

COMPARING CANNABIS AND ALCOHOL

LESLIE IVERSEN

Department of Pharmacology, University of Oxford

Alcohol and cannabis are the two most widely used “recreational” drugs in Western countries. The drugs act on different targets in the brain, but the consequences are similar – leading to a state of intoxication characterized by disinhibition and fatuous euphoria. But whereas the cannabis “high” is usually followed by a calm state of withdrawal, alcohol often unleashes aggression which can proceed to violence. In overdose alcohol can kill; cannabis cannot.

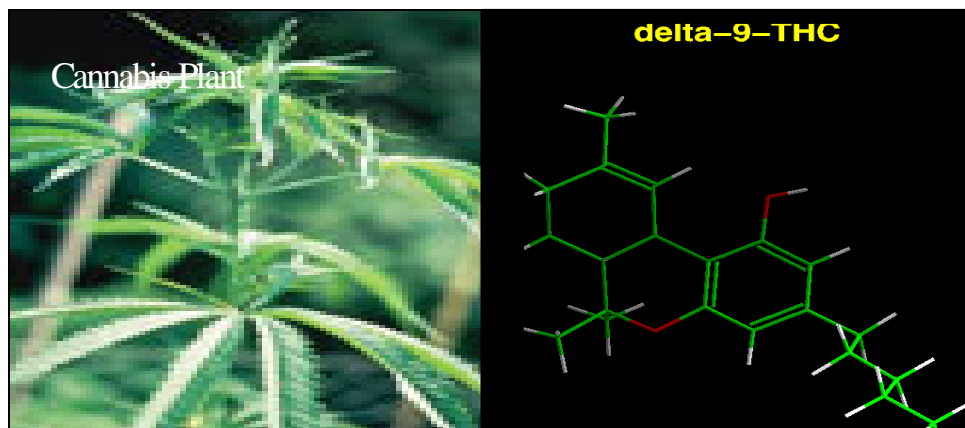
Regular use of either drug leads to addiction/dependence in about 10% of users but many cannabis users quit by age 30 while most alcoholics do not.

In terms of health risks, maternal use of alcohol can damage the unborn child and lead to “foetal alcohol syndrome”, with permanent physical and mental impairment. Alcohol is also a major cause of liver and pancreas disease and is associated with an increased risk of cancers of the mouth and throat. Cannabis smoke can cause bronchitis and there is a possibility of an increased risk of cancers of the mouth, throat and lung. Heavy use of cannabis by young people may increase their risk of subsequent psychiatric illness.

Alcohol and cannabis have many similarities and the health risks associated with their use are comparable, although those associated with alcohol are much more severe. There is little scientific or medical basis for the differences which exist in the laws that seek to restrict the use of these two intoxicants.

CANNABIS

- The cannabis plant has been used by humans as a psychedelic and psychopharmaceutical for several thousand years.
- Cannabis was relatively unknown in the west until the 19th century when it was introduced to British medicine from India.
- It first came into widespread recreational use in the 1960s and 1970s as one of the preferred drugs of the hippy movement.
- Its active principle, tetrahydrocannabinol (THC) was first identified in the 1970s.
- THC accounts for virtually all the psychic, central nervous system effects of smoking the plant extract.
- Its administration is difficult because it is almost totally insoluble in water. It can be dissolved in oil or fat and made into edible foodstuffs.
- Ingestion is problematic because its absorption is unpredictable.
- Smoking is the most effective way of taking the drug, it passing quickly from the lungs to the bloodstream to the brain.
- Experienced smokers can titrate the dose by the number of times and how deeply they inhale.



INTOXICATION

- Initially cannabis acts quite differently to alcohol in the brain. THC molecules attach to specific protein cannabinoid receptors.
- Cannabinoid receptors exist to recognise a naturally occurring system of cannabis-like brain chemicals called the endocannabinoids that form part of a physiological control and chemical messaging system.
- The cannabinoids influence similar neurotransmitter systems to alcohol, e.g. GABA and glutamate mechanisms which control dopamine levels.
- The release of dopamine seems to be a common feature of all drugs that have euphoriant and potentially addictive qualities, e.g. alcohol, nicotine, cannabis, cocaine, amphetamines and heroin.
- The active component of cannabis, THC, and alcohol act on different brain mechanisms, but their effects on brain function are somewhat similar – leading to disinhibition and intoxication.

- The early stages of alcohol and cannabis intoxication (both dizzy & delightful) are similar but this similarity weakens as levels of intoxication increase (drunk & disorderly vs. relaxed and peaceful).
- Alcohol intoxication dramatically increases levels of public disorder and accidents. Cannabis intoxication is not identified with antisocial behaviour.
- There are no cases of fatalities caused by cannabis overdose. There are many acute alcohol-related fatalities.

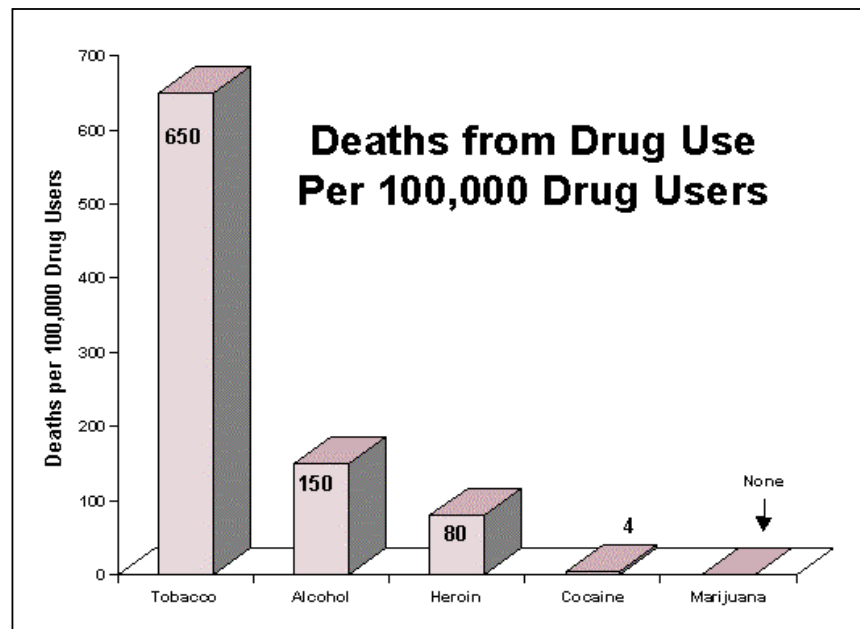
Stages of Cannabis Intoxication

- BUZZ – dizziness, light headed, tingling, warmth
- HIGH –heightened perception, giggly, euphoria, rush of thoughts & ideas
- STONED – relaxed, peaceful, calm, distorted sense of time, maybe hallucinations, fantasies
- SLEEP

Stages of Alcohol Intoxication

- 0.1% Dizzy and Delightful
- 0.2% Drunk and Disorderly
- 0.3% Dead Drunk
- 0.4% Danger of Death

(Sir John Gaddum – British pharmacologist)



Source: Thinking About Drug Legalisation by James Ostrowski. Cato Institute Paper # 121

DRIVING UNDER THE INFLUENCE

- Alcohol causes clear deficits in driving skills as demonstrated by impairments in driving simulator tests, while it is hard to show serious deficits resulting from cannabis intoxication.
- Alcohol is a major factor in road traffic accidents, increasingly in combination with cannabis.
- Both drugs clearly impair psychomotor function.
- There is a simple roadside test available for alcohol in the form of a breathalyser, while there is no simple test for cannabis intoxication. Cannabis remains in the body long after its psychoactive effects have ceased, so its presence in small amounts in the bloodstream or urine does not indicate intoxication.

DEPENDENCE AND WITHDRAWAL

- Regular use of either drug can lead to addiction / dependence in approximately 10% of users.
- Alcohol withdrawal includes physical signs (some very serious), whereas cannabis withdrawal is accompanied only by a psychological syndrome, e.g. irritability, anger, unhappiness, anxiety or sleep disorder.
- A behavioural withdrawal syndrome can be elicited by giving cannabinoid receptor antagonists to cannabis dependent animals.
- Many cannabis users quit spontaneously by the time they are 30, usually when they acquire families and responsibilities, whereas few dependent drinkers or tobacco smokers do.
- There is a very large range of cannabis use frequency compared to cigarette smoking.

HEALTH RISKS – I: THE UNBORN CHILD

- Cannabis use during pregnancy may lead to lower birth weight babies but this may be due to carbon monoxide in the cannabis smoke rather than the THC. There is little evidence of subsequent impaired physical or mental development.
- Foetal alcohol syndrome affects approximately 0.1% of all births in the USA in recent years. These children are permanently impaired, both physically and mentally.

HEALTH RISKS – II: ADULTS

- Alcohol is the major cause of liver and pancreas disease; increases the risk of mouth and throat cancers; and can cause brain damage and dementia in high-level users.
- The more important health risks of cannabis are related to smoking as a means of delivering the drug. Smoking cannabis can lead to bronchitis; as yet unproven increased risk of mouth, throat and lung cancer.
- Heavy use by young people can increase the risk of subsequent psychiatric illness - although one cannot assume causality - and can exacerbate existing psychiatric illness.
- An added problem specific to the UK is that most people use cannabis in combination with tobacco, unlike many other European countries and the USA, where this is not the cultural norm. This increases the risk of smoking-related illnesses and increases the risk of becoming addicted to tobacco.
- Cannabis use has not been prevalent for long enough in western society to know if it increases the risk of cancer later in life.

- Cannabis use does NOT cause permanent brain damage; impair the immune system or cause sterility as previously rumoured.

PUBLIC OPINION

- Recent research would suggest attitudes towards cannabis are beginning to change.
- In contrast to the views of politicians, many people believe the drug is not as dangerous as has been depicted.
- Opinion Polls in the UK and the USA show voters in favour of legalising cannabis are on the increase. American polls show percentages in favour:
 - 1972 = 15%
 - 2000 = 34%
 - 2003 = 42%
 A poll conducted in the UK in 2001 found 49% to be in favour of legalisation. Those against were mainly in the over 55 age bracket.
- A large majority of the population are in favour of medicinal cannabis.
- There is increasing sentiment towards relaxation of cannabis laws despite vehement anti-drug propaganda.

Canadian Senate Special Committee on Illegal Drugs – Sept 2002

” Marijuana users are unlikely to become dependent. Most users are not at-risk users ... and most experimenters stop using cannabis. ... Heavy use of cannabis can result in dependence requiring treatment; however, dependence caused by cannabis is less severe and less frequent than dependence on other psychotropic substances, including alcohol and tobacco.”

”Scientific evidence overwhelmingly indicates that cannabis is substantially less harmful than alcohol and should be treated not as a criminal issue but as a social and public health issue. We have come to the conclusion that, as a drug, it should be regulated by the state much as we do for wine and beer, hence our preference for legalisation over decriminalisation.”

CONCLUSIONS

- Cannabis and alcohol have many similarities, and share some of the same health risks.
- Since the Gin Acts of 18th century Britain we have learned how to regulate and control alcohol use, standardising quality and taxing consumption.
- Perhaps it is possible to learn how to control cannabis use in a similar manner.