

Study Finds the Human Brain Processes PTSD and Memories Differently

A study found that people who have PTSD recall an event in a different way than a positive or negative memory

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Veterans with PTSD who recall the trauma that caused it often process those memories as present experiences, according to a study published last November. The study found that the human brain processes PTSD differently than other memories.

The scientific journal Nature Neuroscience published a study titled Neural patterns differentiate traumatic from sad autobiographical memories in PTSD. According to the study, researchers found that patients processed past traumatic events differently than other memories.

To research, scientists from the VA Connecticut Healthcare System, Icahn School of Medicine at Mount Sinai, Israel’s Ben-Gurion University of the Negev and the Yale University School of Medicine observed brain activities of 28 people — 11 women and 17 men — with an average age of 38. PTSD patients shared three types of memories:

- “Traumatic,” such as combat or sexual assaults
- “Sad,” such as losing a friend
- “Calm,” such as an outdoor activity

Researchers turned each patient’s recollection into an audio script narrated by another person. Patients received an MRI while presented with a summary of their own experiences. Scientists observed that the PTSD patients experienced “traumatic” memories in a different part of the brain than “sad” and “calm” memories.

The memories of “sad” and “calm” events, according to the study, triggered the brain’s

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hippocampus, which is known to play a role in long-term memory. However, researchers found that during the re-experiencing of traumatic events, the posterior cingulate cortex (PCC) was stimulated in the patients' brains.

“The [PCC] has been demonstrated to be heavily involved in both narrative comprehension and autobiographical processing and, particularly, in emotional memory imagery,” a press release from Mount Sinai stated. “Alterations in PCC function and connectivity are specifically focal to PTSD.”

Mount Sinai Professor of Psychiatry and Neuroscience Daniela Schiller said that for people with PTSD, “recalling traumatic memories often displays as intrusions that differ profoundly from processing of ‘regular’ negative memories.”

But, until now, the reasons for the differences have been “poorly” understood, she said.

“The brain does not treat traumatic memories as regular memories, or perhaps even as memories at all,” Schiller said. “We observed that brain regions known to be involved in memory are not activated when recalling a traumatic experience. This finding provides a neural target and focuses the goals of returning traumatic memories into a brain state akin to regular memory processing.”

According to Mount Sinai, these findings could pave the way for treatment of PTSD patients, saying that treatment aimed at “returning” traumatic memories into a typical hippocampal representation may be beneficial to patients.

This article is featured in the 2024 April issue of [VFW magazine](#), and was written by [Dave Spiva](#), associate editor for VFW magazine.