

## Facts about Your Brain on Trauma

\*We have three “brains.” The neocortex is the rational part of the brain and is also the newest. The reptilian brain is the oldest and bottom part of the brain. The limbic system is the center of the brain and it is the part of our brain where our deepest emotions are held. Our responses to abuse and trauma are driven by the limbic and reptilian parts of the brain, not the neocortex (Van der Kolk, 2015).

\*It is the limbic system that takes in the trauma immediately and set off the brain’s alarm system. Our amygdala, which processes our emotions, tends to become hyperactive when we are traumatized, while our medial prefrontal cortex and hippocampus, which deal with learning, memory and decision-making tend to be dampened in the face of trauma (Nutt and Malizia, 2004; Shin, Rauch and Pitman, 2006).

\*Trauma tends to stay “frozen” in our brain. According to Theresa Burke, PhD (2008), traumatic memories tend to stay stuck in the brain’s nonverbal, subcortical regions like the amygdala, thalamus, hippocampus, hypothalamus and the brain stem, which are not accessible to the frontal lobes. In fact, trauma “shuts down” executive functioning associated with the frontal lobes of the brain. These frontal lobes that are negatively affected due to trauma are the reasoning, logical aspects of our brain which help us to pay attention, manage time, switch focus plan and organize, remember details, and perform tasks based on experience.

So this means that survivors of any form of trauma often face interruptions in their ability to focus and perform tasks in the way they are accustomed to. Someone who has been traumatized may suffer lapses in memory as well as judgment in planning and organizing because much of the trauma may still be “frozen” in the parts of the brain that process memory and emotion.

\*So for those who think abuse survivors can simply “logically” process their situation and get out of and over the situation easily, think again. The part of the brain that deals with planning, cognition, learning and decision-making becomes disconnected with the emotional parts of our brain – they can cease to talk to each other when an individual becomes traumatized. It usually takes a great deal of effort, resources, strength validation, addressing wounding on all levels of body and mind, for a survivor to become fully empowered to begin to heal from this form of trauma.

\*When trauma survivors encounter stimuli that remind them of their trauma, regardless of how many years have passed, the amygdala (part of the limbic system) reacts as if they are re-experiencing the same event (Walker, 2013). Stress hormones are released and the body goes into “fight or flight” mode. The danger of the trauma can be reactivated even by a seemingly innocuous event – resulting in overwhelming physical sensations as well as impulsive and aggressive actions in response to the distress the individual re-experiences.

\*These traumatic flashbacks can turn off Broca's area of the brain, the center for speech, which renders us unable to express the trauma in words (Van der Kolk, 2015). It also diminishes frontal cortex ability, making it difficult for trauma victims to distinguish a false threat from a real threat.

\*When recalling a traumatic memory, the left frontal cortex shuts down and the areas of the right hemisphere, especially the areas of the amygdala, light up. Since the left hemisphere is associated with thinking and rational planning, and the right side of the brain collects sensory information, such as visual memories and the emotions associated with them, cutting off the "left" side while activating the right can disconnect the two (Burke, 2008). This results in an incoherent narrative that the victim still attempts to make sense of.

\*The logical, thinking brain is no longer in conversation or in dialogue with the tangible memories of the trauma, so it's no wonder that both our bodies and our brains are freaking out over emotional and visual flashbacks and we're not able to integrate these two parts of ourselves when it comes to trauma.

What helps? Healing modalities such as art therapy, brainspotting (BSP), somatic experiencing (SE), eye movement desensitization and reprocessing (EMDR), because it enables them to express and channel the trauma nonverbally. Meditation and mindfulness is also helpful because it allows them to become mindful of their physiological reactions, slow down, take a breath and assess whether or not the threat they are currently facing is a real or a false one. To the brain, it may be a real one because we do "regress" back into the state of the original trauma, but mindfulness enables us to react proactively rather than impulsively.

## References

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