

Polyvagal Theory and How It Relates to Social Cues

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Have you ever been in a situation where you feel uncertain or in danger but not really sure why? You may look around and see that no one else seems to be bothered, but something still feels off to you?

You may not realize it, but you are walking around in the world each day reading thousands of social cues in your environment. In our interacting with others, we pick up facial expressions, tones of voice, bodily movement, and more. We are constantly busy observing and interacting with the world and others as part of the human experience.

As we have these interactions with others, our sense of self is being shaped. We learn about ourselves and about others, who we can trust, and who feels dangerous to us. Our bodies are processing this type of information constantly through these interactions with the world.

The Body's Surveillance System

Our nervous system is a complex structure that gathers information from all over our body and coordinates activity. There are two main parts of the nervous system: the central nervous system and the peripheral nervous system.

Central Nervous System

The central nervous system consists of two structures:

- **Brain.** This is the structure composed of billions of interconnected neurons or nerve cells contained in the skull and functions as the coordinating center for almost all of our body's functions. It is the seat of our intellect.
- **Spinal cord.** This is a bundled network of nerve fibers, connecting most parts of our body to our brain.

Peripheral Nervous System

The peripheral nervous system consists of all of the nerves outside of our brain and spinal cord. It can be categorized into two distinct systems:

- **Somatic nervous system** (voluntary). This system allows our muscles and brains to communicate with each other. The somatic system helps our brain and spinal cord to send signals to our muscles to help them move, as well as sends information from the body back to the brain and spinal cord.
- **Autonomic nervous system** (involuntary). This is the system that controls the glands and internal organs, such as the heart, lungs and digestive system. These are, essentially, the things that run our body without us having to intentionally think about them. For example, we can breathe without having to think about taking a breath each time.

Reading Danger Cues

Our autonomic nervous system (the involuntary system that helps to control things like our breathing, heart rate, digestion, and salivation) is complex and always busy. In addition to running these important functions in our bodies such as helping us breathe, helping our heart pump, and helping us digest food, our autonomic nervous system is also helping us to scan, interpret, and respond to danger cues.

There are two separate systems at work within our autonomic nervous system that are helping us to read and respond to danger cues:

- **Sympathetic nervous system.** This system is involved in arousing our bodies to respond by mobilizing us to move when in dangerous situations. Many refer to this system as prompting our "fight or flight" reactions to danger cues in our environment. It is also responsible for activating our adrenal glands to release epinephrine into our bloodstream, otherwise known as an adrenaline rush. When we see a snake, our sympathetic nervous system will read the cue of the potential threat and prompt our body to respond, likely involving a quick adrenaline rush and us immediately moving away from the snake.
- **Parasympathetic nervous system.** This system is involved in calming our bodies, conserving energy as it begins to do things like slow our heart rate, regulate our digestion and lower our blood pressure. Some refer to this system as the "rest and digest" system. As we begin to read that a cue is not dangerous, our body begins to calm with the help of our parasympathetic nervous system.

The Vagus Nerve

There is one nerve, in particular, that is of interest to Dr. Stephen Porges, Ph.D. Dr. Porges is a distinguished university lecturer, scientist, and developer of what is referred to as The Polyvagal Theory. The vagus nerve is the tenth cranial nerve, a very long and wandering nerve that begins at the medulla oblongata. This part of the brain, the medulla oblongata, is located in the lower part of the brain, sitting just above where the brain connects with our spinal cord.

There are two sides to this vagus nerve, the dorsal (back) and the ventral (front). From there, the two sides of the vagus nerve run down throughout our body, considered to have the widest distribution of all the nerves within the human body.

Scanning our Environment

From the time we are born, we are intuitively scanning our environment for cues of safety and danger.

We are wired for connection and, in order to help us survive, our bodies are designed and prepared for observing, processing, and responding to our environment.

A baby responds to the safe feelings of closeness with their parent or caregiver. Likewise, a baby will respond to cues that are perceived as scary or dangerous, like a stranger, a scary noise, or a lack of response from their caregiver. We scan for cues of safety and danger our entire lives.

Neuroception

In polyvagal theory, Dr. Porges describes the process in which our neural circuits are reading cues of danger in our environment as neuroception. Through this process of neuroception, we are experiencing the world in a way in which we are involuntarily scanning situations and people to determine if they are safe or dangerous.

As part of our autonomic nervous system, this process is happening without us even being aware that it is happening. Just as we are able to breathe without having to intentionally tell ourselves to take a breath, we are able to scan our environment for cues without telling ourselves to do so. The vagus nerve is of particular interest during this process of neuroception.

In the process of neuroception, both sides of our vagus nerve can be stimulated. Each side (ventral and dorsal) has been found to respond in distinct ways as we scan and process information from our environment and social interactions.

The ventral (front) side of the vagus nerve responds to cues of safety in our environment and interactions. It supports feelings of physical safety and being safely emotionally connected to others in our social environment.

The dorsal (back) side of the vagus nerve responds to cues of danger. It pulls us away from connection, out of awareness, and into a state of self-protection. In moments when we might experience a cue of extreme danger, we can shut down and feel frozen, an indication that our dorsal vagal nerve has taken over.

Three Developmental Stages of Response

Within his polyvagal theory, Porges describes that there are three evolutionary stages involved in the development of our autonomic nervous system. Rather than simply suggesting that there is a balance between our sympathetic and parasympathetic nervous system, Porges describes that there is actually a hierarchy of responses built into our autonomic nervous system.

- **Immobilization.** Described as the oldest pathway, this involves an immobilization response. As you might remember, the dorsal (back) side of the vagus nerve responds to cues of extreme danger, causing us to become immobile. This means that we would respond to our fear by becoming frozen, numb, and shutting down. Almost as if our parasympathetic nervous system is kicking into overdrive, our response actually results in us freezing, rather than simply slowing down.
- **Mobilization.** Within this response, we are tapped into our sympathetic nervous system which, as you might remember, is the system that helps us mobilize in the face of a danger cue. We spring into action with our adrenaline rush to get away from danger or to fight off our threat. Polyvagal theory suggests that this pathway was next to develop in the evolutionary hierarchy.
- **Social engagement.** The newest addition to the hierarchy of responses, this is based in our ventral (front) side of the vagus nerve. Remembering that this part of the vagus nerve responds to feelings of safety and connection, social engagement allows us to feel anchored and is facilitated by that ventral vagus pathway. In this space, we can feel safe, calm, connected, and engaged.

The Response Hierarchy in Daily Life

As we go through life engaging with the world, there are inevitably those moments when we will feel safe and others or in which we will feel discomfort or danger. Polyvagal theory suggests that this space is fluid for us and we can move in and out of these different places within the hierarchy of responses.

We might experience social engagement in the embrace of a safe loved one and, within the same day, find ourselves in mobilization as we are confronted with danger such as a rabid dog, a robbery, or an intense conflict with a coworker.

There are times when we might read and respond to a danger cue and process the situation in a way that leads us to feel trapped and unable to get out of the situation. In those moments, our body is responding to increased feelings of danger and distress, moving into a more primal space of immobilization. Our dorsal vagus nerve is being impacted and locking us down to a place of freezing, feeling numb and, as some researchers believe, dissociation.

The danger cues can become too overwhelming in those moments and we see no viable way out. An example of this could be moments of sexual or physical abuse.

Impact of Trauma

When someone has experienced trauma, particularly in experiences where they were left immobilized, their ability to scan their environment for danger cues can become skewed. Of course, our body's goal is to help us never experience a terrifying moment like that again, so it will do whatever it needs to do in order to help protect us.

As our surveillance system kicks into overdrive, working very hard to protect us, it can also read many cues in our environment as dangerous—even those cues that might be perceived as neutral or benign to other people.

Our social engagement allows us to interact more fluidly with others, feeling connected and safe. When our body picks up a cue within an interaction that signals we may not be safe, it begins to respond. For many, this cue may move them into a place of a mobilization response, springing into action to attempt to neutralize the threat or get away from the threat.

For those who have experienced trauma, the signal of a danger cue can move them directly from social engagement to immobilization. As they come to associate numerous interpersonal cues as dangerous, such as a slight change of facial expression, a particular tone of voice, or certain types of body posturing, they can find themselves going back to a place of response that is familiar to them in an effort to prepare and protect themselves.

A response of mobilization may not be registered by the body as an option. This can be quite confusing for trauma survivors, unaware of how this hierarchy of response is influenced by their interactions with others and the world.

Connection and Polyvagal Theory

Although the vagus nerve is known for being widely distributed and connected to a variety of areas of the body, it is important to note that this system can influence cranial nerves that regulate social engagement through facial expression and vocalization. As human beings who are wired for connection, we can understand how scanning for danger cues can happen frequently in our interactions with our significant other or important supportive others in our lives.

We innately long for feelings of safety, trust, and comfort in our connections with others and quickly pick up cues that tell us when we may not be safe. As people become safer with and for each other, it can be easier to build healthy bonds, share vulnerabilities, and experience intimacy with each other.

Article Sources

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<https://www.verywellmind.com/polyvagal-theory-4588049>