Introduction to PEMF and Dr. Pawluk

– Welcome to another episode of the reversing inflammation, summit body and mind longevity medicine. And I'm your host, Dr. Robert Lufkin, much of modern medicine is focused on the pharmaceuticals and the biochemical basis for our diseases in aging. Today. We look at something that doesn't get nearly enough attention, the role that electromagnetism plays in our health and in particular how pulsed electromagnetic fields can affect aging.

William Pawluk, MD is a leading authority on the use of this technology. He is a holistic physician who has had previous academic positions at johns Hopkins University and the University of Maryland. He has two books on the subject and is also the co host of a two hour holistic radio program. Bill, Welcome to the show.

– Thank you very much Rob. How are you doing today? – Great. I'm so excited to talk about this fascinating area, but before we, before we really dive into it, maybe you could just take a couple of moments and tell us how you came to be so interested in this fascinating area.

– Basically as a conventional doctor.

From Acupuncture to Magnetic Therapy

Way back when I don't want to say how long ago that was, but way back when I I was a medical director for a group, a medical practice of about 14 family physicians and we shared patients at the hospital. Uh so uh over the space of about three or four days we had two admissions to the hospital with people with Gi bleeding.

one of them almost died and the common factor for both of them was nostrils as Ibuprofen, that was the cause of their Gi bleeding. So after that happened, I mean I obviously had prescribed it considerably myself in that day that was back. Okay, I'm going to reveal it now back in the 80s. So so I said this is this is insanity.

This is the definition of insanity in a slightly different way, is doing the same thing over and over again, not expecting bad results, not expecting side effects or complications. So I said, this is crazy medicine, potentially killing people to solve their pain problems right there.

Pain problems are not going to kill them. But we with our treatments, we could potentially have somebody die on our watch. So I said, what can I do? That's different than what we've been doing all along. All my consultants are the same.

They offer the same solutions. The hospital offers the same solutions. My peers offer the same solution. So I said I have to go outside the box, I can't do this anymore. Or at least I have to find some other solutions as well. So I started acupuncture and I finished my acupuncture training and I wanted to do acupuncture in my practice and all of a sudden people said no, stay away from me, stay away from me with those needles.

Right. Besides, they didn't know about acupuncture Madonna hadn't appeared on in a movie yet with acupuncture needles all up and down or back. So I got known then right? So I said I got to do something that could do acupuncture without using needles. And so I learned about magnets in the orient and that they were using magnets on acupuncture points.

So I started using magnets on acupuncture points and discovered while I was doing that, that the magnets did other things other than acupuncture, I'll give an example.

I had um I was gonna be reading on my back patio and I looked down at my leg. I felt an itch and there was a quarter sized lesion on my lower lower leg.

It looked like to me having seen many of these in the past looked like a spider bite. So I put a magnet on the spider bite. And then I then I started reading. So, but three hours later I looked down.

Gone, gone. And you know you and I know that a spider bite, the lesion can, once it gets going can last a couple of weeks before it's fully healed. So he's gone in three hours now. Light bulbs start to go off, alarms go off. So what's going on here with this therapy?

So I started doing a lot of research and investigation about what magnets were doing in the body. And most of that literature was buried in the eastern European culture and eastern European journals in Cyrillic alphabet and also very obscure journals that you wouldn't see in the light of day in the west or if they're on pub med, they have a bracketed, abstract saying its foreign language.

So along the way, I met an MD PhD from the Czech Republic. And he had for his PhD program he translated a lot of that literature in eastern Europe. And um so he offered me his manuscript.

So I went through the manuscript, revised it and published a book called magnetic therapy in eastern europe, a review of 30 years of research and this was 20 years ago.

So already it was 50 years old. The science in eastern Europe was already established. And that book, that manuscript showed all the clinical studies that we don't have access to in the west Bang.

I mean it just lit up. Now. Now we have mechanisms, we have actions, we have clinical results from studies in eastern Europe. Some of a lot of them were controlled, they weren't all placebo control, but they were often controlled. So like this was wide open, just open the door, just blew the doors wide open.

So I started working extensively with magnetic fields and I've been working with magnetic fields for about 30 years adding it to everything else. And that's one of the key things about PEMF therapy is it's not a it can be a standalone therapy but you know, you don't build a house without bricks and mortar, you can have all the tools, you can have all the plans, you can have everything else. But if you don't have the bricks and mortar, you can't build the house. So PEMF therapy is the power tools that you use for the house. That's why my first book is called Power tools for help, so that you use the power tools but you need the bricks and the mortar.

How PEMF Differs from Environmental EMFs

So you can you can build a house a lot better faster with power tools that you can buy, letting nature take its course. So if you want to build bone, you need the nutrients to build bone, you want to repair tissue, you need the proteins and all the other nutrients that you need to build the tissue to rebuild tissue. So that's the sort of the genesis behind my going with PEMF therapy. – That's fascinating that the it's interesting that you started with acupuncture and then went in there and and I remember the with the acupuncture, the whole the theory of energy meridians and and whatnot.

Um does the as we get into this. But does the PEMF work through similar mechanisms with energy meridians? – Yes and no, I think that's one of the key elements underlying PEMF therapy is that it's stimulating all the acupuncture points and meridians.

And we tested this and now there's a pretty robust science showing how the meridian system is an electro is an electrical system. It's a dc current system.

And because it's DC current is subject to the laws of physics relative to electro Magnetics. So if you apply a magnet to a current flowing current you can induce or to a wire, you can actually produce energy can produce charge in that wire.

Faraday's Law. So that's those experiments were done in the 1800s, that science is pretty well established. So PEMF there interacts with the acupuncture system, but it does a lot more than that. So in my first book, my second book, actually, The power tools book, I outline about 25 different actions of magnetic fields and provide scientific

references to support those actions.

So there's a lot more going on than that acupuncture system. But if you have an acupuncture process going on underneath anything else you're doing with it, Hey, that's a bonus.

– Yeah, absolutely. Well, before we we dive into this area and get into these these interesting details. Maybe you could just take a moment and tell us, um for our audience who may not be familiar with this, what is an electromagnetic field and how does it work?

– So maybe one way to talk about that is an elephant that's in the room and that's E. M. S. And everybody's worried about PEMFS and aren't electromagnetic fields the same. All of them the same.

And the answer is no. So the magnetic fields that we're using for therapy are very different than E. M. F. Which actually I call environmental magnetic fields, but they're electromagnetic fields that are essentially environmentally based.

So there's two ways of producing a magnetic field. Well three ways. One is a static magnet. The fridge magnets, that's not a time varying, that's not a field that's in motion.

So fields in motion are much more dynamic than a field that is static. It's just sitting there. So the two types of P. M. S R E M. S that are in motion are the, the microwave VMS. So radar, television, radio, they're broadcasting to the environment.

They just keep going. They don't stop. That's called open loop. And then when you when you pass a current through a wire automatically through laws of physics Maxwell's equations, you generate a perpendicular magnetic field around that wire, the flow of current in the wire and that's called the right hand rule.

So my thumb is the current flowing through the wire. And the magnetic field around that is my my fingers and they're perpendicular in a clockwise fashion.

So what happens then every time the current pulses, you produce a magnetic field. So this magnetic field goes out and calls back, comes back in again, goes out and comes back in again with every pulse it goes out and comes back in.

So it's a closed loop. It's a magnetic field that's in the coil, it doesn't go out into space and the environment, therefore it doesn't really have a wavelength.

The magnetic fields that go into the environment have wavelengths like ripples in, in, in in a pond and those wavelengths have their based on the frequency of the wave length. So microwaves basically are high frequency, they're broadcasting the environment, They're very high frequency and as a result they get absorbed by the body.

That's the principle behind a microwave oven. You heat things because you're you're projecting microwaves in a closed space but it causes heating. So heating causes damage.

And then the electrical microwave itself can cause genetic instability can cause genetic damage in addition to the heating. So that's open way. Open source open loop magnetic fields there that can be harmful to the body. It depends on the degree exposure, it depends on the microwave, the nature of the microbes etcetera.

So pulse magnetic fields are extraordinarily safe. And we have a huge examples of PMS in medicine that are FDA approved. Who doesn't know about M. R. I. That's magnetic.

So that's used for diagnostic purposes. And now we also have devices that are approved by the FDA for treatment resistant depression called TMS. Transcranial magnetic stimulation where you where you put a magnet up against the brain of the head to create currents in the body in the brain that then he reset the brain for depression.

So that that's extraordinary. So we know about those kinds of fields. There are lots of FDA approved fields as well for bone healing. Bone healing. Magnetic therapy has been out in the environment now approved by the FDA for about 25 to 30 years.

Why Medicine Prioritizes Drugs Over Energy Therapies

So if you take a fracture that won't heal after six months, it's called a non union. If you take that nonunion fracture even though it's been there for say six or seven years it's been a non union for six or seven years. All of a sudden you start stimulating that tissue with all the mechanisms of action we described and bingo.

In 3 to 6 months you've healed that non union otherwise you subjected to surgery. You do all kinds of invasive procedures which don't always work. They often fail on their own magnetic field therapy very routinely.

I would say probably about 80 to 90% successful will heal that nonunion fracture. So we have lots of examples of safety and effectiveness of use of pulse magnetic fields versus the E. M. F S. – Yeah there's so many interesting possibilities there. I I have to wonder why is it that medicine is so focused on biochemistry and drug development And in medical school I can think of only you know a couple of things you mentioned that even that that use electro magnet um or you know like E. G. Electroencephalogram or electrocardiogram or those applications you mentioned? Why why is the bias towards biochemical drug development instead of why aren't there more applications for for E.

M. F. Or have we have we exhausted? Are they they're just those few and that's it. – A lot of that has to do with legacy. So at the turn of the 20th century electrical therapies, electromagnetic.

Therapies are extraordinarily common. There's something called the Pellegrino report and the Miller's Commission and so on. Where the medical schools in this country essentially came down like a ton of bricks on the community that was doing all this therapy. And the medical schools at that time were scientifically based. What was most of the science and medical school at the time. Pharmacy pharmacology and the biochemistry was well established. There was lots of money in it and because there was lots of money in it, they were endowed chairs at universities, you know, etcetera. So they built up, they built up the capacity to do a significant amount of research. And all of that research was essentially pharmaceutical pharmacologic. So essentially they completely suppressed that other aspect. That was already growing significantly in the community. And so in medical schools, all they could teach was electromagnetic therapy or electrical therapies in physical therapy.

Part of the curriculum, The only people who could do it and you could teach about or talk about it was a physical therapist. And that was one course, that was probably one hour and of course in a curriculum of, you know, 4000 hours of teaching.

How do you, how do you think magnetic therapy got basically sidelined? But fortunately we have the science. Now we have a lot more science than we ever did back then. A lot of it was hearsay.

A lot of it was, you know, quote sham uh was fraudulent, uh, etcetera. Some of it was fraudulent. It wasn't but we lost that legacy of that history we just completely sidelined because of the economic interests and the uh let's see authoritarian interests of medical schools.

– I see. You mentioned before TMS is transcranial magnetic stimulation. It's an approved treatment for depression as you mentioned. Is I wasn't clear.

Is that an application of P. E. M. F. Or or or is that is that the same as a P. E. M. F. Just applied to the head then? – Yes it's two coils basically that are applied to the side of the head.

TMS, Depression, and Bone Healing

And those two coils that stimulate again the magnetic field that they interact with the neurons which are flowing current themselves? Right. And you have all the ions and everything else inside inside the brain so that generates

charge and energy that that that was actually a transition from something called E.

C. T. Convulsive therapies Or convulsive therapy? Have you ever been in a convulsive therapy session? This is pretty barbaric. It's electrocuting somebody right and trying to save them from having a heart attack or breaking bones.

So E. C. T. Then this is to replace E. C. T. Much safer and about as effective um as that so it's really taking off now significantly. – Is there a common underlying mechanism for the effect of the pulsed electromagnetic fields on the body.

In other words for Tms. How what is the mechanism how do the electromagnetic fields reduce depression? – So basically again as a reset electrical reset for the brain taking off from E. C. T.

But that doesn't matter even though that's the mechanism and that's what everybody focuses on. So people who do E. C. T. Basically just follow the the book, read the manual and they don't think about why and how and whether it can be used for other things. But clearly there are people using it for a lot of other things besides depression. And the same thing applies to a lot of things we do in medicine including the bone healing devices.

The doctors who prescribe those just say this is what the FDA said I can do. This is what it's going to do and that's all I'm going to think about. But they don't understand the mechanism and they don't understand all the other sort of aspects of electromagnetic therapies and how you can extend it off label way beyond the FDA approved indications.

So every pulse of a magnetic field of the body is creating charge in the body. There's essentially two sets of mechanisms going on with magnetic fields.

Basic actions. One is the frequency aspect of it and the other is the electrical aspect as the magnetic field passes into the tissues of the body. Based on Faraday's law. It generates a current, it generates charge because every tissue of the body.

Every cell in the body is all electrolytes. I say the body is basically a bag of electrolytes. It's not even sailing. It's electrolytes. So we are electrolytes soup.

And because it's electrolytes, those charges are constantly moving. So we have 100,000 biochemical processes per second in ourselves in our bodies. So that's a lot of dynamic movement. A lot of that is electro electrolytic lee, electro chemically and electro magnetically driven.

So when you when you increase the energy of the tissues, now, the tissues have more energy to do healing work. So how does a non union? How does the non union happen in the first place?

It happens because there's not enough healing energy to finish the job of healing that fracture. So normally they'll heal in a certain period of time. We know this.

We see this all the time. 12 weeks or so. You're basically taking the cast off and go on about your business. But it takes up to two years for a bone to be fully healed.

If you keep repeating X rays and you keep doing CT scans or MRI's, you'll see that that fracture site is still there takes a long time as you need all the nutrients you need all the energy and the tissues to be able to finish the job of healing.

And that's what magnetic therapy for the fracture does all of a sudden. It's causing the tissue to produce more energy, having more energy. Now, all sorts of biochemical processes begin cascading.

– So the the the common the theme is that this pulse, electromagnetic fields add energy to the tissue and that can help bone healing or in the case of depression.

Somehow that added energy helps. Is there is there a downside to that? Like if I have a malignancy, a cancer, I don't want to add energy to that tissue.

Is that a danger there or what are the, what are the potential things we need to worry about? – So, I do a deal with cancer a lot with PMF therapies and there's a reasonable literature growing about how PEMFS can be used in the setting of cancer.

We know that there are studies that show that PEMFS therapy can increase the value and utility of chemo. So chemo the effects or benefits of chemo can actually be doubled.

And the side effects from the chemo are actually lessened as well. So with cancers you may be able to temporarily increase the blood supply of the cancer.

With with magnetic field therapy because it increases circulation all circulation, hands, feet, brain, etcetera. All of that increases with PEMFS stimulation because of its actions on the track oxide in the body.

But so at one point the cancer tumor may like the circulation may increase in volume because of the circulation, but you're now flooding it with oxidative stress and I just don't like that.

Mechanisms of PEMF and Safety Considerations

– So a common mechanism. One common mechanism is increased nitric oxide and all the benefits that it has throughout the body for inflammation and immune function, circulation improving circulation etcetera.

– So yes, nitric oxide is a common mechanism. One of the first things you see with magnetic field therapy is increased circulation. You can clearly see that right away.

But it also does inflammation but it does inflammation through other mechanisms. So if you read power tools for health or the new book, supercharge your health, I described the different actions.

So because there are 25 different actions, I can't dial them. I say here, I'm going to give you a non specific stimulus, a magnetic field stimulus into the tissues. The body increases the energy increases charge in those tissues, wakes up. The cell membranes gets a charge equivalent rating across the cell membrane now becomes more normalized.

And so then the body does whatever it wants with that energy circulation decreasing adama, decreasing inflammation, increasing stem cells, increasing DNA.

A RNA production, growth factor stimulation. All of these things are happening was but the body will decide of all the different mechanisms the body decide which mechanisms get it's going to use first. What does it need first?

What does it react with the best fastest? And the body decides that fortunately again, because it's so safe. I would rather leave it to the body than to try to figure out being as smart as I am.

And quote, I'd rather not try to figure it out myself, I'd rather give it to the body, let the body do deal with it. Right. – Yeah. Yeah. Well before we dive into more of the specific applications just as a general uh point. Are there any contraindications for it or any patients that should avoid this?

– So there used to be a legacy of contraindications having to do with pacemakers are implanted electronics. Uh pregnancy is a ubiquitous uh contra indication because we don't have the proof that it's safe in pregnancy.

However I have plenty of experience that women who have been using magnetic field therapy to get pregnant and then keep using the magnetic therapy through their pregnancies, breathe through their pregnancies. Women working in M.

R. I. Units Get pregnant and they keep working in those units and there's no there's no significant history of any major problems or complications even in pregnancy implant electronics.

So 20 years ago implanted electronics were a problem. But now most of the companies are making implanted electronics make them M. Are conditional. Now that you can use you can go into an M.

R. I. Machine. Even with those pacemakers and defibrillators. What you have to do is verify that it is M. Are conditional if it is your safe implanted metal is another concern that people have. And that's a country indication in with uh M.

R. I. S. But um we don't we're not at that level of intensity as an M. R. I. Machine an M. R. I. Machine gets up to 10 10,000 or 10 20,001 Tesla to Tesla.

Most of the systems we use are under a Tesla. So you don't really have that issue. You just have to be careful. Like any other therapy. You know, you gotta know your patient, you got to know the process you're dealing with.

You have to know your technology and then you just be careful how you introduce it and I call that going low and slow. So if you go low and slow, you maintain those contraindications.

The only absolute contraindications I have left basically Out of the legions of ones that people used to say 10 years ago, 20 years ago is transplant.

And there's no evidence that PMS are safe in transplants because what you're doing with transplants is you're doing immune suppression and magnetic field therapy stimulates the immune system. It can increase it or it can decrease it.

It can do both depending on the circumstances. So you don't want to mess with something that if you stick trick the immune system tip it a bit too much in the wrong direction. You have a problem with the transplant.

So I basically say no transplants. Even corneal transplant. – Okay, so any transplant and then you mentioned before that it is FDA approved for transcranial TMS for depression and also for bone healing.

You mentioned. – bone healing. Pain relief and reduction. these are FDA approved. – it also and then once, once the device is shown to be safe by the FDA and approved for one application as we've talked about before, then it's possible to use what's called off label for other other applications throughout the body depending on on what they are. Um, let's let's take a moment here and and talk about longevity and because there's some fascinating applications of this technology to longevity before we, before we dive in, could you take a moment and just tell us kind of your working definition of longevity, what is longevity? Why do we age?

Because everybody, everybody seems to look at it from a slightly different perspective. It's it's interesting even all our experts, I'll look at it a little differently.

– Again bricks and mortar. If you don't have the bricks and mortar, you can't keep the house going because there's entropy. No matter what we do, we're losing energy over time.

I was invited to do a poster presentation at A S E N. S conference in Cambridge England UK and most of the people there who were dealing with it from the genetics perspective or dealing with environmental aspects and so on.

And as a family physician, I know I see aging and you can see aging, A lot of people who are under a lot of stress, physical stress, emotional stress Illness, stress, look at the President four years or eight years in the presidency. Look, look what happens to their aging and they may well have access to resources that we don't even know that they have access to, but they still age. So one of one of the key tenants that I had at that conference, that sense, strategically engineered negligible senescence conference was that a huge part of aging And the people there are completely ignoring this.

More or less completely ignoring it is death by 1000 cuts. Aging is death by 1000 cuts. It's all the nicks and scratches and stresses and so on that we accumulate over time, but we're we have entropy no matter what.

So I I jokingly tell people that between say 25 we'll update 25 approximately. We are growing as we're doing more repair that we're doing breakdown, right? So typically what we want like this pen, we wanted to be a flat line that doesn't happen. Maybe maybe occasional characters in history that could have happened. Maybe some Yogis, they're very special people yet, right. Yogis. So what happens with 25 and 40?

You want it to be that flat unless you're playing professional sports or you're really aggressive athlete, you're doing, you know, top end stuff. Well, top and stuff. I don't know a single athlete who doesn't have injuries. They're all oriented to performance, but they're not talking about recovery. They don't like to talk about recovery.

And yet those of us who work in the clinical world and we try to help improve performance. We see the problems with recovery. So recovery is causes the curve to be like this. So the more the more recovery you have to do, the steeper that slope is going to be.

And for most of us were basically relatively flat between 25 and 40 at 40. We start to notice the curve starting to slip. Then again, depending on the lifestyle that you have and the risk factors you have, the genetics, you have the ability to repair inflammation, autoimmune diseases.

PEMF for Longevity and Anti-Aging

You name it. Now, that curve starts to significantly. So PEMFS therapy applied on a daily basis. Going back to the the idea that we have 505,000 biochemical processes per second in every cell of our bodies.

What do our bodies need to maintain? 100,000 biochemical processes per second? It needs help. It needs energy. And what we're doing is when you have surgery Well you have an appendectomy, what does a surgeon do to help you to heal from it?

Cross your fingers? Right, okay. I cut you up, I cut it out. I sold you back together again, go home and see back in a couple of weeks cross your fingers.

So what we're doing in medicine typically and generally in health, we are taking things for granted. So what does that do? It leaves things to chance. So what we're trying to do with longevity management, if you will anti aging is to remove chance and if you're giving the body extra energy every single day you're reversing some of the things that are breaking down before they get to be irreversible. So I use a concept called the cell injury model doesn't matter what the source of the injuries to the cell.

There's a process that cells go through during the injury course essentially. And every cell eventually crosses a line of no return a line of irreversibility.

And in medicine, what do we use to figure out whether you've got an irreversible injury and cells or tissues while we look at it, we can see it or we can feel it or we can we can see that you're not moving your arm right.

Um Right. Or you do biochemical testing or you do microscopic evaluation. You do biopsies. These are how you find out that there's processes going on in the cells that are going to cause that that body to be stressed, Another stress on that body, which then increases a process of aging accelerates.

So PMF therapy removes a lot of that 25 mechanism. Very easily done. Right safe. Another example is I had a little child, three year old child to cut off the end of your thumb in the door job. Fortunately father called me before the surgeons had at it and I heard about the fact that bob Becks uh salamander studies, you have the ability to regenerate to appoint. So three year old has a strong ability to regenerate. So we had them reattach it before they did anything else. And basically the, the reattached heart becomes a bandage to the damaged tissue an hour and a half to three hours a day of PEMFS therapy, portable battery operated machine. 12 weeks later she's regrowing her thumb, regrowing her nail completely regenerated. And that's a low level of low testing PMF system an hour to

an hour and a half a day. Now maybe a 50 year old or 70 year old is going to have to take seven or eight hours a day or longer to be able to achieve similar results if possible. – So to to summarize then about longevity, the PEMFS add energy to the system which limits and tropic repairs and in essence and this sort of thing and some in some fashion then.

So um do you, do you have patients that are using this for longevity now? Are there are there clinical regiments developed for this or is this still experimental at this point? No, it's not really experimental.

– So what drives most people to PEMFS therapy? Why they're willing to put up the money for it because it's an investment. Most of the most effective PEMFS devices are not inexpensive. You're not going to spend $25.

There are PMF devices that are throwaways that are $25 but they're very weak and they're not gonna do much for you. There are lots of whole body PMS system's being sold in the community that are cost upwards of $6000.

But they're very low intensity. And so the research doesn't show that they don't work that well. I just read a paper actually a study done and I think it was brazil where they used a very low intensity PEMFS system for M. S. And they were doing like half an hour to an hour a day of treatment and found virtually no benefit.

And yet we have we have studies with devices like the TMS device is higher intensity machines. And there are studies on M. S. With PEMFS Devices that show significant benefits.

So the intensity of the magnetic field is important because you have to generate enough charge in the body and then you have to account for like dozing like radiation dose ng.

When we're doing radiation we have to dose the radiation based on the depth of the tissue that you're dealing with. The magnetic field therapy has to be dosed like that as well. So we we know that we can produce a lot of changes in the body and you just have to do it regularly.

So the big problem that most people have is they don't do it regularly. They go in for a treatment and they think they're done. But you've got to be doing probably the dozing I recommend and ultimately going to be dependent on the person and their starting point.

If you're 75 you've got three organs failing well, you've got a different starting point then you're 45 very healthy and exercising reasonably and not being an over the top athlete, then you've got a better starting place and you may not need as much therapy.

But if you have a health condition you're gonna have to treat that health condition. But if you're treating that health condition, you got a piece of equipment already and you got a piece of equipment already now, what's it gonna do for the rest of you?

Never mind that the problem that you rode the horse head on, right? So magnetic field therapy is ideally should be thought of as not only a problem solver, but also health maintenance in terms of anti aging, anti inflammation and so on. – It seems like there there are many values.

There have, there been studies where it's been used for for longevity, either in animals or humans, specifically for longevity. And what are those shown? – Most of those studies have not been done for longevity. Most of those studies that are, that have exposed the animals for hours a day, 24 hours a day.

Even animal studies like rats and mice and so on. There are studies in apes where they've exposed it for long periods of time and those studies were done primarily to look for risk for harm.

They were not funded for value. They were funded for harm to assess for harm and what they found essentially is that there was very, almost no harm. So long term studies, as you can imagine, it costs a lot of money to do the, when you're looking at an intervention and then you're doing measurements on a regular basis over a period of time.

So most PEMFS studies rarely go beyond 48, 12 weeks. So if you do measures of anti aging, if you do anti aging testing, you can see changes in that testing, what does it do in the long run compliance is going to be a big issue for a lot of people. They just don't do it enough and they don't do it over a long enough period of time because people are more motivated by pain motivated by health problems than they are motivated by prevention.

So we know we can take it to the bank that if you're doing PEMFS therapy on a regular basis, you're taking care of problems before they happen using the self injury model.

– And what anti aging markers do they look at. Do they have seen good results with anything yet with those? – I think probably the biggest ones I would say if you want to consider this, an anti aging molecular marker would be just inflammatory cytokines, inflammatory changes in the body.

So if you can, if you can show reductions in cRP, for example, if you got a 50 50 year old person who comes into the office, they got a crpF three, their cholesterol may or may not be elevated, but the cRP is slightly elevated while you can with PEMF therapy along with the nutrition, along with other things that you should be doing anyway, you start to see the crp is coming down and that's that's routine.

– Okay. And so so let's say if for our audience out there, if we had a let's say a 60 year old or 70 or 75 year old patient with with no no medical conditions and money was not an object, what would be the optimal or the ideal longevity protocol? They should use uh with with PEMF like – That's a really critical question because one of the most important aspects of aging of course is inflammation.

Dosing, Devices, and Personal PEMF Use

There is no health condition that I really know that that doesn't have some kind of inflammation attached to it. And of course just being alive, you have a inflammation.

So you need a magnetic system that's going to be able to deal with that inflammation. Again, those things becomes important. So if you, the ideal dose has been found for increasing for increasing uh fighting inflammation is using the identity and receptor To stimulate the identity of the receptor optimally.

You need 15 gauss at the receptor site. And if you're doing 15 at the receptor site, like dozing and radiation, you have to calculate the dose that you need or that receptor for reducing inflammation. So therefore you're going to need a magnetic therapy device, typically around 4000 gauss and even higher because there's almost no risk of the magnetic fields they pass through if your body doesn't need, it ignores it essentially. So we gotta get the right piece of equipment.

You got to use the right amount of time. I recommend typically a half hour twice a day with the right piece of equipment and not having to deal with other health issues trying to cope with at the same time.

So half an hour day of a device that's going to be at least 4000. The biggest problem that people make buying PEMF PEMF equipment, including clinicians as they don't know what the ghosts of their equipment is.

They don't know what the intensity level of that equipment is. The multi level marketing companies never tell you there are companies that sell a lot of machines to a lot of doctors for $35,000 and they won't tell you what the intensity.

So if you don't know the intensity of your equipment, you don't know what you bought. Well, I say we get muscle contractions. Okay, that's that's good and it's probably going to be a fairly strong machine but that you can't do that.

Those calculations that I mentioned to determine that you got the right dose. Unfortunately you're not going to waste. You're not wasting your money for the most part.

But most people tend to under buy. They tend to buy it based on cost. They don't tend to buy based on effects. – We always like to ask our our experts what they choose for themselves for longevity. Do you use do you use that

on yourself every day? – So yes, I have a whole body anti aging system on my bed but it's not strong announced. But it's one component.

And then I do magnetic therapy under my pillow for sleep keeps me asleep all night long. And as we get older we don't we don't sleep quite as well. Um and also I have a history of belly issues, diverticulitis, diverticulosis had an elective partial collect a mi uh seek ectomy. So I'm treating magnetic field therapy every day to prevent any issues that may come up as a result of that.

And those devices are between 200-2,000 gauss each. – And in addition to the electromagnetic therapy, do you would you share any choices you've made as far as lifestyle that you do for or supplements or are you taking rapamycin or metformin or any of these? – I walked three hours a day with my wife every morning and I call that marital therapy. So that's good for her.

And for me. And then I have a bunch of supplements. I eat more or less a Mediterranean style diet. Um I do a little bit of fasting but not that often. I should be doing more clearly uh maintained a very positive attitude. I'm hopeful and optimistic.

Uh those are extraordinarily important because obviously the more weight you got on your emotionally and psychologically that's another sort of stressor on the immune system, not to mention your spirit and so on.

Um So you have to do a combination of things. You can't build a house without bricks and worry. You need supplements and I do a boatload of supplements and what different types and just in general um one of the two that I've added recently that really helps with aches and pains um is picked us all and I'm doing about two g a day of practice all. Um I'm also doing high dose melatonin and I was introduced that by somebody who was talking about the latest knowledge about melatonin, how important it is in every cell of the body.

It's the it's the most, it's probably the oldest antioxidants in in in biology. Even salamanders and lizards have make a lot of melatonin and every cell needs it because the free free radical scavenger as well as an antioxidant.

And if every cell has enough of that, then you know, again you maintain, you maintain, you help to fight against entropy, but you got to do it every single day and then I do vitamin D. Three. I do again, vitamin C.

Broad spectrum vitamins, microbiome management as important as well. – There's so many things happening now in the longevity space. I have to ask what other than what you're directly involved with the electromagnetic fields is, what are you most excited about that you've read about in the longevity space that you're familiar with. – What I'm digging into right now.

The latest piece of work that I'm working with with relative to magnetic fields, but it's not just magnetic fields is the concept of ischemia and re perfusion.

Lifestyle, Supplements, and Future Interests

And so what happens is that with a lot of chronic illnesses including chronic fatigue syndrome, ischemia hypoxia is variable throughout the body. We tend to think of hypoxia as being being choked to death And you know, you can't you don't deliver enough oxygen but tissues with inflammation with swelling with edema or hypoxic and that could be the brain, it could be the thyroid, it could be the pituitary, it could be the adrenals, it could be the gut.

So if you have a chronic inflammation in your gut, there's a good chance you have some hypoxia going on in your gut as well that that's layered into all that other problem.

So if you can improve the hypoxia but you ischemia re perfusion is a problem because if you flood the tissue all of a sudden it's ischemic or hypoxic with circulation that you increase oxidative stress. So that's a consequence of doing that.

But you have to do that. You have to climb the mountain to get to the other side you're gonna huff and puff, right?

You're just gonna have to deal with that to some extent. So that's the latest information that I'm getting is re perfusion.

– You have a wonderful website with a depth of information and a lot of videos and access that people can access to. And also the podcast that you you've done over the last two years. Uh perhaps you could share with our listeners the best way for them to get in touch with you on social media or through your website and also the podcast.

– Well obviously watching the podcast becomes important. As you said, the website drpawluk.com has a huge amount of information. Um I'm not interested in people who are curiosity seekers.

If you haven't read my books. If you haven't read through my website, if you have curiosity then email us info drpawluk.com But don't email for something that you haven't done your own work with.

I don't want to be teaching something you can do on your own time. You should be using me as an expert resource for a problem that you can't solve yourself.

So I do consultations with people. I have a team of clinicians as well who are also doing consultations. So if you want a consultation about what's the best piece of equipment for you, I don't want to give you a vitamin advice, I don't want to give you supplement advice, I do that but I don't that's not what I'm here for. That's why we're talking not because I know about supplements or practice. Also there are other people who are more expert at practice all in Melatonin.

So if you want consultations and you're serious about your health, you're serious and you're willing to make an investment. And I'm not talking about $1,000 machine.

The best machines like the 4000 machines that we're talking about are going to cost you 6 $7000. That's an investment in your health and you're going to get the best results sort of jokingly tell people at the end of my consultations is that now the biggest problem with magnetic field therapy, the biggest side effect that risk with magnetic field therapy is the urge to put on a cape.

You can wear as many cases you want, you can have as much urges you want. Just don't try to jump over anything at all. So one of the side effects of magnetic field therapy is the Earth to put on a cape.

– That's beautiful. Well thank you so much bill for spending an hour with us today and helping us understand electromagnetic therapy and some of the fascinating possibilities for for longevity. Thanks again and thanks so much for the work that you're doing. – You're very welcome.

It's very enjoyable. It's always fun to have to help people get better.