

Stephen Porges Interview - Transcript

[00:02:35] **Saul Rosenthal:** Welcome to the Northeast Regional Biofeedback Society. NRBS is an organization dedicated to furthering understanding of and access to psychophysiological approaches. We welcome professionals, students and members of the public to join us in learning about the impact biofeedback and neurofeedback can have on wellbeing.

[00:02:56] **Saul Rosenthal:** My name is Dr. Saul Rosenthal. I'm a health psychologist in the Boston area and a member of the NRBS board. As we prepare for our annual conference, we're talking with some of the speakers who are joining us in October of 2022. I'm here with Dr. Stephen Porges who developed the increasingly influential polyvagal theory.

[00:03:15] **Saul Rosenthal:** Dr. Porges is a distinguished university scientist at Indiana University and founding director of the Traumatic Stress Research Consortium. He's professor of psychiatry at the University of North Carolina at Chapel Hill and professor emeritus at both the University of Illinois at Chicago and the University of Maryland.

[00:03:35] **Saul Rosenthal:** He served as president of the society for psychophysiological research and the Federation of associations in behavioral and brain science. And he's a former recipient of a national Institute of mental health research scientist development award. He's published more than 400 peer reviewed articles across a very broad range of topics.

[00:03:57] **Saul Rosenthal:** In 1994, he proposed the polyvagal theory, which links the evolution of the autonomic nervous system to complex psychosocial behavior. I was fortunate enough to hear Dr. Porges speak about the polyvagal theory in 2007 at a symposium in Chicago.

[00:04:21] **Saul Rosenthal:** And I think it's fair to say that that symposium had a significant impact on how we think about and utilize heart rate variability. So welcome, Steve.

[00:04:31] **Stephen Porges:** Thank you. Pleasure to be here.

[00:04:33] **Saul Rosenthal:** Thanks. First our listeners are a mixture of professionals and the public who are all interested in integrating or the integration of physiology and psychosocial experience.

[00:04:44] **Saul Rosenthal:** Could you give us a brief description of the polyvagal theory if brief is possible?

[00:04:49] **Stephen Porges:** Just simply stated our physiological state acts as a mediating variable of our life's experiences, how we perceive the world, how we react to others, how we project ourselves to others.

[00:05:05] **Stephen Porges:** It's not all in our physiological state has a great influence on our behaviors and our thoughts and polyvagal theory actually sketches out the map of how physiological states function as literally neural platforms upon which different behaviors more are more likely to spontaneously emerge.

[00:05:26] **Saul Rosenthal:** And physiologic state.

[00:05:28] **Saul Rosenthal:** Are you meaning autonomic?

[00:05:32] **Stephen Porges:** So I focus on autonomic, but I would say the fallacy is to think that our nervous system has separate, boxes or components. We have one nervous system. We have specialties within that nervous system, our visceral organs. They are regulated by the autonomic nervous system, but it serves as the platform of how many functions work.

[00:05:57] **Stephen Porges:** So I was actually reading a paper recently, looking at the relationship between a vagal tone or a measure of heart rate variability and potentials. It says in the world of neurofeedback, there's a strong relation. And of course there should be because our visceral organs are regulated by our brainstem.

[00:06:16] **Stephen Porges:** Our brainstem is sending signals to the cortex and other areas of the brain and the cortex in other areas that brain sends signals to the brainstem that affect our organs. So it's a bi-directional super highway of neural conduct connectivity.

[00:06:37] **Stephen Porges:** Or that's cortex that's thoughts. That's memories. That's my experience. They're all integrated.

[00:06:44] **Saul Rosenthal:** So it's further reputation refuting the mind body split.

[00:06:53] **Stephen Porges:** Well, I started to go back and try to figure out where did this come from? We all use the term Cartesian dualism, and we see the pragmatics of it that they feel spirit and mind are separate.

[00:07:05] **Stephen Porges:** We can cut open bodies and learn about it, so we look at the pragmatics of it. He was saying that passion, which we could translate as physiological state confounds reason. That's probably the theory and saying our physiological state can interfere, but also our physiological state can optimize experiences or thoughts.

[00:07:34] **Stephen Porges:** So we have to think of what Descartes was talking about. And especially in his writing on pure reason, he's talking about a very specific physiological state in which passion is not intruding on our thoughts and he's right. We are physiological feelings that set the platform for intrusive thoughts and it also sets the platform for rational thought.

[00:07:56] **Stephen Porges:** So it was a very special case and, unfortunately, that special case became the let's say the idealized view, what people should be. They shouldn't have said numb out their feelings or not respond to their feelings. And this has had a profound impact on our society, in our health, because if we deconstruct numbing out and try to interpret what that means is saying, we're turning off our feet.

[00:08:22] **Stephen Porges:** We're not listening to our body. When you turn off feedback loops, you start disrupting how the nervous system is regulating those organs and you start getting symptoms in these various organs. And finally you end up getting an organ disease.

[00:08:38] **Saul Rosenthal:** So that's a way in which trying to numb the physiologic piece.

[00:08:44] **Saul Rosenthal:** Actually comes back to haunt at physiology

[00:08:47] **Stephen Porges:** Because our physiology evolved really, really brilliantly to be able to disrupt homeostatic functions for short periods of time and then to rapidly recover. But what we've done with the knowledge that we can be productive or do things while we disrupted for short periods of time, we just decided as a culture to expand, expand, and we use terms like...

[00:09:10] **Stephen Porges:** I'm stressed out. What we really should be saying is my autonomic nervous system is disrupted. It's no longer in a physiological state that supports homeostatic functions. We shouldn't even use words like stress or anxiety. We should operationalize them and say, well, my physiology is not supporting my health growth restoration.

[00:09:32] **Stephen Porges:** And in reality, there's nothing wrong with disrupting it. We do that where we mobilize, but we need time and space, safe time, safe experiences to allow that nervous system literally to recover. And we came to think, well, if I can disrupt it and I got this thing produced, I've created that product. I can go back and disrupt it some more.

[00:09:58] **Stephen Porges:** And then people start using medication, drugs, or addictive behaviors to keep their physiology in mobilized, productive states. And then at one point, the body literally screams at the individual and says not doing that anymore, and now you have real problems. So I think that disruption is what is called the fight or flight the times sometimes you see that's another, in a sense, cultural, historical... I would think misdirection.

[00:10:30] **Stephen Porges:** So we think that the only disruptor we have or really stress reaction or threat reaction is simply a sympathetic mobilization reaction. We realized that that's not the only defense that people get stuck into. And what we start understanding is that we go into polyvagal theory, which emphasizes our evolutionary heritage.

[00:10:55] **Stephen Porges:** We find out that we have also a very ancient defense system that evolved before fight flight, and it's a shutdown system and it may initially occur as passing out.

[00:11:25] **Stephen Porges:** It tries to optimize survival. So it says, I'll give you a little bit of sympathetic tone. So you keep enough blood flow, enough muscle tone, so you don't pass out and we call that freeze. So in a sentence, I think freeze is an adaptive sequence to be the severe reaction of shutting down. And then what happens.

[00:11:50] **Stephen Porges:** People start to dissociate, so they don't even go into the free state. So in a sense, a higher level nuanced modification of a defense system. So defenses are not solely fight flight is what I'm saying. They can be shut down. They can be freeze and they gave me dissociative and they literally are following.

[00:12:12] **Stephen Porges:** And this evolutionary map that all we need to do is look at where we came from. And we understand where we have, where we go. Polyvagal theory basically acknowledges the pioneer work of John Kulis Jackson, a neurologist who talked about dissolution or evolution in reversed as a way that the nervous system reacts to both threat and literally illness weak, it says devolve, become more primitive.

[00:12:47] **Saul Rosenthal:** It makes me kind of wonder, well, it makes me wonder a lot of things, but one of the things I'm curious about is how might that play out developmentally? When we see development of even psychosocial, like attachment to important others, things like that.

[00:13:01] **Saul Rosenthal:** How might that play out?

[00:13:02] **Stephen Porges:** Well, I could reverse it and of course it's going to be obvious. The issue is if your body is not in a safe state, your body's in a state of defense or threat that doesn't lend itself to associate. Doesn't lend itself to attachment doesn't allow itself to trusting relationships.

[00:13:21] **Stephen Porges:** So we have to understand that the actual, let's say the point of humanity is the ability to feel safe in the presence of a threat. And if you have history of an abusive childhood, the nervous system, isn't stupid. It says you're in a dangerous world. You can't afford to be accessible.

[00:13:41] **Stephen Porges:** You can't afford to. Basically think or feel that you are safe, you have to always be defensive and always being defensive is really not allowing it. It would close to you. I have learned so much from the world of trauma because people who have experienced trauma tell you their narrative and the narrative is, look, I want to have a relationship.

[00:14:05] **Stephen Porges:** I want to be safe with another. I want to be comfortable in the arms of another, but my body will not allow me to. That's why they were in therapy, right? So the body has learned how to be safe in a dangerous environment, but even if that environment becomes safe, well, let's change the wording that the nervous system has navigated an environment in which the body reacts to as if it were dangerous.

[00:14:37] **Stephen Porges:** So in a sense, we navigate, we try to survive and if a person carries with them, a trauma history, their nervous system is tuned or biased due to the threat. When there may not be. And it says react to be too sensitive to things. And you may see this in features like anxiety. I mean, that's what anxiety is.

[00:15:02] **Stephen Porges:** Once you throw away the psychological construct and ask about the physiology, it's a body that's been retuned, it's an autonomic nervous system that's ready to, to be in a state of chronic stress. It's not a, you know, it might have psychological manifestations, but the core of it is the physiology. The physiology is saying my body needs people mobilized.

[00:15:25] **Stephen Porges:** I add muscle tension, muscle tone. I got to keep moving because if I don't move, I'm in danger. So you could actually see the evolutionary history of vertebrates in people who have these features. And of course, when they have those features, it's not really what there is that self image or mental image of an idealized life.

[00:15:47] **Stephen Porges:** It's not that they don't want to be safe. It's that their body functioning doesn't give them permission to be safe. And this is in a way why people are into biofeedback and neurofeedback because the body has a mind of its own and it's not listening to the intentionality. And the intentionality now says to get control over these systems, we have to reconnect or functionally reconnect the feedback loops in our body. And that's where neurofeedback and biofeedback come in. That's the premise. It's: get the feedback systems functioning again. But in doing that, we have to acknowledge under chronic threat, which we call stress or fear. Our nervous system turns off its internal feedback loops to deal with external issues, or let's say you got COVID and you got a pathogen.

[00:16:45] **Stephen Porges:** It turns off some of those feedback issues to deal with pathogens. So there's this sense that the intelligence or brilliance of the nervous system and today, the threat, both inside the body and outside the body is amazingly sophisticated and critical to our survival. The question is when the danger leaves, when the illness is healed, many nervous systems are not spontaneously recovering, and that's where they end up in various forms of therapy because the system gets retooled to be in a chronic state of threat. And the system needs the experience of feeling different physiological states, specifically states of homeostatic function or states of safety.

[00:17:33] **Saul Rosenthal:** So obviously biofeedback and neurofeedback, we think of as ways of retuning that nervous system. I'm also curious about other ways that polyvagal theory might be applied to psychotherapy and to other interventions and treatment for trauma and for anxiety.

[00:17:50] **Stephen Porges:** Well, but, but the theory does, it elevates the concept of sociality to the level of being a neuromodulator. What that means is that my interaction with you, even through internet, as an impact on your

physiology, and if we get into more reciprocal dialogues, your physiology will adjust.

[00:18:11] **Stephen Porges:** If I start to criticize you, your physiology will fall back. We, as a species, this is our evolutionary heritage. We use sociality to regulate our physiology. And during the pandemic, we were deprived of a lot of that. And our bodies have retuned the issue now for many people is how do you get the system feeling safe enough to engage others?

[00:18:39] **Stephen Porges:** Because when we engage others, we support our own homeostatic functions.

[00:18:45] **Saul Rosenthal:** Absolutely. The question, how do you associate a sociality to retune the physiology?

[00:18:52] **Stephen Porges:** Well, this is, I think many of us argued to that moment of basically when the rubber hits the road is that's we have the models, we have the theories, but we're also human beings.

[00:19:04] **Stephen Porges:** So we know that we need social narrative. But we also are now living in bodies that in many ways have been traumatized. They see other people as threats. The body does, the body reacts. And in my own modeling is titration, you know, take a little, get used to it. Biofeedback is a titration model.

[00:19:30] **Stephen Porges:** It's not an overwhelming concept where you just kind of, if something is good, more is better, it's saying allow that system to get reorganized. And I think the re-engagement with other social mammals is a biofeedback model as well. You can handle a little bit more, or my feeling like if the stabilizing and part of what is part of biofeedback and neurofeedback is a development of an awareness of one's own bodily state.

[00:20:04] **Saul Rosenthal:** Well, I certainly know that with the students I work with and a lot of the adults as well, they're terrified to go back face to face. And, you know, I wonder even if this sort of push about the demands to come back into the office. Is that titration playing out in the world?

[00:20:25] **Stephen Porges:** I think so. I, and I think the, the political hostility that we all are feeling is another one of the products, because what we're seeing is the threshold to detect threat has been lowered as opposed to the threshold to be accessible to others.

[00:20:45] **Stephen Porges:** So it's not like we're under threat and what are the predictable outcomes? Moving into a threat physiology. We're seeing it in front of her eyes and the issue is now we can understand it now, can we reverse it? And we reverse it through our own, starting off with our own compassion for ourselves.

[00:21:10] **Stephen Porges:** Which has to occur before we can have compassion for others. We have to understand that we've been challenged, meaning we have to listen to our bodies and we have to titrate our experiences before we can be helpful to others.

[00:21:23] **Saul Rosenthal:** I wonder if you could talk a little bit more about the connection between compassion and tuning, the physiology.

[00:21:31] **Stephen Porges:** Well, we have to, with a sense, be careful with, how we use our language because people, we use words like empathy, compassion, people think they know what it needs, or if you come out from, come from a laboratory science perspective, empathy is really, you're getting the same physiological response that the person who's being injured is getting.

[00:21:53] **Stephen Porges:** Now, if you're in the therapeutic setting and the person, your client, has been injured and they're starting to describe that and you're cringing like that. How does the client feel when you're broadcasting back signals? Basically many people who have trauma histories don't want to talk about their traumas because it triggers.

[00:22:14] **Stephen Porges:** It's not that they don't want to talk about it. It's that when they talk about it, they get accused back of hurting people. So the question really is what is compassion? Compassion is witnessing. It's being supportive without cringing. And I think we all, we, as a species, we as a society, are very important in witnessing.

[00:22:36] **Stephen Porges:** We tend to evaluate rather than just being there. And even some of my good friends who use the word compassion, or use the word empathy in their therapeutic strategies. Even retrofit to those who have been, who have injured and the person who's injured wants to be supported. That's what they want.

[00:22:59] **Stephen Porges:** They want to be heard. Then things move on beyond that. But, I think we've missed, literally missed the boat when we start dealing with people who have been abused and traumatized when we start going

after creditors, which is not that it's not important, but the initial reaction is what's needed from my perspective is to support the survivor.

[00:23:24] **Stephen Porges:** How do you support survivors? You support them by being a co-regulating. You're supporting them by being a good witness by listening and not by interpreting and not by telling them, but by being there, giving them voice.

[00:23:40] **Saul Rosenthal:** So the support without evaluation provides them with the space they need to calibrate to, to start to titrate.

[00:23:49] **Stephen Porges:** We can deconstruct that into a physiological model because if you react to a person telling their story, you are broadcasting cues of threat, right back at them. Or injury. If you use language that reframes their negative experiences, you're still triggering their negative experiences. If you were there as a supporting other, a therapeutic presence model, then you are able to support the person.

[00:24:19] **Stephen Porges:** It's kind of like when a baby is crying, you calm the baby, you don't yell at the baby for crying. Although some people may do that.

[00:24:32] **Saul Rosenthal:** Well, it's really interesting to think about the impact of the pandemic and our shared experience and how we're in a sort of shared traumatic place.

[00:24:50] **Saul Rosenthal:** What's the future of polyvagal theory. What are you working on now? And how has the pandemic, if at all, how's that impacting your work?

[00:24:57] **Stephen Porges:** So we created the Polyvagal Institute with one goal in mind - that it's get the principles out there and do different disciplines like education, like the judicial system begin.

[00:25:12] **Stephen Porges:** So what we're talking about, like with predator and a survivor, the judicial system still starts talking about people. If they don't fight they're literally getting permission. And it's a misunderstanding of how bodies react to threat. So in education, it has a lot of other things in terms of how people are treated and the actual physiology that would facilitate learning and cognition. So in neurofeedback and biofeedback, we do there, there's a large influx of children who have learning problems that you deal with. And they tend

to be more on the attention and impulsive behavior level. They can't. But if you shift that and say, what is impulsivity?

[00:25:59] **Stephen Porges:** What causes lack of attention? These are literally symptoms or features of a body. The state of it. So we start always coming back to this organization of behavior and thought processes that sit on top of a physiological state. And so with the Polyvagal Institute, we're trying to reach out to these different disciplines, including medical practices and healthcare in terms of how do you create a clinic that is not just the evaluative, which is a trigger to our nervous system.

[00:26:34] **Stephen Porges:** But one that is supportive and a good witness that creates shared journeys of healing. So that's important. I also have this totally, I would say not necessarily other side, but part of my roots and being a scientist and I am working on a new metric. So within the area of heart rate variability, I've worked on this metric that called vagal efficiency.

[00:27:01] **Stephen Porges:** And basically it's telling you how much does that vagal tone measure regulate your heart rate? It's insane. How efficient is this system? So if I shift postures, this makes my heart rate go up, then does it mean they come back down and it appears to be a powerful marker of disorder. And the issue is it's telling you whether or not that nervous system is tightly coupled to the end organs reactivity in this case, functionally heart rate.

[00:27:31] **Stephen Porges:** And I think it's going to have a lot of impact in kicking some of the self-blame out of many people's behavioral problems. For example, there's a syndrome called Ehlers-Danlos, which involves hypermobility. Let's say, basically individuals who are double jointed, but it's been noted by in the medical community because these people have lots of anxiety and many physicians just don't want to deal with anxiety and pain.

[00:28:05] **Stephen Porges:** They don't want to do. Because they don't have end organ damage. So you go in for a test and everything's fine, but they are in pain. They're basically, they're complaining. That's how the physician sees it. But when you measure their vagal efficiency, it's almost categorically different. Meaning that there's a disconnection between the nervous system's regulation of the heart.

[00:28:30] **Stephen Porges:** And how the heart rate itself goes. It's like the heart has a mind of its own. So when their physiology gets moving, if the neural system doesn't serve to contain it, and I use terms like vehicle brake, the vehicle

is no longer in the vagus break it's it just gets decoupled. And I think that's the fertile ground for internal damage.

[00:28:55] **Stephen Porges:** So actually in the world of biofeedback, I'm curious whether autonomic biofeedback would shift vagal efficiency. Would it, would that be an endpoint? And I'm looking forward to doing that. The other thing is I'm working on hopefully trying to find a metric within heart rate variability.

[00:29:18] **Stephen Porges:** That is an indicator of inflammation because when you take polyvagal theory and actually think about it and understand it, it's really saying when I feel safe, my body's in homeostasis; it supports health growth and restoration. But when I feel a threat, my body no longer supports that. And what is one of the other attributes it's not just fight flight inflammation as part of that threat reaction system.

[00:29:47] **Stephen Porges:** So the issue is when our nervous system gets locked into, we have inflammation problems and we have auto immune issues, but can I get an index, a dynamic measure of inflammation and that's where I am today.

[00:30:06] **Saul Rosenthal:** Is there any one thing that we should take away from this talk?

[00:30:13] **Stephen Porges:** The simple thing is that everyone is different.

[00:30:17] **Stephen Porges:** You know, we walk around with that as if that's our knee jerk reaction, but everyone's different, but we have similar neurophysiological structures. And when we shift into different physiological states, the script or the pattern of behavior, that spontaneously emerges from the states is very similar. It's similar among us.

[00:30:38] **Stephen Porges:** It's also similar with other social mammals. If we have dogs, we can see it in our dogs. They can become destabilized and then they become hypersensitive to everything going around. But we as humans tend to think that everything in our life that we do, I should say everything that other people do is based on intentionality, but when it comes to us, we're literally more permissive.

[00:31:03] **Stephen Porges:** And we say, well, I just didn't feel good that day, but we reflect on others with a degree of evaluation that intentionality drives our behavior. Polyvagal theory says intentionality does, but you know, when it's in

our nervous system between basic biological feelings of survival and life threat versus intentionality, which one will win.. our biology.

[00:31:31] **Stephen Porges:** And you can see this in tantrums. You could see this in arguments where the body gets triggered into a state of threat and then conscious intentional dialogue of rational thought.

[00:31:48] **Saul Rosenthal:** Well, thank you so much for talking with me. If people want to find out more, they should look for the Polyvagal Institute or join us in on October 21st and 22nd at the NRBS conference, you can go to NRBS.org.

[00:32:02] **Saul Rosenthal:** It will stream live and will be recorded. So it is available everywhere for everyone. Thank you so much for joining us. I'm Dr. Saul Rosenthal, and I thank everyone for listening. And as somebody who struggles to work with those HRV indices, thank you. And I will beta test anything.

[00:32:28] **Stephen Porges:** Well, let me make one final final statement. That is, I think the journey for many of those who have been, let's say in states of threat or anxiety or have trauma histories, the journey of healing is what I call a re-embodiment and that happens to be very close to your nervous system regaining control of the organs that are under threat, have a nervous system that has been told to vacate that control.

[00:33:01] **Saul Rosenthal:** Absolutely. Well, thank you so much.