

Your Brain on Marijuana

Not as Harmless
as You Think



For decades, marijuana has been considered a “light” drug, even harmless. As it is becoming legalized all over the United States, more and more scientific studies are conducted. While we’re just at the beginning of a true research campaign, the results of the studies are worth our attention.

The co-authors of one study published in the Journal of Neuroscience were quoted as saying:

“People think a little marijuana shouldn’t cause a problem if someone is doing OK with work or school. Our data directly says this is not so.”

Brain Health

The Center for Disease Control and Prevention found that using marijuana affects your brain directly. Use of cannabis can damage the parts of your brain that hold memories and help you to learn¹. In addition, cannabis use can affect your ability to:

- Make decisions
- Regulate your emotions
- React quickly
- Coordinate your limbs¹

In addition to your learning, memory, and attention being damaged after using cannabis, the brain cannot necessarily recover after you stop using it¹.

Emerging Studies

A study conducted over 25 years, tracking individuals until mid-adulthood, found that exposure to cannabis was associated with lower scores on verbal memory. This study controlled for other factors including other drug use, alcohol abuse, and other psychiatric illnesses².

Marijuana Before, Marijuana Now

The gradual legalization of marijuana has produced many changes. Scientists are able to study the drug and its effects more easily, which will inform and educate Americans in the coming decades.

However, with legalization, manufacturers can now make the drug exponentially stronger. In the 1970s, THC—the psychoactive ingredient—was normally about 3%, whereas now it can be anywhere between 12% to 30%. Oil that you rub on your skin can have up to a 100% THC level.

Levels this high are extremely dangerous. They can cause psychotic events and permanent mental damage.

Another longitudinal study found that adults who used marijuana frequently in adolescence was associated with a loss of an average of six to eight IQ points measured in adulthood. Quitting use of marijuana in adulthood did not recover the lost IQ points².

A study in 2014 found that adolescents who smoked marijuana even occasionally may be changing the brain function in areas related to emotional processing and regulation, motivation, rewards, addiction, and forming long-term memories. This casual use affected the nucleus accumbens and the amygdala in density, volume and shape⁴. These are two fundamental, delicate parts of the brain³.

In animal studies, exposure to THC—the main chemical found in marijuana—during adolescence, showed cognitive impairment in adult rats².

Poor Academic Outcomes

So, what happens when young people in school use marijuana?

Several studies have shown that the more frequently students use marijuana, the outcomes become negative:

- their GPA drops
- they skip more classes
- they take longer to graduate⁵

Because the brain continues to develop until the mid-twenties, it can be more dangerous to begin smoking marijuana early than if you begin smoking as an adult.

About This Campaign

Because much of the public conversation surrounding marijuana has been based on anecdotes rather than science, Prevention Action Alliance and the Ohio Department of Mental Health and Addiction Services created this campaign to help people better understand the facts about marijuana and its effects.

If you found this article helpful, we encourage you to share it with others. You can also find other fact sheets about marijuana at: preventionactionalliance.org/marijuana

If you have concerns about your own use of marijuana or a loved one's, and wish to seek help, go to: findtreatment.samhsa.gov/

Contact Us

For more information on Marijuana, Pregnancy, and Breastfeeding, please contact us at:

Prevention Action Alliance
(614) 540-9985
preventionactionalliance.org

About Us

Prevention
Action Alliance



Prevention Action Alliance is a 501(c)3 nonprofit in Columbus, Ohio dedicated to leading healthy communities in both the prevention of substance misuse and the promotion of mental health awareness. Learn more about Prevention Action Alliance at preventionactionalliance.org.

The mission of the Ohio Department of Mental Health and Addiction Services (Ohio MHAS) is to provide statewide leadership on the topics of mental health and addiction prevention, treatment, and recovery. Learn more about Ohio MHAS at mha.ohio.gov

1. cdc.gov/marijuana/nas/brain.html

2. drugabuse.gov/publications/research-reports/marijuana/what-are-marijuanas-long-term-effects-brain

3. medicinenet.com/script/main/art.asp?articlekey=177954

4. mic.com/articles/87743/harvard-scientists-studied-the-brains-of-pot-smokers-and-the-results-don-t-look-good

5. ncaa.org/health-and-safety/emerging-science-cannabis/marijuana-implications-student-athletes