Introduction and Guest Background

avocados and olives and coconut and grass fed butter and ghee and MCT oils and pasture raised eggs. I mean, how hard is it to when you're buying eggs?

And I know your dollar counts and I know you're standing there in front of the eggs and looking at it, but this carton is cheapest at the end of the year.

If you bought the pasture raised eggs every time, you're probably only spending at the end of a year for as many times as you buy eggs, maybe 20 to $40 more at the end of the year for eggs.

I mean, it's not that big This is doctor talks. Real talk from real doctors. Only issues that matter to you most. Today's episode was previously recorded on the Pain Solutions Summit that I hosted.

This is Doctor Pollack. Today I have a wonderful special guest. Very amicable and bubbly person who is going to tell us all about herself. So this session is about mitochondrial function.

And I'm introducing you to now to Laura Frontera to tell us about herself. First. And then we'll dig into the topic on mitochondrial function. Hi, doctor.

Golic. Hi. Great to be here. Boy, do we have fun when we get together. This is going to be a good one. I look forward to it. Yes, sir. So I, I'll tell you a little bit about myself.

I am a Western medicine trained nurse practitioner, and I spent many years actually working in preventive medicine to begin with. And it wasn't until 20 years into my career that I learned about functional medicine, integrative medicine, other ways to help people heal their bodies.

And what I realized looking back at my career is preventive medicine in Western medicine was really more about early detection, not really about prevention.

So you think about that. We we talk about prevention in a Western perspective as being breast cancer screening colon cancer screening, prostate cancer screening.

Think about that. It's a screening for early detection. It's not actually preventing the problem in the first place. And the extent to which we prevent problems is pretty minimal because we don't really focus on nutrition.

And when we do focus on it, we're not actually giving the best advice. So an example would be for people with diabetes. We say use artificial sweetener instead of sugar so you don't spike your blood sugar.

But that's a host of chemicals and toxins that you're putting in your body and causing all kinds of problems. So. So after 20 years of, being in the Western model, I found functional medicine.

And this is where I live now. This is where I love to be to help people heal their bodies and truly prevent chronic health conditions.

What Mitochondria Are

So I'm excited to talk about mitochondria. I have a little bit of an obsession with them because in my training in functional medicine, one of my mentors that I studied with was really love mitochondria, and I learned that without

supporting mitochondria health, all the things that I'm trying to do to help people heal their inflammation and their chronic health conditions and their gut health and, you know, live longer, vibrant, wonderful lives.

It can't happen unless we support mitochondrial health. So here we are today talking about mitochondria. And and I'll say that when I was a kid and we all had to take biology class to get out of high school, right.

So if you remember biology class, the moment that that teacher started talking about mitochondria and the Krebs cycle and ATP energy production was the moment that most of us check out, because it's really boring stuff.

So my my goal is to make this fun and interesting and speak in stories and analogies and make it not boring because biology really, I didn't love it when I was a kid.

I love it now. Not so much back then. So, so that's a little bit about me. Well, fantastic. So now you're a mitochondrial expert? Yep. And we appreciate you your expertise on on our, our, summit as well.

Well, okay. So mitochondria let's assume that people listening know nothing about mitochondria. Yeah. So what are mitochondria? Are you tired of living with? Chronic pain?

Medication only masks the symptoms, but real healing starts at the cellular level. I'm Doctor William Pollack, the leading expert on PMF therapy. Past electromagnetic field Therapy is a science back drug free solution that helps reduce pain, speed up recovery, and improve overall health.

Right from the comfort of your home, take advantage of an exclusive 10% discount on Doc Arcom PMF systems. There's a doctor ball scam that's Dr. W Al Newcomb.

We register and claim your savings. This limited time offer is available only to registered listeners. Don't miss your chance to experience the benefits.

Terms and conditions do apply. Don't just manage pain. Transform your health. Visit Doctor park.com today and let's get started on your healing journey.

We got. Yeah. So I like to talk about mitochondria and really simple terms. But the overall concept that you get to understand here is that think of mitochondria like your life force.

And we call them the powerhouse of your cells because they make 90% of energy in the body. And we can dig into that. And what that means. I personally like to think about energy in two ways.

I like to think about it like physical energy, the kind that we feel throughout the day. Like, do you in the mid-afternoon, do you have a slump and lose your energy, or do you feel energy to last you through the day until it's time to wind down and go to bed?

And then there's this invisible energy that's happening in our body, and that's the kind that we don't notice. So that's that's like cellular energy. It's required for gut healing and restoring and immune support.

And making your heart beat, and your lungs work and your brain function and your nerves fire. That's invisible. We don't know that's happening. So mitochondria are responsible for all of that now.

And they're responsible for a lot of other things that we can get into talking about as well. But first let's talk about what these little guys are anyway.

These little teeny tiny microscopic organelles that live inside of our cells by sometimes the thousands inside of a cell. They're so small. And so to help you understand these guys, I like to compare them to house plants.

So bear with me. So with house plants, and mitochondria, we like to think about location, living conditions and function. So those three things location living conditions and function.

So in terms of location, let's think about a house plant and then and then relate it to a mitochondria.

Mitochondrial Origins and Functions

So a house plant it lives in your house right. They live inside of a room in your house and usually in a specific location. So a house plant will live on a windowsill or sitting on a shelf or maybe inside, or hanging from a hanging device.

Well, mitochondria similarly live in a certain spot. They live on an inside of an individual cell. And that might be a brain cell, a liver cell, a kidney cell, heart cell, a muscle cell, and so on.

So now you have that kind of microscopic location. Now that location is inside of a bigger structure. So it's in the living room or the dining room or your bedroom, just like the mitochondria are inside of the kidney, the liver, the heart.

So a bit of a bigger space. And that is housed on an even bigger level inside of the walls of your home. So think of that like your body, you being the house of where all these things happen.

So we just get down on the granular, granular level of thinking how small a mitochondria is. Now, living conditions are important. So given the right conditions, your mitochondria will thrive and grow and they'll even reproduce.

And guess what? So do house plants as well. So for those of you who don't have a green thumb, you know that house plants are fragile and mitochondria are also fragile.

If you withhold what they need, they will die or they will malfunction. And house plants are the same. They die, they limp along. They don't look so good.

They need the same thing. Mitochondria and house plants need clean water, sunlight, nutrition and they need you to be nice to them. So studies, studies show if you talk negative to your house plants, they're more likely to have stunted growth.

Actually, people have studied this. And it's the same for your mitochondria. A stressful and negative life will yield lower mitochondrial function. And then the final concept here is just function.

What's the function of the mitochondria. What's the function of a house plant. Because the house plant does have a function they create life giving oxygen.

House plants do and they help remove toxins from the air. In fact, you can use house plants to clean and purify your air. Put a whole bunch of house plants and you may get a similar effect of bringing in an air purifier and house plants are much less expensive, and they're beautiful.

And it's the way nature intended the air to be cleaned. Well guess what? Your mitochondria are very similarly to house plants. They create life giving ATP energy, and they also assist your detox pathways to keep you flush of toxins, plus a whole bunch of other things.

So there, Doctor Pollock, is my very simple explanation of mitochondria and, how we how they live and work and how fragile they are. We really have to be good to them.

Now, I don't know if anybody's interested, but I've always found it interesting. Where do these things come from? Mitochondria. Your body was designed to heal, but illness, chronic disease, stress, injury and time can slow that process down.

What if you could restore your body's natural ability to recover, recharge and feel its best? The key to healing is giving your body the energy to repair itself.

PMF therapy does exactly that. Recharging your cells, improving circulation, reducing inflammation, and helping you function at your best. For decades, I've studied this technology, work with hundreds of medical professionals, and have thousands of people reduce pain, regain energy, and take control of their health.

However, not all PMF devices are created equal. No one size fits all. We offer personalized consultations so you can find the right device for your needs.

Backed by real science and trusted results. If you're ready for a real solution, let's talk. Schedule a consultation at doctor pilot.com. That's Dr. VA Outlook.com.

Because real healing starts at the cellular level. Well, they actually come from our maternal DNA. So they're being passed down from your mother to mother to mother.

They're very old DNA. And, it's part of our genetics. So it's really important as a me, as a mother and anybody watching, female, that you do everything you can right now in your reproductive age to pass on healthy mitochondria to your offspring.

This is really important. Yeah, that's very interesting. And that's, that's critical during in, during pregnancy. And so many women get pregnant, don't even know they're pregnant.

And they don't know how to deal with pregnancy, right? They don't know how to take care of themselves anyway. Right. So often the first pregnancy is a challenge.

Talk about stress as well. Yeah, but mitochondrial genes come from what. So mitochondrial genes they come. Well you're stumping me. Where where are we going with this bacteria?

Yes, sir. Bacteria, right. Yeah. They do. Come look at it. Under electron microscopes and mitochondria. It looks like a bacterium. Yep. Right. A very ancient bacteria. Yes.

So they are commensal with us. I mean, we we totally depend on them. So somewhere in that evolution of the human, the species, we incorporated mitochondria, just like we incorporate bacteria and viruses in our bodies, like we have a microbiome.

And that's going to lead to the next point that you're going to make. Yes. Just like we need a microbiome, we need those bacteria because they have functions in our bodies.

We tend to think of bacteria as being bad. Right? I think most bacteria are not bad. Yes, our bodies control them. They become bad because we haven't developed the proper controls. Yes.

So go to your next point. Yeah. So let's talk about the function of mitochondria. So we understand where they come from and where they live in our bodies and that they're fragile.

They have some they're very powerful. As fragile as they are. They are quite powerful. And there's many, many functions of mitochondria. But three main functions that I like to outline for you would be cellular respiration, energy, ATP production.

And then there's this whole concept of the cell danger response. And after we talk about this, we're going to get into the importance of PMF as one of the ways that we help maintain mitochondrial health as well.

It's a vital part. So in terms of these three processes, cellular respiration, I think of this like your cells having a biochemical process. And similarly, a good way to think about it is similarly to when you breathe, oxygen goes into your lungs.

It's move throughout your body by the bloodstream to your cells, where then the mitochondria use the oxygen, and then carbon dioxide is released from the cells and move back through your bloodstream to the lungs and exhaled.

Well, your cells also have their own biochemical process inside that occur to move waste out of the cell, to move what needs to be utilized by the cell for whatever the purpose of that cell is?

Is it a heart cell? Is it a brain cell? Is it a muscle cell? Right. Or kind of you're responsible for that cellular respiration, kind of the movement of things coming into the cell and out of the cell.

And then there's this whole concept of energy, ATP production. So this is the big one. When people think about mitochondria, they think about ATP. That is a unit of energy that's produced in something that's produced through something called the Krebs cycle.

And and then there's this intercellular energy transfer. And energy is stored as a chemical bond in the ATP molecule. Molecule. And it's released when the bonds are broken.

So that's a whole big complex thing to think about. But an easy way to think about this is ATP energy is like a currency, almost like the US dollar. For example.

You have to trade dollars to get what you need to get food to get to, to pay your mortgage, to have a car. Well, similarly in your body, you have to trade ATP for everything you do.

So just for the example of moving my little finger, there is a cost to that. In ATP it's a different cost. If I were to get up and walk across the room and go out the door, there's a cost to every breath I take to my heart beating.

And so you have this bank account of ATP and you're drawing on it. You're paying for all of these functions in the body, and as such, you must continually replenish that bank account.

You must continually put ATP, these units of energy back in. And that's what the mitochondria do. They make sure that you have that bank account, that currency, so you can spend everything that your body needs to function.

And then the third thing that I want to highlight is the cell danger response. So you mitochondria have this other critical role in cell defense and in defending your body against a threat.

And they can they can actually detect the presence of things like infection or inflammation or immune activation and the presence of toxins, which we talk a lot about toxins is causing a problem for mitochondria.

Well, mitochondria create an immune system response so that those two those threats and then they actually believe it or not, decrease energy production.

When that happens, it's wild.

Supporting Mitochondria with Nutrition and Lifestyle

So if you think about when you're sick and you get really tired and all you want to do is sleep well, one of the reasons that that's happening is because mitochondria are actually slowing down the production of ATP, because the invader that's in your body, the virus, the bacteria, whatever it is, it's going to use that ATP so it can be stronger and and reproduce.

And your mitochondria don't want them to take that energy. So it tamps down. It's kind of the same concept of why when your body launches a fever, we should let it do its thing because a fever is going to help kill bacteria or virus, and it makes us uncomfortable.

Yes, but it's actually a vital role of the body healing itself. Well, energy decrease when you're sick is also one of those vital role. So cell danger response is something that mitochondria do to protect us.

So next time you get sick and you're exhausted and you're frustrated about it, think about those mitochondria doing their job. That's actually part of the critical role.

So those are kind of the three big ones. When we think about mitochondria you know the mitochondria do all kinds of things. They promote cell growth and multiplication.

They're responsible for cell death and cleaning out old cells that shouldn't be there anymore. They generate oxidative radicals, free radicals or reactive oxygen species, which in large amounts can be harmful to us, but in small amounts they actually have a helpful effect on the body.

It's important to have that they support nervous system function. They help us produce heat so keep you warm through, non shivering thermogenesis. Their organs of metabolism.

They synthesize, biomolecules. I mean, you can't survive without mitochondria. So for the rest of this talk, I really want to give you an idea of how important they are. Right.

But for the rest of the talk, let's talk about mitochondria health and chronic health problems and what we do to fix to fix it. So I pause there, Bill, and have you put in your $0.02 here.

Well I think well, thank you for allowing me to put in my $0.02. Yes. The picture that that I'm getting the the body is a homeostatic mechanism. Homeostasis means balance.

So on the one hand, when you're sick, you need more energy to be able to help to defend you against whatever the invasion is. But at the same time that there's a cost to that, but there's also a risk of overdoing it.

So you, you don't want to overdo it to feed the bacteria, viruses or whatever. On the other hand you also have to be guard against depletion. So if you're constantly producing ATP.

Yeah. Is there enough is there a big bank of ATP in the body. Well, there is a bank of ATP, but there's so many factors that are going to influence how much of that you can produce.

And so you definitely want to support everything you can to support ATP production. So clearly he's making up for what you may lose. So every beat of the heart, every beat the heart has to produce ATP to make that beat. Yep.

And then between beats it has to replenish the ATP. Yep. Right. So if your heart's racing really fast right then it's using up more ATP, more energy. And again you're going to have to spend extra time to repair and recover.

And that's why wounds and surgery and infections, all of these require us to have downtime. So so we're not using extra ATP. So in other words, don't run a marathon when you have a fever.

No. So and this is an idea and this is what people do to they are sick and they want to push themselves. I got to get my workout in. It's going to help me get better.

And you actually might be causing a delay in healing and a lot more stress on your body. Right? So ATP management, ATP resource management is is a critical part of what we do as well.

Yeah for sure. All right. So go on the next important aspect and why you yeah. You do try to maintain ATP. Yeah. So, so in terms of maintaining mitochondria, restoring mitochondrial function, you know, some pretty common sense things to begin with, things that are really easy to do do not cost a lot of money.

And that is first off nutrition. So we got to eat anyway. You're going to eat every day multiple times a day. So make it worth it. Eat a nutrient rich diet and really eliminate things like refined sugar and processed grains and bad fats and artificial ingredients.

I use the example in the beginning about the person with diabetes being told to use artificial sweeteners, which is just makes no sense, right? Artificial.

So yeah, artificial sweetener, I mean, it says it right there in the in the name of it, eat greens and vegetables and

herbs and fruits and nuts and seeds and legumes and whole, whole grains.

I mean, really eat a variety of food, eat healthy fats. So avocados and olives and coconut and grass fed butter and ghee and MCT oils and pasture raised eggs.

I mean, how hard is it to when you're buying eggs? And I know your dollar counts and I know you're standing there in front of the eggs and looking at it, but this carton is cheapest at the end of the year.

If you bought the pasture raised eggs every time, you're probably only spending at the end of a year for as many times as you buy eggs, maybe 20 to $40 more at the end of the year for eggs.

I mean, it's not that big when you think about the the price for your health, right? So eat clean protein. You know, it matters when you're eating grass fed, wild, caught pasture raised, all of those things you're looking for in the meat that you eat and organ meats.

Here's another one. Organ meats are full of mitochondria and nutrients that are so good for us. So liver, kidneys, heart, tongue, brain, bones. I mean, it sounds awful, but if you can bring this in, it's so nourishing.

Now, some other things you can do that don't cost you a thing to fix your mitochondria and to manage ATP production. So intermittent fasting. So when you're fasting, damaged mitochondria are purged through something called autophagy.

The process allows the mitochondria to remove damaged debris, accumulated react reactive oxygen and nitrogen species. And helps clean us out. So fasting can be simple.

It can just be closed. The kitchen at 6:00 at night. Do not go back in there. Do not eat anything else. Make sure you're not eating at least three hours before bed, and don't open the kitchen again until 11:00 noon.

So for me, I've got my black coffee here. I've not broken my fast yet today, so I've had black coffee since I woke up. Kitchen closed last night at six, and after we're done with this interview, I'll finally have something to eat. And so that was super easy for me.

And in the beginning it might feel kind of squirmy to do it, but you get used to it and then you feel great. Now a 12 hour fast is good, so what you're doing is more like an 18 hour fast.

Yeah, well, I I've worked towards that. Yeah, five. But fasting from 6 p.m. until 6:00 in the morning, that's a 12 hour fast. Anybody can do that. That's what I call a break fast.

Right, right. And that's good for your mitochondria. So the thing is the problem is we go into our kitchens at 9 or 10:00 at night wanting a snack before we go to bed.

And now you've you've destroyed that window that, that 12 hour never causes you to have that need to go to the kitchen at night. There's lots of reasons for that too.

Yeah, that's there's something to work on that. Yeah. So then something else you can do, is you can move your body. So studies show that you get a 50 to 80% increase in mitochondrial capacity when you exercise with interval training.

So you don't have to go to the gym and do an hour workout. You can get up in the middle of your workday and just take a quick, brisk walk or, you know, lift some light weights and you can do that multiple times throughout the day.

And you can really support mitochondrial. It's free. It's just a matter of setting up a routine and a habit to do it. What you're doing is putting a demand on your mitochondria, right?

Yes, you that you're putting a demand on it, which means that, yeah, they're they can no longer be lazy. Now they

have to go to work. Yes. Yes, exactly.

And then sleep. Good. Sleep helps your mitochondria work better. So we know that anything less than seven hours per night decreases the amount of mitochondrial DNA in the blood.

And it causes poor cellular function. So sleep 7 to 8 hours a night and get a sleep wake cycle routine schedule going, so that you stick to it. And then sunlight.

Sunlight is so important. I mentioned that our mitochondria are like house plants. And they're it's important that within the first, you know, hour of waking up that you get your eyeballs on the daylight, even if it's overcast, it's okay.

Get get your circadian, use your circadian rhythm to your advantage. Be in the daylight. It's also important, at the end of the day, to watch the light change as the sun goes down.

And this can create wonderful habits of a morning routine. I like to go out and read in the morning for 20 minutes or so, right out there in the morning light, and then at the end of the day, when you're winding down, you can utilize that, you know, evening light to, you know, spend time with your loved ones, do something as a family or with your partner or, you know, take that deep unwinding time and it's really good for your mitochondria.

Yeah. And then that brings us to devices and things because let's not go to devices yet, okay. What else about stress and mitochondria. Oh yeah. Yeah stress is a huge one.

So stress okay. So chronic stress increased inflammation. It increases inflammation. It reduces your immune function. It increases fatigue. And so strategies to reduce stress include breathing meditation mind work therapy journaling hobbies time and nature, yoga anything uplifting.

And I know like there's stressors that are not going to go away, I get it. I mean, we live in a fast paced world. I'm a business owner, I'm a mom, I'm a wife.

I've got stress that's not going to go away. You know, the stress that kills me right now? I get emails from my daughter's school on the regular about her homework, her tests, her she got like she she missed points on this or that.

Like those little those are little shards of stress that hit me every day. I'm like, oh gosh, she she failed this test. What's she ever going to get into college?

I mean, these are the silly things that are hitting us all the time. And so managing your mind over that and being in mindfulness and and allowing yourself to shift quickly from those stressors, stress is absolutely a toxin.

So when we think about toxins from the environment, toxins from infections, toxins from the food we eat, stress is a toxin. And if you do not manage the stress piece, if you do not reduce the stress piece, you could do everything else perfect.

You could eat perfect, you could sleep, you could do all the things. Stress is going to be that thing that undermines your success. Every time. Now there are.

I know we're going to go to devices. Well, hold on to that. So okay. This is going to remind us don't forget to go to devices okay. There's genetics right.

Also involve what you inherit in terms your capacity to, to, have efficient mitochondria. There is autoimmune. So these days you hear more and more and more about mitochondrial disorders.

So what's probably the most common mitochondrial cause of mitochondrial dysfunction today.

Stress, Toxins, and Gut Health

Oh I would say toxins inside stress toxins I would say environmental toxins. And all the environmental chemicals, the toxins coming in our food, the air we breathe, the, the, products that we put on our skin, our cleaning products, the plastic that we're, that we're inhaling, that we're eating, that we're absorbing through our skin.

So toxins are huge toxins and infections. So we can add again, if you do everything right. But you're still loading with toxins. Right. And if you look at all of the cosmetic stuff that we use in our shampoos.

Get absorbed into our skin and into our bodies and they create havoc with the mitochondria and just cellular function in general. Right. So eliminate toxins as much as possible.

And there are there going to be components of the summit that will also talk about toxicity is so important. It's so important. And I would say for anyone here working with practitioners, you, your practitioner must have a way for you to reduce toxic load in the body to remove toxins from the cells.

It's so vital for restoring your health because you cannot your mitochondria will not function properly if those, toxins are not addressed. And, of course, it's removing the source of toxins as well.

But we have stored toxins that need to come out. Also. Yeah, and that's hard. Some of those toxins are very hard to get out. And it's a lifetime process.

And these days babies born today are born with over 200 toxins in their bodies. So sad. So, you're getting from a mother who wasn't aware over a lifetime, up to up to the time of pregnancy.

And then from then on, the children are still going to be continually exposed. Yeah. All right, so before we go to devices, let's talk about the gut. Okay.

So gut microbiome, this is, this is my happy place. So I think everyone can agree that all the food that we eat, it first goes straight into your digestive tract.

And in order for mitochondria to survive to do their job, they need nutrients. And that comes from the food that we eat primarily. So your gut is where food is digested.

It's broken down into smaller parts, so your body can then utilize all the nutrients. But here's the thing your body can't do any of it without the help of your microbiome.

It's made up of three main things the community of bacteria that live inside of us, plus the immune and the neurological axis that regulate everything and help it communicate with our body.

So your mitochondria are actually stimulators of the same immune and neurological symptoms that interact with your gut. So, for example, when we get food poisoning, the communication back and forth between the mitochondria and the microbiota, the bacteria that regulate the body's immune system response is critical.

There's, you know, two different sets of organisms in your gut, the bacteria and the mitochondria, which we've also established or come from bacteria.

They're communicating back and forth to keep everything going smooth and healthy. So what goes wrong here is first off a dysbiosis gut imbalance. It drives inflammation.

So we were just talking about all these toxins that come into the body. And this is one of the main drivers of dysbiosis and gut imbalance. And then you have this overgrowth of disease causing pathogenic bacteria.

Inflammation increases and this is damaging to mitochondria. So when we think about the the number one damaging thing the mitochondria inflammation when we think about underneath that what's driving the

inflammation.

What's causing it. Toxins. So inflammation and toxins you can't really talk about them one without the other. And so so really it's vital that in order to support mitochondrial health, you must support gut health as well, because the most up to date research shows that the thing that affects mitochondria the most is uncontrolled inflammation.

And the thing that's driving that for a lot of people is leaky gut dysbiosis. Because that barrier so your, your, your gastrointestinal tract or digestive tract is actually an open system.

So from your mouth all the way through to the rectum to the end, it's actually a big hollow tube that goes all the way through your body. And so that is that is being impaired when you have leaky gut.

That tube that's supposed to only allow healthy nutrients through is now allowing toxins that we're ingesting to get into the bloodstream and into the body.

So there's that connection between gut health. What I would say is you can't fix one without the other. You must address gut health when you're addressing mitochondria, support as well.

There. It's vital. And how do you do that. Well, with first off, those things that we talked about in terms of eating healthy food and eliminating toxins, you want to remove the infections, you want to remove the toxins, and then you want to support the body to rebuild that that delicate gut lining that's been compromised.

And you can do that with supplements. You can do that with nutrients. And you need stress reduction in there. And you can also do it with the support of electromagnetic fields devices. Yes.

We're going to hold on to the devices. We got to hold other devices. Yes, yes. So here we go back to devices. Well let's not go there yet. Yeah okay. Where else are we going.

So so the next, the next place I would go to, there is no mitochondrial organ. There's no pancreas that produces mitochondria. There's no heart that pumps mitochondria through the body.

Right, right. The liver that makes all these organs make their own mitochondria. But let's how do mitochondria get into the circulation? How do mitochondria actually spread beyond an organ or do they.

Well, mitochondria every organ has it's unique mitochondria that are specific to it. So for example the liver mitochondria are really good at supporting detoxification.

And the heart mitochondria are really geared towards that heart electrical system. Conduction and pumping system. And so mitochondria actually reproduce in the place that they are at.

So liver mitochondria make liver mitochondria and heart mitochondria make heart mitochondria. So this so so for example a liver mitochondria is not suited to support the brain.

The mitochondria are in their space. Kind of like how those house plants you've got a houseplant that is suited for the bathroom. It wants a moist damp hopefully sunlit.

Hopefully you got a window in your bathroom environment and that's where it likes to be. And then you've got the kind of mitochondria that might do better in a shady, darker place like the bedroom.

Maybe that spends a lot of time in the dark. So mitochondria are unique to certain parts of the body. Okay. So basically what you're saying is that mitochondria, it's not like, the pancreas which produces insulin and the insulin then goes into the circulation and then goes throughout the whole body.

Yep. That doesn't happen. The mitochondria not the same. Not the same thing. So every organ is individual for that. Which organ of the body makes the most ATP.

Well the brain. So your brain is like command, command central. So it requires the most ATP. Which organ has the most mitochondria per per cubic centimeter.

So this is I've heard debate on this. I have heard ovaries. And I've also heard brain. What, what is your thought on this? Actually, brain is high, but it's not the highest.

Yeah. So what is the highest? The liver. The liver. Yeah. So it's funny. And depending on what specialist I talk to, I get different opinions on this.

So I'm sure you have some science to back this up. But there are some study that I was reading about it when I was preparing for my, heart failure blog.

That's one of the questions I asked myself which organs have the most mitochondria? Because I assumed the brain, because it's constantly going. But the other organ that's constantly going has a constant demand for it.

For ATP is the heart. Right? So I was surprised. Yeah. No, it's the liver. Because the liver, if you think about it, we don't see it. We don't thump thump thump. We don't feel it.

We don't think it. But it is there in the background working absolutely constantly. It doesn't take a breath. Yeah. And and I'm sure the brain doesn't take a breath either.

So that's surprising to me. Right. It's not as big as a liver. Yeah. Yeah. True. Right. So it's not just a matter of density. It's a matter of size as well.

Okay. We can't avoid this anymore. Devices. Now let's go to devices okay. This is your zone of genius. So we're going to rely on you. But I do have one of your devices here to to share because I love it.

Yeah. Let's go ahead. So we've got one of your this is the flex pulse. And this delivers 200 gross. God Gauss with both of these little guys stacked together.

And, this is actually a really important piece when you're doing all the nutrition and the stress reduction, and you're doing the intermittent fasting, and you're moving your body and exercising, and you're reducing toxins and you're hydrating and all of these pieces, you can significantly improve the speed and the rate at which you heal and support mitochondria with electromagnetic fields therapy.

In fact, we were just talking before we started this, this interview today that without electromagnetic field, the Earth's electromagnetic field, we would really cease to exist, mitochondria would die.

And I want you to go in deep on how this works, Bill, because this is your expertise. But this is a game changer for people.

Mitochondria by Organ and the Role of PMF Devices

It helps not only with boosting your immune system and supporting detoxification. It helps with reducing pain. It helps with faster cellular reproduction.

I mean, from what I've learned about EMF from you, it feel like I want to be hooked up to 124 over seven. Well, we are. Yeah, it's called the planet. Yep. Right.

And the more we're in motion on the planet, the more charge we create in our bodies. So creating charge in the body is not just a matter of muscle movement.

Creating charges, crossing over field lines of the magnetic fields of the Earth. Any time magnetic field lines cross the body, they stimulate charge production in the body as well.

It's very weak, but you're still doing the same thing. So that's why movement becomes really important. Yeah, preferably moving, horizontally across the field lines.

So when you're perpendicular to the Earth's field lines, you're going to create more energy than if you're going up a field line. So motion becomes really important.

Now magnetic field therapy as you said it's not just about mitochondria. It's about all the other functions of magnetic fields. So here's where I can do the ad right.

Yes. Yeah. For the Supercharge Your Health with PMS book. So Supercharge health BMF therapy book. Here's the bill talks about all the things that magnetic Fields do and how to use them.

So when you dial in a PMF device, you're not picking and choosing what it's going to do. Your body is going to do what it wants to do with the stimulus that you just gave your body.

Like when you give your body glucose, you don't control what's going to happen with that glucose in your body. Everybody's going to use it whatever way it knows how to use it. Yep.

Right. So magnetic fields stimulate ATP. We know that for sure. So we go back to prevention. There are three kinds of prevention right. Primary secondary and tertiary. Yes.

All right. So basic epidemiology. So primary prevention is what you were talking about. Proper eating, proper sleeping proper attitudes. You know proper water all that's primary prevention.

So if you're doing all those right then you prevent things were happening in the first place. They just don't happen. So medicines perspective is because medicine today basically is based on an insurance model.

And the insurance model is a catastrophic model. It takes care of catastrophes. That's the purpose of insurance. Insurance is not available generally speaking, for prevention because prevention never sleeps, right. You're always preventing.

And there's no money. There's no money in of course there's no money in it. That's right. You know that you don't have enough money. There's never enough money.

There was an insurance company in Washington state that did an experiment with prevention, and they funded like 4 or 5 different, programs. They, they funded like 5 or $6 million.

They get enrolled people, and they gave them all this money to do all this prevention. It went bankrupt in six months. Why? Because it's not catastrophic.

It's not a one time event. It's something. Got to keep doing nutrition. You never stop doing nutrition right. You never stop sleeping. But you can occasionally do acupuncture.

You could occasionally do chiropractic. But there's some basic things that you just can't stop doing. So it runs out of money. That means prevention is our responsibility.

Primary prevention is our responsibility. So just secondary prevention is discovering problems early. That's secondary. So you're preventing it from getting worse.

He discovered early it doesn't progress. Tertiary prevention is helping to prevent prevent the complications of something that's already happened. So if you already have diabetes ideally you want to prevent it in the first place.

But if you have it then you want to prevent it from getting worse. And then you want to prevent the complications of that diabetes. So you got all three levels of prevention primary, secondary and tertiary.

Fortunately magnetic field therapy does. Which one does it do best. Oh my gosh. Well it it helps on all levels but primary prevention if you're using it before any of these problems happen it's going to be amazing.

It also will help you if you have the disease already. It'll help the tertiary side as well. So you tell me, Bill, which one is it best at or is it a trick question?

All three. That's it. That's the answer. All three. Which one is the best? It depends on what you've got going on right now. With primary prevention is you don't even know what you're preventing.

So you don't know where to put your money because you don't know what you're preventing. Now, if you have a strong family history of something, then you better work harder at preventing that than if you do other things.

So the good thing about magnetic therapy, it works, are all three levels of prevention. It works on the disease. When it happens, it works on the, the complications to prevent the complications from happening.

Right. So if you're in terms of primary prevention, magnetic field therapy generally lifts all boats. It lifts the whole body on that tide. Right. Because it increasing ATP. Yep.

So but the challenge with ATP is you got a nice little device there I do. So what's it going to help. Well explain it Bill I know you have I know you know the answer.

The answer is going to help where you put it. Oh, that's where you're getting that. Yeah. The location that you're putting it on. Yes. Right. So I'm going to move that location the most.

Yes I move it all around my body depending on where I want to be stimulating for the day. I ask you that question about an organ producing a hormone that's been released into the circulation.

So if you stimulate that or that organ that it'll produce more hormone. And then then there's more hormone available in the body in general, unfortunately, ATP, because of the way it's generated by the mitochondria, is a local phenomenon.

It's primarily local. So that means that you have to, in fact, treat the whole body. So ideally people really need to do a whole body magnetic therapy.

And then and the whole body magnetic therapy typically is less powerful. The coil is bigger coil. That means the energy level drops but the same amount of energy output from the control unit.

So local will give you stronger action locally, but very little ATP action distally. But because it does so many other things, local fibrillation still ends up producing benefits in the rest of the body as well.

Through circulation, through immune enhancement, you know, and so on. So I think ideally from a mitochondrial perspective, ideally you really need to be doing a whole body and then touch it up with local as you need it.

Yeah, I have goals to have a whole body machine. I will work with you on your goals to get a whole body. Yes, I'd love to put my husband in it too. He's, he's a landscape contractor. And his.

He's worked hard labor his whole life, and I know his body will love being inside of one of those every day. I do consultations on a regular basis that yesterday somebody told me basically the same thing that she laid down on the system.

Why don't you tell us your experience at. Yeah, yeah. So why don't we share that? Yeah. So Bill and I were together about a month ago at a medical conference, and he had one of his big full body devices there.

And so, so, you know, I like to look cute. And I had these really gorgeous Ferragamo high heels, nice, beautiful eyes. And I was walking around the conference floor on these for, you know, a couple of days.

And, and so here we were several hours into this particular day, and my feet were hurting. And Bill's up over here. Let's just get you on the let's get you on the big unit.

Right. So I laid down and I was sandwiched between two units and and I laid there for about, you know, 30 minutes. We had a wonderful talk about the meaning of life and everything.

It was wonderful. And, and then when I got up, the pain in my feet was gone. But not just that. My energy level was up like this. You know how much energy it's draining to be around that many people in the bright lights standing all day, you know, smiling all day, you know, just on your game.

It's a lot of energy, takes a lot of energy to hold that much, when you're just interacting with people all day long. And I felt so revitalized. I can go on for that. We had a busy evening ahead of us.

We had a dinner to go to and everything, and so it was like a full refresher. It was amazing. It truly was. So people. One of the comments I frequently make to people, they asked me, well, what's the biggest side effect of PMF therapy?

Do you remember what I said? Happiness was an up close joy. Well, it just feeling more energy. It for me, it was just so much energy. What was the thing? Right. You were very close.

But it's a metaphor. It's. It's hard to put on a cape. That's right. The urge to put on a cape. Yes, that's right, it's the urge. Because you feel super human with this. You do.

I felt like I could go through the rest of the day. Superhuman power. Well, fortunately, that doesn't last that long because as we talked about ATP, ATP recycles constantly, so you're constantly needing to replenish it.

And if you're depleted in ATP, then doing a magnetic field treatment, your whole body without reasonable intensity magnetic field. And all of a sudden you just basically zooming everything.

All the tissues now are making more ATP. Yes. Yeah. With ATP you're living paycheck to paycheck. You are, you are you're living beat to beat. Yes. You are absolutely living.

Be living beat to beat. Yes. All right. Do you have any final thoughts? Final call. Yeah. Yeah. So my final really what I would say is, you know, there's a lot of things that you can do to support your mitochondrial health, to support lowering your risk for chronic disease, to reduce inflammation in your body.

And what I would say is investing in your health is one of the it is the most important thing you can possibly do, because without it, you cannot be. You cannot leave a legacy for your family.

You cannot be productive in the world. You cannot be fulfilled if you don't have your health, you truly don't have anything. And what I know from working in the Western model for all these years is what the Western model has to offer is not truly prevention, and it's not even truly healing.

It's very reactive, and it's putting Band-Aids on health problems and investing in your health, investing in, in working with practitioners who can help you get down to the root cause and solve the problem, investing in devices that help you, that you can use over and over and over again for so many conditions.

It is so worth it. You will never be. You will never regret. You will never regret having something like a PMF device. I have a couple of them in my house.

I recommend my clients get them. I'm recommending my family get them. It's just you got to have an edge in today's world with the amount of toxins we're exposed to.

And, this helps give you an edge. So that's what I would say is get a device, and the sooner the better. Because I tell people all the time, magnetic field therapy does not raise the dead.

That's right. The sooner you start. Right. So that's a that's a key. You know, that's a key concept. The earlier you start on your healing journey, the better.

I mean, you and I both know this bill. It's much easier to heal a child than it is to heal a 50 year old and older. It gets harder and harder and to heal our bodies, the longer we wait.

And if nothing else, talk about cosmetics and beauty and, you know, ego and you know, vanity for them. If therapy works with all of that as well. So instead of aging rapidly, you start to change the aging curve and it's going to be up, up higher.

When you do all these things, you can't just do PMF therapy, you can't just do diet. You can't just do gut. You have to look at this as a complex, system and forgive yourself.

Forgive yourself for not knowing everything now and not being able to do everything today. Yeah, but give yourself a chance to start somewhere, one step at a time.

You know, the funny thing that comes to mind, too, is, you know, these things cost us a lot of money. And we replace them every couple of years because the technology becomes outdated.

You can own a device like this, and spend the same amount of money and it doesn't wear out. It doesn't need to be replaced, just keeps working. And so really I would I my last words would be really take a look at what you spend money on.

And the that vanity piece brought that to mind. Like look in your closet and the designer things that you have in there and the fancy things that you have around your house and the fancy car and the are you are you that invested in supporting your wellness and your well-being and your health?

And if you're not, I would I would invite you to reevaluate and start spending on your health. Well, that's a phenomenal place to leave. But before we do leave, tell people where they can find out more about you, or if you have other resources that you want to point people to, please.

Thank you. Yeah. You can find me at Laura frontrow.com. That's like the great frontier with an O on the end. That's how you spell my last name. You can find me on Instagram at Laura Dot Ontario.

And, and, you know, honestly, an amazing resource for all of you is this book and is Doctor Pollock's website. I'm all about supporting what you're doing in the world.

I mean, you have spent an entire career, bill. You don't need to be doing this anymore. You could you could happily retire right now. But your love for humanity and for healing people and for passing on your knowledge is is something that I really admire.

And so you want a good resource? Go to Bill's website because it is full, full of information and that's Doctor Polycom. Yeah, you should have, heard by now.

If you listen to more than just this interview. Well, again, I'm honored to have you share with us. I look forward to meeting you again and and learning further from each other.

Absolutely. Bill, thank you for this opportunity. It's been wonderful. It's wonderful. Enjoy your day. Thank you. Bye. Now. Thank you for tuning in to Doctor Talks.

We hope today's episode has enlightened and inspired you on your path to optimal health. Each day is a new opportunity to make choices that empower your wellbeing.

For more insights and strategies, subscribe to our podcast and visit our website w ww dot. Doctor Talksport.com. Stay connected. Stay healthy and join us next time on Doctor Talks.

Real talks from real doctors on the issues that matter to you most.