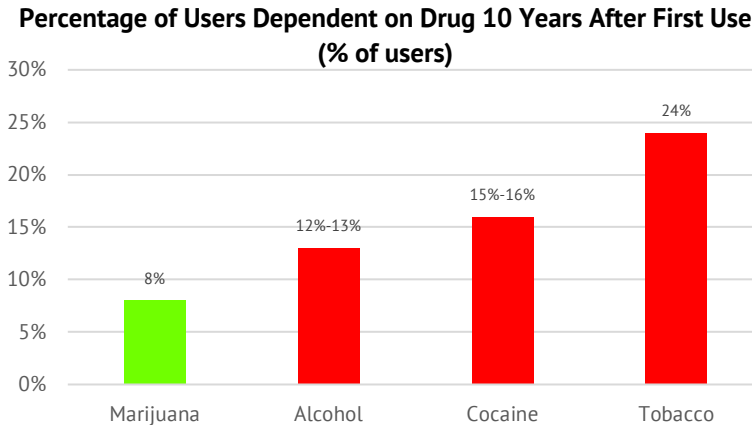


HOW DANGEROUS IS MARIJUANA COMPARED TO ALCOHOL AND TOBACCO?

ADDICTIVITY

Studies consistently find tobacco and alcohol to be far more addictive than marijuana.



Source: Wagner, Fernando A. and James C. Anthony. April 1, 2002. *Neuropsychopharmacology*. "From First Drug Use to Drug Dependence: Developmental Periods of Risk for Dependence upon Marijuana, Cocaine, and Alcohol." 26. 479-488; For 24% tobacco: Anthony, James C., Lynn A. Warner and Ronald C. Kessler. "Comparative epidemiology of dependence on tobacco, alcohol, controlled substances, and inhalants: Basic findings from the National Comorbidity Study." *Experimental and Clinical Psychopharmacology*. 2(3). August 1994. 244-268.

THERAPEUTIC USE OF MARIJUANA

Tobacco is the leading preventable cause of death in the U.S., and alcohol is associated with many diseases. Unlike alcohol and tobacco, which have little or no medical use, marijuana is used to treat many diseases, including:

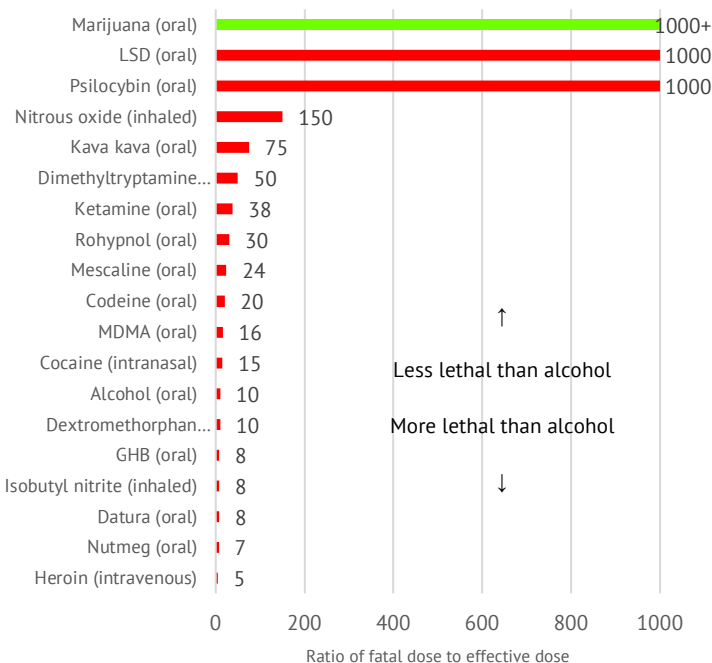


- Stimulate appetite and ease nausea in chemotherapy and other patients
- Counteract epileptic seizures
- Ease symptoms of Crohn's, glaucoma, multiple sclerosis and other diseases

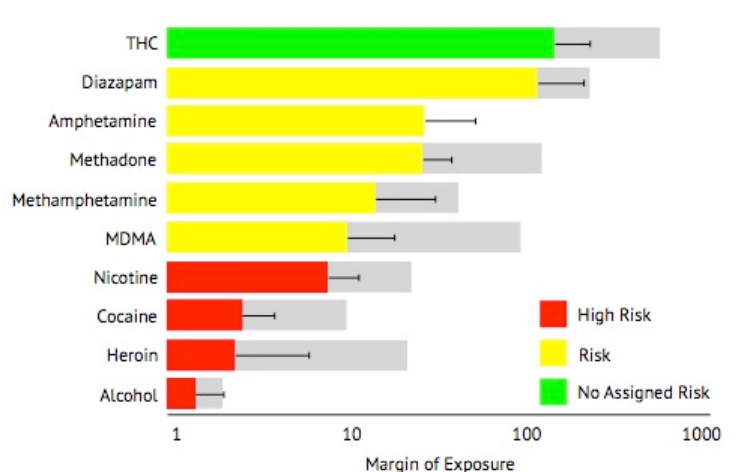
LETHAL DOSE: ALCOHOL VS MARIJUANA

Research finds that it is virtually impossible to consume the amount of marijuana needed for a fatal dose. This is likely why there is no record of anyone dying due to overdose of marijuana. Alcohol, however, has high risk for overdose when studied as a ratio of what most users would use compared to a fatal dose.

Lethal Doses of Psychoactive Substances



Risk Assessment for Psychoactive Drugs as a Ratio of Lethal Dose to Average Human Intake



Source: Adapted from Lachenmeier, Dirk W. and Juergen Rehm. Comparative risk assessment of alcohol, tobacco, cannabis and other illicit drugs using the margin of exposure approach. *Scientific Reports*. Jan 13, 2015. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4311234/>

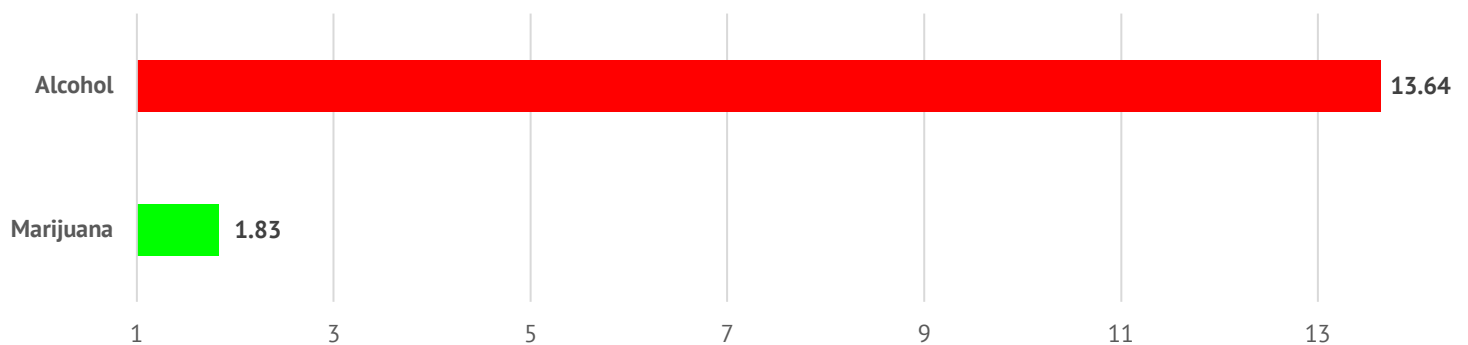
Source: Gable, Robert S. "The Toxicity of Recreational Drugs." *American Scientist*.



IMPAIRED DRIVERS' CRASH RISK: ALCOHOL VS. MARIJUANA

Both alcohol and marijuana are psychoactive substances that impair a driver's ability to operate a vehicle safely. However, research finds alcohol impairment associated with fast and reckless driving, and marijuana-impairment with slow driving. Empirical studies of dosed drivers on closed courses finds that alcohol impairment brings a far higher crash risk than marijuana impairment.

FATAL CRASH RISK OF ALCOHOL VS MARIJUANA-IMPAIRED DRIVERS*



ALCOHOL ONLY: 13.64 times the risk to sober drivers

MARIJUANA ONLY: 1.83 times the risk to sober drivers

*According to alcohol and drug testing results, the continental United States, selected time periods on Fridays and Saturdays, July 20 through December 1, 2007, where 1.00=no increased risk compared to sober drivers

Source: Li, Guohua, Joanne E. Brady and Qixuan Chen. "Drug use and fatal motor crashes: a case-control study." *Accident Analysis and Prevention*. 2013. 60. 205-210. Tables 3 and 4. <https://www.cuinjuryresearch.org/wp-content/uploads/2013/10/Li-et-al-AAP-2013.pdf?version=meter+at+5&module=meter-Links&pgtype=article&contentId=&mediald=&referrer=&priority=true&action=click&contentCollection=meter-links-click>, or <https://www.ncbi.nlm.nih.gov/pubmed/24076302>

CONCLUSION:

While more research needs to be done, current data show that marijuana has fewer health risks than either alcohol or tobacco. The current government treatment of marijuana is likely due to historical cultural negative attitudes toward marijuana, compared to the more socially acceptable alcohol and tobacco. Legislation of marijuana should be based on scientific findings rather than outdated public attitudes. For the full report, see *Just How Dangerous Is Marijuana? A Health Risk Comparison of Marijuana, Alcohol and Tobacco* at <https://reason.org/wp-content/uploads/how-dangerous-is-marijuana.pdf>