

wholehouse

Trauma and the Brain

Trauma leaves an imprint on the brain and body long after the traumatic experience or event has past or concluded. We know now that PTSD driven behaviors are not the result of moral failings or signs of lack of willpower or bad character—they are caused by actual changes to the brain.

In regards to trauma, the brain can be simply divided into three major sections.

The **brain stem** controls our basic human functions like breathing, heart rate, blood pressure, and more.

The **limbic system**, the more emotionally-guided part of our brain, is involved in our fight/flight and action/reaction behaviors.

The **Cortex** controls our logic, reasoning and rationale as well as our creativity, imagination and belief system.

Under normal circumstances, our brain takes in information, processes it through the emotions of the limbic system, and sends it to the cortex for analysis, logic, and a reasonable response. However, the process changes during a traumatic event and produces immediate results without the time-consuming process of reflection that may impede survival.

The **left brain** is deactivated resulting in the parts of the brain that govern linguistic, sequential, and analytical aspects underactive.

The **right brain** is active and imbalanced (without the left brain) resulting in a hyperactive area of the brain governing intuitive, emotional, visual, spatial, and tactical tasks. It serves the purpose of protecting us during a time of danger, however, if we lived in repeated or prolonged experiences of threat, we can reinforce this thought pattern, and the more we use it, the more the brain will default to this pattern even when we are no longer in danger.

AMYGDALA:

- Threat detector
- Its altered activity/increased sensitivity/increased reactivity after trauma impairs our ability to perceive accurately.
- The stronger the threat, the higher the activation of the amygdala.

HIPPOCAMPUS:

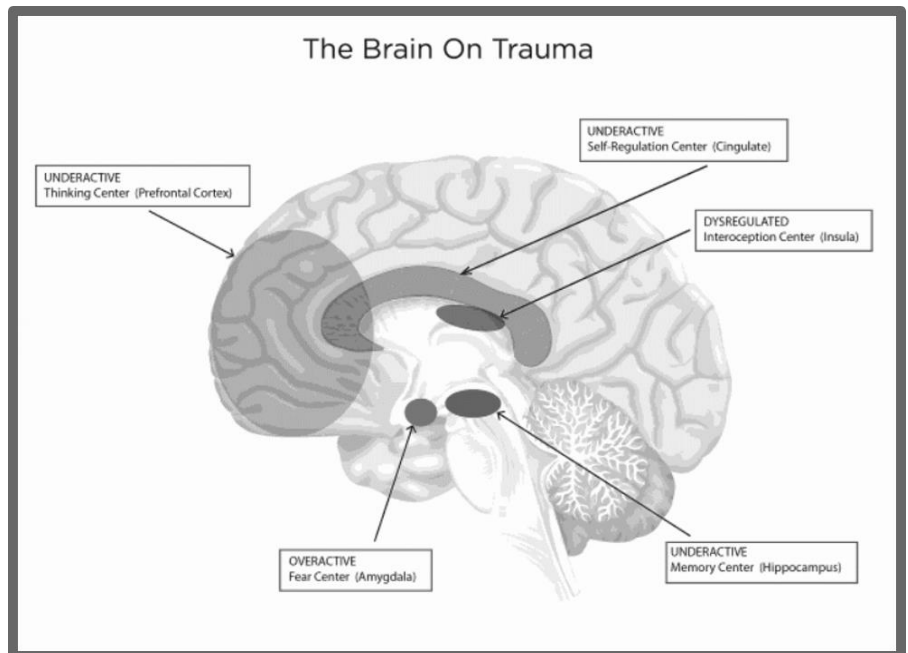
- Directed to store emotionally loaded experience into long term memory for the purpose of avoiding such threats in the future.
- Decreased ability to distinguish between past and present

INSULA:

- Involves awareness of where the body is located in space and ability to feel internal experiences/ sensations.
- Difficulty identifying and managing emotions and distressing physical sensations.

CINGULATE CORTEX:

- Decreased regulation of emotions, conflict, error detection and self-regulation.
- Difficulties with emotion and thought regulation and decision making.



PREFRONTAL CORTEX:

- Goes "offline" during stress.
- Decreased cognitive functioning.
- Decreased ability to regulate negative emotions when confronted with triggers.
- The inactivity of the neocortex inhibits the ability to speak or formulate language to articulate the experience or one's emotions about the traumatic experience. (Broca's Area)