

How trauma affects the brain and body

Information for patients

We are animals, and like all animals, our brains have a system that warns us about danger. Just as a smoke alarm constantly checks the air for signs of smoke, a part of the brain called the amygdala constantly checks all incoming information for signs of danger.



This part of the brain is found in many animals and is built to spot life-threatening dangers - like meeting a lion. Imagine a zebra eating grass and suddenly seeing a lion. Its brain alarm goes off, triggering changes in the zebra's body to help it escape. If running doesn't work, it will fight to survive. And that fails, it will freeze and play dead. These reactions are called **flight** (run), **fight** (attack) or **freeze** (shutdown).

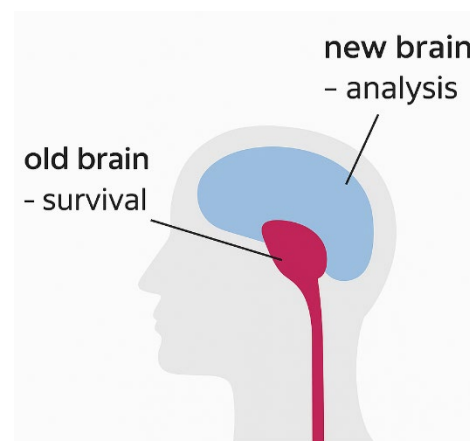
Humans have the flight-fight-freeze response too - but here's the difference: we don't need real danger for the alarm to go off. Just imagining or remembering something scary can trigger the same stress response. So even when we're safe, our body can still react as if we're in danger.

Memories and trauma

Trauma can change how our brains store memories. Normally, the brain works like a filing cabinet: when something happens, it adds a date and a time and puts the memory in the right drawer. This helps us find memories later.

But when the brain's alarm system goes off, filing gets interrupted. The brain focuses on survival, not organising memories. It's like a smoke alarm going off while you're filing papers - you drop everything and run. So, during trauma, memories can get stuffed into the cabinet without proper labels.

Later, when you open a drawer for a different memory, the traumatic memory might pop out. Because it doesn't have a date stamp, it can feel like it's happening again. The brain tries to tidy up during dream sleep, but this can trigger those memories, setting off the alarm again. This is what causes flashbacks or nightmares.



Trauma and the brain

When trauma happens in our relationships, it's often not one single event, but repeated experiences. Our brains are 'plastic', meaning they change based on what happens to us. If the alarm gets triggered over and over, it learns to be stronger, louder and more sensitive. This is the brain trying to protect us and keep us alive.

But when we're no longer in danger, an extra-sensitive alarm keeps us feeling on edge. It can affect everyday life, our relationships, and even how we see ourselves and others.

Here's the good news: because the brain can change, it can also heal.