



Dispelling the “Gateway” Theory

What Science Says About Marijuana and Drug Addiction

Background

Opponents of legalized medical or recreational marijuana will often refer to marijuana as a “gateway drug” that leads to use and abuse of harder substances. Anti-marijuana advocates have often argued that considering the nation’s opioid epidemic, it would be irresponsible to further normalize marijuana because it would lead to more opioid use. Neither of these claims is supported by any actual scientific evidence. To the contrary, years of scientific evidence suggests that marijuana is not a gateway drug and recent studies demonstrate that marijuana can be an effective tool for addressing opioid addiction. This paper attempts to highlight just a small portion of the science and findings dispelling the gateway drug myth.

The Truth About the “Gateway” Theory

The myth of marijuana as a gateway drug has existed for some time and is largely an outgrowth of anti-marijuana propaganda during the war on drugs. The Institute of Medicine found that marijuana use does not appear to cause or be the most significant predictor of serious drug abuse.¹ The American Journal of Psychiatry also found drug abuse is not determined by preceding use of marijuana, but rather a user’s individual tendencies and environmental circumstances.² Similarly, RAND’s Drug Policy Research Center suggests “that it is not marijuana use but individuals’ opportunities and unique propensities to use drugs that determine their risk of initiating hard drugs.”³

On the social side, there is evidence that demonstrates the illegal status of marijuana increases the likelihood of users trying harder drugs. Purchasing marijuana through illegal channels necessitates interaction with dealers who may have access to harder drugs. As Holland began to liberalize marijuana laws in the 1970, they paid close attention to the supposed “gateway effect.” The Dutch felt the link was sociological and to keep soft drug users away from hard drug dealers, they developed a regulatory system to separate the legal and illegal markets. Data compiled from the Dutch experience shows evidence that suggests this approach weakened social interaction with dealers of harder drugs and clearly demonstrated that no gateway effect was opened by efforts to legalize marijuana.⁴

One issue with many of the older studies on marijuana as a gateway drug is that they were observational studies that failed to account for other behaviors the subject engaged in (alcohol, cigarettes, etc.) or the risk-taking personality that a marijuana user would need to have given the stiff penalties and social stigma of marijuana use in past decades. Put simply, the researchers could not effectively separate correlation from causation between marijuana and other substances.

¹ Joy, Janet E., Stanley J. Watson, Jr., and John A. Benson, eds. *Marijuana as Medicine, Assessing the Science Base*. Report. Institute of Medicine. Washington, D.C. : National Academy Press, 1999. <https://doi.org/10.17226/6376>.

² Tarter, Ralph, Michael Vanyukov, Levent Kirisci, Maureen Reynolds, and Duncan B. Clark. "Predictors of Marijuana Use in Adolescents Before and After Licit Drug Use: Examination of the Gateway Hypothesis." *American Journal of Psychiatry* 163, no. 12 (2006): 2134. doi:10.1176/appi.ajp.163.12.2134.

³ Morral, Andrew R., Daniel F. McCaffrey and Susan Paddock. *Using Marijuana May Not Raise the Risk of Using Harder Drugs*. Santa Monica, CA: RAND Corporation, 2002. http://www.rand.org/pubs/research_briefs/RB6010.html.

⁴ MacCoun, Robert J.. *What Can We Learn from the Dutch Cannabis Coffeeshop Experience?*. Santa Monica, CA: RAND Corporation, 2010. http://www.rand.org/pubs/working_papers/WR768.html.

As a final note, there is a certain irony in the focus on marijuana as a gateway drug given ample evidence that alcohol has a far higher correlation with the use of harder drugs than marijuana. Additionally, unlike marijuana, there was a strong correlation between the age and frequency of alcohol use and the predisposition to use hard drugs.⁵

Marijuana and Opioids

Perhaps more damaging than the gateway drug myth has been claims by marijuana opponents that marijuana legalization will increase opioid abuse. To the contrary, not only is marijuana legalization correlated with a reduction in opioid use and prescriptions, there is a growing body of scientific evidence that indicates marijuana can help people already addicted to heroin and other opioids. States that allow for the use of medical marijuana to manage chronic pain and other conditions have an opioid overdose mortality rate that is 25 percent lower than states where medical marijuana remains illegal.⁷ This association suggests the availability of medical marijuana to help treat pain can reduce the growing number of deaths attributed to prescription pain medications.⁸ States with legalized marijuana also have lower numbers of prescriptions issued for opioids as well as a lower rate of opioid positivity among fatally injured drivers.⁹

Going even further, growing evidence also shows that marijuana could provide a new avenue of treatment for those already addicted to opioids. Given that opioids pose a serious public health challenge, with over 80 people dying each day from opioid overdose, further research on this should be a critical priority for states.

CBD

Several studies have very positive findings regarding cannabidiol (CBD), a non-psychotomimetic constituent of marijuana, and its use as a therapeutic agent for opioid use disorders. Research suggest that CBD interferes with brain reward mechanisms and can block the reward-facilitating effect of opioids.¹⁰ Patients using medical marijuana to control chronic pain reported a 64 percent reduction in their use of traditional prescription pain medications.¹¹ This reduction of opioid use was also correlated with decreased medication side effects, indicating a potential health benefit to replacing opioids with marijuana.¹²

⁵ Barry, King, Sears, Harville, Bondoc, Joseph, Prioritizing Alcohol Prevention: Establishing Alcohol as the Gateway Drug and Linking Age of First Drink With Illicit Drug Use. *J Sch Health*. Jan. 2016; 86(1):31-8.

⁶ Bachhuber MA, Saloner B, Cunningham CO, Barry CL. Medical Cannabis Laws and Opioid Analgesic Overdose Mortality in the United States, 1999-2010. *JAMA Intern Med*. 2014;174(10):1668-1673. doi:10.1001/jamainternmed.2014.4005

⁷ Ibid.

⁸ Kim, June H., Julian Santaella-Tenorio, Christine Mauro, Julia Wrobel, Magdalena Cerdà, Katherine M. Keyes, Deborah Hasin, Silvia S. Martins, and Guohua Li. "State Medical Marijuana Laws and the Prevalence of Opioids Detected Among Fatally Injured Drivers." *American Journal of Public Health* 106, no. 11 (2016): 2032-037. doi:10.2105/ajph.2016.303426.

⁹ Katsidoni, Vicky, Ilektra Anagnostou, and George Panagis. "Cannabidiol inhibits the reward-facilitating effect of morphine: involvement of 5-HT 1A receptors in the dorsal raphe nucleus." *Addiction Biology* 18, no. 2 (2012): 286-96. doi:10.1111/j.1369-1600.2012.00483.x.

¹⁰ Boehnke, Kevin F., Evangelos Litinas, and Daniel J. Clauw. "Medical Cannabis Use Is Associated With Decreased Opiate Medication Use in a Retrospective Cross-Sectional Survey of Patients With Chronic Pain." *The Journal of Pain* 17, no. 6 (2016): 739-44. doi:10.1016/j.jpain.2016.03.002.

¹¹ Ibid.

Animal studies have consistently demonstrated that in addition to reducing rewarding effects of opioids and withdrawal symptoms, CBD also directly reduces heroin-seeking behavior.¹³ These findings are consistent with a pilot study with humans which demonstrates CBD reduces heroin cravings in heroin abusers with the therapeutic effects sometimes lasting a week since last administration.¹⁴

THC

Due to the federal illegality of marijuana, it has been difficult to conduct full scientific studies of the use of full spectrum marijuana to treat opioid addiction. However, there is a growing amount of observational evidence that marijuana and particularly marijuana concentrates may be effective in weaning addicts off a range of opioids as well as heroin and other substances and subsequently preventing relapse.¹⁵ Additionally, one study found that opioid addicts who consumed marijuana purchased significantly lower amounts of opioids than those who did not consume marijuana.¹⁶

¹² Hurd, Yasmin L. "Cannabidiol: Swinging the Marijuana Pendulum From 'Weed' to Medication to Treat the Opioid Epidemic." *Trends in Neurosciences* 40, no. 3 (February 2017): 124-27. doi:10.1016/j.tins.2016.12.006.

¹³ Ibid.

¹⁴ See, e.g., Tracey Mitchell, "Is Weed the Secret to Beating Opiate Addiction?", <http://www.thedailybeast.com/articles/2014/09/05/is-weed-the-secret-to-beating-opiate-addiction.html>

¹⁵ Scavone JL, Sterling RC, Weinstein SP, Van Bockstaele EJ. "Impact of cannabis use during stabilization on methadone maintenance treatment." *Am J Addict.* 2013 Jul-Aug;22(4):344-51.