Factsheet 4

cannabis potency

ncpic
national cannabis prevention and information centre

how potent (strong) is cannabis?

Cannabis is a complex drug that is comprised of approximately 80 unique cannabinoids along with many other compounds. The main ingredient in cannabis that is responsible for the psychoactive, or mood altering effects is called delta-9-tetrahydrocannabinol (THC). The level of THC in cannabis, and thus its potency, is not always consistent across the same plant nor necessarily between plants grown in the same area at the same time if they are different cultivars.

strain and cultivation techniques

The way in which cannabis is grown can affect the amount of THC in the plant, and therefore the potency. *Cannabis sativa* is the species of plant that most commonly produces the preparations known as marijuana, hash or hashish. Typically, female plants are grown in isolation, so the flowering tops of the plant remain unfertilised. These unfertilised flowering tops, known as sinsemilla, have particularly high THC levels. Crossbreeding and genetic modification can also produce strains of the cannabis plant that also lead to higher levels of THC.

The only published Australian test of the differences in potency between cannabis grown naturally, hydroponically and indoors in soil, used ten plants and showed great variation. In that small study, no growing technique was clearly more capable of producing more potent plants. A very recent study of cannabis seized in NSW as part of the Cannabis Cautioning Scheme tested more than 200 samples and found that the samples showed high mean THC content of 14.7% and low mean cannabidiols (CBD) content of 0.1%. with no significant differences in cannabinoid content between those seized from indoor versus outdoor cultivation sites.

part of plant used

The flowering tops, or 'buds' of the female cannabis plant typically have the highest concentrations of THC, followed by the leaves. Much lower THC levels are found in the stalks and seeds of the cannabis plant and these are of minimal commercial value.

preparation for use

The cannabis plant can be prepared in different ways for use, and these different forms have different potency. Previously, hash oil was thought to be the strongest preparation and was made by extracting oil from the cannabis plant, which contains high levels of THC of 15% to 30% THC. The resin secreted from the plant can be dried to make traditional hashish or hash of that yields around 10% to 20%. Ice-o-lator is a new hash preparation method, which was introduced in Amsterdam "coffeeshops" starting around late 2005. This technique uses ice to get an extremely concentrated batch of resin which is reportedly in excess of 40% THC. The form with the lowest THC level is the dried herbal preparation of buds and leaves of the plant.

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has cannabis become stronger?

There has been an increase in health problems related to cannabis in Australia over the last 20 years but it is not clear whether this is because cannabis has become more potent. The increase in health problems is likely to be also influenced by the increased popularity of using stronger parts of the plant, and patterns of use. While cannabis users in the 1970s were most likely to smoke the leaves, cannabis users today prefer to smoke the more potent flowering tops, or buds of the plant. Furthermore, there is good evidence that the age at which people commence using cannabis has, until recently, been going down. Research shows that young, regular (daily or near daily) users are most at risk of many of the adverse effects of cannabis, including mental health problems and dependence.

so what's the story?

It would appear that the main difference nowadays is the higher potency of the plant, the part of the plant people smoke and the younger age at which people commence regular use. In addition, people are more likely to smoke cannabis in a 'bong'. These changes in the patterns of use may result in today's users taking in higher levels of THC than in the past. Additionally, more people appear to be using cannabis when alone than in the past, and at a younger age. The younger people start and the more regularly they use, the more likely they are to be adversely affected by cannabis. Simply focusing on cannabis potency may obscure the fact that young, regular users are most at risk of cannabis-related harm.

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