Understanding and Implementing Trauma-Informed Care for Clients in Pain

Jess Mather,

CPT, LPTA, SFG, FRCms, FMS

A continuing education course to develop the knowledge and skills to work with complex chronic pain through a trauma-informed lens for better patient outcomes.

If you are a healthcare provider, you have likely encountered a client with trauma.

If you are a healthcare provider who works with chronic pain, you have an even greater likelihood to encounter a client with trauma.

Objectives

1. Define trauma and chronic pain, including their prevalence and impacts.
2. Identify what trauma-informed care is and how we can implement these principles while staying within our scope of practice.
3. Recall expected outcomes from implementing trauma-informed pain care.
4. Identify polyvagal theory and its application in working with clients in pain and trauma.

Jess Mather

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Jess Mather, CPT, LPTA. SFG, FRCms, FMS, is a strength and rehabilitation professional dedicated to helping individuals experience less limitation, pain, fear, and insecurity in their bodies. With over 13 years of experience, she has supported thousands of clients aged 9 to over 99, witnessing firsthand the body's remarkable ability to adapt, strengthen, and heal.

Since 2015, Jess has operated a successful telehealth practice, offering private coaching, courses, and group programs to clients in over a dozen countries. Her expertise extends to educating other therapists and healthcare providers on effectively supporting patients with complex chronic pain, trauma, and stress.

An exploration of trauma and pain to gain a better understanding of our client’s experience.

“We are customer service first.”

When we can further understand our client’s experience, we build the trust and safety necessary for relief and healing.

It’s not always about what we’re doing, but how we’re *being*.

This educational resource is a new way to compassionately meet our clients where they are, achieve better functional outcomes, and make a profound impact on the lives of others.

What are **you** here for?

What are you hoping to take away from this material *professionally*?

What are you hoping to take away from this material *personally*?

What I want for you is a new perspective on how to work with these populations.

More confidence in the work that you’re doing and how you’re serving.

New tools and skills to apply to yourself and your clients.

More compassion for yourself and others.

Recognition of how intelligent our body and nervous system are.

I want this content to fundamentally change how we look at complex cases of pain.

Chapter Review

Chapter 1: A New Model of Care

Exploring what a trauma-informed healthcare might look like, and how we can be on the forefront of that change today

Chapter 2: A World of Trauma and Pain

Reviewing the prevalence of chronic pain and trauma in our society, and the impacts it might have on us, our clients, and our work

This content may be applicable to you personally.

Chapter 3: Expectations and Functional Outcomes

Identifying the results and outcomes our clients may experience when we approach our work from a trauma-informed perspective

Chapter 4: Introduction to the ANS

Diving into the anatomy and function of the autonomic nervous system

Chapter 5: The Importance of the “Connection Nerve”

Exploring the vagus nerve, sometimes referred to as the “connection” nerve, and its role in stress, connection, and safety

Chapter 6: Polyvagal Theory

Using a scientific theory to inform how to effectively work with clients suffering with trauma and pain

Let’s Begin!

Chapter 1:
A New Model of Care

Chapter 1: A New Model of Care

Exploring what a trauma-informed healthcare might look like, and how we can be on the forefront of that change today

What is trauma-informed care?

What would a trauma-informed healthcare look like?

Trauma-Informed Care:

1. Understand the prevalence and impacts of trauma.
2. Acknowledge signs and symptoms of trauma.
3. Respond and support in an informed manner.
4. Aim to avoid retraumatization.

SAMHSA (2020)

There's a difference between working **on** someone’s trauma and working *with* someone’s trauma.

To work **on** trauma is to tell your client what to do about it.
To work *with* trauma is to understand what they're experiencing and navigate it as it comes up.

What might inform us that we're moving outside our scope of practice?

If we feel uncomfortable, unqualified, and unable to meet the needs of our client.

They don’t have to hold it all themselves.

“It’s always within our scope to be a kind person.”

Trauma-Informed Care:

1. **Doesn't** involve knowing their detailed trauma history.
2. **Doesn't** involve assessing or even assuming trauma.
3. **Doesn't** involve talking about their trauma.
4. **Doesn't** involve treating or "healing" trauma.

SAMHSA (2020)

Case Study

- Let’s meet Jill.

Case Study

- You’re an occupational therapist. Jill comes into your clinic and starts sharing about a traumatizing event in her life.

Case Study

- Jill is visibly upset about it and can’t seem to focus on the treatment plan because she’s distracted by her experience.

Case Study

- What is a trauma-informed approach to handling a client who is verbalizing a lot of unprocessed trauma?

Self-Reflective Question

What is a trauma-informed approach to handling a client who is verbalizing a lot of unprocessed trauma?

A. **Ask her about her childhood and inform her how that could play a role in this traumatic event today.**

B. **Change the subject quickly and tell her that's not your job to talk about that.**

C. **Ask her more questions about this traumatic event to make sure she feels heard.**

D. **Acknowledge her distress and inquire whether she has a safe, qualified mental health professional to help process what's happened to her.**

Self-Reflective Question

What is a trauma-informed approach to handling a client who is verbalizing a lot of unprocessed trauma?

D. Acknowledge her distress and inquire whether she has a safe, qualified mental health professional to help process what's happened to her.

Trauma-Informed Care:

1. Understand the prevalence and impacts of trauma.
2. Acknowledge signs and symptoms of trauma.
3. **Respond and support in an informed manner.**
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SAMHSA (2020)

Self-Reflective Question

What is a trauma-informed approach to handling a client who is verbalizing a lot of unprocessed trauma?

D. Acknowledge her distress and inquire whether she has a safe, qualified mental health professional to help process what's happened to her.

You're acknowledging what she's going through, but you're not trying to "process" it with her or dig into private details, which can be retraumatizing, feel unsafe, or take you away from what she's seeing you for. You're supporting her by giving her a resource while still staying within your scope (as an occupational therapist, for example).

Trauma-Informed Care:

1. Understand the prevalence and impacts of trauma.
2. Acknowledge signs and symptoms of trauma.
3. **Respond and support in an informed manner.**
4. **Aim to avoid retraumatization.**

SAMHSA (2020)

Trauma-Informed Care:

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SAMHSA (2020)

Trauma-Informed Principles:

1. Safety
2. Trustworthiness and transparency
3. Peer support
4. Collaboration and mutuality
5. Empowerment, voice, and choice
6. Cultural issues

SAMHSA (2020)

Safety

Creating a safe physical, physiological, and psychological environment

Trustworthiness and Transparency

Helping the client become informed and being a consistent safe resource for them

- Am I reliable?
- Am I in integrity?
- Trust is ***built***.

Peer Support

Being able to recognize what other sources of support a client (or a colleague) may need

What peer support do you need?

Collaboration and Mutuality

Helping the client become an active participant in their health journey

Establishing trust in themselves and providers:

I really want to thank you so much. I can't believe how much you have helped me. I think that our work together has also been a really important touchstone for adding in other practitioners to support me now - I felt for so long like I just couldn't find a doctor/health support that I could trust, like I was going to just have to learn it all myself because no one was helping enough. But I kept saying to Jordan, it's so nice that I feel I can really trust Jess and have her handle this part of my life and know that she's doing it better than I could do on my own... which made me think, maybe I can find other people that I will feel the same way about in other areas, even though I hadn't yet. And even though it's still important for me to have knowledge so I can kind of be the "CEO of my own health" (a quote Jordan says from somewhere lol) it is such a relief to feel like I can find people who I really trust to help me. I think I am finding that now. So I know you can see it in the results I have experienced in us working together but I just want to say, I am endlessly grateful for you and could not even fully put into words how much I appreciate your knowledge, care, professionalism, depth of experience, intuition, and connection. My life would be entirely different right now if I had not hired you and instead gotten that surgery and went down that path.

If you ever want to do a video together or have me do a testimonial on my own talking about the progress I have seen in working with you I would be really happy to do something like that, probably in a couple months once I am out of this all-encompassing stage of self care - I don't think I'll go back on social media but if there was a way to do it where I could record something with or for you to show people what it has been like and that could be helpful for your business, I would be thrilled to do it. I can also write something more organized if that would be useful.

Ok! Super long email! But in essence, everything is going well and we will see what happens in the next few weeks. See you Tuesday!

Empowerment, Voice, and Choice

Encouraging a client’s autonomy and supporting them to set boundaries

How can we advocate for our clients' autonomy?

- “At any point, you can tell me if you don’t want to do something.”
- “Feel free to ask any questions.”
- “You’re welcome to get out of position or stop the movement at any point.”

- Do they feel safe with us?
- Do they feel like they can trust us?
- Do they feel safe to set a boundary and say no?

People in trauma or pain often feel disempowered.

Cultural Issues

Recognizing and eliminating any racial, cultural, or gender bias to appropriately meet that client.

Sweeney and Taggart, researchers and trauma survivors, define TIC as a system that:

- Understands and acknowledges the links between trauma and mental health.
- Adopts a broad definition of trauma that recognizes social and complex trauma.
- Undertakes sensitive inquiry into trauma experience.
- Refers individuals to evidence-based trauma-specific support.
- Addresses vicarious trauma and retraumatization.

(Saunders et al., 2023)

Sweeney and Taggart, researchers and trauma survivors, define TIC as a system that:

- Prioritizes trustworthiness and transparency in communication.
- Seeks to establish collaborative relationships with service users.
- Adopts a strength-based approach to care.
- Prioritizes emotional and physical safety of service users.
- Works in partnership with trauma survivors to design, deliver, and evaluate services.

(Saunders et al., 2023)

- SAMSHA (Substance Abuse and Mental Health Services Administration)
- The UK Office for Health Improvement & Disparities
- The NHS Education for Scotland (NES) Knowledge and Skills Framework for Psychological Trauma

(Saunders et al., 2023)

Years ago, I spoke with an anesthesiologist and Stanford professor on trauma-informed care.

“Do you think we can get to a point where trauma-informed healthcare is the standard?”

“There will be a lot of barriers.”

“There will be tremendous benefits. Less harassment across the board. Less conflict between coworkers. Less violence and abuse. Trauma-informed care is a **safety** plan.”

“Trauma-informed care is simply good business practice. It’s **customer service.** It’s a retention plan. When patients feel seen, heard, and cared for by a provider, they will often do whatever they can to ensure they keep seeing them.”

- “As someone with an eighteen-year childhood abuse history, supporting my body through thirteen years of chronic illness and progressing mobility limitations requires a distinctly trauma-informed approach.
- Despite my proximity to privilege, I have been exposed to medical traumas that have dismissed my lived experiences and left stranded without a proper support system. Needless to say, I have been taught time and time again that I needed to intimately discern who I work with, and who I trust with my story, in order to honor all parts of my experience.
- The key factor being to partner with practitioners who respect my own autonomous authority in seeking accessible-to-me wellness without the use of shame."

—Skyler Mechelle Weinberg, trauma-informed academic and writer

> “Barriers will exist. Trauma-informed care is fairly new—we’re still gathering evidence-based data on the implications and benefits that will convince larger medical systems. There will be **inherent tension** and **vulnerability** for some providers.”

“Becoming trauma-informed requires **self-reflection**. It isn’t just a short module, an infographic, or a 1-hour course. It requires **vulnerability**, **openness**, **adaptability**, and **humility** to learn how to work and be in new ways, and ideally in an environment where others doing so as well.”

With awareness comes choice.

There is no exact way to do your job in a trauma-informed way.

Learn the framework, follow principles, learn relevant skills.

We are working with real people with real histories and complexities that don’t fit nicely in boxes.

- “As a board certified urologist, I’ve spent over 10 years treating patients from a wide variety of backgrounds and life experiences. Over time, I’ve noticed a trend among many of my patients. Many have experienced horrific things such as physical, sexual, or psychological abuse and devastating injuries that have left them with life-long limitations, pain, and stressors. While the American Urology Association is starting to identify previous trauma as an independent risk factor for many urology conditions, there are still limited resources available to help physicians become more trauma-informed in their practice. I’m so excited that I found [this work] as it has undoubtedly helped close the gap between what I knew and what I need to know in order to more properly care for my patients.”

—Dr. David Hall, MD, Board-certified urologist

Chapter 2:
A World of Trauma and Pain

Chapter 2: A World of Trauma and Pain

Reviewing the prevalence of chronic pain and trauma in our society, and the impacts it might have on us, our clients, and our work

Virtually all experienced health professionals have encountered clients with trauma.

National Council for Mental Well-Being states that 70% of adults in the United States have experienced some type of traumatic event at least once in their lives.

National Council for Mental Wellbeing (n.d.)

At least 223.4 million people in America have experienced trauma.

National Council for Mental Wellbeing (n.d.)

National Council for Mental Well-Being reports that in public behavioral health, over 90% of clients have experienced trauma.

National Council for Mental Wellbeing (n.d.)

National Council for Mental Well-Being reports that trauma is a risk factor in nearly all behavioral health and substance use disorders.

National Council for Mental Wellbeing (n.d.)

- 60% of adults report abuse or other difficult family circumstances during childhood.

- 26% of children in the United States will witness or experience a traumatic event before the age of 4.

- More than 60% of children 17 or younger have been exposed to crime, violence and abuse either directly or indirectly.

National Center for Mental Health Promotion and Youth Violence Prevention (2012)

People who have PTSD are 15 times more likely to attempt suicide.

Wilcox et al. (2009)

People who have experienced trauma are four times more likely to become an alcoholic, develop a sexually transmitted disease, or inject drugs.

Trauma-Informed Care Implementation Resource Center (2018, March 20)

> “Your addiction wasn’t the problem. Your addiction was your attempt to solve the problem.”
>
> *—Dr. Gabor Maté*

People who have experienced trauma are three times more likely to use antidepressants, call out of work, and have serious job problems.

Trauma-Informed Care Implementation Resource Center (2018, March 20)

People who have experienced trauma are two times more likely to smoke, develop chronic obstructive pulmonary disease, and have serious financial problems.

Trauma-Informed Care Implementation Resource Center (2018, March 20)

What is trauma, and how does it impact our clients?

Let’s **define** trauma.

The American Psychological Association states, “A traumatic event is one that threatens injury, death, or the physical integrity of self or others and also causes horror, terror, or helplessness at the time it occurs.”

American Psychological Association (2021)

We might consider *traumatic events*.

- Sexual assault
- Emotional abuse
- Childhood neglect
- Serious accident or illness
- Natural disaster
- War
- Terrorism
- Domestic violence
- Life-threatening medical procedure

American Psychological Association (2021)

- **Acute trauma:** Resulting from a single incident like a car accident
- **Chronic trauma:** Repeated and prolonged such as domestic violence or childhood abuse
- **Complex trauma:** Exposure to multiple traumatic events throughout a lifetime

American Psychological Association (2021)

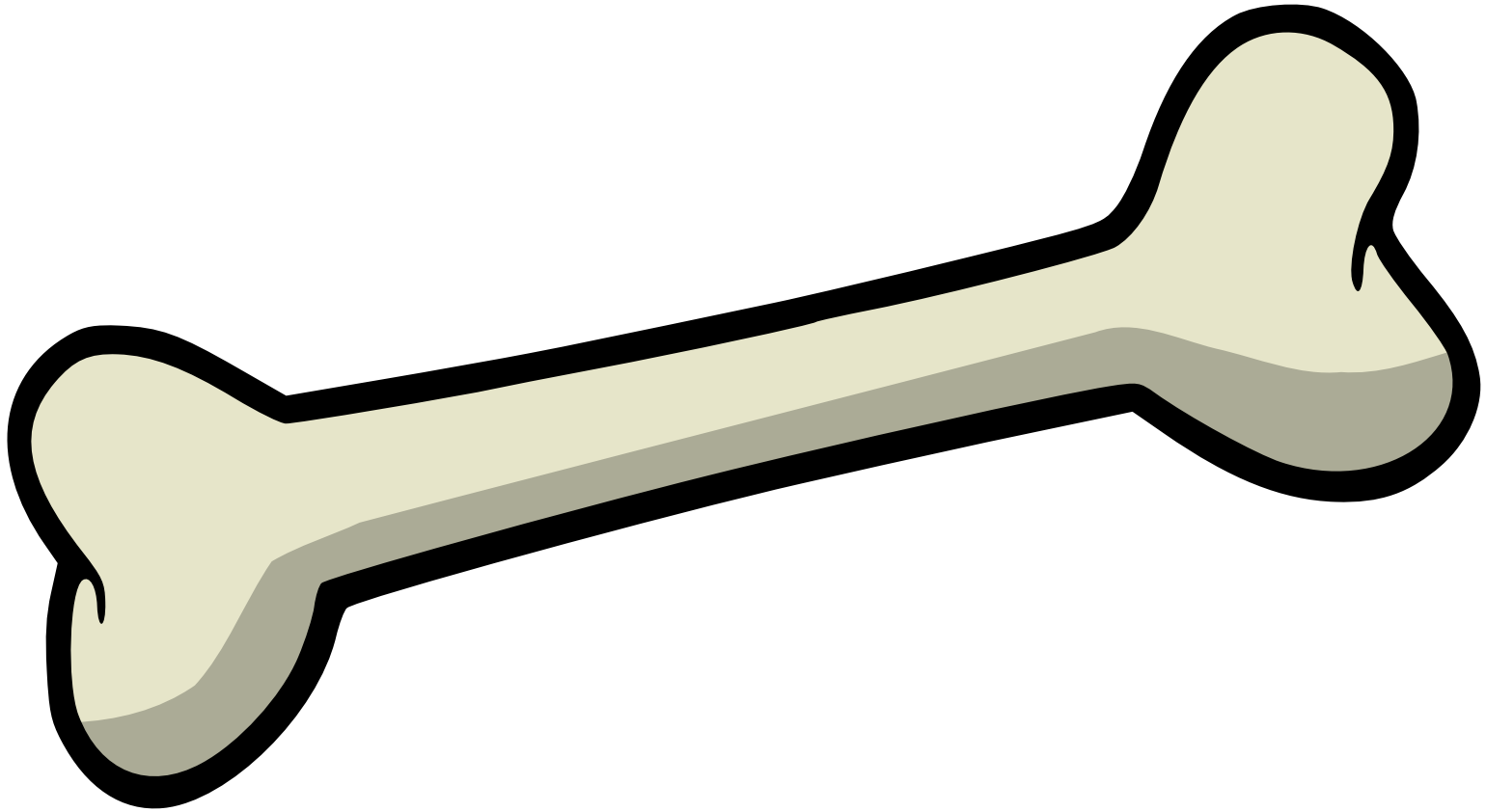
Trauma isn’t necessarily the event itself, but the response that our body, brain, and nervous system have to that event.

University of Northern Colorado (2022, June 10)

“Trauma is not what happens to you, it's what happens inside of you as a result of what happened to you.”

—Dr. Gabor Maté

Trauma occurs when a stimulus, stress, or threat exceeds a system’s capacity to withstand it.



- Integrity or strength
- Age
- Location of stress
- Duration of stress
- Speed
- Force
- Relaxation or tension

If the body, brain, and nervous system do not have the capacity to endure a stressor or threat, that event can leave a lasting traumatic imprint on the individual.

University of Northern Colorado (2022, June 10)

A stressor or event will not become traumatic if there was adequate capacity to handle the stimuli or if there was adequate resilience to come back to homeostasis after the threat or stress was removed.

The Way a Person Responds after a Traumatic Event Depends On:

- Type and severity of the trauma
- Whether they are active or helpless
- The amount of available support following the incident
- Other current stressors *(capacity)*
- Personality and subconscious beliefs
- Natural levels of resilience
- Previous traumatic experiences

“Trauma occurs in the absence of an empathetic witness.”

—Peter Levine, founder of Somatic Experiencing

Trauma occurs when something is too much, too fast, or too soon.

Our unique capacity to withstand or recover from a traumatic event has nothing to do with “willpower” or “mental toughness.”

“I should be over it by now.”

“I don’t understand why they can’t just get over what happened to them.”

“I shouldn’t be so sensitive about this.”

“The way I’m responding to this right now is not rational.”

Trauma can't be “convinced” out of us with the rational, logical parts of our brain since the events impact subcortical brain regions and the nervous system.

University of Northern Colorado (2022, June 10)

According to the DSM-5,The Diagnostic and Statistical Manual of Mental Disorders, trauma isn’t an objectively diagnosable psychological condition.

PTSD, which is a formal diagnosis, often results from trauma, but not everyone who experiences trauma develops PTSD.

About 5% of Americans have PTSD in any given year.

U.S. Department of Veterans Affairs (2014)

How do We Diagnose PTSD in America?

A series of verbal and written tests that assess a person’s thinking, behaviors, and emotions

This is in combination with an evaluation by a psychologist or psychiatrist.

PTSD symptoms usually begin within 3 months of the event but may not appear until months or years later.

Nyulangone.org (n.d.)

Four Types of PTSD Symptoms

1. **Re-experiencing:**
   - Experiencing the traumatic event through distressing recollections, flashbacks, and nightmares
2. **Avoidance:**
   - Becoming emotionally numb and avoiding places, people, and activities that could be retraumatizing
3. **Negative alterations in mood and cognition:**
   - Feeling cut off from others and negative changes in mood, beliefs, or memory
4. **Hyperarousal:**
   - Difficulty sleeping and concentrating, feeling jumpy, or being easily irritated and angered

Nyulangone.org (n.d.)

Symptoms in Children with PTSD

- Bed-wetting
- Changes in language or communication
- Acting out the traumatic event during playtime
- Being unusually clingy
- Disruptive
- Disrespectful
- Destruction
- Guilt
- Feelings of revenge

To Receive a Diagnosis of PTSD:

- At least one re-experiencing symptom
- At least three avoidance symptoms
- At least two negative alterations in mood and cognition
- At least two hyperarousal symptoms

These symptoms must be active for a minimum of 1 month and affect their ability to perform everyday activities.

Nyulangone.org (n.d.)

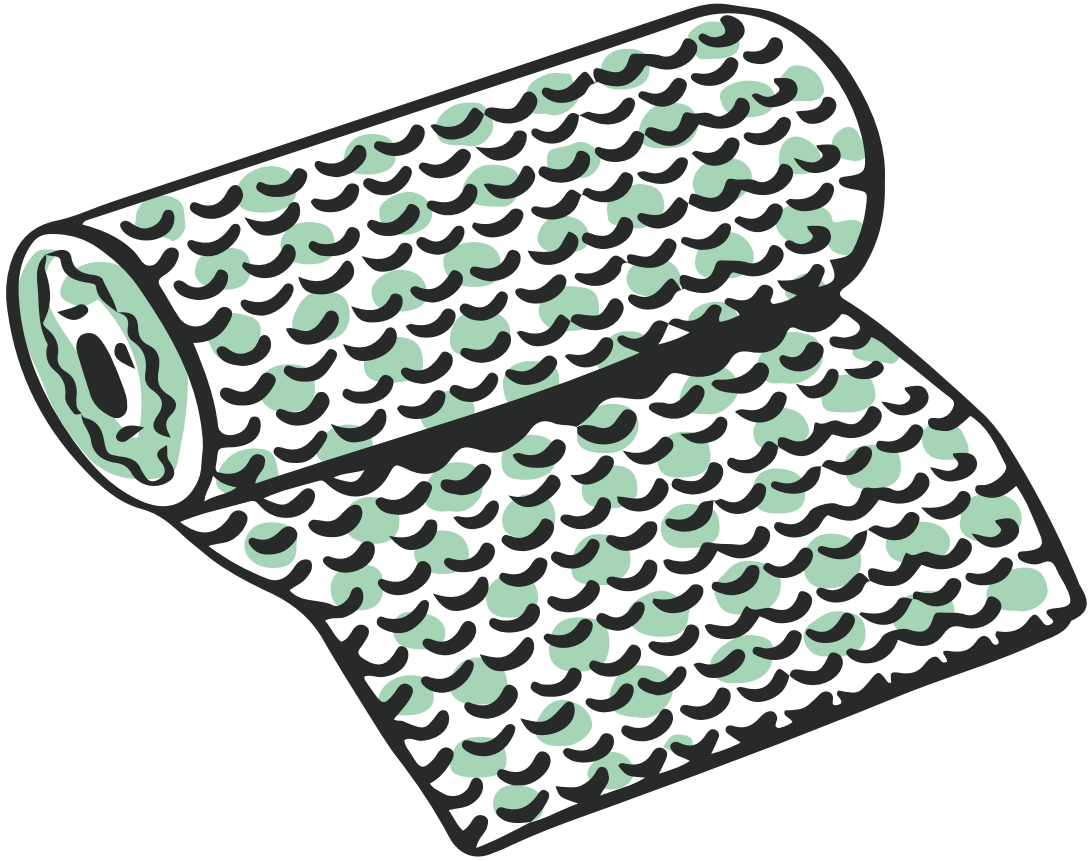
Those who aren’t formally diagnosed can still present with various physiological, physical, and psychological changes that impact the way they think, feel, heal, connect, and behave in the world.

Authors have pointed to the diversity of trauma, suggesting that a single diagnosis of PTSD should be replaced by a variety of trauma-related disorders.

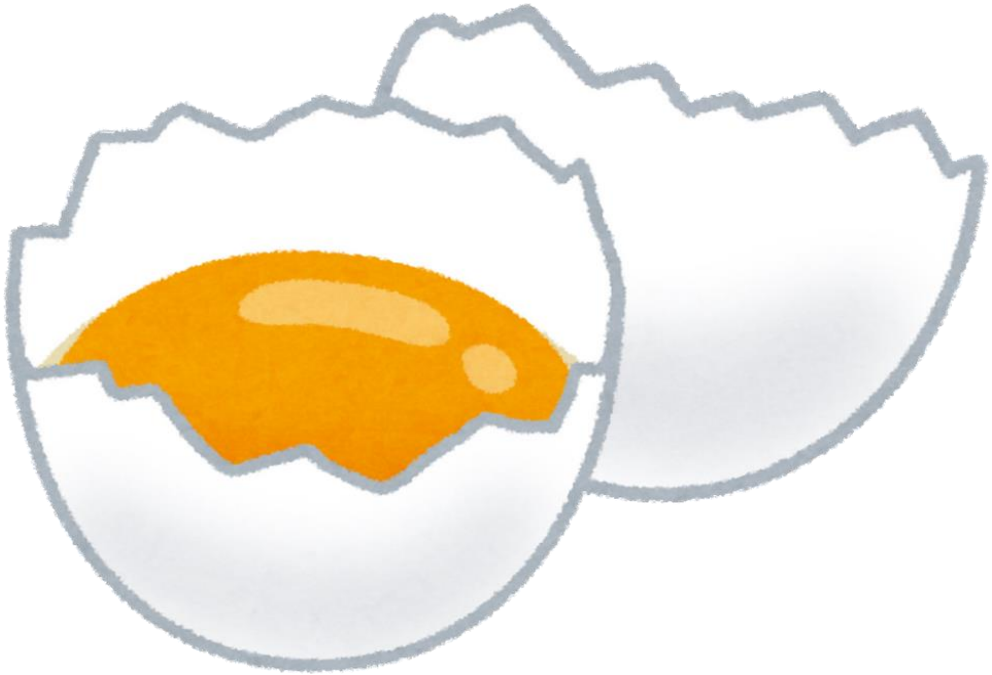
Bovin, M. (2011)

Does everybody have trauma? Do we assume everyone has trauma?

We do not want to bubble-wrap.



We do not want to walk around on eggshells.



How can I try to fully “meet” the human being in front of me?

Healthcare Consideration

Implementing trauma-informed care focuses on creating a safe, respectful environment that prioritizes clear, compassionate communication; active listening to patients' concerns; supporting resiliency; and being mindful of potential triggers to avoid retraumatization. In addition, TIC emphasizes collaborations with interdisciplinary teams for comprehensive care and referring to mental health professionals as needed.

When we can further understand our client’s experience, we build the trust and safety necessary for relief and healing.

Let’s discuss possible symptoms and outcomes of trauma.

“The impact of trauma can be subtle, insidious, or outright destructive.”

Center for Substance Abuse Treatment (U.S.) (2014)

Three Cognitive Patterns

- Thoughts about self
- Thoughts about others/environment
- Thoughts about the future

Center for Substance Abuse Treatment (U.S.) (2014)

- Loss of hope
- Limited expectations about life
- Fear that life will end early or abruptly

- Anxiety of severe fear
- Feeling out of control
- Disorientation
- Overwhelm
- Irritability/hostility
- Mood swings
- Shame
- Feelings of fragility and/or vulnerability

Center for Substance Abuse Treatment (U.S.) (2014)

- Emotional detachment
- GI disruptions
- Muscle tremors
- Extreme fatigue
- Elevated heartbeat, respiration, and BP
- Difficulty concentrating
- Sleep and appetite disturbances
- Memory problems

Center for Substance Abuse Treatment (U.S.) (2014)

- Increased use of alcohol, drugs, or tobacco
- Social relationship disturbances
- Engagement in high-risk behaviors
- Decreased activity level
- Difficulty making decisions
- Fear avoidance
- Suicidal

Center for Substance Abuse Treatment (U.S.) (2014)

- Lowered resistance to colds and illnesses
- Persistent fatigue
- Elevated cortisol levels
- Somatization (increased focus on body aches and pain)
- Higher pain sensitivity
- Long-term health effects including heart, liver, autoimmune, and respiratory ailments

Center for Substance Abuse Treatment (U.S.) (2014)

Case Study

- Kimi is a 35-year-old Native American woman who was raped at the age of 16 on her walk home from a suburban high school. She recounts how her whole life changed on that day.

Case Study

- “I never felt safe being alone after the rape. I used to enjoy walking everywhere. Afterward, I couldn’t tolerate the fear that would arise when I walked in the neighborhood. It didn’t matter whether I was alone or with friends—every sound that I heard would throw me into a state of fear. I felt like the same thing was going to happen again. It’s gotten better with time, but I often feel as if I’m sitting on a tree limb waiting for it to break. I have a hard time relaxing. I can easily get startled if a leaf blows across my path or if my children scream while playing in the yard. The best way I can describe how I experience life is by comparing it to watching a scary, suspenseful movie—anxiously waiting for something to happen, palms sweating, heart pounding, on the edge of your chair.”

Center for Substance Abuse Treatment (U.S.) (2014)

Self-Reflective Question

How can I create a therapeutic environment that acknowledges the lasting impacts of trauma, such as hypervigilance and anxiety, in a way that fosters safety, trust, and healing for patients like Kimi?

A. **I can help Kimi by encouraging her to “move on” from her past experiences and focus on the present, minimizing discussions about her trauma to avoid dwelling on negative emotions.**

B. **I can recommend anti-anxiety medications as the primary solution, addressing her symptoms of her underlying trauma-related issues.**

C. **I can use trauma-informed care principles, such as actively listening to Kimi's concerns, validating her experiences, and ensuring that she feels safe and in control during her treatment process.**

D. **I should avoid talking about Kimi's trauma to prevent retraumatizing her, focusing instead on general health concerns without addressing her anxiety directly.**

Self-Reflective Question

How can I create a therapeutic environment that acknowledges the lasting impacts of trauma, such as hypervigilance and anxiety, in a way that fosters safety, trust, and healing for patients like Kimi?

C. **I can use trauma-informed care principles, such as actively listening to Kimi's concerns, validating her experiences, and ensuring that she feels safe and in control during her treatment process.**

Self-Reflective Question

How can I create a therapeutic environment that acknowledges the lasting impacts of trauma, such as hypervigilance and anxiety, in a way that fosters safety, trust, and healing for patients like Kimi?

C. **I can use trauma-informed care principles, such as actively listening to Kimi's concerns, validating her experiences, and ensuring that she feels safe and in control during her treatment process.**

Regardless of our scope of practice, implementing trauma-informed principles will always be appropriate such as supporting our client's autonomy (empowerment, voice, and choice), active listening (trustworthiness), and validating her experiences (safety).

Traumatic stress tends to evoke two emotional extremes: feeling either too much (overwhelmed) or too little (numb) emotion.

Center for Substance Abuse Treatment (U.S.) (2014)

We are resilient.

We typically recover well from traumatic experiences without severe long-term consequences and minimal distress.

Most of us are able to recover with time and healthy social support.

Center for Substance Abuse Treatment (U.S.) (2014)

The Way a Person Responds after a Traumatic Event Depends On:

- Type and severity of the trauma
- Whether they are active or helpless
- The amount of available support following the incident
- Other current stressors *(capacity)*
- Personality and subconscious beliefs
- Natural levels of resilience
- Previous traumatic experiences

Center for Substance Abuse Treatment (U.S.) (2014)

Research indicates that survivors who choose not to process their trauma can be just as psychologically healthy as those who do. Everyone will have their unique way of coping.

Center for Substance Abuse Treatment (U.S.) (2014)

- **Normalize trauma symptoms.**
- **Normalize different paths of healing.**
- **Normalize their resiliency.**

“You get to feel healthy, strong, and capable, regardless of what happened to you.”

Exercise:

- External Orientation
- Internal Orientation

- Explore your external environment.

- Explore your external environment.
- What do you notice?

- Explore your external environment.
- What do you notice?
- Continue to explore your environment.

- Explore your external environment.
- What do you notice?
- Continue to explore your environment.
- What do notice in your body when you do that?

The practice of *somatics*.

“Somatics is the language of what it is to be alive and to be in a body.”

“Somatics is what it means to be human.”

Somatics is the exploration and experience of a story.

Living in patterns of protection and pain changes our experience of life, ourselves, and our body.

Somatic practices provide the opportunity to be mindful of what’s actually happening in the present.

We want to help our clients get in contact with their body (embodied).

When they’re able to understand their own body, there’s greater clarity and awareness.

When there’s more clarity and awareness, there’s more choice.

Learning the *language* of the body.

> “Most people try to get away from their bodies as fast as they can because their bodies stir them up. The body is where the panic is—the fear and the rage.”
>
> —*Bessel van der Kolk, trauma researcher*

There might be several barriers that can reduce the effectiveness of somatic exercises.

- Too much unprocessed trauma
- Unsafe environment
- Hormonal dysregulation
- Fundamental or unconscious needs unmet
- Inflammatory diet
- Not receptive

Reduce provoking or potentially provoking stimuli as much as possible.

Exercise:

- Following Impulse

Exercise:

- Body Wake-Up Drill

“I don’t sense much from the neck down.”

“My body feels like a burden.”

Exercise:

- Fall Matrix

If symptoms persist or increase with an exercise, consider the concepts of titration and minimal dose effect.

Start small and slow, move gradually at the pace of their body by tracking their nervous system, and adjust from there.

If that exercise isn’t a match for the client for any reason, identify what wasn’t working and consider choosing something else.

These exercises are best done through a lens of curiosity and care. Feel free to tailor them according to your unique skills and clients.

Chronic Pain

Chronic pain, or pain that persists for longer than 3 months, is a condition that impacts **billions** of people across the world.

Chronic pain can be there all the time, or it may come and go. It can happen anywhere in your body.

Cleveland Clinic (2021, September 1)

Types

- Arthritis
- Back or neck pain
- Cancer pain
- Headaches or migraines
- Muscle pain (fibromyalgia)
- Neurogenic pain

Cleveland Clinic (2021, September 1)

Sensations

- Aching
- Burning
- Shooting
- Squeezing
- Stiffness
- Stinging
- Throbbing

Cleveland Clinic (2021, September 1)

Symptoms

- Anxiety
- Depression
- Fatigue
- Insomnia
- Mood swings
- Fear avoidance
- Isolation

Cleveland Clinic (2021, September 1)

Treatments

- Anticonvulsants for nerve pain
- Antidepressants
- Corticosteroid
- Muscle relaxers
- NSAIDs or acetaminophen
- Topical products
- Opioids
- Sedatives
- Medical marijuana

Cleveland Clinic (2021, September 1)

Natural Treatments

- Acupuncture
- Aromatherapy
- Biofeedback
- Hypnotherapy
- Mindfulness training
- Reiki
- Music, art, or pet therapy
- Relaxation techniques

Cleveland Clinic (2021, September 1)

Risk Factors

- Genetics
- Obesity
- Age
- Previous injury
- Smoking
- Labor-intensive job
- **Stress and PTSD**

Cleveland Clinic (2021, September 1)

Currently, there is no cure for chronic pain.

Chronic pain is one of the most common reasons people seek medical care. More than one in five adults experience chronic pain on most days or every day.

Pandelani et al. (2023)

“Do graduates have sufficient knowledge and skills to be competent in giving appropriate pain management to their patients?”

ATrain Education (n.d.)

The IOM Recommends:

- An expansion and redesign of education programs
- Improve curriculum and education for healthcare professionals
- Increase the number of health professionals with advanced expertise in pain care

American Academy of Pain Medicine Recommends Addressing:

- The fundamental concepts and complexity of pain
- How pain is observed and assessed
- Collaborative approaches to treatment options
- Application of competencies across the lifespan in various settings, populations, and care team models

The Institute of Medicine (IOM) estimates that treatment and management of pain costs about $635 billion annually in the United States.

ATrain Education (n.d.)

The World Health Organization suggests that 1 million terminal HIV/AIDS patients, 5.5 million cancer patients, and 800,000 trauma patients have little or no access to treatment for moderate to severe pain.

King & Fraser (2013)

> “Whether or not trauma was connected to the event or condition that originated their pain, having a chronic pain condition is traumatizing in and of itself.”
>
> —*Maggie Phillips, author of Reversing Chronic Pain*

This content isn’t going to solve the entire epidemic of chronic pain.

This content won’t end all suffering in those we care about.

What it might do is help us create a foundation of care in our clients.

Everything good comes from care.

Even when we’re hurting, physically or emotionally, we can still approach ourselves from a place of care, understanding, compassion, and presence.

And from that place, we can make informed, empowered decisions about what we need.

Even when we’re hurting, physically or emotionally, we can still approach ourselves from a place of care, understanding, compassion, and presence.

What are the connections between trauma and chronic pain?

People who have experienced childhood trauma or suffer from PTSD are 10 times more likely to experience chronic pain.

WakeMed Health & Hospitals, Raleigh & Wake County, NC (n.d.)

Two in three patients who experience a traumatic injury have chronic pain for at least 1 year following.

Trauma & Chronic Pain, WakeMed Health & Hospitals, Raleigh & Wake County, NC (n.d.)

Approximately 15% to 35% of patients with chronic pain also have PTSD.

U.S. Department of Veterans Affairs (2014)

Survivors of physical, psychological, or sexual abuse are at higher risk for developing chronic pain later in life.

Marin et al. (2021)

The Role of Early Life Trauma in Chronic Pain Patients

Michigan Medicine (2019, July 9)

The Biopsychosocial Model

Rankin (2020)

“The biopsychosocial approach describes pain as a multidimensional, dynamic integration among physiological, psychological, and social factors that influence one another.”

Meints & Edwards (2018)

The BPS model was touted heavily by George L. Engel in 1977, who specialized in chronic inflammatory diseases.

“All three levels —biological, psychological, and social, must be taken into account in every health task.”

Meints & Edwards (2018)

“The biopsychosocial model has led to the development of the most therapeutic and cost-effective interdisciplinary pain management programs, and makes it far more likely for the chronic pain patient to regain function and experience vast improvements in quality of life.”

—Robert Gatchel, PhD

The biopsychosocial model takes a trauma-sensitive approach by “regard for the human being carrying the pain around.”

When applying the BPS model, the inquiry might be, “is this just a physical or structural problem, or could there be something else going on?”

The BPS model is referenced in the International Classification of Diseases and applies to all pain-related conditions.

Rankin (2020)

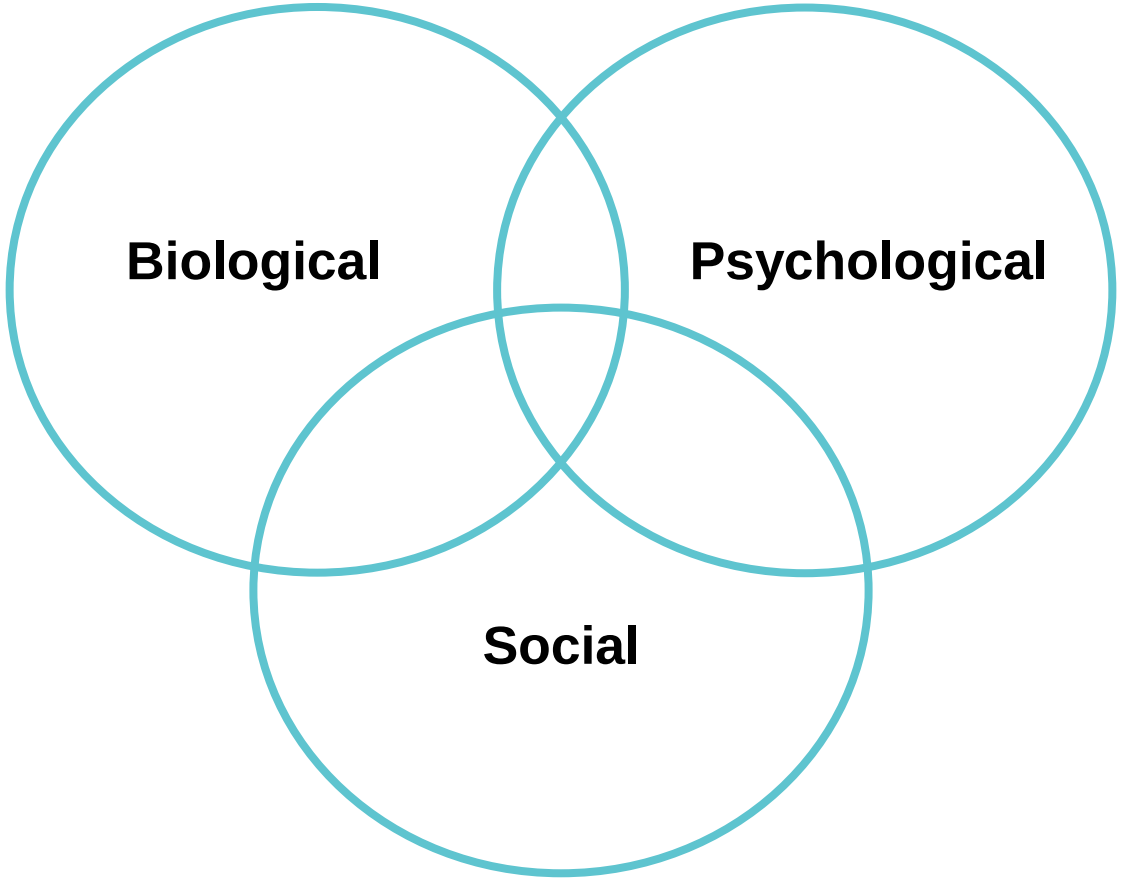
Pain is a message, not a damage meter.

“The alarm bells of pain.”

Pain is an action signal—it asks us to change something.

Pain is an action signal—it asks us to change something.

The Biopsychosocial Model



Rankin (2020)

Biological Factors

- Biomechanics
- Physical fitness
- Genetics
- Tissue injury
- Damage or disease
- Physical health problems

Rankin (2020)

Biological Factors

- Immune function
- Neurobiology or neurochemistry
- Medication effects
- Sex differences and hormones
- Nervous system characteristics
- Lifestyle (sleep, alcohol use, weight)

Rankin (2020)

Psychological Factors

- Mood
- Depression
- Anxiety
- Perceived injustice
- Personality
- Anger
- Expectations

Rankin (2020)

Psychological Factors

- Distress
- Coping styles
- Fear
- Catastrophizing
- Beliefs
- Self-efficacy
- Acceptance

Rankin (2020)

Social Factors

- Social expectations
- Social support
- Education status
- Living status
- Work factors
- Financial issues
- Substance abuse
- Stigma

Rankin, L. (2020).

Social Factors

- Loneliness
- Social disadvantage
- Cultural barriers
- Isolation
- Past pain experiences
- Health insurance
- Disability compensation
- Discrimination

Rankin, L. (2020).

Healthcare Consideration

Providers should be aware that trauma can intensify pain experiences and tailor their approach by considering the emotional and psychological aspects of pain. By understanding the prevalence and impact of trauma and chronic pain, providers can implement strategies that address the root causes and improve patient outcomes.

“The pain is not where the problem is.”

—Dr. Perry Nickelston, DC

The PPP Method

Chronic pain is a psychological, physiological, and physical event.

“The Body Keeps the Score.”

- What is the body holding?
- What is the organism experiencing now from the past?
- What have our clients done to survive?

- Where is their unconscious or subconscious intelligence?
- Where is survival showing up?
- How can we create the experience of safety?

Psychological

What is the story our client is telling themselves about their pain?

- “I’m broken.”
- “I need to be fixed.”
- “My body is screwed up.”
- “My body is damaged.”
- “This can’t get better.”
- “I’m too far gone.”

They might be hyper-focused on their “slipped disc,” their “jacked up knee,” or their “spinal damage.”

“Bad” side > Affected side

“Weak” side > Less strong side

When clients are educated on the many facets that can play a role in pain, it can provide a new window of hope and relief.

The “What Is” Practice

What is factual? What is story?

“My back has damage.”

“My back has damage so I can never be pain-free.”

Give them *hope*.

Give them *evidence*.

“Whether you think you can or can’t, you’re right.”

—Henry Ford

Pain is complex.

“The body is under no obligation to make sense to us.”

—Perry Nickelston, DC

Physiological

How can we support the autonomic nervous system and subcortical brain structures to decrease stress, inflammation, and pain sensitivity?

How can we bring their body back to safety and decrease the “alarm bells” of pain?

Physical

How can we support the physical body to move with less tension, compensation, and pain?

> “It’s hard to move well when you’re used to moving from survival.”
>
> —*Dr. Perry Nickelston*

The PPP method states we need to repattern how the brain, nervous system, and body are **perceiving** and therefore responding to input so we don’t activate and reinforce the old neural protective patterns of pain.

Chapter 3: Expectations and Functional Outcomes

Chapter 3: Expectations and Functional Outcomes

Identifying the results and outcomes our clients may experience when we approach our work from a trauma-informed perspective.

We are on the forefront.

- Trauma-informed care is a safety plan.
- Trauma-informed care is a retention plan.
- Trauma-informed care is good customer service.

“You are a Unicorn.”

When we implement trauma-informed approaches in acute, crisis, emergency, and residential health care, what outcomes can we expect?

(Saunders et al., 2003)

- Service user and staff experiences and attitudes
- Staff well-being
- Service use outcomes

(Saunders et al., 2003)

- Rates of restraint and seclusion decreased.
- Service users reported feeling trusted and cared for.
- Staff reported feeling greater empathy for service users.
- Staff reported a greater understanding of trauma.
- Staff reported needing training to deliver TIC effectively.

(Saunders et al., 2003)

Electronic health record evidence revealed that those with childhood abuse have more comorbidities and are more likely to have impatient admissions.

(Saunders et al., 2003)

Staff are also affected by trauma at work and can create “reciprocal traumatisation.”

(Saunders et al., 2003)

Revisiting Jill

Meet Jane

- Jane and Jill are two women of the same age who come into your physical therapy clinic and present with the same musculoskeletal diagnosis that has plagued them for 5 years.

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- The mechanism of injury was the same, and their medical histories are similar.

- Jane and Jill are two women of the same age who come into your physical therapy clinic and present with the same musculoskeletal diagnosis that has plagued them for 5 years.
- The mechanism of injury was the same, and their medical histories are similar.
- However, Jane’s symptoms are oddly different from Jill’s symptoms.

- While you’re using a similar approach for both of them based on their diagnosis and medical history, Jill’s progress is much slower and more unpredictable.

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- Jane’s symptoms clear up, she’s discharged and on her way.

- While you’re using a similar approach for both of them based on their diagnosis and medical history, Jill’s progress is much slower and more unpredictable.
- Jane’s symptoms clear up, she’s discharged and on her way.
- Jill doesn’t get the relief she was hoping for, loses faith, quits treatment, and leaves your clinic feeling defeated.

- We know that Jane and Jill present similarly in terms of their physical presentation. What is their range of motion? What does their imaging say? What muscles are weak? How do they move?

- We know that Jane and Jill present similarly in terms of their physical presentation. What is their range of motion? What does their imaging say? What muscles are weak? How do they move?

- Jill later revealed that she just lost her mom, her job was very demanding, and she didn’t feel like she could go to anybody for support. Her stress was high, her body felt tense, and she’s been so overwhelmed that she hasn’t been motivated to do her home exercises.

- Jill carries a lot of fear and anxiety around her pain. She’s developed hypervigilance and a habit of catastrophizing.

- Therefore, she moves very little and has “fear avoidance.”

- Jill’s experience of her world, her body, and her pain is vastly different from Jane’s.

- Jane has a great social support network with friends who are happy to help when her pain flares. She works from home, allowing for a flexible schedule if she needs rest.

- Jane has become more informed about how chronic pain works, so she doesn’t have as much fear when pain does limit her. She feels safe to ask questions during treatment and motivated to do her exercises.

Looking at this situation through a trauma-informed lens allows for greater understanding and compassion when somebody isn’t improving in our care.

- When you review Jill’s chart, you note that she documented a history of chronic emotional and sexual trauma during childhood. Given what you know about trauma and stress physiology, you recognize these experiences may have an impact on her pain sensitivity today.

- When you review Jill’s chart, you note that she documented a history of chronic emotional and sexual trauma during childhood. Given what you know about trauma and stress physiology, you recognize these experiences may have an impact on her pain sensitivity today.

- You make it a point to be cognizant of how she’s receiving treatment when working in these areas and use language to support her autonomy and safety.

- Given this information, you make it a priority to not rush the treatment and ask for consent generously.

- Given this information, you make it a priority to not rush the treatment and ask for consent generously.

- Since you know how to regulate your own nervous system, your client naturally starts to match your internal state of ease.

- Your client might not be able to articulate why, but she feels safe in your presence.

- Your client might not be able to articulate why, but she feels safe in your presence.

- However, as you begin certain aspects of treatment, you note she’s starting to dysregulate and move out of her window of tolerance.

- Given your attunement, you’re able to redirect and titrate the work that you’re doing together.

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- In other clinics, this attunement was not present. She was asked to perform movements or put in positions that were too much, too soon for her unique body and nervous system.

- Given your attunement, you’re able to redirect and titrate the work that you’re doing together.
- In other clinics, this attunement was not present. She was asked to perform movements or put in positions that were too much, too soon for her unique body and nervous system.
- This time around, she’s able to stay within her window of tolerance, avoiding a painful flare or rupturing the trust she has with you.

When we work at the pace of the body, we always move faster.

- Even though Jill has more complexity and nuance to her case than Jane, you feel confident in your ability to work with her. You follow fundamental principles that inform your work and provide a compass toward success.

- Even though Jill has more complexity and nuance to her case than Jane, you feel confident in your ability to work with her. You follow fundamental principles that inform your work and provide a compass toward success.

- Since you know Jill is carrying a lot of stress, you provide her with some gentle “vagus nerve” exercises. With these exercises, she feels empowered to manage her overwhelm that has been keeping her from being consistent with her therapy.

- Jill keeps coming back to see you because she continues to feel safe and successful in your work together. You provide a sense of attuned presence and support for her that she didn’t have with previous practitioners.

- Jill keeps coming back to see you because she continues to feel safe and successful in your work together. You provide a sense of attuned presence and support for her that she didn’t have with previous practitioners.

- Since you’re pacing your work together appropriately based on the feedback you’re receiving from her body and her nervous system, she’s continually getting better without triggering a flare or trauma response.

- **The sessions have more ease and curiosity about them instead of trying to “fix” or “solve” the client’s problems.**

- **The sessions have more ease and curiosity about them instead of trying to “fix” or “solve” the client’s problems.**

- After the first few weeks, **Jane is pain-free for the first time in decades.** She’s beginning to trust her body again by being present with herself and responding appropriately.

- She feels less stressed and overwhelmed because she has the skills to work with her nervous system, including reducing her hypervigilance and fear avoidance.

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- She now recognizes that if she does get a flare in the future, **she can be her own support system** by tending to herself in new, caring ways.

- Since she’s feeling more mobile, capable, and confident, she tries a gentle new exercise class to continue building her strength. She ends up making several new friends that provide the safety and support that was previously lacking, which made her pain more overwhelming.

- Since she’s feeling more mobile, capable, and confident, she tries a gentle new exercise class to continue building her strength. She ends up making several new friends that provide the safety and support that was previously lacking, which made her pain more overwhelming.

- **We’re creating a safe environment to support her autonomy, reinforces her resilience, and encourages empowerment.**

- Jill is transformed. She lives and moves in her body differently. She doesn’t identify with her pain and stress anymore, because she was able to experience something different through her time with you.

Healthcare Consideration

Implementing trauma-informed care in pain management can lead to reduced pain levels and increased patient adherence to treatment plans. This approach strengthens the therapeutic relationship, leading to better patient engagement and more effective pain relief. Additionally, it minimizes patient distress and the risk of retraumatization, contributing to higher overall patient satisfaction and improved long-term health outcomes.

Chapter 4:
Introduction to the ANS

Chapter 4: Introduction to the ANS

Diving into the anatomy and function of the autonomic nervous system

We’ll be reviewing the science and anatomy of the structures involved with trauma, stress, and pain.

- We are wired for survival.

- Fortunately, we don’t have to consciously and continuously scan our environment for threats. That’s the role of our **autonomic nervous system.**

If the environment is deemed unsafe, a host of physiological changes occur to produce a stress response.

Stress Responses

- Increase in heart rate
- Increase in respiratory rate
- Postural changes
- Protective movements
- **These stress responses are automatic, calculated quickly, and refined over many thousands of years of evolution.**

We don’t universally share the same automatic responses to threat or perceived threat.

How we react to certain environments or stimuli is based on our unique history, memories, personality, capacity, prior traumas, or nervous system training.

SAMHSA (2014)

Stress responses, or survival responses, are always appropriate for that individual.

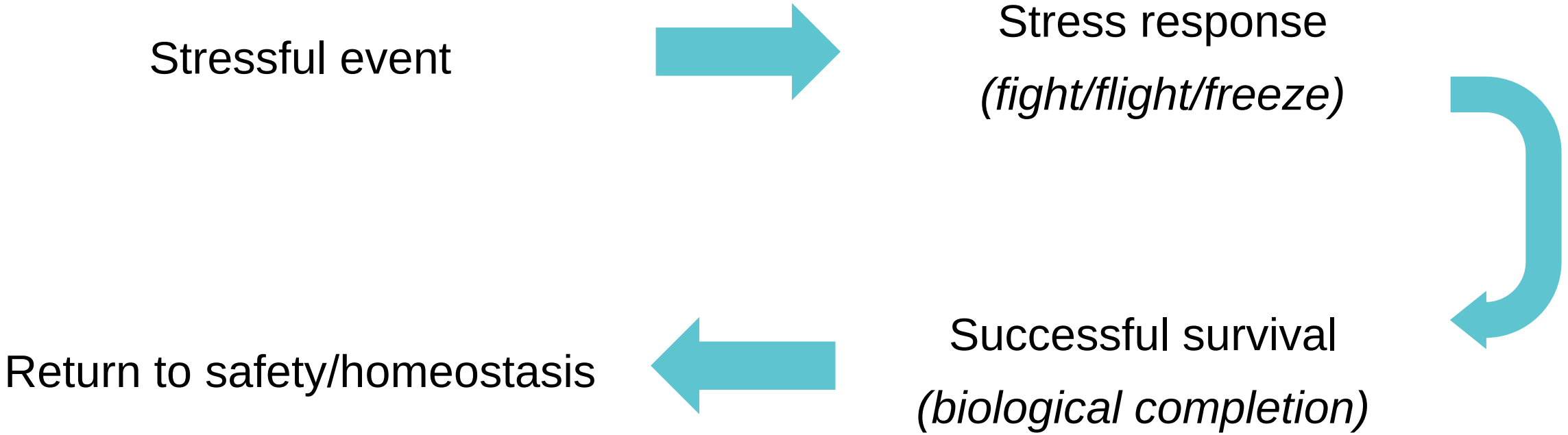
“Why did I respond that way?”

Innate and organic intelligence of the body.

It makes sense.

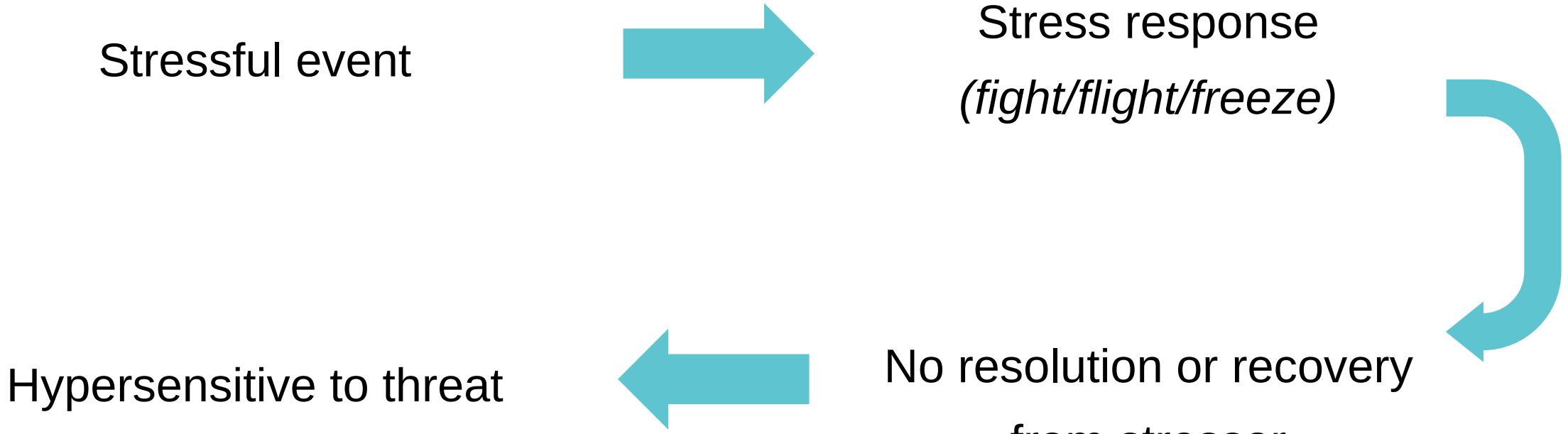
How does trauma happen?

Completed Stress Cycle



Payne et al. (2015)

Incomplete Stress Cycle



Payne et al. (2015)

Events that can leave a traumatic imprint are occurrences where our physiology didn’t get an opportunity to complete the stress response.

Payne et al. (2015)

When this stress response doesn’t get completed or if it’s prolonged, our physiology remains functioning under a state of threat.

Payne et al. (2015)

Chronic and unconscious orientation toward protection.

Living in a state of survival

“Most people try to get away from their bodies as fast as they can because their bodies stir them up. The body is where the panic is—the fear and the rage.”

—Bessel van der Kolk, MD

Evidence-Based Practice: Mindfulness

Research has demonstrated that meditation-based tools such as meditation using focused attention, mindfulness-based stress reduction, and mindfulness-based cognitive therapy have been shown to lower anxiety, minimize symptoms of PTSD, and reduce depression, blood pressure, cortisol levels, and stress markers (Behan, 2020).

Exercise:

- Grounding Meditation

(Behan, 2020)

Gently help them feel safe in their external and internal environment

The CRN is comprised of the autonomic nervous system, the emotional motor system, the reticular arousal systems, and the limbic system.

Winblad et al. (2018)

A functional dysregulation of the subcortical autonomic, limbic, motor, and arousal systems referred to as the core response network (CRN)

Winblad et al. (2018)

Neuroendocrine, neurochemical, and neuroanatomic changes

Winblad et al. (2018)

Hypothalamic–pituitary– adrenal axis and hypothalamic–pituitary–thyroid axis dysregulation

Winblad et al. (2018)

- Upregulated response to stress
- Abnormal fear processing
- Hippocampal atrophy
- Abnormal T3:T4 ratio
- Increased subjective anxiety

Sherin & Nemeroff (2011)

Abnormal regulation of catecholamine, serotonin, amino acids, peptides, and opioid neurotransmitters help regulate and integrate stress and fear responses

Sherin & Nemeroff (2011)

Sustained sympathetic tone with elevations in heart rate, blood pressure, and other altered psychophysiological measurements.

Sherin & Nemeroff (2011)

Trauma impacts the hippocampus, amygdala, and cortical regions such as the anterior cingulate, insula, and orbitofrontal region, which mediates our response to stress and fear.

Sherin & Nemeroff (2011)

Hippocampal deficits may lead to an activation of and failure to terminate stress responses, and an ability to discriminate between what is safe and unsafe.

Sherin & Nemeroff (2011)

Your autonomic nervous system has two main divisions: the sympathetic and parasympathetic branches.

The sympathetic branch is associated with the “fight or flight” response.

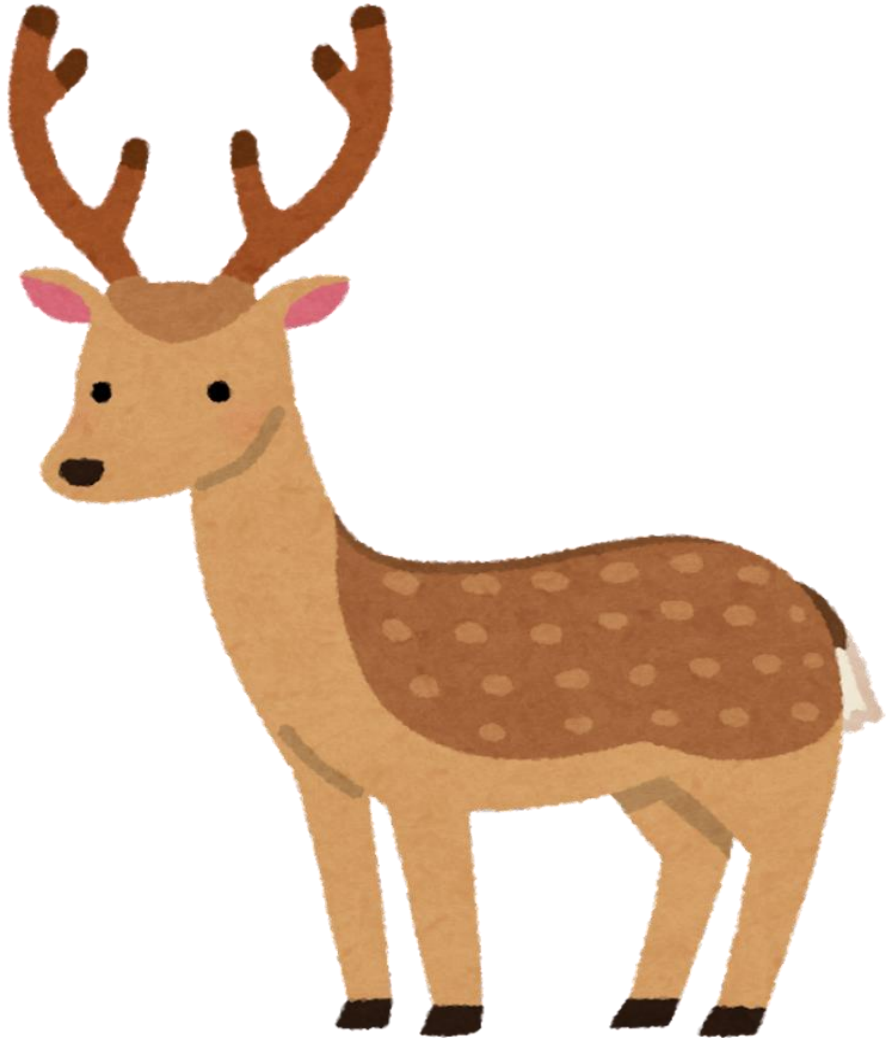
Our heart rate increases, eyes may dilate, or we may become flushed. Our thoughts quicken, and focus narrows to evaluate routes of escape or strategies of attack.

Sympathetic activation gives us the ability and motivation to mobilize. It is the “mobilization” branch.

The parasympathetic branch is associated with the “freeze” response. When fighting or fleeing proves unsuccessful, a “freeze” response is a last-ditch effort in order to survive.

Roelofs (2017)

“Deer in Headlights”



The freeze response is a survival solution in predator–prey dynamics.

If the mammal stays motionless, the predator might not see them. A lack of motion can also signal illness or death.

Roelofs (2017)

Children who go into a freeze response from a dog bite have been shown to have less physical damage than children who try to fight back.

Roelofs (2017)

If the sympathetic branch represents mobilization, the parasympathetic branch represents immobilization.

Roelofs (2017)

Changes in a freeze response would be a lowered heart rate, decreased motivation or ability to move, the sensation of heavy limbs, feeling cold or numb, and an inability to think clearly, or having “fuzzy” thinking.

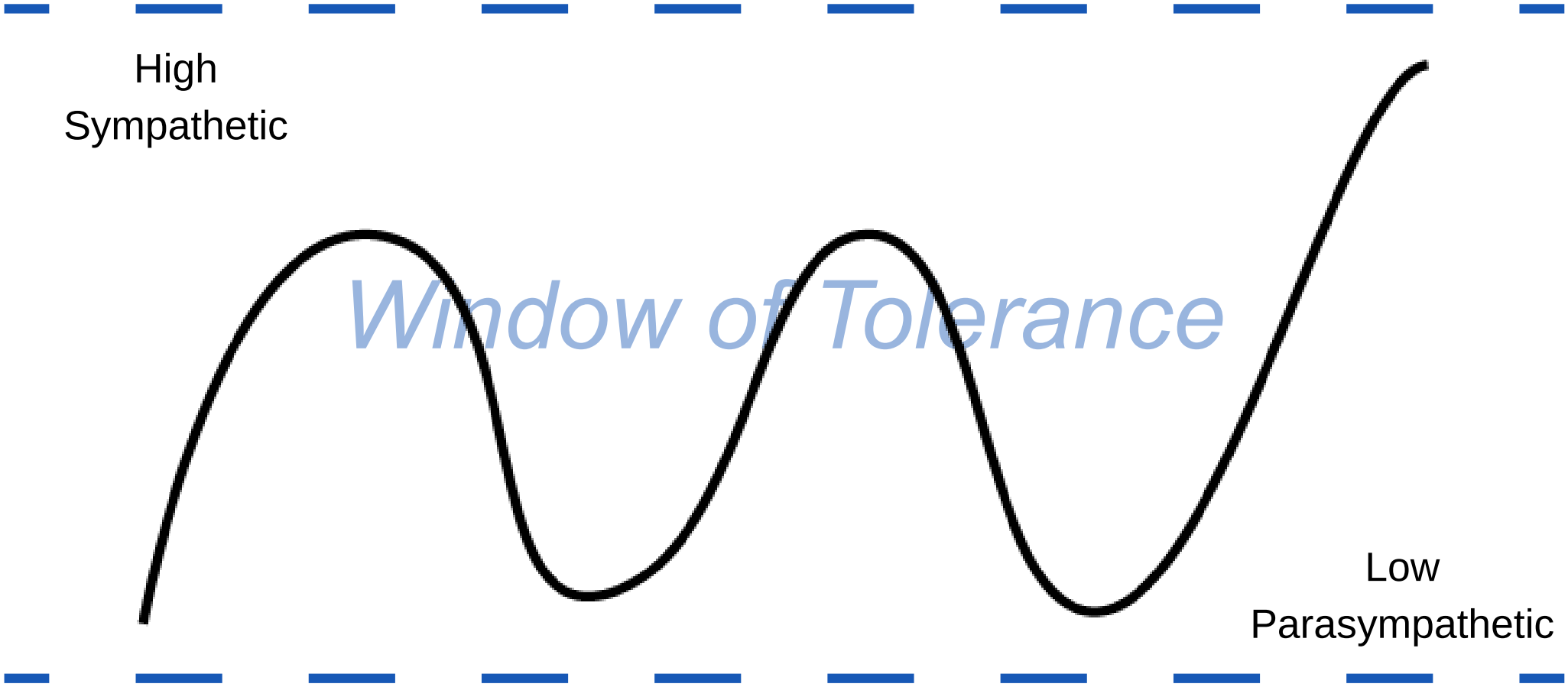
Roelofs (2017)

Dissociation is the disruption of one or all four main areas of functioning including our consciousness, our identity, our memory, and our awareness of ourselves and our surroundings. When this occurs, we may feel detached or as if the world is unreal.

We also enter a parasympathetic state when we’re sleeping, digesting, resting, and even connecting with others.

After sympathetic arousal, there is a normal reciprocal activation of the parasympathetic branch.

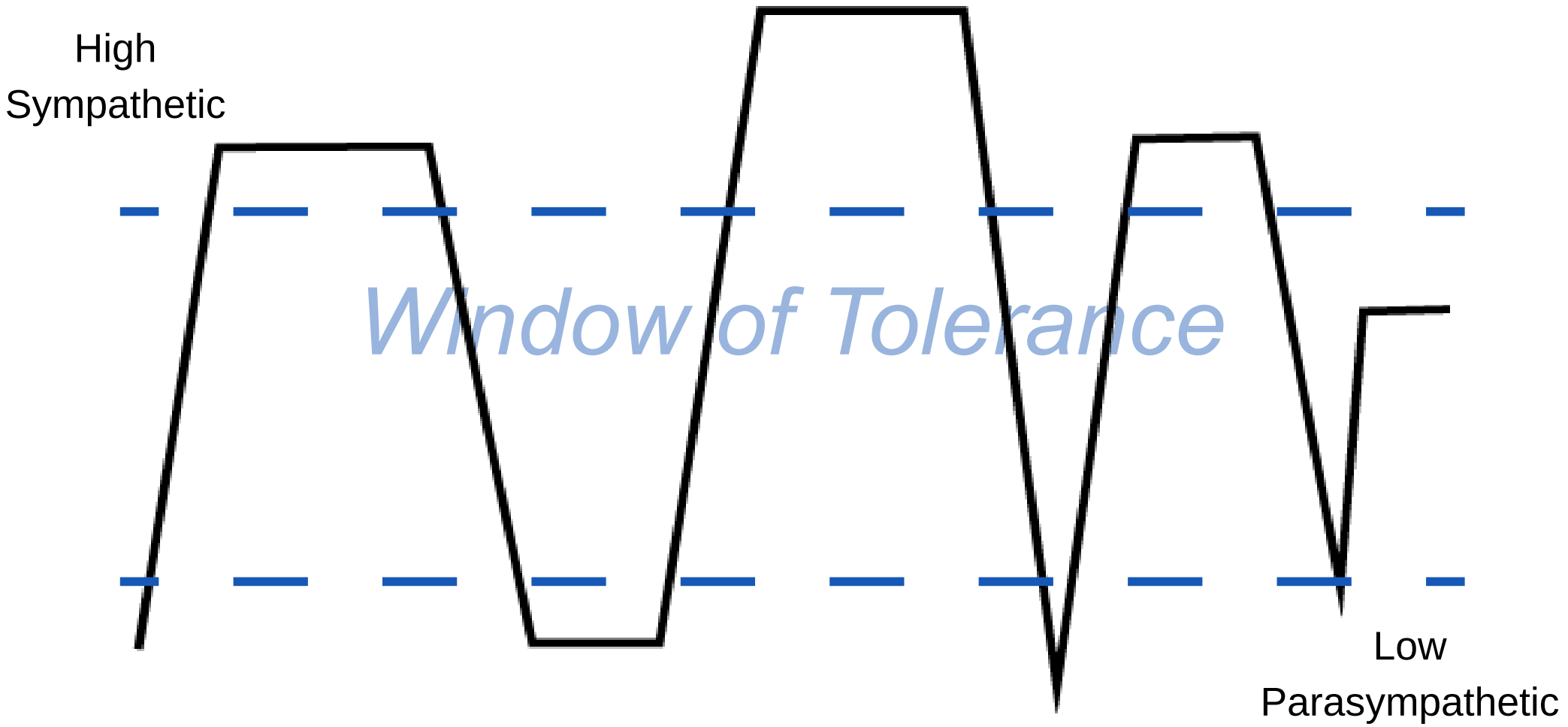
Sherin & Nemeroff (2011)



Sherin & Nemeroff (2011)

If there isn’t a biological completion (inadequate defensive response), the system can fail to return back to healthy functioning, causing inappropriate responses to environmental stressors or challenges.

Sherin & Nemeroff (2011)



Sherin & Nemeroff (2011)

Really “on” or really “off”

Under extreme and inescapable stress, the ANS may have concurrent or alternating activation of the sympathetic and parasympathetic branches. This may manifest as depressive shutdown followed by extreme anxiety or rage.

Payne et al. (2015)

This can be exhausting.

Their body is not “broken” or “wrong.”

Orientation to protection.

The body seeks safety.

“The body is under no obligation to make sense to us.”

–Perry Nickelston, DC

A veteran with traumatic war history might react to loud noises that sound like gunfire, such as fireworks, with intense anxiety, terror, or dread. This is an appropriate and understandable reaction based on their unique history and nervous system.

What is Nervous System Regulation?

Regulation is the ability to respond appropriately to the inputs and stressors of life.

Kadović et al. (2022)

A state of regulation is not necessarily being in a state of calm or being happy.

It’s not a “zen state.”

The **window of tolerance** is the range in which we can toggle from states of activation or arousal (toward sympathetic), or states of deactivation and immobilization (toward parasympathetic) without becoming dysregulated.

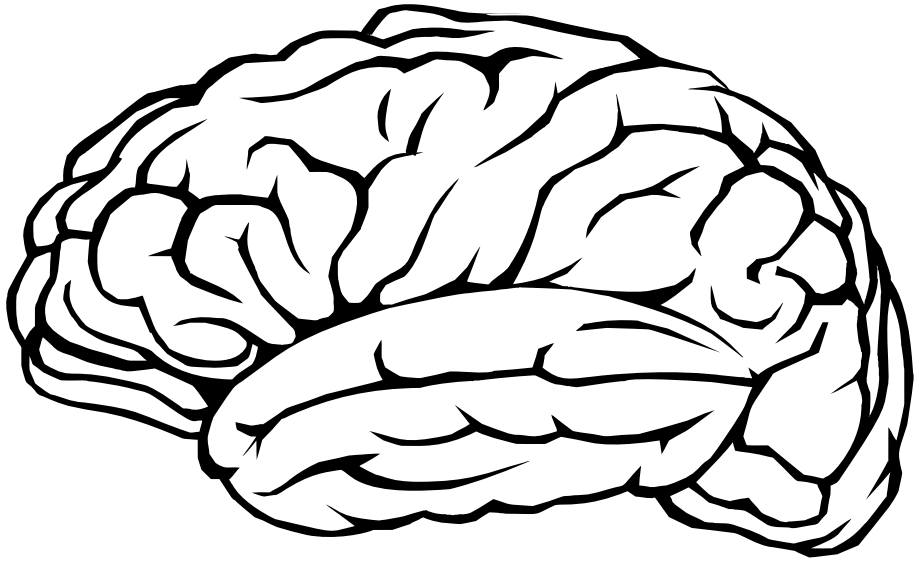
The window of tolerance is also referred to as our **capacity**. Everyone has different degrees of capacity depending on their unique history, the stimulus, accumulated stressors, or the degree in which their basic biological needs have been met.

Levine (1997)

If we move out of our window of tolerance and become dysregulated, our ability to come back to regulation is an example of our **resilience**.

- **Resilience**
- **Capacity**
- **Flexibility**

- Exploring brain regions associated with our fear and survival responses



Place your hands on the front of your head. This is your neocortex. We create stories and narratives here; we analyze, calculate, and learn.

The neocortex helps regulate lower regions of the brain. When we collapse into a survival response, less blood flow reaches this region. As the phrase goes, “when emotions are high, intelligence is low.”

Slide your hands toward the middle of your head, near your ears. This layer of the brain is called the limbic system.

The limbic system is responsible for our emotions, memory (including unconscious memory), and sexual arousal, and it creates an important link between our neocortex and the brain stem.

The limbic system has been referred to as the “smoke detector” of the brain.

Trace your hands to the base of your skull. The brain stem connects your brain to your spinal cord to regulate balance, breathing, blood pressure, heart rate, and more autonomic functions.

The brain stem is also where our vagus nerve travels through, a critical structure involved in the stress response.

When we support these unconscious parts in our client, we can soften the barriers and symptoms that stress and trauma can generate.

We provide the therapeutic environment to signal safety, providing the necessary foundation to heal and recover.

Payne et al. (2015)

“Repeated activation of the relaxation response can reverse sustained problems in the body and mend the internal wear and tear brought on by stress.”

–Herbert Benson, MD

“Relaxation is the goal.”

–Martin Wheeler, Systema practitioner

“We are all too tense.”

–Martin Wheeler, Systema practitioner

There aren’t many opportunities for rest.

Find ways to access realaxation (resourcing).

Payne et al. (2015)

Evidence-Based Practice: Slow Breathing Techniques

Slow breathing techniques improve the coordination between the autonomic nervous system, brain function, and psychological flexibility, connecting parasympathetic and central nervous system activities involved in emotional regulation and overall well-being. These techniques appear to favor the parasympathetic autonomic system over the sympathetic system, with this effect mediated by vagal activity (Zaccaro et al., 2018).

Exercise:

- Parasympathetic Breath Cycles

Zaccaro et al. (2018)

Chapter 5:
The Importance of the “Connection Nerve”

Chapter 5: The Importance of the “Connection Nerve”

Exploring the vagus nerve, sometimes referred to as the “connection” nerve, and its role in stress, connection, and safety

Why do we care about the vagus nerve?

“A vegetative function”

Courties et al. (2021)

- Vagus nerve stimulation (VNS) is being studied for its benefits in pain, inflammation, and stress.

- Invasive protocol:
  - Placing an electrode around the cervical vagus nerve, which connects to an implanted generator

- Noninvasive protocol:
  - Stimulating the cervical vagus nerve through the skin

Courties et al. (2021)

- Decreases RA disease activity
- Limits fatigue in Sjoren’s syndrome
- Limits fatigue in systemic lupus
- Decreases fibromyalgia pain
- Decreases pain in osteoarthritis
- Alleviates refractory epilepsy
- Relieves depression symptoms

Shao et al. (2023)

1. The vagus nerve connects to brain regions associated with pain processing.

2. The vagus nerve has anti-inflammatory properties that may provide pain-inhibitory effects.

Shao et al. (2023)

Researchers are currently studying VNS parameters such as duration, intensity, or optimal stimulation routes through many clinical trials.

Shao et al. (2023)

Studies have demonstrated that chronic inflammatory diseases are associated with reduced parasympathetic and increased sympathetic activity.

Seifert & Baerwald (2023)

“Autonomic equilibrium could be restored by stimulation of the vagus nerve.”

Seifert & Baerwald (2023)

This 10th cranial nerve is recognized for its “wandering” nature to innervate with organs throughout our trunk.

The vagus nerve is part of the parasympathetic branch of the nervous system, emerging directly from our brain stem rather than through our spinal cord.

Roughly 80% are afferent fibers, which allow the body to communicate to the brain, and 20% are efferent fibers, which allow the brain to communicate with the body.

The vagus nerve plays a role in our appetite, digestion, hormone production, pulse rate, immunity, circulation, stress responses, and inflammation.

To find the vagus nerve, place your fingers in the soft space right below and behind your ear lobes.

To continue following this nerve’s route, trace your hands down the sides of your neck and down to your collarbones where it travels underneath.

From there, trace your hands down your chest toward your heart, your lungs, and down your trunk to your spleen, intestines, liver, and kidneys.

The vagus nerve innervates with all of the internal organs in your abdominal cavity except for the adrenal glands.

Since the vagus nerve runs through the neck, shoulders, and chest, it’s susceptible to compression due to poor posture or breathing mechanics.

Since the vagus nerve is part of the parasympathetic branch of the autonomic nervous system, it has a “slowing down” quality by inhibiting excessive sympathetic activity.

Exercise:

- Vagus Nerve Tapping

Goggins et al. (2022)

How else can we stimulate the vagus nerve for parasympathetic activity?

Vagus Nerve Activation

- Humming or singing
- Deep breathing
- Somatic practices
- Safe connection

One way to test vagus nerve function and our resilience to stress is by looking at HRV, or heart rate variability.

The higher the variation between heartbeats, the higher the vagal tone, or greater resilience. The less variation between heartbeats, the lower the vagal tone, or weaker resilience.

Since the vagus nerve is a cranial nerve, it’s involved with eye contact, speech, hearing, nursing, kissing, smiling, and other attributes of social connection.

This nerve has been referred to as the “connection” or “love” nerve.

Hadiprodjo (n.d.)

Chapter 6:
Polyvagal Theory

Chapter 6: Polyvagal Theory

Using a scientific theory to inform how to effectively work with clients suffering with trauma and pain

Polyvagal theory has been referred to as “a science of safety.”

Porges (2022)

Case Study

- Maria, a 45-year-old woman with chronic lower back pain, struggled for years despite physical therapy, medications, and surgery. Her history of childhood trauma, including neglect and emotional abuse, left her anxious and hypervigilant during medical visits, causing missed appointments and difficulty adhering to treatment plans.

Case Study

- Dr. Smith, using polyvagal theory, recognized Maria’s sympathetic state and prioritized Maria’s sense of control and creating a safe, paced environment. Dr. Smith built trust, which reduced Maria’s anxiety, improved treatment adherence, and ultimately lessened her pain perception, helping her feel more in control of her health.

Feeling safe is a biological imperative.

Connection is a *neuromodulator*.

Porges (2022)

How do we know if we’re helping someone feel safe and downregulating their sympathetic defense responses?

How do we convey a sense of safety to another without using our words or body language?

Polyvagal theory was founded by Stephen Porges in 1994 after decades of research on the vagus nerve and the evolution of the autonomic nervous system.

Porges (2011)

Porges discovered that instead of the autonomic nervous system being a two-part system, there was another parasympathetic branch.

Porges (2011)

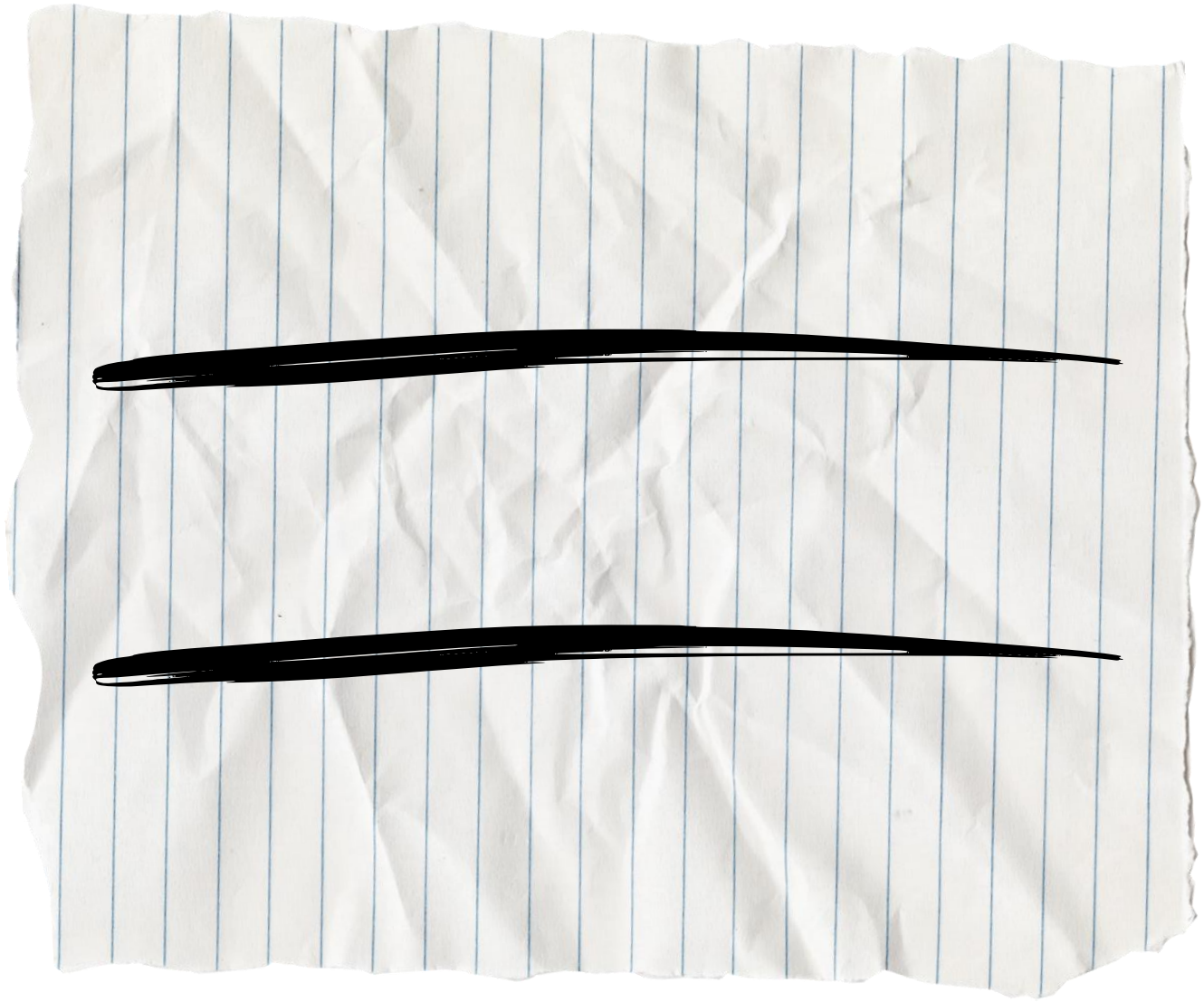
The vagus nerve functions through these two independent parasympathetic pathways.

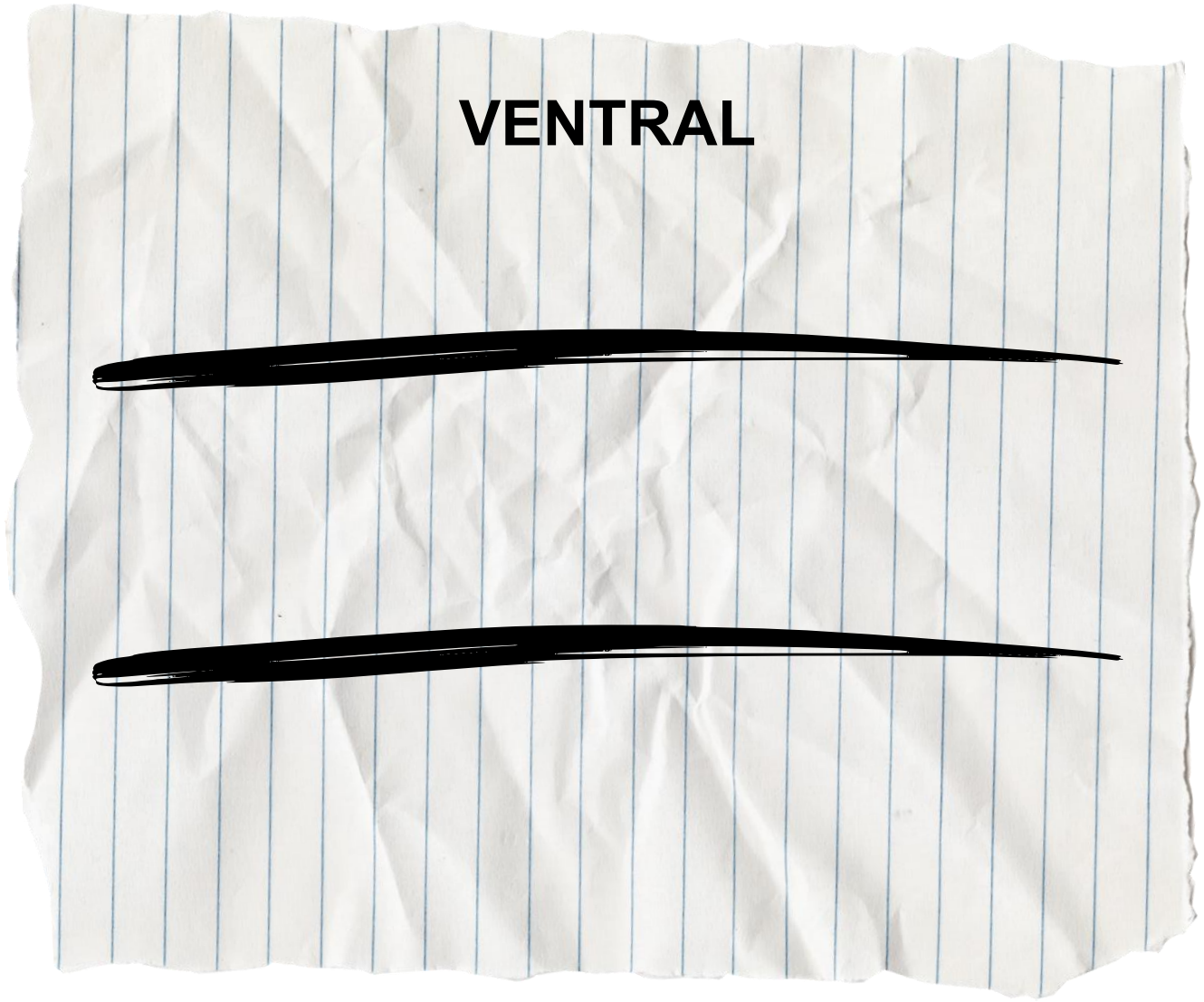
Exercise:

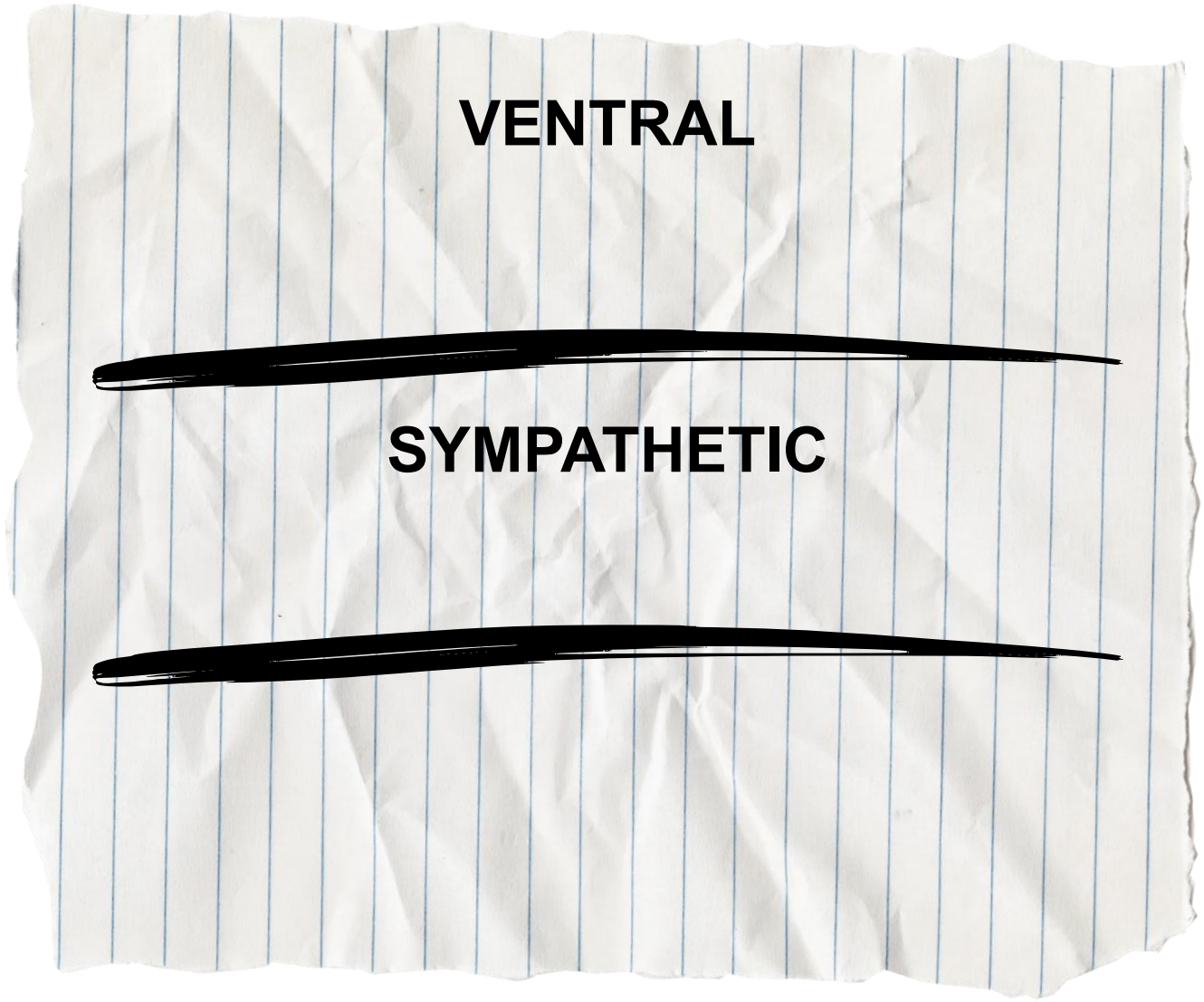
- Polyvagal Mapping

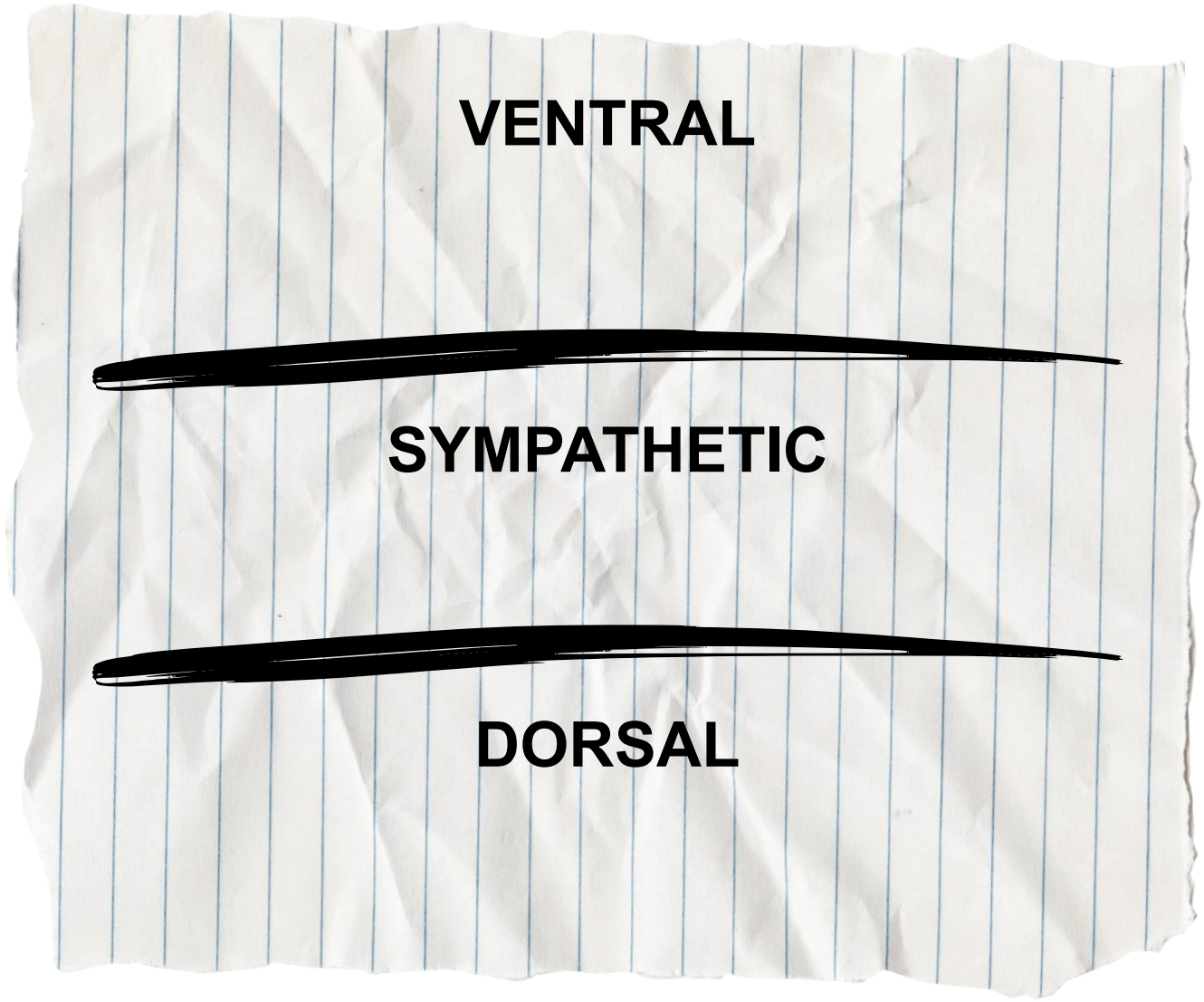
Grab a piece of blank paper and position it horizontally.

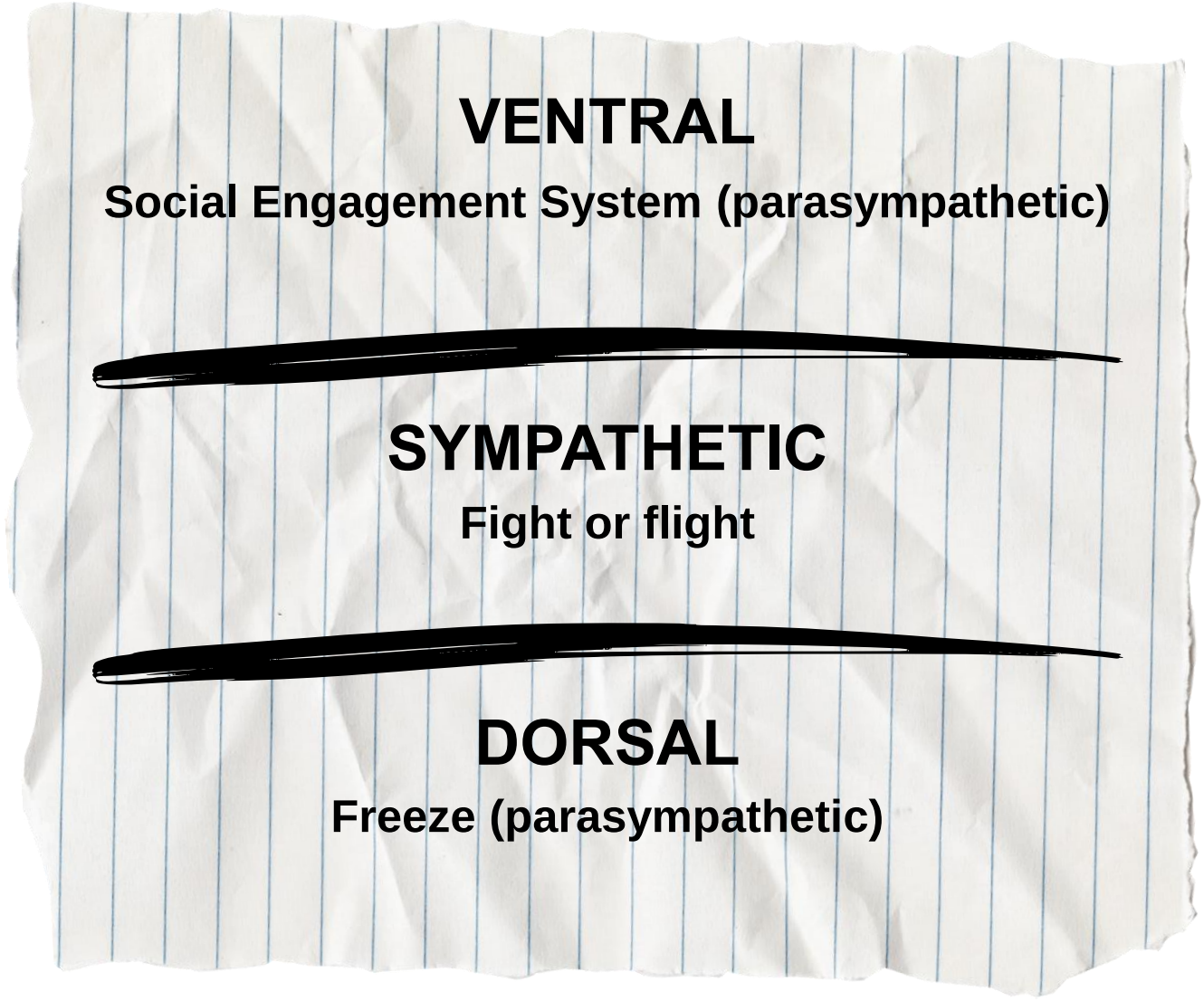
You’ll want to separate your sheet into three sections by drawing two horizontal lines.




VENTRAL


VENTRAL
SYMPATHETIC


VENTRAL
SYMPATHETIC
DORSAL


VENTRAL
Social Engagement System (parasympathetic)
SYMPATHETIC
Fight or flight
DORSAL
Freeze (parasympathetic)

Porges noted these three neural circuits are hierarchical in nature.

Ventral

- Ventral vagal complex
- Social engagement system
- Parasympathetic pathway
- “Healing state”

Porges (2011)

Ventral

Physiological state of safety

Porges (2011)

Ventral

Relaxed, connected, present, open, peaceful, calm, neutral, resilient, resourced, supported

Porges (2011)

Ventral

Slower heart rate, slower respiratory rate, less muscular tension (jaw/shoulders/neck), soft eyes

Porges (2011)

“I am ...”

“My life is ...”

Sympathetic

- Fight or flight
- Sympathetic pathway
- “Sympathetic-dominance"
- Defensive state

Porges (2011)

Sympathetic

Charged, rage, extreme fear, anxious, jittery, stressed, overwhelmed, out of control

Porges (2011)

Sympathetic

Increased heart rate, increased respiratory rate, mobilization, wide eyes, intense gaze, higher muscular tension, hypervigilance

Porges (2011)

“I am ...”

“My life is ...”

“When emotions are high, intelligence is low.”

Dorsal

- Freeze state
- Dorsal vagal complex
- Parasympathetic pathway
- Self-preservation
- “Emergency break"

Porges (2011)

Dorsal

Spacey, “out of body” or dissociated, “frozen” or immobile, depressed, disconnected

Porges (2011)

Dorsal

Slow or heavy movements, flat tone, minimal expressions, disconnected, hypoarousal

Porges (2011)

“I am ...”

“My life is ...”

- Ventral vagal inhibits excess sympathetic activation.
- Sympathetic mobilization becomes our first response to threat.
- Dorsal vagal or freeze state is the “last-ditch” survival effort through immobilization.

Porges (2011)

How Do We Autonomically Assess Safety?

Neuroception: A neural process to distinguish whether our environment is safe, dangerous, or life-threatening

Hanazawa (2022)

“Some individuals experience a mismatch and the nervous system appraises the environment as being dangerous even when it is safe.”

Hanazawa (2022)

Black and White Thinking

We want to communicate cues of safety.

We want to help bring them into ventral.

We can’t control how somebody responds or how they feel.

“A function of human beings is to pick up on each other’s rhythm, and help them restore their rhythm.”

–*Stephen Porges*

One autonomic nervous system recognizing another autonomic nervous system

The skill of co-regulation

Co-regulation: Mutual adaptation between partners in response to their biology and behavior

Bornstein & Esposito (2023)

- Bidirectionality
- Coaction
- Coherence
- Concordance
- Coordination
- Harmony
- Matching
- Mirroring
- Mutuality
- Reciprocity
- Responsiveness
- Synchrony

Co-regulation is critical to self-regulation.

Bornstein & Esposito (2023)

Through co-regulation, we see changes in autonomic function.

Bornstein & Esposito (2023)

Are you regulated? Does your body feel safe and present? What is your physiological state? What informs you of this?

Healthcare Consideration

By recognizing whether a patient is in a defensive state (fight, flight, or freeze) or a state of safety, providers can tailor their approach to promote a therapeutic environment. This might include slow breathing techniques, grounding exercises, and fostering a supportive environment to help down-regulate the nervous system, thereby reducing pain and enhancing healing.

Who are we being?

What are we bringing to the space?

Exercise:

- Somatic Check-In

In my body, I notice [sensation] and I'm experiencing [emotion].

Try not to assign meaning [pleasant/unpleasant/neutral].

Jess Mather

liverehabited

hello@chronicpainandtrauma.com

You have completed the course:

Understanding and Implementing Trauma-Informed Care for Clients in Pain

Thank you!