Long-term marijuana use associated with worse verbal memory in middle age

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Marijuana use over time is associated with remembering fewer words from a list, but it did not appear to affect other areas of cognitive function in a study of men and women followed up over 25 years, according to an article published online [1] by JAMA Internal Medicine.

Marijuana use is common among adolescents and young adults, with 19.8 million current users according to federal estimates, and growth in use in recent years. But it remains unclear whether there are long-term effects from low-intensity or occasional marijuana use earlier in life and whether the magnitude and persistence of impairment depends on the duration of marijuana use or the age of exposure.

The researchers used data from the long-term Coronary Artery Risk Development in Young Adults (CARDIA) study, which includes 25 years of repeated measures of marijuana exposure starting in early adulthood. In year 25, CARDIA measured cognitive performance using standardized tests of verbal memory, processing speed and executive function.

Reto Auer, MD, MAS, a former research fellow at UC San Francisco and now an academic chief resident in the Department of Community Medicine and Ambulatory Care at the University of Lausanne (Switzerland), and coauthors used those measurements to study the association between cumulative years of exposure to marijuana use and cognitive performance in middle age among study participants who had marijuana exposures typical to the communities in which they live.

Kristine Yaffe, MD [2]

The research team included Kristine Yaffe, MD [2], a professor of psychiatry, neurology and epidemiology at UCSF. She is also the Roy and Marie Scola Endowed Chair, Vice Chair of Research for UCSF Psychiatry, and Co-Director of the UCSF Clinical and Translational Sciences Training Program, as well as chief of neuropsychiatry and director of the Memory
Evaluation Clinic at the San Francisco VA Medical Center. Her research focuses on the predictors and outcomes of cognitive decline and dementia in older adults, and she is particularly interested in identifying novel risk factors for cognitive impairment that may lead to strategies to prevent cognitive decline.

Of the 3,499 participants assessed at the year 25 visit, 3,385 (96.7 percent) had data on cognitive function. Among the 3,385 participants, 2,852 (84.3 percent) reported past marijuana use, but only 392 (11.6 percent) continued to use marijuana into middle age.

Past exposure to marijuana was associated with worse verbal memory, but does not appear to affect other domains of cognitive function. For every five years of past exposure, lower verbal memory corresponded to an average of half the participants remembering one word fewer from a list of 15 words, according to the results.

Limitations to the study include self-reported information that is not always reliable.

"Future studies with multiple assessments of cognition, brain imaging and other functional outcomes should further explore these associations and their potential clinical and public health implications. In the meantime, with recent changes in legislation and the potential for increasing marijuana use in the United States, continuing to warn potential users about the possible harm from exposure to marijuana seems reasonable," the study concludes.

Read the research paper

- **JAMA Internal Medicine**: Association Between Lifetime Marijuana Use and Cognitive Function in Middle Age: The Coronary Artery Risk Development in Young Adults (CARDIA) Study [1]

Further coverage

- **UCSF News**: Years of marijuana use linked to some memory problems years later [3]
- **Washington Post**: What happens when you get stoned every single day for five years [4]
- **San Francisco Chronicle**: Long-time pot use linked to verbal memory loss in middle age [5]
- **CBS News**: What long-term marijuana use may do to your memory [6]
- **The Daily Mirror**: Study reveals smoking cannabis ruins your vocabulary in later life [7]
- **U.S. News & World Report**: Young adult pot smokers may see memory slide in middle age [8]

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[9] https://psych.ucsf.edu/advancing-mental-health-across-lifespan