



## Podcast Session #36

### **The Relationship Between the Vagus Nerve and Chronic Illness**

With Dr. Diana Driscoll

*Dr. Diana Driscoll speaks with Dr. Schaffner about chronic illness and the role of the vagus nerve among a constellation of symptoms including Ehlers Danlos Syndrome (EDS), postural orthostatic tachycardia syndrome (POTS), chronic fatigue syndrome, and mast cell activation syndrome (MCAS).*

For more on Dr. Driscoll,  
visit <https://vagusnervesupport.com/?rfsn=3044860.1f0dcd4> and  
<https://potscare.com>

**00:06 Dr. Christine Schaffner:** Welcome to the Spectrum of Health Podcast. I'm Dr. Christine Schaffner and today, I am speaking with Dr. Diana Driscoll. Dr. Diana Driscoll is an optometrist who became passionate about helping those with complex health conditions as a result of her own disability with POTS, Ehlers-Danlos Syndrome, and ME/CFS. Dr. Driscoll was completely disabled by this constellation of invisible illnesses, as was her young son. While on disability for over a decade and unable to get help from her doctors, she began a formalized research group through Genetic Disease Investigators. Now, fully recovered, she's the clinical director of POTS Care, the recipient of two patents to date, the President of Teaching Nutrition, and she continues her research today.

**00:54 DS:** This long journey not only offers help and hope for others dealing with invisible illnesses, but also has culminated in unique ways to maximize health, longevity, and quality of life for others, as well. Dr. Driscoll has always been a bit of a geek and graduated summa cum laude from both the University of Texas at Austin, and the University of Houston. Dr. Driscoll is a patient advocate for others dealing with invisible illnesses, such as POTS, Dysautonomia, Ehlers-Danlos Syndrome, and MCAS, or mast cell activation syndrome, chronic fatigue, chronic dry eyes, chronic Lyme, vascular abnormalities, fibromyalgia, and multiple sclerosis. She has created a line of supplements focused on supporting the vagus nerve and is expanding this line to include help for brain, moods, and immune support.

**01:42 DS:** Dr. Driscoll is here to discuss how she figured out the role of the vagus nerve, how it ended up not being strictly a vagus nerve problem, and how this knowledge can help those with chronic illnesses, as well as those wanting to maximize the quality of their lives. I hope you really enjoy this wonderful conversation I had with Dr. Driscoll. She gives us a lot of information and a lot to think about in this whole constellation of symptoms that we see with POTS, EDS, chronic fatigue, and mast cell activation. Please enjoy the show.

**02:15 DS:** Welcome, Dr. Driscoll. It's such an honor to have you on the podcast today, and I know that we're going to cover a lot of really important topics today. I've seen a trend in my own practice of this constellation of symptoms with POTS, Ehlers-Danlos, and mast cell activation syndrome, and how these all fit in together. There's a common theme with these presentations. I know that you came to this work through your own personal story and your own personal journey--let's start there. How did you learn all about this?

**02:54 Dr. Diana Driscoll:** Well, first, thank you for having me, Dr. Schaffner. You always do such a great job of getting out some of the latest health information, I hope I can do you justice by some of what we'll talk about today. It was an incredibly long journey for me, one I wouldn't necessarily want to relive. I got a virus when I went to Costa Rica on a mission trip, and prior to going, I wasn't a sick person. I was in great shape, I loved to exercise, and I just didn't see this coming, but I got a virus. All of us got the same virus, so I can't blame the virus, but I was the only one who didn't seem to recover from it, and mere

weeks after getting the virus I was disabled. Eventually, I was diagnosed with POTS or Dysautonomia. POTS stands for postural orthostatic tachycardia syndrome.

**03:50 DD:** It's a condition that affects the autonomic nervous system, a system of the body you really shouldn't need to think about. It includes regulation of your heart rate, blood pressure, digestion, temperature control, and such, but eventually, it morphed into a presentation of extreme and chronic fatigue. It was even so much more than that--nothing in my body really was unaffected, but even scarier, our kids began to develop symptoms, and my son ended up being completely disabled and was forced to miss almost three years of school while we looked for answers. He started to waste away, he even developed severe osteoporosis. He broke his arm just putting on a jacket and again throwing a ball. But as sick as we were, nobody had any answers for us.

**04:38 DS:** Your story of this illness is a story I hear often in my office, and people often turn to many doctors without the answers. Where did you start to find answers about what was going on with you?

**04:57 DD:** Right. Boy, I went to probably 50 doctors.

**05:00 DS:** Wow.

**05:01 DD:** The first three years, well, I was so dramatically affected that I thought, "This isn't some subtle condition, I think we're just not getting to the right doctor." And I traveled around looking for it, that right doctor who never came, but I ended up at the Mayo Clinic. I think most of us end up trying to find that top specialist. We participated in their clinical trials, and we were eventually diagnosed there with POTS. I celebrated that diagnosis, thinking, "Yay, we have an answer, we know what this is." No. No, I participated in their clinical trials and their final conclusion was, that, well, POTS patients are perfectly normal, they're just more aware of their own bodily functions. Oh, that couldn't have been more far from the truth. They also sent me to a geneticist upon request to be checked, because I noticed I was hypermobile and I'd been starting to look online and ask, "Why do some people not recover from this?" and that was one thing that popped up. The geneticist is the one who said, "This is likely Ehlers-Danlos syndrome, but we don't really have a way to objectively diagnose that."

**06:18 DD:** So although I got those labels, they ended up being really not helpful at all. That's when my husband and I set up Genetic Disease Investigators. We set up a corporation to do formal studies. I donated most of the money to do those studies myself from my disability income, ironically, because I thought, "Well, we can't use this for anything." But we needed to move quickly, and that was helpful, it really was. Much of what we learned actually is helpful with some of these chronic illnesses, but it can help people who are not necessarily sick, but who are maybe not living as well as they could, or they're blaming

some more subtle symptoms on, "Well, I'm getting old," or, "I'm under stress." They're not living their very best lives. I think we can be more proactive. I think you and I share in that goal.

**07:17 DS:** That's such a great point. Even with the name of my podcast, it's like, we see patients on this chronic illness spectrum, and we learn that we can also prevent and also optimize people who haven't gotten to that point. I think there's this general attitude in our society too, of what health is and what it is really to feel well. A lot of people just think certain things are normal that we shouldn't normalize at all. So it's such a wonderful mission that you set out on, that you turned your own journey into research and finding the answers. And so, where did that lead?

**08:14 DD:** Right. Well, mounting this group, it was mainly doctors online who were freelancers that you can hire from around the world, which is just amazing because I didn't need active practitioners--I really did need researchers, and biochemists were important, geneticists were important. I still work with the geneticist today out of India, which is amazing. But I'm in my bed 80% of the time, with a little bed desk figuring out what we need to do next. So we started in the eyes, and I was blessed to be an eye doctor. I think that gave me so many advantages. One, it was a different way to approach the condition to start. And we had an office.

**09:01 DD:** My husband is also an optometrist, and when we did physical studies, we had a place to do them. So that helped. I wish I could say it was all altruistic at that point, but again, we were so sick, my son and I especially. We really had to get some answers, but I thought, that's an opportunity. We're set up really perfectly to try to get some answers for people. And we need to take stock of how we can start to approach this to move it faster. Traditionally research moves so slowly. I thought, we just can't wait that long. What can we do to speed things up? So I was kind of put in a perfect position, I guess, if you want to say that, to start to work on it. That's how it started. You saw how it ended.

**09:53 DS:** I know. And I think a common theme that we talk about in the podcast often is that the average time of getting something that's in research to active practice is around 17 years. Who can wait around that long for somebody to read the research and to get these answers? You have to often be your own advocate. So that's really impressive, Diana. You had this team of researchers, you had this office, you have this lens, literally, where you're looking, your training and your husband's training is looking at the health of the eyes and obviously, how that ties into the brain. And so where did you all start with finding a way to really understand what was wrong with your body? How did this virus that you got in Costa Rica completely debilitate you?

**10:51 DD:** Right. And, oh, boy, it was so many different layers. Honestly, Christine, it was one thing we'd figure out, and I thought, "We're done, we have it." No. And then there was

the next layer. And then we figured that out. Okay, we're done, we have it. No, no. That's why it took over 10 years. But when we looked in the eyes, we looked at a few things. I guess that could be another podcast because we can really get deep into this. But ultimately we were able to figure out that there was a propensity for abnormal intracranial pressure, and we had to address that, but then later I had to jump into my gut because I ended up with complete gastroparesis. There was no movement at all, and I wasn't able to get any help with it. That directed the next layer of research immediately.

**11:51 DS:** We mentioned this already a little bit--there's a conversation out there in alternative medicine, there is a lot of talk about the vagus nerve, which is the 10th cranial nerve, and about how it can interplay with our symptoms. And so why bring this up now? With the gastroparesis and the gut function, obviously, there's a whole nervous system in the gut, and we also have the vagus nerve that is really critical to our digestion and stimulating all of our digestive juices to get motility going. And so, what did you learn about the vagus nerve through this process?

**12:30 DD:** I think in my experience, I just had to work through it because I was forced to, honestly. For a long time, I had kind of IBS-type symptoms, and I varied between constipation and diarrhea, but eventually, as I mentioned, it just came to a screeching halt. I had used MiraLAX for about a year every day, and then it progressed to no bowel movements, and I had gone without a bowel movement for about 11 days and I had tried everything. I saw my doctor, and she didn't have anything new to suggest, but because I had some pain in my lower right-hand quadrant of my abdomen, she sent me to a urologist to rule out a kidney stone and I thought, "Well that's kind of strange, that's not really how they present, but I don't think she knew what else to do." The urologist gave me some dye to drink to check for stones, and I had no stones, great. But he was one of the super nice, super smart guys, so I explained to him, that I suspected the valve between my large and small intestine, the ileocecal valve, which is in that lower right-hand quadrant, was maybe stuck and could be the source of the pain I was having. I showed him what I was working on concerning the vagus nerve, and why I was thinking in that direction, and he was fascinated by it.

**13:49 DD:** He thought it was really plausible and he sent me to a surgeon that day to see if the surgeon could maybe open that valve if that was the issue, the ileocecal valve, but the surgeon said, "Diana, if you think something is wrong with your vagus nerve, you don't want to have abdominal surgery unless it's life-threatening because we cut right through those nerves, we cause gastroparesis." So I was really grateful for his honesty. I just walked out, but I still had no answers and I went to the emergency room, they gave me prokinetics, which are drugs that force a bowel movement, but still there was nothing.

**14:27 DD:** And then I was looking at about two weeks at that point, but an amazing thing happened then. I got a kidney stone. This was the weirdest thing. I'd never had a kidney

stone before, but boy, if you ever have one, you'll know. You can't miss these symptoms when they do hit. I called the urologist and said, "You're going to think I'm crazy. I know three days ago, I did not have a stone. I get that, but I do now." And he met me at the hospital and sure enough, now I had a stone. He removed it and I remember waking up from anesthesia and he was just standing right there and said, "Diana, you're right," I was like, "What?" He said, "It's your ileocecal valve," and I said, "How did you know?" He said, "Well, that dye I gave you three days ago is still here, but it's all crammed up against that valve." So, amazingly, we got confirmation, it was actually the ileocecal valve. Then I said, "Okay, what do we do?" He said, "I have no idea."

**15:28 DD:** So I went home and still had no answers, but I knew I was heading in the right direction in my suspicion. So interestingly, my gallbladder also wasn't working. They had tested it and my ejection fraction was pitiful, it was 8% and the doctors wanted me to remove it. But honestly, I thought without gall stones or some sort of organ infection or whatever, it didn't sound urgent. I really wanted to try to put the pieces of the puzzle together to try to save that organ. So, fortunately, I did and my gallbladder now works great. But I ended up laying in bed and thinking, "What now?" I didn't know where else to go, I'd kind of exhausted all my resources. So I thought, "Well, I'm just going to have to see if I'm right. Let's say it is my vagus nerve, what could I do?" And I remembered back in school learning about the vagus nerve and the professor saying there are two pieces to the vagus nerve, there's the long pre-ganglionic portion, which goes from the brain down the neck into the chest cavity, and then into the abdominal area. It's a very long nerve, but then there's a small gap and there's a tiny postganglionic vagus nerve. I remembered him saying the postganglionic vagus nerve is so small. It's almost a part of the organ itself. I just have no idea, Christine, why I remembered these details. So I worked the problem, and I thought, "Okay how could I stimulate that post-ganglionic vagus nerve?" I thought, "What is the neurotransmitter?" Because of course, nerves communicate with chemicals-- Neurotransmitters--and I thought, "Well the neurotransmitter for the vagus nerve is acetylcholine." But that's not a drug. The body breaks it down immediately, so you have to use an imitator, or what we call an agonist. So I had to think back. Okay, "What is the agonist for the vagus nerve? Oh, well, that's easy." Because the vagus nerve is the only nicotinic acetylcholinergic nerve in the body. And I remember that. The reason we call it that is because it's agonist is nicotine.

**18:04 DD:** So I called my husband at the office and asked him just swing by the drug store on the way home and pick up a nicotine patch for me. He thought I was really strange. He was getting a little more used to me doing science experiments on my body though. I didn't know if it mattered where I put it, but I imagine the nicotine going through the skin which it does, it's trans-dermal, and landing on the receptor, or the postganglionic nerve and then triggering the nerve. And sure enough, I put it in that lower right-hand corner, and about an hour or an hour and a half into it, things started to move, that valve opened. I had a normal bowel movement. What?!

**18:47 DS:** Wow.

**18:48 DD:** I used that patch every day for four days and had a bowel movement every day, but by the fourth day the inflammation activated by the nicotine was giving me itching, hives--it was red, purplish, it felt like I was being eaten by fire ants. I remember thinking, "Oh, I've ruined everything." I had to stop using it because nicotine is a double-edged sword. It clearly was triggering that receptor which was awesome, but it was also activating inflammatory cells, so it was working against me. And in the long run I had to think of something else.

**19:23 DS:** That's fascinating, and just such another unique way to look at the problem, right? There are some people talking about stimulating the gag reflex, and all these mechanical things to stimulate it, but this is another way to think about how to actually stimulate the nerve where the action is, right?

**19:49 DD:** Right.

**19:50 DS:** And so, Nicotine worked, but clearly, it wasn't the solution because of the side effects you were getting. Where did you go next?

**20:00 DD:** Right, well, when the nicotine worked, I learned a couple of things. One was, that receptor worked great. And all the research to date in POTS was looking at autoimmunity affecting the receptors, and although I didn't have any signs of autoimmunity, that's where everybody was looking. Well clearly, it wasn't an autoimmune problem affecting the receptor, the receptor worked great--so we could walk away from autoimmunity, and that was hugely helpful. I knew it was either a vagus nerve problem, an issue where the pre-ganglionic vagus nerve was damaged or defunct for some reason, or it could be a neurotransmitter problem. I always say, just stay in the science, the answers are there. We have to differentiate which one it is. So what I did, and we did this over four-and-a-half years, Christine, was we sent out symptoms checklists to POTS patients, chronic fatigue patients, fibromyalgia patients, and interestingly, PTSD patients. They can also end up with autonomic dysfunction. And in those symptoms checklists I tucked in 35 symptoms of anticholinergic poisoning.

**21:14 DD:** Now, no one here has been poisoned, we knew that. But if your Acetylcholine neurotransmitter release is so low, you can develop symptoms, and they're not all vagus nerve symptoms, they present as anticholinergic syndrome. So the majority of patients in all those categories had the majority of symptoms of anticholinergic poisoning. I was able to figure out that the vagus nerve problem is a secondary issue. The primary problem was a neurotransmitter issue, and it was affecting more than the vagus nerve, it was affecting other parasympathetic nerves like the lacrimal nerve that controls tear production, and

even the central nervous system, that's the Acetylcholine needed by the brain. I certainly couldn't think. I got to the point I couldn't stay awake. So it's essential to pick those apart because if you treat it as a vagus nerve problem the patient can get some benefits, but will still be sick.

**22:16 DS:** Just taking a step back for the people who are thinking about themselves listening to this, going through a couple of checklists of the differentiators between Vagus nerve, and the Acetylcholine issues, what did the symptoms look like, how did they differ?

**22:35 DD:** Right. What you do is, you take symptoms of an anticholinergic poisoning and turn it down a notch. So the things that become the most obvious really are a tendency for constipation, fatigue, brain fog, large pupils (because pupils, if you're in the same light, the only thing that will change your pupil size is the autonomic nervous system) and tendency to get flushing and dry eyes, even dry mouth--those are the ones you usually see. So in patients, they'll tend to be forgetful, they'll tend to be sluggish, they'll tend to have dry eyes, and you can just see the big pupils from across the room unless they're on medications that will work against that, and you know that it's a possibility.

**23:26 DS:** And then what would primarily be just vagus nerve symptoms, alone, if you really feel like it's an issue with the actual nerve?

**23:33 DD:** Right. And it's always a good review--what does the vagus nerve do? Stomach acid production goes down, because that's under control of the vagus nerve, the pyloric valve down at the base of the stomach is controlled by the vagus nerve. And I remember sometimes the food would just sit in my stomach, it wouldn't go anywhere. You can watch for the Gallbladder not doing well. Pancreatic enzymes are decreased, patients may or may not know those aspects, but they start to show some malabsorption syndromes. The peristalsis, or the movement of the food or stool ultimately in the GI tract becomes sluggish, and you can even end up with gastroparesis. Interestingly though, the vagus nerve is not just digestive--it does calm heart rate, it allows calming of breathing. Like, if something scares you, and everything gets all agitated, it allows you to calm down again. But it's also the anti-inflammatory pathway of the body. That was not my science. Dr. Kevin Tracey figured that out at the Feinstein Institute of Medicine and that's huge to understand. So many people deal with inflammation on a chronic basis, if they have chronic illness certainly, and it's part of aging too. You want your vagus nerve to be working very well if you deal with inflammation. Sometimes people fight inflammation and can't get on top of it--in this case they also have to consider the possibility it could be a vagus nerve issue.

**25:13 DS:** Thank you for sharing that differentiation. So, you figured out the whole nicotine piece, and then you went and figured out more around the neurotransmitter piece, the acetylcholine piece. What was your next discovery in this process?

**25:31 DD:** Right this is a matter of a nerd being in the kitchen trying to put this together! I loved organic chemistry and I had to kind of think back: "Could we put this together? Can't wait for a drug. Could we use the mechanism of action of certain supplements if combined in a certain way? Could I make it stimulate that postganglionic vagus nerve for the receptor itself like nicotine did? Could we also design it to cross the blood-brain barrier?" I wanted to use the brain function. So we had some goals. First, it had to already be regarded as safe by the FDA, any ingredient we used. And then secondly, I really thought maybe this is a genetic problem with acetylcholine, with the ability to manufacture acetylcholine, because it was genetic disease investigators who then I thought, "Oh, this is it." You know?

**26:31 DS:** Yeah. Okay, but it wasn't...but it did affect some people. There were a couple of sheets I looked at and they affected maybe one out of every 50 people, but in the general population, it was more like about one in every 500. It wasn't the reason. I was hoping to find the reason, but I wanted to have workarounds for those genetic issues. I didn't want us or anybody else to have to know their genes in order to know if a mix could help them. And then a third... Well, what we've watched so carefully was the only way to make sure that the vagus nerve actually got triggered--to watch for a bowel movement. That was the only objective way I could check. There's no blood test for acetylcholine because the body breaks it down so fast. So we were very focused on triggering a bowel movement. And of course, as I mentioned, it had to cross the blood-brain barrier to help with cognition. So I just sat down and worked the science honestly, and then it was a fair amount of trial and error to get the blend just right, so it would stimulate the postganglionic nerve but not overstimulate, if you overstimulate one that works against you, the receptors can start to shut down. And then working around the genes, some of the ingredients actually shut each other down if the blend wasn't just right. So it took a little bit of work there, but I excel in nerdism.

[laughter]

**28:02 DS:** Good thing, right?

**28:05 DD:** Absolutely. I certainly wasn't going to stop there and put it together. And then I had two lab rats. My daughter also developed POTS, although she wasn't as disabled as we were, but we had the three of us to start working on it, and we did. We put that together and now it's known as Parasymp Plus. Eventually when I got all this done, I thought, "What am I going to call this? What am I trying to say? I'm trying to say it supports the parasympathetic nervous system, not just the vagus nerve, plus it crosses the blood-brain barrier to boost cognition." It was awesome to be able to give this to my son, and he started to absorb nutrients again and his growth resumed and his bones started to heal, etcetera, that was really a scary time.

**28:57 DS:** So this took a while to come up with, and as you were formulating this, were you seeing results within your family and yourself? Was this kind of the missing piece that really allowed you all to get well? Did you find that?

**29:11 DD:** Yes, that was actually the second, and probably the biggest piece. High intracranial pressure was a problem for us too, and I released that in The Driscoll Theory. In fact, a lot of this is in The Driscoll Theory, that book I put out a few years ago where we explained all that, but this was the piece that no one had ever put together. This really was a discovery, and so I received a patent for it. Actually I received two patents, which was amazing to me--that this got missed, the ability to be able to trigger that vagus nerve with something oral. It wasn't intuitive at all, but being able to absorb nutrients again, getting the gut working, and then we could actually start to calm down a little bit. I was hyperadrenergic POTS. I was just flooded with adrenaline, norepinephrine, and I was shaking. I was so hyper, if you will. I certainly couldn't sleep most of the time until I just got so exhausted that I couldn't stay awake, so it allowed things to calm down. All the doctors had tried and I could understand why. They tried to calm the sympathetic nervous system, the system that gets you all riled up, right? And they'd give me Xanax which probably allowed me to survive, but no one thought, "Does the parasympathetic nervous system maybe need a little boost here?" It's a two-way street. And it was so important to put that in place.

**30:43 DS:** When you look back in hindsight and see why you developed POTS, and what happened in your history, and then we also mentioned your hypermobility and this constellation with MCAS activation syndrome...what is your theory about how these are all interrelated? Why do some people get this? Obviously you went on a trip to Costa Rica with other people and not everybody got this, but your family did. What are some of your thoughts? That's the biggest question, in practice--why did this happen to me? What's going on? It's of course so multifactorial, but I'm just so curious to hear your thoughts.

**31:35 DD:** Right. We need to do another podcast.

**31:38 DS:** We'll have you back, of course.

**31:40 DD:** Oh, that'd be awesome. We're still picking things apart and plan to publish some of this the same way.

**31:49 DS:** Oh, great.

**31:50 DD:** We'll release publications, which is probably the most effective way to do it. Most of this is outlined in the book though, at least how we started to figure things out. Mast cell activation--I'm glad you brought that up because there's a fair amount of attention on that. I know, going through this, I developed, ultimately, symptoms that corresponded with mast cell activation, and I remember thinking, "This is it. It's gotta be... it presents just

like it. This must be what it is," and I just kept digging. But mast cell activation is tricky because it does present with certain symptoms, right? Itching, hives, diarrhea, anaphylaxis, etcetera, but tryptase ought to be high. That's one of the chemicals that mast cells kick out, or a patient should have anaphylaxis. And if patients don't present with one of those, we need to consider possibilities that it's something else, that it's something that mimics mast cell activation. I think that's important.

**32:55 DD:** In fact, there was a recent publication from mast cell experts actually, recently like last month, it was called "Dr, I think I have mast cell activation" and they covered 48 differential diagnoses for mast cell activation. I will have to say that I don't think most doctors are going through those. We do at POTS Care because we have to, we've got to stay in the science. But having said that, if mast cells are an issue, you have to make sure your vagus nerve is working well. The vagus nerve is what helps to control mast cells. That's part of that anti-inflammatory pathway we mentioned. So if your vagus nerve is not working well, for any reason, be it acetylcholine damage, or whatever, then you're more likely to have problems with chronic inflammation.

**33:50 DS:** I appreciate you sharing that. When people are in this world and searching for answers, sometimes we over-apply diagnoses with what the trend is, maybe not looking at all the other factors. I think that's a really good point.

**34:06 DD:** I think we all go through that, Christine, honestly. I know I did. I went down every tangent, and I think where it was important in our case, for my family, was that when we went down one of those tangents, if it turned out to be not correct, we exited and moved ahead. And my heart really breaks for people who end up stuck in a tangent and they don't know what else to go to. What else could this be? That's always where we see people getting the sickest, I think, is with treating inappropriately because they went down the wrong path.

**34:44 DS:** Right. And the path should lead to progress, so if you're not seeing the progress, reflect on changing the course and pivoting your thought and your team. I think that's a really, really a good point.

**34:57 DD:** Also, as patients, we're so sick. We seek validation, and that was such a goal for me. I needed someone to validate the fact that my kids and I were suffering so much, that this wasn't some mild something, it wasn't a psychological condition. We need labels, and if someone gives us a label, we will hang on to that label because we need validation, and sometimes that works against us, but I totally understand. I have been there, and I totally get it.

**35:32 DS:** I think that's a really important thing to mention. And so, Diana, you created this product. According to your experience and what you've seen in practice, once people start

taking this, is it something that is needed lifelong, or is there a period of time where people restore the function and levels of acetylcholine, and then their body can become more resilient and the symptoms resolve?

**36:06 DD:** It is such a good question. Just staying in the science, first, we figure out, or do our best to figure out, why did that work? And there are situations where, say, stimulating the vagus nerve, like you had mentioned, like gagging, or splashing cold water, or humming, or meditating, or whatever--there's situations where those methods don't work. And if we look at those, it helps give us answers to your question. The situations where those methods won't work is when people have nervous damage, for example, and it is such a long nerve. There are so many opportunities for it to get damaged. So if it's damaged in abdominal surgery, heart ablation, an accident, trauma, whiplash, what have you, you can stimulate that nerve till the cows come home and nothing's going to happen, that's not going to work. Parasymp Plus works around a damaged nerve, because we're going right for either the postganglionic nerve or the receptor itself. So if the nerve is damaged, that'd be one person who would probably need it chronically.

**37:13 DD:** Those genetic issues I told you about with the production of acetylcholine, we see those every once in a while, and those people are 100% dependent upon it. But it is so awesome to see--I remember the first one at POTS Care who had one of these genes, she had never had a normal bowel movement, and, yes, she had a normal bowel movement. It was such a huge celebration for her, it was really life-changing. Now, the other thing we figured out, and this was through a combination of our research and others', and this is probably the most critical--certain inflammatory cytokines, and that's proteins that are released by certain inflammatory cells like interleukin-1 beta, TNF alpha, interleukin-6, etcetera--they can block the release of acetylcholine. So if that's the case, you can stimulate that nerve again and nothing happens. I had insight into this because, being an eye doctor, we know about Sjogren's syndrome, and that's a condition that can cause fairly dramatic dry eyes and dry mouth. It's an inflammatory condition.

**38:20 DD:** In that condition, the inflammatory cytokines, and to some degree the inflammatory cells, block the release of acetylcholine. If you try to stimulate that lacrimal nerve, the acetylcholine does not come out. So if that's the case also, if you're a chronic inflammatory patient...that could include obesity, autoimmunity, aging even, or some other genetic issue with inflammation, then again we have to work around the inflammatory cytokines and the fact that nerve is not going to work without it.

**38:53 DD:** In my case, I did get to the point, Christine, where I thought, I don't think I need this anymore. My fatigue had long gone, and I thought my bowel movements were good enough without it. I went to the bathroom twice a week, and I thought, that's pretty good, right? Is that good? [chuckle] And I figured out, no, that wasn't good. I ended up with pancreatitis, and I remember, one, it was terrifying because that can be so serious, and just

the testing for it is not pretty. So I thought, is there any chance getting the vagus nerve back on board is going to help nudge that pancreas and control some inflammation, because pancreatitis is inflammatory. And sure enough, it took a couple of days, and things started to turn around. And that's when I told my husband, "We've got to get this out to other people." So some of us, I know for myself--I can't do without it, but everybody is a little bit different.

**39:56 DS:** You've also created a few other products. Did this come out of other things that you felt you needed in your arsenal, and can you just share some other products that you've created as well?

**40:10 DD:** Yes, it did, it was all about me for a long time. [laughter]

**40:13 DS:** Hey, it's definitely a motivating force, for sure.

**40:20 DD:** Right, absolutely. I couldn't find a digestive enzyme that would be appropriate. The reason I wanted to do this was while I was getting Parasym Plus going, it took about 4-6 weeks in our studies for almost everyone to get the gut working more normally; it wasn't just all about bowel movements, the organs had to pop back. So I knew it was going to be a process, and I wanted to support it from the other side, at least for a while. And then people who don't have gall bladders... Fortunately I saved mine, but for people who don't, sometimes it's helpful to have that. If your vagus nerve is not working very well, you need support there, you tend to be very sensitive because you tend to have higher levels of inflammation, again, because the vagus nerve isn't there to help control that.

**41:09 DD:** So with highly sensitive people, we have to be careful with things like protease. Protease helps digest protein, which is great, but in higher levels it is rough, especially on the stomach lining, it damages the mucus lining. So I wanted to find one with a really low level of protease, and then didn't want any inulin in the mix. Inulin is a great prebiotic, but it is one of the FODMAPs, and people that have vagus nerve problems tend to lean toward a lot of bloating and those sort of issues, so we didn't want that. I didn't want cellulase in there. I oftentimes see this put in, and we sometimes think more is better, but cellulase is unusual because humans do not produce cellulase normally. Termites produce cellulase, cows produce it, but they have a separate stomach for it. But we need fiber, cellulase breaks down cellulose, and we're not supposed to break that down because it makes our stool soft and we need that. So, we came up with some digestive enzymes.

**42:18 DD:** And then, interestingly, a lot of us are on antihistamines because of either mast cell problems or conditions that mimic mast cell problems, and if we're on Zantac or any sort of acid reducer, or if we have high pressure, we tend to be on a lot of baking soda to keep medication working, then we need something to boost stomach acid when we eat, and we didn't really have a way to do that. Apple cider vinegar is acidic, and that can be

great, but we didn't want to drink it because then there's acid going down your oesophagus a lot--again, we see a lot of inflammatory patients, and that's not good. It's kind of like GERD in reverse, if you will.

**43:03 DD:** Betaine hydrochloride was too strong for the sensitive people, so we put apple cider vinegar in a capsule, but we made it a lower pH than most out there, because it wasn't just for benefits of apple cider, it was to help lower the pH to help the stomach acid for digestion and to kill some of the germs, etcetera. We added ginger in that to help soothe the GI tract. We also saw a lot of nausea with vagus nerve problems, and that combination is really great. And then we just expanded from there.

**43:43 DS:** These other products definitely describe a lot of the symptoms I see in this constellation of symptoms: nausea, the chronic small intestinal bacterial overgrowth...where it gets recovered, the ileocecal valve that gets stuck. I'm excited to try these! It makes a lot of sense to support these other things when the vagus nerve or the acetylcholine deficiency is happening, because that's what makes people miserable--the chronic nausea, the bloating, and the constipation. I think that's great.

**44:26 DD:** And that brain fog too. I will mention to you it got so bad for me, I just had no short-term memory, and I was tested because I had applied for disability. They did an IQ test and they snuck in testing for short-term memory. I just had zero. And at first I told my neurologist and we had a laugh, I had this Newsweek in the bathroom that every day I'd look at it and I go, "Wow, what an interesting story. I didn't know that." The next day, I would open it, "Wow, what an interesting story. I didn't know that." So, I've had the same Newsweek in that bathroom for six weeks and everyday it was brand new to me.

**45:02 DS:** Wow.

**45:02 DD:** But it got scary, it got to the point I lost the ability to read, my eyes were going over the words and it wasn't making it to the brain, and then I couldn't stay awake. But the difference in cognition, the ability to stay mentally alert, and to start to organize my thoughts again, certainly to read again, etcetera, returned and my neurologist was convinced I had some neuro-degenerative condition and I exhibited that way. It wasn't subtle certainly. So pulling myself out of that fire was also very dramatic.

**45:39 DS:** Yes, brain fog is a really big issue in a lot of our patients as well, and again, it's multi-factorial, but it seems with your formula being able to access the brain and cross the blood-brain barrier, that is half the battle, right? We can have all the ideas in the world, but if the medicine doesn't get to the right place, it doesn't create symptom relief. So Diana, you've mentioned POTS Care a few times, your clinic where you specialize in treating

POTS as a result of your journey. Can you tell a little bit about what makes your clinic different? And if people are listening and have been struggling out there for a long time, who's the right fit for your clinic?

**46:23 DD:** Right. This is really just a dream come true. I have to pinch myself some days, when I see my name on scrubs, and think I made it to that other side. We think as a sick person, we'll never be on that other side, and it's really amazing to help people. I think the traditional treatment for POTS, and they certainly tried it with me, is high doses of salt, beta-blockers, compression hose, antidepressants and to some degree Mestinon or Mido-drine. I was unsuccessful on all of those, I just got worse every year. So we're here to start to look at the entire picture to figure out in every case, what is the medical cause? This is a medical condition, but it can exhibit with psych symptoms ultimately, too.

**47:14 DD:** But it is a medical condition. We want to figure out what is causing the POTS. POTS honestly, it's a symptom, it's not a disease, it's not a disease process. Right now, we're the only ones doing that--so we can now do retrospective analyses, which are a lot less expensive than the studies we were doing, to release some of the information. That's where we're headed with this. It is a personal mission, to get this out.

**47:43 DS:** I love that, and I love that you've really taken your journey and are using it in helping so many others. As you are looking at the themes of the people that you're treating, I really like how you said POTS is a symptom, it's not the condition. What are some of the common themes that you see? For you, was it the viral trigger that created the POTS symptom? What are the themes that you're seeing?

**48:14 DD:** Yes, and we see it all, honestly, we see it all.

**48:17 DS:** I bet.

**48:18 DD:** I have a list of 40 conditions that we have to examine, like I mentioned, those who exhibit as if it might be mast cell activation. If tryptase is normal and they're not having true anaphylaxis, we've got a bunch of things we need to run through too. We want to figure out if there's abnormal intracranial pressure. And it's not in everybody, but it is in over half. It's about 65%, and we want to figure that out. We do look at the biggest nerve issues, GI issues, a way to actually consider everything.

**48:58 DD:** We've seen every trigger known to man, everything from viruses like with myself. My son was also triggered by viruses, just three regular viruses; my daughter, we really can't identify any trigger for her. And we see those patients too. We've seen a few triggered by high levels of stress. And that's kind of that PTSD association too. There's some similar changes going on there. We look closely at the brain MRI and we're certainly the

only ones who are going into the eyes to look for issues. We want to find out if there's vascular problems going on, we look at the immune system, we certainly want to rule out any autoimmune condition participating, we look closely for clotting, we see a fair amount of clotting here, so we consider it all. We have a tremendous number of spreadsheets and algorithms that helps start spitting things out for us.

**49:57 DD:** But honestly, with so much of this, you can't rely on spreadsheets so well, because the symptoms can be fairly subtle but they can still tell me something fairly dramatic. I like to hear from every person what they're feeling, how it presents to them and that helps. We don't have another word for this Christine, we call them episodes. That's what I called it when I went through it. And they're just fairly dramatic times of fast heart rate, maybe some flushing, you feel like you're dying.

**50:36 DD:** And sometimes tremor, even like a pseudo-seizure presentation. We want to try to figure those out. And those are not being recognized by other doctors. I just don't get it, I really don't. But they can be tremendous and very frightening, both for the patient and any relative or friend or spouse or whatever who sees those, they can be very scary. So we understand those intimately, sadly, personally.

**51:08 DS:** Absolutely. Well, Diana, your story is so inspiring and it's just amazing how you turned this very difficult and challenging time for yourself and your family into a transformation of your health, to sharing this with everybody and creating a supplement line and having your clinic. That is all so much work! I know it must be so rewarding on so many levels. I'm really excited to get to know your work, your research and your products better so we can help more people at our practice as well. Is there anything, Diana, you want to leave us with, as we wrap up our interview?

**51:53 DD:** I think, if nothing else, please note, there's always hope. As sick as I was and as old as I am, if I could recover, there is always hope for everyone. It was a horribly tough journey for me and my children, but there are answers. We stay in the science, right? But great minds like yours, that you're willing to share what you've learned too, and that in combination with some personal experiences is a powerful one. So there's always hope. And what we learned also can help those who are not as sick or not as dramatically sick, but who want to live the best life they can. I plan to be very proactive, as I grow older. I already feel like I've been through Alzheimer's, Parkinson's, you name it, I felt like I was there and just got sucked back into normalcy. It was the strangest journey. I would like to try to keep from going back there. So being proactive, I think, is important in our health, sick or not.

**53:00 DS:** Thank you so much for sharing that. I agree, it's so important to have hope and to really connect with the people in your community. There's always an answer, and if you're not getting the answer, I love your saying, stick with the science, the science is

there. And there's a lot of experience out there too, just remain curious. If you don't like the answer you're getting from your doctor, find another doctor until you really get the results that we all want for you.

**53:29 DD:** Absolutely.

**53:31 DS:** So, Diana, how can people find out more about you and your work? We'll have a link to your website in the notes, but please share that with us as well today.

**53:40 DD:** Yes, absolutely. When I was sick, I set up a blog, PrettyIll.com, it's still out there. There's a forum on there where I answer questions at no charge. I'm up to close to 1500 questions at this point. And I'm always there. Well, once or twice a week anyway. But I'm full-time at POTS Care now, so it's POTSCare.com. And then the research, we've gotten most of that on the site, Vagus Nerve Support, where I put the supplements. I think that's most of them, yes. I'm kind of spread out, aren't I? But, yes, what started as a patient journey has morphed and I didn't really anticipate that, but, I'm happy it did.

**54:27 DS:** Well, thank you so much for your time and all of this information and for sharing your story today. We'll have all of this information, again, in the show notes, and thank you so much for the interview.

**54:37 DD:** Thank you. I appreciate it so much, Christine.

**54:41 DS:** Thank you for listening to the Spectrum of Health Podcast. I really hope you enjoyed my conversation today with Dr Driscoll. If you're suffering from POTS and trying to further investigate this illness, please check out her website at POTSCare.com. If you're enjoying these episodes and have any speakers you'd like me to interview, please reach out to [info@DrChristineSchaffner.com](mailto:info@DrChristineSchaffner.com). Thanks again.