

MeMoves, Safety, and the Vagus Nerve

Social connection is an essential part of what it means to be human; to survive and to thrive. Our safety was rooted in tribes and extended families as we cared for, and kept each other safe. That need for connection is hardwired into our bodies and our cells. Our very survival might depend on connections that we are able to forge with complete strangers. (Lieberman, 2013)

Deep social connections alter the way that DNA is expressed within our cells, affecting our health and well-being. These connections increase our resilience, health, productivity, happiness, and even our longevity. The most important aspect of mental health is the ability to feel safe with other people and have healthy relationships. Safe connections are essential for a meaningful life. (Fredrickson, 2013)

For people struggling with trauma and anxiety however, the mere presence of another human being may be threatening. (DSM-IV, APA 1994) Children and adults who struggle socially have sensitized nervous systems that detect, magnify, and misread nuances invisible to other people. It is nearly impossible to build social and emotional learning and resilience in a person so threatened by human contact that the very ‘milk of human kindness’ is not accessible to them.

MeMoves provides the benefits of human connection without the threat of a live person. Ranging in age from 2 to 92, each person onscreen looks at the user(s) with the same compassionate, caring, nonjudgmental, expressive features of emotion – every single time. MeMoves supports neurological recovery and resiliency, and a main component is the kind and consistent faces found in each sequence.

The Polyvagal Theory

Dr. Stephen Porges is a behavioral neuroscientist whose development of the Polyvagal Theory is changing the way we look at social and emotional behavior, particularly trauma and anxiety. (Porges, 2011) (Polyvagal refers to multiple branches of the vagus nerve, which connects the brains, lungs, heart, stomach, and gut.) Dr. Porges’ theory emphasizes the biology of safety and danger, as it examines the interaction between our body’s internal states and the faces and voices of the people around us. Understanding Porges’ work gives us a set of tools to begin to understand and adjust the nervous system’s responses and finally our resulting behaviors.

The theory emphasizes that our nervous system has more than one defense strategy, and that our defensive response is completely involuntary, beyond our control. Our nervous system constantly evaluates risk in the environment, making judgments and setting up priorities for adaptive behaviors that are beyond our conscious control, keeping us safe in the face of danger. One of the most interesting things about the Polyvagal Theory is the way it moves beyond ‘fight or flight’ to examine the important role that social relationships play in understanding safety, danger, and trauma. It is a primary mechanism

for neurological recovery and behavior modification.

Ideally, the Autonomic Nervous System automatically reads the environment and responds by activating the myelinated ventral vagal complex (VVC) when you are safe, the sympathetic nervous system (SNS) when you are in danger, and the non-myelinated dorsal vagal complex (DVC) when your life is being threatened.

When the myelinated vagus isn't working well you're less able to accurately interpret other people's intentions. You can't see or hear others as well and you risk misunderstanding their expressions. You don't make eye contact as easily, and your own facial expressions become flatter, which increase the likelihood that you'll be seen as hostile or uncaring. Others may perceive you as closed off or angry.

Three Components of the Polyvagal Theory

Positive Social Engagement

If your nervous system perceives you are safe, the polyvagal system triggers the most sophisticated adaptive response to stress, using the social engagement system. This connects the 'social' muscles of the face (eyes, mouth, middle ear, larynx, sinus) with the heart. This activates the ventral vagal complex (VVC), which is regulated by a myelinated branch of the vagus nerve; and is the most evolved strategy for keeping us safe.

The myelinated vagus uses signals from kind/ happy/ safe facial expressions to modulate stress to make us calm. When you get input from other people's faces and voices signalling safety, the myelinated vagus sends a message inhibiting the sympathetic nervous system. "I'm with friends and everything is going to be okay. You don't need to fight, flee or freeze right now." That's why we feel less stress when we're around people we trust.

If there is a problem, you can call for help, support, or comfort. This level of communication is the one we use to beg for forgiveness, negotiate a solution, and straighten out misunderstandings. It activates our facial expressions, eye contact, speech and vocal prosody, as we gesture communicatively to bargain, persuade, model and implore.

The myelinated vagus works to sustain social relationships, sending and receiving emotional information that brings you closer to others and helps you to feel calmer. You feel safe because you are affiliated with, accepted by, and connected to others.

Mobilization through The Fight or Flight Response

If the myelinated vagus feels that others are unsafe, it automatically shuts down. It stops sending inhibitory messages to the SNS, allowing it to respond with a stress response. Stress responses are useful if you're actually in danger, but if you're around safe people whom your nervous system has misread as unsafe, the faulty system elicits feelings of stress with elevated heart rate, sweaty palms, dry mouth and fuzzy brain. You might start an argument or perform the social equivalent of 'fight or flight' by zoning out in a conversation.

Immobilization through the Freeze Response

When we sense life threatening danger and social engagement and 'fight or flight' systems won't work, our bodies can go into "freeze" or an immobility response as a final attempt at self-preservation. The nervous system activates the dorsal vagal complex, shutting down the system and expending as little energy as possible by reducing metabolism. At this point our gut stops working, our heart rate drops, and we have difficulty breathing.

Humans and most mammals instinctively use this when there is no escape. As a survival strategy of last resort it's frequently dangerous in itself, although it can help us to survive. During severe injury, it turns off our registration of pain, and shuts down body systems as much as possible. With repeated trauma, the nervous system can grow habituated to using a 'freeze' response, which can trigger shutdown and dissociation to any perceived threat.

Safety and affiliation are paramount; without them we are lost. The children and adults that we work with are frequently isolated from other people because of trauma. Many of them are simply trying to survive.

The process of strengthening the polyvagal system continues into adulthood. Every time you receive comfort, the myelinated vagus becomes faster and more efficient at sending chemical signals. We can modulate the stress response by connecting safely with others.

MeMoves connects users to the salient aspects of human connection, emotion, and positive social engagement (facial expressions and eye contact, musical prosody in higher frequencies shared by the female voice and simple, rhythmically attuned movements – gestures) without the threat of a live, human being.