

# CANNABIS

Cannabis Marijuana	<p>Marijuana is the most popular psychoactive drug worldwide and is derived from the hemp plants Cannabis Sativa and Cannabis Indica (and less widely used Cannabis Ruderalis). Marijuana has been classified as a hallucinogen with stimulant and depressant qualities.</p> <ul style="list-style-type: none"> <li>• Marijuana typically refers to a greenish-gray mixture of dried, shredded leaves, stems, seeds and flowers; resins extracted from the plant (hashish); and a sticky, black liquid (hash oil).</li> <li>• The average potency of the drug has increased substantially in the last twenty years, although it can vary significantly depending on the type of plant and its origin. The potency of THC back in the 1970s was approximately 3%. Today, with improved growing techniques and extraction capabilities, THC potency ranges from 3%-90%.</li> <li>• The main psychoactive (mind-altering) chemical in marijuana, responsible for most of the intoxicating/euphoric effects sought, is delta-9-tetrahydrocannabinol (THC). The chemical is found in resin produced by the leaves and buds primarily of the female cannabis plant. The plant also contains more than 500 other chemicals, including more than 100 compounds that are chemically related to THC called cannabinoids. Higher THC levels may mean a greater risk for addiction if users are regularly exposing themselves to high doses.</li> </ul>
History	<p>Marijuana first became popular in the United States with Mexican immigrants in the 1920s and was quickly adopted by those in the jazz community. Later, the Great Depression of the 1930s led to a growing hostility toward the increase in marijuana use that was linked to immigration. The Marihuana Tax Act of 1937 placed control of the cannabis plant into the hands of the federal government, which released very exaggerated portrayals of marijuana's effects (i.e., "Reefer Madness") and made the drug illegal. These stories, paired with the ban on private use, kept marijuana use fairly uncommon until the 1960s. After the "hippie" counterculture rediscovered marijuana in the 1960s, demand for and use of the substance has continued to grow. Public and professional attitudes have varied greatly from complete intolerance to promoting legalization, which we have seen in recent years with the advent of "medical marijuana" and decriminalization of recreational marijuana in a growing number of states. In 1970, the DEA classified marijuana as a Schedule I drug.</p>
Administration	<ul style="list-style-type: none"> <li>• Smoking/inhaling methods include joints, blunts, gravity bong, vaping, dabbing, vaporizers (inhaling the smoke/vapors of heated leaf, bud, butane hash oil (BHO), dabs, shatter, amber)</li> <li>• Ingestion/oral administration: ingesting edibles, marijuana oil, teas, sodas, beer, capsules, sublingual sprays, marijuana tinctures</li> </ul>

	<ul style="list-style-type: none"> <li>• Topical methods: putting oils, creams, lotions on skin</li> </ul>
Effects on Brain	<ul style="list-style-type: none"> <li>• Marijuana impairs short-term memory and judgment and distorts perception, can impair performance in school or at work, and make it dangerous to drive. Marijuana affects brain systems that are still maturing through young adulthood, so regular use by teens may have negative and long-lasting effects on their cognitive development.</li> <li>• When marijuana is smoked, THC and other chemicals in the plant pass from the lungs into the bloodstream, which rapidly carries them throughout the body and to the brain. The person begins to experience effects almost immediately. Many people experience a pleasant euphoria and sense of relaxation. Other common effects include heightened sensory perception (e.g., brighter colors), laughter, altered perception of time, and increased appetite.</li> <li>• If marijuana is consumed in foods or beverages, effects are delayed – usually appearing after 30 minutes to one hour – because the drug must first pass through the digestive system. Eating or drinking marijuana delivers significantly less THC into the bloodstream than smoking an equivalent amount of the plant.</li> <li>• Endogenous cannabinoids such as anandamide function as neurotransmitters because they send chemical messages between nerve cells (neurons) throughout the nervous system. They affect brain areas that influence pleasure, memory, thinking, concentration, movement, coordination, and sensory and time perception. Because of this similarity, THC is able to attach to molecules called cannabinoid receptors on neurons in these brain areas and activate them, disrupting various mental and physical functions and causing numerous effects described. The neural communication network that uses these cannabinoid neurotransmitters, known as the endocannabinoid system, plays a critical role in the nervous system's normal functioning, so interfering with it can have profound effects.</li> <li>• THC alters the functioning of the hippocampus and orbitofrontal cortex, brain areas that enable a person to form new memories and shift his or her attentional focus. As a result, using marijuana causes impaired thinking and interferes with a person's ability to learn and perform complicated tasks. THC also disrupts functioning of the cerebellum and basal ganglia, brain areas that regulate balance, posture, coordination, and reaction time. This is the reason people who have used marijuana may not be able to drive safely and may have problems playing sports or engaging in other physical activities.</li> </ul>
Onset of Effects	Although detectable amounts of THC may remain in the body for days or even weeks after use, the noticeable effects of smoking marijuana generally last from 1 to 3 hours, and those of marijuana consumed in

	<p>food or drink may last for many hours. THC can be detected in the urine for up to 2-12 weeks after last use. Active effects from THC can be as long as 1 day for an edible compared to 1 hour from smoking a joint.</p>
Medical Use of THC	<p>The potential medicinal properties of marijuana and its components have been the subject of research and heated debate for decades. THC itself has proven medical benefits in particular formulations. The U.S. Food and Drug Administration (FDA) has approved THC-based medications dronabinol (Marinol) and nabilone (Cesamet) prescribed in pill form for the treatment of nausea in patients undergoing cancer chemotherapy and to stimulate appetite in patients with wasting syndrome due to AIDS. The FDA also approved a CBD-based liquid medication called Epidiolex for the treatment of two forms of severe childhood epilepsy, Dravet syndrome and Lennox-Gastaut syndrome, that uses CBD (cannabidiol, which is naturally derived from the cannabis plant, and is also available as a synthetic). It's being delivered to patients in a reliable dosage form and through a reproducible route of delivery to ensure that patients derive the anticipated benefits. CBD does not have the rewarding properties of THC. In addition, several other marijuana-based medications have been approved or are undergoing clinical trials. Nabiximols (Sativex), a mouth spray that is currently available in the United Kingdom, Canada, and several European countries for treating the spasticity and neuropathic pain that may accompany multiple sclerosis, combines THC with CBD.</p> <p>Researchers generally consider medications like these, which use purified chemicals derived from or based on those in the cannabis plant, to be more promising therapeutically than use of the whole cannabis plant or its extracts. Development of drugs from botanicals such as the cannabis plant poses numerous challenges. Botanicals may contain hundreds of unknown, active chemicals, and it can be difficult to develop a product with accurate and consistent doses of these chemicals. Use of marijuana as medicine also poses other problems such as the adverse health effects of smoking and THC induced cognitive impairment.</p> <p>The term "medical marijuana" is not derived from the health care industry/physicians. "Medical marijuana's" Ability to cure numerous illnesses has been exaggerated by manufacturers, wholesalers, distributors, and the retail market, and was initiated without replicable research and outcome data to support the claims. An additional concern with "medical marijuana" is that little is known about the long-term impact of its use by people with health- and/or age-related vulnerabilities.</p>
Short-term Effects	<ul style="list-style-type: none"> <li>• Dizziness or trouble walking</li> <li>• Acting silly and giggly for no reason; heightened sense of novelty</li> <li>• Red, bloodshot, or glazed eyes</li> <li>• Relaxation, sedation, increased appetite</li> <li>• Anxiety and paranoia</li> </ul>

	<ul style="list-style-type: none"> <li>• Difficulty remembering things that just happened; mental confusion</li> <li>• disinterest in activities or other things he or she used to enjoy</li> <li>• impaired short-term memory</li> <li>• impaired attention, judgment, and other cognitive functions</li> <li>• impaired coordination and balance; impaired tracking ability</li> <li>• increased heart rate</li> <li>• anxiety, paranoia</li> <li>• psychosis (uncommon)</li> <li>• persistent effects (lasting longer than intoxication, but may not be permanent)</li> <li>• impaired learning and coordination</li> <li>• sleep problems</li> <li>• enhanced sensory perception and euphoria followed by drowsiness/relaxation; slowed reaction time; problems with balance and coordination; increased heart rate and appetite; problems with learning and memory; anxiety</li> <li>• Used in combination with alcohol: increased heart rate and blood pressure; further slowing of mental processing and reaction time. Numerous studies in the United States and abroad have found a direct relationship between blood THC concentration and impaired driving ability. Marijuana significantly impairs judgment, motor coordination, and reaction time.</li> </ul>
Long-term Effects	<ul style="list-style-type: none"> <li>• Limiting the brain's capacity to store and retrieve information</li> <li>• Damage to the brain's memory functions, as well as math and verbal skills</li> <li>• Sexual dysfunction and reproductive problems, including irregular sperm and lowered sperm count in men and menstrual and ovulatory disruption in women</li> <li>• Weakening of the immune system</li> <li>• Increased risk of cancer and lung damage</li> <li>• Increased blood pressure and risk of heart attack</li> <li>• Hyperemesis (violent vomiting)</li> <li>• Loss of motivation and interest in everyday activities and future goal setting</li> <li>• Mental health problems</li> <li>• Chronic cough and frequent respiratory infections</li> <li>• Acute psychosis, which includes hallucinations, delusions, and a loss of the sense of personal identity. People who have taken large doses of marijuana (including dabbing, honey, budder, shatter) may experience an acute psychosis, which includes hallucinations, delusions, and a loss of the sense of personal identity</li> <li>• Onset of longer-lasting psychotic disorders, such as schizophrenia</li> <li>• Potential for marijuana use disorder</li> </ul>

	<ul style="list-style-type: none"> <li>• Impairments in learning and memory with potential, permanent loss of IQ</li> <li>• Increased risk of chronic cough, bronchitis</li> <li>• Increased risk of other drug and alcohol use disorders</li> <li>• Increased risk of schizophrenia in people with genetic vulnerability</li> </ul>
Potential for Abuse	Marijuana can lead to the development of problem use, known as a marijuana use disorder, which can lead to dependence (severe marijuana use disorder). Mini who use marijuana may have some degree of marijuana use disorder. People who begin using marijuana before the age of 18 or four to seven times more likely to develop a marijuana use disorder than adults.
Brand Names	THC: Marinol (dronabinol), Cesamet (nabilone), Sativex (Nabiximols)
Sampling of Street Names	Marijuana: blunt, bud, dope, ganja, grass, green, herb, joint, Mary Jane, pot, reefer, sinsemilla, skunk, smoke, sticky, trees, weed, CBD: Epidiolex
Acute Withdrawal	Irritability, trouble sleeping, decreased appetite, anxiety
Signs of Overdose	Acute psychosis, difficulty breathing, irritability, high paranoia
Half-Life	<ul style="list-style-type: none"> <li>• The half-life varies depending on mode of administration. Inhaling has the shortest half-life. Edibles have the longest half-lives along with delayed onset of effects.</li> <li>• Extra reserves of THC are stored in the fatty tissue of the body. THC is the metabolite that is detected through urine drug testing. Although there may be outlier cases, typically for a one-time or less-than-once-a-month user, the detection period for finding THC in the urine specimen may be between three and ten days. For a chronic user of marijuana, which is defined as using two to three or more times a week, THC can be detected in the urine up to 60 days after last use.</li> </ul>
Detection Period	<ul style="list-style-type: none"> <li>• Up to 12 weeks after last use for dabbing; 8 weeks for smoking joints.</li> <li>• The main chemical in marijuana is THC. Although the effects of THC wear off within a few hours of ingesting marijuana, traces of the chemical can remain in the body for weeks. <ul style="list-style-type: none"> <li>- 30-45 days detection in a urine test</li> <li>- 60-75 days detection in a blood test</li> <li>- Up to 90 days detection in a hair follicle test</li> </ul> </li> </ul>