# Trauma and the Brain

There are many different ways that trauma impacts the brain and body.

This causes complex and varied reactions.

There is no "right way" to respond to sexual assault.



## Fight, Flight, or Freeze

During a traumatic event, the brain is flooded with 4 different types of hormones: catecholamines (adrenaline), cortisol, opiates, and oxytocin. This <u>hormone flood</u> is designed for the body to protect itself against the assault, but it often also impairs rational thought, causes flat affect, and reduces energy. This can cause a <u>fight</u> or <u>flight</u> response, or high levels of cortisol can cause the body to temporarily shut down completely and uncontrollably in a <u>freeze</u> response. Researchers are studying a phenomenon called <u>tonic immobility</u>, which is defined as a temporary state of motor inhibition stimulated by extreme fear.



#### **Reactions to Trauma**

Following a sexual assault, a survivor can experience many after-effects as a result of the assault. In a traumatized brain, the prefrontal cortex and the anterior cingulate cortex are under-activated while the amygdala is over-activated. Hormonal levels can stay very elevated for <u>96 hours</u> after an assault. The impact of this varies from person to person and may persist for days, months, or even years after the traumatic incident has happened.



Some survivors experience all of these reactions and some experience none. It is best to seek help from an advocate or therapist to process through these reactions.

### Memory of Trauma

The amygdala and hippocampus are extremely sensitive to hormones, so the hormone flood at the time of a traumatic event can impair memory encoding and consolidation. This makes recall a <u>slow and difficult process</u> where memories are fragmented and may not seem to make sense.

#### However, with patience, space, and support, accurate memory recall is possible!

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