

Map of merging Nervous System Concepts

Hi there, Jessie here.

In 2013 I was in a life-changing car accident. I learned (the hard way!) that it is very common for brain injury and trauma survivors to become overwhelmed. When I experienced difficult emotions like anxiety, I had a much more exaggerated reaction than I had before my accident: what used to give me 2-4 level stress gave me 8-10 level stress. I also became overwhelmed by stimulation (noise, light, lots of thinking) and I would simply shut down.

Over time I have learned a whole host of terms and concepts that have helped me understand why I freak out and shut down, and how I can get out of overwhelm and back to calm clarity.

One day all these over-lapping terms gelled in my mind in a *map of merging nervous system concepts*. Understanding these connections is helpful to everyone, whether you have a brain injury or not!

First, concentric circles represent 'zones' of *nervous system arousal*. I have conceptualized these zones a bit differently than others have, but the basic concepts are the same:

1. The further out we go the more our nervous system becomes aroused. We move from feeling calm in the centre to the 'total freak out' or 'total shut-down' at the outer edge.
2. We need to be able to go in and out of ALL of these zones because they each have a role to play in keeping us safe and healthy. The problem is that we tend to spend too much time in some zones, and not enough time in others.

The Green Zone is our *Calm Centre*. Here we are at our most settled and relaxed. This is the parasympathetic nervous system response where we rest, digest, and repair.

In the Blue Zone we are in *Flow*. We are responsive - we make wise choices and take skilful action. We are productive and think clearly.

The Purple Zone is where we *Learn*. We are also responsive and regulated, but we are stretching out of the comfort of the Green and Blue Zones, taking in new information and gaining new skills.

Layered on top of these three zones is the *Window of Tolerance*. In our Window we can *tolerate* or handle what life throws us without becoming overwhelmed.

We feel responsive, regulated, and resilient. We see clearly the range of choices before us, and thus we respond wisely to whatever life throws us.

When we perceive danger, whether it is in the present or a memory, we get thrown out of our Window of Tolerance. Whether we face minor stressors like a looming deadline, or major stressors that put us in mortal danger, our nervous system reacts basically the same - just the intensity varies. Our nervous system becomes either hyper or hypo aroused, or it fluctuates between the two.

Hyper-arousal is a sympathetic nervous system response. This is *fight* or *flight*. We *mobilize* to *fight* an adversary, or *flee* from danger. We feel agitated, anxious, afraid, angry, or hyper-vigilant.

Hypo-arousal is a parasympathetic nervous system response. This is freeze. We *immobilize* by essentially 'playing dead' and numbing ourselves from pain. We feel shut down, numb, spacey, foggy, depressed, or disassociated.

In both hyper and hypo arousal we experience automatic physiological reactions: (for example, our heart rate and breathing speed up, and logical thinking goes off-line). These don't feel good, but they are survival mechanisms that ensure we take quick action in the face of danger.

Outside our Window of Tolerance are the less intense Pink Zone and the very intense Red Zone.

The Pink Zone is a *Steady Drip of Stress*. We are unsettled. We are becoming *reactive*. Rather than responding skilfully and making wise choices, we react automatically, in knee-jerk, unskilful ways.

Many of us spend an awful lot of time in the Pink Zone. It's almost a badge of honour. How are you doing? Oh I'm so *busy*, so *stressed*. We go from over activity all day, to crashing in the evening, rarely going to the rest and digest state of the Green Zone. Here we constantly secrete stress hormones that are meant for moments of real danger not for chronic exposure. So people who spend a lot of time in the Pink Zone often end up with chronic illnesses.

Sometimes though, staying in the Pink Zone is a matter of survival. People in a war zone or in an abusive relationship need the vigilance of the Pink Zone to keep them safe at all times.

Lastly, there's the Red Zone of *Overwhelm*. The purpose of the Red Zone is to mobilize our bodies so that we can react more quickly than we can think to keep us safe. I experienced the wisdom of the Red Zone when I almost walked into a skunk. Immediately my muscles fired and I ran! If I had stopped to think I would have been sprayed, but my body knew what to do to keep me safe. Once I was

away from the skunk I quickly went out of the Red Zone into the Blue Zone of Flow.

Brain injury and trauma compromise our ability to regulate our nervous system properly. We tend to go to the Pink and Red Zones when we don't need to. Our injured brain does not function properly and our traumatized body acts as though we are still in grave danger. So, we go out of our Window of Tolerance often and quickly. We sink in deeply. We stay there too long. And we find it hard to get out. The overwhelming feelings can be terrifying!

In **mindfulconcussion.ca** I share strategies and skills I have learned to help me when I go into overwhelm. Through trauma sensitive mindfulness we learn to attune to the early warning signals the body gives us rather than ignoring them until they become alarm bells. We learn to *pause, ponder, and pivot*. We ask ourselves: Where am I on the map? What number am I on the Arousal Meter? What do I need now? We learn that we have agency; we can get out of hyper and hypo arousal to where, like Goldilocks, we are *just right*, in the sweet spot of calm clarity, within our Window of Tolerance.

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