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The Body's Ingenious Response to Threat

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Editorial

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Editorial

In my clinical practice, trauma is ubiquitous, multifaceted- it presents itself in many different ways. Overwhelmingly, it presents itself as a bodily response. From a thumping heart to a dropping gut; sweaty hands to restless feet; dry mouth to clenched jaw, trauma's effects are so idiosyncratic that I pause to generalise them.

The human brain operates through an infinite complexity of imperatives that respond to the environment in the case of a threat. Within a thousandth of a second (quicker than a housefly's wing flap), a series of neurons fire in response to a potential threat. This forced action initiates a domino effect that uses the time-honoured wisdom of the thalamus (a bunch of brain cells clumped together atop the brainstem to form the cranially-centred neural region responsible for sifting and sending sensory data to where it's needed most) [1,2].

The thalamus alerts the amygdalae-two neural clusters located within the limbic system responsible for emotional activation, fear, memory, and attention to awaken the hypothalamus [3], which is located just underneath the thalamus and responsible for automatic somatic processing, including the preparation and response to danger [4]. Like a chain reaction, the hypothalamus signals the pituitary gland. This pea-sized extension hanging just underneath the hypothalamus is responsible for releasing selected stress hormones to tackle a perceived threat and to kick off the fight-flight-freeze instinct by communicating with relevant endocrine glands throughout the body to release the required hormones [5].

The mind-bender is that all this happens between three to four hundred times quicker than a person's conscious awareness of any such threat even being there [6,7]. *Your body reacts even before you're aware there's a threat!*

In the case of a traumatic experience (and, indeed, stress in general), the adrenal glands, which are located just atop the kidneys, are triggered by the pituitary gland to secrete cortisol and adrenaline to prepare the body for action. This process, in turn, blocks the hippocampi-clumps of neurons located within the limbic system, cortically close to the amygdalae, and responsible for the formation, storage, and retrieval of new memories [8] from integrating the experience into a cohesive memorial whole [9].

What does this mean?

Well, basically, you can't remember what to do, often the details of what happened, and for some people, who you are when you're under a heap of stress. When escape is not an option, these neural and hormonal responses perpetuate the problem, pushing the person into hyper- vigilance and threat-anticipation long after the stressor has passed [10]. The brain, in turn, becomes primed to anticipate threat around the corner. Therein, enters the therapist.

The therapist's primary role is to guide a person into balancing their stress response with the here-and-now, reminding them that they're safe enough to move forward, that the monster has gone, and the path is still ahead. Safety settles the brain and prepares a person for growth-and safety is one of the best first-line, body-based prerequisites to combat the human's ingenious response to threat!

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