in the brain. And you have to build up those electrical changes, those charges, the charge production of the brain and the frequencies it takes time to do that. Doctor named Leuchter wrote a huge article about this that he said that basically synapses work on chemistry, works on the bottom up, you're doing synaptic changes first with the chemicals attaching to synapses, right? And then those synapses begin to oscillate and vibrate and they basically oscillate and vibrate up involving larger and larger regions of the brain. And as you get the larger regions of the brain then you have more broader brain reactions going on, which again would decrease, say, for example, depression. So, depression may start with a specific part of the brain, right? But then it spreads to other areas of the brain through what we call networks. And PBS can actually work through networks by oscillating those frequencies as well by the pulsing action of the brain. It can control the oscillations.

### **Cheng Ruan, MD**

Well, this also makes sense on why, you know, antidepressants only worked part of the time. Is because not only is it not addressing necessarily the root cause, but roots, you know imbalances goose, that's probably the best word to describe it. But at the frequency level, right? At the synaptic frequency level, you're not really getting to that root issue right there. Sometimes people feel worse science depressants because it can create other frequencies and make them feel worse as well, Right?





### **William Pawluk MD, MSc**

Not only that, but also it begins to capture the chemistry of the brain. So once you keep loading the tissue with that molecule, right walks in and essentially becomes dependent on that molecule. Because if you start to withdraw the molecule, the brain goes through a withdrawal reaction from that molecule. So you don't have that kind of lag as a chemistry does.

### **Cheng Ruan, MD**

So theoretically speaking then because I have a really hard time taking people off of depression medication. It's because the brain's physiologic balance is already centered around the body receiving that medication, right? And tapering people off. It's extremely difficult. And actually that's medication dependent as well. Have you seen anecdotally that PEMF therapy can assist in reduction of some of these medications?

### **William Pawluk MD, MSc**

Yeah, absolutely. So what you're doing with the PEMF therapy then is you're providing an environment in the brain electrochemical and from a frequency perspective, you're providing an environment then that becomes a foundation for the brain. So as you begin to withdraw and you're starting to go through the withdrawal symptoms of the reactions of the brain from the withdrawal. Then the brain has got a substrate, got crutches underneath it, right? You're not having somebody try to walk without having learned how to use crutches, but once they learn how to use crutches then you can withdraw them from the crutches much faster because they've learned how to walk. Now.

### **Cheng Ruan, MD**

I used to see. Okay, well that that makes sense completely. So let me get some nomenclature correctly because we know that there's like transcranial magnetic stimulation centers, you know all over the country. TMS centers straight. And is that just one of the PEMF modalities? Or is all PEMF, TMS? Like what is that given the nomenclature here? Yeah.

### **William Pawluk MD, MSc**

So fundamentally all PEMF'S are TMS. Because you can take any PEMF and apply it to the brain and because it's not obstructed by the skin which is what happens with tens units or transcranial electrical stimulation that's indirect, that's causing stimulation of the sensory nerves in the skin or the motor nerves in the in the muscles that then sends signals into the brain, the PEMF'S act directly on the brain itself. So because they go right on through completely. Right then they're able to work at various depths of the brain and virtually the entire brain. Now the bigger the



magnetic field. So you can have a cap that basically treats the whole magnetic field. For example, there is a system called no noble cure resistant glioma glioblastoma. So they put this cap on with these little applicators, which are electrodes essentially onto the scalp, but it's loaded with all these around the scalp. And so it treats deep into the brain with these frequencies that are more electrical. But again, they're operating on an electrical basis. But anything producing an electrical field is going to produce a magnetic field. The cure is doing dual duty. They don't talk about the magnetic part of this, but they always talk about the electrical part because that's what the FDA approved. But actually, it's doing double duty.

### **Cheng Ruan, MD**

Interesting, and that's actually for glioblastoma, which is a devastating brain tumor.

### **William Pawluk MD, MSc**

and that's deadly. It's usually terminal. And there are other indications being developed for that nova cure technology as well, including O. C. B.

### **Cheng Ruan, MD**

So I mean, I feel like this field is underexplored in all of medicine because you know, I certainly didn't learn this in medical school or residency. But what I did learn is TMS, transcranial magnetic stimulation, for drug-resistant depression. That's sort of the standard, right? Now, are people to only get this in doctor's offices, or can they do it at home like what does that look like?

### **William Pawluk MD, MSc**

So TMS, as we were just discussing, is only done if it's FDA approved. It can only be done by doctors, and it's done in health centers because it has to be controlled by someone who is trained to use it. We're not talking about that level of TMS. So we don't have to be a doctor to do it. I routinely recommend transcranial magnetic stimulation for people with low-intensity PEMF. Twice, for example, I use a low-intensity PEMF system that you can use that's 200 goes versus 10,000 goes. So use 200 goes on your pillow inside the pillow. Cover on top of your pillow where your head would rest on top of it. You put that in there. You could run all night long. And what that does is through a process called entrainment. So basically, it's gradually slowing down your brainwaves. Think of it like sound. So if I'm listening to music and the music is going that could be quite irritating to the brain. But if I go present that over a long enough period of time, the brain listens and gradually slows down so we can then treat insomnia. We can





treat problems with sleep just by using very low intensity system on the pillow and that magnetic field still goes through the brain but not as much and not as powerfully.

**Cheng Ruan, MD**

This reminds me of binaural beats. We're listening to different frequencies per year at nighttime.

**William Pawluk MD, MSc**

You know that the magnetic field on the pillow is audio magnetic entrainment. And we also talk about audio visual entrainment or you could just do pure audio entrainment. So what we're doing now with this magnetic therapy on the pillow, because you hear the clicking in the coils, basically what you're doing is audio magnetic and training. So you're getting dual and

**Cheng Ruan, MD**

So you do, you do have the magnetic field production, but at the same time the clicks is at a specific frequency as well,

**William Pawluk MD, MSc**

Except three hertz as well.

**Cheng Ruan, MD**

Yeah, Well, that's that's fascinating. Whenever is this? This is safe first of all, is this actually safe for their safety outcomes? That's done on this?

**William Pawluk MD, MSc**

Yes, in my book, Supercharge your health now and in the power tools for health book, I go over the safety aspects and I review a bunch of cases where people have had 100,000 or 300,000, even 70 year olds who have had hundreds of thousands of pulses to their brains with no negative effects. The biggest risk that the FDA is concerned about with high intensity PEMF'S to the brain is the risk of seizures, but they are extremely infrequent. So unless you have metal in your brain or you have a metal stent in your, in your brain, inside your skull unless you're shrapnel inside your head, like, like with MRI's, you know, these are things that you kind of watch for, but beyond that, it's extraordinarily safe.

**Cheng Ruan, MD**

Okay great. You know there's a lot of people with silver fillings which do have some mercury that's within their. Is that gonna be affected by the PMF therapy negatively or positively?



### William Pawluk MD, MSc

No, there is there is some risk because PEMF'S do increase charge production. So saliva is electrolyte and the electrolyte in our mouth is interacting with the physical structures in our mouths. So our natural teeth have a basically a neutral saliva dental material interaction. So it's more more normal if you have even composite fillings, it's no longer the same as a human tooth filling as a human tooth. So you're gonna have dialectics between the saliva and the tooth. So if you have dental implants or if you have crowns or bridges that are exposed, the material is exposed to the saliva, then you could have to some extent through an electrolytic process. You can have some leaching. So there's a possibility that and people do often complain about this that they feel a metallic taste in their mouth. When they do magnetic field therapy anywhere to the head. So you don't have to do it directly to the mouth. Now when you're doing it to your brain, the magnetic field in your mouth is dropped off dramatically. So you're not getting a very high intensity magnetic field to the brain. So generally generally speaking, that's not a problem. But people have a lot of feelings and they have, they've been told or they've already been tested for mercury that I usually recommend key leaders for them along with the magnetic field therapy. And the one that I recommend the most is zero light.

### Cheng Ruan, MD

So realistically if if people do have brain health or mental issues, any sort of mercury or silver fillings in the mouth really should be should be replaced and perform

### William Pawluk MD, MSc

Replace them because you're trying to deal with their brain problem anyway. Right. So you have to do this together?

### Cheng Ruan, MD

Yeah. Yeah. Gotcha. Do you think that this PEMF therapy is going to be like a well known thing in the next five years? What do you think that's gonna go?

### William Pawluk MD, MSc

Well, we know obviously it's growing in the psychiatric world and the neurological world because of TMS. So the awareness level is increasing significantly at TMS centers are now doing brain treatments beyond the FDA approval. They can't advertise, it will use. And the insurance companies won't cover. So all the insurance companies will cover will be the FDA approved use. So that's growing. So because you started to open that door, that door is opening. And the doctors who are doing this are becoming more aware of all the other possibilities with TMS



therapy, not just depression. We have FDA approved devices for treating fractures, nonunion fractures. But it's amazing how doctors are siloed in the way they think, well it's only approved for the fracture healing. But they don't think about the technology. They don't understand what we were just talking about all the different aspects of PEMF therapy and what it does because they don't then that level of awareness is could be there. But it's not. There are three reasons why medicine is not accepting PEMF therapy ignorance. They don't know about it. That doesn't mean they're ignoramuses. They just don't know about it. Now there are obviously doctors who don't want to know by I wonder if they'd rather remain ignorant than having to learn something new and it's going to shake the tree for them. Right? 2nd group of people is people who are arrogant and that's a smaller group than the first group. But the arrogant people say I know everything that I should know. I don't need to know this Go away. Right group of people which is actually a bigger group of people than the second group is. Finance surgeons in particular to cut his secure and if you heal the tissue with PEMF therapy you don't need to cut So idle surgeons orthopedic surgeons whose practices surgical parts of their practices have dropped by 40-60% because they're using PEMF therapy.

#### **Cheng Ruan, MD**

And this reminds me of pre World War Two era where doctors were treating depression by lobotomy is like taking out portions of the brain which we laugh about it now but that was the standard of medicine with drug resistant depression. Right? Literally taken out portion of the brain. Right?

#### **William Pawluk MD, MSc**

And TMS was actually developed to avoid having to do E. C. T.

#### **Cheng Ruan, MD**

Right? Yeah. Right.

#### **William Pawluk MD, MSc**

I listen to a therapy exactly which is in quotes barbaric. And there's a risk of fractures is a risk of general fractures and temporal fractures and tooth fractures with it have to be sedated. They have to go under anesthesia for it. So this is a replacement for that and it's a lot safer.

#### **Cheng Ruan, MD**

This is hilarious because E. C. T. At the very beginning the shock therapy was trying to replace lobotomy right and did not want to accept at the time. And then now you have electromagnetic field frequencies and T. M. S. Is trying to like take away the need for the shop therapy because



now that's seen as barbaric. Right? So I feel like you know as technology moves forward like this this is really the next progression. What can improve. I mean the last thing you want to do is go back to cutting out parts of the brain. You know?

**William Pawluk MD, MSc**

Well if you have a if you have a tumor you may not have a choice but

**Cheng Ruan, MD**

Right and well modern day we don't know what's gonna happen. You know 30 years from now. Right. And so

**William Pawluk MD, MSc**

Because we'll be able to detect these a lot sooner if you could detect it a lot sooner. Growing tumor. I just did a review of the cancer section in my power tools for health book on cancer and people who had brain radiation function a lot better after their brain radiation. If they're doing magnetic field therapy.

**Cheng Ruan, MD**

Okay, interesting. Alongside with the radiation

**William Pawluk MD, MSc**

Radiation, they could do it basically before and after. But they recover better because we don't, we have memory, major memory issues with people with radiation, cognitive function. Dysfunction. And PEMF therapy actually helps with memory just by itself. If you increase a teepee in your brain, you increase circulation in your brain, right? you increase serotonin, you decrease anxiety. So basically now you can memorize better as well. So just physiologically you're you can amp up memory function without being alzheimer's or Parkinson's or M. S. or

**Cheng Ruan, MD**

Or any of the above or or or let's kind of dive into this topic of PTSD for a second because we know that PTSD is so complex and there's depression with anxiety with insomnia with it and and what not. But there's been a ton of data on PEMF therapy and PTSD. Can you kind of link the two together real quick?

**William Pawluk MD, MSc**

Well, PTSD is on the spectrum if you will with depression. So the trauma of PTSD, the trauma that caused the PTSD is causing physical physiologic changes, electrochemical changes, chemist



chemical changes in the brain, it resets basically the limbic system. So now you've got a when you do any changes to the brain often enough because of plasticity. You can actually create physical changes to the tissue itself. It's called remodeling. Part of the problem with them with PTSD becomes to what extent you've got physically physiologically changeable tissue or electrochemical processes of the brain versus those that are locked in. We have remodeling all over the body. Remodeling of bones. We can have remodeling of ligaments and tendons. We have remodeling of cardiac tissues So the brain can remodel as well. So the more remodeling that there is the more sort of fixed the lesions become. And PEMF'S can take that circuitry in the brain and you can shock that circuitry with the pulse. Now you don't want to use an E. M. P. Which is to like E. C. T. Which is so powerful. You don't have to do that and our TMS is not that powerful. So basically you're resetting these circuits and then hopefully over time. Ewan model Un remodel the tissue and you basically can model into better functioning tissue. But PTSD like memory. PEMF therapy does not improve memory by itself.

### **Cheng Ruan, MD**

Traditional PTSD therapy is

### **William Pawluk MD, MSc**

yes that and depression we don't it doesn't remove our memory. So memory can be significantly impacted by PTSD as well which happens with depression. But one of the problems with that then again has to do with the ability to remodel and to actually energize the tissue to do the work. It needs to do but if you want to remember more you have to train your memory. So I can make your brain function better. I can give you the better substrate for memory to work. But you then have to train the memory. So with PTSD you may still have to do some of the shock, some of the remembering of the stimuli that caused the shock in the first place. You have to unlearn it.

### **Cheng Ruan, MD**

So what you're saying in PTSD therapy and talk about, talk about, talk about talk therapy. PTSD talk therapy and cons available therapy, it can reduce the traumatic state but I did not know that actually doesn't improve the memory component because memory is huge and in PTSD memory loss huge

### **William Pawluk MD, MSc**

Retrain their memory, replace whatever memory you don't want with memories that you do want. You can't do that with magnetic field therapy, it's not going to give you a new memory. So it's not like we're blasting the brand with a thought, love or hate or Einstein's equations or you



know, whatever we're not doing that, all we're doing is we're creating a physiologic structure that's more stable and more conducive to repair and regeneration and rebalancing

### **Cheng Ruan, MD**

So we can utilize and harness the power of PEMF then to reconstruct or re-engineer our brain wiring mechanisms right, for that improvement quality of life and that's such a powerful statement to say about PEMF therapy, you create an opportunity is what you're doing, creating opportunities. Absolutely. Well, this has been an absolutely brilliant talk. How do people find out more about you and more about PEMF.

### **William Pawluk MD, MSc**

Well, the two best resources are if you want more of the science power tools for health book that I wrote has 500 references. So we got more backing with scientific studies. The supercharger health book is more practical. So how do I select the PEMF system? How do I use a PEMF system from my various problems? And I have about 80 different health conditions in the supercharged book. And I give some protocols. It's gotta be simplistic because everybody is unique and different. You really like as physicians, we know, we have to tailor our recommendations to the person, to the individual, to their uniqueness. But those are the two best resources otherwise drpawluk.com. There's a ton of blogs, so a lot more information there that's free and accessible. Otherwise the books

### **Cheng Ruan, MD**

drpawluk.com is drpawluk.com. right, excellent. Well, thank you so much for this enlightening conversation. I actually learned quite a bit and I thought I knew something about the M. F.

### **William Pawluk MD, MSc**

I wanted to be on the summit because I knew that you know, there would not be an adequate discussion about this aspect of technology being applied to brain and how widespread, how valuable it is across so many different. We're so locked into thinking about conditions, we're not locked into it physiologically and functionally. Yeah.

### **Cheng Ruan, MD**

And we should and we should. I think the medical society should think about it from a functional perspective. Yeah. Excellent. It was great talking to you. Thank you for being on the form of me.

### **William Pawluk MD, MSc**

Thanks Cheng, enjoy the rest of your day.





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**Cheng Ruan, MD**

Thanks.

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