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.

During a sexual assault, the hypothalamus tells the pituitary gland that the body is in danger. This triggers a flood of hormones and a fight, flight, or freeze response.

Both the amygdala and hippocampus are very sensitive to hormones, so the hormone flood during a sexual assault can cause fragmented and disorganized memories of the 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 **hormone flood** 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 **fight** or **flight** response, or high levels of cortisol can cause the body to temporarily shut down completely and uncontrollably in a **freeze** response. Researchers are studying a phenomenon called **tonic immobility**, which is defined as a temporary state of motor inhibition stimulated by extreme fear.

### Fight: confronting the threatening situation
- Physically fighting off a perpetrator or abuser

### Flight: escaping the threatening situation
- Running away and seeking safety

### Freeze: being unable to move or make noise in response to danger
- Includes tremors, hyperventilating, coldness, and a decreased heart rate

**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 **96 hours** 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.

<table>
<thead>
<tr>
<th>Emotional reactions</th>
<th>Physical reactions</th>
<th>Cognitive reactions</th>
<th>Behavioral reactions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anger, fear, sadness, shame, feeling out of control, numbness</td>
<td>Somatization, sleep disturbance, gastrointestinal distress</td>
<td>Lack of trust, guilt, intrusive thoughts, triggers &amp; flashbacks, dissociation</td>
<td>Avoidance, compulsive and impulsive behaviors, self-harm</td>
</tr>
</tbody>
</table>

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 **slow and difficult process** where memories are fragmented and may not seem to make sense.

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


Center for Substance Abuse Treatment. (2014). Understanding the impact of trauma.
