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

(Transcripts are generated by AI and may contain errors)

Introduction to Objective Brain Measurement

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.

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 patient is that, you know, they're all right. In this case blue is not good but color I it's it's motivating.

You know, it really is. And and you can understand it for once, you know. Welcome to Doctor Talks the podcast where every episode leads to a healthier you.

Join us as we navigate the world of optimal health, uncovering groundbreaking strategies to conquer chronic disease. In each episode, we'll bring you the latest insights from leading health experts, medical innovators, and wellness warriors.

If you're seeking to transform your health journey, or if you're looking for answers to burning questions, you've come to the right place. Get ready to unlock the secrets of lifelong health and vitality.

This is Doctor Talks, real talk from real doctors on the issues that matter to you most. Hello, doctor Kent Holter for another episode today we have a great interview for me, Jim Prather.

I will be 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, a good friend of mine, doc said, oh 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 has 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.

Doctor Talks Interview and Wavi Overview

And when you see before and after and they have beautiful color the basically their their 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 ensure that the while the hardware and software is effective and practical and 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 expert.

So I just interviewed 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. It has 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 and really focusing on the brain. You think they would have focused on the brain years, you know, decades ago, but it seems like they're finally getting around to it.

Yeah, I agree that the it's pretty interesting. It's a it's evolving. 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 at all these sports where you don't think that maybe 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 everyone has 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, be like, you know, I, I probably would I might keep him in flag football for the first until he's, you know, in his middle school.

And then I would definitely monitor his brain health. We, we utilize as part of a baselining routine with the 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. Oh, I, you know, 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 didn't 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 like I slept like three hours. And then I for four or like seven PowerPoints do 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. And this is like 13, 14 years ago of how do you put objective measurements around the brain, the aging brain in 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 say 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 can see, you know, normal digression or if, you know, all of a sudden it seems to fall off a cliff, 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 women's soccer team there, we measure 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 a 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 put 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.

Concussion, CTE, and Brain Health Baselines

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. No. 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 boxers because they were getting hit all the time, punch drunk or these. 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. 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, professional 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 peptides 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 it's 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 be able to say, well, dang, this is better.

I'm I am getting and moving 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 instrumental words like screw vice 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 this cerebral bat that's like basically brain neuropeptides.

And his brothers are like, oh my God, he's 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. Well, did you guys find any? Yeah, actually, the those were 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 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, a 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 it did interest us when Doctor Oakley approached me, who's my my friend from college and he said, you know, hey, 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 to bring it out to public.

So that's that's good. We have a vest 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, 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 can 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. That's 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 brainwaves. 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 do to to two to 2 to 2. 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 and 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 patient, is it you know, they're all right. 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 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 reminds you 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 on to get a brain scan. Yeah. Yeah. It's it's not bad. And in the, like a little rhetorical, but you know, how can improve outcomes.

But yeah, people again I can't I can't prove anything.

How the EEG-Based Scan Works

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 clinician is 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, but to have something that's reproducible and is can show that pre-post measurement objectively. But 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 10th. Yeah, it takes 99 people to benefit of one. It has, you know, risk of dementia and diabetes.

But everyone just wants to see that cholesterol level. And they I tell their friend, what's your cholesterol like. Cholesterol is better. So it's you know, 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 got just so fulfilling in more than the cholesterol and you know, and that's what people never will have sustained 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.

Yeah, I've 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 has 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 a 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'd be like, okay, I'm going to exercise.

When I say I exercise religiously every four months for eight minutes, but I'll maybe double it or something. But so it works through to e.g. evoke potential. 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 in anesthesia to monitor the brain and operations. I was approached one time by groups. Or 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 a 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 I with A. D. D.

or whatever, but whatever may be or even so one part slow and the other parts fast and asymmetrical, or does a great questions. Yes, yes and yes. Again, what does that mean is really again, we put that back on the doctor.

No 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 have found with chronic Lyme fibromyalgia kind of syndrome, you know, doc 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. Yes.

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 are so like, well, people cried 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 we did a study 15 years ago and published it.

They saw on average 7.2 Physicians Improvement. Now it's probably 15. And the doctors just treat them like crap. So it's psychological, you know this, but you show you have brain dysfunction.

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

You know, I'm. 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 edge 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 EEG 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. EEG 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 if 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, non-existent. Yeah. We haven't got that selection yet.

So what do we do? 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 going on. Every patient comes in, you know, 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.

The sudden they get whacked in the head and you can see and it was argument like, you know, do see, you know, just see a blood test 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. I mean, it's stunning when you think about 20 years ago and where we are today with defibrillators in all these stadiums, in 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. I was just thinking addicts brains versus normal. That's a good one. Yeah, we that's one of the NIH studies that we're involved in right now.

We started it in the fall of last year, even with Covid going. And the government has funded up the state of a 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 someone 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 and 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 save do the brain scans.

Forget it. 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 and 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. Yet 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.

Clinical Uses, Research, and Patient Motivation

That's exactly right. That's why we created it. We, we and 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 talked 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 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 a lot.

Now you have numbers, you know. That's right. And you know, I artificial intelligence the deep learning modules we're 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 go to EGF when the old data just so, like, see what 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 kind of the way the world is. It's like I remember, you know, like basic writing research paper for computers.

You go to the to the UCLA or Scripps, you know, medical library, go find the damn journal. If it's there, go copy it, you know, and so slow those 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. Exactly. Right. Yep. Wow I totally agree. That's exciting stuff.

Do you have any like cases that you've 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 in walked a mile or two every day that you would improve your brain, first of all, you'd probably throw something at me if you didn't.

You weren't doing that. But second of all, it's actually true. 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, okay, tomorrow I 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 evens scared me was my sleep and the whole 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 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 judge, 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 learning 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'm picturing so many ways to incorporate it into the practice. Like what? How do you see doctors and health care providers? Jesus.

Yeah. Again, my hope and wish is that it's something they would use annually on every patient. What the heck. You know, run the scan, get the data, and then, you know, if things are normal and, you know, tapering at 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.

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 because 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 it goes back to the Rogers. And they're, you know, they think the patient thinks the neurologist gonna be excited. They're like, oh, so the misdiagnosis or you know, oh, I'm sure whatever treatment 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 that 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 like I see one 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 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 lobby device, your clips that will also do a PPG or a heart rate variability measurement. So it's kind of nice.

A lot of docs already has devices that do, you know and type measurements. So he had one but it never worked. And we could never that there were in Europe.

And we spent a ton of money on it. And I'm like, again, I'm just the brain guy. So the cars we know works, you know? So there's there's a couple little tweaks to that.

That's that's a nice little add on actually. Oh it is, it is. And so you can run a ndVi 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 that we're working on. And then a neurologist feel threatened. You know, the ones that we got, 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, 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 at 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 now.

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. And 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 air 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. 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 that all the time. Yeah. Because, you know, living longer without a functioning brain.

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 was 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 all 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 can 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 got to 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 yeah, we never get it 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 a very interesting and exciting. And I'm sticking to some so many things that I want to check out.

And yeah. So I'll be calling you okay. Thank you I really appreciate it. Appreciate what you're doing. Thanks. So much. Okay. Yeah. Thank you for tuning in to Doctor Talks.

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