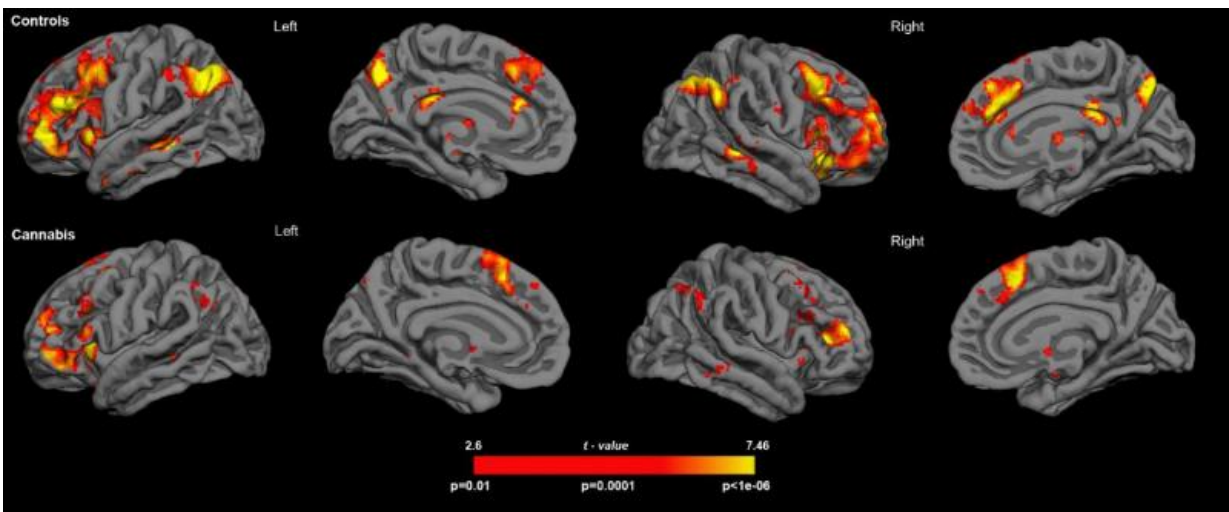


Cannabis consumers show greater susceptibility to false memories

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Brain activation pattern which permits ruling out a stimulus as a false memory. In the control group, the activations are much more intense and extensive than in the group of cannabis consumers. Credit: Hospital Sant Pau

A new study published in the American journal with the highest impact factor in worldwide, *Molecular Psychiatry*, reveals that consumers of cannabis are more prone to experiencing false memories. The study was conducted by researchers from the Human Neuropsychopharmacology group at the Biomedical Research Institute of Hospital de Sant Pau and from Universitat Autònoma de Barcelona, in collaboration with the Brain Cognition and Plasticity group of the Bellvitge Institute for

Biomedical Research (IDIBELL - University of Barcelona). One of the known consequences of consuming this drug is the memory problems it can cause. Chronic consumers show more difficulties than the general population in retaining new information and recovering memories. The new study also reveals that the chronic use of cannabis causes distortions in memory, making it easier for imaginary or false memories to appear.

On occasions, the brain can remember things that never happened. Our [memory](#) consists of a malleable process which is created progressively and therefore is subject to distortions or even [false memories](#). These memory "mistakes" are seen more frequently in several neurological and psychiatric disorders, but can also be observed in the healthy population, and become more common as we age. One of the most common false memories we have are of situations from our childhood which we believe to remember because the people around us have explained them to us over and over again. Maintaining an adequate control over the "veracity" of our memories is a complex cognitive task which allows us to have our own sense of reality and also shapes our behaviour, based on past experiences.

In the study published in the journal *Molecular Psychiatry*, researchers from Sant Pau and Bellvitge compared a group of chronic consumers of [cannabis](#) to a healthy control group while they worked on learning a series of words. After a few minutes they were once again shown the original words, together with new words which were either semantically related or unrelated. All participants were asked to identify the words belonging to the original list. Cannabis consumers believed to have already seen the semantically related new words to a higher degree than participants in the control group. By using magnetic resonance imaging, researchers discovered that cannabis consumers showed a lower activation in areas of the brain related to memory procedures and to the general control of cognitive resources.

The study found memory deficiencies despite the fact that participants had stopped consuming cannabis one month before participating in the study. Although they had not consumed the drug in a month, the more the patient had used cannabis throughout their life, the lower the level of activity in the hippocampus, key to storing memories.

The results show that cannabis consumers are more vulnerable to suffering memory distortions, even weeks after not consuming the drug. This suggests that cannabis has a prolonged effect on the brain mechanisms which allow us to differentiate between real and imaginary events. These memory mistakes can cause problems in legal cases, for example, due to the effects the testimonies of witnesses and their victims can have. Nevertheless, from a clinical viewpoint, the results point to the fact that a chronic use of cannabis could worsen problems with age-related memory loss.

Provided by Universitat Autònoma de Barcelona

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