Befriending the Nervous System
A Polyvagal Guide

Deb Dana, LCSW
rhythmofregulation.com

With gratitude to Stephen Porges for his development of Polyvagal Theory…

The science of safety and connection…

The science of feeling safe enough to fall in love with life…

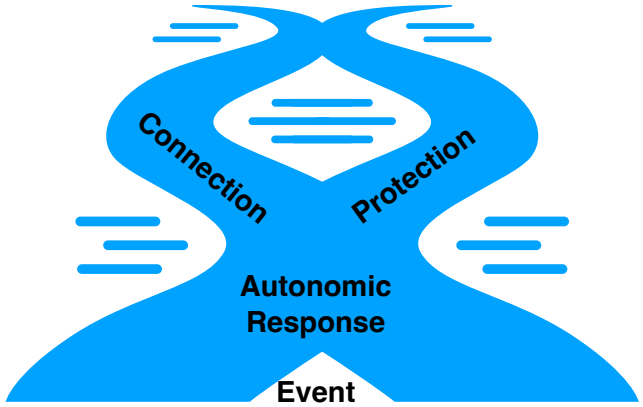
The Vagal Paradox: A Polyvagal Solution
https://authors.elsevier.com/sd/article/S2666-4976(23)00034-6

The autonomic nervous system is at the heart of our lived experience…

We are always engaging with the nervous system…our own and other people's.

No matter how we are practicing, or what population we are serving, we are working with our client's nervous system.

Intervening Variable



From an Autonomic Perspective

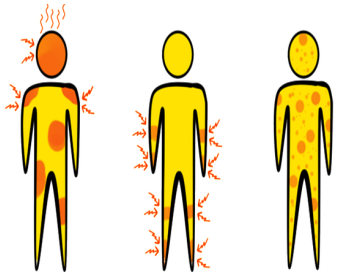
The question becomes not what happened but how did your nervous system respond.

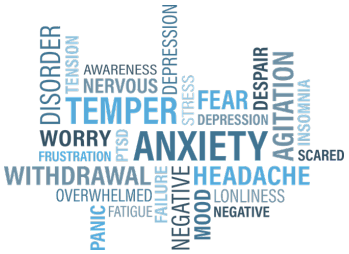
Moving toward Wellbeing

Illness is the outcome of a nervous system that is dysregulated in a particular way.

Wellness is a quality of a nervous system that is guided by a regulated system.

Symptoms are the nervous system's way of communicating.





Benefits of Autonomic Flexibility

- *Reduced Inflammation and Regulation of Pro-inflammatory Cytokines; Control of Immune Response* Bellocchi, C., Carandina, A., Montinaro, B., Targetti, E., Furlan, L., Rodrigues, G. D., Tobaldini, E., & Montano, N. (2022). The interplay between autonomic nervous system and inflammation across systemic autoimmune diseases. *International journal of molecular sciences*, 23(5), 2449.

- *Wellbeing* *Wilkie, L., Fisher, Z., & Kemp, A. H. (2022). The complex construct of wellbeing and the role of vagal function. Frontiers in integrative neuroscience, 16, 925664.*

- *Emotional Regulation* *Pinna, T., & Edwards, D. J. (2020). A systematic review of associations between interoception, vagal tone, and emotional regulation: Potential applications for mental health, wellbeing, psychological flexibility, and chronic conditions. Frontiers in psychology, 11, 1792.*

- *Social Support* Goodyke, M. P., Hershberger, P. E., Bronas, U. G., & Dunn, S. L. (2022). Perceived social support and heart rate variability: An integrative review. *Western journal of nursing research*, *44*(11), 1057–1067.

- *Compassion* Kamboj, S. K., Peniket, M., & Simeonov, L. (2023). A bioelectronic route to compassion: Rationale and study protocol for combining transcutaneous vagus nerve stimulation (tVNS) with compassionate mental imagery. *PloS one,* 18(3), e0282861.

- *Self-Compassion* Zhang, N., Huang, J., & Yao, J. (2023). Athletes' self-compassion and emotional resilience to failure: the mediating role of vagal reactivity. *Frontiers in psychology, 14*, 1192265.

Risks Connected to Autonomic Rigidity

- *Social Isolation and Loneliness* Scatà, C., Carandina, A., Della Torre, A., Arosio, B., Bellocchi, C., Dias Rodrigues, G., Furlan, L., Tobaldini, E., & Montano, N. (2023). Social isolation: A narrative review on the dangerous liaison between the autonomic nervous system and inflammation. Life (Basel, Switzerland), 13(6), 1229.

  Alacreu-Crespo, A., Sebti, E., Moret, R.M. et al. (2024) From social stress and isolation to autonomic nervous system dysregulation in suicidal behavior. *Curr Psychiatry* Rep 26, 312–322 (2024).

- *Impaired Immune Functioning and Inflammatory Diseases* Pongratz, G., & Straub, R. H. (2023). Chronic effects of the sympathetic nervous system in inflammatory models. *Neuroimmunomodulation*, *30*(1), 113–134.

- *Chronic Fatigue* Słomko, J., Estévez-López, F., Kujawski, S., Zawadka-Kunikowska, M., Tafil-Klawe, M., Klawe, J. J., Morten, K. J., Szrajda, J., Murovska, M., Newton, J. L., & Zalewski, P. (2020). Autonomic phenotypes in chronic fatigue syndrome (CFS) are associated with illness severity: A cluster analysis. *Journal of clinical medicine*, 9(8), 2531.

- *Digestive Problems* Duan, H., Cai, X., Luan, Y., Yang, S., Yang, J., Dong, H., Zeng, H., & Shao, L. (2021). Regulation of the autonomic nervous system on intestine. *Frontiers in physiology*, 12, 700129. https://doi.org/10.3389/fphys.2021.700129

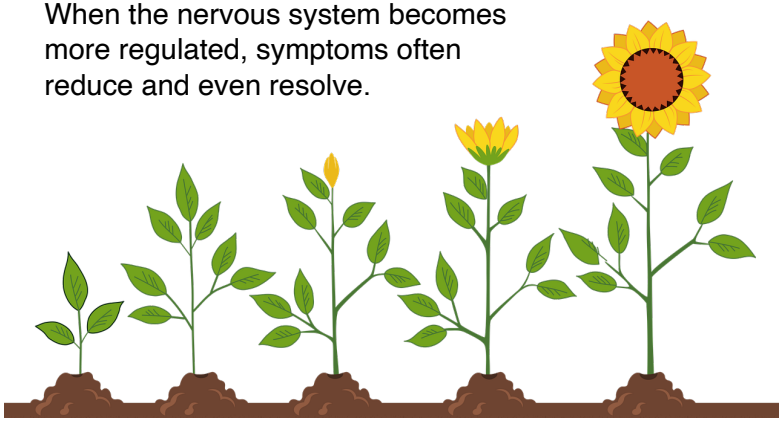
- *Respiratory Problems* Hamrefors V. (2023). The autonomous nervous system: A novel and potentially modifiable risk factor for chronic obstructive pulmonary disease in the population?. *Annals of the american thoracic society,* 20(10), 1402–1403. https://doi.org/10.1513/AnnalsATS.202307-618ED

- *Depression* Costa, T., Taylor, A., Black, F., et al. (2023) Autonomic dysregulation, cognition and fatigue in people with depression and in active and healthy controls: observational cohort study. *BJPsych open*. 2023;9(4):e106. doi:10.1192/bjo.2023.68

  Tan, C., Yan, Q., Ma, Y., Fang, J., & Yang, Y. (2022). Recognizing the role of the vagus nerve in depression from microbiota-gut brain axis. *Frontiers in neurology*, 13, 1015175.

- *Anxiety* Teed, A. R., Feinstein, J. S., Puhl, M., Lapidus, R. C., Upshaw, V., Kuplicki, R. T., Bodurka, J., Ajijola, O. A., Kaye, W. H., Thompson, W. K., Paulus, M. P., & Khalsa, S. S. (2022). Association of generalized anxiety disorder with autonomic hypersensitivity and blunted Vventromedial prefrontal cortex activity during peripheral adrenergic stimulation: A randomized clinical trial. *JAMA psychiatry,* 79(4), 323–332.

When the nervous system becomes more regulated, symptoms often reduce and even resolve.



Fang, Y. T., Lin, Y. T., Tseng, W. L., Tseng, P., Hua, G. L., Chao, Y. J., & Wu, Y. J. (2023). Neuroimmunomodulation of vagus nerve stimulation and the therapeutic implications. *Frontiers in aging neuroscience*, *15*, 1173987. https://doi.org/10.3389/fnagi.2023.1173987

Three Organizing Principles of Polyvagal Theory

Neuroception - detection without awareness

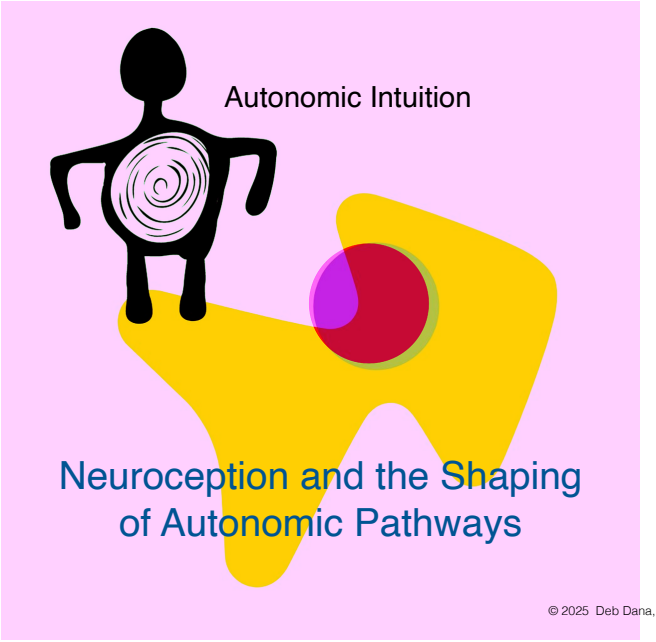
Hierarchy - three predictable pathways of response

Ventral Vagal

Sympathetic Nervous System

Dorsal Vagal

Co-regulation - a biological imperative



Neuroception Detection without Awareness

Neuroception is the word Stephen Porges coined to describe the way the autonomic nervous system takes in information without involving the thinking parts of the brain.

Neuroception responds to cues of safety and danger through three pathways:

- inside the body
- outside in the environment
- between people

Curiosity Invites Connection

Where did neuroception take you?

What stories did your brain create?

Our responsibility is to tune into what happens in our own nervous system…and be curious about what is happening in another nervous system.

When there is a neuroceptive match…

…the autonomic state will bring the energy necessary to effectively manage the experience.

With a neuroceptive mismatch…

Inability to calm defense systems in safe environments

Autonomic nervous system activates a habitual protective response pattern — hypervigilant - alarmed

Inability to activate defense systems in risk environments

Neuroception does not signal danger when there is actual danger; autonomic response is inadequate to manage the situation — dulled, unaware

Adding Discernment

When signals of danger from the past activate in the present, we can quickly be pulled into survival energy and enter a familiar pattern of protection.

A discernment practice brings awareness to the present moment and supports making an intentional choice rather than simply following an old pathway.

Pinna, T., & Edwards, D. J. (2020). A Systematic Review of Associations Between Interoception, Vagal Tone, and Emotional Regulation: Potential Applications for Mental Health, Wellbeing, Psychological Flexibility, and Chronic Conditions. *Frontiers in psychology*, *11*, 1792. https://doi.org/10.3389/fpsyg.2020.01792

Familiar Cues — New Awareness

Bringing perception to neuroception
adds the possibility of choice.

THE DISCERNMENT QUESTION
In this moment, in this place, with this person/people,
is this response/level of response needed?

The Autonomic Hierarchy

The autonomic nervous system is the common denominator in our human experience.

The autonomic hierarchy outlines predictable pathways of disconnection, mobilization, and engagement.

Parasympathetic
Ventral Vagal

SAFE — System of Safety and Connection
Health, Growth, and Restoration
Individual and interactive regulation

Sympathetic Nervous System

DANGER — System of Mobilization
Adaptive Protection through Action
Fight and Flight

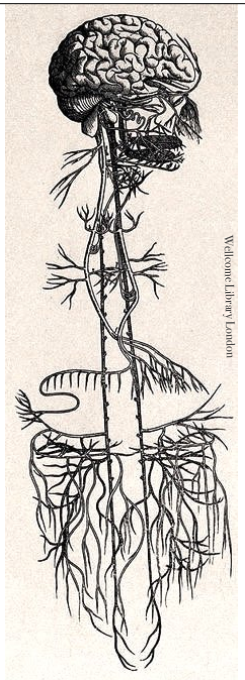
Parasympathetic
Dorsal Vagal

EXTREME DANGER — System of Immobilization
Adaptive Protection through "disappearing"
Biological conservation of energy and resources

The Parasympathetic Branch

The Vagus Nerve
the "wanderer"

From the brain stem at the base of the head (medulla), the vagus travels down through the lungs, heart, diaphragm, and stomach.



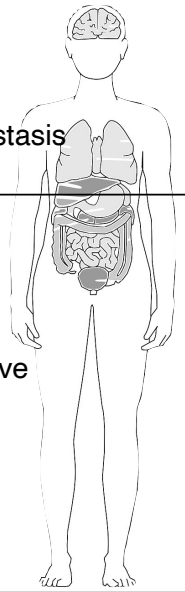
Ventral Vagus
(supradiaphragmatic)
creates healthy homeostasis

safe and engaged
connect, communicate

divided at the diaphragm

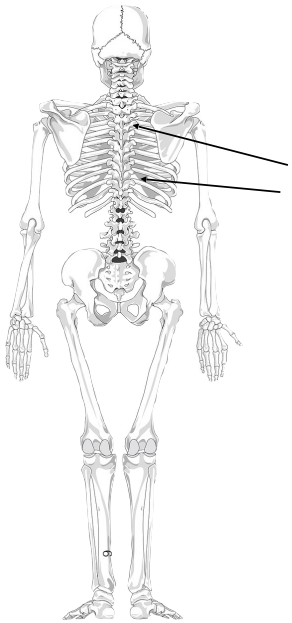
Dorsal Vagus
(subdiaphragmatic)

daily function: healthy regulation of the digestive system



survival response: move out of awareness, out of connection, into collapse

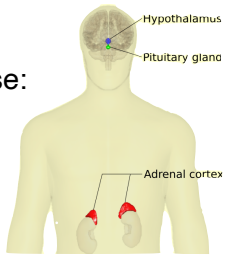
The Sympathetic Nervous System



Middle part of the spinal cord
(thoracic and lumbar)

daily function: regulates breath and heart rhythms
brings mobilizing energy

survival response:
fight and flight



Emergent Properties

- Our biology supports or restricts access to body sensations, thoughts, feelings, behaviors, beliefs.
- The emergent properties of each state are only available when we are in that state.
- When we move from state to state, we gain and lose access.

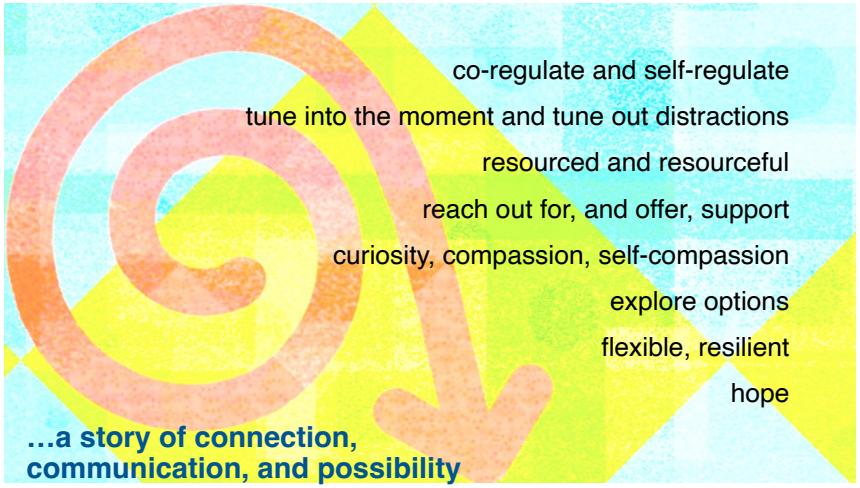
Anchored in Safety - Pathway of Connection

We can connect and collaborate.
Change is possible.

VENTRAL VAGAL *system of safety and connection*

- meet the demands of the day
- connect and communicate
- go with the flow
- engage with life
- connected to Self, Others, The World, Spirit

Emergent Properties of Ventral



co-regulate and self-regulate

tune into the moment and tune out distractions

resourced and resourceful

reach out for, and offer, support

curiosity, compassion, self-compassion

explore options

flexible, resilient

hope

…a story of connection, communication, and possibility

Neuroception of Danger — First Pathway of Protection

We are in a polarized world — locked in a story. Change is not possible.

SYMPATHETIC *system of action*

- filled with chaotic energy
- mobilized to attack
- driven to escape
- angry
- anxious
- disrupted connection to Self, Others, The World, Spirit

Emergent Properties of Sympathetic Survival

a polarized world

alarmed, hypervigilant

chaotic, disorganized flood of energy

attention on danger — miss and misread signs of safety

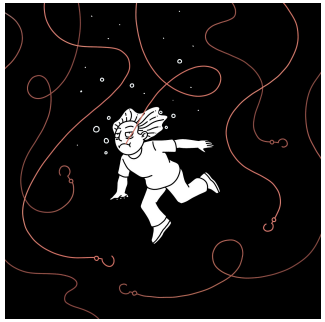
…a story of an unsafe world and unsafe people

Neuroception of Intense Danger Path of Last Resort

Connection, collaboration, and change are out of awareness and out of reach.

DORSAL VAGAL *system of shut down*

- just going through the motions
- drained of energy
- disconnected
- lost hope
- given up
- lost connection to Self, Others, The World, Spirit



Emergent Properties of Dorsal Survival

body enters conservation mode

numb, foggy, collapsed

untethered, floating

alone, lost, abandoned

safety and hope feel unreachable

…a story of disappearing, disconnection, and despair

State Creates Story

"We humans are storytellers, meaning-making beings, and it is through our autonomic nervous systems that we first create, and then inhabit, our stories. The information that begins in our biology travels autonomic pathways to the brain, and the brain creates a story to make sense of what's happening in the body. As our biology changes, so do our stories." (Anchored, Sounds True 2021)

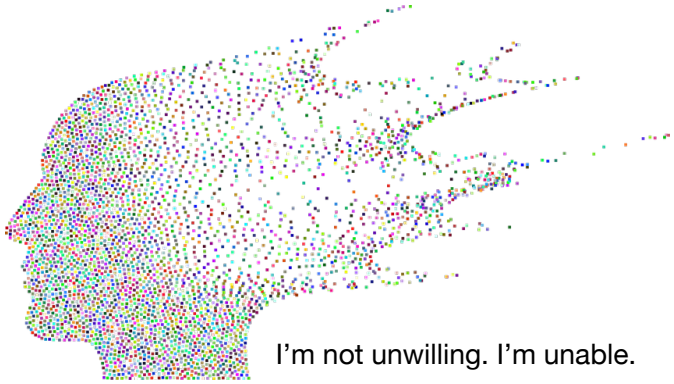
I am…
People are…
The world is…

Thoughts, feelings, behaviors, and beliefs make sense when we look at them through the autonomic state.

Instead of a story about motive and moral meaning, we can listen to the story of neuroception and a system that is feeling invited into connection or reacting to a need for protection.

Ryland, S., Johnson, L. N., & Bernards, J. C. (2021). Honoring protective responses: Reframing resistance in therapy using polyvagal theory. *Contemporary Family Therapy: An International Journal.* Advance online publication. https://doi.org/10.1007/s10591-021-09584-8

This is not a cognitive choice.
It is a biological one.



I'm not unwilling. I'm unable.

Adaptive Survival Responses

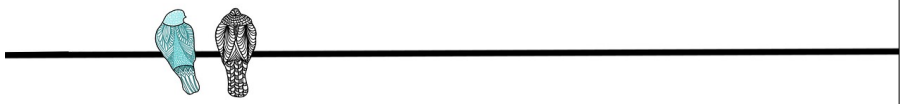
Autonomic state shifts in response to the challenges of everyday life are a normal and expected experience.

Our survival responses are important and needed.

It's when we are pulled into survival and can't find our way back to regulation that we suffer.

The goal is not to always be in a state of ventral vagal regulation but rather to be able to flexibly navigate the small, ordinary shifts that a part of everyday life and build enough resilience to weather the ones that are traumatic.

Safety and Social Engagement



Every heart sings a song, incomplete,
until another heart whispers back. —Plato

Connection is a Biological Imperative

We come into the world wired for connection. With our first breath we embark on a lifelong quest to feel safe in our bodies, our environments, and in our relationships with others.

How we are met and nurtured shapes our physiological state and our psychological stories…and continues to shape our states and stories over the course of our lifetime.

We are wired for connection.

We wish for connection…

We wait for connection…

How does the need for connection land in your system?
A story of friendship?
A relentless search?
A hopeless experience?

Trauma is a chronic disruption of connection. (Porges)

Porges S. W. (2022). Polyvagal Theory: A Science of Safety. Frontiers in integrative neuroscience, 16, 871227. https://doi.org/10.3389/fnint.2022.871227

"…without the experience of an organizing other…the nervous system is stunned." (Sebern Fisher)

We are responsible for being the regulated and regulating other. If we are dysregulated, there is often a rupture in attunement and another person's autonomic response will be an automatic move out of connection into protection.

Levy Chajmovic, M., & Tishby, O. (2024). Therapists' responsiveness in the process of ruptures and resolution: Are patients and therapists on the same page?. *Psychotherapy research : journal of the Society for Psychotherapy Research*, 1–12. Advance online publication. https://doi.org/10.1080/10503307.2024.2303318

The Social Engagement System

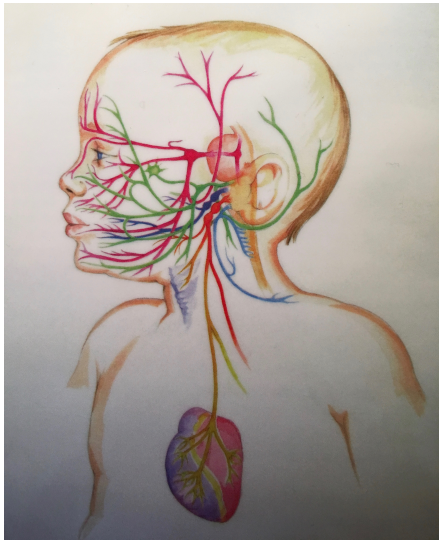
Five cranial nerves joined in the search for connection through our…

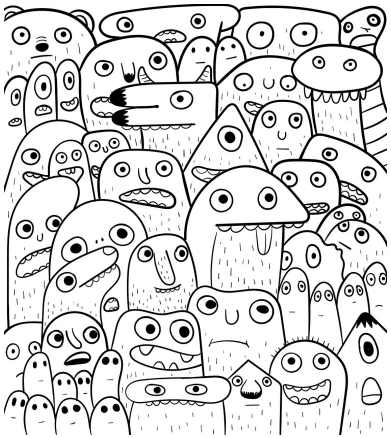
eyes

ears

voice

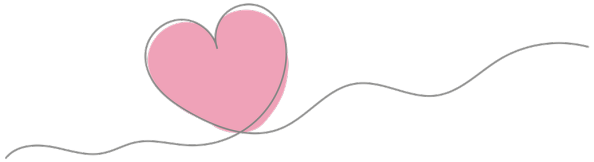
face and head movements





Through information sent from someone's eyes, voice, face, and gestures, we know if they are safe to approach and can intentionally use these pathways to send an invitation for connection.

The Power of Micro-moments



The nervous system is re-organized through small moments.

Micro-moments of ventral regulation accumulate and compound leading to increased autonomic flexibility.

Autonomic reorganization happens with patience and persistence.

Glimmers

A glimmer is a spark of ventral energy. It is a micro-moment of regulation that fosters a feeling of wellbeing.

Glimmers are not a form of toxic positivity. They are not a way to always look on the bright side or count your blessings and discount your suffering.

Glimmers don't neutralize triggers. Recognizing glimmers doesn't minimize your distress or disavow the ways you are suffering.

Glimmers are a reminder that ventral energy is always there waiting to be noticed and nourish your nervous system.

The Glimmer Practice

SEE — How do you know you've encountered a glimmer?

What are the cues that you've found a glimmer?

What happens in your body to let you know you're in a glimmer moment?

What do you do when you feel that spark of energy?

What thoughts arise?

What emotions do you feel?

STOP —Now that you know the cues, use them to notice glimmers as you move through your day. Glimmers happen regularly but because they are micro-moments, you need to be on the lookout for them.

Look for predictable glimmer moments in specific places, with particular people, at certain times. Find the ways glimmers routinely appear.

Be open to the unpredictable glimmers that may also appear.

When you recognize one of the cues you identified, stop and find the glimmer.

APPRECIATE — Spend several seconds in appreciation letting the glimmer land in your system. Notice all the different feelings your glimmers bring.

Create an easy way to acknowledge a glimmer as it happens. You might repeat a simple phrase or make a small movement.

REMEMBER — How do you want to mark the glimmers?

You might create an end of day reflection practice, You could write glimmer stories or poems, create glimmer photo collages, illustrate your glimmers, or write glimmer songs.

Experiment with ways to build your glimmer collection and create a personal glimmer library.

SHARE — When you share your glimmers with someone else, they come alive again in the remembering and retelling.

How do you want to share your glimmer moments? You might find a glimmer buddy or form a glimmer group. You might text a glimmer to a friend or create a glimmer sharing ritual.

INTEND — Setting an intention is a time-honored practice to support making a change and staying connected with a goal. Writing an autonomically informed intention involves bringing your brain-based intelligence and your nervous system-based wisdom together.

Your brain and nervous system need to be on the same page. When your brain and body are not in agreement about the pathway to change, you'll struggle to realize an intention.

Writing Autonomically Informed Intentions

Create an agreement between your brain and body.

Find words that bring an invitation not an expectation or a demand.

In this moment, on a continuum of ordered to open, structured to spacious, where does your nervous system want to be?

Find the Right Degree of Challenge

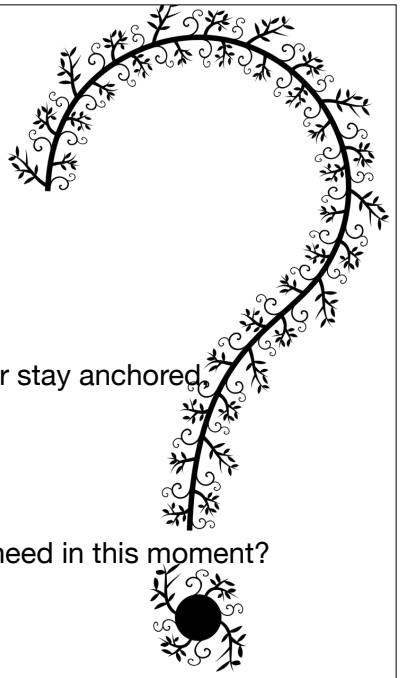
If your intention is too big it will overwhelm you.

If it's too bland it won't keep your interest.

Create an intention that is small enough so you can be successful and big enough so you feel a purpose.

You might keep using the same intention, have a couple to choose from, or write a new one each day/week/month. Let you experience guide you.

Guiding Questions



What state am I in?

What do I need to be anchored, or stay anchored, in ventral regulation?

Where is the other person?

What does their nervous system need in this moment?