

Marijuana Harms Brain Development

There is no safe level of use for the developing brain



The most current research, including MRI brain scan studies have confirmed that marijuana use harms the developing brain and should never be used while the brain is still developing (until age 25).

"Teens and young adults who are heavy marijuana users are more likely than non-users to have disrupted brain development. Pediatric researchers found abnormalities in areas of the brain that interconnect regions involved in memory, attention, decision-making, language and executive functioning skills. Studies of normal brain development reveal critical areas of the brain that develop during late adolescence, and our study shows that heavy cannabis (marijuana) use is associated with damage in those brain regions."

— Journal of Psychiatric Research, 2009; 43 (3): 189-204 DOI: 10.1016/j.jpsychires.2008.12.002

Harms Brain Development

A variety of brain scans done on college-age marijuana users showed brain damage, even with occasional use. The scans showed **structural abnormalities** in gray matter density, volume, and shape in the *nucleus accumbens* and *amygdala* parts of the brain.

(Dr. Jodi Gilman, *Journal of Neuroscience*, April 16, 2014)

Increases Risk of Mental Illness

Studies show that young people who use marijuana were **twice as likely to develop schizophrenia**, a disabling brain disorder, as those who didn't use marijuana. They were also twice as likely to develop psychosis (delusional perceptions) over the next 10 years as non-marijuana-users. Using marijuana hastened the onset of mental illness by 3 years.

(www.health.harvard.edu/blog/teens-who-smoke-pot-at-risk-for-later-schizophrenia-psychosis-201103071676)

Teenagers who use marijuana weekly have double the risk for later **depression and anxiety**.

(Degenhardt, Hall et al. 2001; Patton, Coffey et al. 2002)



Harms Learning and Memory

Marijuana impairs **learning and memory, attention, decision-making**, and causes deficits in **time estimation**.

(*JAMA*. 2002 Mar 6;287)

"Those who began using marijuana before age 18 showed significant lower IQ at age 38 than those who didn't use; or those who began using after the brain was developed."

(*National Institute of Drug Abuse, Bulletin* August 13, 2013)

Creates Problems in Social Functioning

People who use marijuana heavily have a persistent lack of decision-making abilities and show **alterations in brain activity**.

(www.sciencedirect.com/science/article/pii/S105381190500100)

Marijuana use before age 18 resulted in **higher rates of addiction**—up to 17 percent within 2 years—and disruption to an individual's life . . . A 21-year study found that regular use was associated with increased rates of illicit **drug use, crime, depression and suicidal behaviors**.

(Fergusson, Horwood et al. 2002)