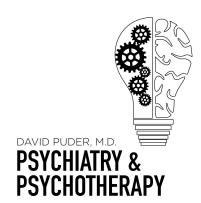
Understanding Polyvagal Theory

David Puder, M.D.

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"Polyvagal Theory Simplified"

Polyvagal theory explains three different parts of our nervous system and their responses to stressful situations. Once we understand those three parts, we can see why and how we react to high amounts of stress.

If polyvagal theory sounds as exciting as watching paint dry, stick around, trust me. It's a fascinating explanation of how our body handles emotional stress, and how we can use different therapies it to rewrite the effect of trauma.

Why is polyvagal theory important?

For therapists, and pop-psychology enthusiast alike, understanding polyvagal theory can help with:

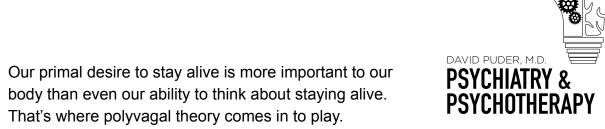
- Understanding trauma and PTSD
- Understanding the dance of attack and withdrawal in relationships
- Understanding how extreme stress leads to dissociation or shutting down
- Understanding how to read body language

We like to think of our emotions as ethereal, complex, and difficult to categorize and identify.

The truth is that emotions are responses to a stimulus (internal or external). Often they happen out of our awareness, especially if we are out of touch, or incongruent, with our inner emotional life.

Understanding Polyvagal Theory

David Puder, M.D.



The nervous system is always running in the background, controlling our body functions so we can think about other things—like what kind of ice cream we'd like to order, or how to get that A in med school. The entire nervous system works in tandem with the brain, and can take over our emotional experience, even if we don't want it to.

A Story About a Gazelle...

Animals are a great example of how we handle stress, because they react primally, without awareness. They do what we would, if we weren't so well tamed.

If you have ever watched a National Geographic Africa special, you've seen a lioness chase a gazelle. A group of gazelles is grazing, and suddenly one looks up, hyper aware of what is happening around him. The whole group notices and pays attention.

After a moment, the lioness starts her chase. The gazelle she's singled out runs as fast as he can (sympathetic nervous system), until he is caught. When he is caught, he instantly goes limp (parasympathetic nervous system).

The lioness drags the gazelle back to her cubs, where they begin to play with it before they go in for the kill. If the lioness gets distracted, and the gazelle sees a moment of opportunity, he's up and sprinting off again, looking like he suddenly came back to life (back into sympathetic nervous system response).

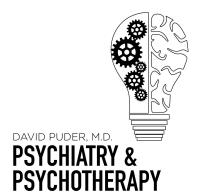
When the gazelle was caught, with fangs around his neck, his shutdown response kicked in—he froze. When he saw the opportunity to run, his fight or flight kicked in, and he ran.

Poyvagal theory covers those three states—connection, fight or flight, or shutdown.

Here's how they work...

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David Puder, M.D.



Connection Mode

or...rest and relaxation...or myelinated vagus nerve of the parasympathetic nervous system coming from the nucleus ambiguus response

During non-stressful situations, if we are emotionally healthy, our bodies stay in a social engagement state, or a happy, normal, non-freak-out state.

I like to call it "connection." By connection, I mean that we are capable of a "connected" interaction with another human being. We are walking around, unafraid, enjoying our day, eating with friends and family and our body and emotions feel normal.

It's also called ventral vagal response, because that's the part of the brain that is activated during connection mode. It's like a green light for normal life.

How does this look and feel?

- Our immune system is healthy.
- We feel normal happiness, openness, peace, and curiosity about life.
- We are sleeping well and eating normally.
- Our face is expressive.
- We emotionally relate to others.
- We more easily understand and listen to others.
- Our body feels calm and grounded.

Freeze, Flight, Fight, or Puff Up

...or the sympathetic nervous system response

The sympathetic nervous system is our immediate reaction to stress that affects nearly every organ in the body.

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David Puder, M.D.

The sympathetic nervous system causes that "fight or flight" state we have all heard of. It gives us those cues so that it can keep us alive.



How does this happen? How does this look and feel?

- We sense a threat and freeze to scan the surroundings for real danger.
- We release cortisol, epinephrine and norepinephrine to help us accomplish what we need to—get away, or fight our enemy.
- Our heartbeat spikes, we sweat, and we feel more mobilized.
- We feel anxious, afraid, or angry.
- There may be flashes of facial expressions of fear and anger, with the background of more of a still face. If positive emotions are present, they usually look forced.
- Our digestion slows down as blood rushes to the muscles.
- Our blood vessels constrict to the intestines and dilate to the muscles needed to run or fight.
- We may want to run away, or punch someone, or react physically in some way, or just puff-up and look scary.
- Our muscles may feel tense, electric, tight, vibrating, aching, trembling, and hard.
- Our hands may be clammy.
- Our stomach may be painfully knotted.
- All our senses focus.
- Our gestures may show guarding of our vital organs, fists clenched, or puffing ourselves up to look bigger or stronger.

In fight or flight, at some level we believe we can still survive whatever threat we think is dangerous.

Shut Down

...or the Unmyelinated Vagus of the Parasympathetic Nervous System coming from the Dorsal Motor Nucleus

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David Puder, M.D.

What's interesting about this part of the parasympathetic nervous system? Its function is to keep us frozen as an adaptive mechanism to help us survive to either fight or flight again.



When David Livingston was attacked by a lion, he later reported, "it caused a sort of dreaminess in which there was no sense of pain nor feeling of terror, though quite conscious of all that was happening."

When our sympathetic nervous system has kicked into overdrive, and we still can't escape and feel impending death the dorsal vagal parasympathetic nervous system takes control.

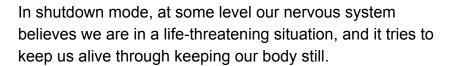
It causes freezing or shutdown, as a form self preservation. (Think of someone who passes out under extreme stress.)

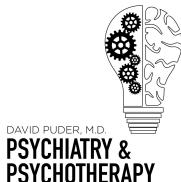
How does this look and feel?

- Emotionally, it feels like dissociation, numbness, dizzy, hopelessness, shame, a sense of feeling trapped, out of body, disconnected from the world
- Our eyes may look fixed and spaced out
- The dorsal motor nucleus through the unmyelinated vagus nerve decreases our heart rate, blood pressure, facial expressions, sexual and immune response systems
- We may be triggered to feel nauseated, throw up, defecate, spontaneously urinate
- We may feel low or no pain
- Our lungs (bronchi) constrict and we breathe slower
- We may have difficulty getting words out or feel constriction around our throat
- Our brain has decreased metabolism and this causes a loss of body awareness, limp limbs, decreased ability to think clearly, and decreased ability to lay down narrative memories
- Our body posture may collapse or curl up in a ball

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Some people who have had both attachment trauma and subsequent trauma can have chronic suicidality, and dissociation episodes that last days to months. Research shows that long term solutions include:

- Dialectical behavioral therapy
- Mentalization based therapy
- Transference focused therapy

How Trauma Affects the Nervous System

As humans, we do the same thing as that gazelle when we perceive emotional or physical danger. We alternate between peaceful grazing (parasympathetic - connection mode), fight or flight (sympathetic system- fight and flight) or shutdown (parasympathetic- shut down mode).

Our response is all in our perception of the event. Maybe someone was just playing a game when they jumped out to scare us, but we fainted. Whatever the reason, whether the incident was intentional or not, our body shifted into shutdown mode, we registered it as a trauma. our body shifted into shutdown mode.

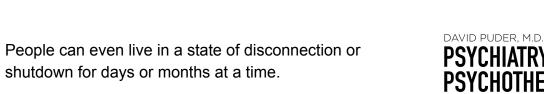
Or maybe the trauma event was really, life threatening, and our nervous system responded appropriately to the stimuli.

No matter what the cause was, our brain believed what was happening was life threatening enough that it caused our body to go into flight, flight, or shutdown mode.

If someone has been through such a traumatic event that their body tips into shutdown response, any event that reminds the person of that life-threatening occurrence can trigger them into disconnection or dissociation again.

Understanding Polyvagal Theory

David Puder, M.D.



Veterans often experience this during loud, sudden noises such as fireworks or thunderstorms. A woman who was raped might quickly switch into hypervigilant or dissociated response if she feels someone is following her. Someone who was abused might be triggered when even another person starts yelling.

The problem occurs when we haven't processed the original trauma in such a way that the original trauma is resolved.

That's what PTSD (post-traumatic stress disorder) is—our body's overreaction to a small response, and either stuck in fight and flight or shut down.

People who experience trauma and the shutdown response usually feel shame around their inability to act, when their body did not move. They often wish they would have fought more during those moments.

A Vietnam vet may feel they failed their companions who died around them while they stood, frozen in fear. A rape victim may feel he or she didn't fight off their rapist because they froze. A victim of abuse may feel they quit trying to escape their abuser, and that they are weak or failed.

Much of "stress" training, which trains people to continue to remain in fight and flight mode, aims to keep people out of dissociation during real life or death situations. Unfortunately, these practices aren't common beyond elite sports teams or special forces. The right amount of stress, with good recovery, can lead our nervous systems into higher levels of adaptation.

Coming Out of Shutdown Mode

So how do we climb back out of shutdown mode?

The opposite of the dorsal vagal system is the social engagement system.

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So, in short, what fixes shutdown mode is bringing someone into healthy social engagement, or proper attachment.



Getting down into the nuts and bolts of how this works in our body can help us understand why we feel the way we do physically when your body is in fight, flight, or shut down mode.

When we understand why our body reacts the way it does, like a string of clues and some basic science about the brain, we can understand how to switch states. We can begin to move out of the fight or flight state, out of the shutdown mode, and back into the social engagement state.

As therapists, whether we are just establishing a connection with a new, anxious patient, or helping them deal with their deepest traumatic memories, knowing how to navigate the polyvagal states is important.

It can also be helpful if you have just identified yourself in some of these symptoms. Such as, "When I'm with my parents, even as an adult, and they start fighting, I feel lightheaded and disconnected."

If you've seen some of these things in yourself, hopefully through therapy, and even understanding how this works, you can pull yourself out of a disconnected state.

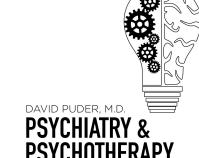
Studies show that some parts of the brain shut down during the recall of traumatic events, including the verbal centers and the reasoning centers of the brain (<u>Van Der Kolk</u>, 2006).

This is why it's important to conduct therapy, or coming out of shutdown mode, in a safe, healthy way, in a safe, healthy environment. This is why positive attachment is imperative. Otherwise, you run the risk of retraumatizing the patient.

Because I am a psychiatrist, I am going to write this to demonstrate how to help a patient switch out of shutdown mode.

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David Puder, M.D.



However, these tips still apply to those who are just understanding how shutdown mode works. And it can even help those who feel shut down to begin to know how to try and attain a healthy social engagement mode again.

- Have a trust-based relationship. Because of the potential to re-traumatize, don't even address intensely traumatic events—especially ones where you think shutdown mode kicked in, until the therapeutic relationship feels deeply connected.
 - It's important as the therapist to allow the patient to express things they couldn't express to other people—shameful feelings, anger, sexual response, anything that feels frightening to share with others.
- Find your own calm center. If you can empathize with their distress, stay in the
 moment with them, and help them feel connected during their shutdown, you are
 throwing them a lifeline. You're helping them come out of shutdown, into social
 engagement.

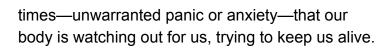
It's important to fight against the urge to dissociate, no matter how gruesome the subject matter is. As therapists, we could dissociate because of the mirror neuron response—to mirror our patient's brain, and because when hearing horrific trauma, it's easy to imagine it happening to us.

The human experience is so powerful that when we re-engage the trauma, with someone else to support us, it rewrites that event in our brain, adding in the feeling of being supported within the trauma memory. We create new neural pathways around the trauma, and we can change our body's response to it.

- Let the patient lead. Don't go on a witch hunt. If the patient brings it up, lean into the subject. But it is harmful to prompt the patient into something that isn't there by asking leading questions and trying to get them to confess. Don't let your own experience lead you to imagine they have also experienced something.
- **Normalize their response.** The entire polyvagal theory should make us say "thank you!" to our bodies. Even if that systems is overactive at

Understanding Polyvagal Theory

David Puder, M.D.





Our body reacting in that way is the same thing as the gazelle either running away or going limp. And gazelles have no idea what emotions are in the first place.

Now that the patient understands that their emotional response was adaptive, primal, and appropriate, we can get rid of the shame that their non-reaction caused.

Help them find their anger. Anger is an incredibly adaptive emotion, and it's one
we don't allow ourselves to have. We think anger is bad. But really, anger shows
us where our healthy boundaries were crossed.

Anger gives us energy to overcome the obstacle. We can help the patient see they had the emotional energy to overcome, but the energy wasn't able to be manifested at the time they wanted it.

If, in a session, we can get a patient to identify their anger, they will see that they were not completely unresponsive to the traumatic event. If we can help them feel even the tiniest movement of a microexpression of anger on their face—the slight downturn of the inner eyebrows—we can show them their body didn't totally betray them in that moment.

We can reconnect their body and their feelings to their emotions. This helps develop a state of <u>congruence</u>—where their inside feelings match their outer demonstrations of those feelings.

Further, as a dissociative memory is explored, finding anger and reducing shame allows for the memory to fundamentally change. Anger brings them out of dissociation, even if it is anger at you, the therapist!

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David Puder, M.D.



• Introduce body movement. Because shutdown causes us to freeze, reactivating body movements while talking about the trauma is a great way to reconnect the body and mind, to bring them out of shutdown.

For example, one of my patients was in an accident. When the EMS showed up, they strapped her to a gurney to load her into the back of an ambulance. More than the actual accident, being trapped on that gurney was traumatic for her. For the entire ride to the hospital, she was terrified that she'd hurt her neck, and all of the anxiety that surrounds a neck injury caused her to be frozen in fear.

Even in talking about the trauma in the therapy session, her body was stiff, frozen, and she was dissociating.

I asked her, "In what way would you have wanted to move during that moment?" She said she would have wanted her arms to be able to move. I asked her to slowly, mindfully, move her arms in the way she would have wanted to.

It's important to do the movement mindfully and slowly, focusing on the sensation of the movement. That patient felt a huge release of energy. In the following sessions, she was able to tell the memory as a narrative, instead of dissociating.

Having the patient move—slow punching, kicking, twisting, running slowly in place—flips the person from shutdown into the fight or flight mode, with the goal being to move into connection, or social engagement, mode.

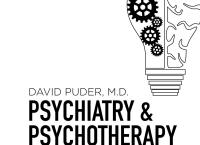
Body movement exercises, in conjunction with talking to a therapist, can fundamentally change the memory.

 Practicing assertiveness. Emotional shutdown can occur within relationships where one person feels they cannot communicate with the other person well.

One therapist, John Gottman, describes this practice as stonewalling. Practicing

Understanding Polyvagal Theory

David Puder, M.D.



assertiveness can help the patient feel more in control of their emotional state, and feel safe to move into healthy relationship patterns.

- Breath work, mindfulness, and yoga all have a role in becoming more connected to your here and now body. I will discuss this subject at length in a future podcast.
- Become a Judo Master and practice strength training. Teaching yourself how to better protect yourself in the future can be powerful and also resets the stress system over time. I talked about strength training in a prior episode, and in the future will talk about learning to fight as an active way to not remain passive or a victim both in mindset and capability. Further doing something hard, on an ongoing basis, allows for building inner strength which can keep you in fight and flight longer before going into shut down.

Next Steps:

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