AUDRA WALLACE COUNSELING · RESOURCE

Understanding How Trauma Affects the Brain

Trauma is a deeply impactful experience that can alter the brain's functioning, both during and long after a traumatic event. The changes that occur are a result of the brain's survival mechanisms kicking into overdrive. Understanding these neurological shifts helps explain many of the common symptoms and behaviors associated with trauma and post-traumatic stress disorder (PTSD).

The Brain's "Survival Mode"

When faced with a perceived threat, the brain's "fear circuitry" takes over, prioritizing survival above all else. This process involves three key brain regions:

The Amygdala: This almond-shaped structure is the brain's emotional and threat detection center. During a traumatic event, the amygdala becomes hyperactive, constantly scanning for danger and triggering the body's fear response. Even after the threat has passed, the amygdala can remain on high alert, causing a person to feel constantly on edge, jumpy, or easily startled. This can lead to a heightened fear response to even small, non-threatening stimuli.

The Prefrontal Cortex: This is the "thinking" and "rational" part of the brain, responsible for decision-making, emotional regulation, and impulse control. During trauma, the prefrontal cortex becomes suppressed. This is a survival mechanism that allows the brain to bypass complex thought and react instantly. However, this suppression can persist after the trauma, making it difficult for survivors to think clearly, manage their emotions, or control impulsive behaviors.

The Hippocampus: The hippocampus is crucial for memory formation and for distinguishing between past and present events. In a traumatic event, the high levels of stress hormones, like cortisol, can damage cells in the hippocampus, leading to a disruption in how memories are encoded. This is why memories of trauma can be fragmented, disorganized, and feel like they are happening in the present, rather than being stored as a past event. This dysfunction can lead to flashbacks, intrusive memories, and difficulty recalling a clear, chronological narrative of what happened.

The Fight, Flight, or Freeze Response

The brain's survival mode is often characterized by the "fight, flight, or freeze" response. These are involuntary, hard-wired reactions to extreme fear.

Fight or Flight: These are well-known responses where the body prepares to either confront the threat or flee from it. The sympathetic nervous system ramps up, releasing stress hormones like adrenaline and cortisol, which increase heart rate, blood pressure, and muscle tension.

Freeze: This is often the most common response to a traumatic event. Like a deer in headlights, a person may become physically unable to move, speak, or react. This is not a choice, but a primal survival reflex where the

body goes limp or "plays dead." This can also involve dissociation, a state of feeling disconnected from one's body or surroundings, as a way to mentally escape the traumatic experience.