PREPARATORY READING

# The Social Nervous System

- This handout contains the theory and terminology that we will need to navigate this module.
- You are invited to try to predigest this so that we can use more of the session time for practice.
- We would love it if you can try to cajole some of these principles and terms into your memory banks!
- However don't worry if not all of it makes sense yet.

*What is your experience of the following images?*




READING



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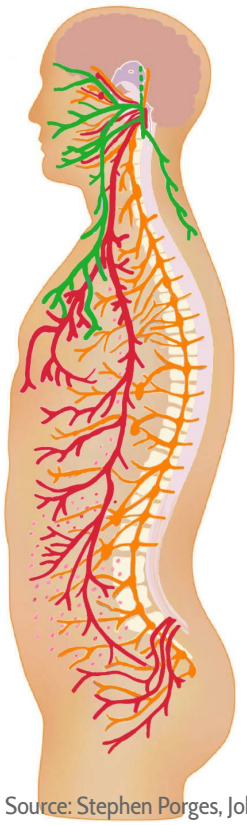
200 million — VENTRAL VAGAL COMPLEX

400 million — SYMPATHETIC NERVOUS SYSTEM

500 million — DORSAL VAGAL COMPLEX

years ago



Source: Stephen Porges, John Chitty



- The vagus nerve manages the parasympathetic system.
- 200 million years ago the vagus nerve split into two, and one half migrated from the back of the brain stem to the front, where the facial nerves are also located.
- This half is called the ventral vagus, and manages the organs above the diaphragm.
- The effect of this was to create a new system that links the heart with the face (hence the saying we wear our heart on our face).
- In other words when we are happy and connected in our peer groups, our heart rate slows, heart rate variability becomes more coherent and our face and voice convey cues of safety.
- The purpose of this 'ventral vagal complex' is to regulate in the presence of others.
- The older half, the dorsal vagus manages the organs below the diaphragm, esp. the gut! Note to self for those with gut issues.

"Through evolution, from the transition from reptiles to mammals, mammals adapted a unique set of neural circuits enabling them to down regulate threat through sociality" – Stephen Porges

*For mammals...*

# Safety = connection

*Mammals find safety in numbers. (And yes, this process can be damaged by our history, but for now, we invite you to hold any sense of that gently.)*




> Most people think that safety is removal of threat. Our nervous system doesn't buy that, it wants specific cues [of safety] that it can directly identify. So it's not saying i'm a safe person, but we don't look at the person and our voices are not modulated and we have high muscle tone and we're skittish. We're not safe to the nervous system of the other.
>
> — Stephen Porges

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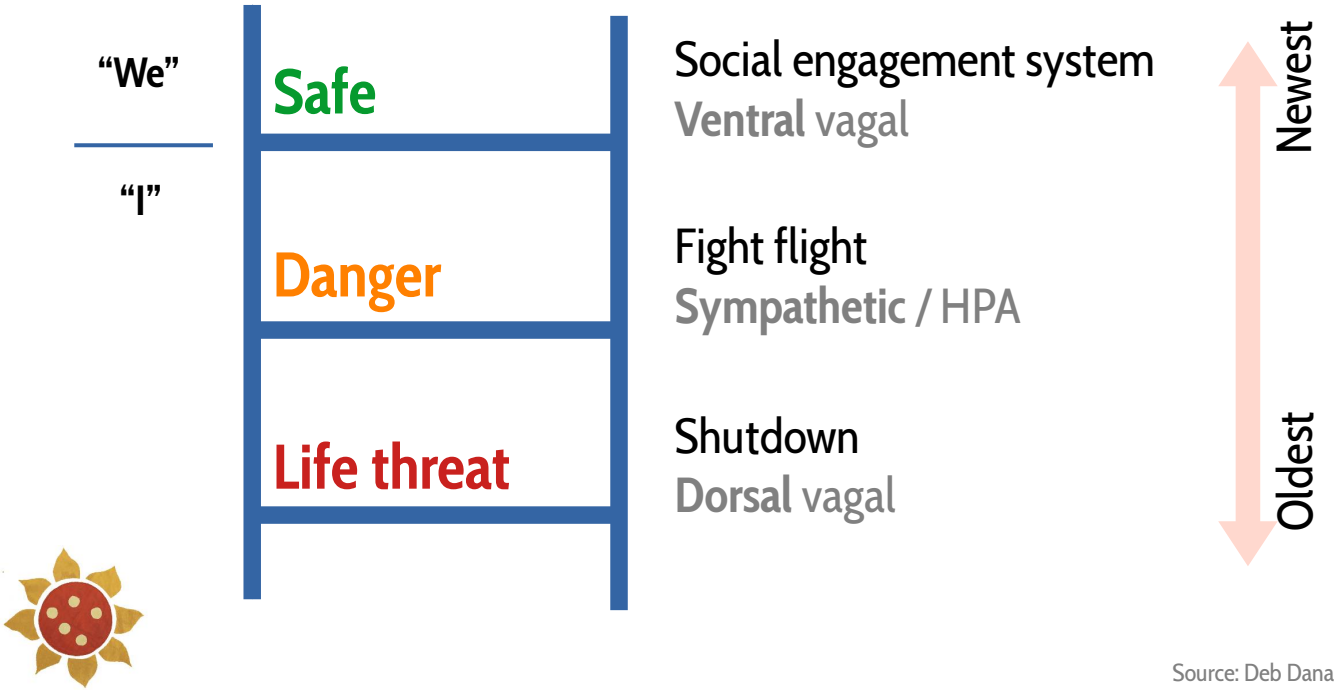


Source: Deb Dana



- This ladder is from Deb Dana. It shows the way our nervous system's three main systems work together, in a simplified form.
- Basically, we lean on ventral first. Its the newest, shiniest and most capable. This is parasympathetic. Another name for it is the corridor of well being. It is where we feel regulated.
- If that doesn't work we go down a rung, to sympathetic, to mobilise against the threat.
- If that fails, we go down another rung to dorsal, to shutdown non-essential systems (shock, fainting, depression). This is also parasympathetic!
- Note that we can only go up or down one rung at a time.
- Also, we need to understand that all three systems can be recruited for both safety and defence! See next page.

READING



# Ventral vagal complex

## When safe

- Collaboration, play
- Bonding, love
- Rest, digest and repair

## In defence

- Tend & befriend
- Difficult conversations
- Appease & deceive

Source: Stephen Porges



# Sympathetic nervous system

## When safe

- Alertness
- Movement & work
- Active metabolism

## In defence

- Alarm & orient
- Fight & flight

Source: Stephen Porges

READING



# Dorsal vagal complex

## When safe

- Digest, rest, & repair
- Sleep, intimacy
- Meditation
- Basal metabolism

## In defence

- Shock, overwhelm
- Shutdown
- Dissociation, depression

Source: Stephen Porges



> In the presence of novelty or threat, we try our phylogenically newest, best strategy (Ventral) first. If that does not work or has not worked in the past, we try our older, second strategy (Sympathetic). If that does not work, we try our most primitive, last strategy (Dorsal).
>
> — Stephen Porges PhD

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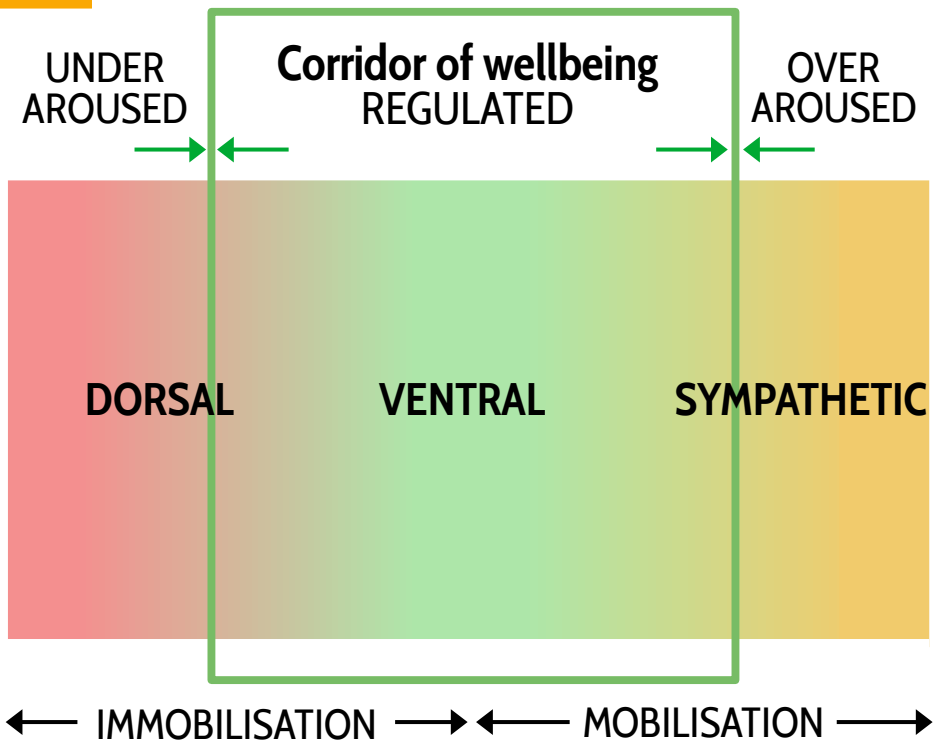



Source: Deb Dana



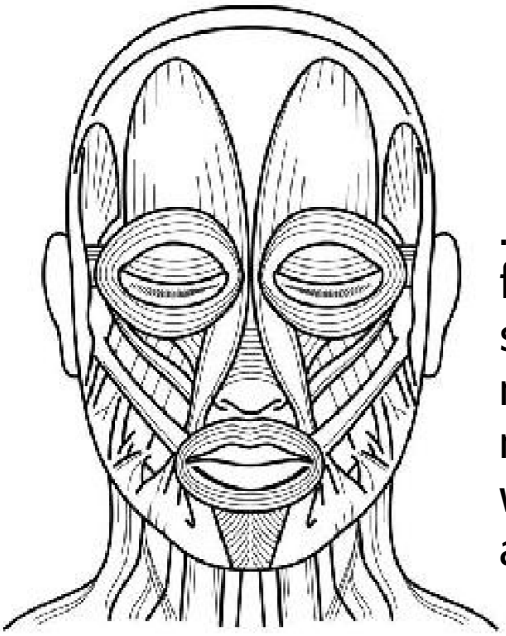
- This diagram helps us try to understand how all this works together.
- When safe, all three branches work as one. Porges calls this the social engagement system. For example i go for a walk with others by using both ventral and sympathetic. Or, I can recruit ventral and dorsal to sleep or snuggle with someone.
- When the social engagement system is active we feel safe, content, connected, curious, creative, cooperative, celebratory, playful, and can love and trust. We can digest our food, and our immune system can do its thing.
- When in fight or flight we now only have access to sympathetic (or dorsal as a fallback). Rest and digest goes off line. Adverse childhood experiences can produce ongoing sympathetic affect in the form of chronic stress.
- In freeze, our options are limited to just dorsal. There is nowhere else to go. Two notable situations where people will go dorsal is when force-ably restrained or isolated. And, adverse childhood experiences can produce ongoing dorsal affect in the form of depression.
- Conclusion: our capacity for connection defines our emotional and physical health.

READING



# Neuroception

44 muscles of the face communicate the state of my nervous system...



...and others have a fast detection system for these nonverbals called neuroception. It works behind our awareness.

Source: Stephen Porges



- We each have a one of these non-verbals detectors, working every second of every day.
- It is constantly watching, and asking: am i safe or am i not.
- It is very sensitive, very fast (<0.1 sec), and very unconscious.
- It relies primarily on non-verbal cues, such as facial expressions, tone of voice, vocal prosody, and other movement and postural cues.
- Once we understand this, the obvious invitation is to start noticing or bringing some of this unconscious data into our awareness. For example, for the person in front of me, which of the states is their nervous system. And what state is mine?