

Hey everybody. Well, today I'm interviewing Martha Carlin. Now, Martha is the author of a book called Connected: Love Loss and the Unseen Forces Behind Chronic Disease. She is an entrepreneur, a microbiome researcher, Parkinson's disease advocate, and a systems thinking health educator. Her work bridges citizen science, clinical research, agricultural research.

And emerging biophysical models of human health. She's collaborated with leading researchers in microbiology, physics, and medicine to explore conditions such as Parkinson's disease and metabolic disorders. She's been published in peer-reviewed journals and is recognized as an expert on the glycocalyx, which is the protective layer on cell surfaces that plays a critical role in gut health and chronic disease.

Her journey into microbiome science began after her husband, John, was diagnosed with Parkinson's at 44. And she has been investigating the link between Parkinson's and gut health, inflammation, and neurodegeneration for 24 years. And so she has been involved in clinical trials, scientific research, all kinds of stuff. And she

Has a new book called Connected. So we're gonna get into all that. I'm excited about it because she and I had a call just sort of to get to know each other and just talked about a lot of really interesting stuff related to the microbiome and bacteria and drivers of disease and cancer and all kinds of stuff. So Martha, good to see you. Thanks for taking the time to do this.

Martha Carlin (01:55.882)

Nice to be with you today, Chris.

Chris Wark (01:59.071)

So I guess we should start as I said in your bio, we should start with your husband's Parkinson's diagnosis 'cause that seemed like that was a critical part of your, you know, sort of a critical juncture in your life and career and work, research and all that kind of stuff.

Martha Carlin (02:17.504)

It definitely was. So back in 2002, I was just forty and John was forty-four. We had two small children and I had a older child from another marriage. And John looked healthy on the outside. he was a marathon runner. It just but he had a little tremor in his pinky and a tremor in his tongue. And

I that year, Michael J. Fox's book came out, Lucky Man. And I read that book, and there were just these little clues in there. And so I ended up convincing John to go to the doctor, who also didn't pick up on it initially. And then when we went back to just get his results on all his blood work and everything. And I mentioned to the doctor, I said, Well, what about the tremor and you know the loss of his facial expression? And as soon as I said that,

I could see that the doctor understood that, you know, it was probably more complex and he

sent us to a neurologist. But I that's something too, I realize looking back is that most of the time when somebody goes to the doctor, especially if somebody else has told them to go, they don't remember to tell the doctor a lot of the things. And you know, a doctor only sees you about 10 or 15 minutes once a year.

Maybe so they're not gonna recognize changes like that. But so my background had

Chris Wark (03:47.977)

And there and I should say there are like there are keywords, right? There are keywords or like trigger words that if a doctor hears them, they'll think, this might be Parkinson's, right? Or whatever, name the condition. And if and if they don't hear those trigger words, it you know, they may not make the connection. And then you you know, then you get passed around and it can take forever to get a diagnosis.

Martha Carlin (04:12.3)

Yes. But he did so he sent us to a neurologist, but the one he recommended was not available for like six months. That's another problem, you know, getting into doctors. I mean, that was twenty five twenty four years ago, but it's even worse now. and so we went to see a different one in the same practice and he really didn't have a very good bedside manner, but he just watched John walk down the hall and he knew when he

sat down in the room with us and he knew that I knew. and there's John used to joke about it calling me an arm swinger because people with Parkinson's, that's one of the things it's often an early sign that people don't realize. If your arms aren't swinging when you're walking, that can be an early sign of Parkinson's. And that was one of the things that the neurologist saw and

Of course, my background had been in business turnarounds and operations. And I looked at it and I was like, this seems like a systems problem to me. And I was trained as an auditor coming out of school. Never take anything at face value. Examine the evidence for yourself. And so that's what I started to do was go down this rabbit hole of trying to figure out what could make a young person have an old person's disease. And, you know, one of the

main things I looked at for the first 12 years was the food and what is what had happened to our food and all the chemicals used on it, because John had been drinking a soy protein shake every day for two years that he was getting from our neighbor who was in some kind of multi-level marketing. And so I went deep down the rabbit hole of soy and realized way back then that all the soy had been

genetically engineered and that it was designed so that it could take more herbicide and not die. And so then I started looking at the connection with glyphosate. And I like I'm not saying that that soy was the primary cause of his Parkinson's, but I do think it was a contributor. I think it was definitely a contributor.

Chris Wark (06:25.271)

Well, that's it's interesting that you bring that up too, because one is it's like some of the smartest researchers that I've ever talked to were people that were not in the medical field, like yourself, that had but that that had been trained over many years in investigation, right? They're critical thinkers, they're highly analytical, they're used to like really looking, like you said, looking at systems and investigating processes and like

you know, sort of cause and effect, right? Relationships, like like you're analyzing businesses and how they make money, where's the money being spent? Where's it going? You know, all this kind of stuff. And so, you know, a doctors aren't really trained to think that way. They're just trained to sort of rote memorize like this, you know, this condition equals this disease. And for this disease, we have this treatment. Memorize that. And that's how you get through med school.

Right. So they're not really they're not really taught or you know, disciplined in how to solve disease problems. They're just taught how to treat disease problems. And so there's very few doctors coming out thinking about I'm gonna solve, you know, I'm gonna get to the root cause of this disease and solve it and figure it out. They're just like, well, I was trained how to treat it. So now I'm gonna just gonna start treating people. But anyway, that's a rabbit trail. But I just was thinking of that as you were talking, and it's so important.

It's just such an important distinction in how I think the lay person and doctors really should be thinking about disease because every disease has an origin. There are causes. And if we're not investigating causes, we will never solve disease problems. one other thing you said about soy too is like, you know, soy is heavily sprayed. If it's not organic, it's heavily sprayed. Glyphosate is a major

major, major pollutant. It's, you know, 90% of crops are sprayed with it. I mean, it's it's wild. It's wild how much glyphosate is used. and it's ubiquitous and it's an antibiotic. And so it's destroying our gut bacteria. And we know there's a connection between gut bacteria and and neurodegenerative disease, which I know you're going to get into. But all that to say, I love soy, but we eat organic soy and we do not

Chris Wark (08:50.027)

consume isolated soy protein because I think it is any isolated proteins I think are problematic for other health reasons. But anyway, so you start making these connections, right?

Martha Carlin (09:03.406)

Yeah. Yeah. So I I mean I I spent twelve years looking at the food and different pieces of the food and genetic engineering. So looking at deeply genetic engineering and trying to understand what they were doing to our food. in that process. And early on I asked some questions. I was like, Well, you know, can't those genes like

Chris Wark (09:14.431)

Mm.

Martha Carlin (09:30.24)

transfer over into us if we're eating the food. And you know, back in 2004, they were like, there's no such thing as horizontal gene transfer. And even back then, they knew that that was definitely the case. A woman named Barbara McClintock had done a bunch of research on that and shown. And the bacteria is really how that transfers. And you know, we are all connected through the web of the microbes in the food supply.

Chris Wark (09:48.705)

Yeah.

Martha Carlin (09:58.794)

in the you know, in and on the plants, in and on the animals, and in and on ourselves. It's you know, it's this information superhighway of sharing information.

Chris Wark (10:12.435)

Yeah. And so the more, the more we sort of monkey with the natural order of things, especially w with antibiotics, where we're destroying whether you're taking them as a prescription or you're just consuming them because every preservative used in processed food is an antibiotic, right? That's how they keep foods shelf stable. I remember when I first learned that, it kind of blew my mind. I was like, my gosh.

This is what food preservatives are. They're they they keep food from rotting. They keep bacteria from breaking down food. Well, that seems like a good idea if you want your cornflakes to last for five years on the shelf. But when you are eating that food, you're eating these antibiotics and they are killing good and bad bacteria. Some people would argue there's no such thing as good or bad, but the point is they are killing bacteria that that is.

highly beneficial and it and so like what are some of the bacteria that you discovered linking to Par Parkinson's where where have you, you know, what were the big revelations that you had?

Martha Carlin (11:21.848)

Well, let me back up just for a second because I think a lot of people d also don't realize that we're more more microbial than we are human. So in terms of cells, it's about two microbial cells to every one cell, but in terms of genes, it is anywhere in the neighborhood of a hundred to three hundred times more genes in the gut microbiome than in the human genome. So a lot of these functions that

We

Initially, sometimes people will attribute to a gene mutation, and I'll say, like, you know, folate

metabolism. you know, the B vitamins are made in the gut by bacteria. And so alteration of those gut bacteria or loss of those gut bacteria through the use of antibiotics is going to disrupt all of that. And maybe that's your first line before your human genome. So that's one of the ways I like to think about it.

But in the in the first paper that came out, which is really what so John had had Parkinson's for twelve years at that point. And there was a paper that showed they could divide the two different types of Parkinson's by the specific gut bacteria. So people who had tremor dominance versus posture and gait had a a slightly different profile. And in that one, they identified

a bacteria called Prevotella, which I don't hear as much about now. and that that was a study done in Finland. Now there's about twenty five hundred different studies. Another one done in Finland that came out with a pretty strong headline saying that a a bacteria called desulfovibrio, which is a hydrogen sulfide producer, like, you know, and that's a gas that'll kill you.

Martha Carlin (13:19.819)

it was the cause of Parkinson's. What I would say is, you know, it's complex. We're dealing with a complex ecosystem. And so I don't see it as one specific organism, but E. coli, there's also quite a bit of research around E. coli and one of the proteins it makes. but also its cell wall is made of something called lipopolysaccharide or endotoxin.

And that is a highly inflammatory. So when those bacteria grow and die off, their cell walls come apart. And that piece of the cell wall that's called the LPS is very inflammatory. There's they use it in animal models and Parkinson's to initiate the disease. They use it in autism. They use it in depression. So, you know, it it goes, it causes inflammation wherever your weak, weak spots in the

Body are. So in Parkinson's, if that's the brain, you're going to have more neuroinflammation. So I I think that's another key piece of the puzzle. Also, loss of some of your butyrate-producing bacteria. So those are the that's a short chain fatty acid that feeds the cells that line your gut. So if you lose the organisms that are able to produce butyrate, then you're not.

feeding those cells and you don't have a healthy gut lining. And even that goes back to my husband's marathon running. So I've been talking a lot more recently about this, and I talk about it in my book, that endurance athletics, something like marathons or iron man, where you're, you know, doing this pounding motion, the blood moves away from the gut and out into the muscles, but when it comes back in, it

reperfuses the gut and you get blood vessel injury and leaky gut. And there's a I mean, a lot of runners get this sort of the next day, they feel terrible. And that's the inflammation coming from the leaky gut and the crossover into the blood, into the bloodstream. And so I think that was also a contributor and the fact that, you know, when you're running

Martha Carlin (15:44.111)

endurance events like that, people are often like eating high fructose corn syrup type goose and big energy boosters that are also feeding a bad profile of gut bacteria.

Chris Wark (16:01.505)

Well, there's a recent study that just came out. I read it a couple of weeks ago, that marathon runners have a higher risk of colorectal cancer, which plays right into what you're talking about. This is the contribution and it's a bit of a head scratcher. You're like, really, what is the deal going on here? But you sort of explained it. It's there's there are contributing factors to gut dysbiosis that is happening.

in an extreme athlete's body. and there may be other factors that we don't even understand yet, but it's leading to inflammation in the colon and bacterial population, and let's say suboptimal bacterial population that's inflammatory, and then leading to lesions and possible tumors. So yeah, that that to me is so fascinating. And you mentioned butyrate and I want to just make sure everybody

You know, without I wanna try to keep it practical because we can get real nerdy, right? But the good bacteria, right, in your gut, like bifido and lacto, are bacteria that love fiber. They love starch and they love fiber. And so the way that we feed those and encourage a healthy population of those bacteria is by eating a lot of whole plant food, a lot of

Plant fiber and starch, resistant starch, and you get that from all kinds of fruits and vegetables. And potatoes are a wonderful source. And you know, a lot of the starches that are demonized because they're, you know, carbs, right? are feed good bacteria. And when a person eats a diet that's, let's say, carnivore or keto or very low carb, they are at risk. And this is not just me speculating. They're

at risk and it is proven that they will lose strains of bacteria, beneficial strains of bacteria permanently. There's the only way to get them back is with a fecal transplant. So I mean I think the big message is like we've got some really important bacteria we need to protect.

Martha Carlin (18:17.367)

Yes. And I I was looking at a keto discussion today, actually you know, was questioning some of the research showing the benefits of keto. Now I think I understand what happens. People have inflammation in their gut and when they move to a keto diet, it stops feeding both the good and the bad bacteria. So it can have

a temporary benefit, but what happens often is people will stay on it for a long time. They don't do a movement back into a broader dietary profile. And I was looking at there's a doctor that sometimes shares information with me to look at gut stuff and was looking at one of his patients who had been on keto for or

super low carb for about two years and they were doing great for a while and then they started having all these issues and he did another microbiome test. And when I look at it, it looked very much like a Parkinson's gut profile to me. I mean there were, you know, higher proteobacteria, the loss of the, you know, the fiber loving microbes that produce all the goodies that we need.

Chris Wark (19:42.005)

Yeah, that's very concerning. and do do you think that or I'd say w what role do you think alcohol plays in into this conversation?

Martha Carlin (19:57.037)

Well, you know, alcohol also kills good bacteria. So I mean, we put alcohol on our hands too. John did quit drinking anything for the last I'll say probably the last dozen years, you know, but he liked to drink beer as much as anybody. And you I had drawn out a map of sort of his life profile. And of course in college he was in a fraternity and you know, there's

plenty of alcohol there. so I I think it it is a contributor. And there are some metabolic pathways that we see sometimes that are elevated that can be connected to alcohol consumption.

Chris Wark (20:41.131)

This is a particular interest to me. I should have said it on at the outset of the interview, but my father was diagnosed with Parkinson's. Well, let me back up. That's not true. He was not diagnosed with Parkinson's because he would never go to the doctor. But he had Parkinson's. He had all the symptoms. It was like there was no doubt in my mind or my mom's mind, you know, anyone that was familiar with Parkinson's that interacted with my father, it was clearly that he had it, but

sadly, he was very stubborn and also in denial. so he was very hard to help. But obviously, because he had it, you know, I am sensitized to that and want to make sure that I am doing everything I can to protect myself because I saw how debilitating it was. And and his quality of life was was really, really low, you know, the last few years. I mean, he just

Because Parkinson's depletes your dopamine. And when you have no dopamine, I mean you you have no joy. You know, it's it you're just in this sort of my dad, he was just sort of in this, I hate to use the word stupor. That's not really the right word. But he was just in this sort of drained, almost emotionless state where, you know.

Martha Carlin (22:04.269)

Yes.

Chris Wark (22:06.507)

Yeah, I could talk to him. It was fine. Yeah. But very low energy. And it's very hard to get him to smile or laugh. And it was almost like it was an effort for him to smile or laugh. And so anyway, and I wish I had known some of these things that I've learned since then at the time when he

was really struggling, because I think

Martha Carlin (22:06.945)

Low energy. Yeah.

Chris Wark (22:30.901)

Well, there was another issue too, which was I was trying to help him and he I couldn't even get him to take vitamin D. So he was he became very stubborn and like wouldn't take a supplement, wouldn't it like didn't want to do anything. And I think he had sort of just decided that he was ready to to pass on, you know, and and that's fine. You know, it's like I don't want to drag him along and force him to to try to get healthy when he is it's it was sort of reserved that he was at the end of his life. And he died at eighty three or almost eighty three. So, you know, he he had a great life, but

Anyway, all that to say, what have you learned for someone that I've you know, it wouldn't hurt to touch on some of the Parkinson's symptoms. You mentioning the arms, you know, the sort of this lack of swinging arms, but early symptoms and Parkinson's. And then I'd love to know what you've learned, you know, what you would do differently now if your husband was alive today and he was just diagnosed and knowing what you know, like what would your like, you know, first line approach be?

Martha Carlin (23:31.531)

Well, knowing what I know now and how important the gut is, so you know, we had twelve years of I was focused on the food and food quality, but I still traveled about fifty percent of the time for my job. And John was not a cook. So, you know, he was still if I was out of town, he was still, you know, opening up a package of spaghetti and you know, putting tomato sauce on it.

And so he was still eating a lot of things that very likely had a lot of glyphosate on them. So I I either would have hired a chef or done something a little bit different to accommodate the diet. But if we had had the information about the microbiome, I mean I we looked into a fecal transplant at one point. You know, I

I think that's a very promising area. There are two studies, one from the top down out of Belgium and one from the bottom up out of Finland. And the one from the top down was much more successful. And I think that's because there is disruption in the upper GI tract. So it's like small intestinal bacterial overgrowth. And there are

Chris Wark (24:52.279)

Sure.

Chris Wark (24:57.727)

Mm-hmm.

Martha Carlin (24:58.627)

Certain species of bacteria like *H. pylori* that eat dopamine. And that was only discovered maybe seven or eight years ago. So, you know, if you have that, and many people do, then if you're taking dopamine medicine, you're feeding more of the bacteria that's a problem. And in our Parkinson's paper that we published about a month and a half ago, part of what we talk about in there is the

the battle between the good and bad bacteria in the gut and these bacteria that are what are called urease producers. And they kill the good bacteria. Well, *H. pylori* is one of those. It produces an enzyme called urease. It kills the good bacteria and then they spill out potassium and calcium into the gut and that disrupts this lining called the glycocalyx and it disrupts signal propagation.

So the ability to get the signal for peristalsis in the gut, I think I would have I would have asked yeah. So in a chronic constipation can be a symptom 10 or 15 years before a Parkinson's diagnosis. And so you have that waste sitting in there and the body's having to deal with it and recycle. And I don't think I asked enough questions.

Chris Wark (26:05.813)

Which leads to comp constipation.

Martha Carlin (26:26.549)

about John's regularity, but I also think going back to his childhood, he was even constipated as a child. His mother gave him stuffed animals to go to the bathroom. And so then you get sort of conditioned to think, well, this is normal. This is what it's supposed to be like. And it's really not supposed to be like that. And when I founded the biocollective and we started collecting people's stool samples in a box,

Our lab basically found that they could tell if somebody had Parkinson's just by looking at their stool sample because it was like the consistency of concrete. And I don't think GI doctors understand that. I don't, you know, Parkinson's isn't really asking about that. And if they do, they're telling them to take Miralax. So I would have addressed the constipation in

more holistic ways that I have learned over time, whether that's, you know, using something as simple as salt water in the morning or like warm salt water in the morning, or, you know, things like periodically doing something like castor oil. I mean, you don't want to get in a situation where you're constantly using laxatives, but you also don't want waste sitting in the body long term. So I think those pieces of the puzzle connecting that.

But there's also an I write about this in the book. A most of the people I did a docuseries of interviews with 35 people with Parkinson's that we're bringing out. And what we found in talking to people is there was often a very traumatic event or a loss or even a lifetime of trauma that preceded the diagnosis and that there were trapped emotions in the body.

And I think this is a really underappreciated piece of the puzzle because also, you know, when we're stressed or you know, we're not dealing with an emotion, we're often holding tight. And that's what contributes to that rigidity and the constipation and all of those pieces. So we didn't really see that until the last several years of Johns Parkinson's.

Martha Carlin (28:49.353)

And that was when I was doing the docuseries. And at that point, I mean, I I wouldn't say it was too late, but you know, we could have had so much more impact by dealing with some of the emotional stressors much early on much earlier on.

Chris Wark (29:07.681)

So in terms of you know, specific nutrition, specific diet, supplementation, things like that, are there are there any things that really stand out that you feel like, okay, if I'm putting together a Parkinson's protocol, what does that look like?

Martha Carlin (29:26.797)

Well, I I am actually working on one right now called the New Parkinson's Paradigm. some of that is taking care of the glycocalyx. So the raw materials that you need for the glycocalyx, which are it's made of hyaluronic acid and these little hairs that stand on up are made of sulfated polymers, which are you know, it's basically sulfur and sugar.

I mean, that's an oversimplification, but something like a seaweed. so there there are dietary raw materials. I would have started out with like healing the gut with bone broth or something like that. Bone broth has a high level of hyaluronic acid. So that's why some things like the GAPS diet can be v beneficial because it it provides those raw materials to heal that gut lining before you start adding back.

Chris Wark (29:57.292)

Mm-hmm.

Martha Carlin (30:24.119)

And then you would add back fermented foods. I actually made a probiotic for John that came from going to a Parkinson's meeting where they showed that the sugar alcohol manitol could stop the aggregation of the proteins in the mouse model and pull them out of the brain. And there was a citizen science group called Clinic Crowd that was trying to get people to take oral manitol. And I came back and I bought

a little Manitol chemistry book and started reading about, you know, it's a free radical scavenger, it's an osmo protectant. It's a really interesting molecule. And it's a non-glycating sugar. If people know what gly glycation is when sugars attached to sugars like glucose and fructose attach to proteins and fats. And it they cross link and it's a sign of aging you can

see it in skin fluorescence. But I came back and in the book it had a handful of bacteria that ferment mannitol from glucose and fructose. And so I ended up making a formula for John with a friend of mine who was a fermentation chemist who'd been in the probiotics industry. And he within a month of taking it, he was no longer walking with a cane and he was able to navigate a crowd at our

Daughter's graduation, and we were measuring his microbiome and could see it moving back to a healthier human microbiome profile. So that was just kind of an early prototype of showing how you could alter the gut. And we went on later to do a clinical trial with that, not in Parkinson's, but in diabetes, and show how we were shifting the microbiome back to an anaerobic state, which helps.

you know, bifidobacteria and a couple of other keystone species that produce that butyrate and it and dropping off those endotoxin or LPS producing bacteria. but I would have I would have really focused a lot more on diet and getting the full kind of color polyphenol profile of

Martha Carlin (32:48.343)

The vegetables. I mean, I did try to do that a lot, but I I think we ate maybe too heavy of a omnivore type diet. I mean, that there is some evidence that ketogenic diets can help people with Parkinson's. And so I hesitate to just say that can't help, but I think that's partly because there's glucose resistance in the brain. And that goes back again to the gut bacteria.

and the cravings for sugar and eating a lot of sugar. So you've you've gotta kind of figure out how to

Really work with the diet in a specific way to address restoring a healthy microbiome. Because then you don't, you don't crave sugars, you're you're not eating too much of you know any of these things that can harm you. Dairy is also another area that I learned a lot more about in really in the last three years because.

Well, the proteins are denatured when you are, you know, pasteurizing it. But it's also the cleaning. So the way dairy is cleaned in the, you know, they're in these big vats and all of that. They use in a lot of these bigger operations, quaternary ammonium compounds. And those can incorporate into the fats in the milk because the residue is left in a container. And then when you drink the milk, you're

Chris Wark (34:18.785)

Hmm.

Martha Carlin (34:24.129)

It's disrupting cellular membranes and the gut microbiome. And so I I think that is also problematic. there are some other organisms, Mycobacterium, avium paratuberculosis, that I've been working on with another doctor for the last four years looking at that in colorectal cancer

and in Crohn's, coming from the milk supply. So there's a lot more I would have done on diet, and I I thought I did a lot, but

I there were still pieces of the puzzle that I didn't know.

Chris Wark (35:01.269)

Yeah, there's a lot of crossover between, you know, what you're talking about and and with cancer. And so what we what what I've learned in more recent years is, you know, there's all these studies on the anti-cancer properties, anti-cancer compounds in fruits and vegetables. And some of the the most potent anti-cancer vegetables are the sulfur-containing vegetables. So garlic, onions, and leeks are really at the top, and then really

not far behind them in terms of anti-cancer potency is going to be the cruciferous vegetables. So broccoli, cauliflower, kale, cabbage. And so you know, that was a big eye-opener to me when I started to to dig into that research because that's what I did to help myself heal is I ate these giant cancer fighting salads every day with all of those. Broccoli, cauliflower, kale, cabbage, onions, mushrooms, peppers. You know, there's a picture of it on my book, Beat Cancer Kitchen. You know,

Avocado, you know, garbanzo sprouts, alfalfa sprouts, and then a lot of spices like oregano and turmeric and garlic powder and curry powder. And so I was just really loading it up with every anti-cancer vegetable or herb or spice that I had read about, learned about, and eating that twice a day. And what I learned later was that all of these vegetables and herbs and spices were also antimicrobial.

And so not only did and and the reason they're anti-cancer is also because they're antimicrobial. And the reason that again, these kind of foods could be incredibly beneficial for any disease that has any connection to the gut or to gut dysbiosis, overgrowth of bad bacteria or or whatever is because well, twofold. One is when you eat raw food, you're eating a lot of bacteria.

Right. When you don't cook it, you're consuming a lot of bacteria. Two, you're eating a ton of plant fiber, all this cellulose fiber and starch, which feeds good bacteria and starves bad bacteria. And so, like when I started to connect all those dots, it was like, wow, this is amazing. Like the bacterial connection, which was never well, it was on my radar a little bit. Like, you know, I learned about probiotics in 2003 when I was trying to get well. And it seemed like it was important to, you know.

Chris Wark (37:24.001)

To have good gut bacteria, but that's about as far as I I went in that understanding. So, and you know, just learning about the soil and and beneficial how beneficial dirt was, you know, that our food is too clean and too sanitized. and so switching to an all-organic diet was huge for me. And I think even like you're talking about with Parkinson's, if it's not organic, it's gonna be sprayed with some.

agrochemicals, whether it's glyphosate or atrazine or you know, there's so many, two, four D, and they're all antibiotic. They're all wrecking our gut, bacteria. And the problem is I think, I mean it's multifaceted, but when you take an antibiotic or you consume antibiotic chemicals in your food, the the bad bacteria tend to grow back faster.

Right? Like

Martha Carlin (38:24.173)

They're they they are more resistant to a number of the chemicals, which is kind of interesting. And glyphosate in particular, in the patent that they filed for its use as an antibiotic, it kills the beneficial bugs and not the pathogenic ones. So, I think that's also an interesting kind of piece of the puzzle.

Chris Wark (38:48.353)

That's really important. Well, and you mentioned earlier too, I I glad I just remembered it, because I wanted to touch on it. Is you mentioned a study where they had a specific bacteria that they were they're they're using to induce Parkinson's, right?

Martha Carlin (39:06.477)

Well, they use the lipopolysaccharides. So they use that cell wall, the gram negative cell wall, which that can come from a number of different species, but they they use yeah, the cell wall to initiate Parkinson's. They initiate depression also. And you know, depression can also be a kind of a comorbidity with Parkinson's quite often is. And they've shown they can initiate

severe depression in under a minute with a s very small injection of lipopolycy.

Chris Wark (39:41.461)

Wow. That's yeah, that's that's really amazing. And I think well, so the war the the war between good and bacteria, good and bad bacteria is really important. And I think there's a there is a an you know, a hopeful message here, which is that when you consume good bacteria from whole plant food, raw food, and even I I'm assuming your your opinion is that fermented foods are are helpful like kimchi and sauerkraut.

Martha Carlin (39:42.851)

Yeah. Crazy.

Chris Wark (40:11.933)

when you're consuming

Martha Carlin (40:12.151)

Yes. go ahead.

Chris Wark (40:16.043)

Well, I was yeah, I was just gonna say when you're consuming these types of foods every day and you're really focused on putting good stuff in and not putting bad stuff in, then you're you can shift your bacterial population quickly and really foster the growth of good bacteria that fights the bad bacteria. And so you and from your s from your studies on people's stool and microbiome, we can see that shift happen relatively quickly in a person's gut.

When they start making these diet and lifestyle changes, right?

Martha Carlin (40:48.941)

Yes. And I have some of my favorite kind of fermentations that I do. I make beet cavas, which that's support cardiovascular health, which is you know, I like that one. And then I have this stuff called fire cider that I make, which is kind of an old folk remedy, but it has all of those that have a lot of the cancer killing compounds as well. it has

Chris Wark (40:57.184)

Hm.

Martha Carlin (41:17.759)

garlic, onions, turmeric, ginger, horseradish. You know, I put rosemary and thyme in there. It has lemon, apple cider vinegar and cayenne peppers. you know, you're putting all that in there and shaking it up and letting it sit for about six weeks and you shake it every few days and then you strain all those solids off and you have this

s really spicy, potent, you know, kind of a digestive thing because I've I've had tons of people who have severe heartburn or gat, you know, GERD or something like that that will just take a little shot of that before they eat. And it helps close the valve, which is another problem in Parkinson's where they don't get the valve closed. And many people, here's another one. Many people who

have Parkinson's that I have talked to, and I think it's now even in some of the published research that the proton pump inhibitors for acid reflux, like they were maybe taking those for 10 years before getting diagnosed with Parkinson's. And that is very disruptive to your stomach acid. So then you can't stomach acid is where all the bad bacteria are supposed to get killed.

And the good bacteria that are acid tolerant like lactobacillus can survive that. And when you don't have an acidic enough pH in your stomach, then you've you've got a lot of issues.

Chris Wark (42:55.359)

My dad had reflux, but never took never took a drug, didn't take anything for it, but that is a connection there to the I let let's say a precursor to Parkinson's was he would he even he even adjusted his bed. Mom mom and dad slept in separate rooms because he he put blocks under the two of the feet of his bed frame, so his bed was angled.

Martha Carlin (43:19.887)

So that he was

Chris Wark (43:22.359)

'Cause he thought it I guess he I guess it helped him or he thought it helped him just being angled slightly, you know, his head elevated, maybe helped with the reflux at night or something. I never really got into it with him about that. But yeah, you know, he was doing that to try to help himself. And anyway, it obviously didn't prevent the Parkinsons, but it might have helped with his, you know, him sleep a little better

Martha Carlin (43:28.046)

Yeah.

Chris Wark (43:50.729)

What else do you think people need to know? I mean, we're gonna I'm gonna we're gonna direct them to your book for sure and and other resources that you have available, but what what else do you think people need to know in terms of the prevention side of Parkinson's or maybe, you know, interventions that you feel are really promising and important?

Martha Carlin (44:09.197)

Well, I r I really do feel like focusing on your gut health, particularly if you have family members or you're concerned about, you know, potential risk of Parkinson's, you know, not that much of it is genetic. I think they, you know, it's under 15% of what they think is genetic. So that's, you know, a lot of lifestyle things. So avoiding these chemicals in in the food supply, in your air. one of the simple things I

Tell people that they're like, if I could only do one thing, what would it be? And I say, you know, have clean water. most people think that their water coming out of their faucet is fine, but the faucet water, you know, our water treatment plants were designed 150 years ago, 100 years ago, to deal with bacteria. And now there is a ton of chemical waste. So not only is all the drugs your neighbor is peeing down the toilet.

going into the water supply, but there's also a lot of chemicals, industrial chemicals and things that are getting into the water supply. And those are not cleaned out of the water properly. And so, you know, you can look at the environmental working group for where you live and they have some good information on what's in there. But I always recommend to people, you know, get a filter. If you can afford to install a whole house filter, that's great. If you can't, you know, you can get the

you know water pitchers there's a lot of different companies that make a water pitcher but the chlorine in the water that they use to treat the bacteria is antibacterial so you don't want to be drinking chlorine and killing your good get your good bacteria. So and I I've been filtering we that

was one of the very early things we did was you know put in a fancy filtration system. And once you do that,

Chris Wark (45:51.478)

Yeah.

Chris Wark (46:04.929)

Same.

Martha Carlin (46:06.073)

Then when you go to a restaurant or something, if they bring you a glass of water and you taste it and you're like, that tastes like chlorine. So I, you know, that I think is a really underappreciated kind of piece of the puzzle, is just simply doing that. And I do know I talk about the food a lot. It is it's difficult for older people who get diagnosed with Parkinson's that may live alone or it's just an older couple to do a lot of the cooking and chopping and things like that. And

That's an area where I'm working with a nonprofit to try to figure out can we start to put in place things where people could come together because they need community also. But you know, could they come together with a chef who helps them and they get, you know, some healthy meals for the week with somebody who can help do the chopping and things like that? Because mobility of the hands can be difficult to do.

the chopped vegetables and things like that. So I, you know, I think that is a big, big piece of the buck. also like bodywork. and doing things like qigong or, you know, slow movement, though that has shown some benefits. I even know a practitioner of Qi gong who's had some people reverse their symptoms. There's a there's a gentleman named Howard Schiffke who also reversed his Parkinson's with Qigong.

so gentle types of movement can be very important. My husband was also very involved with peddling for Parkinson's, which was based on research out of the Cleveland Clinic that showed spin cycling three to four times a week for an hour at a certain cadence could reduce the symptoms by up to 35%. And we definitely saw that in John. some other things that they're finding now is boxing.

I mean, and that's not hitting somebody boxing, but it's like training boxing because you're doing crossbody motion and part of you know Parkinson's is asymmetrical. So you know, you may have one side of the body affected more than the other. And when you do these boxing exercises, you're having to do crossbody movement, which connects both sides of the brain. And then you're also having to listen to the coach who's calling out the punches.

Chris Wark (48:05.046)

Yeah.

Martha Carlin (48:33.323)

So that that's a really interesting area. Also singing or humming, sound is another unusual area, but and I mean, I don't know if anybody's done research on this, but I think that it is well known that different vibrations can kill different bacteria. So I wonder if singing or humming, you know, maybe it has an effect on the microbiome. And I have

Chris Wark (49:01.303)

Well, it definitely affects the vagus nerve. And there are studies on that, and activating the vagus nerve, stimulating the vagus nerve, and increasing the production of nitric oxide in your, you know, in your head, in your nasal passages and stuff. Yeah, from singing and humming.

Martha Carlin (49:04.546)

Yeah. And

Martha Carlin (49:14.72)

yeah.

Martha Carlin (49:19.897)

So and then the oral microbiome. This is a big underappreciated piece. And as Parkinson's gets more advanced, like brushing the teeth can become more problematic. So with John, we did a lot of work on his oral microbiome and making sure his teeth were clean after meals and actually having them cleaned by the dentist four times a year instead of twice a year. And that made a big difference in his

Chris Wark (49:47.222)

Hmm.

Martha Carlin (49:49.609)

oral microbiome and that can affect your gut microbiome as well. so that's something I don't often hear people talk about.

Chris Wark (50:01.141)

That's huge. And because we know there's some very pathogenic oral microbes that can get into the gut, like fusobacterium, which is linked to colon cancer. And it's very problematic. You know, again, it's one of the ones that are considered a bad bacteria, that it has almost no benefit to the body. It's not good. And so yeah, it's one of those bad oral bacteria that can make its way down. And if you're

Yeah, if you have an unhealthy mouth, if you got cavities, if you got gum disease, right. And diet plays into that and oral health, you know, brushing and different things play into it, or lack of brushing, I should say. Yeah, yeah, that's a big one. I'm glad you brought that up. And, you

know, I'm glad you brought up water too, because, you know, that's sort of this connection that I think I'd say 99 out of a hundred people, like if you tell them, would you rather drink filtered water or tap water? They well, yeah, filtered water. It's, I'm sure, you know, you're filtering out contaminants. That seems good.

But specifically chlorine being an antibiotic, right? Like we're talking about all these antibiotics, including chlorine, which is important. We don't want to take chlorine out of tap water because then everybody's gonna end up with dysentery, right? Or whatever. Like they they do need to clean some real bad bacteria out of the tap water, but then the problem is you're drinking this chlorine bleach and it's not gonna kill you today, right, or tomorrow, and you can drink it your whole life, but

But those the the you know the small doses every day of chlorine are, you know, harming and killing good bacteria in your

Martha Carlin (51:37.143)

Yes.

Crazy.

Chris Wark (51:40.949)

So I want to make sure that people know, you know, what you're doing. I look should we talk about stool testing? The value of stool testing? Do you think it's something that a lot of people should do to test their stool, get a get a picture of like w their microbiome? And, you know, because it like you mentioned early in the interview, there's a lot of it

The science is emerging, obviously, but there's a lot of signals already in microbiome stool testing that are pointing to, hey, you know, you're you're on the path of disease based on your gut bacteria population ratios.

Martha Carlin (52:26.319)

I mean, I I think they can be an interesting piece of the puzzle. What I would say when I started collecting people's stool samples back in twenty sixteen and sequencing that, you know, we were giving people a sixty page report that had all this information. They would take it to their doctor and the doctor's eyes would cross. And I thought, well, you know, a decade out,

Chris Wark (52:49.656)

Yeah.

Martha Carlin (52:53.325)

That'll probably be you know an everyday thing in medical practice. And it is not. And I do not even see that being in medical practice in 10 years because it's a complex ecosystem. And so they're not being taught about that in medical school and they're not being taught now about it.

So 10 years out, it's probably still not going to be in the clinic. You do have functional medicine doctors who understand to some degree. but

You will often get there where somebody looks at it and they want to use antimicrobials. And you know, that's a so I think it's a better approach to just understand what you want to feed and what you don't want to feed and start to look at your lifestyle. I do think that you know, for some people, a gut test can be very beneficial, but you've got to have a practitioner.

who knows what they're doing, and knows how to read it and interpret it and help you. And I do know some wonderful people who can do that. It's just not the vast majority out there.

Chris Wark (54:07.553)

That's good. There's some nuance to that. That's thank you for that answer. so where can people find you? What do you have out there in the world in terms of resources for people beside your book?

Martha Carlin (54:20.941)

So I have been writing just a Parkinson specific website for gosh, probably six years now called Martha's Quest. And I just started a substack by the same name, Martha's Quest. The website, Martha'sQuest.com has a lot of different Parkinson's resources like books and connections to naturopaths or different

alternative health ideas, things about qigong, books, different connections I've made into the deeper science. And I will typically write a once or twice a year just the update on the microbiome science. The Substack, I write a little more broadly about some environmental factors. I put out a piece today actually on genetic engineering in the food and what that might actually be doing in the gut microbiome and human health.

I also, you know, I do have a probiotics company. I know I don't like I'm not here to promote that, but I the probiotic I made for John eventually let us

Chris Wark (55:31.807)

But feel free to share it. I mean, people there are people that would want to learn more about it. So it's okay. Yeah.

Martha Carlin (55:38.155)

Okay. Well, I don't, you know, I'm I'm mindful that of that. So and that's called Biotiquet. It's B-I-O-T-I-Q-U-E-S-T dot com. I also write a lot of content there and I have recipes for fermented foods. we have a YouTube channel for Biotiquet, and actually that's probably one of the best resources because it has all the podcast interviews I've done. I do a

If anybody's interested, I do a book club once a month and we cover health books and you know talk about the topics. This week we were talking about light and how the light impacts the

microbiome, our sleep, all of that. and I do something called the learning lab. And so every second and fourth Tuesday of the month, we do a learning lab call and I'll invite in experts to talk. Sometimes it's about Parkinson's.

Sometimes it's about gut health. sometimes it's about diet. so we cover a broad spectrum of topics, and then sometimes it's just me wandering them around my head, making connections for people and answering questions. But we record all of those, and those are on our YouTube channel at BiotiQuest.

Chris Wark (56:59.777)

That's great. That's great. And I really like

Martha Carlin (57:00.019)

And I'm writing Yeah, I'm writing that Parkinson's book called A New Parkinson's Paradigm. So I hope to have that out by the end of the year.

Chris Wark (57:12.087)

Okay, that's great. Well, and I I was just gonna say that we'll we will we will link to everything you mentioned in the show notes for anybody listening on the podcast, or you can go to ChrisSpeedCancer.com and find Martha's interview there. Just search for Martha in the search bar and we'll put it in YouTube. Every you know, anywhere you watch this, we're gonna make sure that you can get that. And her new book's called Connected. And I really appreciate the fact that, you know, obviously you developed a probiotic.

And but I appreciate the fact that you are not just trying to sell probiotics to everybody, right? That you're teaching people how to eat right, how to ferment their own food. Like it's a much bigger mission than like, let's just start a supplement company and try to make a billion dollars, right? And and so I think I I just think it's great. I just wanna to to tell you, I I really appreciate the fact that you're so much more invested and committed to the mission than just selling a bottle of pills to as many people as possible.

and and I I love your wait a minute, fire what'd you call it, fire sauce?

Martha Carlin (58:17.866)

Cider. Yeah.

Chris Wark (58:19.371)

Fire cider, I've gotta make that because it sounds amazing. Everything you said, all the ingredients you said in there, I'm like, yes, like this this is something I would gleefully ingest.

Martha Carlin (58:32.183)

I'll send you two. I wrote a I wrote a blog post a while back because I went through the bioactive compounds in a number of like garlic and

the you know, all the different pieces of you know, all you know, what are the bioactive compounds that could be, you know, making us healthier.

Chris Wark (58:47.681)
Cayenne and all this stuff.

Chris Wark (58:56.157)
Mm-hmm. Good. Yes. I'd love to see it for sure. And and if that recipe is online, we can also link to it for folks as well. So Martha, thank you so much. This was really fun to talk to you. I learned I learned a lot and I really appreciate the research that you're doing. And yeah, I just want to just support you and and send people your way. obviously, like I said earlier, I'm

Martha Carlin (59:04.162)
I'll send it to you.

Chris Wark (59:25.001)
interested in Parkinson's prevention for myself. I have two people relatively close to me, friends, and that have loved ones that were recently diagnosed. And so I'm looking forward to sharing our this interview with them as well. And so but it's cool because there's like I said earlier, this crossover, right, between Parkinson's diabetes, autoimmune disease, cancer, like they all can be traced back.

to gut health, to microbial populations, you know, intracellular infections. Like, so I I feel like science and research, all this, it's sort of all converging and finding like, hey, wait a second, you know, like we're destroying our health, right? And y you know, one of the first principles I learned when I was studying holistic healing.

was from Dr. Richard Sh Schultz. And he said, health starts in the gut. And I had never heard that before. And I'm like, in the gut? Like, what does that even mean? Health starts. And I had colon cancer, you know, but it's like, health starts in the gut. And so I'm just reading and learning from him and all that. But yeah, I mean, you know, and I think I think he got that from Hippocrates. I mean, you know, it's not like something he made up. It's it goes way back, but we've gotten so far away from it.

Martha Carlin (01:00:47.735)
Yeah. Way back.

Yeah.

Chris Wark (01:00:52.383)
Right. We've gotten so far away from it. It's been d dismissed and sort of ignored. And, you know, in in the general field of medicine, it's like no nobody cares about your gut health at all.

And but now we know, I mean, now it's kind of researched. People everyone knows what probiotics are. you know, there's so many integrated practitioners that are focused on gut health. and we've got more people with gut problems now than ever before with celiac and Crohn's and

colon cancer being on the rise, right? All this stuff. So all that to say, I'm encouraged by the research that you're doing, you know, by all these dots being connected and coming together. I think, I think we're gonna see some transformative stuff in the next five to ten years.

Martha Carlin (01:01:37.519)

I think so too. I'm I'm excited about that. I did forget one thing. I do have a book about poop too.

Chris Wark (01:01:44.618)

good, yes. What's the what's it called?

Martha Carlin (01:01:45.985)

It's called My Search for the Perfect Poop. My Search for the Perfect Poop. And and that is on Amazon. It's a funny little book, but it you know, if you don't know how important looking at your poop is every day, you'll know after you read that.

Chris Wark (01:01:50.668)

Ha ha.

Chris Wark (01:02:01.491)

Amazing. I love it. Well, Martha, thank you so much. I appreciate your time. Thanks for watching, everybody. Please like, share, follow. do all the stuff you do to help me reach more people and keep the channel going. And please share this interview with anyone you know who is, you know, has any kind of neurodegenerative with Alzheimer's, Parkinson's, dementia, right? All of these neurodegenerative diseases, it's a that's a tongue twister, have connections to gut health.

And so yeah, please share this because I think obviously Martha's got a lot of great resources. So thanks for watching. We'll see you on the next one.

Martha Carlin (01:02:42.191)

Thanks for having me.