How Trauma Affects Your Brain

YOUR BRAIN IS ALWAYS LOOKING OUT FOR YOU.

During a potentially traumatic event, your brain responds in ways designed to protect you — long before you even think about it.

DID YOU KNOW?

Your brain can detect danger through the eyes and ears and react in milliseconds— before you are even consciously aware.

1 FIGHT OR FLIGHT RESPONSE

When the predator moves closer...

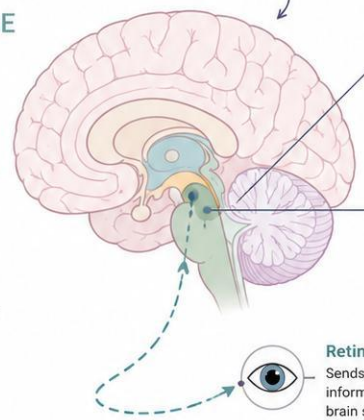
Brain stem
The periaqueductal gray (PAG) initiates a fight or flight response.

Activates the sympatbetic nervous system.
Heart rate goes up. Blood flow to muscles increases. Blood pressure increases. Pupils dilate.

Fast and automatic.
The brain stem is critical in fast, defensive responses. It's directly connected with the retina.

Information travels fast.
The retina sends visual information to the brain stem immediately—before higher levels of the brain are even aware of the threat.

Brain's Early Threat Detection Pathway



Brain stem
Controls automatic survival responses like fight, flight, freeze, and shutdown.

Periaqueductal gray (PAG)
A small area in the brain stem that activates survival responses.

Retina
Sends visual information to the brain stem first.

2 FREEZE OR SHUTDOWN RESPONSE

When it's not safe or possible to fight or escape...

The periaqueductal gray (PAG) activates the parasympathetic nervous system as well.

Muscles get tight and freeze. Both gaze and breath may freeze.

This is not a cognitive choice. These "decisions" are made at the level of the brain stem and the nervous system.

If the predator doesn't move away, the person may shutdown completely. During inescapable trauma, this is a very adaptive way for the brain and body to respond.



WHAT HAPPENS IN THE BODY?

- Heart rate drops.
- Respiratory rate drops. Some people stop breathing.
- Muscles become limp.
- Metabolism shuts down.
- Endorphins are released.
- The person enters a state of "no pain". They are no longer aware of their surroundings.

GENTLE REMINDER

These responses are not weaknesses. They are your brain and body doing their best to keep you safe.

You are not alone.

TIPS TO SUPPORT YOUR NERVOUS SYSTEM

- **Breathe slowly** and deeply.
- **Ground** your body.
- **Be kind** to yourself.
- **Reach out to** safe people.
- **Seek support** when you need it.

Healing is possible. *One small step at a time.*