Jim Prather - Your Fragile Brain: How to Measure your Brain Voltage & Protect Yourself from Trauma, Concussions, and Dementia Transcript

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Introduction to Jim Prather and Wavi

Hello, doctor Ken Holter for another episode of the Peptide Summit. Today we have a great interview for me. Jim Prather. As in, we talking about objective measures of brain function, for health and performance.

Thanks for coming on, Jim. You're welcome. Thanks for having me. Yeah. And and so, you know, I've been looking for a device. Used to be talking about the wavy, and we'll get we'll get into that.

It, you know, measures essentially your your brain, your brain function. And looking for a number of years and at conferences. Hey, we need to get this.

And in evaluating, different systems and, not that I really liked. And then I kept hearing good things about wavy, and but I had never seen them. And then, kind of like a good, good friend of mine, doc said, oh, where are you there with?

Oh, my God, this thing is great. And so they came and, actually did a demo the other day. And I hadn't slept in, so my brain was not as it was a little disappointed, but, it shows how sleep is so important, but, and really looking forward to incorporating it in our practice with, from everything.

You know, we generally treat very sick patients who have tons of cognitive dysfunction and, and almost dementia. So looking forward to see how that is and also showing improvement and then also bringing in the healthy patients that, you know, maybe they have Alzheimer's in their family or, and, and they're worried and you can make a difference.

And when you see before and after and they have beautiful color, know basically they're, they're whole software that will analyze all this complex, you know, you see all these brainwaves everywhere, and make it very understandable.

Very, I think, compelling for the patient where you show that, hey, your brain is not where it should be, and then you get them better, they're fricking happy with you, and they're going to tell people about it.

But, I just quick little bio on Jim. It brings over 30 years of executive and financial experience from the information technology, media and consumer electronics industry, to the team from beginning of lobby and one of the original investors, now to the role of president, while he medical and CFO, he's working with doctors and researchers to ensure that the well be hardware and software is effective and practical, in improving patient outcomes.

His work involves identifying individuals and groups interested in the brain journey from athletes, including us Olympians, to leading brain researchers, cardiologist, concussion experts.

I like this interview. Last night, the forgot to hit record, and the integrative health practitioners biohackers. I think this is just a great device for almost every field because we don't have a measure of brain before and after it.

It's it's, you know, it's the brain. It controls everything. His deep understanding of the need to work collaboratively across the brain ecosystem provides, these diverse groups, the ability to change the face of brain care.

And I think the field, like, medicine is changing, really focusing on the brain. You think they would have focused on the brain years, you know, decades ago.

But, it's, seem like they're finally getting around to it. Yeah. I agree that the, it's pretty interesting. It's a it's evolving. And I think even with people locked down and, you know, depression, anxiety and post-Covid type stuff coming up, it's, brain fog is now actually a term everybody's using.

And, there's a lot of different things that are bringing it to light. So it's pretty exciting. Yeah. I mean, it's everyone has brain issues. You know, it's everyone from the athlete that has multiple concussions and, and and even, you know, you look all these sports where you don't think that many like soccer or even, you know, people who skateboard.

And it's just that chronic. You don't even have to have like a big auto accident or you know, but, and everybody's issues. But the nice thing is there's ways to improve it, and you can show them before and after.

Just this is a random question, but would you let your kid play football? Well, I'm in Texas, so it's kind of a national. Yeah. I mean, it's, you know, I, I probably would, I might keep them in flag football for the first, until he's, you know, in his middle school.

Why Objective Brain Measurement Matters

And then I would definitely monitor his brain health. We, we utilize maybe as part of a baselining, routine with a number of sports, including stuff that, you know, you had.

No, I had no clue. Had so many, concussions, like women's volleyball. I mean, that's huge. Cheerleading is one of the worst ones. So you kind of look through it.

So there's no reason why anybody shouldn't just, have or avail themselves of a baseline scan for their kids or for their student athletes, but, Oh, I, you know, I, I'm just thinking I didn't think about that.

Are any professional football teams using this or so. So the professionals are interesting because there's some conflicts obviously. And yeah, they don't want to really know, you know, you know, we are starting to, work with retired NFL players, which is kind of exciting.

And, and they do want to know at that point, they want to understand the damage done and what they can do about it. We're obviously just a measurement device.

We're we're agnostic from the interventions that doctors do, but it gives a great way, as you said, kind of a pre-post measurement on interventions. So, yeah, I mean, you you need to know because it's not very powerful.

Oh, the person says they're they can think better. You know, it's like, how do you put that in a research study. Right. And we get that all the time. Well I don't what are you going to see there?

I don't know if I have a brain, you know. Is this a it's not a measurement of intelligence. It's not a measurement. It's it's a measurement of brain activity, of brain power, of brain speed.

Those are the kind of measurements we do. Using an electroencephalogram, an EEG. We've just made it easier to do it. And then we've taken all that very complex data and made those measurements easy to understand for, you know, for doctors of all sorts and clinicians to.

Yeah. And in fact, we have much time to do the demo. But he's like, are you ADHD? And you sleep and I'm like, oh my God is the most ADHD person I've ever met.

And I hadn't slept. I, I slept like three hours and the night before or like seven PowerPoints due this week. And so it hit it right off the bat with just a brief scan, you know.

Yeah. And it's, you know, it's interesting you mentioned that we we kind of started the company with this concept

particular, all of us have parents, you know, that are either you know, someone or you're one person removed from someone that's dealing with dementia or pre Alzheimer's symptoms.

It's devastating. I would brutal especially on the caregivers. But, you know, if there's a way that you could track that, if there's a way that you could see, you know, normal digression.

Or if, you know, all of a sudden it seems to fall off a cliff, you, you know, it's something you need to do something about. But those kind of measurements are not necessarily easy to collect or easy to display or communicate.

And that's where we started the company. Let's create measurements around that because we got, we're based out of Boulder, Colorado, and we're tied into the University of Colorado.

We got pulled into a really cool study related to concussion. So working for years with the football team and the women's soccer team there, we measured baseline and post-season on every athlete and then measured, 24, 48 hours after a concussion.

And then on the return to play, and we saw amazing things related to that. So the the aging brain, the injured brain, those are two of the big areas that we, feel like we're a great measurement tool for doctors to utilize.

Well. And when you see an acute concussion, what you generally see low voltage in that area or. Correct. That's absolutely right. So in general, we had 100% correlation in our study with the combination of a drop in voltage and the reaction time measurement that we have.

And those two together correlated 100% with what the docs were saying. You know, the interesting thing was it's not so much getting the kid off the field. It's, it's more five days, ten days later, it's a very difficult to get them back.

That's exactly right. Return to play, return to learn. And by then, they might have performance back up to where they were beforehand. But, what we saw in about 36% of the time is that their measurements, their measurements related to, brain speed and voltage and these things that we're doing objectively had not come back to their baseline scores.

And that's that's scary. And especially, I think probably intelligent people can kind of compensate and so people don't notice. That's right. And or you can just game the system.

Put me back in coach. You know. Yeah I, I feel fine like yeah. You know yeah. Yeah. You don't want to be wimpy right. You know and it's unfortunate. But we do know that the concussed brain, if it's damaged again it's, in general a much worse, injury to the brain.

So, so when you read damage, a damaged area, it's not significantly worse than you know. And, you know, CTE and all the all the discussions of that, we find that the majority of those are happening, those types of brains are happening with the people that are, you know, the repetitive damage.

It's, you know, a lot of times not even noticed. Can can you, explain CTE for everyone? Yeah. So, you know, we all know what a concussion is. You get hit, you know, and whether it's a car accident, a skateboard accident or football or whatever the the sport or, activity, and there's usually, shearing of a brain of the brain because it's, it's nice.

You know, jello type thing inside of the skull that shifts around. It's built that way, and it's built to take some, some kind of hits, but not the big ones.

And so that shearing occurs, that's generally a, has issues, with the brain and the functioning of it after that. And that's generally a concussion. Now, I'm saying, general, because there are all sorts and I'm not a doctor, I'm not going to claim to be one.

But we know that those are the types of of issues that happen if it happens repetitively. Over periods of time, in a lifetime, of sports, then, that's what is generally, again, causes the damage that's related to, these players or, or

more, in the old days, the boxers, it was, you know, especially with boxers because they were getting hit all the time, punch drunk or the inspector.

Right. And that's generally what was causing the CTE later on. There's a lot of behavioral issues, loss of memory, damage. It's devastating stuff like rages. Right.

And things like that.

Concussion, CTE, and Return-to-Play Monitoring

Well, and imagine the frustration of that player, that player that's suffering through those they're used to being performing at such a high level. And then all of a sudden you go from, you know, that, great family of, a brotherhood or sisterhood on your team to nothing.

So you've got these depression issues. If you don't keep working out the way you were, you're going to have issues related to the physiology of your body.

And there is just an impact on the brain because of all that. Yeah. And I know a number of doctors that treat, you know, professional football player, personal athletes.

And yeah, they tell me a number of, like, can't find their way home, and, and even ones that are playing like, they're very impaired. Yeah. They're still going I think the, the issue there is, you know, there's things that can be done still, it's even, you know, maybe not very, very late stage, but early stage or while they're playing sports, there's things that you can do to retain that plasticity of the brain and the ability to recreate and regenerate the cells there. Yeah.

And, you know, I give lectures on, you know, and, and, you know, a lot of nutrients work, a lot of things work. But even with this, the peptide, it's like amazing studies on thymus and beta for, TV for frag, actually, because it gets in the blood brain barrier, it's much smaller.

And BPC not only prevents damage, but it like dramatically speeds the recovery back to normal. And they I mean, every I think every football player should be on this stuff, you know.

Yeah. And that again, you know, since we're just the measurement device, the nice thing that we can do though, in those situations is not just to say, well, how do you feel I feel great.

No, no, no. Here's the measurement before. Here's the measurement after. We're seeing brain speed, brain voltage, reaction time, all these different measurements and markers improve.

Your brain is better. Now I can and that is so helpful. Not just for the doctor trying to figure out what's the right mixture or concoction for that one, but also for the patient to be able to say, well, dang, this is better.

I'm I am getting and move in my direction with this. Yeah. And that's what I was, you know, think when you guys came out like, okay, this is perfect. I want to start a number of studies and and show the effects of and we have what's called is, through methods like through mice and brain peptides and, even like stepson's, like, like, it was kind of squirrely.

I don't know if you probably won't watch this. And it's like, what's wrong with them? And we gave them the cerebral that's like, basically brain neuropeptides and his brothers are like, oh, my God, is a new person.

He's so calm. And then he's bragging about his memory and saying, people are commenting about his memory, how great it is. And I'm like, I don't. I was I know you're much easier to deal with, you know? Wow.

Very cool. That's a great. And we we're involved. It's a research level device. So we're involved in a lot of research. We've got a couple of NIH grant research research projects.

One around the study of pain. What does the brain look like that's in pain? Yeah. Another one. Hey, if I'll have to do a bunch of studies, will you guys find any?

Yeah. Actually, the those are funded by the government, which is really one of they see the need for that. They they're looking for something that they can put into an emergency room to say, okay, that guy, you really don't need those opioids.

That's, that's you're just a yeah, you're just looking at the studies have already been done. I can't believe. Yeah. It's like with with the peptides.

That's what everyone says. Like when I give lectures, like, how can you have hundreds of studies? I've never heard about it. You know, Great question. Yeah.

So it's very. Well, what what got you into the brain in particular, or was it the it was it the the sophistication of the software hardware that really, attracted you to this or.

Yeah. I mean, first and foremost, as I said, I'm my wife. Her family has a history of Parkinson's and, and has a grandmother that passed away with, Alzheimer's.

My mother suffers from dementia. I've had I've had four concussions. I did play football. So I do know what that's like. Or I should say, I don't remember. But tell me about it.

People tell me it's all right. So I think, you know, the injured and the ill brain. If you don't have someone you're directly related to, you're probably just a step away from some of that is.

And so did interest us. When Doctor Oakley approached me, who's my my friend from college, and he said, you know, we're going to start this company up.

I, you know, we we helped fund up that original, effort. And then, as I said, six years ago, he sucked me into his vortex. And, I've been working since to bring it out to public.

So that's that's good. We have a best with a friend. It's like I've never had is you don't do do do it. It's like, oh, okay. You know. Oh no, that's not that's awesome.

We've had quite the time and I would think I don't I'm trying to think of like, a study whatever. Like people, I think they're more scared of dementia than they are death.

Well, you know, they're more make sense. They're definitely more scared of brain and brain issues than heart issues. Now, so everybody thinks, oh, I just get a stent or I get a valve replacement.

Yeah. And like you said, there's so much research, so much science around the heart and what, you know, improving that. But when it comes to the brain, I tell people, you know, it's like deep space or the bottom of the ocean is just a really very cool, very perplexing, very hard to understand organ of the body.

And it's the most important one. Yeah. And you look at the medications we have, I mean, they're. Yeah, I mean, they maybe slow the rate of decline a little bit, know, but they're just so basic compared to everything else, you know.

Yeah. Again, it's crazy like a judge on the pharmaceuticals out there. What I do know is that I exercise and sleep and, you know, a community around you, things like those, plus things, you know, that are natural can can good diet, those kind of things and help the brain immensely.

I hate that, I, I choose the pill that makes the body thinks it's exercising and thinks it's fasting. Right. So. But this seems like great from everyone from the integrative practitioner.

I'm just picturing it in our practice, to so many different fields. Like what? What can the Wahbi show show people? Yeah. Great question. The, the key thing is understanding behind the scenes.

It is an EEG device. It is doing what EEGs have done for literally 100 years. We're collecting brainwave and we're assessing those. We do a a specific type of EEG called an evoked potential.

So we'll have headsets on. You can hear a series of beeps. It's going to you're going to react differently when you hear an odd tone and you're clicking the mouse button.

Then when you hear a common tone, so 222222, two, two on that odd tone, your brain reacts differently. And we're measuring at that point, brain speed voltage and a physical reaction time.

Again, this has been around since the 60s. It's this is not new technology. It's just not been packaged. Well. That's where I find the best literature is old research that people haven't paid attention to.

And everybody knows about it. But, you know, you've we've done all these different new kinds of scans and what we needed to do and what we did was we went back and looked at the old stuff and said, well, wait a minute, and not old.

And it's just, you know, a lot of research behind it and baked those algorithms, put that kind of quick artifacting in on the data to make sure it's clean, the algorithms to make the data look useful, and a nice report that, a doctor could use, even a report that can look very good for a customer or a patient that they can go through with them.

Yeah. And they're really nice. They're in color, you know, hey, if you have red in the patients, is it you know, they're all right. In this case blue is not good but color I it's it's motivating you know, it it really is.

And and you can understand it for once. You know, everybody likes to get the scan. It's kind of fun to get it. We, we worked with, the founder of Crocs and, his group to, come up with a nice material.

And, we worked with the guys out of Italy. Momo design on the design of the headset. That's what we have. Our FDA clearance on, and it's. It looks pretty cool.

It might seem like Star Trek or something. Yeah, yeah, you you won't you won't wear it too much in public, but you won't mind putting it on to get a brain scan.

Yeah. Yeah, it's it's not bad. And in the, you Lord Oracle. But you know, how can improve outcomes like. Yeah, people again I can't, I can't prove anything.

What I can do is show a change in measurement that's objectively, objectively obtained from the brain. What what that helps you do as a doc or clinicians to say, right, instead of just asking the one question which we all ask is, well, how do you feel now?

You can put some measurements with that. So I might feel differently from one day to the next, but my brain hasn't changed. I just got a good night's sleep.

Or maybe I had my cup of coffee in the morning.

Brain Health Applications in Aging, ADHD, and Chronic Conditions

But to have something that's reproducible and is can show that pre-post measurement, objectively, it's, it's and and I think it's kind of like people where you go to your HMO doctor or whatever.

And I'm not a fan of statins, because when you really dig down in the literature there, some tend. Yeah, it takes 99 people to benefit. And one, it has, you know, risk of dementia and diabetes.

But everyone just wants to see that cholesterol level. And they I tell their friends, what's your cholesterol? High cholesterol is better. So it's now you change that to you, you got an objective brain measure and people are like, oh my God, my brain's this or what's your brain now?

I'm better. I get just so fulfilling in more than the cholesterol. And you know, and that's what people never will have for their standard because they want they freak if their cholesterol number goes up.

And I can see the same thing happening with, you know, brain number. Hey, you haven't been doing this. You have been doing that. Your brain's a little slower.

Like, oh my God, you know, and very motivating. Which is the hardest thing to do is motivate a patient. Right. That, that and the other side is keeping them compliant.

So compliance of the patient to your regime, if they can see that improvement, they're much more likely to say, oh, hang on, I am making success, I am improving, and here's a great measurement, okay, I'm going to stay on that diet exercise.

And the no other doctor is shown on this and they are just oh my God, my brain's better. They're going to be telling the world, you know, people do. People do talk about it.

It's always interesting to do, husband and wives because there's sometimes some competition in there. We don't like that. But oh my gosh, if she does that, I do like okay, I'm going to exercise whether I should exercise religiously every four months for eight minutes.

But, I'll maybe double it or something. But so it works through to e.g. evoked potentials. So what like what basically that's gone back many, many years.

It's kind of in the standard looking for seizures and. Yeah, it's a, the kind of the commonplace use now of EEGs is in looking at, you know, epilepsy or seizures.

Obviously people use it, when they're under anesthesia to monitor the brain and operations. I was approached one time by groups. Well, can you measure brain death?

And I'm like, oh, my gosh, you know, we don't. That's not our place. You're going to stay with that ambulatory long term EEG device when you're measuring those kinds of things.

Again, what the research will tell you is that it's also very useful for other things. So this P300 measurement, this EEG with an evoked response that's extremely useful for, measurement as it relates to things like, brain deterioration, mild cognitive impairment, for the injured brain, for rehabbing the brain.

So stroke patient, how do I know if I'm improving that brain, if I'm, you know, a neurophysiologist or. I'm. I'm a physician just trying to get improvement in the brain.

Well, you need a measurement device to do that, and that's what we do. So it is an EEG. You can do, you know, see the brain waves like you would with a common EEG or a standard EEG out there.

But what we like to do is we say, well, it's more of a sweet spot of this cost benefit that we're doing to make it an easy to run quick measurement that gives you a lot of good information on the brain to use in general health and into some of these other modalities, in these other ailments that we're talking about now, let's say, do you with brain speed, is it overall or do you see some people with ADHD or whatever, but whatever may be or even so, one part slow and the other parts fast and asymmetrical or those are great questions.

Yes, yes and yes. Again, what does that mean is really, again, we put that back on the doctor knowing EEG is a diagnostic device, it doesn't do diagnosis.

That's a doctor's purview. We just like to give the doctor better information, more information, objective information around a very complex subject. Whether that's the behavioral side, again, the aging brain or the injured brain, we think there's a real need for some objective measurements to go with all the other things that they're doing.

So I would never ask a doctor to not do a history on the patient or not do a symptomatic type assessment. They should do that always. But let's augment that with some great measurements around brain health to go with it.

And it's kind of like well, we found with chronic Lyme fibromyalgia kind of fatigue syndrome. You know, doctors say, oh, there's no tests for that. But it's a good one.

We can pick it out 80% of the time, 7,080% time, and how bad it is on a budget without even talking to the patient, knowing anything by pattern recognition.

Yeah. And if you do enough tests. So you're measuring all these different areas. And I would bet if we do a bunch of Lyme patients or chronic fatigue syndrome, they're going to come up with a pattern.

And where it can be used at the diagnosis, I would I would bet a lot of money on that. But I think we're going to start a study, I think, fairly soon on fibromyalgia and, you know, chronic fatigue.

For that very reason, we have, you know, again, there's lots of there's tests you can do. There's, you know, they but most of those tests are trying to trigger an episode.

They're trying to trigger a reaction. And so what they want to do is couple what they're currently doing with this one group, and, put the EEG, but the zombie scan in there with it, and see what is the brain doing?

You know, I mean, it's a brain illness. And you look at the people or so like, well, people cry the first visit just because we believe them. Yeah. You know, and we show them a blood test.

But it's another way I can show them their brain scan. Like a better word. Socks. You know, see, I'm sick, and they a lot of them will say, you know, they've been to a we just study 15 years ago and published it.

They saw, on average, 7.2 physicians. The improvement now it's probably 15. And the doctors just treat them like crap. So it's psychological, you know, there's but you show you got brain dysfunction.

You know, they're like, look, Harold, I told you, you know, it's I, I think it's it's very empowering work because they just feel they like, I'd rather have cancer, you know?

Yeah. You know, the recognition of issues I think is is huge for anybody, whether that's, you know, a behavioral mental health issue or it's like you're saying a neurological disease that doesn't show up because my finger falls off, it's in your system and you're you're feeling the repercussions of it.

That's those are great, great areas of study. Yeah. No I I'm, I'm excited to to to bring it in. And so it's the EEG has been around a long time. What did you guys do.

And I know it's very technical, but in a broad sense. How did you make it different? So it's like any disruptive technology. We have taken something existing.

EEGs again, have been around for years. So has this evoked potential measurement? And we said, let's make it easy to conduct the scan. We can literally get someone in 2 to 3 hours trained up a med tech person, you know, that's conscientious.

Get them trained up and ready to go and running scans so it's easy to conduct the scan. You don't need, you don't need a nurse license person. It just amazed whoever front desk can even do it, right? Yep.

I can even do them. So, you know, and the far behind. That was all right. EEGs are notoriously sensitive because

you're literally measuring electricity at the cortical level.

And so understanding that data and then artifacting, in other words, kicking out the bad stuff and just using good data. So we automatically artifact the data.

That's huge. It is huge. And and it also gives you a consistent look because that's all automated. So you get the same artifacting from scan to scan. You're getting a nice consistent read on your patients.

And between measurements for a specific patient and then finally being able to take that really complex data and simplify it in the form of, you know, some of these reports that we provide.

So we have a one page nice, beautiful looking report kind of gives you a nice target range. So there's an age related target range I don't want to be compared to one of my, you know, University of Colorado athletes.

Those guys brains are awesome. Or someone in the military that's been, you know, in one of these special ops teams to just it's phenomenal what some of these brains can do.

But I want to be compared to people my age, I want to see that that level. So I wouldn't want to be compared to the fat, lazy, not exercising. Yeah. We haven't got that selection yet. So what do we do?

Well, let's, you know, I want my, category. Yeah. The, and then, you know, the the final thing is really making it so that it's quick, and and affordable.

I mean, right up front, we're not we're trying to disrupt on the pricing of the way we do things, too. We keep it relatively inexpensive so that a doctor can run many scans, just like they would do, you know, mini blood test or check your blood pressure.

Quite often we think that the brain is is as important as an organ as your heart. I can see it. Do it on every patient comes in. Yeah, no I don't I don't see a person that it doesn't make sense with.

Yeah. And age as well you know. Wouldn't it be great to have every pre-teen measured before they started, you know, middle school and then every other year do a scan just so you could say, all right, if something happens.

Yeah. Of sudden they get whacked in the head and you can see and it was argument like, you know, do see, you know, just blood tests on every young person.

But, you know, no one's going to do that. But the brain scan makes sense. And where you can see, like, your kid play football. Hey, here's the deal. If this drops, then you're out until it's better.

Yeah.

How Wavi Works and What It Measures

I mean, it's stunning when you think about 20 years ago and where we are today with defibrillators in all these stadiums and these training offices, because people go, oh, hang on, people could have a heart attack.

So these kids 18 year old, 16 year old kids could still have a heart attack. And there was a lot of effort to get something out there to help, you know, the heart.

Well, you know, the brain is as important as the heart. So I think, you know, at some point it's it's going to be the norm that people within their annual wellness, hey, get your blood test, get your blood pressure looked at, get your eyes checked and get a YV scan.

Get a brain. Does it show? Like, I don't even know. Knows. I was just thinking, addicts brains versus normal. That's

We started it in the fall of, of last year, even with Covid going. And, the government has funded up the state of, phase one study to look at the addict's brains, opioids in particular.

We're doing a study on, entry into a rehab facility, kind of 30 days, 90 days, six months later, for those individuals to say, what does the addicted brain look like?

And, you know, we've already seen some pretty interesting things from some I can imagine, like, yeah, like, the Pleasure Center, you know, and all these things and, well, yeah, think about this.

It's something I think to the tune of 80, 90% relapse rates. And if you, you know, the impact on society, on families is just brutal, much less the individual.

Well, if we could say, all right, we actually looked at these brains and we're able to see certain aspects of a healed brain versus one that relapsed.

And then you know, who to, you know, hey, look, you're not done. Yeah. 15 more. That's safe. Yeah, absolutely. That's my brain, the 30 rehab. So it could say do the brain scan.

Forget it. You can you know, it's it's pretty cool. So you know they may not know. They may say well it's 30 days and I've done this twice before and all right I'm out.

But if they can save, I'll keep you two more weeks and we can get you this much further, long and much more likely that they won't have relapse. And you can't fake it.

That's right. It's objective. It's not. You know, I, I have to confess, I'm a little pissed at you. Now I'm going to have to do a deep dive into this, because this is damn interesting.

And all the damn time, but I, I just I'm ready to, like, after get, I'm going to start looking deeper into this because I can see it from a clinical standpoint, being so valuable and just a key piece of, you know, information for all these patients.

That's exactly right. That's why we created it. We we, we have a real, you know, open concept of what we want to do, in the, on the, on the back side of all this because we talk today, you know, most clinical what it does, the research, it's all super interesting.

But in the end, what we feel, is that the data is going to help us in and do incredible things. So I'm just thinking, you know, we can even just do a small, you know, studies on the peptides before and after.

It's beautiful. And yeah, you do a study, people said less brain fog. You know, yeah. Well, on a scale of 1 to 10, they only get confused on what's what, now you have numbers, you know.

That's right. And, you know, I, artificial intelligence, the deep learning modules were already using that on the data, and we're seeing incredible stuff.

So the the grants I was talking about in some of these other studies, we are starting to put those through these different models, and seeing some stuff that we couldn't have been able to process with that level of data beforehand.

The correlations are wonderful. And it is it's kind of like, you know, if you get an EEG when the old data just like, what do we do with this, you know.

Yeah, yeah. All the ticker tape and all the lines going across, I mean, what the heck. Yeah, I think that's of the way the world is. It's like I remember, you know, like basic writing research paper for computers.

You go to that to, UCLA or Scripps, you know, medical library. Go find the damn journal. If it's there, go copy it, you

know, and so slow it it was who could, you know, basically go find that information.

Now it's information overload. It's you can filter it. That's right. And filter in a way that's useful. You know, it's absolutely the case. So we you know, we're working with some good companies and some good, you know, some good institutions on doing just that.

But we'd love to see, you know, a lot of the, the problem, with research is the data gathering side. So if we could start providing longitudinal data on brains, you know, we can start figuring out, okay, 20 years before we've been measuring, they have Alzheimer's here.

What was going on here? Because that's where you could do something that that's where you can make a difference, right? Yep. Wow, I totally agree. This is exciting stuff.

Do you have any, like, cases that you heard with, like, you know, what are some things that have really helped? I know you're not the treatment side, but you hear things.

Oh, yeah. A lot. Yeah. So I there is the obvious. Okay. You know, it's like if I told you that if you went, walked a mile or two every day, that you would improve your brain, first of all, you probably throw something at me.

If you didn't, you weren't doing that. But second of all, it's actually true. But you do feel better. You do feel better, and you will be better. When you work is the thing I work out.

I'm going. I'm going every day. And the next day I'm like, go tomorrow, you know? And listen, I get it. I've. I struggle with the same stuff. So it's, But if you if you can literally see that you're, you know, the things you're worried about are improving, then it's a little bit motivating.

It's motivating. That's exactly right. But yeah, we've seen everything from different types of exercise, different nutraceuticals. You know what happens when you really do nourish the brain the correct way?

You know, hydration, drink water, you know, drink. You know, that's obviously going to help the brain as well as sleep, lowering stress, whether that's through mindfulness techniques and the like.

So it even scared me was my sleep and the bowl lack of sleep. And, you know, I read also that you really can't make up your sleep, you know, and so it made me go to bed early last night.

There you go. Okay. And again, it'd be fun to do that next measurement on you and say, hey, well, you know, here's where you are, doctor. Over. Here's where you are now.

And I think it would maybe motivate you to go to bed earlier. Again, I don't know. I'm not, I'm not Jedi. But I do know with all these things, there's an impact on the brain, some more so than others, some that are much more geared towards, let's say, an ill brain versus an injured brain.

And as we start mixing that big matrix of interventions and brain health, I think we're going to have some really nice solutions for people going forward.

And determining what treatments work, you know? Yeah. It's so hard to just say, well, how do you feel, doing this better? You know, it's just so much more objective.

Yeah. And, and, I mean, I, I'm picturing so many ways to incorporate it into the practice. Like what? How do you see doctors and health care providers?

Clinical Use, Research, and AI Analysis

Jesus. Yeah. Again, my hope and wish is that it's something they would use annually on every patient. What the

right levels and doing the right things, then fine, so be it, you know, go and do more.

But if it's drops off, if you're able to see a vast improvement, those are things we want to start understanding better so we can share and build out this, you know, ecosystem of folks trying to obviously improve everybody's brain journey.

So is there, a time frame where it's like, okay, you start a particular treatment, we want to see if this works. Is there a minimum time or do you see the media improvement with things or.

Depends on what it is. Right. We do know that the brain is always regenerating itself, the cells in it. And, and so the injured brain's going to look a little bit different if you're working with someone that had a stroke patient versus someone in, let's say, a car accident that had a TBI, we do know that, illnesses, neurological illnesses have different effect as they put them through interventions.

You know how well you even mentioned it, how well those penetrate the blood brain barrier are going to have an impact on the time. So really, we work with the clinicians and they're the smart ones.

We're going to say, all right, well what do you think would be an impact. It would be a week three weeks, three months, three years. Let's start gathering data at the segments that you think are meaningful.

So we can see the efficacy of what you're working on. And this is just a random question that we treat. We don't see a ton, but ALS patients come in. Oh, God.

And and so many of them are jogging now. Right. And, you know, last one, we had diagnosed ALS with three different neurologists, in a wheelchair. Totally fine.

Now he goes back to neurologists and they're, you know, they think the patient thinks the neurologist can be excited. They're like, I saw the misdiagnosed es or, you know, oh, I'm sure whatever treat we had didn't do anything with it.

So it's a miracle, you know? And we expect to get these patients better. Do you have any idea what the ALS patient brain looks like? Not offhand, I we've I've seen.

Actually, I it's a random question, but. Yeah. No, no, no, we've we've actually seen the measurements around the ALS brain. I just, I can't, I couldn't talk to it often.

I could pull our visit our doctor CMO into that, and he's, I just curious. I see another one. By the way, this week, you know, I got to get your machine and and, like.

Right. Well, that's what I'm saying. Capture the data, capture the miracle, and put the objective data around it. That's awesome. Yeah. How long does it take to get get onboarded with this?

Probably, if you've got a good EMR, someone that we can train, literally, we can have them up and running in three hours. Okay. I like that, I like that, and any, any new, new things you guys are working on?

We kind of talked about the research stuff. There is, we do have a capability. We added, recently because we've started getting involved with the Biohacker crowd, which is kind of interesting.

So we, we have added, and, you know, people get that with the zombie device, your clips that will also do a, PBJ or a heart rate variability measurement.

So it's kind of nice. A lot of docs already has devices that do, you know, arms type measurements. So we had one, but it never worked. And we could never that there are in Europe and we spent a ton of money on it.

And I'm like, again, I'm just the brain guy. So the, as we know, works, you know, so there's there's a couple of little

tweaks to the that's that's a nice little add on, actually.

Oh, it is, it is. And so you can run a new measurement as well. We've also we're working on a couple of things to keep the neurologist happy. So we've got a couple of export capabilities that they can actually take our data and then they can put it into their viewers, which is really nice for them.

But those are the kind of things we're working on. And then the neurologists feel threatened, you know, the ones that we get some great neurologists that we're working with.

And, a lot of times you just have to educate them on what you're doing. And once they see it, they generally like immediately they poopoo everything. Basically, you know, I'm not going to be the judgment guys.

I have to I can say it the, but we have a couple that are just fabulous. I mean, and they have really embraced it. They understand that, like I said, it's not the traditional EEG that you run on, you know, for spikes and spindles, looking at epilepsy and seizures run the longer term one.

But if you want a really good quick view of the brain, you want a nice assessment with some really good information on the back end. You know, our scan takes four minutes.

It's literally an EEG for four minutes. It's that's huge because as long as a standard EEG like. Well, it depends. But, you know, a lot of them can take hours.

They literally just want you to fall asleep. They want you to experience a seizure. In some cases, you're wearing the devices. That's that's really not our sweet spot.

We want quick, easy. And we want to get the information back instantaneously to the doctors and the clinicians, which which goes to volume. Now, you can do it on so many patients, because patients are going to wait an hour and do a test and have a thing on their head for no.

And we like to say you're not going to have a bad hair day after it either, because you're sailing and it's it's just sailing. It's not goop. It's not goop. Yeah, yeah. Goop.

Goop is not fun. People don't get happy with the EEG after having goop on their heads. Yeah, because I think you got to go to work or something. You know, they don't go to work.

Yeah, that's. We find that our football players and, our athletes are some of the pickier people about their hair. So it's. Oh, is that funny? You want to keep them happy?

It's like the, heroin addicts in the are so scared to get a needle stick, you know? But, anything else you want to say about. No. You know, we, like I said, we love working with the docs, especially the ones that have, you know, people that obviously care for their patients.

This is a great way to augment what they're currently doing for them. The aging patient. I'm always stunned at how much, as we all grow older in that population gets bigger and bigger and lives longer and longer, we want to do things to extend that life in a healthy way.

And the brain is is one of the key components of that.

Future of Brain Scanning in Practice

So we love working with those kind of people, but it's also really fun to work with doctors that have some research ideas and just haven't really been able to apply them.

We like working with them because those are great ideas that other people should know about. And, and we do

Who wants it. Yeah. And then, you know, I feel for the caregivers obviously the most because the ones that are most impacted. Yeah, I think it's really a study of the day, the stress levels of like, Alzheimer's caregivers is just and they don't even know who you are.

And it's just it's tough. It's very tough. We talked to a lot of those folks, and it is something that if we can help avoid or help heal or help improve those those people in those outcomes related to the intervention, let's do it.

Hey, you're doing great work. And, I can see this making so many breakthroughs, allowing so many breakthroughs of treatments because, you know, you look at the studies where, oh, the patients were, you know, seen better functioning whatever.

It's kind of so vague now. You got hard objective numbers. I mean, that's that's right. That's awesome. So, I'm looking forward to getting it and, looking forward to, like, I could see it being a cornerstone of so many aspects of our treatment.

Yeah, well, we appreciate what you're doing. I think, again, there's all these things we're doing to improve our body, and we just kind of believe that the other side of that is we're improving your brain at the same time.

So let's help you measure it and drive that thing the next step. Yeah. It's like telling doctors, well, don't do labs. You know, that's what we've been doing with the brain.

There's no brain lab, you know. Well or the options are extremely expensive. So, but yeah, we there because it's just. Yeah. Okay. You had 4000 bucks, and it probably won't show anything because it's just basically, anatomy, not function.

Yeah. Yep. Absolutely. Right. Hey. Cool stuff. Thank you, I appreciate it. Appreciate the time. Yeah. This has been, very interesting and exciting and, I'm just thinking so, so many things that I want to check out and, Good.

So, I'll be calling you. Okay. Thank you. I really appreciate it. Appreciate what you're doing. Thanks so much. Okay. Yeah.