

New study shows LSD's effects on language

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The consumption of LSD, short for lysergic acid diethylamide, can produce altered states of consciousness. This can lead to a loss of boundaries between the self and the environment, as might occur in certain psychiatric illnesses. David Nutt, professor of Neuropsychopharmacology at Imperial College, leads a team of researchers who study how this psychedelic substance works in the brain.

In this study, Dr. Neiloufar Family, post-doc from the University of Kaiserslautern, investigates how LSD can affect speech and language. She asked ten participants to name a sequence of pictures both under placebo and under the effects of LSD, one week apart.

"Results showed that while LSD does not affect [reaction times](#)," explains lead author Neiloufar Family, "people under LSD made more mistakes that were similar in meaning to the pictures they saw." For example, when people saw a picture of a car, they would accidentally say 'bus' or 'train' more often under LSD than under placebo. This indicates that LSD seems to affect the mind's semantic networks, or how words and concepts are stored in relation to each other. When LSD makes the network activation stronger, more words from the same [family](#) of meanings come to mind.

The results from this experiment can lead to a better understanding of the neurobiological basis of semantic network activation. Neiloufar Family explains further implication: "These findings are relevant for the renewed exploration of psychedelic psychotherapy, which are being developed for depression and other mental illnesses. The effects of LSD on language can result in a cascade of associations that allow quicker access to far away concepts stored in the mind."

The many potential uses of this class of substances are under scientific debate. "Inducing a hyper-associative state may have implications for the enhancement of creativity," Family adds. The increase in activation of semantic networks can

lead distant or even subconscious thoughts and concepts to come to the surface.

More information: Neiloufar Family et al. Semantic activation in LSD: evidence from picture naming, *Language, Cognition and Neuroscience* (2016). [DOI: 10.1080/23273798.2016.1217030](https://doi.org/10.1080/23273798.2016.1217030)

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