

## **Brain Remembers Things That Did Not Happen**

Results of a new study In *Nature Neuroscience* (2000;3:1316-1321) show that the brain can sometimes create false memories. Usually, the brain records something that happens and then a person remembers it later. But sometimes, a person may imagine that something has happened, and then the brain later remembers the event as if it had really occurred.

In a new study, Dr. Ken A. Paller, of Northwestern University in Evanston, Ill. and a co-author at Northwestern, Dr. Brian Gonsalves, found that brain activity varies depending on whether a memory is true or false. Their findings are published in the December issue of the journal *Nature Neuroscience*.

In one phase of the study, the researchers showed words to participants and asked them to visualize the objects. Afterwards, the participants viewed a photograph of some, but not all, of the objects. Next, participants listened to words and were asked to say whether they had seen a photograph of the object during the first part of the study. During both parts of the study, the investigators measured brain activity.

The brain activity in response to the words varied depending on the participants' accuracy in remembering whether a word was followed by a photograph of the object, according to the report. In the first phase of the study, words without photographs that were later remembered falsely produced greater responses than correctly remembered words. This suggests that the brain is more actively visualizing these words, the researchers note.

But during the second phase of the study, brain responses were greater when participants heard words that had actually been presented with photographs than when they heard words that triggered false memories. This suggests that when the brain is remembering an accurate memory, it calls up more details than when it falsely remembers, according to the authors.

So even though the brain produces greater visual imagery when recording words that will be the subject of a false memory later, this imagery does not appear to be as strong as the brain's attention to detail when it remembers something that really happened, the report indicates.