**Why I wanted this conversation**

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If you've ever watched someone you love start to slip away, like forgetting names, repeating the same questions,

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disappearing a little more every day, you know the feeling that I'm about to describe. I've watched it happen to my own family members and to the people I serve through

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my work. And oftentimes the hardest part isn't the disease itself. It was the silence around it and the sense that nothing could be done.

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My guest today has spent his entire career challenging that silence. Seven million Americans are living with dementia today and expected to double

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in the coming decades. So I think this is a big issue that impacts many of us. Dr. Dale Bredesen is a neurologist,

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a New York Times best-selling author, and the founder of the Buck Institute for Research on Aging. His new book, which is amazing,

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The Ageless Brain, makes a bold claim that a lot of what we call inevitable about cognitive decline may not actually be.

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Much of it may come down to things you can actually do, like how you sleep, what you eat, even how you care for your teeth.

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You can protect your brain health and reduce your risk of dementia. So I think whether you're caring for someone with dementia or worried about becoming

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one of the millions of people who get dementia and want to protect yourself, this episode is for you. I'm Neal K.

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Shah, a Johns Hopkins and NIH funded caregiving researcher and the CEO of CareYaya and a caregiver myself.

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So I'm thrilled to have Dr. Dale Bredesen on. So, Dale, pleasure to speak with you. Welcome to the show.

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Thanks so much, Neal. Thanks for having me. Sure, awesome. So yeah, let's jump right into it. You know, most of us picture Alzheimer's as an attack on the brain,

**An attack on the brain, or a defense?**

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you know, something that's coming to destroy it. But you sometimes describe it as almost the opposite, that the brain is trying to protect itself.

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Could you elaborate a little bit on that? You know, what does that mean and how might that shift, you know, how we see the disease and what we can actually do about it?

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Great point. You know, then that is the paradigm shift that's occurring in neurology. So we've always seen these diseases as pathological.

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You make amyloid, and for some reason, and the amyloid hurts you, and you make phosphatal,

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and that hurts you. And so we want to suck those out with these various antibodies, which have not made people better in their cognition.

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So our approach after studying this, and I ran a lab for 30 years and an institute for 10 years.

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And we studied what are the fundamental mechanisms, what is actually driving the loss of synapses?

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You have about 500 trillion synapses in your brain, and those are the targets in Alzheimer's.

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You're losing these synapses to the point that you can't think the way you once did, you can't remember the way you once did,

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and so forth and so on. And so what we realized is we have to quit thinking about

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these pathologically, and we have to think about this physiologically. Why did this happen? We have to go from what it is to why it is.

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And so now we realize as we looked at this that there are three major players that

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drive Alzheimer's disease and three more intermediate players. So the three big ones are a reduction in energetics,

**The 3 major drivers: energetics, inflammation, toxins**

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anything that's drives a reduction in blood flow, sleep apnea, hypoxia.

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Mitochondrial dysfunction, anything that reduces the energetic support to that system increases your risk for Alzheimer's disease.

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Number two, anything that creates inflammation, especially inflammation in the brain,

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and that can be ~ leaky gut, that can be chronic sinusitis, that can be change in your oral microbiome,

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that can be sepsis. People who've had sepsis have increased risks for subsequent cognitive decline.

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It can be a tick-borne illness. It can be metabolic syndrome, which is a common one, which unfortunately produces both of those,

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reduced energetics and increased inflammation. And then the third group is toxins,

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and they come in three groups themselves: inorganics, like mercury, air pollution.

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There's a lot now on air pollution, and it's increasing your risk for Alzheimer's disease. And then organics, things like formaldehyde and and ~

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~ well the new one is micro microplastics. That's another big one. ~ and then ~ you know,

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~ toluene, benzene, all these sorts of things. And then the third one, which is really dramatically underrecognized,

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is biotoxins. And these are things like trichothesines and ocratoxin

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A ~ and gliotoxin and things like that. These are all things that increase risk for cognitive decline.

**The 3 intermediate drivers, including chronic stress**

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Now, the three that are intermediate, still important, but not quite as important as those top three, are reduction in neurotransmitters.

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So if you don't have enough acetylcholine in your brain, you're not going to be able to make the memories that you're trying to make.

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The second one is trophic support. So if you don't have enough support, that's nerve growth factor, brain-derived neurotrophic factor,

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hormone optimization, nutrients like vitamin D, vitamin B12.

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Those it takes to power your brain. And then the third one is stress. And as a scientist, I have to say I never used to think that stress was a big deal.

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I thought, come on, you know, we all deal with it. But it does turn out that short-term stress with resolution,

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we are meant evolutionarily to handle. Not a big deal. It's that chronic,

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unremitting stress that so many of us have. That's the thing that really increases your risk for cognitive decline.

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And so, you know, again and again and again we see people coming in with some combination of those things,

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and that we then want to address, not suck out the amyloid, but rather address the things that

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are driving the problem. Now, what's really interesting is that both the amyloid and the tau, these are the two hallmarks of

**Amyloid, tau, and the herpes connection**

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the pathology of Alzheimer's. These things are both antimicrobial.

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One's an antimicrobial peptide, that's that's the A beta. The other one's an antimicrobial protein,

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that's phosphatau. And there are specific microbes that they tend to go after. And as an example, one of them that's high on the list is herpes.

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So herpes family members, various viruses like HSV1 and HHV6A,

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these are things that you are driving, that literally you are going after these with the amyloid and the Tau.

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So again, we have to quit thinking of this as. You tried to make this pathology, and we don't know why, but we better get rid of it.

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It doesn't help you to get rid of the pathology once the drivers

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are already in place. Now it might help if you do it way downstream. We're still looking into that, but the main thing we want to do is to identify and remove

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the contributors to cognitive decline. And we've done that now, three different clinical trials.

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They've had the best outcomes of any. Published clinical trial to date on Alzheimer's disease.

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That first of all, that's a lot to unpack, you know, and thank you for sharing. And I think, you know, I have a bunch of follow-up questions on that

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and I'll kinda yo-yo throughout the episode because we have a bunch of people who are caring for someone with Alzheimer's already,

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and then we have a bunch of people who are potentially worried about their own brain health and ~ their chance of developing it.

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And then of course some of the caregivers are also worried about that. So some of the questions might address beat each category,

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I guess maybe one. You know, I appreciate you describing, you know, that that theory, and it's fascinating that

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If you just focus on kind of the pathology, ~ you are missing the point that it might be there as a response to something.

**Why Alzheimer's drugs keep failing**

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I guess my one question along those lines, which we hear from a lot of caregivers of loved ones, is why are the current drugs, you know,

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to treat Alzheimer's either failing or many have failed and not even made it to the market? You know, kind of do you believe that the mechanism

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of the research or the approach to treatment has been flawed? And just would love, you know, people would love to hear your thoughts on that.

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you know, absolutely. And there's an excellent book on this, ~ which is called Doctored. ~ and it goes through this very issue.

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You know, why has the research been so unsuccessful? There's another famous book, you know, how not to treat a disease. You know,

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the it's been clear that we've been kind of barking up the wrong tree for years. And I again I think that's why the paradigm shift is starting to take hold.

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People are realizing this is a response. This is not the upstream cause of the problem. Now let me ask you something, Neal.

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If someone came in and had leprosy and you looked under the microscope and you said, you've got granulomas. We just have to suck out those granulomas.

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Let's give you some antibodies that get rid of these granulomas. Do you think the person would get better?

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you know, there you still got plenty of ~ of lepromatous organisms there.

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Whether you've got the tuberculoid, of course, fewer organisms, more response. Whether you've got the lepromatous type,

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more organisms, whatever it is, you're not getting at the root. Cause of the illness. And that's the key here.

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We need to understand this. And this is why the lab, the bench research over 30 years was so helpful to us.

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We could see how the signaling is coming in. We could see why estradiol actually has such a potent anti-Alzheimer's effect,

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why vitamin D is important, why inflammation with the activation of NF kappa

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B is so important. And you can literally follow the molecular pathways as these turn on your amyloid.

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And here's the here's the take-home message that that came after all these years. What we found is there is a systems biology switch,

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and it's a mode switch. Just like you have certain things you do better in sleep, like detox, for example, and repair,

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you have certain things you do better in wakefulness, like move around and get stuff done and think and produce.

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So, what happens? Your body literally has this whole set of things. It switches sleep, wakefulness,

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sleep, wakefulness. Now, for some people, of course, not giving you enough sleep, but for those who are getting sleep,

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that's great. And it's a it's a very effective system. The same thing happens in our brains.

**Connection mode vs. protection mode explained**

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We have a whole set of things that mediate connection. That's when things are good, there's not too much inflammation,

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we got plenty of support, we got plenty of blood flow, oxygenation, mitochondrial function.

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That whole set of things. And you can actually see this in the studies on Alzheimer's because people would pick one of these

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and not realize they're all linked. This is all part of the connection mode.

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When things are bad, and you've now got a poor oral microbiome,

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or you've got chronic sinusitis, or you've got a leaky gut, or you've got poor nutrition, or sleep apnea, just go through the list.

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Now, what happens? Your body recognizes that, and in trying to protect you.

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It switches you from connection to protection. And you know, we're all, you know,

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we're all familiar with the person who you know is trying to to ace their exam. ~ and you know, they they go in,

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and then what happens is they, you know, they they get a message on their phone ~ that their cousin just died. ~ they can't focus on their they're into a different mode,

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they're under stress mode, they gotta plan the funeral, they gotta go in, they got all that stuff.

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You only have one. You can do one or you can do the other. So when things are bad, you go into that protection mode,

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not because it's trying to hurt you, because it's trying to help your body deal with these things.

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And so what happens, you can see why it makes the amyloid, you can see why it makes the phosphatau.

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You can see that it actually pulls back on the synaptic interactions. It's now putting your resources into protecting against these various insults.

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Thank you. And I think ~ that that is, you know, a a really good kind of reframing for a lot of people that

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the things that your body is doing to generate are protective and it's really the insults that your body's experiencing that are worth kind of aiming at.

**The 10-year window for prevention**

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So, you know, I think maybe to elaborate, you know, for people who you know, I think you've said that, you know,

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there's a ten year window where this might be near before symptoms show up.

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Where this might be almost entirely preventable. You know, I think it's you know, when I think about things like that, it's also it's kind of both terrifying but also hopeful at the same time,

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you know, because if you're out there ~ in that window or before that window, there's things you can do. and I think that,

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you know, you had mentioned several things, which I'll well I'll just kind of get into, but since you already mentioned the mouth,

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you know, maybe that's one that you can get into. But I guess so sorry, two-part question. I guess one, can you explain that window of like what is the window ~ where?

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it might be preventable and what are signs you should look for that would highlight that you're heading down that window.

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I think Yeah. that's helpful, but then most importantly practically for people, what are the most ~ simplest things you can do from a lifestyle change perspective

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and you know, whether it's starting with mouth and oral health or others, ~ you know, that you would suggest if you feel like you might be in that window.

**I was taught nothing can be done**

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You know, as a neurologist, I was taught that there's nothing that can be done. In fact, it's the opposite of that.

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The armamentarium is huge and growing month by month with what we can do.

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And you know, th th think about other chronic illnesses. This is a complex chronic illness,

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just like type 2 diabetes, just like cancer. Think about those. So with cancer,

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we want earlier detection. Look what Papsmears did for death. From cervical cancer. It almost wiped it out completely.

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It was fantastic advance. Thank goodness for Dr. Papa Nicolau. So, you know, he's saved so many people.

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you know, the same thing with hemoglobin A1C. About 50 years ago or so, people they used to say you either have diabetes

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or you don't. There's no in-between. Now we know there's a huge in-between. And as we now looked, instead of just looking at your fasting glucose,

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now you can look at hemoglobin A1C, you can pick up pre-diabetes. Now you can look at fasting insulin,

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you can pick up pre-pre-diabetes. And of course, you can also do oral GTTs with insulin

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and pick up pre-pre-pre-diabetes. We now know a lot more about insulin resistance and how this all happens.

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The exact same thing is happening with Alzheimer's. We now have tools to go earlier.

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And better tools for prevention and reversal. And no surprise, just as with cancer,

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the earlier you intervene, the better chance you have for success. We just finished a randomized clinical trial at six different sites around

**Inside the randomized trial**

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the country, and 90% of the people showed improvement who were in the treatment arm compared to the standard of care.

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So 90% of them showed improvement. We were very enthusiastic. Now it wasn't 100%.

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So, what the heck happened in those other 10%? That's what we're trying to understand. Furthermore, within the ones that did respond,

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some of them had huge responses, some of them had modest responses. Why? So we're trying to understand that.

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But to answer your question, so yes, you go through four phases. And you know, this many people used to say old timers disease because that's what they considered

**The 4 stages of Alzheimer's, defined**

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it. I thought that this was when I was training. It was, you know, 60s, 70s, 80s,

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90s. This was an end of life, a last stage disease. That is completely wrong. They've now shown that as you can pick

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up the pathophysiology, it starts sometimes in your teens and early 20s.

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I have to say, I had a hard time believing that until I saw the data. And so as we are maturing and as we're becoming adults,

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if we are exposed to these various insults, no surprise.

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Our body is generating these same sorts of signals, trying to deal with them. Now, if we're doing the right thing,

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if we get back on track, slowly those things will be ~ you know, will be washed away. You will do your cleansing.

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But if you're on the wrong side of that, if you're accreting 10 insults per day and you're washing out five,

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you can see immediately what's going to happen over the years to come. And so we do we do wanna intervene early.

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And as you mentioned, there's actually beautiful studies. And there's one that came out of China about a year and a half ago.

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And they show they followed people all the way till their diagnosis of Alzheimer's and showed when each test became abnormal on their way,

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again, just like hemoglobin A1C and diabetes. And so you can pick up pre Alzheimer's,

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pre pre Alzheimer's, et cetera. When you develop Alzheimer's, and this also is true for

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age related cognitive decline, people will say, well, look. I don't Alzheimer's, I'm only 45, I'm fine. You know, what do I have to worry about?

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A lot. We all are this is a risk. 15% of people in the United States die with Alzheimer's disease.

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So we want to make that as close to zero as we can, of course. And so we recommend that everybody get involved early.

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Now you go through four stages, as I mentioned. When you first start developing that pathology,

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you start seeing the amyloid in the tau. That's typically about 20 years before a diagnosis.

**Why it starts 20 years before diagnosis**

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So it happens to a lot of people in their 30s and 40s. And we do see, by the way, people who are all the way into the dementia phase

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in their 40s. In fact, one of the fastest growing groups, at least in terms of year over year,

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not total numbers, but increases, has been in the 30 somethings and 40-somethings over the last 10 years.

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And that was a study that came out of Kaiser. So what happens is That you start to develop this and you go through a pre-symptomatic period.

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You can pick it up then by blood tests, you can pick it up by PET scans or spinal taps.

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But you know, who wants a spinal tap every year? Then the second phase is called SCI,

**SCI: the reversible stage almost nobody catches**

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subjective cognitive impairment. That is a particularly important one because it's completely reversible

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at that time. It's relatively early, and yet you already have some symptoms. This, by definition, means.

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You're complaining, you say things aren't right at work. Your spouse may notice something, you may notice you're not as good at remembering phone numbers,

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you're not as good at remembering directions, things like that. But you're still able to do your daily activities,

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you're still able to score normally within the normal range on tests. Now we do see people you know who are have gone from superior to normal.

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Well, okay, those people ha are are even beyond SCI, but they would be labeled SCI.

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Because they are scoring within the normal range. So the definition is scoring in the normal range on cognitive tests,

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but you know something is not right. On average, just that phase lasts for 10 years.

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That's from the epidemiology studies. So during that time, you really, if you haven't gotten on prevention,

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and we recommend anyone who's over 35, get evaluated, get on prevention.

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It's not that difficult. It may save your life. It may save you hundreds of thousands of dollars.

**The $100,000 cost, and the p-tau217 test**

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The average American spends $100,000 or more before dying of Alzheimer's.

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And of course, it's nursing home costs and doctor costs and all that sort of stuff. You can avoid 90 plus percent of that by doing the right thing.

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And you can check today the biomarkers that I'll that I'll talk about, like Pitau 217. You can check the most sensitive one is done by neurocode.

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You can go to getabrainscan.com. And you can actually get this direct. It's pretty easy to do. I just had mine checked a few months ago.

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I'll check it again in a few years. For people who are less than 60, I mean I'm in my I'm in my mid-70s now.

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So so I'm gonna check mine every two years. But for people who are younger than 60,

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just check it every five years. That's fine. That's all you need to do. And it'll tell you, it'll warn you if things are headed in the wrong direction.

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The third phase is called mild cognitive impairment. And what that means by definition is.

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Now you are scoring abnormally on the cognitive tests, but you're still able to do your activities of daily living.

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People still drive cars, hold jobs, all that sort of stuff with MCI. But it means you're headed for dementia,

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unfortunately, because about five to ten percent of those people each year will convert to that fourth and final phase,

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which is dementia. And that by definition means. That you are having trouble with your activities of daily living.

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You may be getting lost with your driving, you may be having trouble with balancing your checkbook, you may have trouble remembering to shower,

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you know, whatever. There's lots and lots of things that may be affected, and ultimately they'll all be affected, of course. But we really want to get people to come in before that.

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So unfortunately, this term mild cognitive impairment is a terrible term. It's the third of four stages of Alzheimer's.

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It's like telling someone, don't worry. You only have mildly metastatic cancer.

**Why "mild cognitive impairment" misleads**

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It's a relatively late stage of the disease, unfortunately. And so that's why we would love all the studies are in

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the third and fourth phases, and the drug studies and the study that we just published. These are people MCI and early dementia.

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What we'd love is for everyone to get in in the first two stages: prevention when they have asymptomatic or presymptomatic,

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and then SCI. And boy, those people do extremely well. So just to show you the outcomes,

**Outcomes at each stage**

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people who go on prevention, we have not had a single case yet of someone who went,

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did the right things but went on to dementia. People who are in and I and I asked, we've had trained over 2,000 doctors from 10 different countries and

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all over the world, and and nobody has seen this yet. I'm sure it'll happen at some time, but we haven't seen it yet. So whatever it is,

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it's rare. Excuse me, with SCI. Virtually 100% of those people turn things around,

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get better, and stay better. And we've published a paper recently showing sustained improvements for over a decade,

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which is unheard of before. The third stage, as I said, in our trial, 90% got better,

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but not all of them got all the way better. Some of them got just a little better. So that sec going from the second stage to the third stage is an important,

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important time. You want to try to get in there earlier rather than later. ~ again, MCI, most of them can get better.

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When you get in dementia phase, you're talking about more about 30 to 40 percent. It's much tougher. Now you are again,

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it's try it's the difference between dealing with a benign tumor and dealing with metastatic cancer.

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There's just a world of difference there. We still do see people get better, and you know, I got an email a few years ago from a guy who said,

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you know, you've been telling people ~ that if they don't get treated early, then probably you know, you know.

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You're probably not going to get on the protocol because it may not help you. He said, My wife had a MOCA score of zero.

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She's doing great. We're so happy. She's interacting with the family better. So we do hear stories like that.

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~ but those aren't the rule. That's as I say, you know, 30-40% of people who are full-on dementia can show improvement.

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And many of them do not. They're tough. They've now got you know many contributors. Now you mentioned what do you do?

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Well, it's a little different for prevention or reversal. But it's the same general idea that what we found is pretty fascinating from

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an evolutionary standpoint. So, as you know, we you know, we primates and

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we hominids evolved and at each point chose for

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our nervous system performance over durability. And of course, the ones that chose durability were killed by the ones that chose

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performance. So we have these amazing brains. We have the ability in our brains to store more than 2,000 home computers.

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So the neuroplasticity in your brain is striking. That's the system that fails in Alzheimer's disease.

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You have a separate neural subnetwork that fails in Parkinson's disease,

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and that is motor modulation. It's the ability to fine tune the motor

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so that you don't have the shakes, so that you can walk quickly. So that you can turn on a dime. These are all about motor modulation.

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And that's the system that fails in Parkinson's disease. And it's got a different set of supplies and demands.

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Each one of these has supply demands. And there's certainly some overlap, but they are slightly different.

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So that's why one person will get Alzheimer's, one person will get Parkinson's. The third one, there is a power amplification area,

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essentially an entire system that is there for amplification. That's the one that fails in ALS.

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And by the way, that one is so impressive that when you stomp on your car's accelerator, that how much how much force it takes to stomp

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on your accelerator versus how much you get ~ at the other end, you know, it's it's ~ a a few thousand times amplified.

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You actually do that well or better when you go from a thought,

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which is I'm going to ~ massively and and maximally ~ flex my muscles to doing that.

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The calories per second that it takes for that thought minimal and what it takes to do it is huge. And so you've got a system that

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is there for amplification. And no surprise, it is a huge amplification. So therefore it does go bad sometimes.

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You know, you're you're over pushing the accelerator and things die off. So that's ALS related. And then of course we've got another system which

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is for these Fine where you're looking at fine distinctions in color. And that also takes a huge amount of energetic to support the macula.

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You can distinguish about one million different colors and shades.

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But we're pretty amazing with our eyes. And so that's the one that goes awry in macular degeneration.

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So for each of these systems, we have to figure out what drove this. Why is the supply too low and the demand too high?

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Chronically. Okay, so now we can simply go and what we found is that there are seven basics and two specifics when it comes to treatment,

**The 7 basics of the protocol**

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and they work very well. And I'll have to tell you in a few minutes about the assisted living facility. We just had our first six-month data.

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Absolutely spectacular. So wonderful to see these people getting better. So the seven basics are a plant-rich,

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mildly ketogenic diet. So you have to be able to be metabolically flexible. As my wife, who's a physician,

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taught me years ago. You gotta have metabolic flexibility so you can go back and forth between ketones and glucose seamlessly.

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And she was absolutely right about that. Then exercise, and it's as you know, strength training and aerobics and HIT all give you complementary pieces.

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So you yes, you should be doing some strength training, and yes, you should be doing some aerobics. They hit dip by different mechanisms,

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they help you out. And then sleep. You wanna hit four parameters in sleep. I check mine every morning. So you wanna hit at least seven hours of sleep at night.

**The 4 sleep numbers he checks daily**

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You wanna hit at least 90 minutes of REM, at least 60 minutes of deep sleep,

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and an oxygen saturation, SPO2, of at least 94%. If you're dipping down into the low 80s and even 70s,

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you are hurting your brain. You're also increasing your risk for things like macular

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degeneration. You gotta have that oxygen. Going to your brain and the blood flow. So that's the sleep part. And then stress.

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As I mentioned earlier, it's that chronic unremitting stress. So check your HRV. Good to know whether you like Uraring,

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Garmin, Fitbit, whatever you like. Check your HRV and make sure that you're doing well with that. And then brain training and brain stimulation,

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things like brain HQ, invented by one of my favorite professors, Mike Mersnik, who's the father of ~ brain training.

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invented years ago by Mike. Fantastic, great data they have on that. And then all other forms of brain stimulation,

28:00

things like photobiomodulation. And we've worked with VLite and Neuronic and others that have excellent systems.

28:08

Origin is another one that some of the doctors in our trial used with great success. So all of those things can be helpful.

28:15

And then detox and it this is one where I was not taught

28:21

in neurology residency and fellowship. That toxins were such a problem in cognitive decline.

28:28

You know, the idea was sure, if you're overwhelmed with mercury or something, maybe you're gonna have some problems.

28:33

But no, it turns out that all of us have significant exposures to toxins,

28:38

including things like microplastics, as I mentioned. And over time, you know, you just keep you're trying to get rid of these by every way possible.

28:48

You're excreting them, you're metabolizing them, you're inactivating them, but you're also storing them.

28:53

And you're storing them in your bones, your liver, your kidneys, your brains, other organs. And so one of the things that we were surprised about years

29:01

ago that we now think we understand better, there are many people who will come in during that so-called osteoclastic burst,

29:09

late 40s, early 50s, typically around the time of menopause for women, they are re-releasing these toxins back into the bloodstream.

29:18

And so now they come in with cognitive decline. So we've got to identify those and we've got to detox those people.

29:24

And then the last of the seven basics is some targeted supplements. And for some people, that'll mean ~ SPMs,

**What supplements can and can't do**

29:32

for some it'll mean urolithin A, for some it'll be ~ magnesium, for some, you know, vitamin D,

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you know, ~ omega-3s. I mean, the great news is there's a huge armamentarium again,

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and there are all sorts of arrows in the quiver that you can use. And we have had a few people where they went through.

29:50

The trials did very well and then said, I'm done with supplements, I'm not doing any more. And they definitely struggled when they got off those.

29:57

So they're not a cure. People say, well, wait, supplements aren't a cure for Alzheimer's. Exactly. They're not a cure. But if you're going to address this network

30:07

insufficiency, which is what this is, you want to do everything possible to get the supply up and the demand down

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so that your 500 trillion synapses can function once again. And so that you have switched back from protection mode back into connection mode.

30:24

And wow, when that happens, people notice it. Like, wow, okay, I'm remembering things again. I have got more energy. Things are better.

30:32

Now, the two specifics that I mentioned beyond the seven basics are chronic infections, anything that is giving you that inflammation.

**Your mouth and your brain: oral DNA testing**

30:40

So it's as a you know, chronic as I say, chronic sinusitis and P. gingivalis in the mouth.

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I recommend that everybody check their oral DNA. Well, there are a number of groups that do this now,

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but know if you've got these pathogens in your mouth because they're easy

30:56

to take care of. Some people like to use stellar rinse, some people like to use dental ciden.

31:01

People will use oral probiotics now that are available. Those are very helpful as well.

31:07

And of course, getting keeping up with your dental work. In our trials, we sent people for cone beam CT.

31:14

So you could see if they had occult abscesses, and those could then be dealt with.

31:19

So that's the chronic infections, and then the other one is I say it's the chronic toxicity. So you got to look at the three different groups of toxins,

31:26

you got to get them on detox. When you do this right, and it's very interesting to me, there are doctors who are really good at this.

31:33

It's very much like surgery, and it's much more like surgery than it is like prescription pad medicine.

31:38

There are doctors who are great at it, there are health coaches who make all the difference.

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In our trial, we had six teams. Four of the different sites around the country got spectacular results.

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Two of them got nothing. People weren't better if they saw them, and then there they didn't have as good as experience and as expertise

31:59

~ in their teams as the other four sites. So it really does make a difference.

**Why the practitioner matters most**

32:04

And of course, we have training. You can literally look for Recode 2.0 training.

32:09

We've got fantastic people who do the training. Dr. Neal Nathan, who's the world expert on mycotoxins and

32:17

Along with Dr. Schumacher, ~ and ~ and tick-borne illness and chemical sensitivities. Dr.

32:23

Ann Hathaway, who's an expert on ~ BHRT with the hormone replacement, you know, when it's right, how to do it right,

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~ all these things. Dr. Cyrus Raji, a professor in neuroradiology,

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I mean, really some some fantastic experts teaching this. And again, the people who can do it right make all the difference compared

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to the ones who just really don't know what they're doing. Mm-hmm. Thanks. I mean I think that was

32:49

first of all, thank you so much. That was a really comprehensive That's fun. and amazing answer. And I think you covered so many topics.

32:55

You actually anticipated several of my questions, Good. Good. which I think are great, because I was gonna ask about kind of like mouth and brain health.

33:03

~ I think, you know, some of the things, you know, that that I've read about in your book and and ~ I've read,

33:08

you know, s ~ both of your books ~ recently about you know, kind of suggestions lifestyle wise.

33:14

And I think one thing I wonder is like, okay, a lot of the caregivers who are in our audience are very time constrained.

33:19

Like they're already caregiving for a mom, Yeah, yeah. dad, or spouse. So of course, like I think the recode protocol is like fascinating and if everyone could kind of follow all these steps,

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you know, how about if you if you were dealing with like a super stressed out person, what you know and you could say,

33:33

hey, fix only maybe three things today, ~ or maybe in order, you know,

33:39

like if it's sleep, if it's Food, diet, sugar intake, if it's exercise, stress, you know, what do you think I I guess if you had to rank it

33:48

on simplest to do for maximum impact, how would you say the f top three things maybe?

33:53

Yeah, great point. And and you're right. So if you go and do the training, and I think every caregiver should take training,

33:58

but you're you're right. It's ~ you know, 33 hours or so of training. So if you do that,

34:04

just skip to the quizzes. See if you can do all the quizzes first. If you know all this stuff, great. I s I'm sure that there are a few areas where you're gonna learn something

34:12

and you're gonna and then and then document your improvements. Look look at people. You know, the first the first time someone sees someone with Alzheimer's,

34:20

get better. They're always shocked, like, wait a minute, I didn't know this could happen. I remember one doctor who wrote to me and she said she had been dealing with

34:28

a guy who was another physician, actually, who developed Alzheimer's. She treated him, he came back several months later and he was better.

34:35

And she's the the doctor started crying. ~ the one who was treating him, she said, I've never seen anything like this before in my practice,

34:42

and now I realize it can be done. And so now the people who've seen it, you know, they they get it, and they're out there doing this

34:49

and getting people better, you know, every day. and I should mention in ~ Dr. Heather Sandison who started

34:56

an assisted living facility called Morama down in San Diego and was seeing people routinely get better there.

35:02

Now, unfortunately, Marama was was sold ultimately and so that no longer exists, but she's looking at starting another.

35:08

We've started working with a group called the Vineyards in Fresno, and they've got spectacular results in their studies.

35:14

So that you mentioned well, what are the three things? Well, first thing, you don't want to put the cart before the horse.

35:20

You want to know what's wrong. Treating blindly is not a particularly good idea.

**Test before you intervene**

35:26

Yes, you can just do general healthy things. That's great. And the basic seven that I mentioned will help a lot of people.

35:32

But I recommend, first of all, find out what's wrong. That's the first thing. And that doesn't take long at all.

35:37

It's a needle in your arm for you know just getting a little blood sample. And you can find that out. I mentioned the get-a-brain scan.

35:44

You can also do it with labs. So one of them tells you where you stand, just like hemoglobin A1C.

35:49

The other one tells you why. So it's looking at your infections and toxins and things like that. Then, if there are three things that make the biggest difference for most people,

**If you only fix 3 things: #1 is your metabolism**

36:00

number one is to do to be serious about a plant-rich,

36:06

mildly ketogenic diet. Try, you know, check your glucose and ketones for a couple of weeks.

36:12

Make sure that you're getting on the right you know, on the right road. when I went to the vineyards and and met with the people there that

36:20

had just done this, ~ you know, it was interesting. I met with the two chefs. So the the CEO there, Dennis Bacopoulos,

36:26

fantastic guy, and he said, I'm going to have the chefs at my place work with

36:32

the doctors who know this. Actually, he worked with Julie G, who's the founder of APOE4.info.

36:38

She's an ApoE44 herself. That's the highest risk for Alzheimer's. She's doing absolutely great.

36:44

She had symptoms in her 40s. She's now in her mid 60s and doing absolutely great.

36:49

And she actually was a co-author with me on the second book, which is The End of Alzheimer's Program.

36:56

So that goes through the program. So that's another easy way to get it. You know, just get one of those four books. ~ they're each slightly different.

37:03

The End of Alzheimer's is about how it works, how we first came up with this idea, what we did in the lab, and the initial people who turned around.

37:11

The End of Alzheimer's. program, people said, well, we want more details about what to do. That's what that one is. That's the one where I worked with with Julie

37:19

and also my wife, Dr. Lachine, to to do that one. ~ the third one is called The First Survivors of Alzheimer's,

37:27

and that is written by seven different people who turned the light and they the stories are incredible.

37:33

This just to hear how they were told that they were going to die and how they did better. And but we have a summary in there of what to do.

37:40

And then the fourth one is the one you mentioned, the ageless brain. And that was be people said, Well, you know, this is more than Alzheimer's.

37:46

Let's talk about cognition for everybody. How can we all have a brain span that's as long as our lifespan?

37:55

And that's the whole goal of that. So, you know, it doesn't do you any good to live to 99 if your brain only does well

38:01

till 66. So, you know, we want to make sure that whatever you're going to do, yeah, let's make sure that your cognition goes well.

38:09

I know there's Great interest now in people living to 140 and things like that. although no one's done it yet,

38:15

but there's a great interest in that. And great. Well, don't spend half of that time in a nursing home. Let's make sure that your brain does well until you're 140 as well.

38:23

so that's what that one. So I would get one of those books. Take your pick, and then look carefully at that.

38:30

And then if you want more information, ~ you can also follow. You know, we have Instagram, ~ Dr. Dale Bredesen,

38:37

and and you know Facebook and X and all that stuff. although those are more like daily kind of tips.

38:44

but ~ if if you want more information I would check the ~

38:49

you check the ~ either the there's a documentary that you can look

38:55

at ~ also or ch or or or get in get into the training. Recode 2.0 training you don't have to finish it quickly.

39:02

Take your time go at your own pace. As I said, you know If you think you know this stuff, just go to the quiz for that section,

39:08

then go on to the next section. I guarantee there will be some good things in there that you will learn about brain

39:15

health. Again, we see it every day that there's a huge difference between the people who are good at this and the people who are not good at this.

39:22

And so it does help you. So I would say as number one, get on a plant-rich, mildly ketogenic diet.

39:29

You want to see the people who do their best with their cognition. Get their ketones over 1.0 millimolar BHB at least once in a day.

39:38

And then if you're thin and you're worried about losing weight, because often when you get metabolically flexible,

39:44

you lose weight. It's common. If you're already very thin, then just cycle in and out once or twice a week,

39:50

no problem. And you can add a few more carbs during that time. The second thing that's really important that has a big impact is.

**2 exercise, plus exercise with oxygen therapy (EWOT)**

40:00

Exercise and it's not just the the what I mentioned before the strength training, etc. You can also think about doing EWAT exercise with oxygen therapy.

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It basically gives you better blood flow along with better oxygenation. It's a powerful combination. A lot of people have found really good improvements

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when they added that. Some people prefer hyperbaric oxygen to EWAT,

40:24

that's mum considerably more expensive. But there have been good results published from that as well.

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It's a more passive approach. Now you're not exercising, but to be fair, you're getting even more oxygenation than you are with Ewatt.

40:37

For those people who have vascular disease or traumatic related encephalopathy,

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like CTE, that sort of thing, that's probably where you would pick that approach.

40:50

But for others, EWAT does very, very well. ~ interestingly, Julie, when she was testing some of the stuff stuff out,

40:57

she looked at her vascular her biological age, as you know, people do this with epigenetics and other things.

41:03

But you as you know, you can do it with with vascular response, right? And so, you know, are your vessels dilating and constricting as they should?

41:12

And they'll give you a biological age. And her after she did Ewatt,

41:17

Her age went down something like 18 years, you know. So it could tell, my gosh, your vessels have really ~ kind of snapped into shape here.

41:26

So there, you know, the that's another key one that's been been very helpful. ~ so those, so it is you know,

41:33

exercise and and diet, which seems simple, and yet doing it right makes all the difference.

41:38

And then the third one, you know, you could argue a number of things. I I would say probably the number one is gonna be sleep.

**3 sleep, and the 80% who don't know**

41:46

You know, do you know that in the United States, 80% of sleep apnea goes undiagnosed?

41:52

And I p hear people say all the time, I don't have sleep apnea. did you check?

41:57

No. Well, you may still have it. You can have it just you know, the classic is middle-aged and older men with short necks who snore.

42:07

Okay, but there are a lot of young, thin women who don't snore who still have sleep apnea.

42:14

And again, if you're dropping your ~ oxygenation at night, that is that is a problem.

42:20

So anybody can have it and it's a good idea to find out. And you can do it pretty easily. There are now, you know, we can do it at home,

42:26

~ sleep studies, ~ things like watchpad and stuff like that. So there are a lot of good ways to do this.

42:32

Now, beyond those three, there are lots of other things, but those would be the three to start, and they do have huge impacts on cognition.

42:42

That's that's that's really helpful. You know, thank you for for sharing in great detail. ~ you know, I think I I had another interesting question for you.

**Psilocybin: what the case report showed**

42:50

I saw you posted recently about and then I'll ask this last detailed question and then I have a bunch of rapid fire questions for you too.

42:55

But you know, recently you posted about the psilocybin, you know, which I think is just like what many people might think of

43:01

it as like magic mushrooms, which you know, before I saw the thing, I was just like, that's like a drug that people are using recreationally.

43:08

But you know, that that recently had shown Something about ~ in Brazil, ~ an American woman had gone down there and

43:16

~ kind of reversed her Alzheimer's. Can you elaborate kind of what's going on? You know, I've noticed that that tended to coincide with the government

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~ approving research on psilocybin. It seems like it's kind of becoming more commonly accepted today,

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actually today or yesterday I saw news that a very large pharma company had bought a major company that is doing psilocybin research.

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I believe that was for more mental health disorders. But yeah, could you could you elaborate a little bit off what's going on

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and ~ you know, is there something promising that you see there? Yeah, so this is still early days,

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so we don't we don't know. There's a lot of interest in this because it has some promise. But we need to see, you know, we need to see studies that say,

43:56

yes, as part of an overall program, this actually made people much better. There is one recent case where they said,

44:02

my gosh, this person was fairly late stage. Now, again, let's go back. We're trying to change from pathology things happen

44:09

for no reason, and we look and say, there's the pathology, to things happen, there's some your body is responding to something.

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So all of these The these various, you know, psilocybin and ayahuasca and LSD and

44:22

all these things that are psychedelics all have a similar mechanism where they

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interact with a specific serotonin receptor, 5HT2A. So this particular receptor,

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what is that receptor doing there? Well, you know, it's fascinating. Each of these things, we find that depression,

44:40

for example, depression is your body's response saying things are not working out.

44:47

Your body tells you, you're gonna, I'm gonna put you on the couch. You're not gonna be able to get up for a few months until you change your life

44:54

course. Because what you're doing right now is not giving you positive feedback.

44:59

So there's a physiological reason for all this. And if you look at the psilocybin,

45:06

what it's doing, and you look at those receptors, this seems to be another response.

45:11

So you've got a system in your brain that says, hmm.

45:16

I need to rethink the universe, rethink the world. I need to potentially redirect my pathways.

45:24

So what does this do? This enhances neuroplasticity. Okay, neuroplasticity is what's being lost in Alzheimer's.

45:33

So I what I'm particularly interested in myself is let's get these people where the supply is good enough, the demand,

45:39

the last thing you want to do is try to push more neuroplasticity when you can't support it.

45:44

But once you support the neuroplasticity and you get rid of what's what's holding

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you back, the toxins and the inflammation, now you're in a perfect situation where you can support neuroplasticity.

45:57

And to me, that's gonna be when it's gonna be best to take these sorts of approaches. And for people who've kind of plateaued but are doing

46:05

the right things, I think that's where it's gonna be helpful. Now, time will tell. But right now, of course, it's just people are excited about it.

46:12

Let's give it a try. Let's try it for every you know, lots of things go through that period. And so, as you said, ~ you know,

46:19

the government has ~ awakened and said, okay, let's let's give some grants about this. ~ I think Timothy Leary would be happy to hear that they're now giving grants

46:27

on this sort of approach. but hey, we always say the same thing. Anything that helps people with cognitive decline

46:35

get better or reduce their risk, we're all for it. We like to see data when people tell you,

46:41

yeah, you put my crystal on your forehead and you know you're gonna get better. Okay, show me the data. ~ and but so again,

46:48

if this works well, hallelujah. It's still too early to know for sure, but it but it does make some sense in terms of what your nervous system

46:57

is responding to. No, thanks. That's super helpful. Okay, now rapid fire, you know,

**Rapid fire: do crosswords and Sudoku actually work?**

47:04

I have a few questions. If you can give kind of like your two to three sentence answers of takeaways, I do. you I think

47:09

sometimes people like them as short clips, you know, from a longer episode. So one, ~ crossword puzzles or sudoku,

47:17

you know, things like that, are are these things offering any real brain health and Alzheimer's protection or false comfort?

47:24

Yes, they do offer help as long as you've got the supply up. Remember, this is like we're telling people to work out with weights.

47:31

If they're malnourished, we're not helping them. So these are so Sudoku and crossword puzzles are the weights.

47:36

If you don't if you're if you're malnourished, if you don't have the supply, they're not going to help you. You get everything, get your ducks in a row,

47:43

get the fact that you've now got the support, then they have a much better chance. And of course, the same thing goes for brain HQ,

47:50

and then that's certainly got great documentation. And yes. What happens? People argue about these little points.

47:56

Do they help? Do they not help? Well, they either don't help or they help a little bit. They're gonna help you more if you are giving yourself appropriate supply

48:05

and you're not giving yourself the demand of massive stress, sleeplessness, depression, you know,

48:11

all those sorts of things. So that's the setting. Sorry, that's more than two or three sentences. Next. I think that's helpful. That's a great

48:16

nuanced answer. So I appreciate that. Okay, next one. I I actually get asked this question a lot from many stressed

**One glass of red wine a night: help or harm?**

48:22

out caregivers. One glass of red wine a night helps the brain or hurts it?

48:28

Again, some people it helps, some people it hurts. Of course, the latest is people are saying wine is never good,

48:34

it's always bad. ~ I have to disagree a little bit, and here's why. If you're overwhelmed with stress and the wine is decreasing that,

48:41

and you're not you know getting inebriated and hurting your cognition, and you're not giving yourself so much that you're gonna have seizures when

48:47

you stop, then fine. And yes, one glass, we all we recommend, you know, one glass a couple times a week is fine.

48:54

And yes, you can always argue that. It you know, it has some ~ minimal effects, you know. Is it gonna increase risk for other things?

49:01

Yeah, a little bit. But w the problem is people get overwhelmed with stress and they say, Can I just have a little one?

49:07

Yes. D do it, relax. Don't do it l so late in the day that you can't sleep at night.

49:15

Great. That's that's helpful. Now, if someone just got the diagnosis, you know, in a couple of sentences,

49:22

what do you tell them? Yeah. I I ask what what stage? Are you pre-symptomatic and they just picked it up on blood tests?

49:30

Are you SCI, MCI, dementia? That's critical. There's so much you can do, but it is different at each stage.

49:38

The most important thing I can recommend is work with a practitioner who's well trained, has good experience. Ask them,

49:45

can can I talk to a couple of people that you've made better? Let me talk to them. That's okay.

49:50

~ and and there and there are support groups. ~ Dean Ornish found that people when they were doing his protocol

49:56

for cardiovascular disease did better if they included a support group. We see it again and again and again. Get into a good support group,

**Just diagnosed? What he tells people**

50:02

work with a good practitioner. Good practical advice. then if you could delete one thing from the modern diet

**The one thing he'd delete from the modern diet**

50:13

to help save people's brains, what would it be? Wow. That's a great I mean I'm sure most people would say ultra-processed food.

50:20

And that's the thing that's killing people the most. I think there's a wonderful book ~ that by Dr.

50:27

Robert Lustig, a colleague and friend, ~ called Metabolical, and he goes through how all these things

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and how damaging these things are and why they are still being sold. ~ it's unfortunate. So I I would do that and it would it would

50:39

of course include simple carbs. you know, I grew up in the 50s and sixties.

50:45

And my gosh, everything was simple carbs, and you know, hey, hey, you did a good job. Here's some candy. I mean, it's it was horrible.

50:52

And I realized how damaging it was to my own health. And so now I'm kind of having to relearn everything and to try to keep myself from

51:01

from having metabolic syndrome like hundred million Americans do. ~ so I I would say that would be the one thing.

51:08

Get rid of that that ultra-processed food. I realize that those are two things, but ultra-processed food and sugar.

51:14

Go hand in hand. I couldn't agree more. ~ you know,

51:20

then this one will be interesting also. If you could change one thing about how medicine treats Alzheimer's today,

**What he'd change about Alzheimer's care**

51:26

what would it be? Yeah. ~ it would be to quit using monotherapies.

51:33

This idea that we're gonna take this complex chronic network insufficiency

51:39

and we're gonna take a hammer and whack it at one place and it's gonna suddenly everything's gonna be right. It's so naive.

51:45

You know, it's j it's it's scientifically naive. You you would not you know you would give a ~ a a first year college student

51:53

a D for suggesting that, and yet it's a multi-billion dollar market and it's so it's sad.

51:59

We need to work together. The drugs are fine, but when they need to be with the overall protocol.

52:05

And actually we're we're trying to to talk to a couple of pharmaceutical companies to say hey what you've got is important but

52:12

you can't do it as a monotherapy and get good results. We've got fantastic results let's put these together and I'll exceed

52:19

the two to three sentences just to tell you one interesting thing that came out of our trial. So what we found in our trial

52:25

Was the cognition did great. The biomarkers, the actual phosphotau ~ and the amyloid,

52:32

only moved a little bit. Whereas in the drug trials, the phosphotau and the amyloid moved a lot.

52:37

Yeah, because they're sucking it out with the antibodies. The cognition barely moved at all. Okay, we got to put these together.

52:44

Let's get the cognition to improve. And then that's over time, some start with the microdoses,

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slowly remove. the this amyloid and tau. You need them for a while,

52:56

but in the long run, yes, they got rid of the viruses and they got rid of these microbes, but they are also getting rid of the synapses.

53:02

We don't want that. So in the long run, I think we're we're I think the next this next iteration is going to

53:08

be even better for reversing cognitive decline.

**Where to find "The Ageless Brain"**

53:13

Awesome answer. No, thank you. I think, you know, ~ Dr. Bredesen, I think this was this was an awesome conversation. I think I hope that people are listening will have like a reframing,

53:21

you know, of just even how dementia comes about. ~ hopefully it creates a tremendous amount of ~ kind of ~ positivity that people

53:32

can influence their own probabilities and risks of getting it, no matter what stage they may be in the journey,

53:38

or even if they're not in any stage at all. ~ and I hope it encourages everyone to think about brain health more proactively,

53:45

the way that people think about, you know, kind of their body and physical health. ~ you know, so and and I hope it helps people who are caring for a loved ones going

53:52

through it right now. ~ I think, you know, could you tell everyone, you know, where can they grab a copy of the Ageless Brain?

53:58

You it's a great book, I'd highly recommend it. ~ and, you know, where can they follow you, follow your work. I think you mentioned some of the social media channels

54:05

and everything. Yeah, where they Yeah. where can they just follow along? Yeah, thanks so much, Neal. So you can get this on Amazon or on Barnes

54:11

and Noble or anywhere where great books are sold, where you know where medically relevant books are sold.

54:19

~ and then you can again you can go to Dr. Dale Bredesen ~ on you can see this on Facebook and see it on Instagram,

54:27

you can see it on X, any of those. ~ you can ~ you know you can follow this.

54:33

There's a YouTube channel through Apollo Health. ~ I would encourage people also ~ look at Neurocode and the so-called you know

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get a brain scan, look at that because that will give you the key markers for this. So there's there's so many ways,

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and this is slowly getting out there with trial after trial, showing results that we haven't seen before.

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So this is a time of of great progress. We're so excited. You mean you're a caregiver, you see this, you know this. there's nothing sadder than to see people declining.

55:02

and there's nothing better to get turned around and have to do and have him do very well. And if we can get everybody to think about this earlier

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and get things turned around so that they never have to worry about dementia, that'll be fantastic.

55:16

Amen. Totally agree. You know, thank you, Dr. Dale Bredesen. You know, there you have it, folks. You know, I thought that was a fascinating conversation.

55:23

If you guys found it helpful, you know, ~ help help other people be proactive. Feel free to share it with others.

55:29

You know, over the next couple of weeks we'll be sharing a lot of short clips from this, as well as the full episode on YouTube,

55:36

Facebook, Instagram, and all of the social channels. But Please follow along his work, check out his book,

55:41

you know, which I think is awesome. Even his ~ the end of Alzheimer's book, I is is as well as amazing. Just makes you reframe how you think about

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~ this illness and you know help people be proactive. But thank you, ~ thank you, Dr.

55:54

Dale, and ~ thank you everyone for listening, and we'll catch you guys on the next one.