MARIJUANA: WHAT WE KNOW

Usage and Risks

Marijuana, which can also be called cannabis, weed, pot, or dope, refers to the dried flowers, leaves, stems, and seeds of the cannabis plant. The cannabis plant contains more than 100 compounds (or cannabinoids). These compounds include tetrahydrocannabinol (THC), which is impairing or mind-altering, as well as other active compounds, such as cannabidiol (CBD). CBD is not impairing, meaning it does not cause a "high".

Marijuana can be used in a number of ways.^{2,3} The most common ways include:

- Smoked in joints (like a cigarette), in blunts (cigars or cigar wrappers that have been partly or completely refilled with marijuana), or in bongs (pipes or water pipes)
- Vaped using electronic vaporizing devices (like vape pens) or other vaporizers
- Mixed or infused into foods or drinks (called edibles) like cookies, cakes, or brownies, or tea, cola, or alcohol

Additionally, some people inhale the oil concentrates and other extracts from the cannabis plant—this is known as dabbing. THC oils and concentrates used in vaping and dabbing often involve using highly concentrated forms of THC and may contain additives or be contaminated with other substances that may be harmful.⁴

How marijuana affects a person depends on several factors, including:

- Amount of marijuana taken
- · Frequency of marijuana use
- Use of marijuana with other substances (e.g., alcohol or other drugs), which could increase risk of harm⁵
- Mode of marijuana use (e.g., consuming edibles or products with high THC concentration can have delayed or unpredictable effects and increases the risk of overdose or poisoning⁵)
- Previous experience with marijuana or other drugs
- Biology (e.g., genes, DNA)





 Sex (e.g., women may experience more dizziness after using marijuana compared to men⁶)

Health Effects and Risks

There are health risks associated with using marijuana regardless of how it is used. These include:



Marijuana Use Disorder

Approximately 3 in 10 people who use marijuana have marijuana use disorder. Some signs and symptoms of marijuana use disorder include trying but failing to quit using marijuana or giving up important activities with friends and family in favor of using marijuana. The risk of developing marijuana use disorder is stronger in people who start using marijuana during youth or adolescence and who use marijuana more frequently.



Brain Health

Marijuana use directly affects brain function—specifically the parts of the brain responsible for memory, learning, attention, decision making, coordination, emotions, and reaction time. ^{5,10} Developing brains, such as those in babies, children, and teenagers, are especially susceptible to the harmful effects of marijuana and THC. ^{5,10}



Heart Health

Marijuana can make the heart beat faster and can make blood pressure higher immediately after use. 11,12 It could also lead to increased risk of stroke, heart disease, and other vascular diseases. 13-17



Marijuana as Medicine

The Food and Drug
Administration (FDA) has
approved one plant-based
marijuana drug called Epidiolex,
which contains a purified form of
CBD. The prescription medication
is approved for treating seizures
associated with two rare
and severe forms of epilepsy
(Lennox-Gastaut syndrome and
Dravet syndrome) as well as
seizures associated with a rare
genetic disorder called tuberous
sclerosis complex.

The FDA has also approved two medicines (dronabinol [brand names: Marinol and Syndros] and nabilone [brand name: Cesamet]) that are made from a synthetic or lab-made chemical that mimics THC. These medicines are used to treat nausea in patients with cancer who are having chemotherapy treatment, and to increase appetite in individuals with AIDS who do not feel like eating (wasting syndrome).

These approved products are only available with a prescription from a licensed healthcare provider. There are currently no other FDA-approved uses for cannabis or its derivatives.



Driving

Marijuana, like alcohol, negatively affects several skills required for safe driving. It can slow reaction time and the ability to make decisions.^{5,18}

- Marijuana can impair coordination and distort perception.^{5,18}
- The use of multiple substances (such as marijuana and alcohol) at the same time can increase impairment.¹⁹
- Some studies have shown an association between marijuana use and car crashes; however, more research is needed.^{5,19}



Lung Health

Smoked marijuana, regardless of how it is smoked, can harm lung tissues and cause scarring and damage to small blood vessels.^{20,21} While more research on the health consequences of breathing secondhand marijuana smoke is needed, there is concern that it could cause harmful health effects, including among children.



Mental Health

Marijuana use has been linked to social anxiety, depression, and schizophrenia (a type of mental illness where people might see or hear things that aren't really there), but scientists don't yet fully understand the relationships between these mental health disorders and marijuana use.^{6,22}



Unintentional Poisoning

Edibles, or food and drink products infused with marijuana, have some different risks than smoked marijuana, including a greater risk of poisoning. Children can mistake edibles for regular food or candy. Consuming marijuana can make children very sick. Since marijuana use has been legalized in some states, unintentional poisonings in children have increased, with some instances requiring emergency medical care.²³

If you use marijuana products, keep them in childproof containers and out of the reach of children. For additional questions, you can contact your healthcare provider, your health department, your **local or regional poison control center** at **1-800-222-1222**, or **911 if it's an emergency**.



LEARN MORE:

CDC's Marijuana and Public Health

www.cdc.gov/marijuana cdcmarijuanafag@cdc.gov

CDC's Impaired Driving

www.cdc.gov/motorvehiclesafety/impaired driving



References:

- 1. Rosenberg EC, Tsien RW, Whalley BJ, Devinsky O. Cannabinoids and Epilepsy. Neurotherapeutics. 2015 Oct;12(4):747-68.
- Schauer GL, Njai R, Grant-Lenzy AM. Modes of marijuana use smoking, vaping, eating, and dabbing: Results from the 2016 BRFSS in 12 States. Drug Alcohol Depend. 2020 Apr 1;209:107900.
- 3. Schauer GL, King BA, Bunnell RE, Promoff G, McAfee TA. Toking, Vaping, and Eating for Health or Fun: Marijuana Use Patterns in Adults, U.S., 2014. Am J Prev Med. 2016 Jan;50(1):1-8.
- 4. Raber JC, Elzinga S, Kaplan C. 2015. Understanding dabs: Contamination concerns of cannabis concentrates and cannabinoid transfer during the act of dabbing. Journal of Toxicological Science 40(6):797–803.
- 5. National Academies of Sciences Engineering and Medicine, "The health effects of cannabis and cannabinoids: Current state of evidence and recommendations for research," Washington, DC, 2017.
- 6. Fattore L, Fratta W. How important are sex differences in cannabinoid action? Br J Pharmacol. 2010;160(3):544-548.
- Hasin DS, Saha TD, Kerridge BT, Goldstein RB, Chou SP, Zhang H, Jung J, Pickering RP, Ruan WJ, Smith SM, Huang B, Grant BF. Prevalence of Marijuana Use Disorders in the United States Between 2001-2002 and 2012-2013. JAMA Psychiatry. 2015 Dec;72(12):1235-42.
- 8. American Psychiatric Association, Diagnostic and Statistical Manual of Mental Disorders. 5th ed. Arlington, VA, 2013.
- 9. 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.
- 10. Batalla A, Bhattacharyya S, Yücel M, Fusar-Poli P, Crippa JA, Nogué S, Torrens M, Pujol J, Farré M, Martin-Santos R. Structural and functional imaging studies in chronic cannabis users: a systematic review of adolescent and adult findings. PLoS One. 2013;8(2):e55821.
- 11. Sidney S. Cardiovascular consequences of marijuana use. J Clin Pharmacol. 2002 Nov;42(S1):64S-70S.
- Subramaniam VN, Menezes AR, DeSchutter A, Lavie CJ. The Cardiovascular Effects of Marijuana: Are the Potential Adverse Effects Worth the High? Mo Med. 2019 Mar-Apr;116(2):146-153.
- 13. Wolff V, Armspach JP, Lauer V, Rouyer O, Bataillard M, Marescaux C, Geny B. Cannabis-related stroke: myth or reality? Stroke. 2013 Feb;44(2):558-63.
- 14. Wolff V, Zinchenko I, Quenardelle V, Rouyer O, Geny B. Characteristics and Prognosis of Ischemic Stroke in Young Cannabis Users Compared With Non-Cannabis Users. J Am Coll Cardiol. 2015 Nov 3;66(18):2052-2053. 5. C. A. Franz and W. H. Frishman, "Marijuana Use and Cardiovascular Disease," Cardiol Rev, vol. 24, no. 4, pp. 158–162, 2016.
- 15. Franz CA, Frishman WH. Marijuana Use and Cardiovascular Disease. Cardiol Rev. 2016 Jul-Aug;24(4):158-62.
- 16. Rumalla K, Reddy AY, Mittal MK. Association of Recreational Marijuana Use with Aneurysmal Subarachnoid Hemorrhage. J Stroke Cerebrovasc Dis. 2016 Feb:25(2):452-60.
- 17. Rumalla K, Reddy AY, Mittal MK. Recreational marijuana use and acute ischemic stroke: A population-based analysis of hospitalized patients in the United States. J Neurol Sci. 2016 May 15;364:191-6.
- 18. Compton R. (2017, July). Marijuana-Impaired Driving A Report to Congress. (DOT HS 812 440). Washington, DC: National Highway Traffic Safety Administration.
- 19. Lacey JH, Kelley-Baker T, Berning A, Romano E, Ramirez A, Yao J, & Compton R. (2016, December). Drug and alcohol crash risk: A case-control study (Report No. DOT HS 812 355). Washington, DC: National Highway Traffic Safety Administration.
- 20. Tashkin DP, Simmons MS, Tseng CH. Impact of changes in regular use of marijuana and/or tobacco on chronic bronchitis. COPD. 2012 Aug;9(4):367-74.
- 21. Wang X, Derakhshandeh R, Liu J, Narayan S, Nabavizadeh P, Le S, Danforth OM, Pinnamaneni K, Rodriguez HJ, Luu E, Sievers RE, Schick SF, Glantz SA, Springer ML. One Minute of Marijuana Secondhand Smoke Exposure Substantially Impairs Vascular Endothelial Function. J Am Heart Assoc. 2016 Jul 27;5(8):e003858.
- 22. Volkow ND, Swanson JM, Evins AE, DeLisi LE, Meier MH, Gonzalez R, Bloomfield MA, Curran HV, Baler R. Effects of Cannabis Use on Human Behavior, Including Cognition, Motivation, and Psychosis: A Review. JAMA Psychiatry. 2016 Mar;73(3):292-7.
- 23. Richards JR, Smith NE, Moulin AK. Unintentional Cannabis Ingestion in Children: A Systematic Review. J Pediatr. 2017 Nov;190:142-152.