Introduction to Dr. Mark Gordon

Welcome. I'm Ken Sharlin, and you are listening to the Parkinson's Solutions Summit. Today, I have a very special guest, Dr. Mark Gordon. I've known Dr. Gordon for several years.

He's very involved with the Age Management Medical Group, and that's where we met, an organization that teaches doctors who want to think outside the box about why we get sick and how we can get better.

And he has a really big toolbox and it's done some amazing work. I didn't want to take anything. I want him to tell you about it, but I will tell you his work with veterans in particular and anyone with traumatic brain injury, they need to know about, you need to know about Dr. Gordon.

So without further ado, Dr. Mark Gordon, welcome to the Parkinson's Solutions Summit. Thank you Ken It's always an honor to be able to share the science and the experience that I've had over the past, well, 18 years in traumatic brain injury, 42 years practicing medicine.

And that brings us back 42 years ago when I started in family practice internal medicine, and I had a phenomenal endocrinology professor here who sort of like took me under his wing.

And I found this incredible area of brain chemistry or hormones and so forth. And, you know, I left my residency, started doing traditional family medicine, and found that the traditional approach really didn't do much.

And when I started delving into the area of hormones, it came into time, which really impacted my life because in the late nineties I started developing depression for some reason and I'm a reader and my escape was reading and I found that there was a relationship between hormone deficiencies and psychiatric or psychological issues.

And I had had six head traumas prior to that. No loss of consciousness, but six significant head injuries. And so I got my blood run and I found that I was deficient in growth hormone to size from and thyroid back in the nineties.

And within 90 days of getting started on it, man, life changed. So I started looking at my patient population and realized that a lot of the football players that I started dealing with in 1995 ended up doing to ESPN Outside the lines in 2006 and seven, where I got to apply the science of my own life experience in those with football who were experiencing what they call CTE, depression, anxiety, bipolar and all those things, emotional volatility.

And the literature was lagging behind that which we were experiencing in the practice.

Hormones, Brain Injury, and Neuroendocrinology

And then the articles started to appear about the relationship between hormonal deficiency and the onset of psychiatric conditions. And then you started finding that the traumas were creating inflammation that were leading to degenerative conditions, which lead us to things like Parkinson's, Alzheimer's, dementia, ALS, M. S.

and so forth. So in 2004, I left my old, old practice, moved to a new practice where I set up in 2000, it was 2001, but didn't officially get started until 2000 to 2000 for dealing in the area of neuro endocrinology.

Neuron chronology deals with the brain and its hormones and how it is, how it influences our neurology and subsequently found that there's also the immune system that plays this incredible role with trauma neuro endocrinology, neurology and so forth.

And that's where I've been spending most my time. And in 2009 I left or 27 I left the NFL and started focusing in 2009 strictly on the military. Well, focusing on the military still getting civilians and finding that everyone that had a

traumatic injury, whether or not there was loss of consciousness or not, that they developed an inflammatory may or condition in the brain and that inflammation ended up shutting down the the hormones that are you know, we think of testosterone, it's from progesterone and all those sex hormones, as well as reproductive hormones, as gender hormones.

And it turns out they have multiple levels of benefit in our system. And we use the term pleiotropic, which means that there are many effects of these hormones.

And one of the effects is if we look at something like Alzheimer's, is to help to remove the Alzheimer's protein, the amyloid beta out of the brain with neprilysin and through stimulation of testosterone.

Yesterday I'm pregnant along and just a whole bunch of benefits of these hormones that we took for granted, thinking that, oh, they're just to have sex or just have babies and so forth, but a lot more.

And then one of my colleagues brought his father to me, 81 year old Alan, who was having Parkinson's, who had Parkinson's. And one of the major problems that he was having was nocturnal.

He wasn't able nocturnal paralysis, so he wasn't able to get out of bed and go to the bathroom. So he's soiling himself every night. So we brought him in and we ran our traumatic brain injury parameters on him.

And lo and behold, there were the hormonal deficiencies in the markers that suggest that he had deficiencies in the brain. And what we did is we replenished it.

And within 90 days he's given that he's no longer having problems with swelling himself. He's able to get up. His Parkinson's is improving, and he's in the gym with his son, Richard, you know, three times a week working out.

Now his tremors are improved, his pill rolling is is gone. His shuffling of his feet is gone. He's able to do activities in the gym. And a woman who flies in from Sweden with moderate, mild to moderate Parkinson's on three medications, we ran the same tests.

We found a pattern that was suggestive of inflammation and hormonal deficiency, and we treated her and within 90 days she was 70% better. COVID unfortunately, stuck her in Sweden, and she was unable to get some of our treatment.

But she did very well because if you drop the inflammation that creates the scenario for damage to the special neurons that produce the dopamine in the substantia nigra, in fact, there are four areas of the brain where we're dopamine is made.

The one we focus in on is substantia nigra. But what we found, and I know you're aware of this, is that through trauma, whether or not it's physical trauma or environmental trauma, we talked about burn pits, we talk about certain medications, we talk about chronic stress.

All these things in addition to the physical trauma being hit on the head, a blast, IED, car accidents, slip and fall, whatever, all induce inflammation.

And that inflammation often gets free radicals and the free radicals mix with nitric oxide and create a chemical that's very, very caustic called peroxide nitro and peroxide nitrate, for some reason selectively goes after glutathione in the substantia nigra.

So glutathione for those people out there is an anti inflammatory free radical scavenging amino acid or a complex three amino acids that help as a frontline defense against trauma or inflammation.

And it gets used up rapidly because this proxy nitrate is so caustic to the system and that leads to damage to the production of dopamine and therefore you end up getting things like Parkinson's.

In addition, this proxy nitrate inhibitor sets the area of the brain called the hypothalamus, which is like the control center for the pituitary. That tells the pituitary, hey, make PSA for the thyroid, make LH for luteinizing hormone to stimulate testosterone.

And it turns out that the cells, the supportive cells in the brain or glia astrocytes and oligodendrocytes and microglial cells, that these astrocytes are cofactors in the hypothalamic production of the hormone that triggers the production of testosterone through the pituitary gland and hormone.

And it turns out that if there's inflammation, these cells, the astrocytes can't communicate to the area the control sent to the hypothalamus to produce the hormone, the signal gonadotropin releasing hormone that tells luteinizing I want to turn on.

So what happens is you lose the production of testosterone and eskdale and all the hormones that follow, bringing along progesterone our prenatal cortisone.

So if you lose these in production and that leads to a deficiency state throughout the body, well, it turns out estradiol and both females and males are extremely important for reducing inflammation through a system.

We call MAPK, which is a inflammatory pathway or MAP3K and this helps to diminish inflammation and that's what helps stop the production of proxy nitrite.

Also the estrogen and the testosterone.

Parkinson's, Inflammation, and Hormone Deficiency

Testosterone specifically is an incredible stimulator of the immune system to make the anti inflammatory product called IL ten, interleukin ten. So that'll help reduce inflammation.

It also drops four very key pro-inflammatory chemicals or immune produced immune cell. The MICROGLIAL produced interleukin one, 1b6 and tumor necrosis factor alpha, which lead to it which leads to damage.

So all these parameters, all these factors working concurrently lead to damage. So how do you reverse it? You fix the damage, inflammation and replenish the hormones that are deficient by the process of inflammation.

So when we do our 28 point biomarker panel took me about 14 years to put this together. What it does is it shows us both directly and indirectly, problems with inflammation affecting hormonal production in the brain in the brain we call the hormones neuro steroids, because they're made in the brain.

Testosterone is made in the brain. And it was only in 1986 with Dr. Blue out of Paris, France, that he found the enzymes that allow cholesterol to be converted to each one of the hormones that we call cycle hormones or that are produced from cholesterol.

That's why cholesterol is so very, very important in the brain. And using drugs that drop cholesterol level down to low will end up creating a problem.

Now, I know about that problem firsthand because my mother died of stat dementia where she was put on a statin drug which ran her cholesterol down as low as it could possibly be, and that's deprived her brain of the precursor, the foundational chemistry to build all the hormones that protect the brain.

And one of the side effects is dementia. And while she had it wasn't Alzheimer's and it wasn't any of the other frontal lobe dementia, it was a mild form.

It took her like ten years to finally succumb to it. But there was a her neurologist witnessed when I treated her with our protocol, she got better. The only problem is that I had siblings who did not understand and had control over her case and rejected what I was doing and she rapidly decayed and died, thank goodness.

So yeah. So it's one of those things. Well, Dr. Gordon, I wonder if I could maybe just kind of briefly summarize to make sure I understand exactly what you're saying.

First of all, hormones are produced by glands throughout the body and sort of by their definition, that we learn very early on in medical school, unlike neurotransmitters which are produced by one nerve cell and received by another nerve cell that are very close to one another, you know, micrometers of space in between, a hormone travels throughout the body and affects multiple tissues.

So while we think of these sex hormones as being, you know, part of the reproductive process, which they are, they also play critical roles throughout the body.

And we are focusing especially on the brain. And so it stands to reason that these hormones will be important throughout our life and not just say for a woman up to the time of menopause.

And although men don't technically have menopause, it's very common for these levels to go down as men get older for a whole variety of menopause. Menopause or and a pause and then we have a second step here, which is sort of all of these hints, if you will, to our system, head injuries, you know, other types of jarring experiences, whether you're in a blast as a deployed soldier, a blast injury or a car injury or a heading a soccer ball where maybe it's just you've been exposed to toxins or other things that turn on the body's stress response system, which is a normal biological system.

It's supposed to be there. It's not by accident. It protects us, but it shouldn't get jammed in the on position. And when that happens, if I understand you correctly, the feedback loop says don't make hormones survive, be in, you know, but the problem with don't make hormones or decreases levels is then we start to lack what the brain needs to grow and repair itself is.

Is that fair? That's correct. Also, to be very clear, there are two areas of hormone production. There are the neural steroids in the brain, and then they're they're neural active steroids that are made in the glands below the neck.

Unfortunately, the majority of the hormones made below the neck don't get into the brain. So the brain has to make its own so you can have problems below the neck.

But the real issue is what happens in the brain, the inflammation that shuts down the ability of our brain to do all the signaling, to make the hormones or to generate the signal below the below the neck.

So yeah, it's absolutely. And also actually published well published in the peer reviewed literature that just from a purely epidemiological or observational viewpoint, a major risk factor for the onset of Alzheimer's disease is a decrease in testosterone before the symptoms begin.

Right. So it plays a major role in triggering this disease, right? So then you have a system where we can actually look not only at hormone levels. And by the way, can I just ask you your opinion on this?

I often get asked, why aren't doctors checking this stuff? And either your you and I check this out, but why do you think that, you know, when a patient with Parkinson's comes in to see the neurologist, why aren't they getting their hormones checked?

Why aren't they getting their inflammatory markers checked? It's a great question, Ken. And I think the issue is they're not being trained or there is no desire to be trained in functional medicine, because I think in functional medicine, we get a greater understanding of the functionality of our system as opposed to the holistic functionality of the system as opposed to just the little part.

You're only looking at a little part. And that little part is what we were trained in relative to, you know, Parkinson's disease, Amantadine, L-dopa software and so on.

And I think it's just an educational issue to some degree. I think it's training culture. There's culture of the of the

medical community, like in the South.

It's probably the least thing they do is check hormones more so on the western East Coast, New York, California and Chicago. There's a little bit more in Florida.

Also, there is more there's more delving into a greater depth of functionality or functional medicine. So other than that, I really have no guests to offer you in terms of why it happens.

It's a shame because as you and I both have experienced and learned and know that how important these hormones are, there is a professor at USC. I used to be a clinical professor at USC who wrote a book about neural hormones being the cause for why we die.

If we don't have the hormones in our brain, it can't sustain a natural and normal functioning brain. And what happens is systems shut down. So it's important to have, you know, the brain well preserved in all its chemistry.

Well, Dr. Mark Gordon, you've said then that then you go into your evaluation phase and you have a system to look at markers of inflammation and hormones.

You've mentioned, I think a couple interleukin. Can you tell me more about how that all works? How does it how do you approach things clinically? Then it's if I come and see you. Yeah.

The first thing we do is we run a 28 point biomarker panel and the biomarker panel has zero inflammatory markers in it. It has zero inflammatory markers.

Why is that? If we were to run the interleukin, which are the immune systems produced markers indicating that there is inflammation, the interleukin one, a1211b tumor necrosis factor alpha and interleukin six is that if we do a blood tests on it, where are they coming from?

When you get a measurement of it, where's it coming from? Is it coming from my left knee pain? Is it coming from my elbow? Is it coming from my neck or is it coming?

Solan Solely from the brain. And that's the problem with running these tests. So we did a study about two years ago on our veterans and it's their expensive tests and we our company pays for it.

Why Standard Testing Misses Brain Inflammation

And what we found is that if the interleukin levels were elevated, we did our interleukin six and move across Sector Alpha to keep costs down to $600 for two tests for paired tests.

So it's four tests in total. And what we've if we found the level of interleukin six and tumor growth factor alpha were elevated and then we treated them and the levels were lower.

When we did the follow up test, 90 days later, their symptoms were better, but I couldn't tell you where those interleukins came from because there's nothing that says I'm from brain, I'm from muscle, I'm from body, I'm below the neck and so forth.

So using them is predict lives beforehand. It's impossible. Oh, they're elevated. And therefore that's the reason for you. I don't know where it's coming from.

Yes, we do a complete orthopedics survey to make sure, you know, if there is a musculoskeletal or a gut related issue, because one of the things that is frequently overlooked is that you can have the in the initiation of inflammation of the brain coming from a peripheral source.

So if you have an ulcer or dysbiosis or you have a leaky gut syndrome or you have a fracture of a bone, they all generate peripheral interleukins or cytokine is what they're the family of.

And they go immediately right into the brain, pass the baby because they destroy the motor sites on the astrocytes that protect or the glial cells that protect the blood brain barrier.

So you get immediately it gets into the brain and what does it do? Triggers the immune cells, the microglia in the brain. It turns money that activates them from inactive M0 to M1 activated, and they start dumping inflammation.

Which brings us to why people who have no trauma, no burn pits, nothing but only environ mental stress, stress in the family, stress at work, stress wherever.

Why is it that they develop the same kinds of symptoms as one of our veterans who's been exposed to blast trauma? And the reason for that is because eight or nine years ago we recognized another chemical chemokine that's produced by neurons, which is called fractal skin, which keeps the fractal and keeps the microglia, the immune cells of the brain.

It keeps them calm in the M0 state, which is they're calm, they're just surveying the area, looking for bacteria, mold, fungus, viruses and debris from trauma and to help start the process of cleaning it up.

So frac talking is what keeps them at rest under stress. Cortisol rises, cortisol causes the neuron, the nerve cell, to stop making and talking. And when you stop making track talking, the glial cells wake up, they activate from quiet M0 to activated m one and start dumping inflammatory cytokines.

So this is why we have people who developed what they call out their PTSD, post-traumatic stress disorder. There's no trauma. It's just purely stress for you to truly be what they call PTSD, which I don't believe in.

You have to have no physical trauma. But it's interesting that Dr. Pearl, Daniel Pearl out of Washington is he's a neuropathologist who specializes in in looking at people from blast injury and PTSD and has done 20,000 brain biopsies.

And he found in every single one of the veterans who was diagnosed, who died with the diagnosis of PTSD, they had a physical structural alteration in the brain.

And he made the statement, which was hallelujah statement, which is how can you have a purely psychiatric illness creating a physical finding? How can you have a psychiatric creating a physical that creates symptoms?

So it's the disruption of the of the of the brain tissue that leads to this process. And we see the same kind of lesions in CTE, chronic traumatic encephalopathy, which occurs in our sports people, whether or not it's boxers or football players.

I worked from 95 until 27 with football, with my daughters taking care of them. I deal with Brotherhood, which is an organization that helps boxers after they've completed their their their work and in the boxing industry.

And they develop significant problems afterwards. And our job is to intervene early to sidestep the symptoms while everything is caused by this inflammatory process that is initiated by the trauma we call Neurotrauma, They get punched, they get hit on the head, they get job to get head hit on the head.

And that will initiate the inflammatory process. In fact, there are a couple of articles that talk about cellular transduction. That's a big term. And all it means is that cell stem sitting next to each other, that when they're vibrated, let's say, by a slip and fall, or if you're on a horse or your skidoo or you're on skis or you're snow skiing or water skiing, that repetitive bouncing causes the nerves, the cells to hit together.

And that induces the onset of inflammation because it creates stress in the brain. So that's neuro transduction. A beautiful article and a little over my head, since I'm not a neurologist, you know, it'll be easy for you to read, Doc.

Well, and you've brought up the important point that the stress, environmental stress, as you called it, really is a blow to your word. Transduced into a biological change in the brain.

Right. I think when you said if I understood you correctly, when you said, you know, PTSD to sort of say, you know, we grew up in you know, we were trained in medical school and residency where they talk about things that are organic versus not organic.

Right. As if to say things that are of the mind of the spirit of the personality and thoughts somehow don't have a biological basis. But I think what you're saying, if I understand correctly, is, no, no, no, these cannot be separated.

And when we talk about things like PTSD, which most certainly exist, it's that it has a biologic physical substrate that has profound effects.

Treatment Approach and Clinical Software

On a macro level, we can see, you know, brain atrophy in the hyper hippocampal region of the brain on the cellular level and the subcellular level on the epigenetic level.

And of course, with all of these signaling molecules, Brett talking about. Absolutely. You rephrased my stuff beautifully. Well, God, that's great. Yeah.

Yeah, I do these I stopped doing them because I love veterans, by the way. And I have to tell you that my training was at Emory and Vanderbilt primarily.

And both of those institutions have VA hospitals on campus. And I really feel like I owe a lot of my life and my career to the veterans, not just because of their service to our country, but because of their willingness to put up with young students and residents like myself and allow us to learn how to be doctors.

So I feel forever indebted to the veterans and I was approached by a company that contracts with the Veterans Administration to do TBI evaluations on veterans.

And I said, Of course I will do that. And then I found out that what it was really about was that the veterans are entitled to a certain amount of competency action for injuries and illnesses that they sustained during their time of service, which they are.

But what I was being asked to do in many cases was to listen to the veterans story and go through a lot of checkboxes informs that the VA has, but ultimately to tell them are their symptoms due to traumatic brain injury?

Or is this post-traumatic stress syndrome or is it impossible in some cases to tell the difference? And that's where I'll tell you, I really struggled because it's if to say there's separate things when you and I know they're not really separate things.

I published a paper at three months ago, which is basically that and it was based upon I gave a lecture to the Department of Health and Human Services and it was on PTSD, TBI or TBI, PTSD.

And it was a subtle way that I could help the attendees to understand that PTSD, what they call PTSD number one, is a misnomer because there's that physical component you just reiterated that is ignored.

And when I spoke to the head of one of the DOD departments in that deals with PTSD and TBI, and I asked them, tell me everything you know about Frank talking.

They said, I know nothing about Frank talking, which tells me that they don't have the fuller understanding that the reason why this scenario of PTSD develops is because of this frank talking and neuroinflammation, that being one of them also, it was a presentation of our veteran population where we had a group of veterans who were given the diagnosis of TBI by the VA and they were assessed.

And then I had a large group of veterans who came to us with PTSD and when I interviewed them, they all had a pre disposing or a preexisting traumatic brain injury.

And that occurred before the PTSD does develop. So I put this group together, assessed them the same way, treated them the same way, and looked at the outcome.

And the group that had purely the TBI diagnosis had a 77% improvement in one year. The group that had the addition of PTSD and they had a 72% improvement.

Now why is that occurring? And it's occurring because what for me, PTSD is is a missed opportunity to treat TBI. And if you treat TBI early, they fix faster.

If you wait until they develop additional symptomatology because the inflammation, you know, people out there know that the brain sits in a fluid, cerebral spinal fluid.

So if a damage happens on the left side, upper left, the chemistry that's produced gets mixed in with the CSF and goes to other sides of the brain. It's around it.

So if it's a trigger inflammatory trigger, it goes to every place so it can create inflammation all over. And depending upon how long you're left with this inflammatory may loop in the brain will add on added areas.

The analogy I use is you cut your finger, you clean it, you kiss it, and it gets better as opposed to you cut your finger and you ignore it. Put it in the dirt, you put it in your mouth and it gets infected to the point that it needs to be amputated.

So the early intervention, TBI resolves beautifully. Well, if you don't treat it properly, you end up getting a greater infection or inflammation of the brain that takes more to get it better.

Dr. Gordon I think we probably have about 7 minutes left and I wonder if you would talk about what that treatment looks like with you. So we've kind of gotten up to in analyzing the factors.

Okay. But take one minute, if you will, toward the end. And I want to ask you about what's behind you kind of leaning up against the sofa. Ha ha ha ha ha.

Studio Les Paul Anyway, yeah, that's I'm presently doing Red House. So anyway, the when we get the tape biomarker panel done, it gets put into a software package which is called the Millennium Office Laboratory Assessor.

And what it does is it looks at these 28 points to the 28th power. So the first one is looked at, the second. So growth hormone looks at IGF one, growth hormone looks at IGF one and IGF binding protein three.

So as you add in the different test results, it keeps on going back to seeing patterns because growth hormone influences, thyroid growth hormone influences, Prolactin Prolactin influences growth hormone prolactin influences thyroid prolactin, influences, luteinizing pollen.

So there are so many interactions that a regular individual, it takes a little while. It took me 40 years to memorize these pathways which I incorporate into the software nine years ago is when I started writing it and it's been out for now two years.

And so what it does is it analyzes not only the relationships between the hormones in the brain and below the neck, but it also incorporates the medication that you're on.

So if you're on a medication like Wellbutrin or on L-dopa or Amantadine, what will happen is it'll alter the growth hormone production through the dopa Nurkic one receptor through receptors, stimulating receptors and will give you a higher than expected level to being elevated if you've got a tumor of prolactin.

So or something stimulating prolactin production so the system will correct for the influence or acknowledge to you the influence of certain medication on your results so you don't over treat or treat and then it gives you a 12 page

report.

We're line by line. It tells you what to do for each one of the deficiencies, excessive notes and so forth. And in fact, one of our psychiatrists in Florida who came on board with us a couple of years ago, uses the program, calls up and said, look at the software, told me the patient had a tumor of the pituitary because the growth hormone level was elevated and she would recommended that she gets an MRI.

She sent the patient for an MRI. A couple of days later, she sends me an email. Lo and behold, there was the tumor of the pituitary. Because there are certain patterns also in our veterans.

Having elevated DHEA with low level of free testosterone is a clear signal of lead and mercury toxicity. So it helped us with that. Also, if you have low vitamin D and you have elevated reverse t three, reverse t three, it sent indicative of selenium deficiency, B12, B6 and elevated cortisol and ferritin and iron deficiency as well as it could signal that there is Hashimoto's or Grave's disease.

So the software ended up interpreting and suggests that additional testing be done if the patterns are met. So this helps us to accelerate. So we have 107 right now, 107 clinics in eight countries that are using it.

And what it does is it accelerates the adaption to what we've been working with for the past eight years in terms of neuron chronology and fixing the problem.

So once we have the results, we know how to treat. So if it says deficiency and estrogen, testosterone, blah, blah, blah, it tells us how to start. And what we use to help with the inflammation is a set of nootropic.

Well, they're nootropic, but a set of nutraceutical products that we spent 16 years clinically testing, building it on powder, powdered forms of it. And when we hit the right powdered form, then we converted it to a nano liposomal product which are in these little single use packages.

And each time we have three key products, each product, Navy SEALs and Virginia, we tested our first one out and then in the the medics in Fort Campbell, Kentucky, our second product.

And then we did in 2020 a project with the Marines at Camp Pendleton with our key product, which is called Green Rescue three. And those address not only the neuroinflammation but also mitochondrial dysfunction.

One of the major problems that happens from neuroinflammation is that it disrupts the the intracellular inside the cell. The powerhouse is called mitochondria and responsible for generating ATP, which is the juice that runs our body.

So under inflammation, the cells die because these they call them organelles, mitochondria, organelles die and you lose energy. That's why you get some of the problems in the brain, the inability to regenerate or to heal. So we juice it up, so to speak.

Veteran Support and Closing Remarks

We juice the juice up with PKU, which is a form of CoQ10, CoQ10, PKU and some of the other important lower number vitamin B's, which we don't really talk about the B one, the B twos and so forth.

And we've had just great, great responses and we've got 400 veterans. I'm self-funding, meaning that all the products that we sell, they generate funds that we help our veterans.

And since the products have been doing better, we've been able to reduce the expense of our veterans by 60%. And in certain cases, we pay for their treatments.

So They get the benefit. And, you know, in the project with Walter Reed right now, because of a paper which is on my website called Neuron Inflammation, the road to neuro psychiatric illnesses, and it basically talks about how

proxy nitrite can create damage, how inflammatory cytokines create damage that destroy the enzymes that allow for serotonin, melatonin and a whole bunch of neurotransmitters to be produced in the brain.

And the reason why things like SSRI don't work is because they assume what, that there's serotonin in the in the in the synaptic cleft in the area of transmission.

But there isn't because the entire production of serotonin has been shut down by inflammation. And the reason why things like Aricept and Manenti for Alzheimer's don't work is because it assumes acetylcholine is there, but there's no acetylcholine.

You're right. And there's no acetylcholine. So pregnant alone increases acetylcholine in four areas of the brain, pregnant, alone a little. And Dr. Gordon, thank you so much for speaking with us today.

If someone would want to work with you through Millennium Health Center, how do they do that? How do they find you? Well, they go to our educational site, which is called tbihelpnow.org, O-R-G And that that site is a lot of information.

There are two or three places where if you wanted to communicate with us, you just hit a button, put your name in it. And if you want to put a very short description of what's going on and then the office will contact you, send you some documents, and then either my daughter, who takes care of all our our all our civilians for the past nine years, will contact you.

If they're a veteran, what'll happen is I will communicate with you just to make that connection, to know that we're here, that we support you, veteran or civilian, in achieving your goal of healing.

Getting better. Wonderful, wonderful. And quick question. Top three guitar players in your mind, who's it going to be? Oh, let's top three, because I know Joe Satriani.

I love his guitar playing Stevie Ray Vaughan, and of course because I'm a boy, the 60 is a born in 53. It's Jimi Hendrix. Absolutely wonderful. Well, you're very good and you're you know, I, I can't argue with with those certainly currently I listen to a lot of jazz, so there are quite a few really, really talented jazz guitarist as well who who've influenced us.

And you didn't mention the great Jimmy Page, of course. No, you only gave me three. That's true. And I've been listening to a lot of that. Artists like the Tedeschi Trucks Band, the wonderful Derek, the wonderful Derek Trucks and, music like that as well, You know, got to Duane Allman and.

Oh, yeah. All my Brother. Yes, absolutely. Excellent. Excellent. Marcus. I saw them up there. I saw them. I saw Jimi Hendrix. I saw Janis Joplin, I saw Santana when they were starting the whole bunch.

You know, I'm all wonderful. Yeah. All right. Thank you so much. My pleasure. And thank you for the opportunity to be well.