



Marijuana

Street names: Hash, Pot, Weed

EXPAND ALL

Revised May 2017

What is marijuana?



Also known as: Boom, Bud, Chronic, Gangster, Ganja, Grass, Herb, Kif, Mary Jane, MJ, Pot, Reefer, Skunk, and Weed

Marijuana is the dried leaves and flowers of the *Cannabis sativa* or *Cannabis indica* plant. Stronger forms of the drug include high potency strains - known as sinsemilla (sin-seh-meyah), hashish (hash for short), and extracts including hash oil, shatter, wax, and budder.

Of the more than 500 chemicals in marijuana, *delta-9-tetrahydrocannabinol*, known as THC, is responsible for many of the drug's psychotropic (mind-altering) effects. It's this chemical that distorts how the mind perceives the world.

[Read 10 things you can learn about marijuana.](#)

Strength and Potency

The amount of THC in marijuana has increased over the past few decades. In the early 1990s, the average THC content in marijuana was about 3.74 percent. In 2013, it was almost 10 percent, and much higher in some products such as oils and other extracts (see below).¹ Scientists do not yet know what this increase in potency means for a person's health. It may

cause users to take in higher amounts of THC – which could lead to greater health risks including increased risk of addiction, or they may adjust how they consume marijuana (by smoking or eating less) to compensate for the greater potency. There have been reports of people seeking help in emergency rooms with symptoms, including psychosis (having false thoughts or seeing or hearing things that aren't there), after consuming high concentrations of THC.

Marijuana Extracts

Smoking extracts and resins from the marijuana plant with high levels of THC is on the rise. There are several forms of these extracts, such as hash oil, budder, wax, and shatter. These resins have 3 to 5 times more THC than the plant itself. Smoking or vaping it (also called [dabbing](#)) can deliver dangerous amounts of THC to users, and has led some people to seek treatment in the emergency room. There have also been reports of people injured in fires and explosions caused by attempts to extract hash oil from marijuana leaves using butane (lighter fluid).

¹ ElSohly MA. *Potency Monitoring Program quarterly report number 124. Reporting period: 12/16/2013 -03/15/2014.* Bethesda, MD: National Institute on Drug Abuse; 2014.

How is marijuana used?

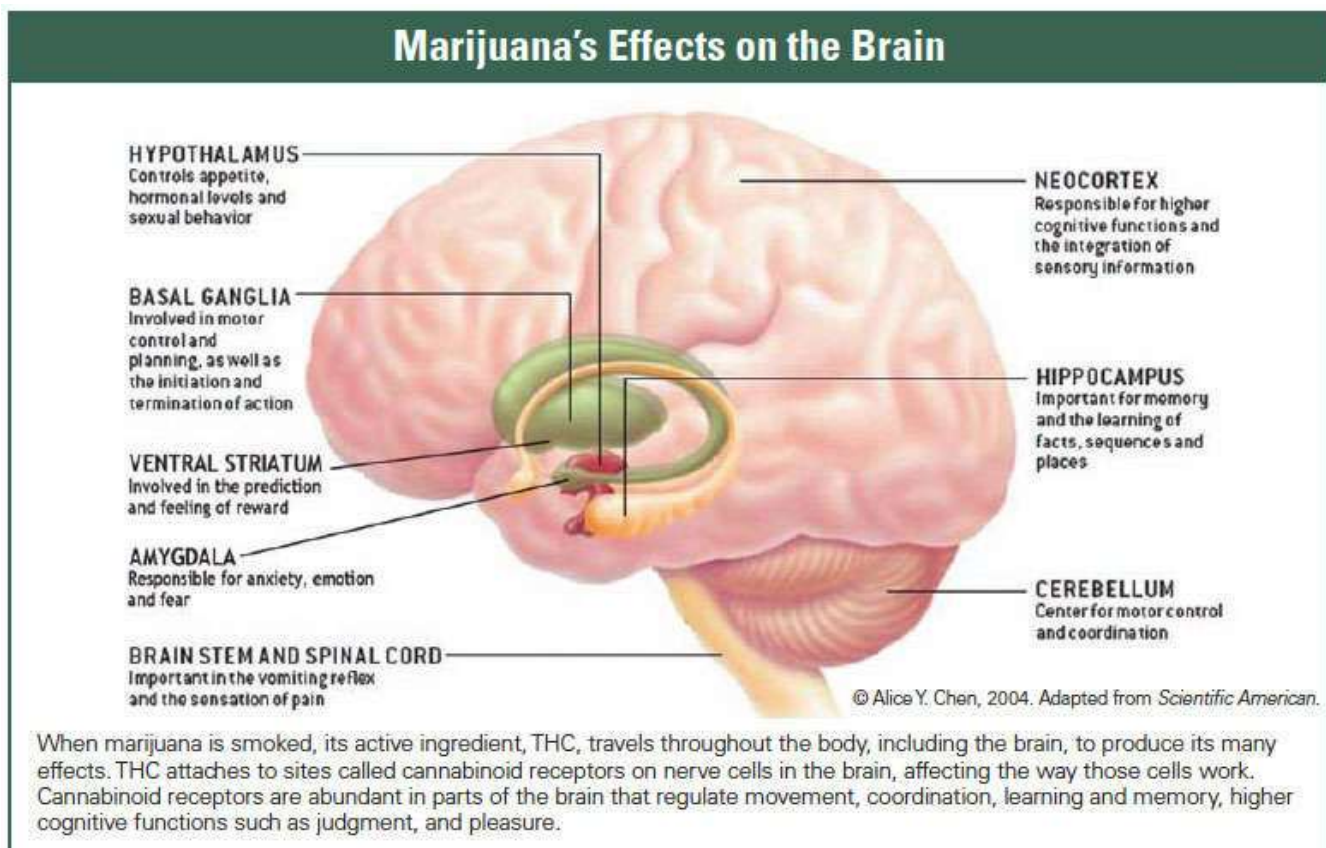
Some people smoke marijuana in hand-rolled cigarettes called joints. Many use glass pipes, water pipes called *bongs*, or marijuana cigars called blunts (often made by slicing open cigars and replacing some or all of the tobacco with marijuana). To avoid inhaling smoke, some people are using vaporizers. These devices pull the active ingredients (including THC) from the marijuana into the vapor. A person then inhales the vapor, not the smoke. Some vaporizers use a marijuana liquid extract. Marijuana can also be brewed as tea or cooked into food, sometimes called *edibles*—such as brownies, cookies, or candy.

These concentrated extracts made from the marijuana plant should not be confused with “synthetic marijuana,” sometimes called “K2,” “Spice,” or “herbal incense.” These synthetic drugs are man-made chemicals similar to THC but often much stronger and very dangerous. Unlike marijuana, their use sometimes directly results in [overdose deaths](#). Learn more about ["synthetic marijuana"](#).

What happens to your brain when you use marijuana?

When marijuana is smoked or vaporized, THC quickly passes from the lungs into the bloodstream, which carries it to organs throughout the body, including the brain. Its effects begin almost immediately and can last from 1 to 3 hours. Decision making, concentration, and memory can be affected for days after use, especially in regular users.² If marijuana is consumed in foods or beverages, the effects of THC appear later—usually in 30 minutes to 1 hour—and may last for many hours.

As it enters the brain, THC attaches to cells, or neurons, with specific kinds of receptors called *cannabinoid receptors*. Normally, these receptors are activated by chemicals similar to THC that occur naturally in the body. They are part of a communication network in the brain called the *endocannabinoid system*. This system is important in normal brain development and function.



Most of the cannabinoid receptors are found in parts of the brain that influence pleasure, memory, thinking, concentration, sensory and time perception, and coordinated movement. Marijuana activates the endocannabinoid system, which causes the pleasurable feelings or "high" and stimulates the release of [dopamine](#) in the brain's reward centers, reinforcing the

behavior. Other effects include changes in perceptions and mood, lack of coordination, difficulty with thinking and problem solving, and disrupted learning and memory.

Certain parts of the brain have a lot of cannabinoid receptors. These areas are the hippocampus, the cerebellum, the basal ganglia, and the cerebral cortex. (Learn more about these areas and [how THC affects them](#).) As a result, marijuana affects these functions:

- **Learning and memory.** The hippocampus plays a critical role in certain types of learning. Disrupting its normal functioning can lead to problems studying, learning new things, and recalling recent events. Chronic marijuana use disorder, that begins in adolescence, is associated with a loss of IQ points, as compared with people who don't use marijuana during their teen years.³ However, two recent twin studies suggest that this decline is related to other risk factors (e.g., genetics, family, and environment), not by marijuana use itself.⁴
- **Coordination.** THC affects the cerebellum, the area of our brain that controls balance and coordination, and the basal ganglia, another part of the brain that helps control movement. These effects can influence performance in such activities as sports, driving, and video games.
- **Judgment.** Since THC affects areas of the frontal cortex involved in decision making, using it can make you more likely to engage in risky behavior, such as unprotected sex or getting in a car with someone who's been drinking or is high on marijuana.

Learn more about [how the brain works and what happens when a person uses drugs](#). And, check out how the brain responds to marijuana.

The Reward Circuit: How the Brain Responds to Ma...

² Crean RD, Crane NA, Mason BJ. *An evidence based review of acute and long-term effects of cannabis use on executive cognitive functions.* Journal of Addiction Medicine 2011;5:1-8.

³ Meier MH, Caspi A, Ambler A, et al. *Persistent cannabis users show neuropsychological decline from childhood to midlife.* Proceedings of the National Academy of Sciences U S A 2012;109:E2657-64.

⁴ Meier MH, Caspi A, Ambler A, et al. *Persistent cannabis users show neuropsychological decline from childhood to midlife.* Proceedings of the National Academy of Sciences U S A 2012;109:E2657-64.

What happens to your body when you use marijuana?

Within a few minutes after inhaling marijuana smoke, a person's heart rate speeds up, the bronchial passages (the pipes that let air in and out of your lungs) relax and become enlarged, and blood vessels in the eyes expand, making the eyes look red. While these and other effects seem harmless, they can take a toll on the body.

- **Increased heart rate.** When someone uses marijuana, heart rate—normally 70 to 80 beats per minute—may increase by 20 to 50 beats per minute or, in some cases, even double. This effect can be greater if other drugs are taken with marijuana. The increased heart rate forces the heart to work extra hard to keep up.
- **Respiratory (lung and breathing) problems.** Smoke from marijuana irritates the lungs, and can cause a chronic cough—effects similar to those from regular cigarettes. While research has not found a strong association between marijuana and lung cancer, many people who smoke marijuana also smoke cigarettes, which do cause cancer. And, some

studies have suggested that smoking marijuana could make it harder to quit cigarette smoking.⁵

- **Increased risk for mental health problems.** Marijuana use has been linked with depression and anxiety, as well as suicidal thoughts among adolescents. In addition, research has suggested that in people with a genetic risk for developing schizophrenia, smoking marijuana during adolescence may increase the risk for developing psychosis and for it developing at an earlier age. Researchers are still studying the relationship between these mental health problems and marijuana use.
- **Increased risk of problems for an unborn baby.** Marijuana use during pregnancy is linked to lower birth weight and increased risk of behavioral problems in babies.⁶

⁵ Panlilio, LV, et al. Prior exposure to THC increases the addictive effects of nicotine in rats. *Neuropsychopharmacology* (2013) 38, 1198–1208.

⁶ The National Academies of Sciences, Engineering, and Medicine, Health and Medicine Division, Board on Population Health and Public Health Practice, Committee on the Health Effects of Marijuana: An Evidence Review and Research Agenda. *The Health Effects of Cannabis and Cannabinoids: The Current State of Evidence and Recommendations for Research*. Washington, DC, January 12, 2017. Available at <http://nationalacademies.org/hmd/Reports/2017/health-effects-of-cannabis-and-cannabinoids.aspx>.

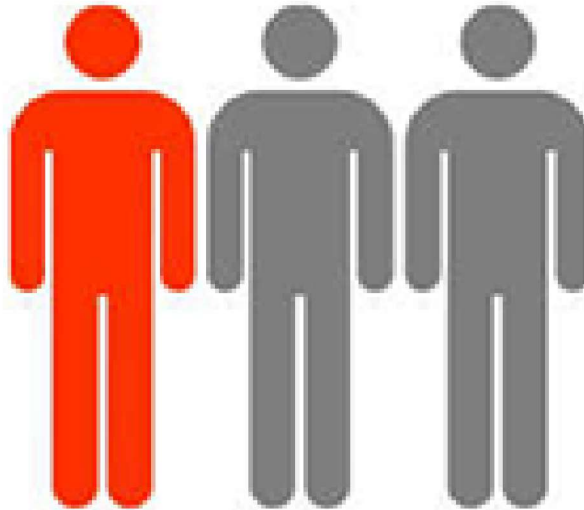
Can you die if you use marijuana?

There are no reports of people fatally overdosing (dying) on marijuana alone. However, people can feel some very uncomfortable side effects, especially when using marijuana with high THC levels. There are reports of marijuana users seeking treatment in emergency rooms, reporting unease and shaking, anxiety, paranoia, or hallucinations, and in rare cases, extreme psychotic reactions. Learn more about [drug overdoses among youth](#). However, marijuana use can increase risks for accidents and injuries (impacts of drugged driving are discussed below).

What are the other risks associated with marijuana use?

- **Reduced school performance.** Students who smoke marijuana tend to get lower grades and are more likely to drop out of high school than their peers who do not use. The effects of marijuana on attention, memory, and learning can last for days or weeks.

- **Reduced life satisfaction.** Research suggests that people who use marijuana regularly for a long time are less satisfied with their lives and have more problems with friends and family compared to people who do not use marijuana.



Drug and Alcohol Use Can Impair Driving by Affecting Critical Thinking and Motor Skills

- **Impaired driving.** Marijuana affects a number of skills required for safe driving—alertness, concentration, coordination, and reaction time—so it’s not safe to drive high or to ride with someone who’s been smoking. Marijuana makes it hard to judge distances and react to signals and sounds on the road. High school seniors who smoke marijuana are 2 times more likely to receive a traffic ticket and 65% more likely to get into an accident than those who don’t smoke.⁷ In 2016, 10.3% of 12th graders reported driving after using marijuana in the past two weeks.⁸ And combining marijuana with drinking even a small amount of alcohol greatly increases driving danger, more than either drug alone. Learn more about what happens when you mix [marijuana and driving](#).
- **Use of other drugs.** Most young people who use marijuana do not go on to use other drugs. However, those who use are more likely to use other illegal drugs. It isn’t clear why some people go on to try other drugs, but researchers have a few theories. The human brain continues to develop into the early 20s. Exposure to addictive substances, including

marijuana, may cause changes to the developing brain that make other drugs more appealing. In addition, someone who uses marijuana is more likely to be in contact with people who use and sell other drugs, increasing the risk for being encouraged or tempted to try them.

For more information on the effects of marijuana, see NIDA's [Marijuana Research Report](#).

⁷ U.S. Department of Transportation. National Highway Traffic Safety Administration. Traffic Safety Facts. *Drug Involvement of Fatally Injured Drivers*. Washington, DC, November 2010. Available at: <http://www-nrd.nhtsa.dot.gov/Pubs/811415.pdf>.

⁸ University of Michigan, Institute for Social Research. *Monitoring the Future, 2016*. Available at <http://www.monitoringthefuture.org/>.

Is marijuana addictive?

Yes, marijuana can be addictive. Someone who regularly uses marijuana may continue to use it despite negative consequences in their life.

Approximately 10 percent of users may develop what is called a marijuana use disorder—problems with their health, school, friendships, family or other conflicts in their life. A serious substance use disorder is commonly called an *addiction*. The person can't stop using marijuana even though it gets in the way of daily life.⁹ People who begin using marijuana before the age of 18 are 4–7 times more likely than adults to develop a marijuana use disorder.¹⁰

What causes one person to become addicted to marijuana while another does not depends on many factors—including their family history (genetics), the age they start using, whether they also use other drugs, their family and friend relationships, and whether they take part in positive activities like school or sports (environment). More research needs to be done to determine whether people who use marijuana for medical reasons are at the same risk for addiction as those who use it recreationally.

Watch the Swiss Cheese Model of Drug Addiction and learn why some people become who use drugs get addicted and others do not.

The Swiss Cheese Model of Drug Addiction

People who use marijuana may feel a mild [withdrawal](#) when they stop using the drug. Withdrawal symptoms may include:

- irritability
- sleeplessness
- lack of appetite, which can lead to weight loss
- anxiety
- drug cravings

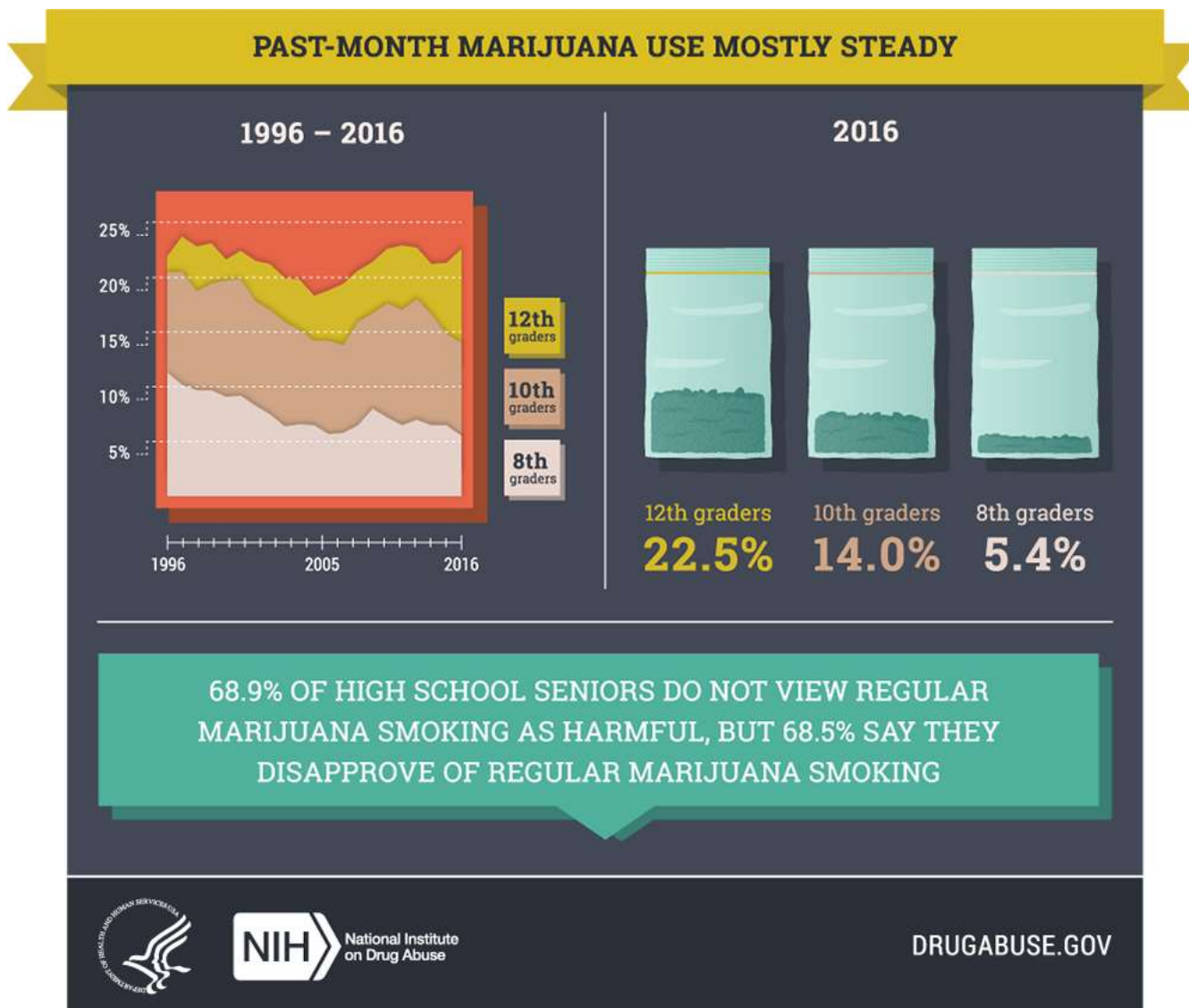
These effects can last for several days to a few weeks after drug use is stopped. Relapse (returning to the drug after you've quit) is common during this period because people may crave the drug to relieve these symptoms.

⁹ Hasin DS, Saha TD, Kerridge BT, et al. Prevalence of Marijuana Use Disorders in the United States Between 2001-2002 and 2012-2013. *JAMA Psychiatry*. 2015;72(12):1235-1242. doi:10.1001/jamapsychiatry.2015.1858.

¹⁰ Winters KC, Lee C-YS. Likelihood of developing an alcohol and cannabis use disorder during youth: association with recent use and age. *Drug Alcohol Depend*. 2008;92(1-3):239-247. doi:10.1016/j.drugalcdep.2007.08.005.

How many teens use marijuana?

Marijuana is the most commonly used illicit drug in the United States by teens as well as adults. Recent public discussions about medical marijuana and the public debate over the drug’s legal status is leading to a reduced perception of harm among young people. In addition, some teens believe marijuana cannot be harmful because it is “natural.”¹¹ But not all natural plant substances are good for you—tobacco, cocaine, and heroin also come from plants.



Below is a chart showing the percentage of teens who say they use marijuana.

Monitoring the Future Study: Trends in Prevalence of Marijuana/ Hashish for 8th Graders, 10th Graders, and 12th Graders; 2016 (in percent)*

Drug	Time Period	8th Graders	10th Graders	12th Graders
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Drug	Time Period	8th Graders	10th Graders	12th Graders
Marijuana/ Hashish	Lifetime	[12.80]	29.70	44.50
	Past Year	[9.40]	23.90	35.60
	Past Month	[5.40]	14.00	22.50
	Daily	[0.70]	2.50	6.00

* Data in brackets indicate a statistically significant downward trend from the previous year.

For more statistics on teen drug use, see [NIDA's Monitoring the Future study](#).

¹¹ National Institute on Drug Abuse. *Monitoring the Future Survey: High School and Youth Trends*. Bethesda, MD. December 2016. Available at: <https://www.drugabuse.gov/publications/drugfacts/monitoring-future-survey-high-school-youth-trends>.

What about medical marijuana?

The marijuana plant itself has not been approved as a medicine by the federal government. However, the plant contains chemicals—called cannabinoids—that may be useful for treating a range of illnesses or symptoms. Here are some samples of cannabinoids that have been approved or are being tested as medicines:

- **THC:** The cannabinoid that can make you “high”—THC—has some medicinal properties. A synthetic formulation of THC, dronabinol, has been approved by the federal government to treat nausea, prevent sickness and vomiting from chemotherapy in cancer patients, and to increase appetite in some patients with AIDS.
- **CBD:** Another chemical in marijuana with potential therapeutic effects is called cannabidiol, or CBD. CBD doesn't have mind-altering effects and is being studied for its possible uses as medicine. For example, CBD oil is being studied as a possible treatment for seizures in children with severe epilepsy.

- **THC and CBD:** A medication with a combination of THC and CBD is available in several countries outside the United States as a mouth spray for treating pain or the symptoms of multiple sclerosis.

It is important to remember that smoking marijuana can have side effects, making it difficult to develop as a medicine. For example, it can harm lung health, impair judgment, and affect memory. Side effects like this might outweigh its value as a medical treatment, especially for people who are not very sick. Another problem with smoking or eating marijuana plant material is that the ingredients can vary a lot from plant to plant, so it is difficult to get an exact dose. Until a medicine can be proven safe and effective, it will not be approved by the federal government. But researchers continue to extract and test the chemicals in marijuana to create safe medicines.

For more information, see [Drug Facts—Marijuana As Medicine](#)

Legal Issues

It is important to note that a growing number of states have legalized the marijuana plant's use for certain medical conditions, and a smaller number have voted to legalize it for recreational use. So, in some cases, federal and state marijuana laws conflict. It is illegal to grow, buy, sell, or carry marijuana under federal law. The federal government considers marijuana a Schedule I substance—having no medicinal uses and high risk for misuse.

Some states do allow doctors to recommend CBD in oil form to children with severe seizures. But because of concerns over the possible harm to the developing teen brain, **recreational marijuana use by people under age 21 is against the law in all states.**

For more information, see [Drug Facts—Is Marijuana Medicine?](#)

What should I do if someone I know needs help?

If you see or hear about someone misusing opioids, talk to a coach, teacher, or other trusted adult.

If you, or a friend, are in crisis and need to speak with someone now, please call:

- **National Suicide Prevention Lifeline at 1-800-273-TALK** (they don't just talk about suicide—they cover a lot of issues and will help put you in touch with someone close by).

If you need information on treatment and where you can find it, you can call:

- **Substance Abuse Treatment Facility Locator at 1-800-662-HELP** or visit www.findtreatment.samhsa.gov.

For more information on how to help a friend or loved one, visit our [Have a Drug Problem, Need Help? page](#).

For more information on marijuana

Drug Facts

NIDA:

- [Commonly Abused Drugs Chart](#)
- [DrugFacts: Marijuana](#)
- [Marijuana: Facts for Teens](#)
- [Marijuana: Facts Parents Need to Know](#)
- [Mind Over Matter Teaching Guide and Series: Marijuana](#)
- [NIDA Notes Articles: Marijuana](#)
- [Research Report Series: Marijuana](#)

Statistics and Trends

NIDA:

- [DrugFacts: High School and Youth Trends](#)

Centers for Disease Control and Prevention

- [Youth Risk Behavior Surveillance System](#) (YRBSS)

Monitoring the Future (University of Michigan):

- [Monitoring the Future](#)

Substance Abuse and Mental Health Services Administration:

- [National Survey on Drug Use and Health](#)

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