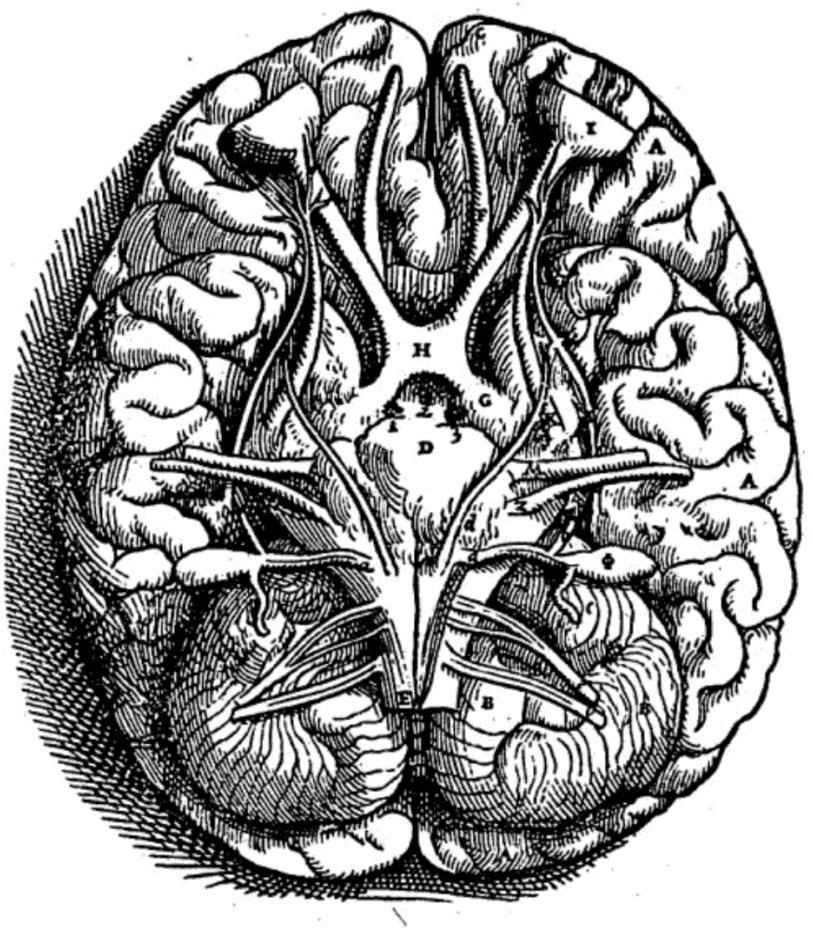
The Polyvagal Theory *in* Therapy

ENGAGING THE RHYTHM OF REGULATION

Deb Dana

FOREWORD BY STEPHEN W. PORGES



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FOREWORD

By Stephen W. Porges

Since Polyvagal Theory emerged in 1994, I have been on a personal journey expanding the clinical applications of the theory. The journey has moved Polyvagal concepts and constructs from the constraints of the laboratory to the clinic where therapists apply innovative interventions to enhance and optimize human experiences. Initially, the explanatory power of the theory provided therapists with a language to help their clients reframe reactions to traumatic events. With the theory, clients were able to understand the adaptive functions of their reactions. As insightful and compassionate therapists conveyed the elements of the theory to their clients, survivors of trauma began to reframe their experiences and their personal narratives shifted to feeling heroic and not victimized. The theory had its foundation in laboratory science, moved into applied research to decipher the neurobiological mechanisms of psychiatric disorders, and now through the insights of Deb Dana and other therapists is informing clinical treatment.

The journey from laboratory to clinic started on October 8, 1994 in Atlanta, when Polyvagal Theory was unveiled to the scientific community in my presidential address to the Society for Psychophysiological Research. A few months later the theory was disseminated as a publication in the society's journal, *Psychophysiology* (Porges, 1995). The article was titled "Orienting in a Defensive World: Mammalian Modifications of Our Evolutionary Heritage. A Polyvagal Theory." The title, crafted to cryptically encode several features of the theory, was intended to emphasize that mammals had evolved in a hostile environment in which survival was dependent on their ability to down regulate states of defense with states of safety and trust, states that supported cooperative behavior and health.

In 1994 I was totally unaware that clinicians would embrace the theory. I did not anticipate its importance in understanding trauma-related experiences. Being a scientist, and not a clinician, my interests were focused

on understanding how the autonomic nervous system influenced mental, behavioral, and physiological processes. My clinical interests were limited to obstetrics and neonatology with a focus on monitoring health risk during delivery and the first days of life. Consistent with the demands and rewards of being an academic researcher, my interests were directed at mechanisms. In my most optimistic dreams of application, I thought my work might evolve into novel assessments of autonomic function. In the early 1990's I was not interested in emotion, social behavior, and the importance of social interactions on health and the regulation of the autonomic nervous system; I seldom thought of my research leading to strategies of intervention.

After the publication of the Polyvagal Theory, I became curious about the features of individuals with several psychiatric diagnoses. I noticed that research was reliably demonstrating depressed cardiac vagal tone (i.e., respiratory sinus arrhythmia and other measures of heart rate variability) and atypical vagal regulation of the heart in response to challenges. I also noticed that many psychiatric disorders seem to share symptoms that could be explained as a depressed or dysfunctional Social Engagement System with features expressed in auditory hypersensitivities, auditory processing difficulties, flat facial affect, poor gaze, and a lack of prosody. This curiosity led to an expanded research program in which I conducted studies evaluating clinical groups (e.g., autism, selective mutism, HIV, PTSD, Fragile X syndrome, borderline personality disorder, women with abuse histories, children who stutter, preterm infants). In these studies Polyvagal Theory was used to explain the findings and confirm that many psychiatric disorders were manifest in a dysfunction of the 'ventral' vagal complex, which included lower cardiac vagal tone and the associated depressed function of the striated muscles of the face and head resulting in flat facial affect and lack of prosody.

In 2011 the studies investigating clinical populations were summarized in a book published by Norton, *The Polyvagal Theory: Neurophysiological Foundations of Emotions, Attachment, Communication, and Self-Regulation*. The publication enabled Polyvagal Theory to become accessible to clinicians; the theory was no longer limited to the digital libraries linked to universities and research institutes. The publication of the book stimulated great interest within the clinical community and especially with traumatologists. I had not anticipated that the main impact of the theory would be to provide plausible neurophysiological explanations for experiences

described by individuals who had experienced trauma. For these individuals, the theory provided an understanding of how, after experiencing life threat, their neural reactions were retuned towards a defensive bias and they lost the resilience to return to a state of safety.

This prompted invitations to talk at clinically oriented meetings and to conduct workshops on Polyvagal Theory for clinicians. During the past few years, there has been an expanding awareness of Polyvagal Theory across several clinical areas. This welcoming by the clinical community identified limitations in my knowledge. Although I could talk to clinicians and deconstruct their presentations of clinical cases into constructs described by the theory, I was *not* a clinician. I was limited in how I related the theory to clinical diagnosis, treatment, and outcome.

During this period, I met Deb Dana. Deb is a talented therapist with astute insights into trauma and a desire to integrate Polyvagal Theory into clinical treatment. For Deb, Polyvagal Theory provided a language of the body that paralleled her feelings and intuitive connectedness with her clients. The theory provided a syntax to label her and her client's experiences, which were substantiated by documented neural mechanisms. Functionally, the theory became a lens or a perspective in how she supported her clients and how she reacted to her clients. The theory transformed the client's narrative from a documentary to a pragmatic quest for safety with an implicit bodily drive to survive. As the theory infused her clinical model, she began to develop a methodology to train other therapists. The product of this transition is the current book. In *The Polyvagal Theory in Therapy*, Deb Dana brilliantly transforms a neurobiologically based theory into clinical practice and Polyvagal Theory comes alive.

References

Porges, S. W. (1995). Orienting in a defensive world: Mammalian modifications of our evolutionary heritage. A Polyvagal Theory. *Psychophysiology, 32*(4), 301–318.

Porges, S. W. (2011). *Norton Series on Interpersonal Neurobiology. The Polyvagal Theory: Neurophysiological foundations of emotions, attachment, communication, and self-regulation.* New York, NY: Norton.

INTRODUCTION

When I teach Polyvagal Theory to colleagues and clients, I tell them they are learning about the science of safety—the science of feeling safe enough to fall in love with life and take the risks of living. Polyvagal Theory provides a physiological and psychological understanding of how and why clients move through a continual cycle of mobilization, disconnection, and engagement. Through the lens of Polyvagal Theory, we see the role of the autonomic nervous system as it shapes clients' experiences of safety and affects their ability for connection.

The autonomic nervous system responds to the challenges of daily life by telling us not *what* we are or *who* we are but *how* we are. The autonomic nervous system manages risk and creates patterns of connection by changing our physiological state. These shifts are slight for many people, and, in the moments when large state changes happen, their system is resilient enough to help them return to a regulated state. Trauma interrupts the process of building the autonomic circuitry of safe connection and sidetracks the development of regulation and resilience. Clients with trauma histories often experience more intense, extreme autonomic responses, which affects their ability to regulate and feel safe in relationships. Polyvagal Theory helps therapists understand that the behaviors of their clients are autonomic actions in service of survival—adaptive responses ingrained in a survival story that is entered into automatically.

Trauma compromises our ability to engage with others by replacing patterns of connection with patterns of protection. If unresolved, these early adaptive survival responses become habitual autonomic patterns. Therapy through a polyvagal lens, supports clients in repatterning the ways their autonomic nervous systems operate when the drive to survive competes with the longing to connect with others.

This book is designed to help you bring Polyvagal Theory into your therapy practice. It provides a comprehensive approach to intervention by presenting ways to map autonomic response and shape the autonomic

nervous system for safety. With this book, you will learn Polyvagal Theory and use worksheets and experiential exercises to apply that knowledge to the nuts and bolts of practice.

Section I, "Befriending the Nervous System," introduces the science of connection and creates basic fluency in the language of Polyvagal Theory. These chapters present the essential elements of Polyvagal Theory, building a solid foundation of knowledge and setting the stage for work with the clinical applications presented in the remainder of the book.

Section II, "Mapping the Nervous System," focuses on learning to recognize patterns of response. The worksheets presented in these chapters create the ability to predictably identify individual placement along the autonomic hierarchy.

Section III, "Navigating the Nervous System," builds on the newly gained expertise in identifying autonomic states and adds the next steps in the process: learning to track response patterns, recognize triggers, and identify regulating resources. A variety of "attending" practices are presented to support a new way of attuning to patterns of action, disconnection, and engagement.

Section IV, "Shaping the Nervous System," explores the use of passive and active pathways to tone the autonomic nervous system and reshape it toward increased flexibility of response. These chapters offer ways to engage the regulating capacities of the ventral vagal system through both in-the-moment interventions and practices that begin to shift the system toward finding safety in connection.

Through the ideas presented in this book, you will discover how using Polyvagal Theory in therapy will increase the effectiveness of your clinical work with trauma survivors. In this process, not only will your therapy practice change, but also your way of seeing and being in the world will change. My personal experience, and my experience teaching Polyvagal Theory to therapists and clients, is that there is a "before-and-after" quality to learning this theory. Once you understand the role of the autonomic nervous system in shaping our lives, you can never again not see the world through that lens.

THE POLYVAGAL THEORY IN THERAPY

SECTION I

BEFRIENDING THE NERVOUS SYSTEM

The greatest thing then, in all education, is to make our nervous system our ally as opposed to our enemy.

—WILLIAM JAMES

If you do a Google search for "Polyvagal Theory," more than 500,000 results pop up, and if you search for "Stephen Porges," more than 150,000 results

appear. Polyvagal Theory has made a remarkable journey from a relatively unknown and controversial theory to its wide acceptance today in the field of psychotherapy.

Polyvagal Theory traces its origins to 1969 and Dr. Porges's early work with heart rate variability and his "vision that monitoring physiological state would be a helpful guide to the therapist during the clinical interaction" (Porges, 2011a, p. 2). As Dr. Porges wrote, at that time he "looked forward to new discoveries applying these technologies to clinical populations. I had no intention of developing a theory" (p. 5). Polyvagal Theory was born out of the question how one nerve—the vagus nerve—and its tone, which Dr. Porges was measuring, could be both a marker of resilience and a risk factor for newborns. Through solving this puzzle, now known as the *vagal paradox*, Dr. Porges created the Polyvagal Theory.

Three organizing principles are at the heart of Polyvagal Theory.

- **Hierarchy:** The autonomic nervous system responds to sensations in the body and signals from the environment through three pathways of response. These pathways work in a specified order and respond to challenges in predictable ways. The three pathways (and their patterns of response), in evolutionary order from oldest to newest, are the dorsal vagus (immobilization), the sympathetic nervous system (mobilization), and the ventral vagus (social engagement and connection).
- **Neuroception:** This is the term coined by Dr. Porges to describe the ways our autonomic nervous system responds to cues of safety, danger, and life-threat from within our bodies, in the world around us, and in our connections to others. Different from perception, this is "detection without awareness" (Porges, n.d.), a subcortical experience happening far below the realm of conscious thought.
- **Co-regulation:** Polyvagal Theory identifies co-regulation as a biological imperative: a need that must be met to sustain life. It is through reciprocal regulation of our autonomic states that we feel safe to move into connection and create trusting relationships.

We can think of the autonomic nervous system as the foundation upon which our lived experience is built. This biological resource (Kok et al., 2013) is the neural platform that is beneath every experience. How we move

through the world—turning toward, backing away, sometimes connecting and other times isolating—is guided by the autonomic nervous system. - Supported by co-regulating relationships, we become resilient. In relationships awash in experiences of misattunement, we become masters of survival. In each of our relationships, the autonomic nervous system is "learning" about the world and being toned toward habits of connection or protection.

Hopefulness lies in knowing that while early experiences shape the nervous system, ongoing experiences can reshape it. Just as the brain is continually changing in response to experiences and the environment, our autonomic nervous system is likewise engaged and can be intentionally influenced. As individual nervous systems reach out for contact and co-regulation, incidents of resonance and misattunement are experienced as moments of connection or moments of protection. The signals conveyed, the cues of safety or danger sent from one autonomic nervous system to another, invite regulation or increase reactivity. In work with couples, it is easy to observe the increased reactivity that occurs when a disagreement quickly escalates and cues of danger communicated between the two nervous systems trigger each partner's need for protection. In contrast, the attunement of the therapist–client relationship relays signals of safety and an autonomic invitation for connection.

Humans are driven to want to understand the "why" of behaviors. We attribute motivation and intent and assign blame. Society judges trauma survivors by their actions in times of crisis. We still too often blame the victim if they didn't fight or try to escape but instead collapsed into submission. We make a judgment about what someone did that leads to a belief about who they are. Trauma survivors themselves often think "It's my fault" and have a harsh inner critic who mirrors society's response. In our daily interactions with family, friends, colleagues, and even the casual exchanges with strangers that define our days, we evaluate others by the ways they engage with us.

Polyvagal Theory gives therapists a neurophysiological framework to consider the reasons why people act in the ways they do. Through a polyvagal lens, we understand that actions are automatic and adaptive, generated by the autonomic nervous system well below the level of conscious awareness. This is not the brain making a cognitive choice. These are autonomic energies moving in patterns of protection. And with this new

awareness, the door opens to compassion.

A working principle of the autonomic nervous system is "every response is an action in service of survival." No matter how incongruous an action may look from the outside, from an autonomic perspective it is always an adaptive survival response. The autonomic nervous system doesn't make a judgment about good and bad; it simply acts to manage risk and seek safety. Helping clients appreciate the protective intent of their autonomic responses begins to reduce the shame and self-blame that trauma survivors so often feel. When offered the lens of Polyvagal Theory, clients become curious about the cues of safety and danger their nervous systems are sensing and begin to understand their responses as courageous survival responses that can be held with compassion.

Trauma-trained therapists are taught that a foundation of effective work is understanding "perception is more important than reality." Personal perception, not the actual facts of an experience, creates posttraumatic consequences. Polyvagal Theory demonstrates that even before the brain makes meaning of an incident, the autonomic nervous system has assessed the environment and initiated an adaptive survival response. Neuroception precedes perception. Story follows state. Through a polyvagal framework, the important question "What happened?" is explored not to document the details of an event but to learn about the autonomic response. The clues to a client's present-time suffering can be found in their autonomic response history.

The goal of therapy is to engage the resources of the ventral vagus to recruit the circuits that support the prosocial behaviors of the Social Engagement System (Porges, 2009a, 2015a). The Social Engagement System is our "face-heart" connection, created from the linking of the ventral vagus (heart) and the striated muscles in our face and head that control how we look (facial expressions), how we listen (auditory), and how we speak (vocalization) (Porges, 2017a). In our interactions it is through the Social Engagement System that we send and search for cues of safety. In both the therapy setting and the therapy session, creating the conditions for a physiological state that supports an active Social Engagement System is a necessary element. "If we are not safe, we are chronically in a state of evaluation and defensiveness" (Porges, 2011b, p. 14). It is a ventral vagal state and a neuroception of safety that bring the possibility for connection, curiosity, and change. A polyvagal approach to therapy follows the four R's:

- Recognize the autonomic state.
- Respect the adaptive survival response.
- Regulate or co-regulate into a ventral vagal state.
- Re-story.

The following "beginner's guide" is offered as a reader-friendly guide for therapists and an easy way to introduce clients to Polyvagal Theory.

A BEGINNER'S GUIDE TO POLYVAGAL THEORY

We come into the world wired to connect. With our first breath, we embark on a lifelong quest to feel safe in our bodies, in our environments, and in our relationships with others. The autonomic nervous system is our personal surveillance system, always on guard, asking the question "Is this safe?" Its goal is to protect us by sensing safety and risk, listening moment by moment to what is happening in and around our bodies and in the connections we have to others.

This listening happens far below awareness and far away from our conscious control. Dr. Porges, understanding that this is not awareness that comes with perception, coined the term *neuroception* to describe the way our autonomic nervous system scans for cues of safety, danger, and life-threat without involving the thinking parts of our brain. Because we humans are meaning-making beings, what begins as the wordless experiencing of neuroception drives the creation of a story that shapes our daily living.

The Autonomic Nervous System

The autonomic nervous system is made up of two main branches, the sympathetic and the parasympathetic, and responds to signals and sensations via three pathways, each with a characteristic pattern of response. Through each of these pathways, we react "in service of survival."

The sympathetic branch is found in the middle part of the spinal cord and represents the pathway that prepares us for action. It responds to cues of danger and triggers the release of adrenaline, which fuels the fight-or-flight response.

In the parasympathetic branch, Polyvagal Theory focuses on two pathways traveling within a nerve called the vagus. *Vagus*, meaning

"wanderer," is aptly named. From the brain stem at the base of the skull, the vagus travels in two directions: downward through the lungs, heart, diaphragm, and stomach and upward to connect with nerves in the neck, throat, eyes, and ears.

The vagus is divided into two parts: the ventral vagal path-way and the dorsal vagal pathway. The ventral vagal pathway responds to cues of safety and supports feelings of being safely engaged and socially connected. In contrast, the dorsal vagal pathway responds to cues of extreme danger. It takes us out of connection, out of awareness, and into a protective state of collapse. When we feel frozen, numb, or "not here," the dorsal vagus has taken control.

Dr. Porges identified a hierarchy of response built into our autonomic nervous system and anchored in the evolutionary development of our species. The origin of the dorsal vagal pathway of the parasympathetic branch and its immobilization response lies with our ancient vertebrate ancestors and is the oldest pathway. The sympathetic branch and its pattern of mobilization, was next to develop. The most recent addition, the ventral vagal pathway of the parasympathetic branch brings patterns of social engagement that are unique to mammals.

When we are firmly grounded in our ventral vagal pathway, we feel safe and connected, calm and social. A sense (neuroception) of danger can trigger us out of this state and backwards on the evolutionary timeline into the sympathetic branch. Here we are mobilized to respond and take action. Taking action can help us return to the safe and social state. It is when we feel as though we are trapped and can't escape the danger that the dorsal vagal pathway pulls us all the way back to our evolutionary beginnings. In this state we are immobilized. We shut down to survive. From here, it is a long way back to feeling safe and social and a painful path to follow.

The Autonomic Ladder

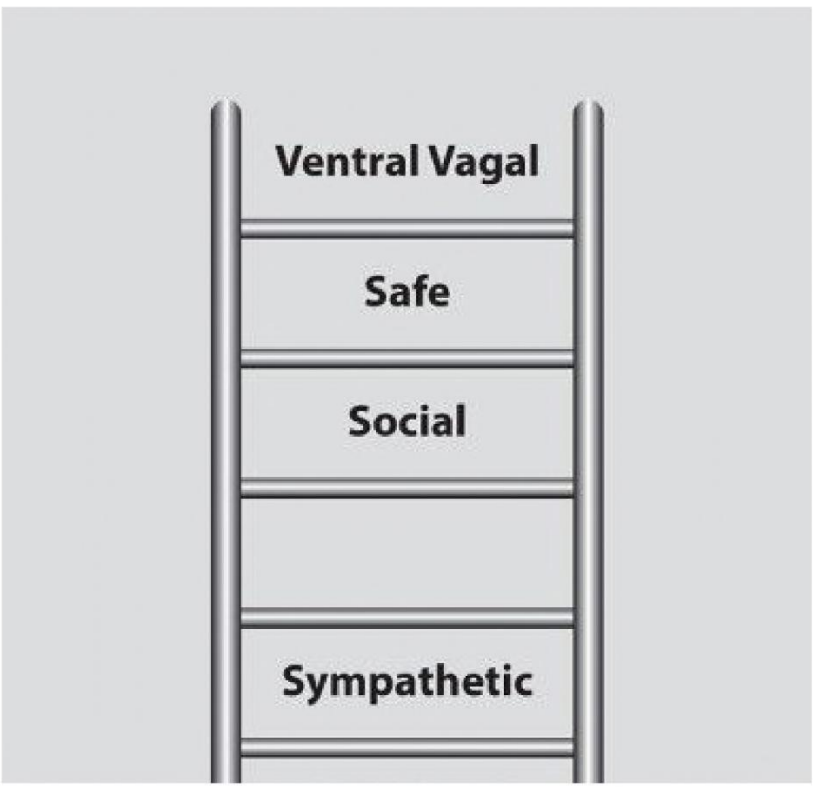
Let's translate our basic knowledge of the autonomic nervous system into everyday understanding by imagining the autonomic nervous system as a ladder. How do our experiences change as we move up and down the ladder?

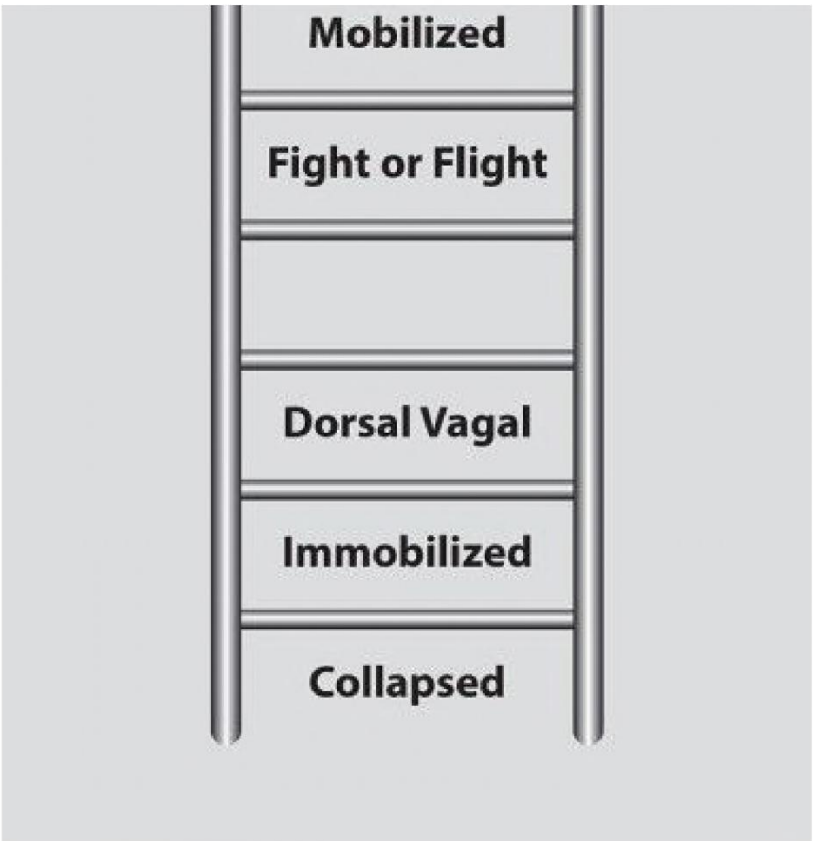
The Top of the Ladder

What would it feel like to be safe and warm? Arms strong but gentle. Snuggled close,

joined by tears and laughter. Free to share, to stay, to leave . . .

Safety and connection are guided by the evolutionarily newest part of the autonomic nervous system. Our social engagement system is active in the ventral vagal pathway of the parasympathetic branch. In this state, our heart rate is regulated, our breath is full, we take in the faces of friends, and we can tune in to conversations and tune out distracting noises. We see the "big picture" and connect to the world and the people in it. I might describe myself as happy, active, interested and the world as safe, fun, and peaceful. From this ventral vagal place at the top of the autonomic ladder, I am connected to my experiences and can reach out to others. Some of the daily living experiences of this state include being organized, following through with plans, taking care of myself, taking time to play, doing things with others, feeling productive at work, and having a general feeling of regulation and a sense of management. Health benefits include a healthy heart, regulated blood pressure, a healthy immune system decreasing my vulnerability to illness, good digestion, quality sleep, and an overall sense of well-being.





Moving Down the Ladder

Fear is whispering to me and I feel the power of its message. Move, take action, escape. No one can be trusted. No place is safe . . .

The sympathetic branch of the autonomic nervous system activates when we feel a stirring of unease—when something triggers a neuroception of danger. We go into action. Fight or flight happens here. In this state, our heart rate speeds up, our breath is short and shallow, we scan our environment looking for danger—we are "on the move." I might describe myself as anxious or angry and feel the rush of adrenaline that makes it hard for me to be still. I am listening for sounds of danger and don't hear the sounds of friendly voices. The world may feel dangerous, chaotic, and unfriendly. From this place of sympathetic mobilization—a step down the autonomic ladder and backward on the evolutionary timeline I may believe, "The world is a dangerous place and I need to protect myself from harm."

Some of the daily living problems can be anxiety, panic attacks, anger, inability to focus or follow through, and distress in relationships. Health consequences can include heart disease; high blood pressure; high cholesterol; sleep problems; weight gain; memory impairment; headache; chronic neck, shoulder, and back tension; stomach problems; and increased vulnerability to illness.

The Bottom of the Ladder

I'm far away in a dark and forbidding place. I make no sound. I am small and silent and barely breathing. Alone where no one will ever find me . . .

Our oldest pathway of response, the dorsal vagal pathway of the parasympathetic branch, is the path of last resort. When all else fails, when we are trapped and action taking doesn't work, the "primitive vagus" takes us into shutdown, collapse, and dissociation. Here at the very bottom of the autonomic ladder, I am alone with my despair and escape into not knowing, not feeling, almost a sense of not being. I might describe myself as hopeless, abandoned, foggy, too tired to think or act and the world as empty, dead, and dark. From this earliest place on the evolutionary timeline, where my mind and body have moved into conservation mode, I may believe, "I am lost and no one will ever find me." Some of the daily living problems can be dissociation, problems with memory, depression, isolation, and no energy for the tasks of daily living. Health consequences of this state can include chronic fatigue, fibromyalgia, stomach problems, low blood pressure, type 2 diabetes, and weight gain.

Daily Movements on the Ladder

Now that we've explored each of the places on the autonomic ladder, let's consider how we move up and down. Our preferred place is at the top of the ladder. As the song "I Can See Clearly Now" (written by Johnny Nash) says, "I can see clearly now, the rain is gone. I can see all obstacles in my way. Gone are the dark clouds that had me blind." The ventral vagal state is hopeful and resourceful. We can live, love, and laugh by ourselves and with others. This is not a place where everything is wonderful or a place without problems. But it is a place where we have the ability to acknowledge distress and explore options, to reach out for support and develop organized responses. We move down the ladder into action when we are triggered into a sense of unease—of impending danger. We hope that our action taking

here will give us enough space to take a breath and climb back up the ladder to the place of safety and connection. It is when we fall all the way down to the bottom rungs that the safety and hope at the top of the ladder feel unreachable.

What might a real-life example of moving up and down the autonomic ladder look like? Consider the following two scenarios.

> I am driving to work in the morning listening to the radio and enjoying the beginning of the day (top of the ladder) when a siren sounds behind me (quick move down the ladder). I feel my heart race and immediately worry that I've done something wrong (staying in my spot down the ladder). I pull over and the police car rushes by me. I pull back out and resume my drive to work and feel my heart begin to return to its normal speed (moving up the ladder). By the time I get to work, I have forgotten about the incident and am ready for my day (back at the top of the ladder).
>
> I am having dinner with friends enjoying the conversation and the fun of being out with people I like (top of the ladder). The conversation turns to vacations, and I start comparing my situation to my friends' situations. I begin to feel angry that I can't afford a vacation, that my job doesn't pay enough, that I have so many unpaid bills I'll never be able to take a vacation (moving down the ladder). I sit back and watch as my friends continue to talk about trips and travel planning. I disconnect from the conversation and begin to feel invisible as the talk goes on around me (shutting down and moving to the bottom of the ladder). The evening ends with my friends not noticing my silence and with me feeling like a misfit in the group (stuck at the bottom of the ladder). I go home and crawl into bed (the only place I know now is the bottom of the ladder). The next morning, I wake up and don't want to get up or go to work (still at the bottom of the ladder). I worry I'll get fired if I don't show up and drag myself out of bed (a bit of energy and beginning of movement up the ladder). I am late to work. My boss comments on my lateness, and I have a hard time holding in an angry response (continuing to move up the ladder with more mobilized energy). I decide I've had enough of this job and will seriously look for a new one (still moving up the ladder). I begin to consider the skills I can bring to a new job and that with the right job I will be able to pay my bills and maybe even take a vacation. I have lunch with a coworker, and we talk about our jobs and dreams for the future (back at the top of the ladder).

Systems Working Together

We experience well-being when the three parts of our autonomic nervous system work together. To understand this integration, we leave the imagery

of the ladder and imagine instead a home.

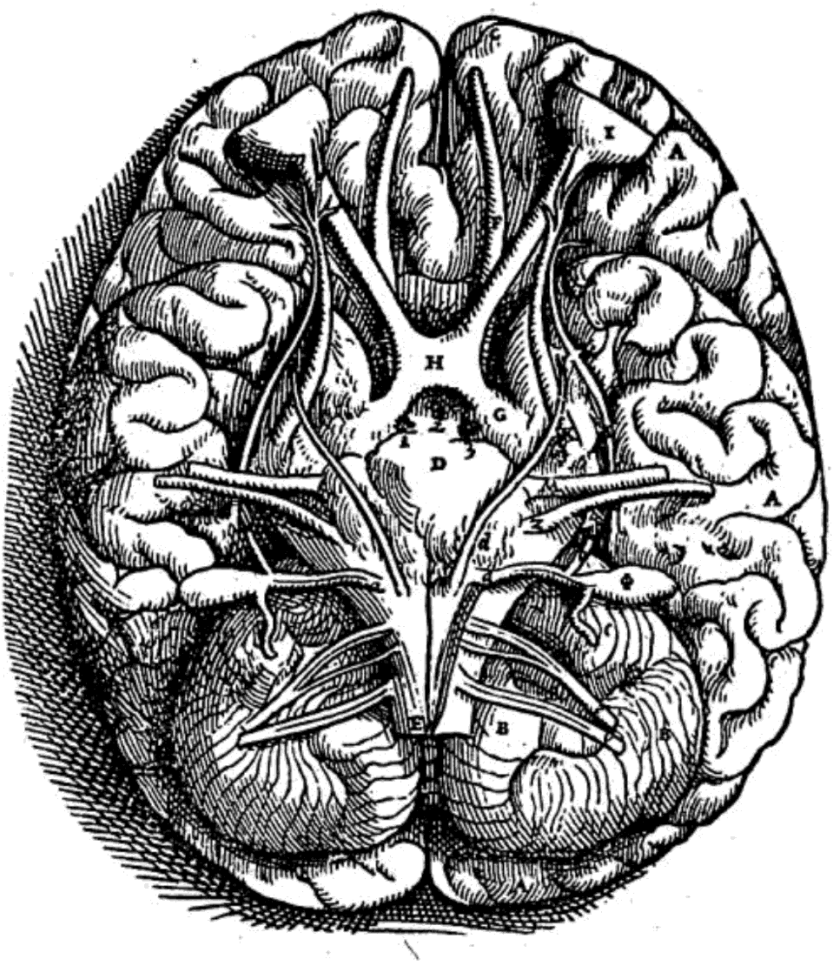
The dorsal vagal system runs the "basic utilities" of the home. This system works continually in the background keeping our basic body systems online and in order. When there is a glitch in the system, we pay attention. When all is running smoothly, the body's functions work automatically. Without the influence of the ventral vagal system, the basic utilities run the empty house, but "no one is home." Or, if we are home, the environment is one that brings no comfort. Everything is turned down to the lowest possible setting—enough to keep the air circulating and the pipes from freezing. The environment is just habitable enough to sustain life.

The sympathetic branch can be thought of as the home security system maintaining a range of responses and armed to react to any emergencies. This alarm system is designed to trigger an immediate response and then return to standby. Without the influence of the ventral vagal system, the alarm system receives a steady stream of emergency notifications and continues to sound the alarm.

The ventral vagal system allows us to soak in, and savor, this home we are inhabiting. We can enjoy it as a place to rest and renew by ourselves and as a place to join with friends and family. We feel the "basic utilities" running in the background. The rhythms of our heart and breath are regulated. We trust that the "monitoring system" is on standby. The integration of systems allows us to be compassionate, curious about the world we live in, and emotionally and physically connected to the people around us.

WHERE DO WE GO NEXT?

With this initial understanding of the role and responses of the autonomic nervous system in service of our safety and survival, we can begin to befriend the autonomic nervous system and map our personal response patterns. The befriending skills lead to attending practices. Our mapping leads naturally to tracking. With the awareness of tracking, we can begin to intentionally tune and tone our autonomic nervous system. We can successfully navigate our quest for safety and connection.



CHAPTER 1

SAFETY, DANGER, AND LIFE-THREAT: ADAPTIVE RESPONSE PATTERNS

We are more alike my friends than we are unalike.

—MAYA ANGELOU

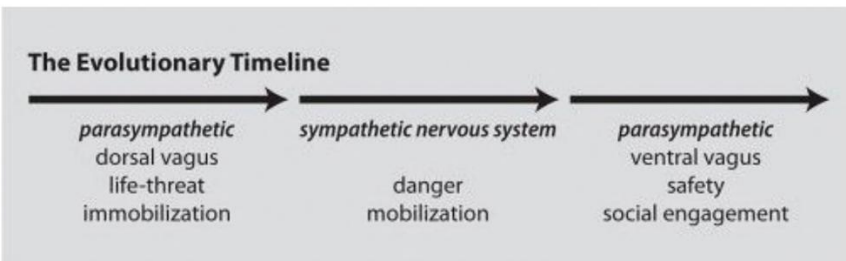
The autonomic nervous system is a common denominator in the human family. We all share the same biobehavioral platform. The job of the autonomic nervous system is to ensure we survive in moments of danger and thrive in times of safety. Survival requires threat detection and the activation of a survival response. Thriving demands the opposite—the inhibition of a survival response so that social engagement can happen. Without the capacity for activation, inhibition, and flexibility of response, we suffer.

If we think of trauma as Robert Macy (president of the International Trauma Center) defined it, "an overwhelming demand placed upon the physiological human system," then we immediately consider the autonomic nervous system. Whether an isolated traumatic incident or recurring traumatic events, trauma and the autonomic nervous system are linked. Without ongoing opportunities for people to be anchored in systems of safety and to appropriately exercise the neural circuits of activation and inhibition, the ability of their autonomic nervous systems to engage, disengage, and reengage efficiently is impaired.

Within the framework of interpersonal neurobiology (Siegel, 2010), mental health diagnoses can be viewed as related to either a hyperaroused or hypoaroused state, and through a polyvagal perspective this makes sense. Without the ability to inhibit defense responses, the nervous system is in a continual state of activated mobilization (hyperaroused) or immobilization (hypoaroused) survival strategies. While a client's longing is for autonomic regulation, reaching the embodied state of safety necessary for regulation is often out of reach. Clients are dismayed at their dysregulation and their inability to either individually or interactively regulate. The result of this ongoing dysregulation is felt in physical illnesses, distressed relationships, altered cognitive capacities, and an ongoing search for safety and relief from the intensity of inhabiting a system so out of balance. Pharmacology targets the autonomic nervous system in an attempt to either calm overactive parts or excite underactive parts and move the system back toward regulation. Psychotherapy works similarly, albeit without the use of drugs, instead engaging the natural capacities of the nervous system. Therapy provides safe opportunities to experiment with co-regulation, to add skills for individual regulation, and to practice exercising the neural circuits of social engagement.

Humans carry an autonomic legacy: echoes of older pathways still present in our physiology today. Hardwired into our modern autonomic

nervous system are features of risk and safety we have in common with other vertebrates (Porges, 2011a). Our primitive dorsal vagal circuit, 500 million years old, protects through immobilization, shutting down body systems to conserve energy, similar to the way that animals feign death in response to life-threat ("playing possum"). The sympathetic nervous system, next to evolve 400 million years ago, creates the possibility of survival through movement and the ability to actively engage or avoid (fight or flight). The newest system is our uniquely mammalian ventral vagal circuit, which evolved 200 million years ago and gives us the capacity to co-regulate (social engagement).



The sympathetic nervous system originates in spinal nerves (nerves that arise from the spinal cord) and is our system of mobilization. Sympathetic nerves are located in the middle of the back in the thoracic and lumbar regions of the spinal cord. To get a sense of this, try moving your hands around to your back, one hand gently reaching from your neck down and the other from your waist up. The space between your hands is approximately where the neurons of your sympathetic nervous system start before extending out to reach their target organs (e.g., eyes, heart, lungs, stomach, and bladder).

Through two mobilization systems, the sympathetic adrenal medullary (SAM) system and the hypothalamic–pituitary–adrenal (HPA) axis, the sympathetic nervous system prepares our body for action. The SAM system is activated quickly, bringing a burst of adrenaline for a fast response to a stressor. The startle response happens within 100 milliseconds! SAM activation brings a short-term, rapid response followed by a return to regulation. The HPA axis takes over when this quick, adrenaline-fueled surge of energy doesn't resolve the distress. The HPA axis releases cortisol, commonly called the stress hormone. This release takes longer and is slower to take effect, requiring minutes rather than seconds. Using SAM and

the HPA axis the sympathetic nervous system can stimulate individual actions (pupil dilation, sweating), progressively increase reactions (breathing and heart rates), or mobilize a massive full-body response (fight or flight).

The parasympathetic nervous system originates in cranial nerves (nerves that emerge directly from the brain). We have 12 pairs of cranial nerves, and the vagus nerve (cranial nerve X), the longest of the cranial nerves, is the main component of the parasympathetic nervous system. Through the actions of the vagus nerve, the parasympathetic nervous system is both our system of immobilization and our system of connection. The vagus is in fact not a single nerve but rather a bundle of nerve fibers woven together inside a sheath. A helpful image is an electrical wire that contains a number of wires inside its outer covering. *Vagus* comes from the Latin word *vagary* meaning "wanderer," and this nerve is truly a vagabond. The vagus travels downward from the brain stem to the heart and stomach and upward to the face through its connection with other cranial nerves. Because of this architecture, the vagus has been called a "conduit of connection." This wonderful wandering nerve is a mixed nerve communicating bidirectionally between the body and the brain. Eighty percent of its fibers are sensory (afferent), sending information from the body to the brain, and 20% are motor (efferent), sending action information back from the brain to the body. To trace the vagal pathway, place a hand on your cheek and a hand over your heart. Then move one hand to your abdomen. Experiment with moving your hands between these three positions and imagine the vagal fibers connecting these physical locations.

The vagus nerve is divided into two distinct pathways (thus the term *polyvagal*), the dorsal vagus and the ventral vagus, with the division occurring at the diaphragm. While both are branches of the same cranial nerve, the dorsal vagus and the ventral vagus are architecturally and functionally different. The dorsal and ventral aspects of the vagus originate in neighboring parts of the medulla oblongata (the part of the brain stem that connects to the spinal cord). The dorsal vagus, the oldest part of the autonomic nervous system, arises from the dorsal nucleus of the vagus. The ventral vagus, the newest part of the autonomic nervous system, originates in the nucleus ambiguus. Because the nucleus ambiguus is located in front of the dorsal nucleus of the vagus, it was given the label "ventral." The dorsal and ventral vagal fibers exit the brain stem together and travel their

individual routes above and below the diaphragm. If you sense into your body and imagine your lungs and your abdomen, the diaphragm is the muscle that separates these two body regions. From the diaphragm downward (subdiaphragmatic) is the territory of the dorsal vagus, while from the diaphragm upward (supradiaphragmatic) is the realm of the ventral vagus. The fibers of the dorsal vagus are mostly unmyelinated, while the fibers of the ventral vagus are primarily myelinated. Myelin is a fatty substance that covers nerve fibers, insulating them so that information can be transmitted efficiently and quickly. Myelination of the ventral vagus, the process of covering fibers in myelin, begins in pregnancy during the last trimester and continues over the course of the first year of life (Porges, 2015a). The dorsal vagus affects organs beneath the diaphragm, especially those regulating digestion, while the ventral vagus, working above the diaphragm, influences heart rate and breathing rate and integrates with facial nerves to form the Social Engagement System. Out of these biological differences, the two extremes of autonomic response are activated. The dorsal vagus takes us out of connection into immobilization, and the ventral vagus moves us into social engagement and co-regulation.

Through these three unique pathways (ventral vagus, sympathetic nervous system, dorsal vagus), we react "in service of survival." Each autonomic state brings a characteristic range of responses through its own pattern of protection or connection. When the dorsal vagus comes to the rescue, there is not enough energy to run the system: The system is drained, and the client is numbed. In a sympathetic nervous system response, there is too much energy in the system, and the client is flooded. In a ventral vagal state, the system is regulated, open to connection, and the client is ready to engage. In Polyvagal Theory the three states of the autonomic response hierarchy are named (from newest to oldest) socially engaged, mobilized, and immobilized, or safe, danger, and life-threat. As clients become familiar with their personal response hierarchy, invite them to create their own labels. Many of my clients name their states safe, scared, and shut down. One client uses connected, stormy, and lost to identify her states. And another client, in what feels intensely evocative of the experience, named his states devoted, driven, and devoid.

To follow the autonomic hierarchy, envision your stomach and its digestive processes as the ancient dorsal vagus, move up to the middle of your back as the next layer in the evolution of the system with the

sympathetic nervous system and its spinal nerves, and then move to your heart and face and the newest part of the autonomic nervous system, the ventral vagus.

A CLOSER LOOK AT THE AUTONOMIC HIERARCHY

Earliest Roots

The dorsal vagus, sometimes called the "primitive vagus", is the oldest part of the autonomic nervous system and one branch of the parasympathetic nervous system. In its nonreactive role, the dorsal vagal pathway is important in regulating digestion. As an ancient survival mechanism, the dorsal vagal response is one of conservation of energy through collapse and shutdown. The dorsal vagal response is analgesic, protecting from both physical and psychological pain. In the moment of a traumatic event, the dorsal vagus can come to the rescue through dissociation. A neurological outcome of this dorsal vagal response is reduced flow and oxygenation of blood to the brain, which then translates into changes in cognitive function and experiences of dissociation (Porges, 2013). Long after the event has ended, this adaptive survival response is often seen in our work with trauma survivors when dorsal vagal "leaving" becomes a posttraumatic pattern in the search for safety. One client described to me the power of her dorsal vagal response, telling me that she can't hear my words, my tone of voice, or make sense of what I'm saying. She often can't see my face at all.

The dorsal vagal pathway responds to signals of extreme danger. This is the "path of last resort" using stillness as a survival response, conserving energy to take us out of connection, out of awareness, and into a protective state of collapse. When we feel frozen, numb, or "not here," the dorsal vagus has taken control. The phrase "scared to death" fits the dorsal vagal experience. Just as it is for our early ancestor the tortoise, the autonomic message to a sense of life threat is, "Pull in your head. Be still. Hide."

Keeping in mind the role of the dorsal vagus in the function of systems beneath the diaphragm, we would expect that subdiaphragmatic trauma, including abuse, sexual trauma, medical procedures, illness, and injury, could trigger a dorsal vagal response. In the extreme, this causes fainting (vaso-vagal syncope), but the dorsal vagal response includes a continuum of experiences. Health issues might be seen through impaired immune

function, a chronic lack of energy, and digestive issues and psychological consequences might present as dissociation, depression, or withdrawal from social connection.

Consider the following client expressions of dorsal vagal response you might encounter in a session: gazing out the window or into space; vacant eyes; flat, unresponsive face; collapsed posture; loss of speech; and "stilled" without ease. When a client moves into the shutdown state of the dorsal vagal pathway, there is a sense of absence that prompts the question, "Where did you go?" The therapist can feel the amorphous sense of reaching out and not finding anything solid to connect with. The client experience I have heard over and over is the sense of being alone, lost, and unreachable. Here is where despair lives.

Protected by Movement

The sympathetic nervous system, second on the evolutionary timeline, brings the ability to mobilize. In its homeostatic role, this system complements the parasympathetic system, working in concert with the ventral vagus to regulate heart and breathing rates and with the dorsal vagus to support digestion.

With the advent of the sympathetic nervous system, stillness is no longer our only survival response. The sympathetic nervous system prepares us to take action with the options of fight or flight, using movement to protect. This system is linked to action of the major limbs, and the feeling in this state is of being on the move. With the protective mobilization of the sympathetic nervous system, we move away from co-regulation. In the search for safety, we are cut off from others. In our evolutionary history, being alone and not a part of a group was dangerous, and the mobilization response of the sympathetic nervous system brings with it that sense of isolation and danger.

With a move into sympathetic response, there is a corresponding change in our hearing. The muscles of the middle ear control the ability to focus on human voice. When in a ventral vagal state, these muscles work to regulate frequencies and support listening to, and for, voices. When the sympathetic nervous system takes over, the middle ear regulation shifts away from listening for human voice toward listening for low-frequency sounds of predators or high-frequency sounds of distress. The system is now tuned to sounds of danger and not to the sounds of connection.

In addition to the effect on hearing, the ability to read facial cues is affected. In a sympathetically triggered state, we misread cues. Neutral faces appear angry. Neutral is experienced as dangerous (Porges, 2006). A client shared with me her experience of being sympathetically triggered and looking at faces, not being able to see a smile or decide if the person was friendly or dangerous. Consider this autonomic response in your interactions with clients. If your face is neutral, you may be seen as angry or even dangerous.

When moments of sympathetic activation are frequent and ongoing, the sympathetic nervous system stays on high alert. The release of cortisol makes it hard to sit still. Heart rate speeds up, breath is short and shallow, and we scan the environment looking for danger. Unable to resolve the cues of danger, the sympathetic nervous system becomes chronically active.

In a session with a client, you might notice the following responses to sympathetic nervous system activation: fidgeting; some part of their body is always in motion; they are unsettled, continually looking around the room; a stiff posture; and a sense of disorganization. When a client is in a "sympathetic storm," the options of fight or flight are both present. You may sense your client moving at you or moving away from you. The fight response often brings confrontation that can feel intense and antagonistic. Fight can be felt as your client's energy begins to fill the room. Their body posture becomes more rigid and their tone of voice challenging. Flight can be felt in the chaotic unfolding of the session. Flight can be seen in a body that can't come to rest, with constant changing of position, and can be heard when your client says, "I don't want to be here today. I shouldn't have come. I need to leave NOW." In the sympathetically charged states of fight and flight, danger lurks everywhere, and coming into connection is too big a risk. The world is an unfriendly place, and mistrust fuels the system.

Safe and Social

Connectedness is a biological imperative (Porges, 2015a), and at the top of the autonomic hierarchy is the ventral vagal pathway that supports feelings of safety and connection. The ventral vagus (sometimes called the "smart vagus" or "social vagus") provides the neurobiological foundation for health, growth, and restoration. When the ventral vagus is active, our attention is toward connection. We seek opportunities for co-regulation. The ability to soothe and be soothed, to talk and listen, to offer and receive,

to fluidly move in and out of connection is centered in this newest part of the autonomic nervous system. Reciprocity, the mutual ebb and flow that defines nourishing relationships, is a function of the ventral vagus. As a result of its myelinated pathways, the ventral vagus provides rapid and organized responses (Porges, 1997). In a ventral vagal state, we have access to a range of responses including calm, happy, meditative, engaged, attentive, active, interested, excited, passionate, alert, ready, relaxed, savoring, and joyful.

The vagus has been called the "compassion nerve." As Dacher Keltner of the Greater Good Science Center explains, through the actions of the ventral vagus we are wired to care. The ventral vagal state supports compassionate connections. It is this state that slows our heart rate, softens our eyes, brings a kind tone to our voice, and moves us to reach out to others. This same ventral vagal energy supports self-compassion: the act of reaching in to be with our own suffering with kindness. Compassion practices, through the activation of the ventral vagus, bring health benefits including reduction in stress and enhanced immune function (Keltner, 2012). There is a beautiful Aztec word *apapacho* that means "to embrace or caress with the soul." The ventral vagal state of safety and connection brings with it the potential to offer and receive *apapacho*. Ventral vagal activity is good for each of us and good for the world!

When clients are in a ventral vagal state of regulation, there is a feeling of connection in the room. The session has a rhythm. Even though the work may be difficult, there is a sense of groundedness. Ventral vagal energy brings curiosity and a willingness to experiment. The edges of regulation can be stretched a bit here. There is a sense of possibility. New options are recognized as the old story no longer matches this state of ventral vagal safety. Clients may be surprised by the unfamiliarity of this state. In the ventral vagal state, hope arises and change happens.

In a ventral vagal state, our Social Engagement System is alive. The Social Engagement System is an evolutionary development that occurred when the pathways to the face and head were linked with the ventral vagus in the brain stem. The integration of five cranial nerves (cranial nerves V, VII, IX, X, XI) meant eyes, ears, voice, and head now worked in concert with the heart. The Social Engagement System not only signals, but also searches for, cues of safety. This "safety circuit" is present from birth and regulates behaviors along a continuum from social engagement to surveillance. We

send cues of safety and invitations to come into connection through the signals of tone of voice, facial expression, the tilt of the head. We communicate, one nervous system to another, that it is safe to approach and come into relationship. As a surveillance system, when the cues perceived through another's face, voice, and gestures are ones of safety, the Social Engagement System affirms the possibility of connection. When the cues are ones of danger, we move into watchfulness. Through the Social Engagement System, we sense whether others are safe to approach and signal that we are friend not foe.

THE VAGAL BRAKE

Although we may think that the heart beats steadily, in fact a healthy heart does not beat like a metronome in an even, unchanging pattern. The ventral vagus influences our heart rate, slowing it during exhalation and allowing it to speed up during inhalation. The change in heartbeat, the rhythm of the heart during spontaneous breathing, is called respiratory sinus arrhythmia (RSA). Vagal tone, measured through RSA, indicates not only physiological well-being but also social and psychological well-being (Kok & Fredrickson, 2010).

The vagal brake is an important concept in Polyvagal Theory. One responsibility of the ventral vagus is to suppress heart rate to around 72 beats per minute through its influence on the heart's pacemaker, the sino-atrial node. Without this action, the heart would beat dangerously fast. Polyvagal Theory describes this as a "vagal brake" (Porges, 2009b; Porges & Furman, 2011). Think of the brakes on a bicycle. As you release the brakes your speed increases, and as you apply the brakes you slow down. The vagal brake functions in a similar way, releasing to allow us to quickly energize and reengaging to bring a return to calm. Through its actions on the heart, the vagal brake offers flexibility to our system.

The experiences of alertness and danger originate in different parts of the autonomic system. When the vagal brake is relaxed but not fully released, the ventral vagal system regulates the call to action, allowing more sympathetic energy into the system while inhibiting the release of cortisol and adrenaline. Danger, in contrast, brings with it a full release of the vagal brake, and, with that, the sympathetic nervous system takes over, discharging cortisol and adrenaline and triggering the fight-or-flight

response.

We depend on the vagal brake's capacity to relax and reengage as we navigate the demands of a normal day. The actions of the vagal brake are an efficient way to quickly increase and decrease heart rate and change the autonomic tone while maintaining ventral vagal control. A vagal brake that is working well brings a sense of ease to these transitions. This ability for rapid regulation and smooth transitions is affected by traumatic experience. Think about clients who are trauma survivors through the frame of the vagal brake. The loss of the vagal brake and yielding of control first to the sympathetic nervous system and then to the dorsal vagal system takes its toll. A client who is quick to dysregulate and be pulled into a survival response often missed the co-regulating experiences in childhood needed to effectively exercise their vagal brake. Trauma survivors without those necessary experiences generally find small moments of distress to be too great of a challenge to their vagal braking capacities. In therapy, pendulation (intentionally moving between activation and calm) and titration (using tempo and parsing of experience to monitor and manage response) techniques are examples of experimenting with the safe release and reengagement of the vagal brake (Payne, Levine, & Crane-Godreau, 2015).

The vagal brake is designed to release and reengage as a way of responding to challenges while still maintaining ventral vagal regulation. Once the autonomic challenge is met, the vagal brake recovers, reengages and returns the system to balance. This is a commonly experienced pattern throughout the course of a day as we energize to meet the demands of the multiple and often conflicting needs dictated by work and family schedules.

When the ventral vagal system cannot meet the needs for safety, the vagal brake releases, allowing the sympathetic nervous system to come into full activation. An example of this is when, despite your efforts to titrate the work, a client gets pulled into a piece of their trauma story and re-experiences that moment. In a fight response, a client is entangled with the story, doing battle with it. They may experience the rush of adrenaline, and feel intense emotions, showing them in movements punctuated by sharp gestures. In a flight response, a client may be frantic to get away from the memory. Their speech is often rushed and pressured, and they may express an urgent need to stop the work or end the session. In each of these experiences, if your client feels you meeting them in their distress with

your ventral vagal state sending cues of safety, their autonomic nervous system can sense the offer of co-regulation, helping their vagal brake to reengage, and can come back into regulation.

If the intensity of your client's experience overwhelms their ability to take in your offer of co-regulation and cues of safety, then the dorsal vagal system takes over, sending them into shutdown. This is the client who is no longer present with you, who has moved out of reach. To come back into connection, their autonomic nervous system needs to feel your ventral vagal presence, take in cues of safety, and climb back up the autonomic hierarchy through sympathetic activation to reach ventral vagal regulation. Your client needs to feel a gentle call to action for their sympathetic nervous system to begin to bring a return of energy (e.g., brief eye contact, engaging in small movements, return of speech). Too great a sympathetic surge will overload the system and trigger a return of dorsal vagal collapse. As you and your client notice the beginning of return of energy to the system, help them identify it as a safe response that is bringing their system back online. Then pause there together for a moment to honor the release from collapse before continuing through sympathetic mobilization into ventral vagal connection.

HOMEOSTASIS

Just as both the left and right hemispheres of the brain bring balance to our experience, all three parts of our autonomic nervous system cooperate to develop an embodied sense of well-being. The ventral vagus controls the face-heart connection. The sympathetic nervous system supports healthy breathing cycles and heart rhythms and plays a role in regulating body temperature, while the dorsal vagus promotes healthy digestion. With the regulating energy of the ventral vagus, and the sympathetic and dorsal vagal branches adding their nonreactive actions, a sense of homeostasis, or what Peter Levine calls dynamic equilibrium, is achieved.

If a baby is born at 30 weeks of gestation or earlier, the protective part of the vagus, the ventral vagus, has not yet fully developed and myelinated. Without a fully functional ventral vagal system, the baby is dependent on dorsal vagal "conservation" and sympathetic "activation" to regulate states. The many machines, wires, and tubes in a neonatal intensive care unit are doing some of the work of the ventral vagus while the baby's autonomic

nervous system continues to develop.

Without a ventral vagal system that is able to meet the demands of the day with flexibility, people of all ages are pulled into "conservation" and "activation" to face the challenges of regulation. An autonomic nervous system that is missing the regulating influence of the ventral vagus brings health challenges, creates distress in relationships, and shapes a daily experience of suffering.

ATTENDING TO THE HIERARCHY

The autonomic nervous system guides our daily experiences. We first try to navigate using our ventral vagal system. We use strategies of social engagement and social communication in an attempt to co-regulate. We are social beings needing reliable, reciprocal relationships in our daily living experiences for both physical and emotional well-being (Hawkley & Cacioppo, 2010; Seppala, Rossomando, & Doty, 2013). It is when we are unsuccessful in using connection and communication to partner with others that our autonomic nervous system moves out of the safety of the ventral vagal state and engages the sympathetic nervous system's fight-or-flight response. The sympathetically triggered state brings strategies of confrontation or avoidance in an attempt to resolve the danger and return to the safety of ventral vagal regulation.

This cycle of reaction and return to regulation between these two autonomic states is not an uncommon experience during the course of a day. It is when the mobilization tactics of the sympathetic nervous system are not successful that we move the final step back on the evolutionary timeline into dorsal vagal collapse. Here we are disconnected from ourselves, from others, and from our internal and external resources. In the dorsal vagal immobilization response we wait, feeling lost and unable to find our way back into connection.

To recover from dorsal vagal shutdown requires moving forward along the evolutionary timeline through the energy of the sympathetic nervous system in order to reach ventral vagal regulation. Without sufficient resources (internal abilities, environmental safety, social support), a pattern of immobilization–mobilization–immobilization is replayed in a painful autonomic loop. The intense longing to reach the safety of ventral vagal connection is unmet and accompanied by feelings of hopelessness. When

the system begins to find its way out of dorsal vagal collapse, there is the likelihood that "moments of messiness" will arise from the energy of the sympathetic nervous system. When these adaptive survival strategies don't result in a sense of connection, either to self or other, the exhaustion of the unremitting mobilized response turns back into a necessary conservation of energy through collapse. To safely navigate out of collapse through action and keep moving up the autonomic hierarchy into social engagement, we need to feel a real or imagined "hand on our back."

Autonomic patterns are built over time. The autonomic nervous system is shaped through experience. In response to experiences of connection and challenge, we develop a personal neural profile with habitual patterns of reaction. Recognizing these responses and seeing the patterns of activation is the first step in polyvagal-informed practices. Some clients move quickly into states of mobilization. Even small moments of misattunement are "too big a neural challenge," and their autonomic nervous system enacts a survival response. A client with this pattern told me, "My partner asked if I'd gotten everything done and I immediately felt my anger coming. I thought if he can't just trust that I'm doing it right then he can do it all himself. I'm done! Later my friend told me his question was a 'normal' one, even one that showed he cared, but I can't ever seem to see things that way." Other clients move almost imperceptibly through mobilization into collapse, their autonomic nervous system taking refuge in disconnection. A client with this response shared with me, "I don't know how to do the simple things in life everyone else does so easily because my childhood was spent making sure I survived the night. There was no room for learning the things normal people learn. Now I am not equipped to live in the everyday world. As soon as I begin to feel like a misfit, I collapse."

EXERCISE

Ask Your Nervous System

The following three questions and common responses invite a beginning look at the three states of autonomic activation. Read the statements, and consider how your autonomic nervous system would respond.

Note to Readers: Standards of clinical practice and protocol change over time, and no technique or recommendation is guaranteed to be safe or effective in all circumstances.This volume is intended as a general information resource for professionals practicing in the field of psychotherapy and mental health; it is not a substitute for appropriate training, peer review, and/or clinical supervision. Neither the publisher nor the author(s) can guarantee the complete accuracy, efficacy, or appropriateness of any particular recommendation in every respect.

First Edition

Book design by Molly Heron
Production manager: Christine Critelli
Cover design by Lauren Graessle
Cover art © Stephanie Jagiello

The Library of Congress has cataloged the printed edition as follows:

Names: Dana, Deb, author.

Title: The polyvagal theory in therapy: engaging the rhythm of regulation / Deb Dana; foreword by Stephen W. Porges.
Description: First edition. | New York: W.W. Norton & Company, [2018] |
Series: A Norton professional book | Includes bibliographical references and index.
Identifiers: LCCN 2017051973 | ISBN 9780393712377 (hardcover)
Subjects: LCSH: Autonomic nervous system. | Psychic trauma—Treatment. | Affective neuroscience.
Classification: LCC QP368 .D36 2018 | DDC 612.8/9—dc23 LC record available at https://lccn.loc.gov/2017051973

ISBN 978-0-393-71238-4 (e-book)

W. W. Norton & Company, Inc., 500 Fifth Avenue, New York, N.Y. 10110
www.wwnorton.com