



Can't quite explain how you're feeling? Trauma affects an area of the brain that impacts speech.

NEW TOOLS FOR TRAUMA

Thanks to its impact on various parts of the brain, meditation and mindfulness are giving therapists a new way to work with patients who have PTSD, depression and more. BY JANET LEE

Jennifer Gay started having flashbacks and suicidal thoughts in her mid-20s. She had grown up with an abusive, alcoholic parent; as an adult, the lingering effects of those years made it hard to concentrate in school and she had trouble keeping jobs. She was using drugs and alcohol and was sexually assaulted on more than one occasion. When she was 27, she finally reached out for help and tried a group therapy class. “We practiced grounding techniques where we’d pass objects around the room to help us get into the present moment and out of our heads,” says Gay, now 35, who lives in Edmond, Oklahoma, and teaches jujitsu. “I still use that technique today where I look at a fan, couch or floor without judging or labeling them, not even with a color. I just look at things the way they are. I also then started to look at people without judgment, including myself.”

What exactly happens in the brain when you experience trauma? What makes the lingering effects associated with it different? “Because our brain is neuroplastic [it can grow and change], new experiences can impact our neural circuitry,” explains Jennifer Wolkin, PhD, a neuropsychologist in private practice in New York City. Something as

basic as taking a new route to work or using your nondominant hand can affect changes in the brain. “But traumatic experiences change the brain too,” she says.

There are three main parts of the brain that are impacted by trauma, and these coincide remarkably with areas that are impacted by meditation and mindfulness.

Amygdala Part of the limbic system, the amygdala is known as the emotional center of the brain. “It helps us determine if a threat is approaching or gone,” says Wolkin. “But once one experiences trauma, the amygdala remains hyperalert to even nonthreatening stimuli. It goes off like a siren and starts to look for perceived threats everywhere. As a result, it can’t calm down.”

Hippocampus This part of the brain works hand in hand with the amygdala in creating memories. “The hippocampus connects different aspects of memory and helps us locate memory as an event in time. It gives us context,” says Wolkin. “Brain scans have found that when the amygdala is hyperaroused, the hippocampus is almost the opposite. It doesn’t work as well. In PTSD, memories are fragmented. The hippocampus has trouble putting them together coherently and integrating memory

mind & body

THE AMYGDALA AND HIPPOCAMPUS FORM THE LIMBIC SYSTEM ALONG WITH OTHER STRUCTURES. THE LIMBIC SYSTEM INTEGRATES EMOTIONS WITH HIGHER LEARNING, AND IT'S WHY STRESS AND EMOTIONS OFTEN HAVE A PHYSICAL IMPACT ON OUR BODIES.

ON THE BEAT

Researchers are learning that the heart may provide more insight into our mental state than we ever realized. Heart rate variability (HRV), a measure of the interval between heartbeats, is increasingly being linked with PTSD and other mental and emotional disorders, as well as your overall health. Ideally, you want to have what's called "coherence," where your heart rate varies with your breath in a regular pattern; it's a sign that your parasympathetic nervous system is working to adjust the heart rate and that your overall nervous system is somewhat balanced. When the sympathetic nervous system dominates, your heart rate speeds up and the variability between beats drops.

"Studies are showing that HRV has a direct effect on the ability to regulate emotions and focus and more," explains Virginia Beach therapist Jenae Spencer. "I teach my patients who might be experiencing anger, depression or anxiety, which lowers HRV, that they can use the breath as well as emotions like gratitude and joy to help regulate HRV." For more information, go to heartmath.com/science.

into factual knowledge. Triggering memories or flashbacks activate the amygdala."

Prefrontal Cortex This part of the brain is a newer addition, anthropologically speaking. Its job is to put the brakes on and regulate the limbic system responses, so you don't get carried away. It's the rational part of the brain. "In people with PTSD, the prefrontal cortex is less active, so it's hard to override the emotional signals coming from the amygdala," says Wolkin.

Here's the exciting part: "Studies have shown through MRI and fMRI scans that all those things that happen in the brain with trauma, mindfulness seems to reverse those patterns," says Wolkin, who uses these techniques in her therapy practice. "The prefrontal cortex and hippocampus activity is increased and the amygdala is toned down."

BRINGING THE BODY BACK ONLINE

Trauma affects the brain and body in other ways as well, says Jenae Spencer, LPC, RYT, a therapist in private practice in Virginia Beach, Virginia. "What we've found through research is that trauma affects the parts of the brain

that are responsible for interoception," she explains. "That's our ability to feel sensations within the body, like the heartbeat and heat or cold; it's the ability to feel our physical selves. That may not sound that important, but our sense of who we are is anchored in our physical self." When people are traumatized, they feel disconnected from their bodies and don't have a reliable center from which to experience the world.

A 2018 review of 15 studies in the *Journal of Alternative and Complementary Medicine* found that veterans who did mind-body therapies—gentle or seated yoga, breathing exercises, meditation or other mindfulness strategies—reported significant improvements in their PTSD symptoms. Spencer uses trauma sensitive yoga to help people reconnect to their bodies. It involves some therapy, but also brings back some mindfulness and awareness of the body, creating new memories around how that awareness feels to help reconnect those interoceptive pathways. "It's not really what you'd think of as yoga. It's not really stretching-focused. We're much more focused on body awareness or mindfulness," explains Spencer. If clients come in stressed-out, she'll take a few minutes to have them do some neck rolls or notice where their feet are planted on the floor. "Taking some time for body awareness even before we start helps them verbally engage better," she says. People who have experienced trauma may have reduced activity in Broca's area, a region of the brain responsible for speech, so they have less ability to verbalize what they're experiencing. Being able to reconnect with their body helps them talk about it again.

BE HERE NOW

Psychologist and meditation teacher Tara Brach talks about "seeking refuge in the present moment," which is a liberating concept. Even people who are struggling with depression and anxiety can find relief in mindfulness because it teaches the brain to anchor in the present moment, not in the past, where you wish things had been different, or in the future, where you're worried things might happen. "We're either regretting or anticipating if we're not in the present," says Wolkin. "The present moment is grounding." The nonjudging aspect of

meditation and mindfulness can also be beneficial, since you learn to notice thoughts (often about yourself) without judging them. "Mindfulness can help give people more perceived control over their thoughts and increase their sense of self-esteem," she says.

Spencer frequently uses mindfulness techniques with people who have anxiety and anger management issues. "It teaches them that they don't have to run with every thought that comes up," she explains. "Because it teaches them to observe, by strengthening that prefrontal cortex part of the brain, it gives them some control and creates some space between what comes up and what they do with that information."

Gay says she's experienced great progress since her first introduction to mindfulness. While therapy helped her understand what happened to her, it didn't help with symptoms, such as flashbacks. Mindfulness did help, though. "It doesn't make them completely go away, but it numbs them," she says. "I don't suffer from depression as much anymore, either." In addition to EMDR

(eye movement desensitization and reprocessing) therapy, she uses guided meditations, mindfulness techniques and journaling to help with anxiety.

WHEN MINDFULNESS HURTS

Although mindfulness certainly has its benefits, it's not a one-size-fits-all approach. People who are experiencing severe PTSD or anxiety may want to work with a professional before they practice mindfulness techniques or meditation on their own.

"That way, we can personalize the exercise for them, especially if that person is prone to disassociation or flashbacks," says Wolkin. Likewise, meditations such as the body scan, where you gradually bring your awareness to different parts of your body, might be too much for a victim of physical or sexual abuse to handle at first. If you're not sure these techniques are for you, check with your therapist if you have one, and if you're trying out a meditation class, let the instructor know your situation. She may suggest a different class or approach that won't be triggering.



Being in the present moment—without thoughts of the past or future—can be incredibly liberating.