Season 1, Episode 1: The Polyvagal Theory: Insights Into Resilience with Stephen Porges, PhD

Jodi: Hello, and welcome to the Parasympathetic Summit. I'm your host, Jodi Cohen, and I am beyond excited to welcome Dr. Stephen Porges, the father of the polyvagal nerve theory. He is a PhD, a distinguished university scientist at Indiana University, where he is the founding director of the Traumatic Stress Research Consortium in the Kinsey Institute. He's also a professor of psychiatry at the University of North Carolina, a professor emeritus at both the University of Illinois at Chicago and the University of Maryland.

He served as president of the Society for Psychological Research and the Federation of Associations in Behavioral & Brain Sciences and is a former recipient of the National Institute of Mental Health Research Scientist Development Award. He is also the originator of the Polyvagal Theory, a theory that emphasizes the importance of psychological state in the expression of behavioral, mental, health, and health problems related to traumatic experiences.

Welcome, Dr. Porges, it's such an unbelievable honor to have you.

Dr. Porges: Well, thank you, and thank you for the kind words. I'm pleased to be here today.

Jodi: Well, I'm excited. If you can share how the autonomic state of the nervous system serves as an enervating variable that biases our reactions to others? Actually, before we get into that, could you just give a layman 2 expression of the Polyvagal Theory for those people who are not familiar with it?

Dr. Porges: Yeah, what we will try to do is keep it within the constraints of the timing of this interview because I could talk for a few days on that. But, basically, let's start with really your point and that is physiological state is that intervening variable between stimulus and response. The way that our autonomic nervous system is functioning in the state that it's in, functionally determines how we react to stimuli in the environment so that when our autonomic system is in a state of great resilience, then stimuli this bounces off of us.

When our autonomic nervous system is in a state where it's fight or flight or defense, then those stimuli result in a hyperreaction, an aggressiveness, or a sense of being hurt. And if our autonomic nervous system is in a state of shutting down, we're dissociated, we don't even recognize what's being said to us. So the physiological state is really what the Polyvagal Theory focuses on.

Dr. Porges: And it says that we have these different states that evolve through the evolution of vertebrate or our autonomic system. So we have more ancient systems, which are basically shutting down systems. We have the newer one, which is a mobilization or could be used for flight or flight. But we have this unique mammalian system, which is a social system that says, "My goal in life is to coregulate with another. To feel safe in the arms of another person.

Jodi: Yeah, and if you could talk about how the autonomic state serves as a neutral platform for those different classes of behavior?

Dr. Porges: Yeah. Well, the different neuro platforms are that when we're in this safe state, we have a neural platform that is regulated by a newer, evolutionary newer vagal pathway, which happens to be linked in the brain stem with the nerves that regulate the facial muscles. So when we smile and when we can hear people's voices in noisy environments, and when our voices are melodic, we're projecting our physiological state, our vagal regulation of our heart to another person. So we're projecting it in our voice and in our facial expression.

And that's how mammals evolve to connect with each other. So they didn't have language, but they had vocalizations. And what they were doing were signaling the others that they're safe to come close to. And we do that all the time. So we intuitively like people who talk in a more melodic way. And we get away from people who functionally yell at us, either they have a high-pitched, anxious voice, or a low-pitched dominating voice, either way, we don't really want to connect with those people.

But if the voice is melodic, our nervous system catches that this is safety. And we want to be closer and we want to learn more about that person. And in polyvagal theory, that nervous system detection is called neuroception because it's outside of the realm of cognition. So we automatically like certain types of vocalization.

Like the mother's lullaby, the baby doesn't learn that the melodic voice of a mother is calming, the nervous system is prepared to detect melodic voices as calming cues. And if you have a dog or a kitten, you don't talk the same way to them, and their nervous system will respond in the same way.

In fact, all mammals have a frequency band in which social communication of safety is conveyed. And so we intuitively talk to our dogs and cats. But serendipitously or fortunately, their frequency band of social communication overlaps with ours.

Jodi: I should have asked this earlier on. But can you talk about the different branches of the vagus nerve and where they travel in the body?

Dr. Porges: Sure, yeah. The vagus, of course, is an enormously large nerve. But we're going to almost use it as a metaphor because it connects the brain stem with all the organs in the body. And so we have this whole historical notion that the vagus is first a motor nerve going to the organs, but 80% of the fibers are sensory.

So it's your surveillance system. It's taking information from your gut, from your heart, and it is sending it to the brain cell, which is then determining whether or not other portals of your brain are open for cognitive processing, or attention, or do you have to be hypervigilant and react to the world.

So it's a bi-directional system that is connecting the brain with the body, but it evolved in an interesting way. It's actually extremely ancient. So virtually, all vertebrates have a vagus. The ancient vagus is really, we still have most of it and it goes, primarily, to the organs below our diaphragm. So even though, it's connected to the organs above, its primary role is to regulate your gut. And we're going to halt it right there because we're going to, basically, ask this question, "How many of your listeners have gut problems?"

Jodi: Yeah, pretty much everyone, even if they don't recognize it.

Dr. Porges: Right. And if you have a trauma history, where is it going to be manifested? So this comorbidity of the irritable bowel syndrome or gastric destress with trauma is really telling you that the vagus, going to the organs 4 below the diaphragm, is responding in defense. Now, this comes from more ancient vertebrates, because under challenge, the vagus was not this protective, calming, loving nerve, it was a nerve that said, "Reduce metabolic output or you're going to be in trouble. So defecate, get all the food [out]," because digestion is metabolically costly.

So defecation was an adaptive way because these early vertebrates had to hold their breath, either under water, or whatever they were doing, and appeared to be dead. So we have this very ancient defense system of immobilization shutting down. And again, in the world of trauma, people experience this as disassociation, or freezing, or literally getting out of their body, being disembodied. And so the goal of health is about being reembodied and feeling that we are part of our body. And that's really getting the vagus out of defense modes.

Dr. Porges: So the ancient vagus originates in the area of the brain stem that's called—I'll give you some anatomical names that we can forget them in a moment—it's called the dorsal motor nucleus of the vagus, but a lot of people now use the term, "going dorsal." And when this older vagus pathway now becomes your prominent response, it means shutting down. So when some clinicians say, "Hey, you're going dorsal," they're really saying this old vagus is now taking over. So that for the initial first stage of our evolutionary development of an autonomic regulation system.

The second stage was the spinal sympathetic. And we know this about mobilization. Now, all these systems are not always defense systems, they can be utilized to support our homeostatic functions, but when used in defense, it's fight/flight with the sympathetic, and it's shutting down with that old dorsal vagus. But now most have this really unique mammalian branch to the vagus, in which you can actually watch in embryology as certain cells are of origin of the vagus nerve move from the dorsal area, and move eventually to an area that regulates to the muscles of the face and head.

So now when we have a melodic voice that's coming, actually, from our laryngeal control of vocalizations for intonation is actually to a nerve called the recurrent laryngeal nerve. And that's a vagal nerve. So we have parallel vagal regulation of vocalization and our heart. So now when people are talking from their heart, we hear it, and we know it, and we say, "Ah, that person is real." But what you're really saying is the intonation in their voice is triggering in your neuroception that that person's physiological state is calm, is loving, and trusting.

So we have these three, but now the systems work in a hierarchical way. This is really, I'm going to use the term, the beauty of the mammalian system 5 because it means, in a hierarchal way, it means that if we can get this newer, loving, trusting system to work, it functionally regulates the others, it contains them from going into defense, it lets them do what they're supposed to do, which is support our health, growth, and restoration.

So when we find safe relationships and trust, we often are self-healing under those conditions. And if we think about how we treat our children who get hurt, we want to give them a hug. And what we're doing is creating that safe container so that that newer ventral vagal circuit downregulates their defenses, lets their breathing come down, lets your metabolic activity, lets them heal. And if you had any form of disease, you'd want that to occur, as well. You'd want the body to do its job and not to fight off people, but to take care of what's going on inside.

Dr. Porges: So the newer mammalian vagal system is what makes life worth everything. So it's our portal for coregulation. And it really emphasizes that we, as a species, didn't evolve to be isolates. We evolved to be social creatures that coregulate. We're not self-regulatory all the time. And those of us who have reasonable coregulatory options have usually the capacity to self-regulate. And if we get into the world that we're all dropped in to, we're basically told that we have to self-regulate, and if not, we're not good people.

And this includes the school systems. They're missing the point. If you don't have the capacity to self-regulate, being told or being demanded to selfregulate, you'll fall apart. You need options of coregulation to get the system organized sufficiently to get enough resource to be a self-regulator.

Jodi: Yes. You've said so many amazing things that I want to unpack. But I really want to land on that last point, especially now we're being overwhelmed with fear messaging, which makes us feel unsafe, and we're not allowed to connect so we're being taken out of our ability to self-regulate, which turns off our immune system, as well.

Dr. Porges: I wrote a paper this past month for Psychiatry Journal, which talked about the paradoxical challenge to our nervous system of the pandemic. Number one, we're under threat. The virus is a threat. And we have to acknowledge it. But what could happen when our bodies are under threat? We've retracted our social engagement system with this ventral vagal circuit so that we're more hypervigilant and more concerned about what's going on around us and our physiology is now more likely to be reactive to those that we interact with, whether it's on social media or over the phone.

So through the history of humanity, the history of the evolution of being a human, when humans were threatened, how did they mitigate their threat 6 responses? They mitigated it through social interaction, through being hugged, through being with a trusted individual. But we have what we're calling a "social distancing" going on. And the social distancing creates a problem because it takes away from us the toolkit that humanity had always used to regulate threat. So it's problematic.

In some of my discussions, I'm learning that people shouldn't use the word social distancing, they should use the word physical distancing so they respect social communication. So even when they're physically distancing they should wave at people, and smile, and have an interaction, instead what we often see, and I'm going to pick it up right in front of me because I have one right with me, you'll see I do have a mask.

Jodi: Yeah, you can't see facial expressions.

Dr. Porges: I'm not going to put it on, but I have a mask. And often when people walk by, they drop their heads, they gaze avert. And so when you gaze avert to a person, it's a trigger to their nervous system, through neuroception, it's a trigger of being dismissed or being rejected. And our bodies interpret these reactions with our own personal narrative. And we start to feel less, or poor about ourselves, or we may get angry at the person who does it.

But we have to understand that our bodies are reacting to these cues. We have to really respect the fact that the virus is a true threat. And we have to understand that we have to maintain a type of social communication. And what I've been really saying, since I now spend so much time on Zoom or Skype, and what I decided to do, was to treat the moments a little bit differently because we have been so trained with two-dimensional screens not to think of them as people or moments of interaction.

So if you and I were at a Starbucks, we'd be looking at each other, we'd be talking, and we'd have a different level of connection. So I said, "Well, I have mine, here, too [Shows cup of coffee]." So I made a decision. I decided I'd start wearing my reading glasses during webinars so that I could see people's faces more clearly and I would make an effort to look more directly at them.

The problem with my—I have a 27-inch screen—so I'm looking up when I want to look down at you. So the camera's really not in the best place, but I'm really, I would say, I'm retraining myself to do what I would naturally do. And that is to look at people's faces, to pick up the cues in their face, to listen to their voice, and to, basically, be more present with them in a video chatting format.

The problem is that over the years, we, basically, have bailed out whenever someone goes on a two-dimensional screen, we'll pick up our phone, we'll do something else, and we would take that moment of feeling that we're present with that person. So I'm really saying that the way of dealing with this, during this crisis, since it's going to be with us for a while, is that we have to, in a sense, take moments, like the moment that we have together now, and, basically, say this is a moment of being present with you.

Jodi: Yeah, and you said two things that I think are fascinating. One thing that you said is the vagus nerve is assessing all the senses, so sight, sound, smell, everything as a threat. And that's also how you engage it, and put it in the place of safety.

Dr. Porges: Let me clarify. The vagus is really connected to our visceral organs. Now, it also has impact in terms of taste and gustatory types of signals, but it is related to other things. So like, if we lost our vagal control, bodies would be in a more mobilized state, more defensive, and our pupils would dilate, and now we would be light sensitive. So there's going to be interactions.

And the muscles that are going to our middle ear, our middle ear muscles, they will become loose so that we can pick up low-frequency predators. So the senses are changing, but they're not changing, necessarily, directly through the vagus, but indirectly through the vagus. So the vagus is affecting, basically, a greater area of regulation in the brain stem than it affects our global state.

Jodi: Is it a domino effect that the vagus gets more alert so it triggers these other things to try on?

Dr. Porges: Well, yeah, you could think of it as a domino effect. But if you thought of it as a neural platform, that you need specific neural platforms to be focused, to be able to listen, to pick up cues, in tune, let's say, our smells, you'll want to be in a state where you're not hypervigilant and turning around to enjoy an odor, your body gets triggered to different neural states, and they are great for different classes of behaviors.

Sometimes the class of behaviors are defense oriented so that we can take care of ourselves. But we pay a price for that. And that is when we take care of ourselves, in terms of physical threat, we lose the capacity to engage and feel connected with another.

Jodi: Yes, and that is the pathway back like what you were saying. That's a great tip. By the way, everyone who's listening, that when you're on these 8 conference calls, imagine we're both looking at you, and smiling right now so you are engaging.

What are some of the other things that you have found, in your research, that really helps people engage their safety mechanism and their parasympathetic state?

Dr. Porges: Yes. Well, let me just bring it back a bit. We've been doing research about what's happening during COVID-19. And the underlying hypothesis was that people who have trauma histories will be dealing with the pandemic, it will be more difficult in terms of depression, and PTSD symptoms, and worry. And we've been also using, in a sense, a polyvagal metaphor. And that is physiological state is that intervening variable meaning subjective measures of our autonomic nervous system.

Dr. Porges: Now interestingly, that, in general, people with trauma will have more defensive autonomic state, but if you co-vary out autonomic state from the trauma history, virtually all the variances are gone. And so the real issue is what is your physiological state? So what is your--

Jodi: Is that like your vagal tone, your resilience?

Dr. Porges: Yeah, the physiological state is saying, "Is my autonomic state responding defensively or is it well regulated and enables me to feel calm?" So we have some questions about salivation in the mouth, palpitations, irritable bowel symptoms. So you start getting a map. And we have an index of what that means, but, in a sense, the reaction to the COVID virus is really dependent upon that subjective physiological state.

And we've done other research before the pandemic like asking questions about trauma histories and sexual function. And interestingly, again, trauma histories don't lead to sexual dysfunction, trauma histories lead to autonomic state dysregulation that leads to sexual dysfunction, or lack of pleasure in sex, and even purpose in life follows the same thing.

So the gateway is really your physiological state. If your physiological state is more dysregulated, and more reactive, more defensive, meaning less vagal regulation in the pro-social and positive way, then purpose in life, depressive symptoms, anxiety, worry about the pandemic, all of these things start going together.

Jodi: So it's the foundational piece that determines if you're going...It's like The Three Little Pigs, "Is the big bad wolf going to blow your house down or not?" if your vagal...

Dr. Porges: Right, if you have a good autonomic vagal regulatory system, your house is made of bricks.

Jodi: Yes, yes, I love it. That is the main point I really want people to land on that you do not have control of anything outside of you, but you have control of your state. And I'm very excited for you to share some things with us.

Dr. Porges: Well, this is the interesting question. Before we emphasize you have control of your state, sometimes your state acts more reflexively. So we don't want to get people to feel that... Like there are already people who have been victimized, let's say rape, and their body immobilized, and now they're carrying the shame that they couldn't run and fight when their body went into an adaptive, defensive state of immobilization. So we want to understand this as reflexes, in part. But we also have an awareness of our response. And we also have some tools that we can bring in to help enhance that resilience, greater regulation.

Jodi: Thank you, that was a very important point. You should never go to blame, shame, or guilt. Yes. And it can always be unraveled. It's like you can turn the Titanic. It takes time, but you can do it.

Dr. Porges: Right. We have to be very careful about the causality model. We know that our body is that intervening variable, but the causality of it...So if I'm an anxious person and physiologically defensive, what is my responsibility? And this is really what your question is. My responsibility is can I learn to downregulate the physiological state that supports anxiety and defense? And what are the tools that are available to me?

So we talked initially about coregulation. But some people project so much anxiety, so much defensiveness, that no one wants to go near them, no one wants to give them a hug. Although, the person who is in that physiological state of defensiveness, their dream is to be loved and to be hugged, but the cues they're presenting to another is, "I'm not going near that, it's too, too dangerous."

So what do we as enlightened, civilized people do? Well, we have a knowledge of things like breathing. Breathing is a powerful regulator of vagal activity. Why? Because when we exhale, we actually are enabling the vagus, that neural mammalian vagus, to slow our heart so it's going right to the heart's pacemaker. So deep, slow exhalations are increased vagal activity, while long inhalations will turn off that vagal activity. So if we wanted to get ourselves worked up, we huff and puff. 1

Go back to your three little pigs and a wolf, metaphor. We huff and we puff. And that turns of the vagus. But if we take a deep breath and exhale slowly, then the vagus comes on. So chanting is also exhaling slowing, but also talking can be exhaling slowly if we enhance or increase the duration of our phrases so when I get off from this webinar, I'll feel really relaxed because I'm getting long phrases.

Jodi: Amazing. This is very helpful. Can you talk a little bit more, especially if someone...So many people that I know had some kind of trauma in their life. And if they're listening, and maybe they were raped, or felt like they were victimized in some space, how do people, like what's a good first step? How can they start to unpack that trauma and build resilience?

Dr. Porges: Well, the first part is often our reactions to the trauma or our functionally disembodiment adaptive responses, "It didn't happen to me. It happened, but I'm not there." So people start losing or becoming numb. They become numb to others, numb to themselves.

So part of the real strategy is to have a deep respect and to honor your own body's reaction. So often when people have been in these situations, they're both ashamed of it, and they also carry an implicit blame, and they can't get rid of it. So the part is to be developing and honoring of one's own physiological reactions and saying, "My body did wonderful things for me. I might have been raped, but I'm alive. Why am I alive? Because I didn't fight back. And if I had fought back, I could have been killed."

So we start seeing this gratitude of our own reactions and we start learning that our body can help protect us. The problem is the rest of the society has to be enlightened and informed about how the body actually works because when another person hears these stories, they said, "Why don't you fight?" And the judicial system is now slowly being informed that lack of fighting doesn't mean consent. And that's part of what people have to start learning that bodies react and our body has its own computer where it's making judgments. And these judgments are there to keep us alive.

So when you see people who tend to be combative or oppositional, think again about the intentionality, and start looking at them with a different light, and saying, "Why are they so scared, or why is their body so scared, and can we give their body, not their entire intellectual world, but their body cues of safety? Can we slow up how we talk to them? Can we give them a little distance? Can we reduce the cues of threat, as opposed to increasing cues of threat by being demanding of people who don't have the resilience to selfregulate?"

Jodi: And that's interesting what you were saying. I do talk to my dog in a baby voice. And that definitely helps. I wonder if it's the resonance of your own calming energy that influences their energy?

Dr. Porges: Well, you see, vocalizations or acoustic energy is energy. Our presence is an energy, it's both our vocal, it's our movements. So it's just a different metaphor. So we are always trying to get into resonance or at least we should be trying to get into resonance with another. But the underlying cue there is, does the other person feel safe with us? So you're not going to get a resonance, even with a puppy, unless the puppy feels safe with you. And so you understand the titration of your behaviors. You can't approach too rapidly. You have to assure the puppy that you are there to take care of them and not hurt them.

Jodi: Yes, yes. And I know you're looking into some acoustic devices that can help build vagus resilience. Can you speak to that a bit?

Dr. Porges: Yeah. So several years ago, I developed the intervention that's called the Safe and Sound Protocol. And initially, it was to deal with kids who had auditory hypersensitivities like individuals on spectrum, the autism spectrum, and it was using, basically, a computer-altered vocal music that emphasized the intonation of modulation.

Now, as I said earlier that this is really a trigger to our nervous system to calm down. But what does that mean neurophysiologically? It means, put the vagus back on. Let the vagal brake calm us down.

So I conducted research. And we showed that it increases the vagal regulations of the heart, it reduced auditory hypersensitivities. And now the work that we're conducting is that it's also reducing tactile hypersensitivities and visual hypersensitivity, and even increasing when people have trauma or are autistic, they don't like to vary their foods, they want something that they're familiar with. And so we're actually looking at selective eating. And what we're seeing is they're becoming more diverse in their food choices.

This system is available. You can go to my webpage and you can click on Safe and Sound Protocol and we'll send you to the company that is distributing it. But we're also modifying some of the algorithms so it can be used as an acoustic vagal nerve stimulator. And this will be available shortly.

And we're doing clinical trials. Right now, we have clinical trials set up with Ehlers-Danlos syndrome, which is the hypermobility syndrome, but those people also have gut problems and anxiety. And we're seeing if it can modulate 12 their pain. And we're doing a study with Parkinson individuals to see if we can increase the neural regulation of the facial muscles.

Dr. Porges: So the whole idea of this acoustic vagal nerve stimulator is a lot of disorders, whether we're talking about autism or Ehlers-Danlos or even Parkinson's, we don't know whether the clinical feature's like a flat face, and all that, and Parkinson's is really flat, is really part of the disorder, or is it part of the body's response to having the disorder?

Jodi: Oh, my, gosh, yeah.

Dr. Porges: So we have to think differently about this. And some of these symptoms may be treatable, whether it's through an implantable or contact vagal nerve stimulator, which are on ear or by listening to acoustic music that's designed to trigger the vagal feedback. So this is part of what we have to start learning and not think of comorbidities as being life-long deficits.

Jodi: So I wanted to delve deeper because you mentioned autism and some sensory seeking sensory avoiding behavior. I've heard you say that a lot of the behaviors that autistic kids experience is really just trying to self-regulate. Can you speak to that a little bit?

Dr. Porges: Well, I would say that many of the special populations that we could talk about who have aberrant-type behaviors, whether it's autism or even addiction, are really valiant attempts of the individual to try to regulate their state. So they're really, in a sense, with autistic kids, they're trying to be good kids, but their body is highly mobilized, and they have to move around and ritualize certain behaviors. So we start seeing the unfolding of some behaviors because their physiological state is providing this neural platform for behaviors that are anti-social.

Jodi: Can you elaborate on that for addiction?

Dr. Porges: With addiction, think about what an individual is doing, they're trying to regulate their physiological state through either behavior or through a drug. And what's the optimal way of regulating your behavior? Through coregulation, through interacting with another. So even when we mobilize and make face-to-face contact, we either call that dancing or we call that team sports, which we often call people who are dancing.

We see a team sport or basketball, and they're dancing together because they're moving, but their cues are keeping their behaviors of movement not to hurt each other, so which is really remarkable. So play for mammals is mobilization with social communication, usually face-to-face. And if you don't have face-to-face, with vocalizations.

Jodi: Interesting. And can you also...I'm curious, you're using a sound device. You talked about the ear. Can you speak to why the ear is a good platform for accessing the vagus nerve?

Dr. Porges: Well, the ear is an amazing platform for accessing the vagus because there are sensory pathways that go to the external ear. But there are also pathways that go to the trigeminal, out from the ear, that goes through the trigeminal and facial nerve. And an afferent goes to an area of the brain stem that regulates the vagus. So it doesn't really matter that much whether you're really on the vagal afferent or on the trigeminal or facial afferent. And even think about the notion where people will massage or suck on something, that's also an inefficient, but an attempt to stimulate that vagal calming mechanism.

Jodi: So the pacifier, the reason the Binky works is because they're activating the vagus nerve. Wow!

Dr. Porges: Yeah, well, also, think about when people do this. [Rubbing forehead with hand]. The trigeminal nerve, the afference of the trigeminal are just below the surface. And when we do this, it goes back into the brain stem. And it's the area that regulates the vagus going to our heart and calms us down. And when we do this to our dog [Rubbing neck with hands] or to ourselves at 4 o'clock in the afternoon to calm ourselves down, it's affecting, also, blood pressure receptors, which are going to the vagus and calming us down.

So a lot of the behaviors that we do, it's ritualized behaviors that we think we're doing to calm ourselves down, are actually neural exercises.

Jodi: That is amazing. Is there anything else that you want to share that we haven't spoken to yet?

Dr. Porges: No, I think, we're in a point in time in which a better understanding of our neural physiology starts to map into practices that people for hundreds of years have known worked or they were intuitive to others, but they actually have a neural anatomical and neural physiological substrate.

So when people talk about yoga, or they talk about breath, they talk about chanting, or they talk about even ingestive behaviors, or listening to music, that makes people feel safer and more comfortable, there's a neural physiology underneath. And it's not, in a sense, woo-woo, it's actually, one can think of it, and one can think of compassion as a neural biological intervention.

Jodi: Well, I loved everything you have said. You've shared so many tools that are going to be so helpful during this time period. Thank you so much. Could you just repeat your website for people that might want to write it down?

Dr. Porges: Sure, the website is StephenPorges, one word, .com.

Jodi: Wonderful! Thank you.

Dr. Porges: That's with the S-T-E-P-H-E-N.

Jodi: Wonderful! Thank you so much.

Dr. Porges: You're quite welcome.

Jodi: This was amazing. Dr. Porges: Enjoyed being here. Thank you.