

# Study questions link between teen pot smoking and IQ decline

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A dried flower bud of the Cannabis plant. Credit: Public Domain

A new analysis is challenging the idea that smoking marijuana during adolescence can lead to declines in intelligence.

Instead, the new study says, pot smoking may be merely a symptom of something else that's really responsible for a brainpower effect seen in some previous research.

It's not clear what that other factor is, said Joshua Isen, an author of the analysis. But an adolescent at risk for smoking pot "is probably going to show this IQ drop regardless of whether he or she is actually smoking marijuana," said Isen, a lecturer in psychology at Loyola Marymount University in Los Angeles.

The study was released Monday by the Proceedings of the National Academy of Sciences. Some prior research has led to suggestions that the developing adolescent brain is particularly vulnerable to harm from marijuana.

Studying the topic is difficult because children can't ethically be randomly chosen to either take illicit drugs or abstain for years so that their outcomes can be compared. Scientists have to assess what people do on their own.

For the new work, the researchers examined data that had been collected for two big U.S. studies of twins. They focused on 3,066 participants who were given a battery of intelligence tests at ages 9 to 12—before any of them had used marijuana—and again at ages 17 to 20.

They tracked changes in the test scores and studied whether those trajectories were worse for marijuana users than for non-users. Most tests revealed no difference between the two groups, but users did fare more poorly than abstainers in tests of vocabulary and general knowledge.

If smoking pot harmed test scores, the researchers reasoned, people who'd smoked more pot should show poorer trends than those who'd smoked less. But that's not what the data revealed. Among users, those who'd smoked more than 30 times or used it daily for more than a six-month stretch didn't do worse.

The study also looked at 290 pairs of twins in which one had used marijuana and the other had not. The members of each pair had grown up together and 137 sets were identical twins so they shared the same DNA. Again, the pot users did not fare worse than their abstaining twin siblings.

So, the researchers concluded, pot smoking itself does not appear responsible for declines in test scores. Isen noted, however, that the work says nothing about other potential harmful consequences of smoking marijuana in adolescence.

Dr. Nora Volkow, director of the National Institute on Drug Abuse, said that while the study has some

limitations, it is important and deserves to be followed up with more research. She noted the government has already launched a project to follow about 10,000 children over time to assess the impact of marijuana and other drug use.

A prominent 2012 study had indicated long-term IQ harm from pot smoking in teenagers. An author of that research said the new work does not conflict with her finding. Terrie Moffitt of Duke University said her study dealt with marijuana use that was far more serious and longer-lasting than the levels reported in the new work.

**More information:** "Impact of adolescent marijuana use on intelligence: Results from two longitudinal twin studies," by Nicholas J. Jackson et al. *PNAS*,  
[www.pnas.org/cgi/doi/10.1073/pnas.1516648113](http://www.pnas.org/cgi/doi/10.1073/pnas.1516648113)

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