

Highlight: The brain seconds that emotion

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Smells from your childhood kitchen, the sight of friends and family in old photographs, the feel of a well-worn flannel shirt...all these sensory experiences can conjure up powerful memories.

This happens because sensory information is tightly bound with emotional information when the brain stores an emotional [memory](#), as a new study shows.

The [brain](#) regions that receive signals from our eyes, nose and skin are divided into subsections that play different roles in processing this input.

By training rats to associate tonal sounds, flashing lights or the smell of vinegar with the experience of receiving an electric shock, Tiziana Sacco and Benedetto Sacchetti determined that Pavlovian fear memories are stored in the secondary auditory, visual and olfactory cortices, respectively.

Creating lesions in these [brain regions](#) appeared to disrupt already established memories, but it didn't prevent the formation of new ones, suggesting that the secondary sensory cortices are essential for storing emotional memories.

The authors propose that sights, sounds and smells associated with a highly charged emotional situation take on the affective qualities of that situation when [sensory stimuli](#) are woven into memories by the secondary sensory cortices.

The connections between these cortices may then provide an “integrated view of the whole emotional experience during memory recall,” the authors write.

The findings are published in today’s edition of the journal *Science*.

More information: "Role of Secondary Sensory Cortices in Emotional Memory Storage and Retrieval in Rats," by T. Sacco; B. Sacchetti at University of Turin in Turin, Italy; B. Sacchetti at National Institute of Neuroscience in Turin, Italy. *Science*, Aug 6, 2010.

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