# Brooklyn Heights Behavioral Associates presents:

# *Trauma & The Nervous System*

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A workshop by licensed clinicians

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# Agenda

- Define trauma
- Understand typical trauma reactions
- Unique human experience to threat
- How trauma affects the brain & body
- Neurobiological responses & learning theory
- The Vagus Nerve & Polyvagal theory
- Treatment options for trauma
- Q & A

# Understanding Trauma: What is PTSD?

Posttraumatic Stress Disorder (PTSD) may develop after a person has experienced one or more traumatic events.

The Diagnostic and Statistical Manual of Mental Disorders (DSM 5th edition) defines traumatic events as an event involving actual or threatened death, serious injury, or sexual violence.

Exposure to these traumatic events may be:

- Direct (i.e., the person experienced it personally)
- Witnessed (i.e., the person saw it happen to someone else)
- Indirect (i.e., hearing of a relative or close friend who has experienced the event)
- Repeated or extreme indirect exposure (i.e., emergency personnel or first responders who repeatedly hear about other people experiencing these events)

Harned, 2015

# PTSD Criteria & Typical Trauma Reactions

| **Re-Experiencing Symptoms** *(need at least 1 out of 5)*<br>*The traumatic event is persistently re-experienced in the following ways.* | |
|---|---|
| **DSM-V Criteria** | **Examples** |
| 1. Recurrent, involuntary, and intrusive distressing recollections of the event, including images, thoughts, or perceptions. | Thoughts about the trauma often come into the person's head when they don't want them to. |
| 2. Traumatic nightmares. | Scary dreams about the traumatic event. |
| 3. Dissociative reactions (e.g., flashbacks) which may occur on a continuum from brief episodes to complete loss of consciousness. | Suddenly acting or feeling like the traumatic event is happening again in the present moment. |
| 4. Intense or prolonged distress after exposure to traumatic reminders. | Feeling very emotionally upset when something reminds you of the trauma. |
| 5. Marked physiological reactivity after exposure to trauma-related stimuli. | Having intense physical reactions (e.g., heart racing, dizziness, shaking) when something reminds you of the trauma. |

Harned, 2015

# PTSD Criteria & Typical Trauma Reactions

| **Avoidance Symptoms** *(need at least 1 out of 2)*<br>*Persistent effortful avoidance of distressing trauma-related stimuli after the event.* | |
|---|---|
| **DSM-V Criteria** | **Examples** |
| 6. Efforts to avoid trauma-related thoughts or feelings. | Trying not to think about the trauma or to have emotions related to it. |
| 7. Efforts to avoid trauma-related external reminders. | Trying to avoid being around things in the world that remind you of the trauma (e.g., people, places, activities, objects). |

Harned, 2015

# PTSD Criteria & Typical Trauma Reactions

| **Negative Alterations in Cognitions or Mood** *(need at least 2 out of 7)*<br>*Negative alterations in cognitions and mood that began or worsened after the traumatic event.* | |
|---|---|
| **DSM-V Criteria** | **Examples** |
| 8. Inability to recall key features of the traumatic event (usually dissociative amnesia, not due to head injury, alcohol, or drugs). | Not remembering important parts of what happened during the traumatic event. |
| 9. Persistent (and often distorted) negative beliefs and expectations about oneself or the world. | Strong negative beliefs about oneself (e.g., "I am bad") or the world (e.g., "The world is completely dangerous"). |
| 10. Persistent distorted blame of self or others for causing the traumatic event or for resulting consequences. | Believing it is one's own fault that the trauma happened, or blaming someone else who was not directly responsible. |
| 11. Persistent negative trauma-related emotions. | Intense and long-lasting feelings such as fear, anger, guilt, and shame. |
| 12. Markedly diminished interest in (pre-traumatic) significant activities. | No longer being interested in activities one used to enjoy before the trauma. |
| 13. Feeling alienated from others (e.g., detachment or estrangement). | Feeling distant or cut off from other people. |
| 14. Constricted affect: persistent inability to experience positive emotions. | Difficulty experiencing positive emotions such as happiness, love, and excitement. |

Harned, 2015

# PTSD Criteria & Typical Trauma Reactions

| **Increased Arousal Symptoms** *(need at least 2 out of 6).* *Trauma-related alterations in arousal and reactivity that began or worsened after the traumatic event.* | |
|---|---|
| **DSM-V Criteria** | **Examples** |
| 15. Irritable or aggressive behavior | Frequent irritability or physical violence towards others. |
| 16. Self-destructive or reckless behavior | Excessive use of drugs or alcohol, self-harm or suicidal behavior, or putting oneself in dangerous situations. |
| 17. Hypervigilance | Being very alert or on guard (e.g., constantly looking for signs of danger). |
| 18. Exaggerated startle response | Being really jumpy (e.g., when there is a loud noise or someone touches you unexpectedly). |
| 19. Problems in concentration | Difficulty focusing on tasks such as reading, work, or watching TV. |
| 20. Sleep disturbance | Difficulty falling or staying asleep. |

Harned, 2015

# Considerations: What happens to the brain as trauma occurs

The human & mammalian body's response to traumatic situations has been lost under generalizing trauma as a stress-related disorder.

Porges, N.D.

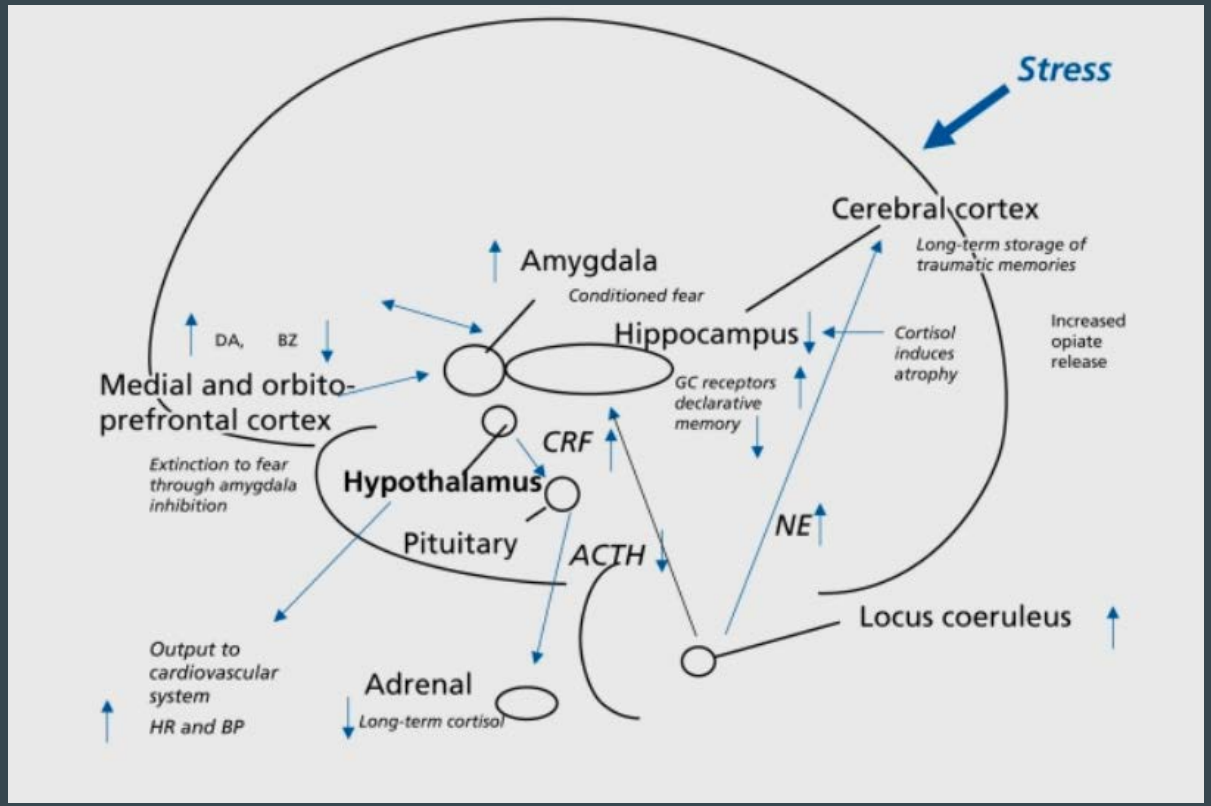
# Trauma & the Nervous System

## The Nervous System's Defense System:

1. Fight vs. Flight
2. Immobilization

Porges, N.D.

# Neurobiology of Trauma: Lasting effects on the brain



# The Vagus Nerve: Basic Anatomy and Functions

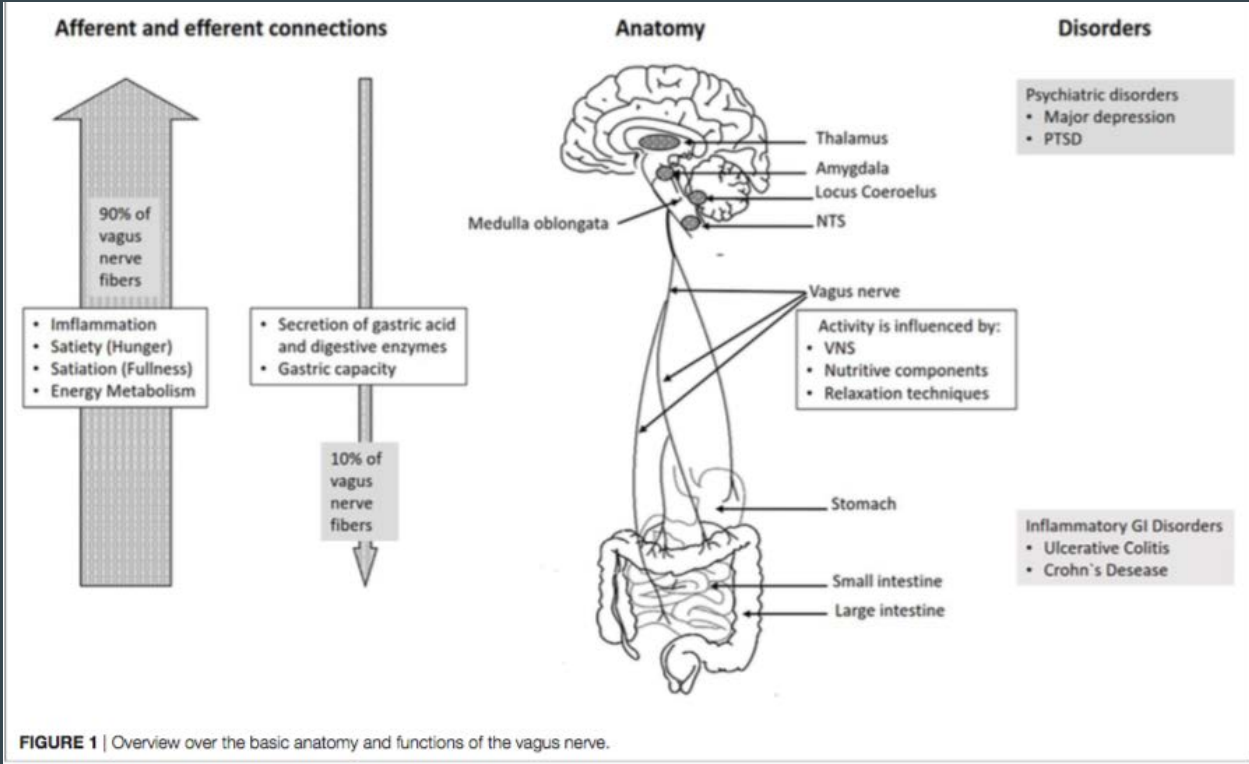



**FIGURE 1** | Overview over the basic anatomy and functions of the vagus nerve.

# The Vagus Nerve Explained

- "Modulator of the brain"
- 10th cranial nerve that exits the brainstem and flows through much of the body
- Sensory nerve
- 80% of fibers sending information about the viscera to the brain
- 20% of fibers motor
    - The brain regulation of these pathways can change human physiologically quickly (ex. heart rate increases/decreases)
    - "Brakes on the heart's pacemaker" at tonic state

Porges, Breit & *et al*., 2018; Porges, N.D.

# The Vagus Nerve: Continued

- Protective AND lethal: part of a paired antagonistic system (the autonomic nervous system)
- Two vagal pathways coming from different areas of the brainstem that evolved sequentially

Porges, N.D.

# PTSD, the Vagal System, and Trauma Interventions

- Posttraumatic Stress Disorder (PTSD) symptom severity is associated with structural abnormalities in the anterior hippocampus & centromedial amygdala
- Vagus nerve stimulation has shown promise as a therapeutic option for treatment-resistant anxiety disorders, including PTSD
- Clinical studies have demonstrated the effectiveness of yoga as a therapeutic intervention for PTSD and dissociation through a down- regulation of the stress response
- Relaxation techniques may also be effective in mediating a continued stress response

Porges, N.D.

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