Introduction and Speaker Background

Welcome back to the Reverse Alzheimer's Summit. I'm your host, doctor Heather Sanderson, and I'm absolutely thrilled to be joined by Doctor Terry Wells 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 Medicine's Linus Pauling Award for her contributions in research, clinical care, and patient advocacy.

She is the author of The Walls Protocol A Radical New Way to Treat All Chronic Autoimmune Conditions Using Paleo principles, and the cookbook The Walls Protocol cooking for life.

Pick one. Pick up a one page handout for the walls diet at Terry walls.com/diet. Doctor Wells 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 way back in 2000. My neurologist said, you know, Teri, 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, in that somewhere between 40 and 70% of those diagnosed with multiple sclerosis, experienced cognitive decline.

In the vast majority, we will end up, losing gainful employment within ten 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. That's also just the anatomy, right? Both multiple sclerosis and dementia are neurodegenerative disorders.

MS and Dementia: Shared Neurodegeneration

We might put them in, you know, 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 an hit of, gadolinium enhancing lesions, and they may slow the decline of brain atrophy, but they don't prevent it.

And they may slow the decline of, of, early onset disability, but they don't prevent it. This is so fascinating because the story is 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 in to the cells astrocytes. Microglia neurons. Oligodendrocytes. Yeah. What are the roles of these. Well, one of the things that I focused on before I was really tuned into astrocytes and microglia or the microbiome,

was when I, thought, well, I should focus on creating health.

I should focus on what does science tell me are the scientifically validated ways that can improve health? 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. I 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 already been doing the paleo diet for many, many years, which was really focus on what not to eat.

But then when I had this big, Like, you know, all these things, I'm taking a supplement form for my mitochondria. Where, 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.

I 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 and of three cups of leafy greens.

Your three cups of of. And please jump in, because 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 your carrots and beets and, all of the mushrooms.

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

And then I have three cups of the suffrage 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 a meat eater, the benefits of, eating, organ meats, 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, ketogenic eating.

Diet, Vegetables, and Ketogenic Strategies

Are we doing a, medium chain triglyceride, which is handy because you get to eat more carbs? Or are you going to do an olive oil based ketogenic diet?

Which I've become much more, impressed with lately. So tell us why. Well, medium chain triglycerides and coconut oil can cause a elevation of triglycerides.

I can cause an elevation of LDL cholesterol. Total cholesterol. And, I think, that is, deleterious. I don't you know, I have ketogenic eaters who think they're fine with clusters of 303 50.

And I don't think they're fine. I would much rather they do a, you know, go on a ketogenic diet. If that's speaks to you, check your lipids. And if you're 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 fat 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 going to, have a lower carb diet.

Well, so there are different ways to individualize the ketogenic diet. I'm sure you saw this study, a feasibility trial, small nine person feasibility trial out of, Florida that showed that in just six weeks.

The majority of, well, with the 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 that a ketogenic diet is really good for the brain. And getting into that can be a little scary for people.

Yeah. You know, if part of that is as our our brains age, it 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, more of a chronic 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 want if you're going to want 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, you in ketosis, primarily through physical activity.

So our, 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 trek, you used up all of your glycogen. So you were in ketosis, in part because maybe you weren't eating a whole lot during that time, but mostly because of, the physical activity.

And so we, we would fluctuate between a being in ketosis, and then we have the receipt, higher in meat. A lot of, green vegetables, plants, maybe some roots, a fair amount of dirt, I might add.

And then when food was scarce, we're back out on the hunt again. And so the concept of the high fat ketogenic diet is only about 100 years old, but humans have been on a ketogenic diet through exercise, probably for thousands.

In tens of thousands of generations. And it it was relatively recently when we became farmers that we started having a much higher carb diet. And then we'll get into the, industrial 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 deleterious, diet and lifestyle pattern.

And so what does this do to our cells? Well, it it accelerates aging. We don't have as much autophagy, where our cells will clear the misfolded proteins.

And, that leads to, shortened telomeres, more rapid aging of the cells. And, we have a much shorter health span where we have the onset of, high blood pressure, obesity, metabolic syndrome at early an earlier age.

So what 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, that accelerates aging, accelerates metabolic syndrome.

And, and, 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, the, it's sort of interesting, the neurons, which is, you know, the, the thinking part of the brain that communicates, down through the access to the next neuron and so forth, to our sensory organs and

to our muscles is 10% of the brain, 90%.

The other 90% are the glial cells. So the micro-grid also 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 subtypes. And 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 synapses begin dissolving the algo dendro sites, 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 reparative.

And, you know, there's certainly a whole lot of interest in drug development to say, like, okay, can we devise drugs that will shift these, microglia?

To a more pro reparative 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, one phase, the reactive of, hyper inflammatory, neurotoxic phase or the M two phase, which is the more pro reparative, phase.

The challenge is that which is excessively high, whether it's M1, neurotoxic or M2, no reparative depends on which phase of the disease you are in. And if you shift, away from M1, M2, one of the consequences if you're in the M2 phase, you're making more Verdu.

If you're making more, blood vessels. So if you're worried about the risk, macular degeneration, I've just increased the risk of macular degeneration, in 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. I've added more blood vessels.

And also, when you're in the M2 phase, you can't clear debris as well.

Lifestyle, Toxicity, and Glial Cell Function

Well, if I'm not clearing debris and pathogens as well, now, those latent infections that I have in my brain, herpes virus, lime plummet off or strep, you know, we used to think the brain was was sterile.

Now we know that when I can do these RNA DNA probes, my brain's not sterile, but my immune cells, me and my microglia and the amyloid are keep everything under 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.

Activating latent infections. What I do predict will be, effective is getting our lifestyles to be better aligned with our evolutionary history. Physical activity, of sleep, diverse diets, with 200 plant species, with meditation, with meaningful relationship, the kinds of things that I've been talking about now for over a 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 MSA and for anyone who wants to have that

healthy aging for their brain or wants to have, decreased risk 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. But do you have tips for anyone about how to how to kind of approach that somewhat overwhelming or daunting task of shifting your diet, shifting your daily routine so that you are great and exercise well, the the very first step that it this goes back to my work with, veterans in the Therapeutic Lifestyle Clinic.

Was, that we would you would have this big intake, and then we'd have group visits. And one of the things that we would have, were group visits where we would do skill building, skill building, class, and this skills class, that was the most, treasured by our vets.

And they taught me was actually the most important was what is your why? We're going to 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, realize 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 without hesitation, without question, because who you love is, is at risk?

And, once we identify that and we identify what they would 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. And then we work on strategies. How to make that?

Are vegetables taste really quite delicious? How to create foods that are wonderful. And how 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 have or learned how to cook.

They never learned how to meal plan, how to shop, how to plan for leftovers so that when they're not throwing food away. So we would have cooking classes, would have meal planning classes, would have shopping classes, would have classes on how to book, prepare your food.

So you cook one one meal and either freeze it or can it. So now you have meals that will take me just five minutes to warm up. So we want to 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 want to do this work? And do you find that some people decide this isn't for me?

You know, I make it very, very easy for people to say, no, this is too hard. I don't want to do it. And so the way to come see me at the VA was you could, get a consults, from your, primary care doc, your specialty, specialist, you'd come to a big group class, kept having to get larger and larger rooms to have my, initial, counsel with everyone, tell my story.

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

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

Or you could say it's too hard, but I'd like to work on my diet, sort of. And we'll give you a cancel to the dietitian. Or

you could say, I'm not ready to diet, but I would like to learn a stress reduction mindfulness meditation technique would say to our health psychologist, or you could say, what really speaks to me is an exercise program, 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 to 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 want to be all in. We've got this group plan. It's a great time if you want to just sort of start a little bit, you could work one on one with my dietitian or their health psychologist with their 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 and when because if people aren't committed, it's a waste of my time. And their time. Yeah, 100%.

Motivation, Behavior Change, and Patient Choice

Tell us a bit about your personal share your personal story. Well, Oh. Well, we'll 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, says Terry. This could be bad or really, really bad. So at night, in bed next to Jacqui, I'm thinking about really, really bad.

And I'm thinking about the 20 years of worsening face pain, electrical 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 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 to take even more aggressive drugs. No vintage veteran chemotherapy than tysabri. I continue to go down. Can't go downhill.

My trigeminal neuralgia is relentlessly worse. But now I know how terrible it is. So I decide I'm going to go back, start reading the basic science, develop theories that mitochondria are involved.

I started on supplements. I slow my decline, I discover electrical stimulation muscles. I get my physical therapist. Let me try. That hurts like hell.

But when it's over, I feel great. So I go to clinic three times a week, I do ECM. Nice says it'll get me a homegoing device. I start adding ECM to my, physical therapy.

And mind you, I can only do about ten minutes of exercise. Because I'm so weak, I cannot sit up in a regular chair. I begin 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 Bedouin demented and the trigeminal neuralgia turned permanently on so that a breeze talking, swallowing triggers the vegetable pain.

And that is when I had this big, a half, and I should say I had already been a paleo eater for five years. Doing the I diet. And I'd been, you know, declining the supplements maybe slowed my decline.

But it was that fall, I had this big. Like, what if I redesigned 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.

I go back to meditation and, December 26th, I start this new way of eating, which originally was just a list of foods that I was stressing. By the way, and at the end of the next month of January, my brain fog is lost.

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

Mind you, little weights. In March, I am walking with a cane originally to walking 610 with one, and then in May. With my, I asked my my wife Jackie said, you know, you know, could I try biking because, well, you know, maybe in the fall things keep going.

Well, well, you know, week later, we have an emergency family meeting because I'm determined. I'm going to I'm going to try riding my bike. And my son says, tells my son Zach to jog along side in the left.

My daughter is herb will jog alongside in the right. Jack will follow and I bike around the block. My kids are crying. Jackie's crying. I'm crying. Yeah, and three months later I bike 18.5 miles with my family.

And of course, we're all crying to get, you know, and this really transforms how I think about disease and how 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 was 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 hurt anyone in our the trends in the right direction? Because 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 stem. The biggest side effect was if you're overweight, you lost weight, get back into a healthy weight.

And I had to do report safety reports every three months because 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 in fatigue severity is point 4 or 5. It went down 2.38. So P-value 0.0005.

And the Short Form 36. So everyone listening, this means it's very, very, very significant even in a very small sample size. So we're demonstrating whereas 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 in we measured, quality of life, the clinical significance there.

You have to get to a five point scale.

Personal MS Journey and Recovery

And we were able to show, 14 and 17 point improvement. So, you know, again, p value of 0.0005. We, 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 M. S you anticipate a 10 to 20% worsening every year. So the fact that the group stayed flat, that's stunning. And that have had clinically meaningful improvement.

Remarkable. We had one lady who went from cane short distances, Walker long distances, who was 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.

It's sort of like a I'm at a revival meeting, you know, because these ladies, well, yeah. So I give my presentation, invite people to the next study. And these folks stand up and say I was in doctor was first study.

And let me tell you this, this stuff really works. And if I quit doing the things 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 got back on her program. It, you know, without it I'd be in a nursing home now. So, we have restored hope and lives to millions of, 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 a mess. This is the progressive mess that you're talking about. And so this you are, you know, somewhat casually reversing an irreversible disease.

And with the reticent 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 Doctor Bettis and the first survivors of Alzheimer's who can describe these stories. And what's incredible about this is that what you're intervention is so similar to his.

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

We're focused on Healthspan, and what we discovered in the Third Life cell clinic at the VA is that by focusing on health and, you know, telling my referral physicians, I'm not going to 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 and say, look, the blood sugars are too low. You got it. You got to back off on all that.

And so they don't need it anymore. And probably the blood pressure as well. Right. And blood pressure. I know that, yeah. And then if I was telling my folks it's.

So if you're getting lightheaded, cut back on your on your, blood pressure meds. If your sugars are getting low, you got to cut back on your, diabetic meds and then call your 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 pro health and pro careful monitoring of medication use and reducing it as is clinically appropriate. So instead of getting into this cycle of like adding a 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, this is a virtuous cycle where, yes, we go in with our why and our motivation to either eliminate the M. S.

or reverse the M. S. or the dementia. And what we end up doing as a side effect is optimizing weight, optimizing blood sugar, optimizing blood pressure, and actually getting off a lot of those expensive, reducing, 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, their, blood pressures, blood sugars.

Woman one says diabetic meds, hypertensive meds and pain meds, and knew what was happening to their lipids and were able to show that our approach was leading to improvements in weight improvements of blood pressure, blood sugar and laboratory values.

Yeah. So, and that was the, the beauty in the wonder of being at the VA was, that 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 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 health care.

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 remind everyone. So in the VA system, I could not do, fancy functional medicine testing. I could do some pretty basic. When I first started doing this, I was doing this in the track Braintree Clinic, where I could see people twice a year in no labs.

So people with traumatic brain injury who were told, well, there's something we can do. You're either going to 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, that they could do. And you could tell very quickly who I saw and who didn't get to see me, because 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 phobia was gone, their fatigue was gone. And then in primary care, 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. The 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 V. A., the chief of medicine called me in and said, okay, we're going to pull you out of primary care, and we're going to create your your new clinic.

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

And now I could order some labs. And I was thrilled because now I could order really very, very basic primary care kinds of labs, and they wouldn't see 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, and, 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, 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, they helped weight gain, pain,

and, severe erectile dysfunction, loss of libido.

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

And you're part of that. Their love lives 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.

Clinical Trials and Measuring Outcomes

The ladies, who were in the clinic, we didn't have as many women as men, but we certainly had some, they're thrilled because they're losing weight without being hungry.

But when you talk to them, they're admitting that while it's matter of fact, they're 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, with their 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 going to be a little, some sex, sex determined roles. The men are much more interested in performance, and the women are much more interested in appearance.

But they both had a 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.

We're connection. Right? We're connection more meaning, and, probably better hormonal balance. Their cortisol levels probably down. They probably had less cortisol still.

So, the men were probably making more testosterone. The fact that they're exercising more, they're making more testosterone. The woman probably had less, dysfunctional estrogen metabolism.

So. Yeah. 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 can test this so that you can measure well.

So, so we have a number of clinical trials going on. We are starting a new clinical trial, that's going to 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 link so you can send, people to that. Because you have to live within 500 miles Asian.

What's 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 I hope they'll, hear the results, in the next month, to analyze the metabolome, the last study that we just completed, that we have a freezer full of, files.

So we'd like to know what happened to the microbiome. What happened to serum? No filaments. What happened to, a number of biomarkers and how that changed over time.

And so, you know, ever the optimist, we'll get funded, and we will be able to investigate that. Amazing how exciting. And so, so the last time I talk to you, you have very different, backgrounds.

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

And so we've got this wall that does not have the poops, but 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? Because, not just of the brain, but of the entire body. Brain. We've all heard the adage that health starts in the gut. So, just I mean, it's the poopy guys are great because they sparked that conversation, but I don't want to 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 multi-cellular 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 the, as they digest our 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 a, spontaneous mutation and could not do a particular enzymatic stuff, 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, refined. And so over millions of generations, we trimmed our DNA, to only those steps that our microbes can do for us.

Gut-Brain Connection and Fermented Foods

If we lack diversity in our microbes, we are going to be lacking some of the metabolic pathways that we need for optimal health. And we've certainly have seen that the, less diverse your microbiome is, the more likely you are to have obesity, chronic disease, mental health problems, cancers and autoimmunity.

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

Well, we know that fermented cabbage, really rich in Lactobacillus, Bifidobacterium, 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 stirred into my soup, stirred into my casseroles, or just as a side, 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 in the transition between the stovetop 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, disappears into your soup.

They'll have no idea. You let the food cool little bits. 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 it into your, castle in your soup, it will be very mild. So. And then what about me? So. And,

kombucha is are very popular. Okay. So kombucha, some of the hazards were 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 ferment further down. I think beat kvass has less sugar. So, my preference, is for the beat class.

And what was the other me? So, like the fermented milk, if you. 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. Miso made from, soybean. Again, all depend. Do you have an 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 discovered and I started making, 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 want to be sure that you're reading the ingredient label.

As you know what all of the ingredients are? And then you have to sort out, are you, tolerant to dairy? And there are reasons that I personally avoid dairy.

You can get yogurts and kiefer's from, plant or nut based milks or coconut milk as another option. Yeah, I don't never what great options. It's making me hungry to have this conversation with you.

Doctor Wells, 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, both going through this personally and then having dedicated your your career to letting people and 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 Tara walls.com t e r y st hls.com, we'll have a lot of information there. Follow me on Instagram at Doctor Tara walls. Dr.. Artery walls.

Follow me on Facebook. Tara walls. And Twitter at her walls. And then you if you search for the walls lab, you will 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 research studies as well. Fantastic. We'll make sure those are all in the show notes. Thank you again.

It's been an absolute pleasure. To.