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# Could curry banish bad memories? Turmeric prevents fear being stored in the brain, scientists claim

- **Scientists found that curcumin, a compound found in the root of the Indian spice, prevented new fear memories being stored in the brain**
- **It also removed pre-existing fear memories, researchers found**
- **Scientists hope findings will contribute to the development of treatments for psychological conditions such as post-traumatic stress disorder**

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A spice commonly used in curry could help erase bad memories, according to a study.

Curcumin, a bright-yellow compound found in the root of the Indian spice turmeric, prevented new fear memories being stored in the brain, and also removed pre-existing fear memories, researchers found.

It is hoped that the findings will help develop treatments for people suffering with psychological disorders.

Psychologists from The City University of New York trained rats to become scared when they heard a particular sound. Scientists assumed the creatures were frightened when they froze.

Hours later, when the same sound was played to the rats, those who had been given ordinary food froze.
Yet the rats fed the curcumin-rich diet didn't freeze, suggesting their fearful memories had been erased.

Professor Glenn Schafe, who led the study, said: 'This suggests that people suffering from post-traumatic stress disorder and other psychological disorders that are characterised by fearful memories may benefit substantially from a curcumin-enriched diet.'

Memories are formed in the brain as new connections between neurons.

They are initially fragile, but gradually stabilise in the brain as they are put into long-term storage - a process known as consolidation.

When established memories are recalled they also temporarily destabilise in the brain, becoming like new memories for a while.

'If nothing happens, those destabilised fear memories get put back into long-term storage. In other words, they restabilise, or reconsolidate,' explained Professor Schafe.

'But we've learned that we can go into the brain during that destabilisation window and prevent those fear memories from reconsolidating.

Memories are formed in the brain as new connections between brain cells of neurons (pictured). They are initially fragile, but gradually stabilise in the brain as they are put into long-term storage

‘Effectively, we can erase them. And that appears to be what we’ve done with a curcumin-enriched diet.’

Curcumin is known to have an anti-inflammatory effect on the body, and this may be how it works on fearful memories, said Professor Schafe.

‘Inflammatory processes have been implicated in a wide range of diseases ranging from allergies to cardiovascular disease to Alzheimer’s,’ he said.

‘Inflammation has also been implicated in psychological disorders such as depression, anxiety and post-traumatic stress disorder.

‘Some of these same inflammatory pathways have also been implicated in memory formation, so it all fits.

## ... COULD TURMERIC PREVENT DEMENTIA TOO?

Another recent study found that a compound in turmeric may also hold the key to repairing the brains of people suffering with neurodegenerative diseases such as Alzheimer's.

Saving cells: Studies are increasingly discovering the benefits of turmeric on the brain
In laboratory tests, the aromatic turmerone promoted the proliferation of brain stem cells and their development into neurons.

It is hoped that the findings will help scientists develop treatments for conditions in which brain cells are lost, including Alzheimer's and stroke.

The scientists examined the effect of aromatic turmerone on endogenous neutral stem cells (NSCs) found within adult brains.

NSCs go on to develop into neurons, and play an important role in recovery from neurodegenerative diseases.

Lead researcher Dr Adele Rueger, from the Institute of Neuroscience and Medicine in Julich, Germany, said: 'While several substances have been described to promote stem cell proliferation in the brain, fewer drugs additionally promote the differentiation of stem cells into neurons, which constitutes a major goal in regenerative medicine.

'Our findings on aromatic turmerone take us one step closer to achieving this goal.'

‘But we need more studies to examine this further.’

It is not yet fully understood how curcumin impairs fear memories while sparing other types of memories, Professor Schafe said, but it is known that different types of memory systems encode different types of memories.

So, the memory of the event could still be there, but without the memory of the fear, removing the frightening aspect of it.

Previous studies have found that the spice may also be useful in the treatment of cancer, heart disease and arthritis, as well as having an anti-depressant effect.