

Marijuana and the Developing Teen Brain

‘In many ways, 26 is the new 18.’

–Dr. J. Shatkin, MD, MPH, author,
Born to Be Wild: Why Teens Take Risks

A Harris poll conducted for the *Wall Street Journal* found that the average age of a child whose parents pay their cell service is age 26. Housing, employment, school, marriage and other benchmarks heralding adulthood are occurring later in life. This may not be a bad thing. A standard definition of the human developmental period known as adolescence is from puberty to adulthood; adolescence ends when an individual’s life stabilizes and independence is reached. Neurology research pinpoints that ages 18 and 21—legal adulthood milestones—are not exactly the point at which a brain has physiologically matured. That age is approximately 26. Science pinpoints the mid-20s as the age at which brain growth is completed. A mature brain with a fully developed prefrontal cortex allows one to connect behavior with consequences for logical decision-making. Before then? Those young adults remain vulnerable to the heightened risks of adolescence, including substance use and other impulsive behaviors.



What does this mean for parenting high school students, including those who are 18? It’s not over yet. Even 19 has the word “teen” in it. American Academy of Pediatrics offers parenting [guidance](#) as do the Power of Choice [newsletters](#) and [podcasts](#) for helping teens become independent and preventing substance use.

Does marijuana use affect the developing brain during adolescence? Are changes permanent? To interrupt, alter, and chemically manipulate the incompletely formed adolescent brain with THC impacts the brain temporarily; used repeatedly, there are lasting brain deficits.

- **Cognition:** Lasting brain damage was reported in one study (Mandelbaum DE, *Pediatric Neurology*, 2017), and impaired thinking was consistently reported by researchers when use began before the age of 16. Younger adolescent marijuana users are prone to developing lasting brain deficits and even a decrease in brain volume. One large twin study (Meier MH, *Addiction*, 2017) comparing siblings found the ones who used cannabis more frequently than their co-twin performed worse on a working memory test.
- **Behavior:** Psychological decline occurred in day-to-day emotions (thinking, feeling, trusting) for persistent cannabis users in one large study from birth to age 38 (Meier MH, *Proc Natl Acad Sci USA*, 2012). Adolescent-onset cannabis users had the greatest decline. Ongoing use of marijuana changes the brain in how it inhibits inappropriate responses. Once use is stopped, for many, psychological functioning does not fully restore.
- **Motivation:** A 2017 [study](#) in the journal *Addiction* found teens who increasingly used cannabis from ages 14 to 19 had achieved less education by age 22 and felt less happy with their lives compared with their nonusing peers.
- **Psychosis:** Those regularly using marijuana before age 16 are at the highest risk of a severe mental health episode. It is also easier to overdose with edibles due to delayed effect of metabolism along with high potency THC. Hallucinations, temporary paranoia, worsening symptoms in patients with schizophrenia are documented occurrences. More than one marijuana-induced [fatality](#) have occurred.

Is marijuana secondhand from aerosols (vapor) and smoke an issue?

Marijuana smoke in enclosed spaces is unsafe for bystanders. The US Surgeon General says vapor or “vape” is not harmless, even secondhand, but perceptions and research are just catching up. Electronic vapor products from friends and family using in close confines, such as cars, is a health concern. A [2017 CDC journal article](#) reported the common misperception that secondhand smoke and vape are safe. One [2017 study](#) reported 1 in 6 Colorado children under age 2 hospitalized for bronchitis tested positive for THC exposure. Secondhand marijuana’s [hazardous chemicals](#) irritate the lungs. Beyond physical health, research shows those vaping nicotine—or liquid alternatives—are more likely to smoke cigarettes and vape cannabis than those who do not.

Does regular use impact the brain in ways that alter performance in athletics, academics and life?

Adverse consequences come with regular use of marijuana for teenagers. Studies report the onset of psychiatric disorders, depression, loss of motivation for school activities leading to poor academic and athletic achievement, financial difficulties, and work issues.

Drugged driving is a real concern. Driving under the influence for marijuana, as with alcohol, impacts life. This may result in an arrest record for a young person, and risks a serious injury or worse. National Traffic Highway Safety Administration data shows a 40 percent increase in fatal crashes in Colorado since recreational sales began. At the same time there has been a 147% increase in drivers testing positive for THC. Parents need to tell their young drivers the effect on driving after being exposed to THC in marijuana lasts 6 hours or longer. Marijuana users risk increased car insurance, and life and health insurance rates.

Parenting Tips

- **Restrain yourself from past marijuana use stories or “pot jokes” with other adults.** Kids listen in. These kinds of stories of drug and alcohol intoxication tend to be retold, prompting others to chime-in. Kids hearing you laugh about it makes light of the topic, communicating that this is not something you are concerned about.
- **Be honest if your child asks directly of past use, being sure to explain the dangerous potency of today’s marijuana.**
- **Keep being a healthy role model.** Adults can continue displaying beneficial behaviors to cope with life stress, such as going for a walk, or pursuing an interest or hobby. When anxious, advocate that you talk with a trusted adult for support and point the strategy out to your children. Keep showing them how you get to the cause and not numb over your worry. This means finding a plan to deal with problems before turning to self-medicate or escape. Be open about seeking counseling when you have felt the need for additional support, and applaud others who do the same. Talk with your children, and exhibit nonjudgment about their friends who use. Let them know you trust their choices are healthy—like most of their peers’ choices. Welcome talking with them about their plans and dreams.
- **For more talking tips, see Partnership for Drug-Free Kids [Marijuana Talk Kit](#).**