You Are The Architect Of Your Brain's Health And Vitality Transcript

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Introduction and Background

Welcome, David. I am so glad you agreed to be part of the Messenger Immune Summit. You are a good friend and you are one of the very best functional neurologists I have ever met and known.

So, David, could you please introduce yourself and explain your area of expertize? And then we'll get launched into our conversation? Sure. I'm not sure I have a really good answer for that because it sure has been changing over recent years.

I'm a classically trained neurology. Just practice mainstream neurology neurology for many years, and then began looking at upstream, trying to figure out why our neurological patients were having the issues that they were and began to recognize that lifestyle factors, genes, etc.

were really actually much more important than than we had learned in neurology training. So I'm, I wear the moniker of being a functional neurologist and, and I wear that proudly.

That's for sure. I've been doing research in terms of the effects of lifestyle choices in neurologic disease for many, many years. I've published various books on the topic and many research papers as well, but I've come to a place in my life now that I really see my role as one of empowerment, empowering individuals to make better choices, to help pave the way for better outcome as it relates to their brains.

Okay, well, let's begin our conversation. So as everyone knows, I've had my own personal transformation, a very conventional internal medicine doc using the newest drugs, newest devices, and then I to learn like, well, diet and lifestyle are far more powerful than I had learned in medical school.

And so I now focus on really helping people use diet and lifestyle to manage their complex autoimmune disease with their neurologic end psychological issues.

So do David. If I had known to come to you when I was much earlier in my life, I am thinking about in medical school I had developed these episodes of electrical face pain that were really very troubling.

And, you know, being a farm kid and you never complained. So I just toughed it out for the first seven years and eventually went to see a neurologist who gave me Tegretol and had a drug rash.

We tried a few other drugs and nothing worked. And so I just realized, okay, I'm just going to have to tough this out.

Inflammation, Gut Health, and Microglia

If I had come to you back then in my early twenties, what might you have done at that point? I think that the the broad strokes and the important broad strokes are looking at what are the fundamental underlying mechanisms involved in a situation like M. S.

and as a matter of fact, in all neurodegenerative conditions. And we look at things like inflammation. We ask the question, why is there inflammation being upregulated in this particular patient?

What's turning inflammation on? And more importantly, then what can we do about it? So we would look at each other and ask that question What's inflamed in your life?

And in general that turns our attention to what's going on in the gut. Far be it for me to to think that as a neurologist, that's the first place we go.

But it is. You know, the gut is really involved in the set point of inflammation in the set point of immune reactivity, which is critically fundamental as it relates to an autoimmune condition like M. S is like type one diabetes, celiac disease, lupus are which are so pervasive in our society as a consequence of what's going on in the gut.

So we would be looking there in recognition in of the notion that changes in the gut bacteria through multiple mechanisms ultimately upregulate or enhance inflammation.

And that has some devastating effects in the brain that are unique to individuals. Inflammation can manifest in many ways in the brain. And, and sometimes it manifests in enhancing the degradation of the insulation over myelin, over neurons, which is myelin.

And more recently so now let's jump for we had that discussion when you were at age 20, but I want to take that to some more recent understanding because I think it'll have a lot of traction with the viewers, and that is that we now understand that systemic inflammation, inflammation in the body makes its way to the brain and induces some fundamental changes that are disrupted.

And we now understand what is happening on a cellular basis. The brain is colonized about 10% of its cells are cells that go by a very strange name called micro glial cells, and they're actually very similar to cells in the rest of the body, which go by the name Macrophage.

But interestingly, though, they look quite similar. They're derivatives, they're derived from different places. Another story. But that said, so much interest right now is focusing on these brain micro glial cells who have the task of taking care of our neurons and taking care of the connections between neurons that we call synapses.

And as it turns out, these micro glial cells exist in various forms. And for now, let's just focus on two very broad categories of of forms that they exist in, in one form that we call M2.

There loving. And they're supportive. They're nurturing the myelin, they're nurturing the neurons, they're nurturing the synapses where neurons connect to each other.

We like that M2 to form of these microglia, but it turns out that the loving them to form has an evil twin, and that evil twin is called the M1 microglia that's destructive.

That breaks down the myelin it fosters. It damages cells called oligodendrocytes, which are involved in creating and maintaining myelin. It breaks down the connections between nerve cells and is very, very threatening to the brain's internal environment leads to increased accumulation of beta amyloid, for example, the protein that is associated with Alzheimer's disease.

So it takes us back then to asking the question, well, we want more of the friendly, loving microglia the m to form. We don't want the evil twin. What's regulating the transformation between the good form and the bad form, if you will?

And that's inflammation. So it gets us back to recognizing this fundamental pivot that happens when we are in a situation that's increasing inflammation in our bodies.

We are affecting which of these forms of microglia is going to be overrepresented in the brain, whether the brain is going to go down a healthy road or whether it's going to be threatened and paves the way for a situation like multiple sclerosis, Alzheimer's, even Lou Gehrig's disease, for that matter.

And, you know, over the years, and especially in neurology, training, we always wanted to do our very best to define that disease and find what is unique about this or that disease.

And and who who who's it named after? But how interesting it is that, as you and I have this conversation right now, there's been this unanimity of mechanism where we have a unified mechanism involving these cells, these micro glial cells that seems to be fundamental in all neurodegenerative conditions and leads you and me right back

to our conversation when you were age 20 about inflammation and again, focusing on what you're eating, how you're threatening your gut via the water you're drinking, the stress in your life, the lack of sleep that you may have experienced from residency, who knows what else?

The medical extremely important that you may have taken or may be taken taking including, yes, antibiotics, threatening the gut bacteria. But we now know that that list is is far more comprehensive and has a lot of surprises on it, like over-the-counter antacids and nonsteroidal anti-inflammatory drugs and we're just just getting to the point right now that we're beginning to validate the central importance of the mouth microorganism, as well as it relates to inflammation in the body.

So this all we had clues that we could have addressed was 18, 20 and 22 that were that we didn't know to talk about. And now I spend a lot of time talking to all of my patients about their gut, about their bowel movements, about their teeth, about whether or not they're flossing their teeth, brushing their teeth.

And, you know, my interest and colleagues would be very put off that. They said, you know, Teri, you're using the same approach for everyone, but they all have different diseases.

Now, fortunately, they've come around to realize, you know, actually, you were sort of brilliant that this is so important that we address the modifiable lifestyle factors.

Mouth Bacteria, Nitric Oxide, and Oral Care

So if this summit is about mass enrollment, so all those other autoimmune conditions that have neurologic and psychiatric symptoms, does this same approach work for all of those conditions then as well, David?

Yes. Think about that, that we are the arbiters of the brain's immune responsiveness and importantly the brain's set point as it relates to immunity. And now that we get our arms around the fundamental immune cell in the brain, there are others.

But this microglia that are so fundamental for the brain either preserving itself or self-destructing. And what we ask ourselves, well then what are the upstream things that control whether we're going to have friendly microglia or we're going to activate its evil twin?

We have control over that. We absolutely do. And primarily it's all about inflammation. Other factors are important. For example, free, radical mediated stress and that actually strangely ties us back to the mouth in that things that challenge the mouth bacteria actually reduce the availability of a specific chemical in the body and in the brain called nitric oxide.

Nitric oxide is made from nitrite, and nitrite is becomes available in the body only through the action of our mouth bacteria. We don't have the enzyme human beings to convert food nitrate into active nitrate.

Strangely, we have to rely on the bacteria in the mouth to convert the nitrate found in our foods into nitrate. That ultimately in the presence of appropriate enzymes can become this nitric oxide.

When we compromise availability of nitric oxide, it threatens our mitochondria, our energy producers. That increases the production of damaging chemicals called free radicals.

And this increase in free radicals. Guess what? It changes the friendly M2 microglia immune cells into the aggressive M1 microglia that are damaging our myelin and as such paving the way for M. S.

But, you know, really paving the way for, as you said, all manner of neurodegenerative conditions. So, yes, the walls protocol that nurtures mitochondrial function, that ramps down inflammation, that dampens free, radical mediated stress is absolutely appropriate for any neurodegenerative condition and call it like it is for any degenerative condition in the body as well, whether it's cardiovascular disease, type two diabetes and even some forms of cancer.

What did I just say? I said that what you have described in your books, The Walls Protocol, really focuses on some fundamental upstream mechanisms like mitochondrial function that are key to regulating metabolism.

It's this dysfunctional metabolism that is central to a variety of neurodegenerative conditions. The number one cause of death on the planet, including brain degenerative conditions as well.

So for anyone who would criticize you, saying, wow, you're, you know, this is one size fits all. Yeah, it does. And when you think about it, what you're emulating is the lifestyle and certainly the diets of our ancestors.

You're speaking to our DNA, you're speaking to bringing back into a dance environment and evolution. And, you know, our evolution has provided us with the human genome that we have that has of evolved over hundreds and hundreds of millions of years to pave the way for our success in survival and reproduction when it is faced with a particular set of environmental cues.

Suddenly, in the past couple of hundred years, we've dramatically changed those cues. And our DNA is not geared to allow us to be healthy and have longevity in the face of these environmental cues.

And what you've done masterfully is really brought us back in line with what our our DNA is expecting. You know, the nitric oxide story and how it relies on the microbes in our mouth.

I'm sure there are more stories like that that we've yet to understand and described of the bacteria that have resided in our gut that we rely on because we've lost those enzymatic steps in our DNA, because we only have, you know, about 25,000 genes, but we have on average 5 to 9 million bacterial genes residing in our gut.

I predict, you know, I'd love to comment on this, that we'll find more of these nitric oxide pathway stories in our gut, that there are a variety of enzymatic steps that we can't do anymore, that we rely on having the right bacteria so we could do them.

And when we eat this very narrow diet or take a lot of antibiotics, we make it more likely that we're missing some of those important bacteria in those important enzymatic steps.

It's true. I mean, we're now delineating various pathways by which our gut bacteria are able to create chemicals through enzymatic pathways that they have, and we don't.

And yet and those chemicals turn out to be really important for us. A couple of examples. We know that activation to form you're a listen a which has some really important positive effects on mitochondria are found in the gut.

We know that sulforaphane is a chemical found or we get it from consuming cruciferous vegetables, especially Sulforaphane, which is a very important chemical that's involved in turning down inflammation in detoxification and quenching free radicals, for example, is produced when we consume glucose rationing.

Now, when we chew broccoli sprouts, for example, we don't get sulforaphane until we're able to convert the precursor, the glucose RAF into Sulforaphane.

We do that by chewing the cruciferous vegetables. It releases an enzyme called My Raisins and hence we get the sulforaphane. But we also have the enzymes in our guts provided by bacteria that allow it to happen as well.

Exercise, BDNF, and Brain Support

So you're right, we've got to give our gut bacteria in our mouth. Bacteria a lot of credit and love them and nurture them. We call them commensal bacteria CO with Mensa eat, they eat with us, they're sharing the table with us.

We have to nurture them. And just kind of a take home point for your viewers. I'd like to add recent research shows that one behavior of humans can dramatically damage those bacteria within the mouth that are involved in helping us make nitric oxide.

And it's the use of mouthwash called chlorhexidine. Chlorhexidine happens to be a pretty common component of various mouthwashes, so it's really good to read labels.

Recent research shows that specifically mouth organisms that help us have nitric oxide are severely threatened by that mouthwash people are using for, you know, keep their breath nice and fresh.

And in fact, low levels of nitric oxide are associated with high blood pressure. This recent study showed actually that right have to use chlorhexidine mouthwash blood pressure goes up that's a pretty obvious biometric that something not good is happening.

And so you know you see these TV commercials that say it kills 99% of germs in your mouth. Do you really want to do that? My answer is no. You definitely do not.

And I'm not saying we shouldn't have good mouth hygiene, but I think using an antibiotic in your mouth, which is what it is, is inappropriate. And again, to your point, brushing your teeth, flossing your teeth and using a Waterpik, I think are very important and beyond that, I think it's certainly reasonable moving forward to look at the components of your toothpaste, making sure there's no threatening components in your toothpaste like sodium lauryl sulfate.

And I will go on record as saying that, you know, by and large, I think the fluoride story was a little bit over massaged that the notion of us getting a lot of fluoride via our toothpaste or even fluoride treatments I think should be questioned.

Do you have concerns that fluoride may be displacing iodine or creating some toxicity for us? Yes, in a word. You know, these days it's still quite common that children get fluoride treatments at the dentist's dental office, you know, with their developing brains.

And I think that there's a lot of literature out there that that challenges the wisdom of that. And, you know, it's it's something that's been done. And therefore, why should we change and why we should change it?

Because it's not a good thing for the developing brain. And, you know, my hope is that we should consider that all of us still have developing brains because we do this process of growing new neurons occurs throughout our lifetimes, all of our lifetimes in our nineties, we're still growing in neurons.

So the the notion that we have a developing brain and then at 18, everything comes to a screeching halt. That is an interesting model, but it's no longer relevant.

Well, certainly my body is continually inspecting what's being used, what's not being used in reallocating resources away from stuff that's not being used to things that are being used.

So if I'm not using my muscles and my bones with exercise and they'll disappear from that using my brain with learning and paying attention to my environment, I am assuming that that would accelerate the loss of synapses, the loss of neuronal tissues.

Is that correct, David? That's true. If you don't use it, you will lose it. But, you know, let's stretch that a little bit and recognize that physical exercise of your body is probably the most powerful brain tonic available on the planet, even including pharmaceuticals.

There's nothing that comes close to physical exercise. Why might that be? Well, it turns out that muscle, when muscles are utilized, especially with resistance training like weightlifting muscles, are actually an endocrine organ.

Who knew? I mean, we thought of endocrine organs defined as an organ in the body that secretes chemicals that influence the function of other parts of the body, like the thyroid gland secretes thyroid hormone that's used throughout the body.

The pancreas secretes insulin, for example. Well, we now characterize muscles as serving that function as well.

When we exercise muscle, they secrete things like interleukin six irisin and even something called brain derived neurotrophic factor B, D and F, which is a powerful tonic for the brain.

It leads to the growth of new synapses, connections between brain cells that we need for maintenance of function, and certainly for enhancing function, for learning new material and ultimately allowing neurons to wire together.

It preserves and protects neurons as well. So we need a lot of beating. F In the best way to get it is exercise interleukin six. We always consider that to be a terrible pro-inflammatory cytokines, but as is so often the case, it really is about context, isn't it?

We can look upon interleukin six as being bad, but it's not its context in interleukin six is actually the mediator by which muscle activity stimulates a pathway in the body called.

I don't mean to be too technical, but AMP kinase. When we activate this signaling pathway, AMP kinase, it improves our brains and metabolism. It allows our systemic body to burn more fat and reduce its storage of fat.

It helps the body go through a process called autophagy whereby it's able to rid itself of defective cellular parts. So we really want to have that AMP kinase pathway activated.

And that's yet another reason why we exercise. So you're correct, it's not just mental exercise but physical exercise. Go to the gym, walk around the block to whatever you need, get your heart rate up.

But this is powerfully a powerful tonic for the brain. Now I'm really happy to comment that on another thing that I observed early on in my healing journey, when I convinced my physical therapist to let me try electrical stimulation of muscles, he was an athletic, physical therapist.

So we started doing that. It hurt a lot, but I could tell I felt incredibly great. It did something to my mood and my mental clarity. And so, you know, I'm remarkably better.

I can now jog around my neighborhood, but I still love doing my system a couple hours a day because I still perceive that it's doing really great things for my mental clarity in my mood.

I'd like to have you comment about why you think that's happening.

Lifestyle Choices and Takeaway Message

Sure, there are multiple mechanisms, but I think primarily what people are focusing on as it relates to STEM in terms of your mental clarity, your mood, etc., which seems a bit distant from being, you know, having an electrical stimulator on whatever muscle it's on.

And that gets back to the beating up story. So there's an inverse relationship between body enough and depression. It turns out that lower levels of BD and F are associated with depressed mood.

Higher levels are associated with a better mood. So you are really and in fact, many of the so-called antidepressants that we thought were working because they increased availability of serotonin are actually involved in up regulating BD enough.

And interestingly in the rodent model the effectiveness of antidepressant medication is compromised. If PD enough is not produced. So it's well beyond this serotonin story.

It's explains why physical exercise is associated with better mood as well. So I think that's what's happening and therefore one can envision the use of STEM for increasing beat enough to be, you know, thought of to be a positive thing to do for people who have neurodegenerative conditions of other types when higher levels of BD and F would be something beneficial.

That said, who wouldn't want more BD and have to protect their brain cells? Hard to imagine anyone wouldn't want to do that. And you know, shy of getting a stem the easiest way, but it's expensive.

You're going to have to go out and buy something. You're going to need to buy a new pair of sneakers and go outside and start walking or do some resistance training.

Get a band, a resistance band or something to challenge your muscles esteem if you like. But this way you increase speed and it's good for your brain.

It's good for your mood. It encourages you because you feel better to further participate in that program. So it's self-reinforcing. It is great stuff.

And again, I encourage people to explore e stem. If you are unable to exercise because you have a spinal cord injury, those individuals are using Eastham to maintain their quality of life, their mood, their muscle mass.

And now people in the messenger immune community are beginning to add it when they are so disabled that they have very little walking. But if you can still walk, still do some exercise, exercise bands and an exercise of walking poles are a great way to go.

Now, David, I could spend all day talking to you. I just love the insights that we're developing, but I wonder if you could give us what you think is the most important take home lesson you would like all of our listeners listeners to take from our conversation today?

I'd say that the fundamental for me is having people become aware that they are the architect of their brains future and that their moment to moment lifestyle choices are hugely influential in terms of the brain's destiny.

It's there's value in medication of one sort or another, that's for sure when you look at the studies. But they are targeting downstream pathways that are affected by things over which we have more control.

And it gets back to, you know, the hypothetical me seeing a doctor, Terri Walls, when she was 20 years old and recognizing the importance of interceding for those upstream issues very, very early on.

You know, the medications, including the monoclonal antibody drugs that are becoming so popular, do work to some degree, but they do so by insinuating themselves into pathways over which we have upstream control.

Desmond Tutu said once, and I'm going to paraphrase something along the lines of While it's important to take people out of the river, it's more important to ask ourselves why they're falling in in the first place.

And that's the message that I'd love for your viewers to have, and that is that there is a lot going on upstream that we can involve ourselves in to again, choose a better destiny for the brain.

Okay. Well, this has just been incredibly empowering. Everyone is listening. There is so much under your control and that's with this Amazon neuro immune summit is about is teaching you that there's so much that you can do now. David, how can people find you?

Well, oddly enough, my website is Dr. Perlmutter, Tor.com. Who knew DARPA? Perlmutter, Tor.com, and I am on Instagram, David Perlmutter and Facebook as well.

My books are available everywhere and my latest book, Interesting, is called Drop Acid. And that has nothing to do with hallucinogens. It has to do with uric acid and its role in doing some bad things in the body, like changing our metabolism, increasing inflammation.

So but I think the clearinghouse for things related to me would be my website doctor protocol. Okay. Well, David, this has been a joy and I look forward to the next time we can get together and share a wonderful meal.

Thank you, Terry. I enjoyed our meal last time we were in Las Vegas. A real healthy place, but it's always great to see you. Thank you.