NEUROGENESIS

Transcript

COMPLETE TRANSCRIPT FOR THE NEUROGENESIS FEATURE FILM

NEUROGENESIS TRANSCRIPT

Health Secret LLC

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Dr. Dale Bredesen: 00:00:14 We are doing things to give ourselves Alzheimer's disease all the time. It's actually as you know, it's become an incredibly common problem. Figures were just released showing dramatic increases in California in deaths from Alzheimer's disease, as well as around the United States. [00:00:30] The bottom line is many of the contributors, many of the things from the standard American diet to the stress levels, to the lack of sleep, to the exposure to specific toxins, to the exposure to specific pathogens, to the insulin resistance that occurs, to the ongoing inflammation, gut leak, gut dysbiosis, on and on and on. These things all turn out to be contributors to cognitive decline, so addressing them, recognizing them, [00:01:00] measuring them and addressing them, very helpful.

Dr. Michael Merzenich: 00:01:03 We know that brain training actually inhibits the development of dementia, so the idea that sitting around doing nothing and not exercising that network could be harmful is, I think, a very reasonable possibility. I'm writing a book about this, be out in about a month. It's called, the book is titled "Alzheimer's is Not a Disease," which it isn't. It isn't a disease. [00:01:30] It's just, it's the end stage. Nothing unexpected about it, nothing unpredicted about it of a long, decades long progression, negative change progression that ultimately results in a catastrophe, but there's nothing unnatural about it. It's not really a disease. The problem is, is that when they think about things that primitively, they have no under-

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standing what could be the genesis of such a problem [00:02:00] because the science is so primitive.

Dr. Michael Merzenich: 00:02:03 As soon as they called it a disease, 110, 12, years ago, they put everybody off on thinking that when you have it you treat it, as opposed to how you should think about it, and that's to stop the decades long progression. That's really how you should be dealing with it. You should be stopping it from ever happening in life, but we don't think about it that way in the mainstream of medicine. [00:02:30] That's one thing I sort of like about this group, is they're a little bit more open minded about thinking about things in those terms, and that's why my book is about.

Jonathan Otto: 00:02:41 You're saying that you believe that Alzheimer's can be prevented?

Dr. Michael Merzenich: 00:02:45 Oh, absolutely. No question. Or you could say delayed for probably indefinitely in most people. I also think that when you do that, the [00:03:00] changes that you drive in the brain will lead to substantial increases in longevity.

Dr. Dale Bredesen: 00:03:04 I think actually the doctors have been quite good about telling people that these therapies are not terribly effective. That you'll get a small improvement and that they will not affect the decline.

Jonathan Otto: 00:03:17 Okay, well that's good, right?

Dr. Dale Bredesen: 00:03:19 It's good but it then tells people things are hopeless.

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Unfortunately, what happens is people know that there's not a lot to be done, so they will wait as long [00:03:30] as possible and instead, what we would like to see is just the opposite. People should come in as early as possible, preferably prevention, but if not prevention, then come in as early as possible for reversal. The idea of saying, "Well, since there's very little to be done, I'm going to take some medicine, I'm going to be ... My drivers license is going to be taken away. I will not be able to get long-term care insurance so I'm going to wait as long as possible," is the wrong idea in the long-run.

Jonathan Otto: 00:03:58 That fear in living in that place [00:04:00] is often worse. It's the feeling that something dreadful's going to happen.

Dr. Dale Bredesen: 00:04:04 The hopelessness. It's like, if this happens, this has become the number one concern of individuals as we age. People are worried about getting cancer. Now they're worried about cognitive loss, often even more.

Jonathan Otto: 00:04:19 Wow. You've seen that, like it's the people that are in that age group, probably from 50 up, is that right?

Dr. Dale Bredesen: 00:04:27 Yeah, yeah. It's a huge ... Again, people, [00:04:30] we're also seeing people even into their 40s, if they've had it in their family. If they've watched a loved one, especially a mother or father, go through this, and they call it the long goodbye, then they're, of course, concerned about themselves and want to

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make sure that they don't have this, so being able to offer some hope and say, "Look, there are things you can do to put this off or to prevent it." The hope would be that this becomes a rare disease.

Dr. Daniel Amen: 00:04:56 The challenge people face is really at all ages now. It's horrifying. [00:05:00] 20% of teenage girls will meet the criteria for major depression. 50% of Americans at some point in their life will have a mental illness. It's almost more normal to have a problem than not to have a problem. As we age ... They just published a study on 62,000 people showing how the brain ages. It's the largest imaging study ever, and it's not good news. The older we [00:05:30] get, the less activity we have in our brain, which is one of the reasons ... If you're blessed to live until you're 85 or older, you have a one in two chance of having lost your mind. We need to be serious about brain health, whether we're young, whether we're in the middle or whether we're old because it affects all of us.

Jonathan Otto: 00:05:57 Thank you. Because it is happening younger [00:06:00] as well. I've seen cases of dementia being in young adults and even younger. I have even heard of children having some of these cognitive issues that have some associations. What's the age group that things can happen here?

Dr. Daniel Amen: 00:06:19 Well, you can hurt your brain at any age. When we think of things like Alzheimer's Disease, it's very rare to have it under the age of 50. Happens, [00:06:30]

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but you have to get a really bad combination of genes. Two million people every year in the U.S. have a traumatic brain injury. That means over the last 40 years, that's 80 million people who are walking around with the chronic effects of traumatic brain injury. Most people don't know your brain is really soft, about the consistency of soft butter. Your skull [00:07:00] is really hard, it has multiple sharp, bony ridges that mild traumatic brain injury, if you said, "Hey, Daniel, single most important thing you've learned from looking at 150,000 scans, is mild traumatic brain injury ruins people's lives, and nobody knows about it because they go see psychiatrists who never look at the brain, and so they'll go, "Oh, you're anxious, you're depressed. You have memory problems, you have a personality problem," when in fact, it's the result that their frontal or [00:07:30] temporal lobes got hurt from a car accident or from a fall or from a concussion playing sports.

Dr. Daniel Amen: 00:07:36 One of the things I developed was a concept I call brain reserve, it's the extra tissue you have to deal with whatever stress comes your way. Throughout your life, you're either building your reserve or you're stealing from your reserve. If you're going to have a child and the mother [00:08:00] and the dad loved each other, they ate right, they took care of their bodies, they're building that child's reserve. After the child's born, stimulation, nutrition, new learning activities, building the reserve. Too often

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though in the U.S., bad food, chronic stress, a lack of love for the brain, so they let little kids [00:08:30] hit soccer balls with their head or play tackle football, stealing the reserve, and so over time, there's less and less reserve.

Dr. Daniel Amen: 00:08:39 Think of it this way, take two soldiers, but them in a tank, expose them to the same blast, the same force, the same angles, everything. One walks away unharmed, the other one's permanently disabled. Why? It's the brain function they brought [00:09:00] into the accident that matters. If you think of someone who's 62 who has Parkinson's disease, where parts of your brain are dying, the parts of your brain that produce dopamine are dying, it's what are all of the stresses that have been put on the brain from the time they were conceived until now? You can't go, "Well, this is one thing." It's probably [00:09:30] multiple things, including what my dad did to me when I was a child. I had to spray the weeds. We had an acre of land and lots of fruit trees. He didn't want by the trees, so I'd get a can of oil and spray the weeds. Having a developing brain like mine around the toxins from the oil that I was spraying, that is just not smart. Now, he [00:10:00] didn't know and he was trying to give me a work ethic, but now that I think about it, I'm horrified.

Dr. Daniel Amen: 00:10:06 Here at Amen Clinics, for us, it starts with a really detailed history. We want to know the story of your life and your vulnerabilities, and then we want to look at your brain. Because if we don't look, we

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don't know. We'll map your brain to help us understand where you are.

Jonathan Otto: 00:10:26 Dr. Larry Mamaya, I am really happy to be with you today. Dr. Larry [00:10:30] Momaya is a, he is a psychiatrist, a medial doctor and he's board certified in psychiatry. You actually happen to specialize in areas of conventional treatment, which is great that you have like a deep awareness and abilities to use the conventional tools, but especially there in some of the more out of the box therapies, the more, what I would call the most cutting-edge therapies and progressive tools that people can be using today, and so I'm really thrilled.

Jonathan Otto: 00:10:56 Not only are you here with me and you've taken the time out of your busy day, but you've [00:11:00] also come with some scans. I can't tell you how excited I am. I know that the audience that are watching are going to get more than they ever hoped to get from this interview, because we're going really deep and I appreciate you just giving all your tools, your hard won wisdom to people in this setting, just giving this wisdom to hope for a better world and a better future for humanity, so thank you for your commitment.

Dr. Larry Mamaya: 00:11:20 Oh, thank you for having me. I'm really honored to be here.

Jonathan Otto: 00:11:22 Awesome. You're very welcome. Let's dive in. You have some scans here. [00:11:30] Why are these

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important? You can help give me the framework of why these are conducted, how they are really helpful, what they're able to pick up and how we can then use them as part of the solution, but I'll let you take over here.

Dr. Larry Mamaya: 00:11:42 Yeah, absolutely. Just to make it so clear to people, psychiatry is the only medical profession that doesn't look at the organ they treat, right? If you go to, if you have a heart problem, you're going to get an EKG. You're going to get some kind of an objective diagnostic tool. This is something that sets Amen Clinics apart is we look [00:12:00] at the organ we treat. Because one of the philosophies is, how do you know unless you look? The case example I brought here to show you is just somebody I saw last month, real case, name covered up, obviously. Just very briefly, a daughter brought her mother in, who's an elderly woman, concerned about what is happening with her mother. This woman has shown psychomotor retardation, very slow in her speech, slow in her movements, poor sleep, poor eating.

Dr. Larry Mamaya: 00:12:29 They've gone to two neurologists [00:12:30] and two psychiatrists and they all said that she has pseudo dementia. Pseudo dementia or false dementia is really depression in an elderly person that presents with cognitive problems and something that looks like Alzheimer's Disease. They gave her a high dose of a typical SSRI medication, but it didn't help. I suggested, "Let's do brain scans. Let's look at

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what's happening in the brain because how do you know unless you look?" Well, low and behold, we did it and this is what [00:13:00] we found. Now you don't have to be a doctor to know that this doesn't look normal, this doesn't look like a healthy brain. To show you, a healthy brain looks like this. The colors don't mean anything.

Dr. Larry Mamaya: 00:13:15 The type of study we're looking at is called SPECT, it's a functional brain imaging tool that's based on brain blood flow. The colors don't mean anything on these images, it's the holes that are important. On a healthy scan, [00:13:30] we should see a smooth top surface, smooth underside, smooth, symmetrical on the side views. No holes or dents anywhere. This woman, poor thing, completely wrongly treated, first of all. The medication she was given will further worsen her frontal lobe functioning. This is the front of the brain, underneath your eyeballs. The normal function of this, when it works good, it's responsible for focus, attention, concentration, [00:14:00] organization, planning, impulse control.

Dr. Larry Mamaya: 00:14:04 The medication she was given would further worsen her frontal lobe functioning and the top surface here, the parietal lobes, as you could see, massive, massive indentations or compromised blood flow, as well as in the temporal lobes that we see there. This, unfortunately, is a person who is likely suffering from Alzheimer's Disease. The scans [00:14:30] have significant deficits in the parietal lobes and in the temporal lobes, where we see Alzheimer's patients

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having the worst functioning. That's where the hippocampus sits, in the medial temporal lobes.

Dr. Larry Mamaya: 00:14:42 Again, to illustrate the point, this person could have been on the wrong treatment, getting worse because their primary illness is not being properly addressed, and not making any improvement. It's a big burden for the family, care-taking and whatnot, and the woman is suffering. [00:15:00] Yeah.

Jonathan Otto: 00:15:01 Wow, and so then you're seeing all these factors, these scans are giving you a huge insight into what the actual problem is, and because, like if I understand correctly, what you're doing is you're looking at the certain areas that have the, what I would say, holes, and then that's helping you to understand where the problem might lie. Is that correct?

Dr. Larry Mamaya: 00:15:23 Right. Those locations where you see the holes, and holes aren't real holes, but holes are areas of decreased blood flow, and someone who has [00:15:30] dementia, they've got cortical atrophy, so they've actually had brain shrinkage. Those areas that have that brain shrinkage are going to have compromised blood flow, and you'll see that on the SPECT scan as a hole. Literally, people don't have holes in their head, but they have blood flow problems.

Jonathan Otto: 00:15:45 Got it.

Dr. Larry Mamaya: 00:15:47 Depending on where you see the location of those

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compromised areas, those areas have certain functions, and those functions get compromised.

Jonathan Otto: 00:15:55 Got it.

Dr. Larry Mamaya: 00:15:56 Whether it's long-term memory, short-term memory, direction sense, [00:16:00] which is parietal lobes, right and left discernment, parietal lobes. That's why you'll often see patients with Alzheimer's disease getting lost and wandering. They kind of lose their spatial orientation. They don't know exactly where they're going and they can get lost and they can get hurt.

Jonathan Otto: 00:16:15 Wow. Then that's something that can be explained, and we know the direct cause of this and it's their blood flow issue that's causing what shows up as a hole, but it's showing that it's ... As I understand, is this like somehow detecting energy, [00:16:30] no? It's detecting blood flow, which is, and so it's showing up as a deficit, like there's no blood flow here. Hole, right?

Dr. Larry Mamaya: 00:16:38 Right. The decreased blood flow showing comprised functioning in various parts of the brain.

Jonathan Otto: 00:16:45 Got it. Now, how does this story end, of this woman?

Dr. Larry Mamaya: 00:16:50 Well, her story is really just beginning now, because now we can get her on the right treatments and hopefully try to save as much as we can of her function [00:17:00] that she's got there, and give

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family members an idea of like, "Look, now we're actually treating your mother the right way. All this stuff you've been doing all this time just hasn't been working because you haven't been addressing the primary problem."

Jonathan Otto: 00:17:11 Got it. Now what will you do with this woman? How will you help her?

Dr. Larry Mamaya: 00:17:15 Well, we're going to be using the appropriate type of medications that she should be on, but in addition, she'll need, the family will need supportive services on how to take care of her, safety, make sure that she's not getting [00:17:30] lost. There's a lot of behavioral modifications that need to be done as well. This is just a small example in someone who has dementia. We have, we treat patients with ADD, treat patients with anxiety disorders, depressive disorders. Everybody has their own custom fit treatment regimen that could involve medications, natural supplements, specialized psychotherapies, which is something I like to practice in my practice as well, such as hypnosis, timeline therapy, and many other types of therapies that I do on [00:18:00] a daily basis.

Dr. Larry Mamaya: 00:18:01 To show you now, this is a completely opposite type of brain scan. On the first scan I showed you, showed a lot of decreased activity. This is a case of depression and anxiety that has a lot of increased activity. As you can see, compared to an otherwise healthy, these red and white areas show areas of

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increased activity, and areas that are associated with depression and anxiety. The presenting symptoms can look very similar. Someone can have a depressed mood, sadness, loss of interest in things, sleep or appetite changes or disturbances, [00:18:30] but their brain functioning is very different. Based on how their brain is functioning, that will allow you to go the right direction of treatment.

Jonathan Otto: 00:18:39 Can people turn around their brain?

Dr. Larry Mamaya: 00:18:41 That's the hopeful part, and we give hope on a daily basis because you can change your brain. You're not stuck with the brain that you're born with. You can do a very thorough, proper evaluation doing careful assessments of what might be the best treatment for someone, whether it's medication, whether it's supplements, whether it's certain psychotherapies, whether [00:19:00] it's neurofeedback, whether it's hyperbaric oxygen therapy, whether it's the proper diet and exercise, people can get better.

Dr. Daniel Amen: 00:19:05 What I have discovered over a long time is if you want to keep your brain healthy or rescue it, if it's headed to the dark place, you have to prevent or treat the 11 major risk factors that steal your mind. We know what they are. It's not just us, I mean other people are coming [00:19:30] to the fact that you're not going to find one pill to get rid of Alzheimer's disease, that that was folly. That there's not one way to get it, and there's not one way to treat it. Sort of like depression. There's not one way to get

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it, and there's not one way to treat it. The doctors here at Amen Clinics, we thought about it and we wrote down all the risk factors and we came up with a really cool mnemonic called Bright Minds. If you [00:20:00] can understand these 11 risk factors, you really have the plan for brain health.

Dr. Daniel Amen: 00:20:07 Ultimately, brain health is super simple. I always say it's three things. Brain envy, you got to care. Freud was wrong. Penis envy is not the cause of anybody's problem. I've been a psychiatrist 40 years, I've not seen one case. The organ you really need to be concerned about is three pounds of fat between your ears, so got to care about it. Then you avoid things that hurt [00:20:30] it, and you do things that help it. What are the things that hurt it? If we just go through that Bright Minds mnemonic, it'll teach us a lot about how to have a great brain or rescue it if it's in trouble.

Dr. Daniel Amen: 00:20:45 The B in Bright Minds stands for blood flow. Low blood flow is the number one, number one brain imaging predictor of Alzheimer's disease. Anything that damages your blood vessels damages your brain. Under blood [00:21:00] flow, it's things like hypertension, it's having a stroke, it's any form of heart disease, heart attack, heart arrhythmia. Most people don't know, if you had a heart attack, you have a 60% chance of being depressed, major depression within the next 18 months because it negatively impacts your brain.

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Dr. Daniel Amen: 00:21:20 If you have erectile dysfunction, people go, "Why are you talking about erectile dysfunction?" Well, if you have blood flow problems anywhere, it means they're everywhere. [00:21:30] According to a study from Harvard, 40% of 40-year-olds complain of erectile dysfunction. 70% of 70-year-olds complain of it, which means 40% of 40-year-olds and 70% of 70-year-olds also will have cognitive dysfunction, and if you don't exercise. For each of these risk factors it's like, "How do I know if I have it? What do I do about it?" What you do is you tightly treat [00:22:00] hypertension, any form of heart disease, so you're like serious about it and you exercise. There's certain supplements that increase blood flow, Ginkgo, Vinpocetine, those are my two favorite. There are foods that can increase blood flow, especially beets, cayenne pepper, rosemary, oregano. I mean, you can make it taste awesome.

Jonathan Otto: 00:22:26 What are the results of you doing that work with people?

John Pierre: 00:22:28 Well, I noticed most [00:22:30] of these seniors were deficient in a lot of nutrients. B12 was almost always something that when they took B12, they could almost ... They would like pop back to life. B12 was a big one. Their circulation wasn't really good, so if you used things ... Back then, 25 years ago, we were using like Ginkgo Biloba. Now we have different things, we have like Beet Boost and all these different products you can use to increase vasal dilation, things like that to help their circulation. Then,

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of course, getting them to exercise and move more, do more breathing. [00:23:00] It's nice if we could do like contrast baths, where they did cold showers and hot showers ...

John Pierre: 00:23:00 It's nice if we could do contrast baths. We did cold showers and hot showers. That worked great for athletes, but for seniors, it's not really something you could do, but that's something that helps too.

Jonathan Otto: 00:23:09 When did you start seeing the problem there with your mother?

Mekayla Clarke: 00:23:12 The dementia problems?

Jonathan Otto: 00:23:14 Yeah.

Mekayla Clarke: 00:23:14 It was quite quickly after she got out of the hospital. She knew what was going on. It wasn't from an outside looking in. She realized that she was having some memory problems as well. [00:23:30] We would have conversations and then after about three hours, she'd forget what I had talked to her about, which can be heartbreaking, frustrating, upsetting, all those kinds of things when you see a family member that's kind of suffering a little bit. Yeah. It was really just the dementia. It was really just the memory. She couldn't remember just the little things. It wasn't like she'd completely forget hours and hours of time, but it was enough [00:24:00] to really be ... It was enough to really affect her lifestyle and the family dynamic for sure.

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Jonathan Otto: 00:24:08 Did you see future images of her declining and losing cognition?

Mekayla Clarke: 00:24:15 I mean at that point, I wasn't looking. I didn't really have the medical education at that point. I was still in my undergraduate, doing my undergraduate at the University of Manitoba. I wasn't really looking long term. I was kind of that selfish 18 [00:24:30] year old that was kind of being like, "Mom, you're not listening to me. What's going on with you?" It was scary, but I wasn't really looking long term. Now, knowing what I know about dementia, it would've been terrifying. Sometimes ignorance can be bliss I think.

Jonathan Otto: 00:24:45 Tell me how your mother turned her situation around.

Mekayla Clarke: 00:24:48 Well, she saw her naturopathic doctor. They ran a whole bunch of tests and they found that she had a vitamin B12 deficiency, which is super easy to fix, thank god. [00:25:00] Within two weeks, she was back to normal. She was doing vitamin B12 shots twice a week intramuscularly. She still does them, but within that two weeks, she was back to just the amazing person that she was. That was fantastic. It was like magic. It was really cool actually to see. Knowing what I know now about dementia and how it affects the person as well as the family is scary. [00:25:30] I'm glad that there was a simple solution to such a complicated problem.

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Dr. Daniel Amen: 00:25:34 The R in BRIGHT MINDS starts for Retirement and Aging. When you stop learning, your brain starts dying, and the older you get, the more serious you need to be. At 64, I need to be way more serious than I was at 34 just because the gravity of age, it's stealing my reserves. [00:26:00] So I need to be more serious, not less serious.

Dr. Daniel Amen: 00:26:05 Loneliness, social isolation, having short telomeres, all of this is involved in again. So I want to counteract that, new learning. New learning needs to be part of every day of my life. And strengthening acetylcholine. It's another neurotransmitter [00:26:30] that helps with learning and memory and it tends to drop with age. So shrimp or one of my favorite supplements is Huperzine A, which actually boosts acetylcholine in the brain. None of these things are hard.

Dr. Michael Merzenich: 00:26:46 Well, we know pretty well why the brain slowly degrades operationally. I mean in the early phase of life, from your brain's perspective, it's about continuous change. [00:27:00] You are in a skill acquisition phase. You're continually challenging yourself to acquire skills and abilities. So a period in which you are educated, not just in school but in physical and social life. Time of dramatic change in life and almost every dimension in your life until roughly your 20, 25th birthday. Then you begin to decline. One reason you begin to decline is that you move from predominant schedule, you could say of new engagement, [00:27:30] new learning, skill acquisition,

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the elaboration of ability, to operating largely on automatic pilot. Now most of the skills and abilities that define you operationally are in place and you're using them. So you're a user more than you're an acquirer. Very slowly, the scenery becomes noisier and noisier because you're no longer really engaging yourself in exercise in the same natural way that you were in the learning phase in life.

Dr. Michael Merzenich:00:28:00 [00:28:00] I liken it to being someone like professional musician and you have to practice every day to sustain your high ability. If you don't practice, you cannot retain your position as a professional position. You have to practice. In older natural life, people stop practicing. In a sense life is challenging enough to us in this sort of immediate physical way that it was to our ancestors. [00:28:30] It's that lack of practice and ultimately the withdrawal that commonly occurs in an older age that are contributing to this progressive decline.

Jonathan Otto: 00:28:41 Just while we're on that topic again because I've seen a lot of people feel really overwhelmed and bewildered by neurodegenerative diseases because many people, maybe even the person watching, feels that it is a mysterious track of nature and there's nothing you can do about it. You don't believe that.

Dr. Michael Merzenich:00:29:00 Well, I [00:29:00] think that once it's in place, once the train wreck has occurred, it's extremely difficult to deal with because it generates such damage

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in the physical brain and the physical brain by this point has undergone very substantial changes that are very difficult to reverse. But up to the point of substantial destruction, the brain has been changing itself plastically. It's been making natural adjustments, you could say, to make the most of our [00:29:30] the circumstances that apply to its operations. All of those changes are reversible. We know that now. We know that we can change them on a dime. We can throw a switch in a brain. We can engage by brain by, for example, training it intensely in the right way. We can throw all the little things that are changing physically, chemically, functionally, in a youthful direction again. So we can actually rejuvenate a brain rather remarkably.

Dr. Michael Merzenich:00:29:57 First experiments in which this was done were in animals. [00:30:00] We've showed that we can take an animal near the end of life, supposed to die pretty soon, and look in the brain to a whole series of things, about 25 things. We saw all of those things were degraded in the old brain versus the young healthy brain. Then we ... All of them disadvantaged the whole brain. The whole brain was slow, inaccurate, disconnected, cell populations were degraded. Everything we looked at was degraded. [00:30:30] The vascularization of the brain was degraded. Its immune response was poor. All of these things down regulated. We ask, how many of these things could we reverse by engaging the brain with appropriate intensive training? The answer is all of

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them. Every physical, chemical, function change that distinguishes an old brain that's losing its way from a young brain in the prime of life [00:31:00] can actually be reversed. Most of these things can be driven almost all the way back to the condition that applies for a young brain.

Dr. Michael Merzenich:00:31:10 We now know in human studies that we can train a brain intensely in appropriate ways and with not very many hours in a life. You could say less than one 24 period width of time from a life. We know from a study that was conducted over the past [00:31:30] 14, 15 years that that results in a random assigned controlled trial, a protection in trained subjects and a reduction in the onset of dementia by about 50%. It's almost certain that if we increase the way in which we engage the brain and which we actually controlled it with control dosing so that we kept the brain in a state of high functionality reliably. We can do this. That we'd have seen much greater protection than that. [00:32:00] I believe that we have within our ability now to manage brain health. That is to say that defined through relatively simple assessments, evaluations, what's inside. Then to do something about it, to make it stronger.

Dr. Daniel Amen: 00:32:18 The I is wicked. It stands for Inflammation. Inflammation comes from the Latin word "to set a fire". When you have chronic inflammation in your [00:32:30] body, it's like you have a low level fire that's destroyed your organs. How do you know if you have inflammation? There's a blood test,

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C-Reactive Protein. You know if you have inflammation. Your face is red. You have rosacea or you have pain, especially joint pain. I know I had something I should've have eaten and the next day, my knees hurt and I'm like, "I know this." Because for me, dairy increases [00:33:00] inflammation.

Jonathan Otto: 00:33:01 Interesting. Some people have this with wheat and with autoimmune disease. This is an inflammatory condition essentially at the core of it. Right?

Dr. Daniel Amen: 00:33:09 Inflammation is associated with both depression and dementia. Processed foods increase dementia and low levels of omega-3 fatty acids. In fact, one recent study, 97% of Americans had low levels of optimal [00:33:30] levels of omega-3 fatty acids. We actually did a study here on 50 consecutive patients who are not taking fish oil. 49 of them had suboptimal levels of omega-3. Omega-3s are antiinflammatory where omega-6s, think corn and soy, a lot of processed foods, they increase inflammation. So you can decrease inflammation just with your diet. [00:34:00] Food is medicine or it's poison. I recommend fish oil for people, but I want them to know their important health numbers like C-Reactive Protein. Peter Drucker was a very famous business consultant. Said, "You can't change what you don't measure." We like measuring things here. We like to measure your brain. We want to know your important health numbers.

Dr. Daniel Amen: 00:34:26 The G is Genetics. [00:34:30] But people have the

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genetic thing wrong. People go, "Oh, well I have Alzheimer's in my family. There's nothing I can do with it." I'm like, "That's the wrong way to think about it. I have obesity in my family and heart disease in my family, but I don't have heart disease and I'm not fat." "Why?" "I don't give in to the behaviors making it likely to be so." If you have Alzheimer's in your family, you need to be serious about [00:35:00] brain health as soon as possible.

Jonathan Otto: 00:35:03 Yeah.

Dr. Daniel Amen: 00:35:04 The H is Head Trauma. Wicked in the sense that there are two million new head injuries every year in the United States. It's a silent epidemic and we have no love or respect for this soft organ that runs our life. We let children hit soccer balls with their head or play tackle football. Here at [Amen 00:35:26] clinics, we did the world's first and largest brain imaging [00:35:30] study on football players. We have over 220 players and high levels of damage. You can't hit it repeatedly. Helmets don't protect you against brain damage. They protect you against skull fractures, but your brain floats in water, so you get boom, a big hit. It vibrates, which tears blood vessels, damages neurons, bruises the brain. It's not a good thing. [00:36:00] So protecting your brain or rehabilitating it. 80% of our football players were better in as little as two months just by putting them on this Bright Minds program.

Jonathan Otto: 00:36:13 Yeah. Wow.

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Dr. Daniel Amen: 00:36:14 T is Toxins. They are everywhere. It's rampant. When I first started imaging people, I could clearly see alcohol is not a health food. It decreases overall blood flow in your brain.

Jonathan Otto: 00:36:26 Not even the glass of wine?

Dr. Daniel Amen: 00:36:28 Twice a week and you'd be okay. [00:36:30] Twice a day, you have a smaller brain.

Jonathan Otto: 00:36:33 Yeah. You don't even need it.

Dr. Daniel Amen: 00:36:33 I would just suggest-

Jonathan Otto: 00:36:34 Yeah. I don't take wine for that reason even.

Dr. Daniel Amen: 00:36:38 When it comes to the brain, size matters. You don't want a smaller brain. Why? My wife is a nurse. Why does she put alcohol on your skin before she gives you a shot? Because it kills the bacteria. Well, what do you have in your gut? 100 trillion bugs that make neurotransmitters, that help you digest your food, [00:37:00] that detoxify your body, that make hormones. Do you really want to pour poison into those poor bugs?

Jonathan Otto: 00:37:08 Once they die, then parasites get more opportunity to take over, right?

Dr. Daniel Amen: 00:37:12 And yeast and it's not good. Protecting your gut is a major strategy to boost your immunity. We'll get to there. Toxins, drugs, alcohol. In addition, [00:37:30] what the scans taught us, is that all sorts of other

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toxins, heavy metal exposure. Lead is clearly a neurotoxin. Mercury is a neurotoxin. Mold, so damaging to brain function. It is critical to support the four organs of detoxification.

Dr. Daniel Amen: 00:37:58 The first thing is you have to [00:38:00] prevent exposure, limit, or decrease exposure. There's an app I like a lot. It's called Think Dirty. It lets you scan all of your personal products.

Jonathan Otto: 00:38:11 My wife uses it.

Dr. Daniel Amen: 00:38:12 It'll tell you on a scale of one to 10 how quickly they're killing you. When I first found it, half my bathroom, I got to throw out because it was toxic. My shaving cream that I'd been using since I was, I don't know, 15. It's loaded with hormone disruptors. It's like, [00:38:30] I don't want my hormones disrupted. I want my thyroid to be healthy. I want my testosterone to be healthy. People go, "Isn't it more expensive to buy healthy stuff?" Yes and no. The shaving cream, I was just telling my wife this this morning, is maybe twice as expensive. It lasts 10 times longer, so it's actually less expensive. Limit exposure and then you want [00:39:00] to support your kidneys, drink more water. Your gut, eat more fiber. Your liver, kill the alcohol and eat foods called Brassicas. Those are detoxifying vegetables. Broccoli, cabbage, brussel sprouts, kale.

Jonathan Otto: 00:39:21 They're all cruciferous vegetables.

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Dr. Daniel Amen: 00:39:22 Yes. Detoxify your body so food is medicine. Then your [00:39:30] skin. It's sweat with exercise or saunas. There's a study from Finland that people who took no saunas versus two to three saunas a week, the two to three saunas a week had 30% lower risk of Alzheimer's disease. The ones who took saunas five to seven times a week had a 60% decreased risk. Saunas in a new study had been shown to actually [00:40:00] treat depression. So you want to support your organs of detoxification.

Jonathan Otto: 00:40:06 Which ones are best? Is it just the regular sauna or the infrared sauna?

Dr. Daniel Amen: 00:40:10 Infrared sauna has really good research, but probably all of them can be helpful.

Jonathan Otto: 00:40:15 Because they're all triggering the sweat. If somebody doesn't even have access to that, but they're actually letting themselves sweat through running or something else, in a hot room and they're letting themselves sweat, then it's the same core principle. [00:40:30] Is that right?

Dr. Daniel Amen: 00:40:30 Yes.

Jonathan Otto: 00:40:31 Yeah, which is awesome because that's why [crosstalk 00:40:33].

Dr. Daniel Amen: 00:40:33 You know, one thing that makes me sweat because I don't like running, it's boring, table tennis.

Jonathan Otto: 00:40:38 Cool.

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Dr. Daniel Amen: 00:40:38 I actually play table tennis at a really high level so it's a coordination exercise and the more you learn, the better you get and I just sweat sauce. I love that.

Dr. Daniel Nuzum: 00:40:50 That's one of the things that I've seen over the years that's been very helpful for people with Alzheimer's is we start to [00:41:00] do heavy metal detoxing and we do detoxing in general, heavy metal detoxing where we're doing things that are going to pull those heavy metals out of the system, while at the same time, giving him nutrients. The body can't heal itself effectively if it doesn't have the raw materials to rebuild itself. If you remove toxins and you don't replace [00:41:30] them with nutrients, all you have is a hole. Okay? You take the toxin out, well, there's a place for things to get stuck into again. If you don't fill that with nutrients, all you have to do is get exposed to the toxins again and they go right back where they were originally.

Dr. Daniel Nuzum: 00:41:49 Trying to make these concepts real simple here. Heavy metal exposure, [00:42:00] heavy metal toxicity is one, in my opinion, one key component to the development of Alzheimer's. There's another issue that we have in our environment and particularly in the United States and that's glyphosate. Glyphosate is the herbicide in the product Round Up made by Monsanto. Glyphosate [00:42:30] will cause neurological disorders. It kills brain cells. Glyphosate also will bond to heavy metals in your system and move them around in your system, depositing them wherever it goes. Glyphosate's a very, very small mole-

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cule and can pass the blood-brain barrier. If it passes the blood-brain barrier while it's carrying aluminum and fluoride at the same time, [00:43:00] it takes those neuro toxins right into the brain, deposits them, causes death of the neurons, so you get brain damage from it. Glyphosate's another contributing factor. I believe that it plays a pretty big role in the explosion of cases of Alzheimer's that we're seeing today. We're seeing lots [00:43:30] of people with Alzheimer's and in that younger and younger ages.

Dr. Daniel Nuzum: 00:43:34 In the process of healing this condition, we have different things that work very, very well at both detoxifying the brain and the nervous system and introducing nutrition to the nervous system. There are [00:44:00] herbs. One of the very best and this might come to surprise to many, is green coffee bean extract. The chemical chlorogenic acid that occurs in green coffee beans is excellent for both protecting brain cells for the depositing of this amyloid protein, number one. Number two, it acts as an antioxidant, [00:44:30] protecting the brain cells, the neurons in the brain. It also helps with the third factor that we're going to talk about here with Alzheimer's and that is it improves insulin sensitivity. So it helps with the metabolization of sugar. We'll get to that in just a minute. We also have rhodiola. Rhodiola is an [00:45:00] herb from Russia that is extremely beneficial for the brain, for memory and for folks with Alzheimer's. Ashwagandha, a herb from India that also is excellent for the brain.

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Dr. Daniel Nuzum: 00:45:17 Both of these, again, they're not only good for enhancing memory, but they're good for protecting the brain. If you were to start on these earlier on in [00:45:30] life, they would be good preventatives for alzheimer's or for neurologic disorders. They're also very beneficial in the treatment of neurologic conditions, including Alzheimer's. Another herb, ginkgo biloba, very, very good. Ginkgo biloba is both an antioxidant and it helps the microvascular circulation in the brain.

Dr. Daniel Nuzum: 00:45:59 There's an old [00:46:00] saying in medicine. It's a tenant of medicine. That is that healing is proportionate to blood flow, okay? Ginkgo biloba is one of those herbs, also Rhodiola falls in this category also, that increase microvascular circulation and that microvascular circulation improves the blood flow in the brain. So if we improve that blood flow, [00:46:30] as the blood flows better, we get more nutrients flowing into the tissue and more toxins flowing out of the tissue. Okay, so it's extremely important ...

Dr. Daniel Amen: 00:46:43 The M in Bright Minds is mental health issues, so often overlooked and ignored. Depression doubles the risk of Alzheimer's disease in women, quadruples the risk in men. Some people actually think later life depression in men is [00:47:00] a prodrome, is a predictor of Alzheimer's disease. Post-traumatic stress disorder, being under chronic stress, chronic stress shrinks a part of your brain called the hippocampus. Hippocampus is Greek for sea horse. So

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it's like you have these two thumb-shaped seahorse structures in your brain and it's one of the only parts of your brain that actually produces new cells every day. So you have [00:47:30] 700 baby sea horses that your brain is producing and it's your behavior that grows them or murders them. My 15-year-old daughter, she and I both produce about 700 a day. Hers are more likely to be integrated into the big sea horse, where older people like me, it's more likely to die off. I'm not okay with that. So I have to do the right things to put it in a healing environment. [00:48:00] If you have depression, it doesn't mean you have to take medicine.

Dr. Daniel Amen: 00:48:04 Head-to-head again antidepressants, fish oil has been found to be equally effective. Exercise, walking like you're light four times a week, equally effective to antidepressants. Learning how not to believe every stupid thing you think, I call it killing the ANTs, the automatic negative thoughts that steal your happiness.

Dr. Daniel Binus: 00:48:25 Exercise actually is one of the best things that people can do for mental health. [00:48:30] One of the things when people come to our program, I really push it hard because it probably is the quickest factor that will boost your mental health rapidly. So, if you can get cardiovascular exercise, meaning where you really get your heart pumping for, ideally, at least 30 minutes four to five times a week, that has tremendous benefit. But even if you need to start a little lower, it will still have benefit, but if you can

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work up to that 30 minutes a [00:49:00] day, four to five times a week, to really get that ongoing boost, that's fantastic. What it does is it increases neuroplasticity. In other words, it causes the nerve cells to actually connect in healthier ways with one another. It increases the blood flow to the brain, which brings the right nutrients and oxygen to actually light up, especially the frontal lobe of the brain which is the logical part of your brain. It helps you manage your emotions better. It also, of course, improves the physical [00:49:30] health as well.

Dr. Daniel Binus: 00:49:31 But one of the things that we always need to remember in treating mental health disorders is that again, it's this neural network issue that we're looking at. So, generally speaking, the emotional part of the brain is hyperactive with mental health problems, and the logical part of your brain is underactive. They're both important and it's not that emotions are bad, but we want to restore the balance, where the logic is in control instead of the emotions driving our life and making us confused [00:50:00] and all this. Exercise actually helps to restore that balance. It actually helps calm the emotions that are hyperactive and it engages the frontal lobe in a very healthy way.

Jonathan Otto: 00:50:11 Now, I've heard of this term, conscious walking, and Dr. Doidge was discovering that this was something that some of these people were using. There was something to do with not only taking the steps, but being cognizant and conscious in focusing on the

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very movement. So, [00:50:30] if you were thinking about each foot going in front of the other, very, very observatory of the process, that that was actually what was helping the process, those two things together, the mind and the body working together. Have you heard of that? If you're on the same page with me, why would that be something that would work?

Dr. Daniel Binus: 00:50:52 Well, the reason that conscious walking is going to work so much better is because when you're trying to change the pathways in your brain, especially when [00:51:00] you're trying to engage the frontal lobe to help with that, focusing on what you're doing actually engages the frontal lobe. So, it's going to make it a lot more efficient to start forming those new pathways if you actually focus and are aware on your body and where your body is in space and what you're doing. One of the things that we need to think about, when it comes to exercise, is we want to actually avoid these really repetitive type movements. For example, [00:51:30] just getting on a treadmill or one of these exercise machines is actually not the best for neuroplasticity. It's still good, like cardiovascular fitness and somewhat for your brain, but if you really want to get the most benefit out of exercise, you want to do things that are not so repetitive. If you're walking, for example, you want to try to walk on somewhat of an uneven surface or, if you're jogging, you don't want to just jog on a treadmill.

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Dr. Daniel Binus: 00:51:56 You want to go on a trail or something like that, so that your brain actually has [00:52:00] to work a little bit more and you can be more present in the moment instead of just not even paying attention to what your body's doing, and kind of disconnecting your body with your brain. So, it's actually important not just that we exercise, but how we exercise. There was one man who was diagnosed with Parkinson's very early on in life. I think he was in his 30s. So, of course, Parkinson's is a movement disorder and people start having problems with [00:52:30] walking and being able to move properly. So, this man, instead of just accepting that diagnosis and saying, "Oh, well, I guess I'm doomed to a life of disability," he said, "You know what? I'm going to focus on walking." So this guy walked and he walked and he walked and he walked and what was amazing is that as he continued to walk over the years, his brain started to develop new pathways and the part of the brain that degenerates with Parkinson's still degenerated.

Dr. Daniel Binus: 00:53:00 [00:53:00] But his brain was actually able to wire around that degenerated part and form new pathways to allow him to continue to walk normally. So, now, in his 70s, he's actually able to walk very well, smoothly, agilely, no problems, because his brain was able to find a new pathway and rewire itself through walking. It's pretty amazing.

Dr. Daniel Amen: 00:53:27 The second I in Bright Minds is immunity [00:53:30] and infections. It's one of the big lessons I've

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learned from looking at the brain. You can be depressed because you have Lyme disease. You can have OCD because you have a reaction to strep. Herpes, I've seen herpes encephalitis devastate the brain. So, we want to boost your immunity. Now, your gut has a lot of your immune tissue and so having a healthy gut is really important to [00:54:00] your immunity, along with vitamin D. 80% of the population is low in it and normal is between 30 and 100. I never want it to be at the bottom of any of my classes. So, I'd like to keep my level close to 80. There's a research study that shows people over 40, compared to people who are under 20, have half the risk of cancer and cancer is not good for a brain. Right? I mean, the chronic [00:54:30] stress, the chemotherapy, it's a toxin.

Jonathan Otto: 00:54:33 Wow. So we need to be looking at the immune system, looking at the gut in order to look at the brain, is that true?

Dr. Dale Bredesen: 00:54:40 And the [rinal sinal 00:54:41] microbiome as well. So a lot of what's found in the brain of Alzheimer's patients are things that are coming from access. So P gingivalis from the dentition, herpes symplex from the lip, various fungi and molds from the rinal [00:55:00] sinal microbiome, various things that are coming from throughout the face, nose, sinuses. These are all critical and then, of course, systemic as well, things like borrelia and ehrlichia and bartonella and things like that as well. Environment is critical and there are many reasons for that. Exposure to

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various toxins, very important. Exposure especially to biotoxins, things where you have a chronic activation [00:55:30] of your innate immune system. Amyloid is emerging as a part of the innate immune system and therefore anything that activates that innate immune system chronically is a potential major problem and a major player in your Alzheimer's disease and your cognitive decline.

Dr. Daniel Amen: 00:55:48 N stands for neuro hormone deficiencies. You have to measure them. Low thyroid goes with low function of your brain, low testosterone, [00:56:00] which is just rampant in our society, even among teenage boys. I think it's because of the toxins their mothers put on their bodies. When testosterone is low, your libido's low. Your strength is low. Your motivation is low. Your mood is low and your memory is low and so I want to optimize it and one of the best ways to optimize testosterone is kill the sugar and start lifting weights and so [00:56:30] I'm 64 and my testosterone is really good and I don't take extra. But I don't eat much sugar and I work out. So you don't have to go to the medicine. But if you did those things and it wasn't working, I would supplement with bioidentical hormones. The D in Bright Minds is [diabesity 00:56:54], which is a combination of having high blood sugar and/or you're [00:57:00] overweight or obese. I published two studies that show as your weight goes up, the actual physical size and function of your brain goes down and that should scare the fat off anyone and it's like,

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why?

Dr. Daniel Amen: 00:57:14 What does fat do? Fat increases inflammation in your body. So that's one of our risk factors. Fat stores toxins, another one of our risk factors and fat disrupts your hormones. It actually takes healthy testosterone [00:57:30] and turns it into unhealthy cancer promoting forms of estrogen and so as I was learning about this and I tried to lose the extra 30 pounds I picked up during my residency for about 20 years. But when I saw the research on when your weight goes up, the size of your brain goes down, I'm like, "Okay, now I'm serious," and I'm in the same size jeans I was when I was a teenager, which [00:58:00] makes me very happy and then the last ... So you gotta get your diet right. Diet is so important.

Dr. Ben Johnson 00:58:07 What do we do? Well, if your mom or dad or if Alzheimer's tends to run in your family or if you've eaten tons of sugar over time, it's coming. But if we want to look at testing, genetic testing, you want to look at APOE and if you've got three, you're good. If you've got two, you're great because it's actually [00:58:30] anti-Alzheimer's. If you got four, you're in trouble. So we can look at those markers genetically and then other genetic things that we can look at, imaging, MRI and actually ultrasound is coming back into its own, as we can do a lot more things with ultrasound than what we used to do. We can do cognitive testing, the Wechsler Memory Scale, the revised one. So [00:59:00] those are your tests to kind of look at and there are more, of course. But

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we can do testing to look at that ahead of time. It is important to get those done because Alzheimer's doesn't happen overnight. It doesn't happen in a year. It happens over 20 or 30 years. So get tested early. Get tested every four or five years because it is preventable.

Dr. Ben Johnson: 00:59:28 Alzheimer's is [00:59:30] preventable and it is even reversible up certainly through stage four, maybe stage five. We can hold the line probably at stage six. If you're stage seven, there's not much we can do. Well, again, the family tree, if Aunt Betty or Mom or Dad had it, then you certainly want to look at it or if you have been a sugarholic over the years, you're a prime candidate before because, again, it's diabetes type three [01:00:00] is another synonym for Alzheimer's. So if you've been kind of a sugar addict, a dessert addict, lots of potatoes, lots of corn, lots of starches over the years, corn syrup, colas, death by cola, then you want to go ahead and look at those things because you're a prime candidate because you've been having all these sugar spikes over the years. So that's what testing looks like medically.

Dr. Daniel Amen: 01:00:30 [01:00:30] And then the S in Bright Minds is Sleep. Sleep apnea triples the risk of Alzheimer's disease. We can actually see that. I've been [inaudible 01:00:38] on the scans. So we're always sending people to sleep labs and making sure if they have sleep apnea, we get it treated.

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Jonathan Otto: 01:00:46 Wow. Thank you. That's so fantastic and what a helpful acronym so people can make sure they're not trying to take the golden bullet, the magic pill. But instead, they're looking at all the key areas that they could improve their health and obviously, all [01:01:00] the side benefits of what you're talking about, these are so great for overall health and well-being in every organ of the body, which is fantastic.

Dr. Dale Bredesen: 01:01:08 Again, it's part of a program. One of the arguments here is we want to do everything possible. The goal here is to make people better. It's not to take a monotherapy and say, "Does this help?" We've assumed this idea that if you study each thing by itself, then it'll tell you what works and what doesn't work. But if each [01:01:30] thing by itself doesn't have a statistically significant effect, but when you put them together it does, then studying each one by itself is not terribly helpful. So we want to look at combinations. This is something where multi variable clinical trials are the way of the future. We want to look at essentially concerts. It's as if people said to you, "Okay, Jonathan, what's the one instrument that makes the orchestra?" Well, there isn't one instrument that makes the orchestra. You've gotta put [01:02:00] the whole thing together to make it work and the results we've seen have been unprecedented, I mean, just remarkable, people improving in their MoCA scores, people going back to work, people increasing their hippocampal volume, people where their spouses will say, "I have

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my spouse back. It's absolutely striking.

Dr. Dale Bredesen: 01:02:21 Now it doesn't happen overnight. You have to remember. This disease has been progressing typically for a decade or two before [01:02:30] you have a diagnosis. So it takes some time and typically, we recommend three to six months before you see really striking differences. But keep at it and include the diet, the exercise, the sleep, the stress, as well as the rest of the program and again, if you're not improving, then you're missing something. There's something that's missed in your evaluation and/or treatment. Now, not everybody. But there were some people within four days and in fact, you see people who we gain [01:03:00] clear things that they could not do when they had started that they could do after four days. But again, we usually suggest three to six months. Now on the negative side, people who have been stopped for a number of reasons, going on a trip or running out of things, it takes about 10 days and they start seeing a decline again. So it's something that you want to keep doing.

Dr. Dale Bredesen: 01:03:21 Again, just as you do with keeping a healthy gut, things like that, it's an ongoing process and we continue to optimize over [01:03:30] the months and years.

Dr. Michael Merzenich:01:03:31 From the point of view of thinking about our life, not as a beyond the middle of life as a period of slow regression where you ultimately wait for the

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dementia to occur. Think about an older life beyond the middle of life as a time of continuous growth, sustaining ourself, sustaining a healthy organ inside our skull, growing our powers. We have our power. Our brain is plastic [01:04:00] and we're in charge of it. We know basically how to throw that switch in a positive direction. So I've been trying to strongly encourage people as strongly, as emphatically as I can that they should take advantage of this great gift, this great resource. Well, most people don't realize that they have the power to continue to grow. They think of themselves as sort of victims of their age and they sense their deterioration [01:04:30] and they know vaguely that they should be doing things about it. But fundamentally, they think that it's going to be a losing battle. Of course, none of us live forever. It ultimately is a losing battle. But we do have a power to continue to grow our faculties, our abilities.

Dr. Michael Merzenich: 01:04:47 Another thing that's plastic that most people don't realize is the machinery that controls change and what happens in most older individuals is that this machinery that also controls how vital your operations are, [01:05:00] how lively you are, how happy you are, how fulfilling, how motivated you are in life. You're willing to take on new challenges and do new interesting things. That machinery slowly dies off if you don't exercise it. But you can exercise it. Everything in the brain is, it's plastic.

Dr. Dale Bredesen: 01:05:20 It gives you a rush. It gives you a real excitement to

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see, hey, here's someone who actually was headed for a nursing home whose now going to have a much better life and [01:05:30] that makes me very happy. It's great to see that. I mean, that's, I think, what so many of us went into medicine to see, to see if you can actually help people out and we've been told over the years that these are people you cannot help, the people who are getting demented, unlike someone who has appendicitis where you're thinking, yeah, you can probably help these people. This is something where we've been told you can't help these people and yet, we're now seeing that. We're seeing it. So that part's very exciting.

Dr. Ben Johnson: 01:05:59 Recently, [01:06:00] one of my patients in her late 50s was experiencing some cognitive decline. She had noticed that she couldn't follow having to take many more notes and then pretty soon, she was literally unable to work. We were able to reverse her cognitive decline using many of the techniques that I've just mentioned and get her back to work full time back to work instead of home bound, afraid that she would not find her way back home from the grocery store. [01:06:30] A gentleman in his early 60s, big family history of cognitive decline, Alzheimer's, again, struggling. His wife wouldn't let him go out, wouldn't let him go to the grocery store by himself. So at least stage five Alzheimer's. He's back fully functioning, doesn't have to make lists anymore, finds his way back home from the grocery store just fine and is helping remind her of things again. So

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she knows he's back because he's [01:07:00] his old self, reminding her to do things and these are stories that happen every day.