How To Uncover Keys To Halting Neurodegeneration

Heather Sandison, ND
with **Terry Wahls, MD**

Heather Sandison, ND
Welcome to this episode of the Reverse Alzheimer's Summit. I'm your host, Dr. Heather Sandison, and I'm delighted to have Dr. Terry Wahls here. She's an institute for functional medicine, a certified practitioner, and a clinical professor of medicine at the University of Iowa, where she conducts clinical trials in the setting of multiple sclerosis and they're currently recruiting for a clinical trial that she's going to share more about today. If your loved one could benefit from inclusion in this trial, please stay tuned and make sure you grab that web address right away.

In 2018, she was awarded The Institute for Functional Medicine's Linus Pauling Award for her contributions to research, clinical care, and patient advocacy. She is the author of The Wahls Protocol: A Radical New Way to Treat All Chronic Autoimmune Conditions Using Paleo Principles and The Cookbook: The Wahls Protocol: Cooking for Life. Pick up one of these at the Wahls Diet and more information about the Wahls diet at TerryWahls.com/diet.

I'm delighted to dive in with her because Dr. Wahls, one of the things that I appreciate and respect so much about you—is that you've been through this yourself. You were diagnosed with MS and then you've dedicated your career to reducing the suffering that you had to experience. To reduce that for other people. I think that that is just such a unique story, such an inspiring story. I know you've said it over and over again, but would you mind just starting with your experience?

Terry Wahls, MD
Sure. Before entering medical school, I was an athlete. I had competed nationally in full contact. Taekwondo. Entered medical school, and then during medical school, I began to have some tingling pain in my temple. And if that eventually becomes trigeminal neuralgia, Then, in 2000, 20 years after medical school, I started having weakness in my left leg. I get evaluated, and we make the diagnosis of multiple sclerosis. I'm a physician. I do my research. I find the best MS

medicine in the country. I take the newest drugs. Three years later, I'm in a tilt-recline wheelchair. Then I take Mitoxantrone of the former chemotherapy and take Tysabri, the new biologic, and we're very excited about that. But I continue to relentlessly decline, and then I decide to start reading the basic science and experimenting. I focus on mitochondria because I think mitochondria drive disability, and I can tell that it helps my fatigue just a little bit. But I'm very grateful to have even that little bit of help. Then I discovered the Institute for Functional Medicine, and I discovered electrical stimulation of muscles. That was in 2007.

Then I add these supplements to a much longer list of supplements, and then I have this big aha. What if I redesign the paleo diet that I've been following for five years based on this long list of supplements? I started this new way of eating on December 26, 2007. For context, at that point, I could not sit up as I am now. I was in a zero-gravity chair with my knees higher than my nose. That's how I saw patients at the clinic for the residents, and that's how I lived at home. I could go out for meals. I couldn't go to restaurants or movies because I couldn't sit up. I was feeling that brain fog. I knew I would soon be having to finally take medical disability. I started this new way of eating. By the end of January, I realized my mental clarity had improved, my energy was improving, my physical therapists were making stronger advances, and my exercises were improving. I can do my little, tiny, ten-minute workout twice a day now with my E-Stim. We go for 15 minutes, 20 minutes, and half an hour, and then I start walking with a walking stick, then with one walking stick, and then with no walking stick.

Then, on Mother's Day, I want to try riding my bike. We had an emergency family meeting. My teenage children don't want me to do that because they don't want me to risk falling. But my wife, Jackie, says, Let's give it a try. We all get in a position, she tells my 16-year-old boy, who is six feet five. Zach, you run alongside, on the left, my 30-year-old daughter. Zibby, you run alongside on the right, and she'll follow. We get in a position, she gives the all-clear, and I bike around the block, and that big six-year-old boy, he is crying. The 13-year-old girl, she is crying.

Heather Sandison, ND
I'm tearing up.

Terry Wahls, MD
Jackie is crying. When I relived that moment. I cry again because, when you have progressive neurologic disease, you let go of the future. I had been told and I had accepted that when you enter the progressive phase of MS there is no recovery; functions once lost are gone forever. This is why I took incredibly toxic drugs with a 2% chance of giving me acute leukemia every time I took them because I could still use my hands. That was valuable. I could still feed myself and wipe myself. But that was valuable. So I was happy to take these very toxic drugs, which made me very ill, so they could hang onto my hands a little bit longer. I had let go of the future. Even though Heather, I was walking around and I could walk around the block, I didn't know what it meant because I had let go of my future.

But when I bike around the block and we're all crying, I wonder how much recovery might be possible. Every day I biked a little bit more. I did my little workouts. I was doing everything that my PT told me to do. Then in October, Jackie came home and said, Honey, I signed us up for the Courage Ride. It's 18.5 miles. However far you can go, it will be great. Of course, at that point, the furthest I biked was eight miles. That was a big jump. But I did it. When I crossed that finish line. Yes, once again, we're all crying. My kids are crying, Jackie's crying, and I'm crying. This fundamentally changes how I think about disease, and I hope it will change the way we practice medicine and it will change the focus of my research. It's become my mission to let other people know who have progressive neurologic conditions or progressive autoimmune conditions. Even a few physicians say there's nothing that can be done. I want you to know that is what I was being told—that nothing could be done. That function once lost will never come back. But I can bike for hours, hike for hours, jog on my treadmill, and strength train. I'm writing books; I'm doing research. A lot can be done. I want you, everyone who's listening to this, to have hope.

Heather Sandison, ND
That is such an incredible and hopeful story, and a big part of what you're doing now is making this accessible, not only changing the narrative so that people have hope and know that there are things that they can do for neurodegenerative diseases but also making this more accepted through the research rate. Research is such a critical component of making sure that people get access, but it's not just saying that this is possible; it's making sure that we systematize it and that we put the research out there.

Terry Wahls, MD
That everyone is told.

Heather Sandison, ND
Everyone is told.

Terry Wahls, MD
Everyone has to be told. People ask me, Why? Why does that happen more quickly? For everyone who's listening. We all develop our understanding of the world. We started doing this as children. Then, you go to school, then your medical school or naturopathic school. We have a clear understanding of the world. When I get new information that doesn't fit with that understanding of the world, I reject it. It's wrong. I have to get that information again and again and again before I know want I to say. Well, maybe I'm wrong, and this is the way we all are. It takes a lot. It took a huge amount of information to come to me for me to ever consider that my spouse is not a wonderful human being. That's just incomprehensible to me. We have to be mindful. Some physicians are doing the best that they can. I'm helping that by doing the research, going to scientific meetings, and presenting our research, I've done seven trials. We're doing an eighth trial now, and our papers are getting into more and more high-impact journals. I'm now getting published in Neurology, the highest-impact journal of all. We are a scientific network meta-analysis review of all of the diet studies in MS. There are 12 studies; the eight diets,

the paleo diet, the Mediterranean diet, the low-saturated-fat diet, the ketogenic diet, anti-inflammation, calorie restriction, and fasting strategies.

Then the eighth one is the usual diet. But the diets that were most effective for fatigue were Paleo, Mediterranean, low-sat, and low-saturated fat. Paleo was about 50% more effective than either Mediterranean or low-fat for improving quality of life. Two diets were effective, and those were the Paleolithic diet and the Mediterranean, with the Paleo diet being twice as effective as the Mediterranean. However, these other diets, the Q genotypes, and intermittent fasting are also helpful. But their 95% confidence interval—that's a technical statistical term. It spills over to favor the controls, so we can't call them effective. But in my practice, depending on intermittent fasting is the preferred option. It's not that those are bad options. The research is just not quite as strong for them. There aren't as many studies, which is why I'm very excited that I'm now studying the ketogenic diet the paleo diet, and the usual diet, because I do think, for a lot of reasons, the ketogenic diet is also a great option. It's a great option for people in your trial with cognitive impairment issues.

Heather Sandison, ND
That's certainly what we see. But before we go there, I want to know more about your trial. Tell everyone when that is at TerryWahls.com/MSstudy. This is quality of life and multiple sclerosis and the efficacy of diet on that quality of life. Tell people a little bit more about that and who qualifies.

Terry Wahls, MD
You have to have relapsing-remitting multiple sclerosis between the ages of 18 and 70 and reside in the United States. Although you can come from Canada or Mexico, you come to Iowa at month zero, three months, or 24. We'll do a bunch of clinical tests of walking, hand function, and vision. We will do some surveys. We will also do a research MRI. No contrast, though. Let us look at brain volume and brain volume changes. The big question we're asking for a primary outcome is: can we improve quality of life? I predict that we can. We'll also see it. Can we improve clinical functions? I think that we can, based on our other studies. The really exciting question is: do we know that in people with M.S. and also with Alzheimer's, brains are shrinking much too rapidly compared to healthy controls in the MS world that's about 1% per year, which is why we have higher rates of anxiety, depression, frailty, and cognitive decline. I think those numbers are very comparable for people with cognitive impairment as well; their brains are shrinking too rapidly. In my clinical practice, I see that brain fog goes away, mood improves, and I'm predicting that we're going to see that we can get people to healthy rates of brain aging that are less than 0.3% per year, which is why we have to follow people for two years. We have a long enough period. I think that would be super exciting.

Now, we use a randomized process because that makes for the strongest evidence. And if I want to change clinical practice, I have to have strong evidence. So you have to have randomized, controlled trials. I know that we're giving people in the control group tips every month on how to

improve their diet, and I expect they will. All three groups may be going to improve. All three groups will have better brain volume changes, which means healthier aging. We're doing a food questionnaire for month zero, month 12, and month 24. We know what people are eating. We're asking them to self-classify their diets as well. In the answer, we know what they perceive that they're eating in terms of how they would describe their diet. We anticipate having everyone through all of the state procedures by the end of 2026, and then in 2027, we will be analyzing the data. Then in the winter and spring of 2028, presenting the data at scientific meetings, write our manuscripts and have the manuscript hopefully published in the latter part of 2028, and shoot for neurology. We'll see.

Heather Sandison, ND
That's exciting. But it's a time frame that means that if somebody is experiencing symptoms right now, the conclusions of that trial are going to be out and potentially accessible to their doctor for several years to five years. I'm not doing the snail's pace of research. In the meantime, there's a lot that we can do to optimize mitochondrial function, neurological function, neuroscience health, and astrocyte microglial health. I want to talk about all of these things.

Terry Wahls, MD
I just commented. This is why, at first, I drove my partners at the university crazy because I was doing the research. I have a social media presence. I do witness education on social media. I run conferences, and I teach clinicians. They say you can't do that before you have all the research. I said, I can't wait. I have millions of people with me worldwide who I could help right now. If they want to learn how to eat for better health, I'm going to teach them.

Heather Sandison, ND
That's how I think, Dr. Bredesen, myself, and many of the people in our community: once you see they did not help me. It's not either, or. You make your own decisions about the drugs, the adverse events, and your risk tolerance. I always want to take very serious risks, folks, so I can appreciate that everyone wants to take that level of risk. But vegetables are pretty safe. Protein is pretty safe. Meditation is pretty safe. Exercise supervised by a physical therapist or occupational therapist is pretty safe. A good night's sleep at night. Well, man, that's safe. There are many things that we know have a favorable impact. Can you tell us about the similarities between Alzheimer's and MS? Because this is an Alzheimer's summit, maybe for those who don't know about multiple sclerosis, can you just give us a super brief explanation of what that is and what's happening impact physiologically?

Terry Wahls, MD
In MS, we know that these enhancing lesions and acute flares of symptoms are called relapses, and then the inflammation quiets down. The body creates new sodium channels, and we can transmit information and function. It's called a remission. At the same time that we're having these relapses in remission remissions, we have progressive deterioration and progressive brain volume loss that is atrophy. Beginning around age 45 to 50, we stop having relapses; instead, we

have this relentless decline. We're seeing fatigue; we're seeing, anxiety, and depression; more bowel and bladder problems; more problems walking; and by the time we're 55, almost nobody has relapsed. Almost 85–90% of people will be in the degenerative phase. This looks like a whole lot of cognitive decline in Alzheimer's. We realize now that Alzheimer's has an inflammatory component and a degenerative component, and they're losing brain volume. They have mitochondrial strength. They don't have the acute relapses and remissions and the motor problems that are typical of MS. But in many features, it is very similar, and many of the principles of the interventions are very similar.

Dr. Bredesen and I talked about this. We compare notes on what he's doing and what I'm doing. There's considerable overlap. We both completely agree that the cognitive decline that we see in MS, they'll talk about the three holes in the rough. It's the same 38 holes from us. There are FDA-approved drugs that do a great job of trading off our relapses. They don't have that for Alzheimer's, but there are no drugs that stop the neurodegenerative premise, which is why we can extend the time to wheelchairs for five years, but we can't prevent people from going to wheelchairs. We can't completely prevent cognitive decline. If you use only FDA-approved drugs, The good news is that it is getting less and less controversial in the MS world, which now more people are talking about. We also have to fix the diet. We also have to be exercising. We also have to address sleep. We also have to be, and this is why we're going to say that mitochondria are really important.

Bit by bit, people are catching up in the MS world. When I was at the Consortium Medicine US, which is the big international meeting of the people who take care of MS patients, as clinical researchers like myself, I was going to all of the basic science talks. I saw every single one, and I should step back five years ago, when the first time we went, our research professor was the only one talking about food and diet. Last year, in May, we had four posters. Several researchers were talking about diet and lifestyle, and they were very excited about the basic science talks. Every single scientist quoted our research and was talking about the importance of diet. We know that nutrition is vital and that we need to address nutrition so that we can debate which diet is better. Again, it depends on the clinical circumstances, but we know one terrible diet, and that's the standard American diet.

Heather Sandison, ND
Describe your diet. According to the research, the Paleo diet is the best diet for MS. We both agree that a ketogenic diet seems to be beneficial for cognition. But I don't recommend a ketogenic diet all the time. I recommend it for any patient of mine who is experiencing cognitive decline. They get into ketosis for 3 to 6 months and focus on whole foods. Not keto bars and highly processed diets, but very much whole food-based and lots of greens, really foundationally lots and lots of green veggies. Then, when they switch out of ketosis, I recommend going Paleo or Whole 30, which is awesome and safe, and increasing the fruits and veggies—the colorful fruits and veggies that tend to raise your blood sugar—and backing off some of the animal protein. I'm curious how it sounds. There's a lot of overlap in our diets, but please.

Terry Wahls, MD
What is the context of all the diets? The standard American diet, or Westernized diet, has 250 to 300 grams of carbohydrates. The Mediterranean diet would have about 125 grams of carbohydrates. The Paleo diet will have 80 to 100 grams of carbohydrates. The ketogenic diet, if you emphasize medium-term triglycerides, has about 50 grams of carbs. If you don't emphasize medium-term triglycerides, now you've got 25 to 35 grams of carbs. If you're on a modified Atkins diet, that's about 25 to 35 grams of carbs. If you're on a carnivore diet, it's going to be even less. Then you could do a water diet where you're going to get nothing and starve. You can't do that for very long.

Then I look at the Wahls, level one; if I want that to be gluten- and dairy-free, that looks very much like a Mediterranean diet, with about 125 grams of carbs. If they can't give up gluten or dairy, I'll just say to do the Mediterranean diet. We're stressing green, leafy vegetables, cabbage, family, onion, family, mushroom, family, vegetables, berries, and deeply colored fruits and vegetables. Insufficient protein. A lot of people are not getting enough protein. We have to do some education there..

I caution people that historically, for millions of years, when we separated from the primates, we were in ketosis because we had to work so hard to get our food. If you do two hours of vigorous physical activity, you've used up all of your stored carbohydrates. You're in ketosis not because you ate lots of fat but because you did lots of exercise. I don't know how else. We don't have really good data on how safe the current ketogenic diets are for the rest of your life. We just don't know. They may be safe for their clinical reasons we put people on a ketogenic diet for the rest of their lives, but what I prefer that people do is a ketogenic diet for the necessary time to address their medical condition and then fluctuate between keto and paleo at intervals that will be described. But again, there are clinical reasons I won't put someone on a ketogenic diet for the rest of their life.

Heather Sandison, ND
Interesting. They think they're.

Terry Wahls, MD
A seizure disorder.

Heather Sandison, ND
Yes.

Terry Wahls, MD
Cancer, particularly cancer that you can't cure someone from. They're going to be lymphomas, myelomas, and leukemias. They'll be on a ketogenic diet forever. If someone has breast cancer, for example, and it's going to be five years before we can say that they're going to be cured, Yes, I'll encourage them for those five years to be in ketosis.

Heather Sandison, ND
With cancer. This is because of the metabolism. Cancer is a very big issue.

Terry Wahls, MD
It's sugar. The cancer cells can't burn ketones. For cancer cells, if you go into ketosis before cancer treatment, whether it's chemotherapy or radiation, you're making the cancer more susceptible to the effects of the radiation or the chemo. At the same time, you're making the rest of your cells more resistant to the harms of chemotherapy or radiation therapy.

Heather Sandison, ND
That's exciting. Little cancer tips. I wasn't expecting that. You talk a lot about the different types of cells in the brain and have some unique ones; that's what makes them toxic and more neuroprotective. Dr. Bredesen talks about this, flipping the switch so that we're in, yes, go ahead.

Terry Wahls, MD
Yes. We know we have astrocytes that surround the blood vessels and nourish the brain cells. We have immune cells called microglia that inspect the environment and are either saying everything's fine, there's no pathogens, no damage, and they'll be very supportive of building more synapses and more myelin. Building more astrocytes. If the immune cells, microglia detect signs of damage, signs of pathogens, they're going to call in other, more strident warriors, more strident immune cells to come in and make enough toxic molecules that will kill off the pathogens and dissolve the damaged tissue so it can be taken up. They will keep that going until they detect no more pathogens, no more damage, then they can flip back to, Hey, everything's fine. We can get back into the pro-growth, pro-repair phase. It's not that inflammation is harmful or good. We need both. We need inflammation to kill the pathogens. We need inflammation to clean up the debris. We have to heal that to call our friendly warriors the friendly place to take out the thugs. Then we had to say we took them out. We can now call in the general contractor who can do the rebuild.

Heather Sandison, ND
A diet has played a big role in this, but so have other things. You've mentioned sleep, exercise, and meditation—potentially stress management. Can you tell us a little bit about what a comprehensive approach looks like?

Terry Wahls, MD
I think about this from an ancestral health perspective. I go back to, for millions of years the genus homo or 20–50,000 years as the species Homo sapiens. We slept when it got dark. We went to bed when it got dark, slept in cool environments, and then got up when the sun came up. Going to bed in a dark environment and sleeping in a cool environment will help improve your sleep. Going outside as soon as you can every sunrise for even 5 to 10 minutes, sitting on your porch will help reset the circadian light signals in your brain to help get your hormones to match the day-night cycle, and that will help a lot.

Exercise. It turns out we don't have to run or necessarily lift weights. If we would just walk a lot, that would be helpful. Although I do agree that strength training is great for my bones, so I do it three times a week. Flexibility and balance are really good. After looking at the research on how good Bounce Train is for cognition, for MS, for my Alzheimer's folks, and for my MS neuro-immune patients. I do bounce train every day in my shower, right and left leg, single leg stance and I have a little wobbly desk that I stand on, and I will stand on that. I think that's helpful.

Heather Sandison, ND
Have you started performing dual-task exercises at all? Have you seen the research on that?

Terry Wahls, MD
Well, that is super helpful. I have not started doing that in my exercise routine, although I think this is probably why partner dancing in martial arts is juggling. These things are so powerful because we are doing a complex motor task where I have to interpret the sensory input and adjust my motor response to the visual sensory input. Jackie and I did some partner dancing and ballroom dancing; it was so fun. It's a lovely activity, and it can be quite challenging. And for me, it's a high-intensity exercise. For Jack, it's probably a moderate-intensity exercise, but lots and lots of fun.

Heather Sandison, ND
I think that's a component of this too; it's fun. We're much more engaged if we're having a good time. As often as I hear people talk about getting online and doing their homework, or doing their Sudoku, or doing their brain games, some people say they hate it. I'm not sure that's as helpful as if we could do it.

Terry Wahls, MD
Yes. That's part of why I'll talk to people about exercise and your balance, strength, and aerobic flexibility. Those are all really good things. But the most important thing is that it's fun.

Heather Sandison, ND
That you're doing it. That's going to make it so much harder to do it.

Terry Wahls, MD
It has to be fun. If you're having fun, there are many kinds of exercise and physical activity. Let's face it, doing the laundry, going up and down stairs, and chasing the kids. That's physical activity as well. Our ancestors were not going to the gym. They were just having rich and full lives. That's what I want my people to have. Everyone who's listening to this summit, that's what I want you to have: a rich and full life that includes a wide variety of physical activities.

Heather Sandison, ND
We talk about diet, exercise, and stress management, and these are the things that put us in a neuroprotective state. They put our cells in our brain in that neuroprotective state. We've talked about your diet, exercise, stress, and sleep. I'm curious about it.

Terry Wahls, MD
Yes. Again, there are many different strategies for stress reduction. If you're into gadgets and gizmos, all sorts of biofeedback devices can help you train a variety of physiologic states. That's great. You could just do meditation. There are a wide variety of breathing exercises and a wide array of guided meditations. You can do Epsom Salts. I love taking Epsom salts and reading in my bathtub. Sometimes I do cold-ice Epsom salts, sometimes I do hot Epsom salts, and I do saunas. I was just sitting out in my yard. I'm sitting in my sauna, then sitting on my desk in the cold in the winter when it's really cold, just wrapped up in my towel and looking at the sky so you could feel right. But whatever challenges are heavy in life, we all have challenges. Things that were annoying that we were not planning on are an opportunity for growth and learning that I would just as soon not have. But here it is. You can set a little timer free right about that, or you have to keep it. You can write it up and then throw it in the garbage, throw it in the recycling, or throw it in your fireplace. But there's some magic about writing about these challenges that let us apply new meaning to the experience and make it less stressful.

Heather Sandison, ND
Then sleep. Another neuroprotective piece.

Terry Wahls, MD
When I was young when I became a teenager, I started having difficulty sleeping, and then I went off to college and medical school, and I thought, well, there's a lot to do, a lot to learn, and a lot to memorize. Sleeping four or five hours a night is fine. Then, in the residency, that was a good night's sleep. If you get four or five hours, then eventually I learned that that was bad for me, so I started paying a lot more attention to my sleep. It's one of the reasons I love my wearable device so that I can look at it. If I have a glass of wine with dinner, I don't sleep as well at night, bummer. I quit having a glass of wine at dinner. Although my kids were watching the Lions football game and the Green Bay Packers in the afternoon, they were having a tequila, safe to say, Hey, Mom, why don't you try it early enough in the day? Maybe it won't bother your sleep. They were right. It did not. It's, okay, I guess if I am doing something that happens to have an alcoholic beverage around noon, maybe that's going to be okay.

I finally realized sleep is important, and they want to sleep 7 to 9 hours. I started paying attention to what interferes with my sleep and what leads to better sleep. I now sleep 7 to 9 hours every night. As soon as I made it a priority, I started paying attention to the things that helped me sleep better and what interfered. For example, in this lovely meditation, I do at night, I am going through some key parts of my life. It might be when I was a little girl, an infant, my mom's bottle feeding me, my dad reading me bedtime stories, or one of my research mentors giving me some

guidance. I relive that moment, and I thank them. That's how I fall asleep at night. Gratitude practice is very calming for the immune system. It's a lovely way to enter sleep, and so I get to have multiple benefits there.

Heather Sandison, ND
Amazing. There are things that we can do that make microglia and astrocytes and these immune cells in our brain more toxic to us. Are there particular things that we want to know?

Terry Wahls, MD
Yes. A terrible diet is probably number one—a diet that's high in added sugar and high in processed foods. By that I mean; corn syrup, white flour-based products, nuts in general, grain-flour-based products, and even gluten-free stuff, there is a lot of paleo-friendly stuff that is highly processed. You're getting calories without nutrition, vitamins, and minerals, and you're getting a lot of surfactants, emulsifiers, and additives that have been added that will disrupt your gut microbiome. I much rather that people eat what they are eating again. If you think back to your great-great-great-grandmother and great-great-great-grandfather, they're eating vegetables, roots, and fermented foods because there's no refrigeration. Meats, they might have had beans and rice in the paleo world they probably would have. They were growing a lot of their food. They had dirt on their hands. They would wash them not as often as we do. They probably ate a fair amount of dirt in addition to everything else. I think that's a healthier diet. I'm not that fond of gluten-free products. I'm fond of things that are gluten-free without a label on them. That's good for you. I'm not that fond of ketogenic products or paleo products that have a label on them, but I'm fond of ingredients that are paleo or keto-friendly.

Heather Sandison, ND
They go in through the produce section and the butcher of the grocery store versus down those middle aisles. But those foods are designed to make money, even if you're in a high-end health food store.

Terry Wahls, MD
Exactly.

Heather Sandison, ND
Certainly, diet is. I think I completely agree that diet is where you can go the most wrong. I think society's also set up for this. We're heavily marketed with very poor-quality food that is highly processed.

Terry Wahls, MD
On Saturday, there is a marketing opportunity to convince your children to become addicted to terrible foods. We see a lot of, all of you grandmothers and grandfathers who are listening, I want you to stop feeding so much candy and cereal to your grandchildren when they come to visit you. Please just feed them vegetables, some fruit meats if you're vegetarian, beans, and rice, and

send the kids home on a healthy diet because you're wrecking the children's diets, you're wrecking their brains, and you're increasing anxiety, depression, learning disorders, and behavior problems in your children and your grandchildren.

Heather Sandison, ND
Then, we talked about exercise being so helpful. On a sedentary diet, we talked about sleep being helpful. Sleep deprivation—there's the opposite—the flipside of a lot of the things that are neuroprotective. Is there anything else—toxins, toxic exposure, infection?

Terry Wahls, MD
Sure. So much in our indoor environment, if you live in a very tight home, you may have a variety of indoor pollutants coming off of your carpets, synthetic carpets, and laminate furniture. That may be a problem. The water coming from your private well, if you're in rural America or municipal wells, may or may not have been tested for some of the pesticides that are now in the aquifer and private wells. I encourage people to, according to what they can afford, filter their water and the air in their environment. If you own your own home, put a high-efficiency air filter on your water and your air, and then think about reducing your exposures again according to what you can afford.

Go as organic as you can on your food and as organic as you can on your personal care products. Other than soap and water, you don't need much for personal care products. You don't need to be buying 158 different products every day. You could put a little olive oil on your skin. You could brush your teeth with just a little bit of coconut oil. That would be lovely. Or an essential oil. A drop of that. That would be lovely. You could put a little coconut oil underneath your armpits, or you could just take a shower. That would be plenty. We don't need you, billions are being spent to convince us that we stink and that we are unattractive without all of this nonsense.

Heather Sandison, ND
One of the fun things about working with patients is seeing how they start to glow, how they start to look younger, and how they start to look more youthful. They're happier. They're more engaged, and they're more alert. The bags go away from their eyes. There's this natural beauty that shines through when you are eating well, looking good, and resting. All of these side effects make people look better so they need beauty products.

Terry Wahls, MD
What we see in our clinical trials and my clinics is that, and I saw this at the VA as well. Over the next year, people regress by about 10 years. We had several of our patients tell us that film members would come to see them, hadn't seen them in about a year, and wouldn't recognize them at the airport because they'd lost 40 or 50 pounds and they looked 10 years younger. Mom, Mom, what have you done? You look amazing. The other thing I want to point out is that in my VA clinic, people are in rural Iowa, rural Missouri, rural Illinois, small non-, not Whole Foods. No

organic food, frozen food, or canned vegetables. They're just doing the best they can. They still had amazing results.

They're losing weight without being hungry. Blood pressure's improving. The guys are coming back, and they're, Dr. Wahls, you mentioned, you didn't tell me this. My love life has come back. The one thing that was not coming up was finally coming up again. Then the ladies are so thrilled because I've lost all this weight without being hungry. By the way, the guys lost all this weight without being hungry, but they're more excited about performance than appearance. The ladies were very excited about appearance, and I said, How's your love life? Well, I'm getting a little bit more of that now, too. They were more impressed with appearance and performance, but both were happy, both for the men and the women. I predict that's probably what you're seeing as well.

Heather Sandison, ND
Exactly what we're seeing is that it's just such a privilege to work with patients and get to see the transformation. Then I'm sure you have this, too. It's, I'll see the mom, and she's maybe declining. Then I start seeing the dad, and then I start seeing the adult children. Then, we get to see the sister of the original patient. I get to start to see the expanded family, see how all the pieces fit together, and watch the ripple effect of someone becoming healthier and how that sets to change the behavior of those around them and those who love them. It's a privilege. It is so meaningful.

Terry Wahls, MD
In our clinical trials, we encourage people to do as much as they can as a family. I let them know that just because I want them to be around the patient, our trial will support them, and if you just have one meal when you're away from them, you get to eat what you want. The kids and the adults. But as people begin to figure it out, they feel better eating what our separate needs require; they're eating less and less away from a different diet. People may come back for the three-month hiatus. The kids are so much better behaved. The grades are improving, and the spouse's blood pressure is better. I'm less irritable, and my spouse is less irritable. The family begins to put it together. this is good for all of us.

Heather Sandison, ND
Amazing, what incredible work you're doing. I'm so, so grateful to you for spending the time. I know you're very busy; you've got a clinical practice and lots of research, and you have a family of your own. You've got lots going on and are doing the most amazing work in the world. Where can people find out more? We talked about the trial, but will you give them the website again, and we'll have to show them?

Terry Wahls, MD
Sure. Terry Wahls, T-E-R-R-Y W-A-H-L-S terrywahls.com/MSstudy. Go to my website, terrywahls.com/email, and sign up for my email so you can hear about our research. We have a

little research update and stuff that comes out every week. Follow me on Instagram, @DrTerryWahls, because you'll get to see what I'm eating and doing. It's lots of fun. I think everybody would enjoy that.

Heather Sandison, ND
Fun. Well, thank you so much. I feel grateful. I get your email newsletter, open it, and learn from it. I also get to see you in about ten days at a research conference, and I am planning to attend your talk and learn even more from you. Every time we connect, I learn something new, and I couldn't be more grateful to you for being so generous with everything that you've learned, with your personal experience, and with just how you show up in the world. Thank you, Dr. Wahls.

Terry Wahls, MD
Thank you.