Introduction to Dr. Toups and Her Background

Welcome back to the Reverse Alzheimer's Summit. I'm so excited to have doctor Cat Toups with us here today. She's a functional medicine psychiatrist whose practice is devoted to functional medicine, psychiatry, and functional approaches to treating cognitive impairment and dementia.

Doctor tubes is board certified by the American Board of Psychiatric and Neurology, psychiatry and Neurology, and she previously reported in Geriatric Psychiatry.

She is a distinguished fellow of the American Psychiatric Association and this is the highest honor bestowed by the APA. She is also a certified practitioner with the Institute for Functional Medicine.

Most importantly today, Doctor Tubes is the first author on the most recent paper published out of Doctor Reticence Group, and I'm so thrilled to have her to break down the complexity of the science and also talk a bit about this new medication that was recently approved, instead of a complex and controversial way by the FDA.

So, Doctor Tubes, thank you so much for being here. Oh, I'm so glad to be here. Thanks for including me. You also have a long history of research in this field.

And so you aren't someone like me who's very, you know, relatively new to it coming and saying, gosh, there's got to be a better, better way that we can do this or let's apply medicine to this very challenging disease.

You're someone who's have decades in the trenches researching solutions to to dementia. So can you just kind of tell me it tell us a little bit about that path you've taken.

Right. So, I used to run a clinical trials research center where I did trials with the pharmaceutical industry, and, I did over 100 clinical trials with all different kinds of medications related to psychiatry, dementia, fibromyalgia, things related to the brain.

And, I, I was so optimistic with that work that I was doing every time I would have a new drug with a new mechanism of action, I'd get excited, like, okay, this is going to be the answer.

This is going to help my patients that are suffering. Well, you know, many of the medications that I worked on, they do help alleviate symptoms for people, but they don't get people well.

And that finally got clearer and clearer to me. And I think the work I did in dementia and Alzheimer's was, you know, very clear. I did I did 20 long term Alzheimer's trials, many of them one for 1 or 2 or more years.

And, you know, quite a number of patients and nobody got better. You know, some of the drugs I worked on for or approved for dementia, and still are, but they slow the decline of people slightly.

And after a while they don't work and they're really not. The answer is what we've, you know, figured out. And so, you know, actually fast forwarding to the, the new drug that just got approved by the FDA at a minimum for dementia, that drug, the mechanism is that it can wipe the mechanism of its purported action is that it can wipe out the amyloid plaques in the brain that we know are a factor with dementia.

And neurodegenerative disorders, right? That the amyloid comes up the works of the brain and ultimately kills the neurons. So, I worked on a drug in what was at about 2008, that, had a similar mechanism of action.

And we could show with that drug it wiped out, you know, a substantial number of the amyloid plaques, but nobody got better. They didn't get better. And, you know, fast forward here all these years later and, this drug is approved

that, they, you know, they've finagled the numbers because initially it was a failed trial, two failed trials.

And then they said, well, in a subset of people, it might slow the decline a little bit. And so, you know, it got this approval and, you know, the notion for me is, you know, obviously we've all heard about the expense now.

Why Single-Drug Alzheimeru2019s Treatments Fall Short

And the number that they're bandying around $56,000 a year is just for the medication. It doesn't include all of the repeated MRI scans and the initial Pet scan, the infusion centers, the doctor fees because it's a it's a dangerous drug.

It causes, brain swelling in about 40% of people. So they have to have repeated MRI scans to make sure before the next infusion that there's no edema in their brain.

And I asked people, would you want to give your parent a drug with that kind of side effect profile? And, you know, it's, most people don't. So the, the, you know, the notion of a single drug to fix this complex, you know, multi-dimensional problem.

Just doesn't seem to be the answer. So let's talk about what the answer might be. Yeah. Yeah, that we published a trial with Doctor Bredesen and Hathaway, a number of people who were involved in that.

So correct me where I'm wrong here, but what I understand is that there were 25 participants that went through the trial, completed the trial at three different locations, and that 84% of those participants had improvement, which is astounding when you compare it to what the alternative is, right?

These guys that are talking about a $56,000 drug, they're not talking about improvement. They're talking about very small decreases in the progression rate.

So some people might not progress as quickly. And that's their outcome. Right. And for you guys what you're looking at is actual reversal of disease rates.

So this is like I mean they're totally they're apples and oranges. Like we're talking about the same disease process but crazy different outcomes. And the I mean, so wildly exciting in our world that there is an answer.

So first of all, correct me where I'm wrong about your trial design and then tell us what it looked like and what you guys were finding. Yeah. So, so as you mentioned, it was done at three different sites.

So I had two co-investigators that we all, you know, follow the same protocol. Doctors Anne Hathaway and Deborah Gordon. And so, we all we had an IRB approved protocol, and it was a, prospective clinical trial.

People had to meet particular criteria to come into the study. The cohort that we worked with was, mild cognitive impairment and early dementia. So we definitely had people with dementia that's further along that make some progress.

But obviously the sooner we can, you know, get this, the better chance we have to reverse it and have more healing. So, so people, had to have, MCI or early dementia and we had a set protocol that we followed and kind of the outlines of that are listed in, in the paper.

You know, we all did the same lab testing. We did, neuroscience testing and Moca testing. So, people often ask me about the Moca. In the old days, when I was doing trials, we primarily used the MSK or the many, many mental status exam and the Moca, tions for, let's say, Monterey Montreal Cognitive Assessment and Moca is more sensitive for MCI or early dementia.

And and interestingly, I'll tell you what, am I, my regular patients that I've followed for quite a few years with cognitive decline, recently decided to go to the UCSF Memory and Aging Center and get a get an assessment

there.

And here's Moca scores with me. The last time I did it was about a 24. And when he went to the Mecca to have the testing, for some reason, they did the many mental status exam with him and he scored a 30 out of a 30.

So it was an interesting, you know, reminder to me of kind of how inadequate the MSI can be sometimes for picking up the early dementia. And, you know, there's and this guy, he's, you know, definitely we've kept him steady for quite a few years and actually gotten, you know, some improvement.

But he still has some cognitive issues he should not have. You know, he wasn't perfectly. It shows me the inadequacy of that scale for this population.

So for our study, we did, we did rating scales and measurements of cognitive function for different times during the study. So we did it at baseline. We did it at three months, six months and nine months.

So it was a nine month study. Nine months isn't a lot of time to do all that. We had to do. We kind of had to hit the ground running and move fast and furious.

You know, all of the factors that we are trying to correct and, you know, as part of the testing, you know, we cast a very wide net. We, you know, we look at anything that can be affecting the brain.

And then our goal is to, you know, fix and rectify and then, you know, treat all of those factors in order to help, help the brain to heal. So, you know, I mean, if we had an 18 month trial, you know, I expect we would have seen even more improvement.

And what we did see, actually, can you show the slide of the, the the, the Moca and the, CNS vital signs. So, so we did the Moca testing, and each metric point, and then we also did a neuropsychiatric battery that's called CNS Vital Signs.

And it's an online test that goes through all of the traditional domains of cognitive functioning that that are neuropsychologist would do in a multi hour test.

And it takes about about 45 minutes to an hour for people to do. But it's a validated, score that's been used in other clinical trials. And so what we saw, was that we pretty much had continual improvement throughout the study.

Let's see if you can get that slide or not. Is that the when can you see this? No. Nothing's showing. It's back. Okay. It looks like it's not sharing.

So perhaps we can just, include that in the, in the notes with the recording. But, but basically the slide that I, was hoping to show it, it shows, our, our scales and, you can see steady improvement, you know, all, all of our data points.

So people improved by three months. They improved some more by six months than predicted, more by nine months. So it was, you know, quite, rewarding to to see clearly.

We were on the right track here. Yeah. So I'll just share that we are doing a clinical trial very similar to this one in our office. And and we are seeing our, our endpoint of our intensive trial outcomes are after six months.

And then what we did that was a little bit different was we said, okay, after six months, go ahead and go back to your regular life, your previous life, if you want to stay on on the protocol, if you'd like to do whatever kind of feels best for you, and then, we're going to catch up with them at the 12 month mark so that we can see if there's continued improvement or if they fall off the wagon if things kind of start to decline again.

So we'll be able to compare some other numbers and some hopefully get some more information because I'm sure, like, you know, most common question we were getting from potential new patients and their loved ones was, well,

if my mom or dad or uncle or spouse does this, if we spend the money and we take the time and we, you know, go through all these changes, then how likely is it that they're going to get improvement?

And based on your child, the answer is 84% likely. That's really, really likely. Yeah it is. It is really likely. And you know, there were even extenuating factors in some of the people that didn't get better. Right?

That's always the important question as well. Why did some people not get better? And, I can tell you that several of those people that did not get better were living in moldy environments and did not have an ability to change that.

Trial Design and Cognitive Testing Methods

So, you know, we know that the mycotoxins from the mold are neurodegenerative. And, we had we also, of course, had the problem that Covid hit in the middle of our trial, and we really had to pivot with that.

I know that two of my patients in particular, we had turned up mold in their homes and in their own bodies, and we were waiting for the the mold mediators to come and help them remediate the mold in their home.

But no remediation would come in, you know, early in Covid, right? And so so they had to shelter in place, stay in their home environment. That was moldy.

And of those two of mine that were clearly in that situation, one of them took the time that she was stuck at home. They got rid of everything they could clean, everything they could while they were waiting for the inspector.

And she finished strongly by the end of the study, the other person, didn't have the wherewithal, to in the resources to do that and, and, he, he had a slide because he was improving and then he had had a slight decline.

He didn't tank. We didn't. It was, you know, solely to say this was an improvement. I mean, it wasn't that he got seriously worse, but I do believe the mold was a factor.

I know that, doctor Anne Hathaway had a patient. She sent us the photos of the mold all over the walls. It was quite dramatic. That patient had no improvement.

And they did not have the funds or the resources to move to clean up. They didn't own the home. And it just wasn't an option for them. So, you know, we're learning of course, it shows us the factors of, you know, all of these various things that can injure the brain.

As you know, the mold is something that many people have a hard time buying into and getting their heads around. But it was a factor for several of our patients and didn't get better.

Yeah. This is I mean, this is a big part of my inspiration to start Marama. The residential care facility is because I had seen so many patients with mold who just felt really paralyzed.

Right. By cognitive function isn't great, right? Yeah. Because of the molds. And yet they're in these homes maybe that they they've been there for decades.

They've raised kids. They're they're very attached to the home. They're terrified of what might happen if they decide to leave or move, or it's people who are renting and stuck in leases.

There's so many dynamics and things that keep us either financially attached to the house and and mentally emotionally attached to the house. It can be really, really challenging.

And so having a place where, where the owner, like, you know, where the management company is thinking about mold and considering that is a factor, I think is just so important.

And anyone listening who's considering a move like that, please ask wherever you're going next, make sure that

they're aware of water damage and of potential mold in the building, because this clearly can affect cognitive outcomes and not just cognitive function, maybe, but so many other health outcomes that it's just not worth moving into a moldy place.

Right? Right. And, you know, it's also the bigger issue of how widespread is the the mold damage in your house. Is it circumscribed to one area, have the spores traveled throughout all of your belongings?

How much do you need to get rid of things that can't be cleaned, like porous objects, like your books and your papers? I, I refer some of my patients to people now that are, health coaches that are specializing in mold, and they call themselves mold coaches.

And that's been immensely helpful, both just for emotional support. How to the with ISI is an organization that I know you won't know about, but it's spelled ACA I dawg.

And they have resources on there for for people looking for mold inspectors and you know, more how to it's actually, you know, becoming more of a research organization.

It's a it's an organization of clinicians working with environmentally acquired illness. And, it's, you know, so people need so much support. It's so hard to get their heads around.

And, you know, I like to tell just actually a brief little story about, a good friend of mine who had mycotoxins, illness and was dementia. And, she lived in a beautiful home, right on the water in the San Francisco Bay.

And we used to have meetings at her house. And every time I went there, I would get a terrible migraine. And I tend to get migraines when I get exposed to mold.

And I said, you think there's mold here? And well, over time, she got sicker and sicker. And I found out, when she first moved in, the inspection reports of her home had identified some areas of mold and suggested remediation, but she didn't think it was a big deal.

Right. Most people don't. You know, it didn't didn't bother her, didn't smell bad. And, but what happened was she got more and more demented. She got to where she couldn't even speak.

She couldn't express herself. There's a form of dementia called log of panic aphasia. Where, when? When you talk, people will say, you know, and then I, and I went to, And you can tell that in their head they're thinking of what they want to say, but they cannot express it or articulate it.

She was like that, you know, it was just so painful for her to try to talk. She got to where she just couldn't even figure out how to feed herself and get, you know, dressed.

And, you know, she lived alone. It was just horrific. And I kept saying, you've got to get out of this house. We've got to get you out of this house. Well, finally, she, you know, sold the house, put everything in storage.

She went to a retreat center in upstate New York somewhere that did all kinds of detox, and they ate raw food, and they did coffee enemas every day. And I don't know what else she did.

She was a friend and not a patient. But, at the end of about six weeks, I could not believe how much her brain had come back. It was just the thing clicked.

And yep, she was back to, you know, traveling internationally and teaching. And, you know, it was quite phenomenal. So I think that for me, it was just, you know, such, I was kind of early on my path of learning about mycotoxins, illness and to see what it was doing to her brain.

And then. But I want to say that twice I saw her decompensated when she tried to take her moldy belongings out of storage and bring some of them back into her life.

So, you know, once the brain has become sensitized like that, you do have to be really, really careful and the stuff just isn't worth it. So you mentioned how well coaching.

And I think coaching is such a really important part of both your clinical trial and the design there. So and ours as well. This is hard, right? I don't want anyone to kind of think that what we're, we're asking is not it's not taking a pill.

Right. And so there is a lot of kind of retraining about how we eat, how we exercise, what's normal, what's not in terms of sleep or bowel movements or any of these other kind of pieces that are a part of being human.

And so coaching, whether it's a coach or a health coach or a recode, certified coach, some sort of coaching is typically necessary along the way. Right?

You seen work best, right? So oh, gosh, I you know, I love being able to work with the coaches and the team. And as you said, it's essential. And, you know, causes many of the patients, spouses are aging and perhaps have their own issues.

And so there's a lot of support that's needed. And, and I want to backtrack even to the people who succeeded in the trial and who did it because it relates to the coaching and it relates to the compliance.

And, you know, the people who did more got more better. So the, you know, the more you do all the aspects of addressing, you know, the various things in the protocol that we did, the better it gets.

And one of my patients in the study was an oppo E4 for, you know, which of course, if you have a 4 or 4 and you're already manifesting dementia, the likelihood that you're going to progress is extremely high.

And he was in the mild Alzheimer's range and really, you know, he he really could not function in his life in, in any meaningful way that, that he previously did.

But he could do his protocol. And this guy was the most motivated patient that I've ever had. He spent extra time every day doing his brain training and doing his mindfulness training.

And he just he did, you know, everything. And it had paid off. He, you know, he moved from mild dementia to mild cognitive impairment. Now does he have to continue the protocol?

Absolutely. It's going to be interesting to see, you know, what you get from who stays with it and who does it.

Coaching, Lifestyle Change, and Ketosis

I did do some I'm going to come back to the coaches, but I did. But I do think it's an important point to make about how to make peace with the aspects of the protocol as a lifestyle, because, I did some questionnaires with my patients after three months and I said, you know, this isn't part of the study, but if you'd like to give me any feedback, how are you doing?

And, you know, and kind of got a sense of who was doing what, and now that it's fun, for some of the people now, it's been over a year. And, I think my final patient, it'll be a year in early October.

So, you know, I think I'll go do some more, surveys of people and some of them are still working with me, so I know how they're doing. But but it is important to to continue the protocol for sure.

Now, the coaches, we had a dream team in the study because we had, a health coach, we had a nutritionist, and we had an exercise coach as part of our team for each patient.

And so, and it was so it really we all, all of the investigators previously worked with coaches, work with nutrition people, but we all came away with a deeper value and respect for how much benefit that is for the patients to be able to make these changes and, and shift.

So in the study, in the beginning, the health coach actually went to the patient's homes and they were going, you know, weekly and then spread it out a little bit more.

So they were able to, you know, see how people lived, see where they were struggling. You know, look at the food in their kitchen and, you know, help them to, to start to make these kind of shifts.

So that was immensely helpful. Definitely. And then the other part that, that most of us hadn't had a lot of experience with was having an exercise coach.

And, you know, I think the two, you know, the the two biggest, you know, ways that we know that we can change our brain the best validated our exercise and meditation or mindfulness.

Right. Those are the best validated ways to increase your synaptic connections in our brain. And so exercise is essential for a multitude of reasons, both, you know, cardiovascular and and and emotional and and cognitive.

So our patients were able to go and work with the exercise coaches who had to pivot also because of Covid and start to do online, coaching with them. But it was it was very eye opening because we had our patients do a variety of, exercises.

So they had to do some cardiovascular, they had to do some strength and balance training, and they had to do some high intensity interval training a couple times a week.

And so I would get reports from the coaches. And one of my patients was, a marathon runner. He had qualified for the Boston Marathon, which sadly did not get held in 2020.

So he didn't get to go right. But he was a runner and the health coach. The exercise coach gave me a report and said, well, he's not ready for high intensity interval training yet because he has no core strength and we're working on the core strength.

And I said, well, wait a minute, he's a runner, right? Like, why can't you do high intensity interval? He goes, oh he's completely adapted to that running that running.

You know, he can run long distances. He doesn't really raise his heart rate. Like if I went to, you know, go jogging up my heel, my heart would be going crazy.

But he was adapted to that. So, you know, they worked on his core strength first, you know, and then gradually ramped him up to where he did some other kinds of high intensity exercise that for him would elevate his heart rate.

So, and then I had, another person that was also an excellent, she did like, I don't know, 50 mile, you know, bike rides or bike races. And yet she also just she and she was younger, and she was in good shape, but she also felt like she got really tangible benefits from working with the exercise coach.

Wow. Wow. So I have one more to tell you. I have one patient that was in my study, who never exercised in his entire life. Never. Here is his most his, you know, his only exercise was walking a small dog, which isn't really much exercise.

Right. But he he also was so motivated in the protocol he did. You know, everything. Right. And, and, you know, fairly early on, he said, you know, I'm really kind of liking this exercise.

Once you get over the hump, right? It's really hard when you're, you know, deconditioned and it's a struggle. But, you know, once you start feeling some success from that, he, he just he really enjoyed the exercise.

And for his vacation at the end of his honeymoon, I believe at the end of this day, he went kayaking, ocean kayaking in Monterey. And, I don't know if, you know, people in other parts of the country have probably had don't have access to ocean kayaking, but it's a very strenuous exercise.

You have to have a lot of strength and stamina. So he did it for fun. So, so, so I just, I think to highlight the importance of the coaches and have all kinds and at least at the beginning of the protocol, getting a lot of support, I think can really, really make the difference and a success for people.

Yeah, certainly we've seen that whenever I've talked to Doctor Bettison, his first question, if there's a patient that I'm struggling with, are they in ketosis, are they in ketosis.

And so measuring and that's of course the luxury of being in the trial is that we are measuring frequently. And then also that the coaches can help to troubleshoot because ketosis is a state of metabolism.

And so it's not always just about what you eat, but how you personally metabolize it. And a wife might metabolize it different than a husband or father daughter.

And so making sure that that coach is there to me to figure out and troubleshoot and and help them, you know, discover what a ketogenic diet looks like for them.

Yeah, yeah. When ketosis is another interesting aspect of this study. So, Doctor Wrightson wanted to have everyone in ketosis for the study. And, you know that of course some people can keto adapt really easily.

Perhaps their blood sugar is already low. They're already eating low carb, and other people have a very difficult time with getting into ketosis, especially if their blood sugar is already high.

But sometimes that wasn't always the factor. And one of the things that we discovered is that it's worthwhile if you're going to do ketosis, to really get a little deeper into ketosis.

So if you're doing the fingerstick levels, like I believe in our study, we wanted to have people around, point 9 to 1.3 as a minimum. I forget the exact numbers, but what we discovered was that people that went deeper into ketosis actually often did better.

So, I would say for people that are trying a ketogenic diet, you know, try to take it, you know, farther. And so the people that got two levels of two, it actually seemed to have additional benefits and people that were at a level of one.

Now, in our study, we were using the, you know, the keto mojo Fingerstick method, but, there's a newer, breath meter that's come out recently, that, seems to be, you know, well validated.

And, you know, it's an upfront expense. I believe it's about $300 to buy it. And, I know Chris Crestor sent me a podcast that he did with, the person that is, I believe it's called biosensor.

Gosh, I'm blanking on that biosensor. Is that it? Biosensor. You know, we tried it and we couldn't get it to match the fingerstick. So I think maybe, maybe it was user error, but we haven't gotten that one to work quite yet, so it didn't work so well for your patients.

For us, we've tried it at Marana. Okay. So and we're we're comparing Fingerstick to the breath meter. And yeah, I couldn't get them to match. But we'll keep trying.

What was it not correlating with the blood levels. It you know, it wasn't. Yeah. Well, and you know, I'm not a super expert in this, but, you know, I have read that some people think that measuring the the breath levels are actually going to be more reflective of what's happening in the body than the progress of the, the fingerstick.

Yeah. Yeah. That the breath will actually be more accurate than the fingerstick. Okay. Okay. Yeah. Maybe. But, I haven't used that. You know, I haven't had an occasion to use the new thing yet, but, you know, perhaps you can speak with, the person in the company, and, I'll send you the link for Chris Kaiser's interview.

And he does also have a discount code in there for $30 off for people, if they want to try it. But, it seems like the

person that he was interviewing from the company was very knowledgeable about this.

So because certainly it's much easier, right? If people can check their breath, if they can eat something and they can breathe and 30 minutes later, 60 minutes later has this kick me out of ketosis, you know, much easier than doing repeated finger sticks.

And of course, ultimately much less expensive, because every test strip or the finger stick is about a dollar a strip. So, you know, even if you did it once a day, that's $30.

But, you know, if we can make it work with the breath meters, it's going to be. I couldn't agree more. There should be an alternative to the Fingerstick, because it does take that repeated measuring to really know if you're getting into ketosis.

Yeah. And it's hard. Yeah. You got to put your finger, which is like more painful than most things, way more painful than it should be. Now, I would say, you know, you probably know this, but if you're pricking on the sides of your fingers, it's less sensitive than the finger tip.

Thank you for that tip. Know everyone should know that prick the side. And then and then also when you go to type or do something later, you know, that again.

And then the. Yeah. Like you're saying, the expense, it's just crazy high. And so typically what we've been recommending is that if they are doing the finger prick at home is, to kind of try a few different foods.

So if there's a food that you have some question about right after eating that. Right? Right, exactly. I had one patient, not an a study patient, but somebody doing ketosis.

And before his appointment with me, he stopped at Rome Burger, which is a place with free range burgers and organic salads. And he had some sweet potato fries, and he didn't eat the whole thing.

He ate a little bit of the sweet potato fries, and then he came in. And then, you know, we checked things when he was in the office and he was still in ketosis.

So he was able to eat a little bit of sweet potato fries. And as you know, so of course there's a difference, right, in how much one person can handle versus another, and also how keto adapted.

You are right. If you've if your body has gotten used to being in ketosis, then you can usually have a little bit more of something that would raise your blood sugar versus if you're new to brand new to ketosis.

Yeah, yeah. I want to apologize for the background dog. Background noise. My my dog just woke up in a game and was drinking, and now he's huffing because it's hot here.

Yeah. Okay. Yeah. So what else did you learn that was maybe unexpected from the trial? Oh, well, I wanted to mention our radiology data because that was very unexpected.

So as part of this study, we did an MRI at the beginning and the end of the study, and we did neuro quant, which probably a lot of the listeners are familiar with.

But for the ones that aren't, neuro Quant is is, a special software program that we can upload the MRI data to. That will give us a volumetric measure of all of the brain structures.

So it'll tell us the size of everything in your brain relative to and age matched control. And so that gives us a snapshot of, you know what areas are atrophied.

And actually some areas that we see are enlarged or a damages. And that sometimes happens when there's things triggering your brain like the mycotoxins or you have infections, you know, Lyme disease, viral infections, if you

have a heavy metal load in the beginning of, insults to your brain, you know, first off, the inflammation is created and you will have swelling and edema.

And then the longer that goes on, eventually the neurons start to die. So, you know, it gives us a picture of what's happening in people's brains with the volumes.

But, we, you know, also had traditional neuro radiology looking at the measurements of things. We were really we had at least two patients. And just looking at their gross MRI, things got better.

One of those was mine. I was just shocked because nine months is not very much time. And do we really expect things to get, you know, better on that much of a level to see a change in an MRI?

You know, we didn't expect that. So we had a couple people that just looking at the MRI actually had improvement in structures.

Mold Exposure and Other Hidden Barriers to Recovery

But when we looked at the overall, measurements of things, one of the things we look at is the gray matter in the brain and that, you know, tends to atrophy, fairly early with dementia and continuum.

And, so, when you have, just normal aging, you would expect some decline in things in the brain. But in our study, the patients actually got better overall in their gray matter.

Let me see. I have the statistics here because I can't remember them exactly. So with typical Alzheimer's, your gray matter would decline to 2.2 to 2.4% a year.

Okay. And, in our patients, rather than declining, they increased by 0.3%. So normal decline 2.2%, ours improved 0.3%. And actually with just normal aging, you would expect a decline of 0.8 to 0.9%.

So should go to rest. Any question of can I reverse dementia. Right. Like this. This should be I mean I get now why Doctor Bateson says this should be a rare disease.

Alzheimer's is optional. We can make changes to our lifestyle. We can see doctors like you and and get better. People can get better. There is hope. And there are answers to reversing this awful, awful disease.

And not only can you measure it in terms of patients experience patients cognitive function, but you can see it in a picture of their brain, right? Right.

And we saw also kind of unexpected, but the hippocampal volumes. So the hippocampus is a structure that one of the first things that does also decline with dementia, with Alzheimer's, dementia.

And that's our memory center. All our memories are stored and processed through the hippocampus. And, our patients did have a slight decline in their hippocampal volume, but it was, again, clinically different.

And statistically significant from normal aging. And, and, also from, of course, dementia, where you would decline much further. So there was still some decline in the hippocampus.

But better than people without any cognitive problems. Again, those were our, kind of blow us out of the water changes. Well, the most important thing, really is not those numbers from the MRI.

But how are you doing clinically, right. What's happening in your life? And one of the interesting things that that we noted is, you know, we were talking about this on a call afterwards, in, in early Alzheimer's.

There's so much stress on a couple. Right? You know, somebody is declining the other person is trying to understand, why won't they do this? And why won't they do that?

And they, you know, and it's just it's a stress on the family unit because everybody has their roles in a family. It creates just so much marital tension and stress that, you know, we had to sort of become marital therapists in the beginning of this study, you know, and help keep reframing things and supporting the spouse without the cognitive decline because it's so painful and frustrating.

And I say that was an unexpected benefit or expected. If you know people are getting better, you could see that the spouse's stress levels went down. And, you know, the we weren't having to give as much emotional support to the to the spouse as time went on.

You know, that's part of what inspired me to just go into this field to begin with is I, I feel that Alzheimer's research project, because it doesn't just take that patient, it takes the caregiver, it takes the spouse, it takes someone else with them.

Right. And by bringing up by by making Alzheimer's a rare disease, by making it reversible, by showing the world that this is possible, you don't only get relief to that individual, you get to you get relief to everybody around them who's affected by their disease process.

Right? So, you know, I think it's so important what you're doing, you know, with your facility because we have people that have no one in their lives to support them, right?

They want to do the protocol and it really and if you're, you know, have, you know, very mild impairment, you can probably do this protocol on your own without support.

But if you're a little further along, it really does kind of take that village of people to help you with the accountability. And so I would imagine that with these amazing results, it begs the question of, you know, what's next?

What's so many people? And I think it's a valid criticism of our field, is that there's not enough research and you sort of kind of like shake something because like, why is where all these billions of dollars and decades of brilliant minds going into chasing these medications and of course, there's financial pieces to that puzzle, but there's so much going down a rabbit hole that we've proven over and over and over again doesn't help.

And yet there is this incredible research and and what we knew before even that this was possible, that these diet and lifestyle and there were other interventions, of course, that detox and hormones and the other things that we do.

But this works and it works well. So how do we fight back so that no one can say any longer that there's not enough research? What does that look like?

Right. And and you know, that certainly has been a criticism. It's been a criticism. I mean, I've read many criticisms of Doctor Madison's earlier papers and are saying, well, you know, you don't have data on this.

You don't have data on that. Well, those were case reports. They weren't studies. Right. And people were criticizing them as if they were a study, but they weren't.

But this is a study. And, you know, and it's a start. We learned so many things from it. We're many things we want to incorporate, things we can do better.

So, our benefactor for this study has already committed to the funding for a larger study. Bless her heart. We're so grateful. And this is the for Wins foundation.

But it's a private individual that's funding the research. And the next study is planned for 100 patients. So a larger sample size, obviously, the, you know, more statistical significance.

And it's going to be a randomized trial. And half of the people will be randomized to doing our methodology and half will be randomized to standard of care for neurology.

And they will still meet with us. We'll do the testing. And these days it does seem like, you know, many of the traditional neurologists are incorporating diet and lifestyle changes.

But, you know, they won't be required to, you know, be in ketosis and do the kind of, all of the other interventions we did in this study, which I should probably say a little more about, but, so I think it's going to, you know, give us a lot more perspective.

Now, we are just in the very earliest thinking about that planning stages. But, I think that Doctor Pedersen would like to have the people in the standard of care, at some point cross over into the active treatment arm so that we can, you know, have them as a control group.

But then also incorporate them because, it's very hard to once people know that this method gives so much hope to forgo the treatment for that. So, you know, that would be a way to, you know, if they comply with the, standard of care arm for a period of time, maybe six months, then we can offer them the benefits of having some of the extra resources that our study patients have.

So they'll be more investigators with that more site. You know, and I hope to have, I know that, Doctor Bateson has decided on a couple of people, one of which is in South Florida, and one is in, Ohio.

So, you know, different geographic areas, right? Yeah. Because of the three investigators were in a pretty small area, and two of us are in the San Francisco Bay area, and one is in, southern Oregon.

So, you know, we'll have more diversity, I hope, in the next study. That's fantastic. How exciting. Yeah. And, and, and each time, each iteration of these trials, there's more and more and more to learn. Right?

There are these subgroups like, could it work for Lewy body? Does it work for, you know, different stages? Could it work for people who have a mock up of 12 or have of two?

You and I both have instances in our clinical practices where we have seen people at that level improve, but then to get it into the literature, to have it and incorporate it into a study so that we can be really in a, in a validated way, answering those questions from loved ones, how likely is it that my loved one is going to get better?

Right. Because as you said, it's it's not easy. It's not an easy protocol. I had, you know, patients that, were working that pretty much in the beginning had to really curtail their work or stop working for a while, and then we're able to resume things as they, you know, God made peace with all the aspects of the protocol.

So it really does take, a big commitment. And, and so I think the more we miss this data to show that is this commitment worth it? And I believe, yes, it is, because we all know the alternative.

Some people just can't go there, you know, and it's they're the most it's the most painful thing when a couple comes and the spouse who's not affected wants to support the patient to do the protocol.

The patient doesn't want they're like, oh, no, I don't want to change my diet. I don't want to exercise. I don't want to do all these things. And, you know, you have to just honor that, right?

Because if they're not motivated, it just doesn't work, you know? And so some people, I think you they could be in your control group. Yeah. Yeah. For sure.

But, you know, it's, No, it's it's super exciting. And I just definitely want to, maybe say a little bit about that. What? Having Covid has opened the eyes of the academics and, you know, traditional medicine to the effect of a virus on the brain.

And that's one of the things, you know, that many people have, you know, in the last, you know, few years, five years, ten years have come to the conclusion that, yes, we need to have diet and lifestyle changes for dementia, but for most people that is not enough.

And so that's where you start, right? The diet and lifestyle changes in the sleep and the stress reduction. But there's still a reason that your brain is degenerating.

And so it's important to look at all of those factors. I mean it's been a long been known the metabolic factors to high lipids to high blood sugar. Okay.

And interestingly, I mean fairly expected benefits. But when we saw dramatic improvements in, you know, people's lipid levels, people that one person that, you know, came in on a statin and, you know, got off of that statin, you know, pretty quickly people whose, you know, were in the pre-diabetes range, that came down to perfectly normal sometimes within three months time, you know, you know, dramatic reductions in their CRP, inflammatory levels.

So, so that was a, you know, a consequence of the program. Lots of people that lost weight that they needed to lose. So that was great. But the infections are such a huge issue in the brain.

And, and now with Covid, it's actually the term brain fog has come into the vernacular. And, you know, previously, patients go to their doctor and say, I have brain fog.

The doctor would be rolling his eyes. Oh, God, here's another, you know, sight case here.

Brain Imaging Results and Clinical Improvements

But but but now it's quite acceptable, you know, for us to understand with this virus that, you know, gets into through our nose and into our lungs is going to our brain, and, and people are having, you know, so much cognitive problems, even young people, that it's really lending credence to the notion that we've got to be looking at these infections in the brain, that there are huge trigger for dementia.

One of the points that you bring up here around other markers normalizing. So, hypertension, we've certainly seen, even depression anxiety seem to resolve.

And you mentioned the stress between spouses. Yes. We are encouraging people to not drink as much. So I mean, but also so liver enzymes and kidney functions improving, you know, things across the board are improving.

And that's the side effect of our intervention for dementia. First what you versus what you talked about about at a can AB did I get that right. Oh yeah. Good. I can't imagine the this new intervention that was FDA approved.

Right. The side effect is brain swelling and micro hemorrhage. Hemorrhages. So brain bleeding like this is when, when we start to look as a society that what adds value.

What's worth $56,000 and society. Great is it. This approach that can get can reduce health care spending overall in most in most cases. Right. Or is it this approach that might get a slight reduction in the pace of disease progression.

Plus had all these other issues that are expensive, right. Like what? I guess it's just crazy making to me to put these side by side. And you have a slide here that's that will be in the show notes, that shows that no treatment.

So the basically the changes in cognitive score, when you look at no treatment is a decline by about three, 3.5 if there's no intervention at all. And then adding can do bad is a decline of between 2 and 3 points.

And then your trial on the flip side is an improvement of 3 to 4 points. So when you when we think about where our collective resources because when we're talking about Medicare, these are taxpayer dollars.

When we talk about this and where it comes from and where it goes, it just it feels like there should be a little more thoughtfulness put into what happens next.

Right? It's, you know, I hope with a bigger trial and, you know, more exposure that, that the more academic world

and the NIH funders will take more notice of this.

We are, applying for publication with the Journal of Alzheimer's Disease. And, that's an interesting journal that is now featuring, papers with all of these different kinds of interventions that we did in the study.

And, when Dale Bryson spoke to the Journal editor, he, you know, said, this is, you know, definitely, I forget the exact word, but, you know, a rather, you know, groundbreaking study.

And and he said, I've really come to the conclusion that, we need to have multimodal factors of treatment here, right? That it's not just one thing. And so that journal is, you know, featuring all kinds of things about meditation and inflammation and infections and, so, you know, it's it's creeping into the consciousness of people, you know, but it's it's hard to shift the medical machine, you know, people, they know what they learned.

And, you know, this is a different approach. And, and it's it's a stretch for physicians also to be knowledgeable about all the kind of things, you know, I mean, I've, you know, learned, you know, functional medicine over a decade now, you know, but it's a big shift from traditional medicine, for us to learn all of the factors when especially some of us that are specialists, to know one particular area, I've had to become quite a generalist and, you know, reacquaint myself with all areas of medicine that I you know, didn't think it was ignored previously in psychiatry and psychiatry.

You know, we were just taught about the brain and, you know, and the notion that didn't connect to the rest of the body, well, that's wrong. You know, if we want to fix our brain, we have to fix all the things that are that are wrong in our body and harness that when we're fixing our brain, we are fixing all of the other things that are wrong in our body.

Right. We're getting the little twofer there. Well, I thank you for for just reflecting that perspective. I'm not someone with a terrible amount of patience, and especially when it feels like people are suffering unnecessarily, right?

When there is a solution and there are so many people really desperate to find it because they themselves or a loved one is declining. I, I'm just so grateful to you for getting the word out, for dedicating your career at this point to this, and, and for just, you know, it is it's hard work and it's not all days are great.

Certainly the ones where you see people get improvement are fun. But it's hard. It's hard work. And it's, it's a lot to think when, you know. And the people ask me, they say, well, the average improvement in the Moca score was a little over three.

You know, it's a 30 point scale. But I had patients that came in with a Moca of 29, and. I'm sorry. 19 and 20 that have improved to a level of 30. So some improved a little, but some improved.

I mean, I have I would say 6 or 7 of my patients. There's no way they would qualify for a study any longer. They just perfectly you know, they may have some, you know, issues that they're not, you know, the way they were when they're 40.

But, some of them are just functioning absolutely beautifully. And of course, we know the flip side without intervention, they would have continued to decline.

So I think it's just so important, for people, the more we get this word out, I tell people when you're, you know, with aging and unfortunately, aging starts to happen in our 50s these days.

If you think you're having a problem, you probably are. And, one of the patients in my study had been seen, a couple of years earlier at Kaiser. I think he was about 62, 63 in the study.

And, he was tested and they said, oh, well, you're not bad. The only one scores are low here. Well, that one score was his verbal memory, and it was, it was quite low.

It was like a 1920 percentile or something. And this guy was a physician. Right. It should have been quite high. And he was, running a startup device company or something.

He invented, you know, quite a brilliant man. And, you know, fast forward a couple of years later, he came to the study, and that particular score had declined even further, and other scores had declined.

And, you know, at the end of the study, that score was back to normal. So again, without intervention, he would have kept going. And so I think it's just thank you for all that you're doing to get this word out because, you know, we definitely want people to know there is hope and pay attention when it's early, because it's so much easier for us to, you know, to real people back in and, you know, get things better before the decline is too much.

Yeah, I love that message. If if you notice decline, say something, do something, get help, act immediately. For so long, people have been told that there's nothing you can do.

There aren't good options for treatment out there. And so instead they kind of hide it. They either go into denial or they hide it. They don't want to tell anyone.

Their spouse doesn't want anyone to know. They don't want to be shunned or treated differently by their peers. And and it just is allowed to progress.

And that the hope that we want to send out there is like, no, there is stuff you can do, but you want to act quickly. So ask for help now. Well, and I think that's a great point.

Just the normalization of talking about it, that it's not a failure if you're having trouble with your memory. Right. There's no fault of yours in, you know, you're not a bad person kind of thing.

The same is with mental illness, right? It's just the more we normalize this, everybody has mental illness in their family. It's not a weakness, right?

It's the reasons that psychiatric illness happens, just like with dementia. So, you know, I do think that people are telling their stories, and I know or one of my patients in the study, she's, physical therapist and Pilates instructor, and she's got a rather large following, and I know she's incorporated.

She talked about her path all along in this study, you know, with her classes and her followers. And, you know, and she's somebody who finished her mock as a 30.

Now, you know, she's wondering, right? She's perfect, you know. So, I'm Doctor Bateson also is, I think he has a new nonprofit, and he's going to be launching a website where people are going to share interviews with their stories, because we need those stories to come out as well as we need this data, you know, to put a human face to it and to say, okay, this was happening for me.

I did this and look at me now. You know, because it's we needed to come out of the paper and into people's minds, in their hearts to really, really, you know, believe and know that that there is a way.

Now, does this work for everyone? No it doesn't. You know, we don't have all the answers. You know, I don't, you know, want to say, oh, we have this method that helps everybody.

You know, they didn't all get better. And, but certainly a large preponderance of people got better. And I think, you know, with, you know, more time and effort, you know, more could have been done with some of our patients.

And as you mentioned, there's different types of dementia. We didn't, you know, we didn't, just because this is early dementia. I mean, if somebody's like, with Lewy body dementia, oftentimes you'll have hallucinations early on.

So that would have been excluded in this study that like, not nobody have applied for the study that then we excluded for that factor. But it was an exclusion factor.

Why Multimodal Treatment Matters

But we have all seen in clinical practice that applying this methodology of looking at all the factors that are affecting the brain and doing everything you can to to fix those and then do brain rehab, you know, it can be beneficial and worth trying in any kind of dementia, any kind of neurodegenerative disorder.

Because again, what are the alternatives this has, you know, this really might help you. And, and it's it's worth, worth trying in my mind for sure. Absolutely.

That's one of the questions that has come up in these conversations with a patient and their spouse when they do feel like it's challenging. And we noticed that usually around 3 or 4 months, it gets really hard.

You know, people have been at it. They're they want to go on a vacation or they want to take a break. They want to go back to seeing their friends. And, all of the ways that your lifestyle is impacted by this is significant, especially depending on where you start.

So when we have that conversation so often where people end up as well, if I don't stick to this, what's going to happen? Right. That is really scary for people, right?

They give up on the hope, but they also know the alternative is it is they can expect pretty rapid decline. And so there's there's two pieces here. It's actual results.

But it's also the hope that it in genders. Right, right. And then just continuing you know to learn you know, things and site types and you know who does what.

I mean, the sad thing is that we're seeing cognitive decline earlier and earlier. So, you know, when I did my training in the late 80s and, you know, all the trials that I did, I remember one person clearly who had dementia in her early 50s, and I might have had one other, and when you get dementia earlier like that, it goes faster because it's often more infectious and toxic kind of causes.

Now, when you get dementia, you know, after, you know, 80, 85, it's going to be a it's generally a slower process for people. But with the toxins and the stress in the world, we're just seeing people getting sick earlier and earlier and earlier.

And quite often, you know, my patients, I would say half of them in the trial were older. Our age range was up to 76. And, there wasn't really a lower age range that I recall.

But, and I think, Doctor Anne Hathaway had somebody that was 50, 51 in her trial. But I had a fair amount of people in their late 50s, early 60s in my trial.

And you know, that's typically that's not what we think of with classic Alzheimer's. Right. So, you know, it just to recognizing these factors and some of the things, you know, we certainly we tested a variety of infections.

We turned up a lot of Lyme disease and a lot of tick borne infections. And we know that this virus, Keith's Lyme, is a spiral, just like syphilis is a spiral.

And it goes for the joints and it goes for the brain. Some people it just goes for the brain and they don't have any joint manifestations. So that absolutely has to be screened in every patient with cognitive decline.

And you know, again, if you catch that early enough, you know, you can make a difference in that. But, there have been reports, there was a, paper of a report of a woman who was treated for Lyme.

No longer tested for Lyme, but when she died with dementia, they tested the amyloid plaques. And she still had active Lyme in her brain. So the notion of the Lyme persistence, and you know, how much treatment is enough treatment, a lot more research needs to be done with that.

But, you know, that that's a huge factor of looking at the infections. You know, we're we're working a lot with all of the hormones supporting all the hormones that we know are trophic for the brain and, you know, restarting those and getting all of those in balance.

And then, you know, looking at the chemical toxins and the metals, you know, we see, a lot of mercury. It definitely. And, you know, that's been known to be a neurotoxin since the 1800s.

And the mercury, much of it is from the fish. And, you know, I had people with very high levels of mercury that in six months of no seafood and giving them some liver support and, you know, detox support, it would come down to zero so you can get rid of that.

But you have to know it's there. Right. And then when you're resume eating the seafood, you have to eat the small fish, the smash fish, you know, that aren't accumulating the mercury.

And no more tuna, right? The big fish that have a lot of mercury. So, so yeah, so many factors to look at. But, you know, we can look at them all, we can test all these things and we can, you know, then have a picture up front of, here's what we need to do with our treatment plan.

We need to do protocols for this, this, this and this. And everybody's protocol was different. But my my real hope is that we will find a way with economy of scale to make it, less expensive for people.

Have supporting groups, you know, I'm just, you know, hoping that institutions like Kaiser would, you know, work with, you know, developing programs. Because, of course, you know, an ounce of prevention or early treatment is going to save a lot of expense later.

And, you know, for, for big medical organizations, you know, it's about the money they need to make a profit, right? Okay. But, you know, I think, you know, to look at the economics of this economics, of treating it early, there's an upfront cost when you're initially treating it.

But once my patients are doing well, they don't need to see me very often, you know, twice a year, you know, it's you know, I mean, it is labor intensive in the beginning.

But then, you know, things are good. Just keep things in balance. That's so exciting that there are these solutions out there. I'm curious, did you read the Jama article recently that was talking about the centenarians?

I think they were Danish. And they were finding that normal cognitive centenarians. So people over 100 years of age, when they passed away, some of them had amyloid plaques in their brains and in effect, amounts, but it didn't seem to affect their cognitive function.

So I'm curious, do you think that we need to, you know, is that reason enough for in addition to some of the other, literature that shows that when we reduce amyloid plaques, sometimes cognitive function gets worse.

It should we be throwing out the amyloid plaque hypothesis, or should we be just, taking it into consideration but in a different way? Like where do you think we are on that?

So I think we need to think about what is causing the amyloid deposition. Right. Because it's it's, you know, thought of as a protective mechanism when there's something triggering your brain and that can injure it, and it's causing inflammation.

The amyloid is secreted to kind of wall off that little wounded area of the neuron and protect it. So in the short run, a little amyloid is okay. But if you're having an ongoing infectious or toxic process that's going to keep irritating your brain and triggering your immune system, you know, then you're going to get more and more amyloid.

And so there's a point where it's too much. So a little bit is is okay, you know, if it's it's just the, the body doing its job to protect the brain, but, you know, it's just removing these toxic insults.

But I think you know, it's fascinating. Of course. You know, plenty of people do die with brains full of plaques and tangles that, you know, are an Alzheimer's type process that don't manifest the cognitive symptoms.

And we definitely want to continue to study those people. Right. What is it? What are they? What are they doing? You know, and, and, you know, to me, I think that, you know, that the people that stay active mentally and physically is huge, right?

We know that retirement is a risk factor for dementia. If you retire and you decide to sit home and, you know, watch TV and you know, not do so much, your brain's going to atrophy without the stimulation, right?

You have to stay engaged mentally with people, you know, stay connected with people. I mean, it's been a hard thing with Covid, right? Shut people off from their, their peer groups.

I had a patient with dementia, actually, with the one that was in her early 50s in one of my trials and, you know, husband was still working a high powered professional.

And he said, I don't know what's wrong with my wife. She won't drive to San Francisco anymore. And I said, oh, no, she can't drive to San Francisco anymore.

Right. Part of the marital understanding here. I said change, and you know, she's sitting home alone all day because she she doesn't have the wherewithal anymore to get herself out of the house and do these things.

I said, you need to get a caregiver for her. He had the resources. I said, hire a caregiver companion to be with her every day, take her out exercising, take her out shopping, take her places.

And, you know, I didn't know any of this stuff that I have learned in my functional medicine path now. But I knew that she needed that stimulation, and she did improve with those things.

You know, and the care, giver took her out swimming every day for exercise. And, you know, it was a benefit. So, you know, all of the things of, you know, these healthy, aging people that is just, you know, I think it's, you know, staying physically active and strong because the physical, you know, if you're, you're you're strong with your exercise and you're not weak and short of breath, you know, then you're going to be more active.

And all of that, you know, helps helps the brain. And we also did brain training in the study.

Future Research, Resources, and Closing Thoughts

We had our patients doing brain HQ training. And you know, so it's kind of people have come. We're way beyond crossword puzzles. But crossword puzzles are fine.

You know there's nothing wrong with that. Anything that's triggering your brain. Like I always say, my brain training is, where have I failed things in my drop box.

Right. I have a thousand files in my Dropbox. I'm always saving papers and this and that and and. Okay, which file did I put that in? And that's my brain training.

But, the the brain HQ training was they they also do lots and lots of research and they have validated, you know, they've, they've looked at like they know that certain of their tests, one of their tests called, I mean, you test a game called Double Decision.

They did a study where people did, I think, 40 hours of training on double decision. And then they looked at, again, I believe it was ten years later and their risk of developing dementia was greatly diminished.

And then if they had a cohort, they did a booster training a year or two later, you know, another, another number of hours. And those that groups risk was something like 40% less.

So, you know, keeping that brain engaged and active and even those people didn't continue to do it. But if you continue to do things for brain stimulation, you know, how much better will your brain be?

And they they even have data that they can increase the acetylcholine levels in the brain, which is, you know, is a neurotransmitter involved in memory.

Right? And we want to keep those levels high. They have data that some of them help schizophrenia cognition, some of them help depression. So, you know, doing this simple little brain training, 10 or 12 minutes a day, is, you know, one more thing to help make new connections in your brain whenever, a patient is kind of pushing back about needing to do something like that, I also remind them that learning to shop differently, learning to cook differently, learning to prepare foods.

You know, if now you're roasting and you've always started, you know, just now you're using an instapot and you've never used it before that that is a type of brain training for that planning.

It's kind of this executive function idea. It's also the type of brain function and cognitive ability that keeps people independent as long as possible.

Right. So the more that we can get them engaging in new activities that involve planning and executing, and following through on a multi-step process, the more that it's like flexing that muscle that's going to keep them in their home on their own, use their own cost of their own of care, as they age.

And so getting lots of different it's kind of like exercise, right? You want to do cardio, you want to do some strength training, and you want to do some of like the yoga, pilates, ballroom dancing, kind of that sequential pieces.

There's so many different types of exercise you can incorporate. Well, there's lots of different types of brain training. And just starting with a couple, is we'll make a difference and shift things over time.

When you threw in there the dancing and I think social dancing is something that's been so beautifully validated in, you know, multiple studies now for dementia and Parkinson's.

And, dancing is is a rather complex thing, you know, but especially if you're doing social dancing where you have a partner, you're connecting with people, you know, you're touching them.

There's a lot of, you know, wonderful brain hormones that happen with connectedness. And and then you know, that you're listening to the music, just the sound.

Listening to music is a stimulation for your brain, right? You know, and then, and then you're working on, you know, carrying out the movements of the dance and the sequencing.

And so, you know, that's a really fun thing to do. And hopefully in the next year, the world will open up and people can do that kind of thing. But, you know, you can turn on a video or, you know, put on some music and dance around your kitchen.

And that's really good for the mood, right? When you're feeling low and crummy to, you know, listen to some music and jump around and dance is a great thing.

But, but yeah, I think the task really is for each individual patient. What kind of brain training works for them? What kind of exercise works for them?

What kind of mindfulness program works for them? You know, I have some people that come in their experienced meditators great. Or, you know, some people are very, you know, experienced, qigong practitioners.

Great. That's they can do that. I had somebody in the study that was a rabbi and he said, I don't like doing this. Heart math program. We used heart notes for mindfulness, which is another well validated, lots of research, you

know, that that, you know, can improve the vagal tone and lower the anxiety and help the focus.

And so, you know, I call it meditation for non meditators. And it was something that we could do and measure the time and the study. Whereas you know with meditation or qigong or gratitude journaling, different things that are helpful.

You know, we couldn't quite measure that in the study. But but the rabbi said, but I feel, you know, I really get into that place when I pray. I said, perfect, that's great.

You know, you still have to do the brain HQ for the study, but, you know, keep your prayer, of course. And he would that's, you know, but, you know, and for many people prayer is it's a form of mindfulness, right.

It's beautiful. So it's finding, you know, what works for you to achieve those goals of the stress reduction, the mindfulness exercise, the brain training.

And, you know, yes, we have a lot of a lot more options with all all of those things now. So exciting, doctor, to thank you so much for sharing all of your insights and wisdom.

It really what you bring to the table here is so unique. Having just completed this trial, and having decades of experience with many other trials and interventions for brain health generally, your your perspective is just so, so valuable.

And I cannot thank you enough for sharing your time and insights with us. Oh, well, I thank thank right back at you with all that you're doing and, you know, doing your own study, doing, you know, your residential facility that's a model.

And hopefully more people will follow that model. That's so, so important. So, you know, I'm grateful to know you and all that you're doing. And I just want to leave people with my favorite saying dementia is not a death sentence.

I just want that to get into everybody's brains and hearts and, you know, to really know that, that there's options, that this doesn't have to be a death sentence.

It's it's a symptom of something going wrong. And let's find out what's wrong and let's fix it so that you don't have to go down that path. And how can our attendees find out more about you and your work?

You also have an upcoming book. So I'm working. Yeah, I'm working on the book. The dementia study is event. Such a such a labor of love and taking so much time.

But now I'm trying to, get back to writing a book that it's really going to be a how to, you know, what I do and how do you test and how do you put all these things into action?

And, so probably, the two best ways to find me are, my website and, I have a website you mentioned demystified, which is the name of the upcoming book, and that will link you to my website.

And, and, soon people will be able to leave an email if they want to be on the list to be notified about the book. And, kind of, putting together a little guide of tips for them in the meantime.

And then, I also, most active in social media on my work Facebook group. And it's just my name. And then it says, let's see cat chips and functional medicine, psychiatry and dementia.

And I try to post I try to post hopeful stuff on there, you know, but stuff related to the brain and both dementia and psychiatric issues and, and so I have a lot of really interesting, stuff on my Facebook group.

I like to go back and read stuff from the past and, and reacquaint myself with the interesting stuff there. So those are probably the two best ways. Oh, and I, I do have a YouTube channel as well.

If you just put in my name on YouTube, I'm trying to upload, various podcasts and lectures that I've done so that people, you know, want to listen more in depth.

I do have one talk on there that I, gave at the Age Management for medicine Group annual meeting. That's a kind of more technical talk with slides for physicians.

And it kind of goes through, like many of the testing and the different things that that we look at with this kind of work. That's amazing. Thank you so much for creating all those resources, for compiling them, for having them out there.

And I know I, for one, will be one of those people on the list that will know where to get your book as soon as possible. I'll add it to my collection.

And I can't wait to read it. So thank you for doing all of this. Your work is so valuable. Thank you. Thank you so much for having me. I hope the word keeps ricocheting around everywhere around the world.

And and we'll get more. More practitioners are coming. People are. We're we're gaining more practitioners, you know, that are, learning this and recognizing and helping to guide people.

So it really needs them. Yeah. So we're we're making that community. And I would say that now on Doctor Brita Sense of Power website. They do now have a find a practitioner page.

And previously you had to actually, you know, be part of their, their program offerings, but now they've, they've launched your find a practitioner page.

So that should make it somewhat easier for people. And then I also do, refer people to the Institute for Functional Medicine. Ifm.org has a find a practitioner page and and what to look for on there for our practitioner would be ideally somebody that's gone through all of the IFM training.

So they're IFM certified and then they'll they'll say something, they used to offer a reversing cognitive decline course and IBM, it's no longer offered, but you would then go to the person's website in your area and, you know, look and see.

Because not everybody doing functional medicine works with cognitive decline, but, you know, looking for a practitioner that has some understanding and focus there, would be what to look for.

Fantastic. Thank you so, so so much. Okay, thanks. Thanks again.