

Welcome to The Cutting Edge Podcast with Jane Rogers, where we discuss science to help prevent cognitive decline.

**Jane:** Hey, everyone. Thanks for making the time to join us. Whether you're listening to the audio podcast or watching the video version on YouTube, we're glad you're here. Our guest for this episode is Dr. Nate Bergman, who is the chief science officer at the Kemper Center for Cognitive Health & Wellness in Cleveland, Ohio.

He's one of the preeminent brain health physicians in the US where conventional Western medicine believes that all they can offer Alzheimer's patients is palliative care. Dr. Bergman has seen up-close how cognitive decline is treatable and reversible. Today, he discusses a wide range of interventions that can slow or reverse this insidious disease. Dr. Bergman, I would like to welcome you to The Cutting Edge Podcast. Thank you so much for making the time.

**Dr. Bergman:** It's great to be here, Jane. Thanks for having me.

**Jane:** You see a whole bunch of people come into your clinic with cognitive issues. Tell me about what your days are like, tell me about some of the things that you are seeing now to help them.

**Dr. Bergman:** I think the first thing that's really important to understand is that cognitive decline used to be, and I think many pockets are still considered something that we wait until you've got to take the keys away from dad or a spouse. There remains this prevalent notion that there's nothing you can do, so we just wait. Part of what we do at Kemper and in general with our podcast, et cetera, is get the word out.

There are things that you can do as you know well in advance because when you're talking about something like Alzheimer's and potentially other dementias, even if you say the word Alzheimer's, people don't think like a 55-year old that's having trouble finding words or becoming less efficient at an office, even a 65 year old. Typically what people picture, as I think you're pretty familiar with this, is someone who is in a nursing home, who's got drool coming out of their mouth and they don't recognize their spouse, maybe their children. That's people's notion and concept of Alzheimer's. I think it's much more useful to think about Alzheimer's like we think about cancers where we're looking in stages.

If I tell someone so and so has cancer, usually people's first reaction is, "Oh, that's terrible." Then for people that have a pretty good amount of health literacy, or they understand what cancer is, they know about it, what kind. Is it breast cancer? Is it colon cancer? Is it prostate cancer? What kind is it? That means something to a lot of us. Then we say, "How far along is it or what stage is it?" A lot of the field is shifting to

thinking about cognitive decline as how far along. Is this in the early, early stages? Is this in a milder stage or are we now talking about dementia, which is when people invoke the word Alzheimer's, to them, it's synonymous with dementia?

Dementia really means that someone has a cognitive issue that's so profound, there's so much loss of brain and brain function that people can't get through their day independently. They may not be able to use a phone, pay bills. Maybe if they were once driving, they couldn't drive anymore. That's obviously a life-changing game-changing kind of loss of independence.

What we're trying to do is get people aware that these changes typically happen much earlier, so 3, 5, 10, 20, maybe 30 years in advance. If someone's parent developed Alzheimer's around 75, we should probably be thinking about looking for ourselves around age 45 or 50. It's a very different way than many of us were raised or trained to think about. Alzheimer's or cognitive decline is looking early. I think that's the biggest message is: look early because there's a lot you can do.

**Jane:** Look early. What are some of the things that someone should do to look at 45?

**Dr. Bergman:** The simplest things that are not being done! Look at your blood pressure. Look at the diet. Typically someone who's listening to a podcast like this is really familiar with the edge of medicine, the limitations of what they can get in, let's say, a primary care office or geriatrician's office or even in a neurologist's office. I still feel like because sometimes the more edgy the healthcare environment is or the consumer of healthcare, people still overlook basic things like blood pressure. It's such an easy thing to get a number for.

I guess maybe you wouldn't be, but I'm shocked about how many people will invest in \$60, \$80, \$120 of vitamins or supplements every month sometimes, but are not aware of what their blood pressure is. Blood pressure is really a tremendous way to save your brain. The higher the pressure is, let's say, some of the magic numbers once we get to be full-grown adults in the second half of our lives, whether that starts at 35, 45 50, whenever that starts, we'll probably want to be looking and shooting for blood pressures.

It's still in the 120 ranges. We'll let it drift up into 130, but once that top number, the systolic blood pressure gets above 140 and then the bottom number starts to trend consistently in the 80s and certainly into the 90s, we have to stop and think what's causing this. For some people it's simply wear and tear over time. Obviously, we want to look at the basic things like smoking, are people exercising, and if they're exercising, can their exercise be optimized? Is there more room to improve? Again, as your crew

and crowd note, there's all kinds of room to improve with dietary strategies, like the foods that we eat.

You can use therapeutic diets. Vegan diets, they're a therapeutic diet, a ketogenic diet might be a therapeutic diet. Then when those are kept up at an extreme for long periods of time, they might have a side effect. I can go down the list of basic stuff, but smoking, drinking too much, not sleeping enough, not exercising the right way, not keeping someone's brain challenged and active. Those are some of the most basic things, are probably not news to anybody, but it's really surprising what people are not aware of.

Then if you get into someone like you, I remember when we first met, you had, it was a 30 column Excel spreadsheet where you had all the values of labs. I have a number of patients like that are very organized and are able to assimilate information for themselves, and then continue to read and continue to be active. For those kinds of folks-- I think the difference in what we can provide as a physician is more of a sounding board. There's a lot of stuff that's experimental and it's amazing how people run around talking about how things are proven or disproven.

I think over time, what the people that choose to continue to work with me as a physician do is to provide information, to provide consultation information, to be a sounding board to think through issues. There's a lot of stuff in the healthcare community I think on the traditional side where people are not open where you get a neurologist saying nutrition doesn't matter when it comes to Parkinson's or nutrition doesn't matter when it comes to Alzheimer's disease. Those people are sometimes working as board-certified at very, very well-credentialed institutions. I've heard this over and over.

Nothing could be further than the truth. It's just not the kind of evidence they're used to being able to slide into a 15, 20-minute office visit. On the other side, there's treatments in the so-called alternative or functional medicine community that are touted as highly effective and have evidence when the kind of evidence they have is not the kind of evidence people used to. Meaning it's never been used on a human being or something like that.

**Jane:** Sketchy.

**Dr. Bergman:** I find myself often somewhere in between those two and I'm like, "Maybe that's no man's land sometimes where there's no person here or there, there's always a team." The main thing that we're trying to do is improve the lives of patients. Everybody has a different level of appetite on the patient side and as individuals, I think we all have

a different appetite for the amount of time, energy, and resources we want to spend on this.

We're always looking for ways to simplify. Because that's the most important thing in this ultra-busy, ultra-fast modern world, the simpler we can get interventions that people can do within consistency, especially early on, if you're talking about prevention, starting at 45, 50 years old, those are the key things. What can people sustain and maintain over time?

**Jane:** What are you seeing in those people who come in early that has really worked to help change their trajectory? What are a couple of things that come to mind, "Oh my gosh, I did this and Susan got so much better in a couple of years."?

**Dr. Bergman:** If somebody hasn't messed around with their diet, meaning they're still eating a standard American diet, we see people get better just with basic stuff. Getting processed foods out, so things that spike the blood sugar. Really anything that comes out of a bag in a box, we try to keep it simple, processed foods and the addition of vegetables. Of course, we'd like people to have an addition of organic vegetables, if possible but-

**Jane:** No gluten?

**Dr. Bergman:** -even if it's not. You jumped ahead. When people saw no gluten or no dairy, I wouldn't say that for everybody. It's just not a place that people can start for everybody, but if someone's already up and disciplined enough to get rid of processed food, then we can see. I'll tell you an interesting story about gluten. We have a patient of ours now, he's in his early-mid 70s. Brilliant, brilliant person. Came to see us from out of the country. A story of really just a lot of toxic exposures because of jobs he was involved in as an engineer. It's this brilliant and amazing family, very, very proactive, but this man is very demented.

He's had years of high blood pressure, years of high cholesterol that were incompletely attended to and incompletely dealt with so he's got really a lot of brain damage, and a long journey to come to see us in Cleveland. This is a man who's so demented that when you just, from a sitting position right next to a chair, ask him to sit down, not able to sit down, not able to get organized enough to follow a direction to sit down. Quite far along in terms of his Alzheimer's and vascular dementia. Typically, we would start pretty simply with just trying to get the processed food out.

He was already eating a fairly healthy diet but we took a fine-tooth comb through a three-day diet journal, which is a really nice hack that people can do if they want to really know what they're eating. Literally writing, and some places, we'll take pictures, a

pictorial diary if you will of the food that we ate. It tells a whole different story often than what people think they're eating day-to-day because they've failed to mention when they grab this or when they grabbed that or it was 10:30 at night and they grabbed something or a second or third glass of wine, et cetera, so those are the kinds of things that add up.

These people when they were staying in Cleveland with some family, the family members were gluten-free. The patient in his 70s was with really advanced Alzheimer's dementia, really had no choice other than to be gluten-free. This is typically just eating what's put in front of him. What they saw was, within two weeks of having this gluten-free diet, and this is not typical, I don't see this with everybody but, he experiences night terrors.

This is something that runs in his family, will wake up with a nightmare, sometimes hysterical. Sleeping improved, didn't need any sleeping medicine nor did he need melatonin. It's a supplement hormone that we often give to help people sleep, and he was remembering things with more ease. He remembered who his son was, he remembered who his daughter was, he recognized the voice of a family member on a phone call.

**Jane:** From just two weeks?

**Dr. Bergman:** How do you explain that? We don't see that with everybody and I can't get everybody to give up gluten, it's not in the realm of possibility in terms of a starting point for some people. Cutting out things that are typically inflammatory, this idea of food sensitivities, so whether it's gluten or it's dairy or it's soy. We have just another amazing story of a person who had decades of chest pain and stomach pain, went on an elimination diet with our dietitian.

The guy was on seven, eight medications and stomach has radically improved with simple breathing exercises. A lot of his chest pain that he needs benzodiazepines for, something like Valium or Xanax, those are benzodiazepine families of medicines. Those have gone away. Food, breathing exercises, checking blood pressure, and then the other huge one, as you probably know, is exercise.

**Jane:** Yes.

**Dr. Bergman:** Exercise, it seems simple because we all know what's good with exercise but when it comes to cross-training the brain, we like to think about exercise in three bins. The exercise trials, by the way, are coming for doses in terms of prevention for Alzheimer's. The start it's just getting into your body. Just getting into movement, and

getting comfortable with any kind of movement or exercise, if someone's not a lifelong exerciser is important.

When it comes to cross-training exercises that are really good for both mood and the development of a healthy brain and body, we have to say the brain-body because the brain is in the body, the body is part brain, like our whole body is not just the brain up here.

**Jane:** What's an example of a cross-training exercise?

**Dr. Bergman:** There are three kinds of exercises when we talk about cross-training exercises. There's cardiovascular, and we're talking about resistance. Cardio aerobic, cardiovascular, so the Jane Fonda, that's the classic. Then we think about resistance, high intensity if possible, but resistance training so where you're pushing against something. It could be something as simple as pushups, situps, and then certainly weights in that category. Third, it's motor and coordinative. Let's say the back of the brain, there's a little bump on the backside of your brain at the backside of your head. It protrudes out.

If you are pointing back towards your nose in the back, there's an area in the brain called the cerebellum. The cerebellum is long known for, oh, that's the center of coordination and balance, but turns out that's only been 40% to 60% of its function. It's actually much more involved in executive function, making decisions, helping us stay efficient with work, mood regulation. More than we once thought. Anything that has steps, coordination, so Zumba is actually a good idea, any dance, dance might actually have the most data for these advantages to the brain. Even yoga and Tai Chi have or confer some advantages.

I think the ideal workout plan is some combination. What do I do for myself is we try to do two days plus a week, or we're doing weights or doing weight training that also has core and then cardiovascular as well. Two other days a week, at least, where we're doing some kind of balance motor and coordinative training. I'm a dance fan. With a bunch of kids, sometimes we'll try to do dance parties at home, and then walking is still good.

Walking is probably not adequate enough to really move the needle, it's a maintenance. Walking with vigor, anything you can do with real vigor to get your heart rate up to get huffing and puffing, to get that level of what we call moderate intensity, to get that level of intensity, something beyond the regular intensity as many days as possible from the week, that's the goal.

**Jane:** Does something that crosses the midline work well like ping pong? Crossing the center line so you're using coordination for something like that.

**Dr. Bergman:** Yes, so you're getting advanced. Racquet sports, almost every form of movement like you mentioned, martial arts, Tai chi, yoga, all those things all cross the midline. If you participate in classes, you'll see that the brain seems to wire up better if you can do that. Crossing the midline, like you said, taking your right hand and crossing over to the left, there's pretty long-existing literature on how that's helpful. We're also getting into primitive reflexes exercises with some of our groups as well.

When you talk about these kinds of what we call bottom-up approaches from the body that have an influence in the brain, there's quite a bit that can be done. Crossing the midline is one of them.

**Jane:** Is a good thing.

**Dr. Bergman:** I don't know if it's just as simple as crossing the midline. That's a physical therapist so using occupational therapists, using post-stroke recovery, there's been quite a bit known about that. Then when you add that, you combine those kinds of things with the other pieces, so the choreography piece and dance or just movement and expressive dance, or yoga or Tai Chi, you're going to get these combinations of benefits. You're stacking benefits together.

**Jane:** You have diet, you have exercise as two of the major interventions right away if someone comes in. What's your third one?

**Dr. Bergman:** It depends on someone's story. We usually have to ask what's going on with people. Either sleep or stress is the third one. Usually, these are pretty intertwined because a lot of times if people are struggling with stress, and most people who live through 2020, there was definitely a shift in sleep and definitely stress for people like high stress or high cortisol. Stress is defined as changes in our external environment or internal environment, but typically, it's our external environment that requires quite a bit of energy for our nervous system and immune systems to respond to.

Our minds and brains are programmed for stability and certainty so we seek stability and certainty. We seek evidence. We seek simple answers or predictable answers at least if they're not simple. Usually, we have to talk about what's stressing someone out or why are they not sleeping? Stress can be a tricky one because there's stress that's inherited.

There might be stress, it's generational things that happen to people growing up that have been either ignored or incompletely dealt with and they continue to create patterns

of behavior or thinking or emotion that can be harmful. They're the adverse childhood events studied.

The original data was done in Kaiser in the 1990s. I think a lot of people have heard of ACEs or ACE questionnaires. Let's say they boiled it down on some level. There's a lot of layers to this study, but the basic is 10 questions. Did you have someone that would hit you, slap you growing up? Were your parents divorced? Are you around people with mental illness or alcoholics, drug abuse, et cetera? The magic number, if you have four or more on an ACEs questionnaire, and you can just google ACEs and see what your score is, there are all kinds of associations to diseases, disease states, or abnormal health outcomes, among them dementia.

According to one study, there's a 6, 6.5 times increase if your score was 4 out of 10 or more, 5, 6, 7, 8, 9 out of 10. There's a 6, 6.5-time increase of getting dementia. There are things that are incompletely dealt with, those kinds of stressors and the stressors that are happening actively. There's all kinds of flavors of stress and it's probably for a different podcast interview, but we do a lot of referrals for therapy, movement therapies. I'm very big on movement therapies, but then just talking therapy. Then learning how to breathe. Learning how to breathe is almost like a forgotten art.

On days where I'm staring into cameras all day, I'm staring into a Zoom machine or a computer all day, I usually have a watch or a ring that tells me when I should stand up, reminding me to stretch my legs. It's all good so we're relying on technology to try to help us adapt. That's actually a nice adaptation. I think this extended embodied cognition or the idea that we have some technology that extends beyond our own nervous system to help us adapt to stress. Then on the sleep side, sleep one is a huge-- This feels like an uphill battle right now because we do a lot of querying, there's over 100 sleep disorders.

**Jane:** Really, that many?

**Dr. Bergman:** Yes. The two commonest tend to be insomnia and sleep apnea. Insomnia, people usually have a pretty good sense of if they sleep well or not. The sleep apnea is the one that we find missed quite a bit. I would say I don't know the numbers right now, but probably, I have a pretty low bar for my patients, or a pretty low threshold to send someone to a sleep doctor for, let's say, a sleep study or sleep evaluation. There are some gold standard things that people can do like an Epworth Sleepiness Scale. You can go out and just google Epworth Sleepiness Scale and see what your scores are, how easily you fall asleep, how tired are you during the day to wake up.



Sometimes people wake up with headaches, but more and more attention is being paid to the entire airwaves. I'll almost always look in someone's mouth, see if they have a patent airway. The airway looks small, meaning you look in the back of someone's mouth and this is something you can google. You can google a Mallampati Score, M-A-L-L-A-M-P-A-T-I. Mallampati score.

This is something that anesthesiologists use typically to see if someone's going to have a difficult intubation because the anesthesiologists, part of what they do is under surgery or when someone's under anesthesia, they have to keep people breathing and they have to put a breathing tube. They put them on a ventilator basically. They are experts in seeing if the airway open. When you look in the back of someone's mouth, the less of the soft palate, the less of the uvula, which some people think of the tonsils, but it's uvula hanging down the rest.

You can see in the back of their mouth, there's four stages. The higher if stage three or four, sometimes that's an indication that the airway is smaller and then there's maybe less oxygen getting down into someone's lungs and into their heart, their brain, their blood system, night over night. We send people, probably more than others, to a sleep doctor for evaluations. Then even when people get sleep evaluations, and now I'm talking more about people that are already a little bit sick, they have mild cognitive impairment, which is a pre-dementia or pre-Alzheimer's state, or they have full-blown, they're in an early stage of cognitive impairment of Alzheimer's or other kinds of dementia.

If they have these, if they have something like an obstructive sleep apnea, that means every single night they're not getting fully restorative sleep. One way of thinking about that is every single night, they're getting a little bit of brain damage, which is a problem. They'll oftentimes go to a sleep doctor, get a sleep study, and they'll say a mild sleep apnea and they'll be told by a sleep doctor saying, "Just a mild problem. It's not an issue. It's not worth treating." If someone's taking a proactive stance or they're either trying to prevent or they're in the throes of a problem, a cognitive issue, to say that a little bit of brain damage every single night is okay, probably, to me in my mind is an inadequate answer.

That's an area of it. Sleep medicine is an area where right now it feels a little bit uphill because sometimes even when we refer people to sleep doctors, and they get their sleep evaluations, still people are waved off as it's no big deal. I understand the perspective of it's not being a big deal from there, but when you string together these little hits, these little attacks on the brain, over time, 5, 10, 15 years, that might add up to quite a bit of damage.

**Jane:** It's a big deal.

**Dr. Bergman:** Yes.

**Jane:** With your patients, have you seen success with a CPAP or with dental work to actually try to increase the size of that palette in the back?

**Dr. Bergman:** Yes, both. I think it's just what people are up for. Sometimes people just get a mouthpiece from CVS or go to a dentist like the American Academy of Dental and Sleep Medicine, a dentist fellowship-trained person where they'll get a mouthpiece, sometimes a mandibular advancement device. There are other light wires, ALF. There's a lot of other approaches that may not be standard. There's quite a bit that people can do other than a CPAP machine. Although CPAP machines still hold standard, we've had many patients have procedures, surgeries.

**Jane:** Success.

**Dr. Bergman:** Usually what will happen is, to answer your original question, when people come in with a subjective issue or they're having cognitive issues and they haven't tried any of what we just talked about, the vast, vast majority of people are having improvements within a couple of weeks, a couple of months. Certainly, if they're continuing the kinds of changes, they're sustaining the kinds of changes that we've just talked about, they'll get better and better. It's amazing when people act really, how much they can improve.

**Jane:** You got the best job in the world. [chuckles] You really do. You're helping so many people. As you look into the future with this issue, what's on the horizon? What do you see that will be able to help us in a year or five years that are already in clinical trials?

**Dr. Bergman:** You're talking about Alzheimer's?

**Jane:** Yes.

**Dr. Bergman:** I do think biomedicines pretty soon. Like the aducanumab, the Aduhelm was approved. I understand why people wouldn't want to use it, but if you're that person that's like, "Hey, medicine is my thing, I'm not going to do any of the changing my diet," et cetera, so you're just going to wait around for the medicine. I do think that medicines are on the way for Alzheimer's. I don't think it's that new, but I see people getting more serious about it. Fixing dental issues, particularly periodontal issues, so the parts of the teeth that surround the actual teeth, those can harbor the inflammation that will hold on to infection or-

**Jane:** They will.

**Dr. Bergman:**... at least organisms like bugs that are associated with brain disease and heart disease and other diseases.

**Jane:** If you have a root canal that doesn't go right, harbor some of those problems.

**Dr. Bergman:** Yes, or just like periodontitis. Periodontal disease where there's inflammation going on right below the tooth level. These are things, again, maybe they're not as sexy as some of the latest and greatest, but they're super, super correlated. When people do these, I'm of the opinion that if it's real, if the data is there, it should also work in real life. When people do the treatment, they should feel better assuming that it's sustained long enough.

This is one of those that we've been hipped to for a little while, but I hear from some colleagues that are more and more aggressive about fixing some of the dental issues. When these issues are fixed, sometimes you see both issues—not just of brain but also of mood—that can improve...

**Jane:** Oh, that's interesting.

**Dr. Bergman:** ... which is interesting too. Things like anxiousness and insomnia may have some improvements. Other things that we're excited about, and I think it depends on who you're talking to, and where they're at, if they're ill or not. It seems, again, these things seem cliché but we hammer on them, we go over and over and over and back to them because they're basic and they work. Are we talking about prevention, or are we talking about intervention for people who are already sick with things like Alzheimer's here?

**Jane:** I'm talking about prevention.

**Dr. Nate:** Prevention, okay. Being really clear on why am I doing this, what's my level of commitment? Because most of the reasons that people fall off are not because they can't do stuff, it's mostly because they're not clear on why am I doing this. Even if I know dairy, but I have to say no to the next scoop of vegan ice cream at night, why am I doing that? Why am I doing that? It means I don't want the damage.

If you're someone who's in a position where you can check, let's say, your blood sugar, you can get either a continuous glucose monitor, or you can just get for \$50, \$80, \$100, you can go to CVS, Walgreens, or Amazon and get an ability to check your blood sugar and you start to check your blood sugar 30, 60 minutes, 90 minutes even, after you eat and you're like, "Wow, I had no idea that after I eat white rice, my blood sugar spikes to

a diabetic range. What can I do about that?" Or you get into something like an Oura Ring or something that you use to measure your HRV, your heart rate variability, which is one measure you can think about of our body's ability to handle stress is one way to think about that.

When you start to get that kind of information and it's simplified and usable, you can start to do some of these hacks for yourself. What we'll see is even sometimes like people listening to a book, listening to someone's voice, and it doesn't have to be in guided meditation, but it's focusing people's minds on the here and now and in a trajectory that has a purpose, you'll see some of these parameters change. Blood sugar is affected by our exercise. Blood sugar is certainly affected by what we eat most directly, but then, also the mindset that we carry, how much sleep we're getting. All of these things will impact stress numbers, cortisol, heart rate variability.

Over time, the improvements in those areas and those parameters are equal or approximate to improvements with the brain. Just getting simple feedback information on a watch or on a ring or something like that and then thinking about the things that you're doing so that you can tweak them. Then having groups of people that are thinking about these with also podcasts like this where you have a group of people, you curate a group of people that are looking at these things can be really, really helpful.

**Jane:** It's all about community. If we have support around us, we can really succeed with this. If you're all by yourself, it's a lot harder.

**Dr. Bergman:** Yes. We can run a product by each other, where can I get this, where can get that cheaper, all the other stuff people know. I've been pretty excited about that, I would say, we're at this point beyond the 'kicking the tires on.' We can use technologies that can accelerate changes in the brain. For our podcasts, we haven't released the episodes, I just interviewed Ben Hampstead, who's a NIH-funded University of Michigan researcher that is funded to study, you'd think about the aging brain. Our brains all start to age from the time we're in our late 20s as you probably know. Probably all of our listeners have an aging brain.

There's very few people that are probably listening to us that are younger than 27, 28 years old, but there are more and more people thinking about this at a young age which is exciting. We're thinking about how do we influence the activity of an aging brain? Over time, just like our joints, our skin, our muscles get older so does our brain. A feature of an aging brain is usually that there are certain things that are more difficult or the total miles per hour, the speed of the brain, processing speed, overall speeds called the posterior dominant rhythm on an EEG or a test that will look at how someone's brain is functioning in terms of its overall speed and efficiency.

When we start to see that, there are technologies that you can use in addition to changing diet, exercise, sleep, stress, all of the basic stuff, checking labs, inflammation, hormones, et cetera. All the things that I'm sure you've been talking about on this podcast. There are still more things you can do that can be relatively simple in some cases by adding energy to the brain in areas that the brain can be influenced the most. One of the most exciting things we're talking about now is the field of connectomics, about a microbiome.

Some people are learning about a connectome, the connectome being the totality of connections that we have in our brains and nervous systems. What's shaking out of this is that our brains work and make decisions and think in networks. What we mean by networks is like committees. Just like you have, in order to pass something, let's say in healthcare, you have an idea, but then you have to go to Congress and you have to go to the Senate. You go to the Senate Finance Committee, you got to go on the House side, you got to go to the Health, Education, Labor & Pensions Committee, and Ways and Means.

You have to find even in those committees who are the most influential members and lobbyists influence those influential points. There are technologies now that can, A, get a sense of where the breakdown is in the networks of these brains, and then where we can add small amounts of energy, safe amounts of energy to those areas to get a positive effect. An example of this is the Vielight, V-i-e-l-i-g-h-t. It's a Canadian company. It's under the auspices or the umbrella of something called photobiomodulation low-level light or low-level laser therapy. You have one right there, yes.

**Jane:** Got one, yes.

**Dr. Bergman:** It's just one of the elements.

**Jane:** It's exciting.

**Dr. Bergman:** Yes. We see sometimes these really startling, staggering improvements in people that are sicker. Then people that are younger are just trying things, so we use transcranial direct current stimulation to improve working memory. We have an environment we built, we developed where we're taking people that have cognitive impairment that are really trying to stay at home. We're training for two hours for everything. We're talking about exercise with dual tasking. We're giving people both intense physical exercise across the domains that we talked about before; cardio aerobic, resistance, and motor and coordination, but they're wearing technology that accelerates their learning.

Then we have another hour of cognitive curriculum where we're training aspects of thinking memory, working memory, visual-spatial reasoning, visual memory. That's all different kinds of aspects of mood and of mind and brain function that can be measured. They're wearing some of the technology that you just showed, the Vielight. Then we're collecting data over time and we're trying to confirm what we've seen anecdotally, that when people do this work, they can enjoy more independence for longer periods of time and really push back and not just accept the idea that cognitive aging is inevitable,

Like this guy, Ben Hampstead, Adam Woods, there's people all over the country and really the world that are doing this at an academic level. For me, it was really a fun interview to see that we're tracking in the same direction with some of these serious neuroscientists that are with academic affiliations.

**Jane:** Dr. Bergman, you've been so kind with your time. Thank you very much. If someone is watching or listening, and they want to get a hold of you, how can they?

**Dr. Bergman:** They just go to [kemperwellness.com](http://kemperwellness.com). Thank you for asking. It's Kemper with a K-E-M-P-E-R [wellness.com](http://wellness.com), and we'll be happy to talk to you.

**Jane:** Can you talk to someone on Zoom from anywhere in the country or do they have to drive to Cleveland?

**Dr. Bergman:** If they want to be a patient, they definitely have to come in, but we can talk to anybody in a consultation, an informational away from anywhere for sure.

**Jane:** Over the phone. Okay. Thank you very much.

**Dr. Bergman:** Yes.

**Jane:** You have a great day now, okay?

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