Introduction and Dr. Wahlsu2019 Background

– Welcome back to the Reverse Alzheimer's Summit. I'm your host, Dr. Heather Sandison, and I am absolutely thrilled to be joined by Dr. Terry Wahls today.

She is an Institute for Functional Medicine Certified Practitioner and a Clinical Professor of Medicine at the University of Iowa, where she conducts clinical trials in the setting of multiple sclerosis.

In 2018, she was awarded the Institute for Functional Medicines, Linus Pauling Award for her contributions in 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 a one page handout for the Wahls diet at terrywahls.com/diet.

Dr. Wahls, thank you for joining us, welcome. – Thank you for having me. – So let's dive right in, you are an expert in brain health, and a lot of this is through the lens of multiple sclerosis, which you personally have experienced.

I'm curious, how does that overlap at all with dementia? – You know, when I was diagnosed with multiple sclerosis at a way back in 2000, my neurologist said, you know, Terry, don't worry, cognitive decline is not part of multiple sclerosis.

The thinking has since evolved, and we understand that cognitive decline is a very common occurrence and that somewhere between 40 and 70% of those diagnosed with multiple sclerosis experienced cognitive decline, in the vast majority will end up losing gainful employment within 10 years due to either cognitive decline or fatigue disability.

And so yes, this commonly occurs, you know, and I think the root causes are probably very similar in terms of mitochondrial dysfunction, hormonal imbalance, increased toxin burden, but I'm sure we'll get into that.

– Yeah, I'd love to also just the anatomy, right? Both multiple sclerosis and dementia are neurodegenerative disorders. We might put them in the. – There was a lot of emphasis early on for the acute inflammatory components of multiple sclerosis and not enough emphasis on the neurodegenerative component.

Now we have drugs that are very effective at reducing the risk of gadolinium enhancing lesions. And they may slow the decline of brain atrophy, but they don't prevent it.

MS, Dementia, and Shared Brain Health Mechanisms

And they may slow the decline of early onset disability, but they don't prevent it. – This is so fascinating because the story is so similar in dementia, where especially in Alzheimer's, where we've focused on beta-amyloid plaques.

And yet we see when the drugs target just beta-amyloid plaques, they don't slow or prevent cognitive decline. And so there's lots of parallels here that, yes, perhaps we need to take this step back and say what's actually causing cell dysfunction.

So let's jump into the cells. Astrocytes, microglia, neurons, oligodendrocytes. What are the roles of these? – Well, one of the things that I focused on before I was really tuned in to astrocytes, some microglia or the microbiome was when I thought, well, I should focus on creating health.

I should focus on what does science tell me or the scientifically validated ways that can improve health. I, and so

that inspired me to go back to meditating and I'd already been, since I was a former athlete, I had ignored my neurologist advice and said, you know, don't exercise so much said, oh, that's wrong.

I know I need to exercise as much as I can tolerate to maintain my strength as well as I can. And then focused on, I'd already been doing the paleo diet for many, many years, which was really focused on what not to eat.

And, but then when I had this big aha, like, you know, all these things I've taken a supplement form for my mitochondria, where are these nutrients in the food supply?

And what if I focus more on what are the foods I should be emphasizing? And that's when the magic really began. – That is so much of your magic, is that focus on what to eat.

And these nine cups, you know, the different, the three cups of different types of vegetables every day. It's so easy for me to communicate to a patient< it's easy for them to see in their minds.

Now, of course, there's steps between imagining eating nine cups of vegetables of three cups of leafy greens, your three cups of, and please jump in, 'cause clearly you're the expert who created this.

But from what I understand and what I tell patients, it's three cups of leafy greens, three cups of those really colorful veggies like carrots and beets and all of the mushrooms.

I think I'm putting that in the right category. – Well, so it's three cups focused on beets, carrots, berries, tomatoes, things that when you slice through them, there's pigment all the way through.

And then have three cups of the sulfur-rich vegetables, cabbage family, onion family, mushroom family. And then as people get more advanced, we can talk about, you know, fermented foods, if you're meat eater, the benefits of eating organ meat, the benefits of bone broth.

And then we talk about why you might want to consider a ketogenic diet and how to do that. And the complexities around a ketogenic eating, are we doing a medium chain triglycerides, which is handy, 'cause you get to eat more carbs or you're gonna do an olive oil-based ketogenic diet, which I've become much more impressed with lately.

– Terry, tell us why? – Well, medium chain triglycerides and coconut oil can cause a elevation of triglycerides, can cause an elevation of LDL cholesterol, total cholesterol.

And I think that is very deleterious. I don't, you know, I have ketogenic eaters who think they're fine with cholesterols of 300, 350. And I don't think they're fine.

The Wahls Protocol and Food Priorities

And much rather they do, you know, go on a ketogenic diet if that speaks to you, check your lipids and if your lipids are still great, that's fine. If your lipids are not great.

So your cholesterol is over 220, then I would take away the saturated fats and go on a olive oil ketogenic diet. Now, if you do that, it may be important to add in time restricted feeding.

So you can get more ketones even though you're gonna have a lower-carb diet. – Wow, so there are different ways to individualize the ketogenic diet. I'm sure you saw this study, a feasibility trial, a small nine person feasibility trial out of Florida that showed that in just six weeks, the majority of well, eight out of the nine participants were reversing their cognitive decline with just the intervention of a ketogenic diet.

So we see a lot of movement here in the scientific space, supporting the ketogenic diet is a really good for the brain and getting into that can be a little scary for people.

– Yeah, you know, and part of that is as our brain's age becomes less effective at metabolizing glucose, but we

maintain our ability to metabolize ketones really very well.

So I think that's one of the reasons why as you age, a lower-carb diet with more ketones or ketogenic diet can be really very helpful. – And then there are these fears around, well, my cardiologist is telling me, I now need a statin because my cholesterol is going up on the ketogenic diet or what if I don't have a gallbladder?

And so there are, it sounds like what you're saying is there's ways to individualize this diet, keep it really a veggie focused. – Well, I certainly agree.

You wanna, if you're gonna on a ketogenic diet, it's really important to monitor your lipids and assess how that's doing. I also want to remind people that our ancestors were in ketosis primarily through physical activity.

So our hominid ancestors had tremendous endurance and we literally ran down big game. It might take all day or a couple days of continued light jogging to finally exhaust the great mammal that literally keeled over from exhaustion.

But during that all day or two day track, you used up all of your glycogen. So you were in ketosis in part 'cause maybe you weren't eating a whole lot during that time, but mostly because of the physical activity.

And so we would fluctuate between a bean and ketosis and then we have the repeat higher in meat, a lot of green vegetables, plants, maybe some roots, a fair amount of dirt on my dad.

And then when food was scarce, we're back out on the hunt again. And so the concept of a high fat ketogenic diet is only about a hundred years old, but humans have been on a ketogenic diet through exercise probably for thousands and tens of thousands of generations.

And it was relatively recently when we became farmers that we started having a much higher carb diet. And then when we got into the industrial and information age, when we started having less and less activity and food that was designed, that was so high in sugar and processed foods that we really got into this very military diet and lifestyle pattern.

– And so what does this do to ourselves? – Well, it accelerates aging. We don't have as much autophagy where our cells will clear the misfolded proteins and that leads to shorten telomeres more rapid, aging of the cells.

Ketogenic Diets and Individualization

And we have a much shorter health span where we have the onset of high blood pressure, obesity, metabolic syndrome at early and earlier ages. We now see that even in our children and we have the onset of cognitive decline.

So being sedentary, deadly accelerates aging, having a high sugar, high carbohydrate diet, deadly, accelerates aging, accelerates metabolic syndrome and being sedentary, accelerates mental health issues, anxiety, depression, irritability, rage.

– So toxicity is another piece here. The microglia and astrocytes are special in this way. Can you speak to that? – Well, it's sort of interesting the neurons, which is, you know, the thinking part of the brain that communicates down through the axons to the next neuron and so forth out to our sensory organs and to our muscles is 10% of the brain, 90%, there the 90% are the glial cells.

So the microglia, those are the immune cells, the astrocytes, which cover the capillaries and help transport oxygen and nutrients to the neurons. And then the oligodendrocytes, which are repairing myelin, making new myelin.

And of course there are subtype in each of those big categories. It is the astrocytes and the microglia that are really responsible for monitoring the environment for pathogens, for evidence of damage.

So if they perceive that there are pathogens or cellular debris damage, they will activate the innate immune system, which will, you know, call in more cytokines, chemokines, and begin dissolving the debris, begin dissolving synapsis, begin dissolving the oligodendrocytes, begin damaging the axons and the neurons until they've cleared out the damage cells, cleared out the pathogens.

And so it is the health of the astrocytes, the microglia that determine the health of the brain, whether it is neurotoxic or neuro repaired off. And, you know, there's certainly a whole lot of interest in drug development to see like, okay, can we devise drugs that will shift these microglia to a more pro-repetitive phase?

Because when we look at Parkinson's, Alzheimer's, multiple sclerosis that we see there is abnormal activation of the microglia to either the M1 phase, the reactive, hyperinflammatory, neurotoxic phase, or the M2 phase, which is the more pro-repetitive phase.

The challenge is that, which is excessively high, whether it's M1 neurotoxic or M2 neurorepetitive, depends on which phase of the disease you are in. And if you shift away from M1 to M2, one of the consequences, if you are in the M2 phase, you are making more VEGF, you're making more blood vessels.

So if you're worried about the risk of macular degeneration, I've just increased the risk of macular degeneration and early blindness. If you're worried about the risk of cancer, I've just increased the risk of cancer of the brain and probably everywhere else, because I've added more blood vessels.

And also when you're in the M2 phase, you can't clear debris as well. Well, if I'm not clearing debris and pathogens as well, now those latent infections that I have in my brain, herpes virus, Lyme, chlamydia, strep.

You know, we used to think the brain was sterile.

Aging, Activity, and Cellular Health

Now we know that when I can do these RNA, DNA probes, my brain's not sterile, but my immune cells, meaning my glial and the amyloid are keeping everything out of control.

If I suppress my ability to clear the amyloid to, I'm worried that in fact, I'm going to be increasing activation of those latent infections. So I predict that drugs will not be very effective because they're going to have unacceptable risks of cancer, blindness of activating late infections.

What I do predict will be effective is getting our lifestyles to be better aligned with our evolutionary history of physical activity, of sleep, of diverse diets, with 200 plant species, with meditation, with meaningful relationships, the kinds of things that I've been taught talking about now for a over decade and the kinds of activities that I have been researching now for over a decade, that is more work, but ultimately will be much more effective for MS.

And for anyone who wants to have the healthy aging for their brain, or wants to have decreased risks of cognitive decline. – It is more work and society isn't really set up to make it easy to do that work that supports health.

Do you have tips for anyone about how to kind of approach that somewhat overwhelming or daunting task of shifting your diet, shifting your daily routine so that you are incorporating exercise?

– Well, the very first step that it, this goes back to my work with veterans in the therapeutic lifestyle clinic, was that we would, you know, we have this big intake in, then we'd have group visits.

And one of the things that we would have were group visits, where we would do skill building class. And the skills class that was the most treasured by our vets.

And they taught me, it was actually the most important was what is your why? We're gonna be ask you to do things that are difficult. Creating new habits is work, extinguishing, unhealthy habits is work.

And we do hard things when there is a compelling reason. And so, as we realized that, and you know, these vets, you know, they went into war, they would do enormously risky things for their fellow soldiers because they cared deeply for them.

And so I began asking all of my patients now, what is your why, what would you do with your health, if it would moderately improve? Another question that we like to ask is, is there someone or something that you care so deeply about, that you would run into a burning building without hesitation, without question, because who you love is at is at risk?

And once we identify that and we identify what they'd like to do with this person with somewhat better health, now they have a reason to begin doing things that are hard.

And I'm very upfront. This is hard, it's hard work, creating new habits, it's hard work, extinguishing harmful habits.

Glial Cells, Toxicity, and Neuroinflammation

And then we work on strategies, how to make bitter vegetables taste really quite delicious, how to create foods that are wonderful and we certainly found, and I think this is probably true for way too many people here in the United States.

They have forgotten how to cook, or they never learned how to cook. They never learned how to meal plan, how to shop, how to plan for leftovers so that they're not throwing food away.

So we would have cooking classes, we'd have meal planning classes, would have shopping classes, would have classes on how to bulk prepare your food. So you cook one meal and either freeze it or cane it, so now you have meals that will take me just five minutes to warm up.

So we wanna make it easier for them to be successful. But certainly, the very first step is get into deep touch with what is your, why? Why do you wanna do this work?

– Do you find that some people decide this isn't for me? – You know, I make it very, very easy for people to say, nope, this is too hard, I don't wanna do it.

And so the way to come see me at the VA was you could get a consult from your primary care doc. especially specialist, you'd come to a big group class, kept having you get larger and larger rooms to have my initial consult with everyone.

I'd tell my story would review some cases. We'd review the concepts of our functional medicine approach. And would say, okay, now you have a choice to make.

One choice is you'll be all on doing the diet. Gluten-free, dairy-free, lots of vegetables, 100%, 400 days. And we'll talk about how you can get your group intake and your support with me and my team for six months.

Or you could say that's too hard, but I'd like to work on my diet, sort of, and we'll give you a consult to the dietician, or you could say I'm not ready to do diet, but I'd really like to learn a stress reaction.

Mindfulness meditation technique, would send you to our health psychologist. Or you could say, what really speaks to me as an exercise problem and we'd send it to physical therapy.

Or you could say, this is not the right time. I can't do that because my wife's going through breast cancer, I have to be all in for her. I just can't do this at this time.

And that's okay too. Just come back when you're ready. We never argue with our patients. Here's the possibilities, here are the ways you could work with me if you're ready.

And if you wanna be all in, we've got this group plan. It's a great time. If you wanna just sort of start a little bit, you could work one on one with my dietician, with our health psychologist, with our physical therapist and that's okay.

Or you could say, I can't do it, I'm not ready. And that's fine. Come back when you are. People aren't committed. It's a waste of my time and their time.

– Yeah, 100%. Tell us a bit about your personal share, your personal story. – Well, will tell it in real time. 20 years ago, I'm out walking with my wife, my left leg grows weak, dragging it, I hobble home.

I see the neurologist the next day, who says, Terry, this could be bad or really, really bad. So at night in bed, next to Jackie, I'm thinking about really, really bad.

And I'm thinking about the 20 years of worsening face pain, (indistinct) jolts of pain. And I'm like, I think I'd rather this be fatal than disabling.

So I'm praying for a fatal diagnosis. Three weeks later, I hear multiple sclerosis. I am a professor of medicine. Of course, I go do some research. See the best people in the country.

Take the nose drugs. Three years later, I hear tilt recline wheelchair. I get take even more aggressive drugs, neoadjuvant, chemotherapy, then Tysabri.

I continue to go down, go downhill. Trigeminal neuralgia is relentlessly worse, but now I know like how terrible it is. So I decide I'm gonna go back and start reading the basic science.

I develop theories that mitochondria are involved. I started on supplements. I slow my decline. I discover electrical simulation muscles. I get my physical therapist to let me try that, it hurts like hell, but when it's over, I feel great.

So I go to clinic three times a week, I do e-stim. And then it says, it'll get me a home going device. I start adding e-stim to my physical therapy and mind you, I can only do about 10 minutes of exercise because I'm so weak.

I cannot sit up in a regular chair. I'm beginning to have brain fog. My electrical pain is more frequent, more severe, much more difficult to turn off.

In 2007, the future I see is bed in demented and trigeminal neuralgia turned permanently on so that I breath, talking, swallowing triggers the electrical pain.

And that is when I have this big aha. And I should say I had already been a paleo eater for five years doing the AIP diet. And I had been, you know, declining the supplements, maybe slowed my decline, but it was that fall.

I had this big aha. Like what if I redesign my paleo diet? And am I doing everything that I can. So I do some more research where these nutrients are in the food supply go back to meditation.

And December 26th, I start this new wave eating, which originally was just list of foods that I was stressing by the way. And at the end of the next month of January, my brain fog is less.

My energy's a little bit better in February. So in the second month, my physical therapist says you're getting stronger. He advances my exercises. I begin lifting little weights, mind you, little weights.

Lifestyle Change, Motivation, and Patient Readiness

In March, I am walking with a cane originally, two walking sticks, then with one. And then in May with my, I asked my, my wife Jackie, said, you know, could I try biking because well, you know, maybe in the fall things keep going well, well, you know, a week later we have an emergency family meeting 'cause that I'm determined, I'm gonna try riding my bike.

And my son says, tells my son, Zach, to jog along the side and the left, my daughters Zebby will jog alongside in the right and Zach will follow. And I bike around the block.

My kids are crying, Jackie's crying, I'm crying. And three months later, I bike 18.5 miles with my family. And of course, we're all crying again. You know, and this really transforms how I think about disease and health that will transform the way I practice medicine.

And it will transform the focus of my clinical research, my chair of medicine. And actually my Chief of Staff at the VA become huge supporters of me. And I began doing clinical trials, testing the intervention I'd used.

First it is a single arm safety and feasibility study showing could others with progressive multiple sclerosis, do this very complicated regimen that I had just done.

And so could they do it? Do we heard anyone in our the trends in the right direction, 'cause no one expects anything to be statistically significant when you do just 20 people.

So they could do it. We radically changed their diet. They began meditating, they began exercise. They did the e-stim. The biggest side effect was if you are overweight, you lost weight, got back into a healthy weight.

And I had to do reports, safety reports every three months 'cause people lost weight so rapidly. No one became underweight. And so remember we only expected to see a trend in the right direction.

Well, the severity of fatigue went down and the clinically meaningful reduction fatigue severities 4.5 it went down 2.38. So P value 0.0005 and the short form 36.

– This is for everyone listening, this means very, very, very significant, even in a very small sample size. You were demonstrating was not only was this feasible.

Not only was it possible, but the significance of this intervention was well beyond placebo, well beyond other drugs, well beyond what was available. – And we measured quality of life, the clinical significance there, you have to get to a five point scale and we were able to show 14 and 17 point improvements.

So, you know, again, P value of 0.0005. We also had improved verbal and non-verbal reasoning. And half of our folks had clinically meaningful improvement in either walking function or hand function.

As a group, they stayed flat. And with progressive MS, you anticipate a 10 to 20% worsening every year. So the fact that the group stayed flat that's stunning and that half had clinically meaningful improvement remarkable.

We had one lady who went from cane short distances walker, long distances, who is now jogging. And you know, as I go around the state doing updated presentations, when I'm recruiting new patients, I see some of my former state participants and it's sort of like, I'm at a revival meeting, you know, 'cause these ladies will.

So I give my presentation and invite people to the next study and these folks stand up and say, I was in Dr. Wahls first study. And let me tell you, this stuff really works.

And if I quit doing the thing she asked me to do, if I stop eating that way, my fatigue is back. My balance is off, I can't walk nearly as well. I go back on a program.

You know, without it, I'd be in a nursing home now. So we have restored hope and lives to millions of people all over the globe. – That's incredible. And thank you for the work that you're doing.

There's quite a few parallels with this story around dementia, right? That progressive MS is supposed to be irreversible. This is not the relapsing remitting type of MS.

This is the progressive MS that you're talking about. And so this is, you are somewhat casually reversing an

irreversible disease. And with the Bredesen approach, we see something similar.

And I feel very fortunate that, you know, I don't have a story similar to yours where I have experienced dementia and had to come back from it. But we have lots of study participants as well as does Dr. Bredesen, the first survivors of Alzheimer's who can describe these stories.

And what's incredible about this, is that what your intervention is so similar to his, right?

Dr. Wahlsu2019 Personal MS Recovery Story

What we're creating is health at a cellular level, optimizing the function of each cell. So that then the organ and then the entire body can function better into our, you know, seventh, eighth, and ninth decades.

Exciting stuff. – We're focused on health span. And what we discovered in the therapeutic lifestyle clinic at the VA is that by focusing on health and tell, you know, telling my referral physicians, I'm not gonna be prescribing drugs.

I want you to keep monitoring their blood pressure, their blood sugar, and you may have to reduce meds. And occasionally I have to call them and say, look, the blood sugars are too low.

You gotta back off on all that insulin. They don't need it anymore. – And how the blood pressure as well, right. – And blood pressure. (crosstalk) Yeah, then as far as telling my folks, so if you're getting lightheaded cut back on your blood pressure meds, if your sugars are getting low, you gotta cut back on your diabetic meds and then call your prescribing physicians.

Because as health improves, this is the most effective treatment for chronic disease. It's not drugs and drugs may be necessary for time to control symptoms.

It's not that we're anti-drug, we are ProHealth and pro-careful monitoring of medication use. And reducing it as is clinically appropriate. – So instead of getting into the cycle of like adding the drug and then adding another one to take care of the side effects from that medication, and then another one to take care of the side effects from that medication and expecting people to kind of increase their polypharmacy as they age.

What you're describing is this virtuous cycle where yes, we go in with our why and our motivation to either eliminate the MS or reverse the MS or the dementia.

And what we end up doing is a side effect is optimizing weight, optimizing blood sugar, optimizing blood pressure, and actually getting off a lot of those expensive.

– Producing, simplifying and getting off medication. Because again, I was working at the VA at this time and we had electronic medical record. I was able to give reports to the Chief of Medicine, Chief of Pain in terms of what was happening with our patient cohort in terms of their blood pressures, blood sugars, woman A1Cs, diabetic meds, hypertensive meds, and pain meds.

And, you know, what was how up into their lipids and were able to show that our approach was leading to improvements in weight, improvements in blood pressure, blood sugar, and laboratory values.

And so, and that certainly was the beauty and the wonder of being at the VA was the electronic medical record. That would let us see what was happening to our patients.

– So clearly points to the data that there was this really big impact. And when we put, when we start to think about applying this at a societal scale, right, this changes the numbers in a big way.

We can reduce the cost of spending in healthcare. We can reduce the amount of time that people are spending going to their doctor's offices and interfacing, sitting in lines and waiting and doing labs and all of these things.

So over the course of a lifetime, if we can improve health, we can really, really change how people spend their time and money. – We can have a huge impact.

– Huge impact. – Huge impact. In much of this, I wanna remind everyone. So in the VA system, I could not do fancy functional medicine testing. I could do, you know, some pretty, when I first started doing this, I was doing this in the brain injury clinic where I could see people twice a year and no labs.

So people with traumatic brain injury who were told, well, there's nothing we can do. You're either gonna get better or not. And I came and said, oh, there's a whole lot we can do.

And so I got people fired up to take care of everything that they could do. And you could tell very quickly who I saw and who didn't get to see me, 'cause the people I saw were getting better, that they kept their jobs.

They still had their family and they were thriving. Their headaches were gone, their photophobia was gone, their fatigue was gone. And then in primary care with the residents, I could get a few basic primary care labs.

And I got people inspired to eat these radical things, known as vegetables and to start walking. And my residents saw like they could tell the people, they staffed with me, they were getting better and their blood pressures were getting better.

Their blood sugars were getting better and they were simplifying their drugs. People they staffed with other folks, they were adding more drugs. And then, you know, the VA, the Chief of Medicine called me in and said, okay, we're gonna pull you out of primary care and we're gonna create your own new clinic.

And so now I could decide the way I wanted. And I was able to have a dietician to work with the health psychologist, physical therapist that we could refer to.

And now I could order some labs and I was thrilled because now I could order, you know, really very, very basic primary care kinds of labs, an A1C, a lipid, vitamin D.

I got a homocysteine that was a little bit controversial. I got insulin that was a little bit controversial. And occasionally I might get, you know, zinc level and you know, a B vitamin levels based on exam.

And with those, you know, very simple labs and getting people inspired to work on their diet and walking again, we saw fatigue go down, blood pressures go down, blood sugars go down.

And many of these young men from the Iraq war, Afghanistan war had, you know, developed weight gain, pain and severe erectile dysfunction, loss of libido.

And so, you know, they come back and usually somewhere between months, three and months six, the erectile dysfunction is resolved. And these guys of course are really quite thrilled.

And you part of that, their love life's coming back. No doubt being less irritable, probably made it a whole lot easier to have romantic relations with their spouse.

That would no doubt help. The ladies who were in the clinic.

Clinical Trials, Outcomes, and Medication Reduction

We didn't have as many women as men, but we certainly had some they're thrilled 'cause they're losing weight without being hungry. But when we talk to them, they're admitting that well, as a matter of fact, they are more interested in having a little romance with their partner now in their pelvic pain and severe menstrual cramps have gone away or their severe hot flashes have gone away.

And, but you know, what they're most excited about is that they've lost weight without being hungry. And the men

also lost weight without being hungry, but, and I'm gonna be a little, sex determined roles.

The men are much more interested in performance and the women are much more interested in appearance, but they both had similar effect. They both were losing weight and they were both were having enhanced romantic relationships with their romantic partner.

– Getting more joy and vitality out of life, more connection, right? – More connection, more meaning and probably better hormonal balance. Their cortisol levels is probably down.

They probably had less cortisol still. So the men were probably making more testosterone. And the fact that they're exercising more, they're making more testosterone.

The women probably had less dysfunctional estrogen metabolism. – So you're saying probably no, I hope that with all this success, with this wild success that you're showing that somebody has funded it so that you task this, so that you can so that you can measure it.

– Well, so we have a number of clinical trials going on. We are starting a new clinical trial. That's gonna be looking at the olive oil ketogenic diet, the modified paleo diet and dietary guidelines over two years.

And so I'm just now recruiting for that. So Heather, I should make sure you have the links so you can send people to that. You have to live within 500 miles.

– What is the population? – So it's relapsing remitting MS. And you need to live within 500 miles of Iowa city. We also, we keep writing grants. We have a grant that's under review and hopefully they'll hear the results in the next month to analyze the metabolome of the last study that we just completed, that we have a freezer full of vials.

And we'd like to know what happened to the microbiome? What happened to serum neurofilaments? What happened to a number of biomarkers and how that changed over time?

And so, you know, ever the optimist will get funded and we will be able to investigate that. – Amazing, how exciting. And so the last two time I talked to you, you had very different background.

You actually had little poopy guys. – Oh, my little poops. Yes, that's on the other wall. Some people did not like all my poops in the background, so I flipped it.

And so I've got this wall that does not have the poops, but yes we have lots of poops in the background. – So for me personally, I am missing them today because I think this gut-brain connection is just absolutely critical to understanding health, right?

Not just of the brain, but of the entire body. Right, we've all heard the adage, that health starts in the gut. So just, I mean, the poopy guys are great 'cause they spark that conversation, but I don't wanna miss the opportunity to have it with you.

So would you describe what you've seen clinically? What you've learned from the science about the gut-brain connection? – Well, when we became multicellular billions of years ago, at that moment we brought some of those single cellular organisms into our digestive tract and they've been helping us digest our food, absorb our food through millions and trillions of generations.

We also have come to learn that as the digester food, they speak to our immune cells and make our immune cells more reactive or calm, help us develop tolerance to the food proteins that we are digesting.

And that again, sort of think of it from an evolutionary standpoint when our ancestral mothers would develop spontaneous mutation and could not do a particular enzymatic step, but for microbes could, it's no big deal.

You just exported the genes for that step to the microbes. And so having millions of microbes to fill in the gaps,

we're fine. And so over millions of generations, we trimmed our DNA to only those steps that our microbes couldn't do for us.

If we lack diversity in our microbes, we are going to be lacking some of the metabolic pathways that we need for optimal health.

Gut-Brain Health and Fermented Foods

And we've certainly have seen that the less diverse your microbiome is, the more like you are to have obesity, chronic disease, mental health problems, cancers, and autoimmunity.

– Wow, so you may mentioned that it kind of, as you work through your diet, at some point you're adding fermented foods. What are some of your favorite fermented foods?

– Well, we know that fermented cabbage really rich in lactobacillus, Enterobacter species in that those societies that have a lot of sauerkraut or kimchi have better health overall, less rate of influenza, less rate of COVID hospitalizations, deaths, ICU care.

And so my weekend chores, I'm making sauerkraut and kimchi, usually one or the other every weekend. And I have probably a couple cups or more of sauerkraut or kimchi every day, either on top of my salad, straight into my soups, straight into my casseroles, or just as aside.

And for your listeners, if your family doesn't know how to enjoy sauerkraut or kimchi, what you do is you prepare your evening meal and the transition between the stove top and your dinner plate before you put it on the table for your family, you stir in some sauerkraut or kimchi, it disappears into your casserole.

It disappears into your soup, they'll have no idea. You'll let the food cool a little bit. So you're not killing off your probiotics. And it really adds a lovely, lovely flavor.

You can gradually increase the ferments as your family gets used to it. And again, speak to the benefit of having these probiotic foods for maintaining your gut garden.

– And if you can get everybody to eat kimchi, then you don't have to worry about your breath being the only stinky breath. – Well, if you stir into your casserole on your soup, it will be very mild.

– And then what about miso? And kombuchas are very popular. – Okay, so kombucha are some of the hazards, if you make your own kombucha, or if you get commercial kombucha, read how much sugar there is.

So commercial kombucha has way too much added sugar, so you'll need to let it ferment further down. I think (indistinct) has less sugar. So my preference is for the (indistinct) and what was the other?

– Miso like the fermented? – So if you're looking for miso, be sure to read the ingredients, some miso is made from wheat and barley. So for me, that would be disastrous that would trigger my face pain.

But miso made from soybean. Again, will depend you have a intolerance to soybeans. So read the ingredients to be sure that you are tolerating that miso or tempeh.

Another fermented food, Natto, which I've just discovered. And I've started making a great source of vitamin K2. It's a Japanese health food. So I'll mix Natto again in with sauerkraut and some olive oil.

And that's become really very delicious snack for me. – And then yogurt? A lot of my patients will say, I ask are you taking a probiotic? Or do you get fermented foods?

Oh yeah, I have yogurt every day, dairy. – So, again for yogurt, you wanna be sure that you're reading the ingredient label. So you know what all of the ingredients are and then you have to sort out are you tolerance to

dairy?

And there are reasons that I personally avoid dairy. You can get yogurts and kefirs from plant or nut-based, milks or coconut milk as another option. – Yeah, wonderful.

What great options, it's making me hungry to have this conversation with you. Dr. Wahls, I could not be more grateful for your time. This is just an incredible opportunity for all of us to learn from, you know, your wisdom and experience.

It's both going through this personally and then having dedicated your career to helping people understand the science and how this can really be amplified by getting more people access to the medicine that you provide.

I am just so, so grateful again, that you have shown up on our summit, the Reverse Alzheimer's Summit. Let everyone know where they can find out more about your clinical trials as well as your clinical practice.

– So if you go to terrywahls.com, TERRY WAHLS, wahls.com, I will have a lot of information there. Follow me on Instagram at Dr. Terry Wahls, Dr. Terry Wahls.

Follow me on Facebook at Terry Wahls and Twitter at Terry Wahls. And then if you search for the Wahls Lab, you'll get access to our various papers. And you'll hear about the various studies that we have, and I will send you the links so people could screen for our research studies as well.

– Fantastic, we'll make sure those are on the show notes. Thank you again, it's been an absolute pleasure. (bright upbeat music)