



Marijuana

Is marijuana addictive?

Marijuana use can lead to the development of problem use, known as a marijuana use disorder, which takes the form of addiction in severe cases. Recent data suggest that 30 percent of those who use marijuana may have some degree of marijuana use disorder. ¹⁸ People who begin using marijuana before the age of 18 are four to seven times more likely to develop a marijuana use disorder than adults. ¹⁹

Marijuana use disorders are often associated with *dependence*—in which a person feels withdrawal symptoms when not taking the drug. People who use marijuana frequently often report irritability, mood and sleep difficulties, decreased appetite, cravings, restlessness, and/or various forms of physical discomfort that peak within the first week after quitting and last up to 2 weeks. ^{20,21} Marijuana dependence occurs when the brain adapts to large amounts of the drug by reducing production of and sensitivity to its own endocannabinoid neurotransmitters. ^{22,23}

Marijuana use disorder becomes addiction when the person cannot stop using the drug even though it interferes with many aspects of his or her life. Estimates of the number of people addicted to marijuana are controversial, in part because epidemiological studies of substance use often use dependence as a proxy for addiction even though it is possible to be dependent without being addicted. Those studies suggest that 9 percent of people who use marijuana will become dependent on it, ^{24,25} rising to about 17 percent in those who start using in their teens. ^{26,27}

In 2015, about 4.0 million people in the United States met the diagnostic criteria for a marijuana use disorder; ³ 138,000 voluntarily sought treatment for their marijuana use. ²⁸

Rising Potency

Marijuana potency, as detected in confiscated samples, has steadily increased over the past few decades.² In the early 1990s, the average THC content in confiscated marijuana samples was roughly 3.7 percent. In 2014, it was 6.1 percent.²⁹ Also, newly popular methods of smoking or eating THC-rich hash oil extracted from the marijuana plant (a practice called *dabbing*) may deliver very high levels of THC to the person. The average marijuana extract contains more than 50 percent THC, with some samples exceeding 80 percent. These trends raise concerns that the consequences of marijuana use could be worse than in the past, particularly among those who are new to marijuana use or in young people, whose brains are still developing (see "[What are marijuana's long-term effects on the brain?](#)").

Researchers do not yet know the full extent of the consequences when the body and brain (especially the developing brain) are exposed to high concentrations of THC or whether the recent increases in emergency department visits by people testing positive for marijuana are related to rising potency. The extent to which people adjust for increased potency by using less or by smoking it differently is also unknown. Recent studies suggest that experienced people may adjust the amount they smoke and how much they inhale based on the believed strength of the marijuana they are using, but they are not able to fully compensate for variations in potency.^{30,31}

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