Introduction to Dr. William Pawluk

– My next guest is someone that I've gotten to know quite well over the past couple of years and he is the foremost authority in P. E. M. F, which is pulsed electromagnetic frequencies and I am using one of his devices right now for my hip flexor, which is a little bit sore.

So I'm a huge fan of him. His name is Dr. William Pawluk or Bill Pawluk and he's a medical doctor. He is based in Baltimore. He's had he's had appointments at the University of Maryland and also johns Hopkins and he's studied so much around holistic medicine, you know, early on and maybe we'll get into it. He saw that there were limits to what traditional medicine could do. And so he started exploring and he's he's worked in the field of acupuncture, homeopathy, hypnosis, Bodywork, energy medicine, nutrition, functional medicine. So he's got a wealth of information and and knowledge but he's chosen to really become an expert in PEMF, which I'm a huge fan of. I've got actually two of his machines.

I've got one of the bigger machines that I have uh in our guest bedroom that I lie on a mat every day. And then I love this little machine that that he also produces that I just showed you because I can take it around with me wherever I go.

I travel with it. It's really, really cool. Bill has been on Dr. Oz, he's hosted holistic health shows. He's done over 50 TV magazine radio interviews. So people are seeking his information out and I'm really excited to bring him to all of you.

So Bill thanks for being with us today. – Thank you very much for having me Tom I look forward to our I always look forward to our conversations. Yeah look forward to this one as well. – Yeah. So you've learned so much beyond what traditional medical school taught you and you've worked at medical schools, you've taught at medical schools. How did you settle on PEMF being the thing that you were most excited about and you've written books on it, You you help people with it all over the world. How did how did it come to that where this was such a passion for you?

– Well as a basically an inquisitive family doctor, I've really not been sort of like A member of the pack per se. I was a member of the pack in fact, that was the medical director of a medical group in New Jersey that 14 family doctors in the medical group and the biggest family medicine medical group on the whole east coast of the us. Um And you know when you're dealing with people all the time, you're trying to constantly solve problems for them.

Now if you are, I think I I consider myself an unhappy doctor. I'm not happy until I can help you or solve your problems for you. I learned over the years. Is that every every discipline whether it's acupuncture or homeopathy or nutrition or medical medicine.

And even within the house of medicine there's the surgeons and the the internists and the uh alla pass and the D. O. S. Et cetera. All of these sort of houses are part parlors as I call them.

They all have their thing and they do what they do and there are limitations to everyone.

Why PEMF Became His Focus

So acupuncture has its limitations, chiropractic has its limitations. Naturopathy has its limitations. And the key thing for the for the doctors is too, and this doesn't happen as a result of training.

It takes 5 to 10 years after graduation, after you get into practice to realize what the limitations are and then you have a choice, everything right, What they don't teach you at Harvard business school, right?

What you learn, what you learn in reality and what you learn is based on what you see. If you happen to be living in

Africa, you're gonna see a different set of conditions and diseases and problems that you have to try to solve and the problem you're trying to solve in say africa vs. Sri Lanka versus china or Nepal are going to be different. Those environments are different and so your tools and resources are different and the people's attitudes and perspectives and beliefs become part of the picture. So you adjust what you do to the environment you happen to be in.

So as a family physician, I dealt with the resources that I had the problems that I had and my my turn basically um and basically I was frustrated throughout this whole process anyway so and as an unhappy doctor I'm in a sense always unhappy because you're not going to solve every single problem that you see.

And not only is it based on what I would do or what I would recommend, it's based on what I'm handed when somebody walks in the door. I never know how I'm going to have to deal with that problem or those problems and you have to figure out what are the best solutions and the more tools you have in your toolkit the more likely you are to solve more problems.

Remember meeting a doctor once from the U. K. Who said you need at least three or four disciplines to be able to be to do adequate work for whatever walks in the door. And since then I've expanded that and said no you need a lot more than those three he was talking about and he was talking about nutrition, environmental medicine and acupuncture and homeopathy.

So the fourth one was homeopathy. So you take those you can solve a lot of problems but that still doesn't solve all problems. So I tried all these different tools like you mentioned.

So each one of those things that I studied, they all have their limitations. And so as the more I worked with different devices and then as I started working with magnetic fields I realized that magnetic fields by themselves did a lot of the things that many other tools are doing. So if you had one resource, you only had the money to be able to use one resource.

You have to choose between laser or red light therapy or acupuncture again or nutrition. So if you did one tool, what would that to treat the most provide the most solutions.

Turns out that magnetic field therapy is that tool and you can combine all these other therapies with magnetic therapy. But if you can only afford one tool, magnetic field therapy would be would be the most useful of all of them.

Unfortunately, magnetic field therapy is not just a magnet off your fridge. You can use a magnet on your fridge for that. But it's only going to it's going to be limited or you can use the magnetic system that you have the flex post that has limitations as well. In an ideal world you probably need four or five different magnetic systems to deal with the breadth and width of the problems that you encounter. So I started magnetic therapy because people were dying or almost dying from conventional medicine from medicine itself, the treatments themselves and in that case it was a gastric bleeding from ibuprofen.

Right? So I said okay I need to find other tools to help with pain. And when I look at the hospitals, when I look at my my consultants, my specialists and I look at my peers, my friends and neighbors and family members.

Okay. They didn't solve those problems adequately either. So acupuncture, I studied acupuncture and I discovered that people didn't want to have needles.

So that was in 1990 needles. What stay away from me with those needles. So I started looking at other ways of doing acupuncture. And as a result I stumbled onto magnets.

So I started working with magnets and then I discovered that, – You just had a fixed magnet you were working with. Right? Not not a machine like I have? – No, not a machine like you have.

So basically you could take a magnet off a fridge, whether it's a flat magnet, Yeah, right or a button magnet and you can put that on an acre of pain and that will help you put it on an acupuncture point and it will stimulate that

acupuncture point.

So it will give you some of the benefits of acupuncture. But I discovered the magnets were doing more than just acupuncture. So eventually I stopped doing acupuncture altogether because the magnetic systems were doing more healing. Give you an example.

I had a bite, spider bite on my leg and I didn't even know that I got bit. I looked down and there was an area of itching is about the size of a quarter and it was swollen and red and itching. So I put a magnet on it.

I take the magnet on it three hours later was gone. How long does it take for a spider bite to be healed typically several days, even even two weeks, how bad it is and how long it's been there.

So I treated it early enough with the right tool. The right magnet basically went away but that you're not gonna that's not gonna treat your hip enough or strong enough. Yeah probably not going to treat a migraine adequately basically magnets then become a problem because you have to have many magnets all over the body taped on or find a way to keep them on your body.

So what works better, stronger and more effectively than magnets is pulsed magnetic fields. So that's what the flexible says it's a pulse field. The difference between a static magnet a fridge magnet static. Once you put that button onto your body right that you're relying on the body's natural motions but all the activity in the body to interact with that magnetic field and then that produces the benefit.

But that's passive. In fact I went to visit the chief of biomedical engineering at johns Hopkins and I said what are these static magnets doing? How are they helping the body said what? They don't help the body?

What are you talking about? I have lots of evidence that helps the body. We can't explain why it would do that. But a pulsed magnetic field I can understand that the physics of that he would understand.

So then I went back and I started studying more and more about what magnets work and I then get to realize there are these two universes of magnets, static magnets we call static or permanent magnets and pulse magnetic fields.

So along the way I met a doctor from the Czech Republic and because I was frustrated because I didn't have enough science to explain what magnets do and how to use them.

Even though I was seeing results and benefits, Why how and what can you do better with what you have? And this Dr. Jerabek for the Czech Republic had translated all this eastern european literature science on magnetic field therapies.

But it hadn't been published, hadn't been released. And it was written in Czech English, not english english. So he he gave me the manuscript. I revised the manuscript completely.

How PEMF Works in the Body

And then I published my first book called magnetic therapy in Eastern europe review of 30 years of research point in 1992 93. Already, It's been at least 30 years of research in the eastern and eastern Europe feel therapies and all the things they could do. So post magnetic fields are dynamic, they have more actively in the body because they're more active.

They go deeper then go wider uh and they can be more accelerate healing responses much faster. – Yeah. So, so explain a little bit what what the polls to elect electromagnetic frequency actually does in the body.

So the ones that I'm familiar with are yours which uh their machines. So I've got a big box and then there's a pad I lie on or I can do localized treatment.

And then the one I just showed you where I'm doing localized treatment on my hip. What's going on when I'm lying

on that pad or right now when I have this on my hip flexor, what's happening in my body. – Alright. So there are I'm going to be a little technical but not to their two important laws of physics. This is not my imagination.

There are actually laws of physics that was discovered in the 1800s linked to magnetic fields. And one law is called the Faraday's law of magnetic induction.

So Faraday discovered that if you pass a magnetic field past a wire in a loop and that wire is attached to a light bulb, you do a magnetic field pass that wire all of a sudden the lightbulb turns on. So that's called the law of induction.

So a magnetic field interacting with anything that can carry current. Right? – So this light bulbs, this light bulbs not plugged into anything. You just have the coil around it and it it likes the light bulb. – But think of it as a flashlight.

– Yeah. – So basically the light bulb is sitting there, it hasn't been turned on. It's got it's got a loop of current loop of wire doing nothing at that moment you have to put a charge into that wire.

You have to create electrical current in the wire on the light bulb. The magnetic field interacting with that wire. The copper wire that induces electric current and then the light bulb turns on. So about that principle, if you take that magnetic fields and you pass them into the body, right, it's going to interact with any charge. Anything that can carry charge.

And the body is not tissue. We think it's tissue. But what makes the tissue molecules otherwise? Chemistry? What makes the chemistry work? Is physics Faraday discovered the laws of physics that if you pass magnetic fuels through through tissues that have charged to them, ions electrolytes, right? They have a positive charge, a negative charge. Once you start interacting bingo, you start turning on charge in the body, wow. So what are you doing?

You're increasing the energy in the body. The body is doing it. The body is producing the energy. The magnetic field is simply the stimulus, magnetic field passes completely through the body.

Nothing in a body stops or slows down or uses up a magnetic hell. That's that's another very important principle of magnetic field therapy. It goes right on through. Just think of it this way, it's like the wind blowing in the trees. You don't see it.

The only reason, you know it's there is because the leaves or the branches are moving well the same thing happens in the body when the magnetic field goes through the body.

Like the wind goes through the body is activating the tissues of the cells and the chemical processes in the body that then initiates capacity for the body to heal itself.

And so when you do that, when you increase the charge of the body, you can take a wound That would normally heal in 2-4 weeks, pass a magnetic fuel through that wound and heals it half the time.

– So it's stimulating the body's natural healing capabilities is what it's doing. Right? – Correct. Yeah. Everybody uses that charge now to do more work.

So I'm putting a magnetic field into the body. I'm basically telling the body work harder. Like athletics where you want to run, right? You have to run, you have to use energy burn energy and you need the fuel and need the energy to be able to run.

Yeah, those are causing the body to run hard. Take a fracture. You can heal a fracture in half the time. – Wow. And what other types of things. So we've got wounds, we've got fractures.

You talked about pain. That's a huge one, right? For Yeah. What other types of things because I know we have people listening that you know have all sorts of different ailments.

That's why they're here at our global energy healing summit. This is this is like a way to plug energy in, Right energy healing. – Safely. – Safely. Yeah. And we'll talk about the safety in just a minute, But what other types of conditions can this be helpful for?

– All right. So, people people tend to think. The doctors tend to think of conditions shoulder pain, yeah, pain of any kind of heart attack. Um Asma, um infections, bruises, cuts, etcetera. We tend to think in terms of the problem, but what happens is most problems have very common actions that are part of those problems. Inflammation is a common action.

Lack of energy is a common action. Um They need to heal, they need to rebuild tissue to make new tissue decreased swelling, improve circulation, decrease inflammation. So all of these are actions of magnetic fields and they work regardless of the problem. What they're doing is they're working in the body and the body says, okay, if I have a fracture, then what I wanna do is reduce the pain. I want to reduce the swelling.

I want to improve circulation to the area of the fracture while decrease inflammation, etcetera. So, you get all these actions that magnetic fields have now get invoked by the body and the body does what it needs then to fix the problem.

So, it really doesn't matter what the problem is. It's going to help the tissue. It doesn't matter whether you're a dog, a camel, a pig or a bacterium.

It's gonna act on all biological processes that have structure to them. – So pretty much can help with with most things then almost anything because it's going to increase circulation. It will decrease inflammation.

Uh it'll stimulate energy, right? It'll do things. – Regeneration and repair. – Yeah, Yeah. It's it's like a it's like a great helper to the body's natural ability to heal where it just makes it quicker and easier.

Right? – Sure. You're using the body itself, you're using the body's own natural resources to be able to do it better faster. So when you cut yourself or I cut myself, I'm relying.

And when your surgeon cuts you an appendectomy or some kind of surgical procedure, you have a wound that wound has to heal. What does the surgeon do to help you to heal your wound? – Right. So you say, okay, fine, come back in two weeks, we'll take those sutures out.

The surgeon does nothing to help you to heal yourself. So, what we're relying on is chance. We're relying on the natural ability of that body to heal itself. Magnetic fields remove chance.

– Yeah. – They dramatically decreased chance. Now you're providing more energy into the tissues. And that energy then is used by the body to work better than it would normally work by chance.

– And I know your goal probably is too to have some sort of energy PEMF mechanism in everybody's home, right? There may be a lot healthier. Right. Yeah, exactly. – So we all have nicks and scratches, right? Yeah, nicks and bruises and scratches and cuts and and athletes often focus on performance formats relies on a on a body to be optimized in its working.

So anybody who's doing magnetic field therapy and wants to improve performance without having an injury automatically improve performance. Because if you can increase A.

T. P. By 200 to 400% https the energy of the south the energy production processes of the cell magnetic field stimulation of the tissues increases a TP production by between 200 to 400%.

So that energy then is available to do the work of the body whether it needs it for healing or whether it needs it for just rebalancing itself or to decrease or slow down its aging.

Yeah and magnetic fields for example with is one of the actions of magnetic fields, magnetic fields actually increase

the amount of telomerase in the body which makes it longer.

Which makes us age less or more slowly. – Yeah I think you told me to that PEMF stimulates the production of more stem cells, is that correct? – Absolutely.

So how do you how do you repair a cut? You need to generate D. N. A. And R. N. A. You need to get fiber blast. You need all kinds of connective tissue supplements to come into the area of the wound. And telomerase and stem cells are the two biggest components of those tissues being able to repair stem cells.

Especially a lot of people these days are getting stem cell injections and they're paying 4000 to $12,000 for stem cells gotta feel stimulate the stem cells.

They not only stimulate the stem cells, they make them help them to differentiate. In other words, to grow into the tissue that you wanted to grow into to heal.

That they have to survive there too, survived in the environment they get put into and they have to last.

Conditions PEMF Can Help

So once they've been generated and they didn't differentiate into the tissue, they then have to last in that tissue can grow a garden in a swamp. You stem cells are helped by PMF therapy as well. You probably shouldn't be wasting your money on stem cell therapy unless you're doing PEMF therapy.

– Yeah. Okay, good. But if you're doing PEMF therapy, you're you're generating some increase in stem cells anyways. Yeah, really, really cool. So people have heard uh you know, PEMF may be new to people, they hear E. M. F. And they're like, oh be careful of E. M. F. Distinguished between P E.

M. F. And E. M F. If you could please like the things that come off of cell phone towers and things like that. – So P E. M. F. Um its pulse. So it has a rate to it, static magnet is fixed, it doesn't move is going like this. So it's much more dynamic and we can talk about frequencies and how fast it's going. But the most important thing based on Faraday's law. To go back to that law is the fact that the magnetic field is moving into the body as it goes into the body.

Again, it's like somebody pushing you your body has to react to being pushed and you try to maintain your balance when you've been pushed. Well, magnetic fields are doing that into the body so it's a pulse and that pulse as it goes into the body then generates all that charge of the body. E. M. F. R. Environmental magnetic fields there in the environment and they get sent out into the environment like radar and like radio waves and tv waves and so on. They are out into the environment microwaves which comes from cell phones right there basically going out into the environment as well. A P E M. F.

Is generated by a current flowing in a wire anytime you have current flowing in a wire, you're gonna have a magnetic field associated with it. And that current is flowing through the wire. This is called the right hand rule.

The magnetic field is produced in perpendicular to the flow of the current. So every time that pulses, this goes out, the magnetic field goes out. So the ones that go out in the environment are what we call open loop and the ones that are produced by current in a wire are closed loop, it always collapses back onto itself doesn't keep going to infinity.

That's the major difference. And because the other kinds of E. M. F. R Frequencies frequencies have wavelengths and they can be extremely long and hundreds of miles long or they can be extremely short.

The ones we worry about the most are the ones that are shorter than the body. Either in width or depth or breadth or length. And if their microwaves they get their extremely short which means they get absorbed by the body.

That's the principle behind microwave oven cooking something and a cell phone attached to your ear is going to

cause redness of your ear. Yeah. Just put your hand to your ear is gonna turn minimally red. But if you have a cell phone you can see the ear is quite red because the microwaves in that cell phone or cooking the ear right? The E. M. S.

Are not designed for health purposes. Yeah they're designed for communication. The body just happens to get in the way. – Yeah. Yeah. So so somebody that wants more energy maybe they're a little bit fatigued PMF is going to help them with their energy.

Already talked about that like increasing the A. T. P. By 2 to 400%. That's really amazing. – And it does that locally. It may do that to some extent throughout the body. But that that energy creation gets used up very rapidly by the body. Yeah. Expected to a 10 minute PEMF treatment and have that ATP. Production last for hours and hours and hours.

It may not. – So let's talk about treating with PEMF, What what is the typical uh like like even just somebody preventative or anti aging? How how often or how long and how often should they do PEMF treatment? And probably depends upon the machine they're using and you're an expert. You've got you've got I think even guidebooks, people can access that that tell them a bunch of infirm before you answer the question, where can people go bill to find your your books and and the information that you have around PEMF because it really is great information.

– Well the website is chock full of information and for many people it's overwhelming. But there's a huge amount of information is a big library of information on drpawluk.com That's D R P A W L U K dot com. Okay.

And then the two books, I'm not going to refer you to the eastern european research because it's just research. The two useful books that I recommend for.

People are power tools for health which has over 500 scientific references. Less of a guidebook is more informational, but less of a guidebook. And then the guide book is called Supercharge Your Health with PEMF therapy.

That combination the combination of those two books actually gives you a full basic resource. Yeah drpawluk.com. And the two books. – Okay, good. So D R P A W L U K dot com is a great resource.

And And so uh like you're a healthy person, how long do you? How long do you how often and how long are you using PEMF during the day? – All right. So this is where it can be confusing ultimately, the individual has to make that decision.

Okay, think of it this way. Remember, we're influencing biological processes and biochemical processes in the fields to do all the things that they do with healing. We have about 100 trillion cells in our bodies.

100 trillion. Depending on the estimate somewhere between 60 to 100 trillion. Every single cell in the body has about 100,000 biochemical processes per second. – Happening in all of us right now. That's amazing.

And the body does it all the cell does it all. So how much treatment time do we need? First of all, the answer is you can't overdo it. – Okay, So there's no there's no adverse side effects to over doing it. Not really help the cells ignore the magnetic field, healthy cells don't need the extra energy.

Treatment Frequency and Device Selection

They've got enough energy there. If they're damaged, they're hurt or if they're inflamed or if they're aging, if you just went out and ran a 10-K race, you're hurting, right, You need help and you can either let your body take care of itself and cross your fingers, right? Or you help it to regenerate and recover.

So, we don't know the problem is we just don't know some effects of magnetic fields last for days, Some effects of magnetic fields last for seconds. So depending on the problem, depending on what your goals are.

You may find that you can do an hour treatment or half hour treatment once a day and that that's all you need. But it depends on what your objectives are.

So we've given all those processes that are going on in the body continuously. Generally speaking, the more treatment time you can give it, the better the results will be average person for health maintenance.

Now, if your 70 year old doing health maintenance, that's a whole lot different than a 40 year old doing health maintenance. Unless you happen to be a professional athlete, you're playing for one of the NFL teams, you're hurting your, Especially if you're 40 years old, playing for one of the NFL teams you're really hurting, they turn 40 when they're 25, right? Because of all the harm that they themselves to. So you may need to do more treatment more often depending on what what kind of lifestyle you have.

My usual recommendation and then you're gonna have to, the person's going to figure out based on the device they have problems they're treating, how much time you need. So if you find that you do a half hour, twice a day on a whole body magnetic system or even with the flex balls and it takes care of business, that's all you need. It doesn't take care of business or let's say for example with pain, if you're dealing with your flexible for a hip problem and the pain goes away and doesn't come back for four or five hours.

Well then maybe you may want to treat again in four or five hours. On the other hand with a low intensity magnetic fields, like the, like the flexible, you may want to do it for hours at a time in order to get sufficient healing that when you go to bed at night, you're going to be much more comfortable in bed.

The answer is it depends on the problem and the person's objective. So there's no really good hard and fast rule, it's not like taking an aspirin one aspirin and you're done. – Yeah. Yeah. So yeah, and and not all machines are equal, like the flex pulse, which is a great machine because I can travel with it.

It's very, very uh compact. You know, here here's part of it. And then it's got a actually can do to but I've got one of the, one of the applicators on my hip. So when I'm using that, let me put it back down there is working really well today.

I love this. Uh so that's but you say that's a lower power device, right? Still works great because it's it's mobile, you can travel and put in your pocket and have it on your back, you know, wherever you want while you're traveling.

But then you have more high powered devices too. And I've got one of your high powered device that you can really feel it like you can hear it. You know, you can actually hear it pulsing and uh you can feel it you feel like yeah it feels like a little tap. Yeah. So so how does somebody figure out?

And I know you are an amazing resource, How does someone figure out the right device for them? Do you do consulting on that and help them with that? – So that's one of the aspects of finding information on what you should get.

You charged your health book has guidelines you have to decide do you want to have just a local treatment like that operated and lower intensity. So you have to combine the area that you want to treat the intensity that you need for for what you're trying to accomplish. And and that's the basic decision.

Then you have a battery operated machine uh The stronger machines have to be powered so they need an outlet at power outlet to be able to accomplish that.

So there's a range of intensities. A key on my website on drpawluk.com. Unless you have the book, if you have this book, supercharge your health as an appendix about a dentist scene.

So the dentist and receptor is responsible for inflammation. And research has shown that 15 goes so goes is a measure of magnetic field intensity G. A. U. S. S.

15 goes is the optimal magnetic field intensity to help with inflammation. But then we have another law of physics

called the inverse square law that the magnetic intensities drop off very rapidly as you move away from the applicator.

You have to account for the intensity and then you have to account for the for the distance that you're trying to treat. So if you read the dentist, a blog on dr Pollack dot com or you read it in the book, Then that tells us that we need 15 ghosts at the target issues like even the skin to decrease inflammation.

But if you're working deeper into the body, for example, you want to treat across the brain or concussions or Parkinson's or M. S. Or head injuries. Um then basically you need a stronger magnetic field.

So to go across the brain and deliver 15 goes through the brain and across the brain, about 4000 Gauss deliver 15 across the brain. So you kind of so the book gives you those kinds of guidelines. What are you trying to accomplish?

And what devices are there to do that? That will will do that for you. That's that's where I'd go for that science because you can't really do harm with it.

I would say that you're, most people are gonna be better off with a high intensity machine. So if you can have at least ghosts. So 200 is stronger than 15. Right.

Right. So it's not gonna work that deep. The other most important thing to understand about magnetic field therapy is that every magnetic field therapy treatment to the body is stimulating acupuncture points and meridians.

So that's one of the key mechanisms of action of PMS. I stopped doing P acupuncture therapy because magnetic fields can do that and more so you have to sort of figure out for yourself and the supercharger health book provide you the best guidelines for what, what devices to get and use.

I guarantee you though price is gonna matter. Unfortunately there are a lot of people and probably a lot of people listening and watching who may have already spent $6000 for a one ghost machine or one ghost machine. Right. Multilevel marketing, That's what happens. You can spend $6000 for a one ghost machine.

Always, always, always ask the for the intensity. Yeah, I don't know the intensity that you don't know what you're buying. – Yeah. So the one gauss machine is not going to do a whole lot. – Well it's going to stimulate the acupuncture points and meridians. So you still feel good with it with the treatment, it's not healing because it doesn't have the energy to go deeper into the body to heal adequately.

Like the brain or the heart, heart or through a spine or across the hips right officially. Can help superficially, but it may not heal deeply into this. So if you have arthritis in your hips or your knees, 15 gauss or one gauss is not gonna work, you have to you have to go higher.

– Yeah. Yeah. But some people are paying too much for not a whole lot. Yeah. Okay. Okay. Cool. Well you've been a wealth of information. You've been so helpful for me over the past couple of years and and you're just you've got a huge heart and I know you love helping people. I'm so glad we were able to have you on here and again, go visit uh Dr. Bill's site Dr. Pawluk P A W L U K. No. C, but L U K dot com and check it out. I'm a huge fan and it's so good to see you again. Bill. Thanks again for being with us.

– You're very, very welcome. I always enjoy our interactions. It's always a pleasure.