

Researchers finding ways to erase unhappy memories

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(Getty Images)

We all have things we'd like to forget — being the victim of a crime, a bad relationship, an embarrassing faux pas. What if we could erase those bad memories? Or at least take the edge off them?

Over the last 10 or 15 years, researchers have gotten a better understanding of how memories are formed and recalled.

Dr. Susannah Tye, an assistant professor in the departments of psychiatry and psychology at the Mayo Clinic in Rochester, Minn., says that bad memories affect people on two levels. There's the recollection of the traumatic event, as well as a physical aspect — a person's heart may race or they may get depressed or withdrawn — that can be debilitating.

"These memories, when they're traumatic, they've been stored effectively because they're very important," she says.

Science hasn't found a delete button you can hit to eliminate certain memories, though researchers are looking. In the meantime, Tye suggests, "a psychologist or psychiatrist with expertise in trauma can help facilitate what the individual can do."

The very process behind the recollection of an event is still not fully understood, though we're discovering some surprising things.

"We don't remember everything, only bits and pieces," says Jason Chan, an assistant professor of psychology at Iowa State University. "We take these pieces (when we recall a memory) and reconstruct a story that makes sense to us. But it might not be correct."

Those memories can also be altered. Writing on the Scientific American Blog Network earlier this year, neuroscientist R. Douglas Fields explained that when a specific memory is recalled, it is vulnerable to being altered or even extinguished for a certain period of time.

Chan is doing research along those lines. His team's studies, published recently in the Proceedings of the National Academy of Sciences, found that if a memory is reactivated by being recalled — a process called reconsolidation — it becomes susceptible to being changed.

"We found you can make it harder for people to remember a previous event if they recall it, and right after that you give them information that's different from the original memory," he says. "(It) makes it more difficult."

As an example, he suggested a conversation in which he talks about a panda. "A couple days later, I ask, 'What was the animal we talked about?' You say, 'A panda bear.' I say, 'Actually it was a grizzly bear.' ...A couple of days later I ask again, and it will be more difficult for you to remember the panda bear. The grizzly bear has updated the memory."

There are other methods of altering memories. Certain drugs, protein inhibitors, have been shown to make memories more malleable. Electric shocks to the brain can also erase certain memories, and Massachusetts Institute of Technology researchers have found a gene that can help with memory extinction. Even alcohol can do the job. Chan says that alcohol affects the memory formation mechanism. Research continues in all these areas.

Another possible way to edit memories doesn't involve professional assistance, drugs or medical intervention.

Mike Byster is the author of "The Power of Forgetting: Six Essential Skills to Clear Out Brain Clutter and Become the Sharpest, Smartest You" (Harmony Books). Part of his theory involves forgetting the unnecessary and retaining what's needed. He explains that in the book. But he also suggests ways to have some control over major memories.

His mother, he says, suffered a brain injury and for the last two years of her life was a different person. Because he didn't want to remember her that way, he focused instead on happy times.

"I took two or three happy memories, and made myself remember them vividly, with as much detail as I could recall," he says. "I tell people to do this, make the memories as vivid as possible. Now and then my mom pops into my head, and it's the fun things, the good memories, that are so vivid."

Shaky memory

Vivid memories aren't infallible. During the Watergate crisis in the 1970s, explained Iowa State University's Jason Chan, White House Counsel John Dean gave highly detailed accounts of meetings he had with President Nixon in the Oval Office.

"People said, 'Wow, he's like a human tape recorder,'" Chan says. "Ironically, a lot of those meetings were taped without Dean knowing. When the tapes were released a researcher compared his testimony with the transcripts. Despite it being very vivid information, most of the information he recalled was wrong."

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