

Why does stress let your brain learn but prevent you from thinking logically?

May 29 2026, by Sanjukta Mondal



Credit: Image generated by the editorial team using AI for illustrative purposes.

The human brain is an incredible processor that can take existing knowledge, such as old memories and experiences, and weave it with newly acquired information to help us draw conclusions and make

decisions crucial to navigating our everyday lives. If eating something made you sick once, the next time you come across the same food, your brain sends off warning signals asking you to avoid it, just in case history repeats itself.

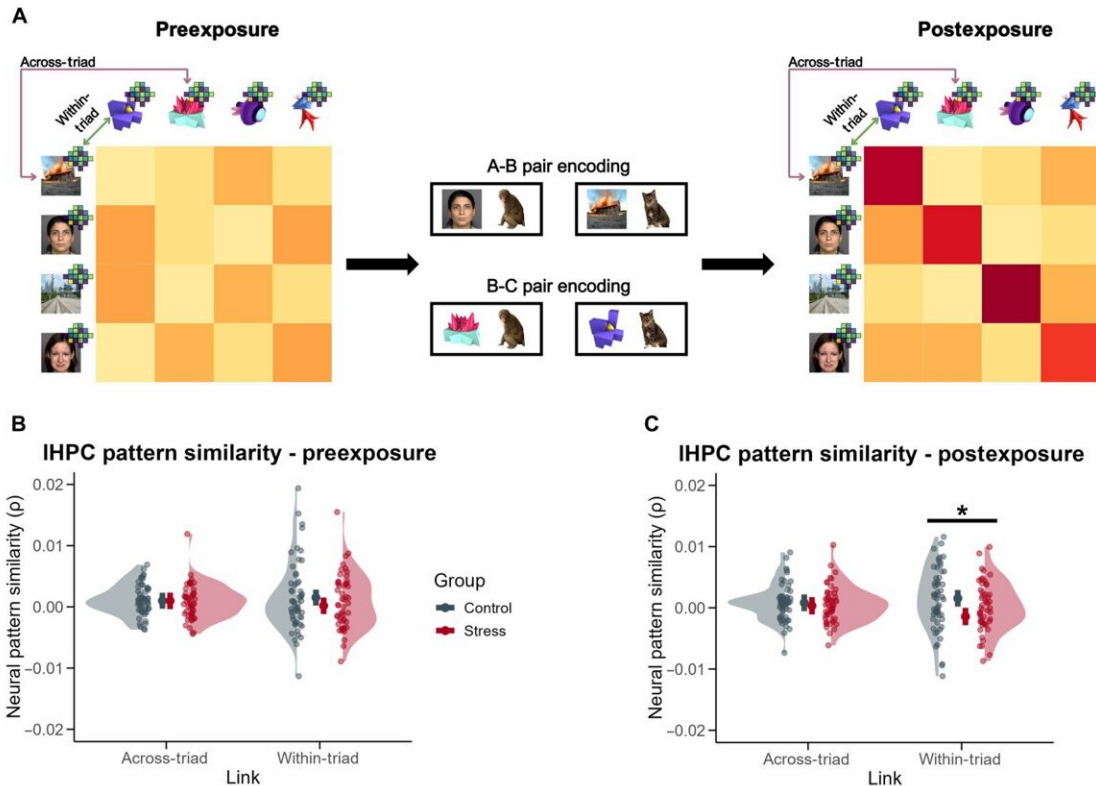
We often take it for granted, but everyday factors like stress can quietly disrupt these processes. A recent study has found that acute stress can impair the brain's ability to link related memories and draw logical conclusions.

[Psychosocial stress](#) disrupted how the hippocampus, the brain's hub for memory, learning, and emotions, linked memories. It did not stop a person from learning new things, but significantly reduced the ability to reactivate old memories after encountering new information, making it harder to draw connections between related events.

The findings are [published](#) in *Science Advances*.

Stress and its side effects

Stress may be invisible, but its effects on the body and mind can be profound. Research shows it can contribute to high blood pressure, heart disease, digestive issues, anxiety, depression, and even memory problems. Over time, chronic stress can also weaken the immune system, leaving the body more vulnerable to illness.



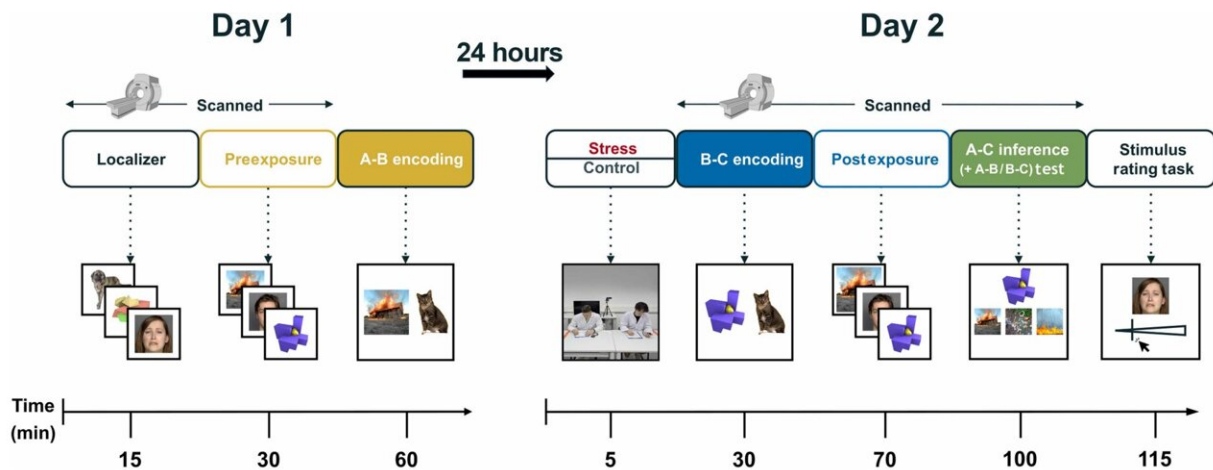
Stressed participants showed reduced reactivation of prior memories leading to poorer inference. Credit: *Science Advances* (2026). DOI: 10.1126/sciadv.aea5496

At its core, memory is the ability to recall information, but it is far more crucial as it helps us shape our decisions, relationships, and sense of identity. [Acute stress](#) can strengthen how memories are stored while weakening how flexibly they are recalled. Most research on stress and memory has focused on these two processes, but early evidence suggests stress may also affect how flexibly memories are used.

While memory storage and recall have been widely studied, far less is known about how stress affects the brain's ability to connect related experiences and draw inferences from them.

Mapping the memory

To better understand this, the researchers in this study conducted a two-day experiment with 121 healthy volunteers. The participants were divided into two groups: a stress group and a control group. On day one, both groups underwent [MRI scans](#) to help researchers identify the neural signatures specific to different image categories, such as faces, animals, or shapes. Then they were shown 24 A–B image pairs, in which each person's face/scene was paired with a specific animal.



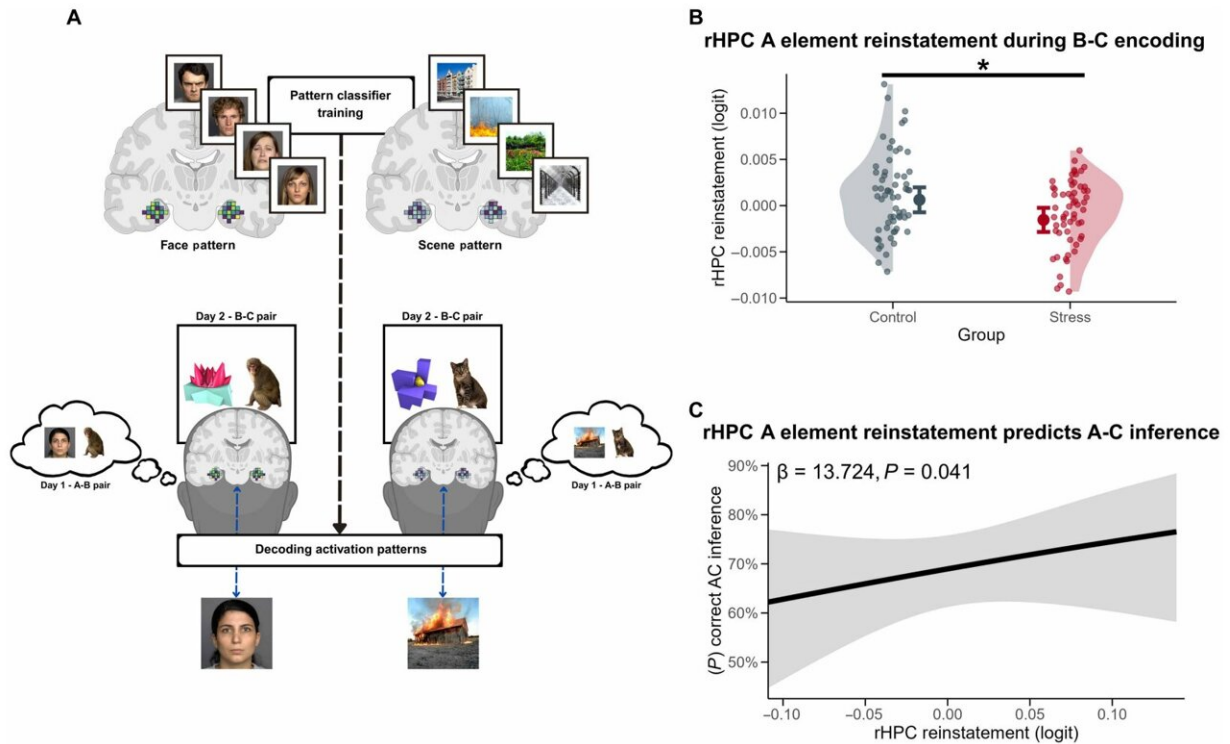
Experimental procedure. Credit: *Science Advances* (2026). DOI: [10.1126/sciadv.aea5496](https://doi.org/10.1126/sciadv.aea5496)

On the second day, the stress group underwent a Trier Social Stress Test, which included a mock job interview and complex mental math tasks. The control group, on the other hand, did simple tasks such as arithmetic and preparing a speech about their last vacation or the book they read. After the tasks, everyone learned new B–C pairs while inside an MRI scanner. These pairs used the same middle item, the animal from Day 1,

but linked it to a new item, an object. The researchers also monitored patients' heart rates to measure stress and collected saliva to measure levels of the stress hormone, cortisol.

As a final test, everyone was asked to link the original faces or scenes (A) with the new objects (C). Even though they never saw A and C together, they were both connected through the animal. The researchers found that acute stress prevented the brain from connecting the dots between related experiences, making it difficult to connect A with C.

Brain scans revealed that in calm, healthy people, the hippocampus automatically replayed old memories when learning something related, but in stressed individuals, this replay was much weaker. In the stressed group, researchers also observed a process called differentiation, in which the hippocampus treated related events as completely separate files rather than linking them. This effect was especially pronounced for emotionally positive memories.



Stress effect on reactivation of associated A image categories in the hippocampus during B-C trials. Credit: *Science Advances* (2026). DOI: 10.1126/sciadv.aea5496

The results make it clear that acute stress hampers a key memory integration mechanism, which can have broader implications ranging from how students perform in stressful exam situations to how accurately eyewitnesses recall events under the pressure of interrogation to workplace performance.

Future studies with larger and more diverse samples could help uncover the mechanisms underlying the stress-memory link, guiding systematic changes across educational and legal settings as well as therapies for psychiatric conditions involving memory integration deficits.

More information: Kai A. Schüren et al, Stress disrupts hippocampal integration of overlapping events and memory inference in humans, *Science Advances* (2026). [DOI: 10.1126/sciadv.aea5496](https://doi.org/10.1126/sciadv.aea5496)

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