Discover New Era In Alzheimer's Care & Prevention

Heather Sandison, ND
with Dale Bredesen, MD

Heather Sandison, ND
Dr. Bredesen, you need very little introduction. I think many people here have read your books, including your initial standout New York Times bestseller, The End of Alzheimer's. They're coming here to this incredible summit that I have the privilege of hosting with you to learn more, to get the latest on the science, to get updates, and to learn how they can practically apply all of those insights that you've collected in your three books, in the research that you've done, and across your career. I'm hoping today that we can dig into some of those highlights and talk about why this is. You see this as the golden age in terms of Alzheimer's awareness and what we can do about it. Also the latest in terms of the research that you're excited about and what's on the horizon for you. Thank you.

Dale Bredesen, MD
Thank you so much, Heather, and I look forward to reading a lot of this in your upcoming book, Reversing Alzheimer's. Very exciting. Thank you for spearheading this now. This is your third or fourth year in a row? Fourth year. Fantastic. Thank you. It's just such a great job. I'm thrilled to be part of this. Let me start by saying there has been pushback. If you had this 10 years ago and you said, We're going to talk about, we're going to have a symposium on Reversing Alzheimer's or a Summit on Reversing Alzheimer's, People say, What are you talking about? We still get pushback, as do you. I just have to have a quote for you, which is that mediocrity excels at a single endeavor while protecting its interests. We see this from so many practitioners and so many neurologists in the pharma industry: we want to protect our interests. We're not going to look at the data. Even though you're generating data, you're publishing data. We're not going to look at this.

But I think you hit on an important point. We are leaving the dark ages of Alzheimer's, where, since 1906, when it was first described, and of course, Ayurvedic medicine describes something that is very much like Alzheimer's. This has been around for quite a while. To be fair, it's on the increase. It's been worse because of modern industrial issues. But after many years where we just couldn't do anything, There's a whole series of changes that are bringing this to the fore. We should be able to reduce the global burden of dementia dramatically. Here's what I mean by

that. The first thing you and I and everyone else know is that with chronic illness, you want to get in as early as you can and that it's best if you prevent it.

Now, for the first time, we have blood tests. Wonderful blood tests. P-tau217, GFAP, Neurofilament light. My argument. I'm going to get these tests in just a few weeks. They're just being rolled out to make it easy. We've got a very good price from Neurocode. Some of these others are charging massively over $1,000 for something, which is ridiculous. We have a much better price. I'm very excited about working with Neurocode and Dr. Hans Brickmann, who's fantastic and making it so that we all know, at 41, should find out their P-tau217. At 50, then 55, 60. It's something that if you have symptoms, you want to follow every year. The great news is that you can see things coming, and you can now use it to follow. You can see, as you're doing better, that it's getting better. That's a game-changer. You don't need to do serial PET scans, and you've got something where you can follow it quantitatively, which is exciting and relatively inexpensive and can save hundreds of thousands of dollars on the other end for a nursing home. Everybody now, we say now that Alzheimer's is becoming optional. If you just get started on active prevention, That's the first thing. The second thing is that we're now seeing long-term improvements. We have a paper that's just been accepted with some very minor editorial changes that will be coming out in a few months, where we document people for over a decade with sustained improvements. The very first patient I saw, Patient Zero, is just turning 80 in April, and she is now 79 and doing very well. She's been on for over 11 years and is doing very well. Very excited about that.

In this paper, one of the things that we found that was interesting was that some people will go along. There's no doubt you've seen this as well. They may go for two, three, five, six, or seven years and then have a secondary decline. But when you then reevaluate, you find, something either new happened or something that was missed initially. As an example, Sally, who's also in the film Memories for Life Reversing Alzheimer's, went along for six years when she was filming for that. She was in year four, I believe. She went along for six years and did great. Then she had a little bit of secondary decline; it wasn't horrible, but there was a little bit. So she was evaluated again, and she ended up having three things. She had a new sinus infection that was cryptococcus laurentii, an uncommon one. She had Mycotoxins exposure with a new leak in their home. She then, interestingly, had severe sleep apnea that hadn't been realized initially how bad it was. So when she addressed those three things, she backed up again, doing great once again. So she's now had seven years of doing great.

The second point then is that you can get long-term improvements, and that is so important because you can get short-term improvements sometimes with things like, some people get a little bump up with Aricept, but they go back to declining because the underlying process is still going on. As has been pointed out, once you go on Aricept, if you look five years down the road, they're doing worse than people who were never treated. It's a horrible situation, and you can address these things, and you should be able to keep them in good shape for the rest of their lives. That's the goal. We'll see how long that works. But so far, it's very, very promising.

We're getting to the point where we are seeing that this is becoming an optional disease. We're also understanding it better, as you well know. Then, of course, I would include in this golden era, Marama, what you have put together. People who are now having problems can have a place to go and either stay doing very well for years to come or, in some cases, get better and become independent. The whole idea of becoming independent once again is something that people didn't even think about years ago, and now you're the first one to see it. I think this is a very exciting development.

Heather Sandison, ND
It's such an exciting development. I would agree with you. In the past four years, compared to when we started this summit four years later, the biggest change I've seen is the acceptance of a new narrative when you published your book in 2017, I was one of the very skeptical people. I showed up to hear a talk you gave. I thought, like, this makes biochemical sense. This makes sense in my paradigm; the way I was trained as a naturopath to start these interventions, to focus on what supports neuronal health at a very causal level. Yet I had never seen it in practice, and I was very skeptical because I had been told so many times it was impossible. But having the privilege of watching miracles happen before my own eyes, with patients getting better and seeing this over and over again, my worldview started to change. What I've seen is that the worldview is now shifting more slowly than you or I would like. But when people are coming around, they're looking for answers; they're looking for hope. then they are seeing the results. I want to go back to Patient Zero because she is a pioneer in this space. She took this on. You said, I think 11 years ago, she had been one of your initial papers herself. She dug through PubMed and found it, and I had the privilege of meeting her at the screening of Memories for Life. I think her story is particularly compelling because she's taken a big career shift. Would you let everyone know what she's done?

Dale Bredesen, MD
Yes. She was working for the government, being sent overseas, and preparing reports. I won't say the three letters that are associated with her job, but it was a government position. As she was, she was very seriously considering suicide. After she got much better, she talked about this, and she said she got up one day, and it's like, my memories are coming up. One of the most exciting things for me is when I hear from people who recognize a time when Deborah was driving along and you not only had lost the ability to play the piano, which she then got back, but she also, as she was driving along, was getting back her Chinese, and she, like, pulled over to the side of the road because it was like she could just see all these words flow flowing in. It was amazing. But to your point, Patient Zero has become a brain health coach. Yes, she's she's she's got a wonderful job. She can tell people, Yes, you can do it because I did. It's great to have someone who has firsthand experience getting better with the protocol.

Heather Sandison, ND
I have to admit, part of the reason I became so excited about Alzheimer's is that you would never want a doctor who's already had Alzheimer's to be your doctor. It's like, okay, I won't be that person. You wouldn't be looking for that in your doctor, that experience. But how phenomenal that now this is something that we can look for is personal experience reversing Alzheimer's. I don't think that anyone expected that that might be one of the accolades you would look for in a coach or a doctor in the future.

Dale Bredesen, MD
No question. I think we are all seeing what it takes, so you can see that the people who do best tend to be diligent in detail. They're the focused ones, whether they have a health coach that helps them. Again, that's why she's so helpful. She can tell you these are the things you've got to do—the ones that can get themselves to be metabolically flexible, get their ketone levels up, whether exogenous or endogenous, get their inflammation down, address their various pathogens and toxins, and keep optimizing. One of the things that I've noticed has been very interesting: this is much more like a surgical procedure than a prescription pad, internal medicine because what I see is that certain physicians are getting most of their patients to get better, and others are getting very few, if any, of their patients to get better. It does involve having experience focusing on things and getting the things, getting the team together, the nutrition part of it, and the health coaches.

It does make a difference. It's like a surgical team, and it does make a difference. We're learning more and more about when things don't go as well as you'd hoped. What's going on? What was missed? Is it because you are very far along? Is it because you are exceedingly toxic? I mentioned before that I got a nasty email a couple of years ago from a husband, and he said, I'm the husband of the patient with a MoCA score of zero. How dare you tell people that you should get in? You should only do this if you get it early. My wife had a MoCA score of zero. She's done much better on this. Now she doesn't have a MoCA score that's very high. It's still very low, he said. But she's interactive. She's part of our family again. She's talking to me. She's engaging. It's like I have my wife back, even though her MoCA score is not back. I don't ever want to tell people not to do it. But there's no question: the earlier you start, the easier it is.

Heather Sandison, ND
Dr. Bredesen, it's early February now, and after seeing some patients after the holiday, I saw a family. That was exactly what they said. My mom was back. She was there for Christmas. She got to participate with us. She picked out gifts for her grandchildren. Having that extra holiday, that extra anniversary, or that extra celebration with a loved one is just priceless. It gives me chills just thinking about the impact that you've made on so many families. I also want to go back to the blood test because, one of the themes that throughlined your training for doctors and what's in your books is that we need to focus on the causal level factors, those holes in the roof as you describe them, and the blood tests are looking at downstream effects. Is it correct? What do you need in our arsenal of testing so that we can track change over time? How do you see that in

terms of cognitive testing, looking at causal level factors, and then measuring these exciting new parameters through blood testing? How does that all fit together in your mind?

Dale Bredesen, MD
That's such a good point because people need to understand that this is a complimentary test in terms of being a different piece of information. It does not take the place of looking at the causal factors. In other words, the ones that we've done in the past and will continue to do will tell you why you have them or why you are at risk. This one tells you whether you have it. We've talked a lot about synaptic blast signaling, making new synapses, and synaptic elastic signaling pulling back. What this is doing when you pull back, of course, is that you've put out these neurites, you've got these processes, and they are stabilized. The microtubules that are the structure behind these things are stabilized by bolts that are called Tau. Those are the bolts that stabilize the structure.

Now when you are getting signaling because you've got inflammation, because you've switched essentially from connection to protection. That's what we're seeing: that your brain has gone from a connection mode, which is where your APP is asleep to make the two good guys, to a protection mode, where you're now trying to fight with these various pathogens that are entering your brain. When you do that, you put your resources into protection, and you now pull back. You say, No, you're not going to get that. I'm pulling back. It's very much like a scorched earth pulling back in war. You're pulling back. What you do to do that rapidly is phosphorylate your Tau very quickly, and when you do that, it pops it off. You change the structure of these bolts, and they fall off. What do you do? You collapse the structure.

Therefore, when you're measuring phospho-tau, you're measuring this ongoing synaptic signaling in your brain, which is great when we treat you. We want to see now that you're going to start going down and down because you're now going to be more on the synaptic blasting side. You're going to be making synapses instead of having to put in your resources. You're right. We want to know, then, why do you have insulin resistance? Do you have a variety of infections? Do you have a change in your oral microbiome or your sinus microbiome? Do you have a leaky gut? All the things that we've talked about for years—these are the things that drive that. But what hasn't been available before is to tell you where you stand. We've always been in the dark. We say, Well, the best we can do is check your cognition. But the cognition—that's a that's a—can be relatively subjective at times. Of course, symptoms are important. Cognitive testing is important, as is electrophysiology, but many places are not doing that. It's a little bit of a pain to do that. But the nice thing is that you now have a blood test.

Now, it doesn't change overnight. You want to give it about six months or so to give it time to improve. But if you're now doing these things, the great thing is that it's going to say, Heather, you're going in the right direction with this person, but you're not going in the right direction with that person. Now you can see who's going in the direction and whose phospho-tau is coming down. You're now going more into synaptic blasting. That's why it's such a promising

test. The other thing is that it will tell people early on that you are in the earliest stages, just like going from looking at fasting glucose now to looking at Homeor, where you're now looking way upstream at changes in your insulin resistance. This is a great situation where we can get people. I hope that anyone who has a family history of Alzheimer's will come in when they turn 40. Check and see. Is my photo going up? Okay. Even if it is, don't worry. That's the news. Don't worry. There's lots we can do to get you back on the side and get it back down. This is going to change the equation.

Heather Sandison, ND
Exciting. Do you see this? I know you have an entire interview with Dr. Raji, who is an expert in imaging. Do you see these tests replacing and imaging enhancing what we understand about imaging being an alternative to them? What does that look like?

Dale Bredesen, MD
It's a great point, and I see it as complementing the imaging. This will give you a quantitation. Are you on the right side or the wrong side? It won't tell you how long you've been there. It won't tell you how far along you are, and it won't tell you where in your brain. One of the things that's been so fascinating is that certain people get more of a temporal presentation with memory loss. Then there are the people who get more than non-monastic presentations, more of a parietal view. My current speculation on this is that when you have APOE4, you are a hyper-responder. The disease, although you start with infection, etc., the disease part is mainly this hyper-response. That's what happens with AP when you're driving it. That's more of a temporal disease. Whereas when you're APOE4 negative, as many people are with the non-amnesic, not all of course, but many, that is saying you don't have so much of the hyper response. This is more related to the underlying insult, which is more of a parietal insult, and we'll see if that pans out over time. But the point is that the imaging will tell you where, how far along, and how severe it is. There's no question; it's helpful. For example, some people will say, Yes, but I don't want that imaging either because my insurance won't pay for it. It's expensive, and so forth and so on. We know how difficult insurance handlers can be sometimes, so this gives you a nice way that's much less expensive than imaging. That gives you a quantitation of where you stand. By the way, if you don't do anything, it will continue to increase over time as you get farther and farther along in Alzheimer's disease. Bringing it down is huge.

Heather Sandison, ND
On the testing front, some exciting new things have come out in the last year. Now, what about on the treatment front? I think it's always important to talk about these conventional medications as antibody therapies because they're getting a lot of press coverage. I sent you an article the other day about, as you can't imagine, Aduhelm being dropped by Biogen because of the well, because it doesn't work very well, quite frankly. But I'm curious: can you help our listeners and some of the attendees just understand where that fits in the context of your work?

Dale Bredesen, MD
Yes, that's such a good point. I think it's important to say upfront that none of these antibodies have ever made people better. It's never made you stay the same. The best ones ever have slowed a little bit. The decline has major caveats. I should mention an article that just came out, and I believe this is Annals of Family Medicine, where they review all of the antibody studies, including Lecanemab, done in everything, and they say there is no clinically significant benefit to any of these, including the ones that have been touted. Now, you mentioned that Aduhelm has been pulled. I wish I could say that because it wasn't very good. The reason they pulled it was because they have another one looking at Lecanemab, where they're going to make a lot more money. It did a little bit better. In the tests and at its best, Aducanumab slowed the decline by 22%, and Lecanemab by 27%. They're like, this is a little bit better.

Now, there are some caveats here. Number one, in women, who of course make up two-thirds of Alzheimer's cases, is 11% slowing, minimal. In ApoE4 for people, they make up 10% of Alzheimer's cases because they have such a high risk. Even though it's only 2% of the population, they have a very high risk. It accelerated the decline in that group. You don't want to use this on ApoE4 for patients, for sure. You probably want to think twice about women at the same time. It's very expensive, even with Medicare coverage; you're still going to spend something like $8,000 a year without the coverage. You're going to spend more, like $40 or $50,000 a year. It causes brain bleeding in some people. It causes brain edema in some people and headaches. and we've seen, of course, we've all seen the occasional case where you get the antibodies injected and you get worse with each injection. It's interesting. They've buried that and not said much about it.

But we have experience, and this is a good example. Sally was the one. It was one of the many people for whom she did get antibodies. She was in a trial initially. Now, to be fair, that was a different antibody. That was Solanezumab, but another anti-amyloid antibody. She got worse with each one. What happens is that they typically get worse within a couple of days after the injection. It's very temporally related. Then they slowly fight their way back to almost where they were. Then they get the next injection, and it goes on and on, and she went through eight injections and finally said, This is making me worse, not better. One of the very first patients I saw had gone through the injections. She had a year and a half of injections. He'd gone from a MoCA of 22 to 6. When you're getting worse with these, listen to yourself and maybe consider looking at other possibilities. I think that's the point about these. The problem is that there is a huge amount of money that's gone into them. There's a lot of PR, and there's a lot of corporate push to sell these drugs, even though we know we can do much better. I do think, in the long run, combining certain targeted pharmaceuticals with personalized protocols is going to be the optimal way to go.

Heather Sandison, ND
Another couple of logistics that patients of mine have run into is that they think of that as a last-ditch effort because they're aware of the arias or these side effects that can be potential brain bleeding or swelling. They wait, and then they're not eligible because it's only designed or

approved for mild cognitive impairment or those earlier stages, not severe Alzheimer's. Then the other logistical issue that comes up is that you need to be within a certain radius of a pretty big hospital system because of the need to track the side effects, such as brain swelling and brain bleeding. You need to get regular MRIs and get regular checkups, and many places just don't have that available. Patients who aren't within 100 miles or 50 miles of a pretty big health system just won't be able to get these medications. I think instead of using them, I've had some patients who think, Well, we'll use that later; we'll go to that later. It's going to be our miracle drug. I think that there's a big misconception out there about that. It's relatively limited in terms of who can even get access because of the costs, because of the logistics, and because of when in the disease process it is approved for.

Dale Bredesen, MD
This is such a good point because there's been this misunderstanding. We've got these things: when the drugs were first used for Alzheimer's, they would use late-stage patients, and they weren't seeing anything. They kept lowering the bar to make money. Now they're like, okay, well, we start MCI. Of course, as you probably know, there are now trials in asymptomatic people, which is crazy. The idea of causing microhemorrhage in asymptomatic people just drives me crazy. They kept lowering the bar. Here's the thing. Now that we know the case for MCI, I made a list of things that worked that showed better in their trials than Leqembi. Here's the list. Ketones alone, brain training alone, photobiomodulation alone. Extra virgin olive oil alone, of course, requires recoded, personalized protocols. All of these things performed better than these antibodies. What they're doing is just saying, Well, we're going to ignore everything else and we'll just sell you this extremely expensive drug, but we will do it early enough on that we can get a little bit of bump, but again, it's not a bump up. It's just a slowing of the decline in the best-case scenario. I think that that's a concern. There's so much better that we can do. Of course, we've all published papers showing that there's still more that can be done.

Heather Sandison, ND
The critics point out, that we need more research, we need more data, and we need controlled trials. You are in the process of doing one. Would you update everyone on where we are in terms of the research?

Dale Bredesen, MD
Yes, it's a great point. This is ongoing. We're at six sites, so I'm very excited about that. Of course, in 2022, we published a successful trial. You published a successful trial last year as well. We're seeing, I think, very, very similar outcomes in these patients. and we're understanding better how far down on the MoCA, for example, you can go and still get good results. Then what do you have to add to do better in the ones with a lower model? The one now is going on at six sites. for anyone who lives close to Hollywood, Florida, down there in between Miami and Fort Lauderdale or Nashville, Tennessee, or Cleveland, Ohio, or East Bay here in the Bay Area or San Rafael, which is where Dr. Anne Hathaway is, or over by Sacramento, which is where Dr. Christine Burk is. I'm just thrilled that Dr. Kattouf is involved as well. Dr. Nate Bergman, Dr. David Horsey, and Dr. Craig

Tonio are so thrilled to be working with six fantastic physicians who are doing this randomized controlled trial.

Heather Sandison, ND
It's an all-star team, and having another data set is so exciting. Just to recap for everyone who hasn't heard about the two papers that you referred to, the 2022 trial was the paper that was published in the Journal of Alzheimer's Disease, who is the first author. We'll have links, I'm sure, in the show notes to those for both of these papers. 25 participants went through a nine-month intervention. This was all amid the pandemic. 84% of those participants improved their MoCA scores or their cognitive scores. Correct me where I am wrong on the details there.

Dale Bredesen, MD
That's correct. Yes, 84% improved their cognitive scores. This is the main thing we use with CNS Vital Signs because it is more sensitive than MoCA. But we also did MoCA, and 76% of them improved their MOCA. Interestingly, they all improve their brain training scores. There's no question that they were going in the right direction.

Heather Sandison, ND
This is compared to what we were just discussing with the antibody therapies, where what you get is a slowing of disease. These are in different categories. They don't even compare. A slowing of a tortuous process is what antibody therapies offer. Whereas the discredited approach to this protocol, the Recode process offers the potential to improve cognitive function, not just for some people but for most people. In the clinical trial that I had the privilege of publishing in 2023, we had 23 participants who went through a six-month intervention, very similar to the other paper that was published in your trial. 74% of them got better, and we recruited patients who had lower cognitive scores to begin with. It makes sense. We had a quicker intervention. We were expecting miracles in six months instead of nine months, and we took patients with MoCA scores down to 12. We also studied; we had not just MoCA scores but also Cambridge Brain Sciences, which is a battery of cognitive testing. We showed that in both of those scenarios, whether we were testing MoCA or Cambridge Brain Sciences, where we had more detail, we got the same results of that improvement in cognition. This is possible; this is replicable. We can do this in multiple settings over multiple trials. This has been shown. Then I'm so excited that you guys are adding that randomized control data to the mix.

Dale Bredesen, MD
I hope that that will be helpful. Let me flip the script here and ask you because now you've got all this wonderful experience with your Marama cases. In Marama residents, I hope that we will see this everywhere in the places where, as a neurologist, we always could see that when someone went to any of these facilities, they were about to do that, unfortunately. To see people doing better is just amazing. It's wonderful. Let me ask: when you are looking at people, what are the things that you have seen? Do you like Photobiomodulation? Do you like exogenous ketones? What are the things that seem to help your residents the most? You've got a tremendous

situation with nutrition, the chef, and all this wonderful stuff. I've seen some great pictures. Of course, I was there the day you opened Marama. I'm very excited to be there. Tell me about what you've seen that has helped people.

Heather Sandison, ND
Yes, it's so interesting. It's because we stack all of it together, and we're doing it in this very controlled environment where people are getting exposure to the new food, the new social atmosphere, the photobiomodulation, and the sauna all at once. It's hard for me to tell at Marama what particular pieces are making the biggest difference. I will say that there are people who have moved from a home atmosphere where they've been trying to do as much as they can do at Marama, and then they show up at Marama and there's this benefit, and I suspect it's the community.

Dale Bredesen, MD
Yes.

Heather Sandison, ND
I think it's that social network of cheering each other on, of connecting with other people or feeling like you have, of the caregivers and that support behind you that you're expected to improve, that there's no naysayers around to drag you down, that everybody is on this collaborative team supporting you to get better, and you feel that. But I will say from my clinical experience that it's a little bit more controlled. I've seen people add different pieces. One of the biggest impacts is the ketogenic diet. Hands down, getting into ketosis, whether it's through exhaustion of ketones or getting those ketone levels up through changing your diet, has the biggest, most dramatic impact. The fastest.

The other thing that's made a big difference and is underutilized is this contrast oxygen therapy. I know you've talked about different ways to apply the same idea. But essentially, what we're doing is increasing oxygen delivery. People talk about hyperbaric sets also on this spectrum of oxygen delivery and doing that. Well, you are actively exercising. While you're increasing the load if you will. If you're increasing utilization and increasing activity, I see an even bigger benefit to increasing that oxygen. Then when you add the contrast of restricting oxygen and then adding oxygen, concentrated oxygen, you get this hermetic effect where you're stressing the system a little bit and you get more resilience in it. I've seen profoundly impact people when they've been doing everything. They're doing the diet, they're doing the exercise, they're doing the brain games, they're taking all the supplements, they're taking the hormone replacement, and then they change this piece, and it's like, okay, that leveled things up.

Dale Bredesen, MD
That is interesting, as I've been worried about, the hypoxia part of this because you figure they've already experienced that part. We think about the big three energetics from the scientific equation side. This is about energetics. This is about inflammation, and this is about toxicity.

Those are the big three. There are lots of ways to address each one of those. Understanding what the problem here for each one is so helpful to get the best outcome. I've worried about when you're now taking someone who's already energetically challenged and now you're taking away their oxygen to be hermetic. If it's an Olympic athlete who wants to bike in the Alps, that's one thing. But if you're trying to do it for someone who's already on the edge, I'm worried about that. It's good to hear that you're getting good results with that.

Heather Sandison, ND
Yes. I think with the doctor's supervision. Make sure that this is something that your provider thinks is appropriate for you. I think that there are, hot and cold therapies. Of course, if you have neuropathy, it's not appropriate. But this is getting outside of our comfort zone. Yes. challenging the system a little bit. I have seen that make a big impact on people who are willing to go there. It doesn't feel good. I've been on the bike, and I've done it, and it's a little anxiety-provoking and uncomfortable. But watching the people change is what has happened. It's this personal experience of seeing people get better that makes me a proponent.

Dale Bredesen, MD
It's interesting. As you'll recall in the film, Sobu who is from Japan, said that he would flick his father's nose because that seemed to bring him back. What happens is that, just like taking Adderall, anything that drives up the adrenaline briefly is going to get a little bit of an improvement. Of course, as he said, ultimately, it did work. But in the beginning, that's the only way he could bring him back. The thing is that if you look at what is lost initially, even in many cases before the end of the renal cortex, it is the locus soleus in the brainstem that provides norepinephrine to the cortex. These people do become passive. This is when you talk to them, and they look at their spouses for all the answers and things like the so-called head-turning sign. Anything that drives that up and is certainly cold is a great example. You're improving your mitochondria; you're making new mitochondria and things like that. Certainly, it could give you a boost. That is interesting to hear.

Heather Sandison, ND
It's all so much fun. I'm curious from a therapeutic perspective. On your end, have you seen anything new in the past year, anything that you're more excited about?

Dale Bredesen, MD
Yes, great point. There are a couple of things I'm excited about. One of them is Homotaurine, which hasn't been used a lot by people so far. But the testing looks pretty promising. What it does is prevent the oligomerization of amyloid. We know that when it oligomerizes, it is going to pull back on your synapses as well as kill bacteria. It is an anti-microbial peptide, but they saw some good results in APOE4-positive individuals with homotaurine. I think as part of an overall protocol, it could make a lot of sense for us to include it at times, especially for people who have significant amyloid burdens and certainly for people who are APOE4 positive.

Another one that I'm excited about is unfortunately not available yet, but it's on the way. We spent years in the lab looking at how APOE4 gives you Alzheimer's disease. Ram Rao, my colleague, has published a paper we published together years ago showing that this interacts with your DNA. It turns out that there are specific post-translational modifications. Modifications of the APO E4 itself that are driving that. We then screened for a drug candidate that essentially turns APOE4 into an APOE3-like effect. It doesn't have that same impact. This is something that should ultimately be taken by everyone who's APOE4 positive when they're young. Now it needs to have a trial. It needs to be shown. So far, it looks very good. It's orally available, bioavailable, and brain-penetrant. It has a good impact at low doses, and it looks to be non-toxic. I hope that that will be available in a few years. We need to find a group that will work with us to push this into clinical trials and ultimately make it available.

Heather Sandison, ND
That will be a pharmaceutical?

Dale Bredesen, MD
This will be a pharmaceutical. Yes. Again, I come back to the idea that, in the long run, this idea of using pharmaceuticals by themselves, when it has nothing to do with what's causing the problem, is silly, but using the overall protocol. Now, if we can add targeted things that will enhance the bioidentical hormones you mentioned. I think that's a great example of getting these things in optimal situations, even though they're low because of who knows what reason and because sometimes it's autoimmune, sometimes it's congenital, and for lots of different reasons. But getting them optimal is going to be important. I'm sure a lot of people saw the article recently on the transmission of Alzheimer's disease. This is an unusual situation where people had human growth hormones that had some amyloid in them. Yes, it's just like taking someone who has disseminated intravascular coagulation with all these clots everywhere and starting to inject a bunch of clots into people. Yes. You can now get more clotting.

This is a system that has positive feedback. But the sense has been that people aren't out there catching Alzheimer's. You're not catching it by something. You're breathing. You have all these things that are changing this system so that you now have a network insufficiency. One of the things I'm excited about is that we should now be able to take this and apply it to macular degeneration, frontotemporal dementia, and Lewy. We've already seen some good results with Lewy body disease. I think the era of again, of now taking these principles and expanding them, I'm enthusiastic. Of course, we're setting up the first precision medicine program for neurodegenerative diseases, a Pacific Neuroscience Institute, thanks to David Merrill. You've been involved as well. We're grateful to have you on board. I think it's going to be fantastic. This is going to bring hope to a lot more people with neurodegenerative diseases.

Heather Sandison, ND
My understanding is that the Pacific Neuroscience Institute, this brain health center, is essentially in L.A. It's a destination for people from around the world, where you can come and

get the latest in workups and evaluations from some of the best doctors in the world and also on the cutting edge. Taking all of this research and many people here, David Merrill himself wrote one of the seminal papers on BD and F and their role in the brain. very impressive individuals who are there who have some freedom outside of the conventional insurance system to push the edge of what's possible and deliver medicine in an amazing and inspiring way. It's for me; I just pinch myself every time I get to come to a meeting with you guys and learn from the people who are there, just delivering medicine, hope, and solutions at a different level.

One of the things going on there has also been around for a long time. It was Dr. Smoller, if I'm correct, who put together these support groups, and that continues even after his retirement. They've continued that program. Groups of dementia patients, along with their partners, come into these dyads, and they have several hours of brain training. The Brain Gym Support Group meetings. They share a meal, and it is an amazing place. Again, like this destination for people to come and get exceptional care.

Dale Bredesen, MD
I think we will be able to continue to build this over the years to say, okay, what is optimal here? Because this is going on in lots of different places, but we need an academic place to look at, what needs to be changed? What new drugs can we add? How can we continue to make this better and better and better?

Heather Sandison, ND
Dr. Bredesen, this is one of my absolute favorite things about you among many things on that list, but just your commitment to constantly improving, and I feel like there's been multiple times where you've been like, Who isn't getting better? Tell me about a case where it's not working so that we can dig into it and figure out how to help that person. What are we missing? Because if it's happening with that patient in your office, it's happening with other patients somewhere else. If we want to expand our ability to help people expand the impact of this work, we need to be constantly innovating and looking for additional solutions to add to, as you call it, our arsenal, which is that you have great words for this.

Dale Bredesen, MD
Armamentarium. Yes.

Heather Sandison, ND
Armamentarium. That tool belt, essentially, that our providers and care partners can carry with them to add to get even better and better outcomes, and it's just a.

Dale Bredesen, MD
Huge.

Heather Sandison, ND
Part of it.

Dale Bredesen, MD
There's nothing better than hearing, as you said in the film, that you were crying. By the way, I've heard that from multiple doctors. The first patient they saw got better. They cried. I feel the same way. You see people who've been told your life is over. You're not going to be able to do much with your family. You just get your affairs in order. Then suddenly, they're given a second life. They suddenly can do things. They can go back to work. They could want to interact with their families. It's so exciting to see that. On the other hand, just a few days ago, I got an email and then a phone call from one of my very first husbands, who came way back in 2013. His wife had been gone for several years. There was a lot we didn't know in 2013, and she'd held her own, but ultimately it was too much to manage her.

He put her in a care facility, and that was still in 2017. She was still there, almost as we saw; she was over seven years there. As soon as she went into the care facility, within a month, she was much worse, and she hung on. In some ways, unfortunately for her and her husband, now this is a woman who is a brilliant mathematician who was one of the early computer experts in some of the things that she was doing for IBM and other groups. Just to lose her mind and to see this happen when this happened, she just passed away recently. Every time I hear that, it just kills me. I want to say, What did we miss? What is there that could have been done? That wasn't done? With the push both on the positive side and on the horror of horror to see people go downhill, we want to do everything possible. There is great news: there are new tests, there are new treatments, there's follow-up, and there's Marama. There are all these things happening that weren't there even a few years ago. I do think we're going to see this dramatic exponential improvement in the ability to prevent and reverse cognitive decline.

Heather Sandison, ND
It's so exciting. I don't think I've even shared it with you yet. We got our data back from the Clear Mind Center, which is our sister facility.

Dale Bredesen, MD
Yes.

Heather Sandison, ND
We have our first residents there, who have been there for six months now. What we saw is that four out of the five of them improved their cognition in those six. Consistent with the data that we both published, the majority of people get better when they get care, and it's just such an exciting time. I want to take the opportunity to thank you, Dr. Bredesen. Always, but also does everyone who's showing up for the summit, everyone who is taking the time. Time is one of those things we can never get back. It's one of our most valuable assets. the fact that you are here with us, learning and making the most of an awful disease, finding ways to find solutions,

committing to the process, and learning from you. I want to just commend you. If you're a care partner or a caretaker for someone you love who is struggling with dementia, Thank you for showing up. Thank you for being a pioneer in this space and giving your loved one the best possible care they can get. You are doing an incredible job. We are so grateful for you and for all of you who are looking to prevent cognitive decline. Today is the day to get started. Take everything you learn here and implement it immediately. We know, and I'm sure, Dr. Bredesen, you can attest to this, but I see in my clinical practices that the earlier we get started, the prevention is so much easier than reversal. The younger you are and the more you dive in fully, the more that you, do all of the pieces stack these interventions on top of each other? The more confidence I have.

Dale Bredesen, MD
As you say, there's so much. There are a couple of interesting things currently that people may have seen on Netflix, one called Diagnosis and one called Afflicted. In Afflicted. What they're showing is a series of people who just had overwhelming toxicity. These are relatively young people who don't know it, but they're headed for cognitive decline. Some of them mention brain fog or something like that. To find out early, you're headed for this, which is again where the fast photo can be helpful as well to tell you early on. Things are not headed in the right direction. You're fine today, but you may not be fine in five years. This is so valuable, and as you can see, do you need to do a detox? Is there a chronic infection that has been missed, which is surprisingly common? Are there things going on? As part of the summit, I talked with Richard Horowitz, who had a great discussion about the amazing things he's seeing with tick-borne illnesses and the amazing results he's getting with tick-borne illnesses. I completely agree with you. Everyone, please, if you are 40 or over, get evaluated, get a cognoscopy, and get active prevention or early treatment. If you already have symptoms, get reversal instead of treatment instead of prevention. There's so much that can be done.

Heather Sandison, ND
For all the providers attending with us, please head to the Apollo site. There is phenomenal training that Dr. Bredesen has created, and we have two new doctors joining me in my clinic here. They are going to have completed the training, and she was raving about how much she learned and how excited she is to put it into practice with the other ones in the middle of it. It's just such a great way to feel empowered and to help patients on an entirely different level. Another level. I can tell you that people call us all the time. We're here in San Diego. People call from all over the world, from South Africa and the UK, Australia, and Canada, and all over the U.S., asking if there is a Bredesen trained provider near them. There is a huge amount of need for this. Anyone who's considering helping and supporting, whether you have a personal connection or you just want to help and support a patient population in need, please consider doing that training.

Dale Bredesen, MD
Great point. I just got an email about an hour ago saying, Is there a trained practitioner in Poland? It's more people all over the world asking about this, and we need to keep on pushing to get people trained and to get better and better results. Thank you for all the great work you're doing, Heather. I appreciate it.

Heather Sandison, ND
It has been such a privilege to be working with you and to be hosting the summit with you again this year. Thank you.

Dale Bredesen, MD
Thank you, Heather.