



# Chiropractic Newsletter

## Wellbeing

### Polyvagal Theory

In his influential book *The Polyvagal Theory: Neurophysiological Foundations of Emotions, Attachment, Communication and Self-Regulation*, Stephen Porges, Ph.D., examined the phylogenic evolution of the human nervous system, and the role of the vagus nerve in the development of social behavior. In his decades of research, he found that the more recently evolved, myelinated branches of the vagus nerve found in mammals play a distinct role in attention, self-regulation, communication, emotional expression, resilience to stress, and other capacities central to social functioning.

These myelinated vagus fibers, which send signals to the brain more quickly than the phylogenically older, unmyelinated fibers, inhibit these older systems. As a result, the newer, myelinated vagal system in mammals can override the signals of the SNS (sympathetic nervous system), a phenomenon that Porges refers to as the vagal brake.

#### The Vagal Brake and Social Behavior

According to proponents of polyvagal theory, the vagal brake plays a pivotal role in the development of appropriate

social behavior. Because of its capacity to rapidly depress or recruit the SNS in response to environmental demands, the brake gives us the opportunity to willfully regulate our behavior during stressful circumstances.



Numerous studies with infants and young children show that vagal tone is an important indicator of self-regulation, sustained attention, resiliency, and the ability to calm down after experiencing a stressor. This capacity to regulate behaviors is a critically important function in relationship. Those who are able to think and act flexibly, maintain attentional control, and regulate emotions and behaviors are far more able to respond appropriately to interpersonal stressors and demands than those who cannot.

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Here’s the catch. This system only works properly when stress is intermittent. When real or perceived stress is chronic, the sympathetic nervous system “gas pedal” gets stuck, making it more difficult for the vagal brake to be applied.

How does this relate to social behavior? In addition to its role within the PNS (parasympathetic nervous system), the vagus nerve controls the movement of muscles associated with facial expression, speaking, swallowing, sucking, and, most importantly, breathing. As such, your ability to regulate the vagal brake is directly tied to your ability to regulate your emotions, behaviors, and facial expressions—all essential ingredients for good communication.

## **Vagal Tone and Intentional Breathing**

In addition to its impact on facial muscles, the vagus nerve both controls and is influenced by how you breathe. Here is the key: By slowing down your respiration through deep, intentional breathing and elongating your exhalation, you can activate the vagal brake and begin the process of relaxation almost immediately. What’s more, with the resumption of the relaxation response, brain networks in the prefrontal cortex inhibit your fear circuitry, allowing you to regain your composure and relate mindfully to others. With time and practice, intentional breathing can be used as a powerful tool to defuse stress and manage daily hassles and challenging interactions. Even better, it takes no special equipment, training, or cost to breathe mindfully, you can begin right now, and you can use it anywhere.

***by B. Grace Bullock***

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