

# MARIJUANA

## Healing or Damaging?

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I cannot think of another 'natural' substance in contemporary times that generates more interest and



controversy than marijuana. At one extreme are those who believe that marijuana is evil. At the other are those who consider

it safe, even beneficial. Often, such strong positions are based on personal and moral convictions and beliefs and not scientific reasoning. The truth lies somewhere in between.

Many states have legalized marijuana and there has been talk of doing so in my state, New Jersey.

Let us understand what marijuana or cannabis is before we address the controversy. Marijuana is derived from the cannabis sativa plant. THC or tetrahydrocannabinol is its primary psychoactive ingredient that causes the 'high' There are about 65 other cannabinoids in the plant that do not produce a 'high' but some of which may have potential medicinal uses in conditions like a rare form of severe childhood epilepsy, multiple sclerosis, chronic pain, glaucoma and severe nausea associated with chemotherapy and AIDS.

(See: <http://learnaboutmarijuanawa.org/factsheets/cannabinoids.htm>).

The greyish-green shredded leaves, and flowers along with stems and seeds are smoked in cigarettes, cigars, pipes, water pipes, or 'blunts' (marijuana wrapped in the tobacco-leaf wrapper from a cigar). It is also referred to by nicknames 'pot' or 'weed.' Hashish is derived from the resin of marijuana flowers and is smoked alone or with tobacco and can also be ingested. Bhang is an edible form of marijuana that has



been used in India for a couple of centuries. Those from India will remember it being consumed in liquid form e.g. thandai during the Shivratri festival. Remember the song Jai Jai Shiv Shankar picturized on Rajesh Khanna and Mumtaz in the movie Aap Ki Kasam? Regardless of how it is consumed, it produces a 'high.' The effect is quicker when smoked. It is the most commonly used 'illicit' drug throughout the world and in the United States.

Let us discuss certain myths and facts about marijuana. Is it safe? While the occasional recreational use of marijuana by adults may be considered by many as relatively harmless, the devil is in the details. Certainly, the use of synthetic marijuana is much riskier than naturally grown marijuana.

Being plant-based, marijuana qualifies as a 'natural' substance. Many think that since it is natural it should be good, safe and even beneficial. Those who believe that it is a natural substance and a source of harmless pleasure advocate that marijuana should not be regulated or considered illegal. Penicillin was developed from a mold. Mold is natural but we do not consume that. Warfarin is a lifesaving medicine for some people; it is also the active ingredient in rat poison.

Some effects are produced immediately after consuming marijuana.

There are long term effects in those who consume marijuana regularly, for a long time and especially heavily. After smoking marijuana, one feels high and intoxicated. Just as in intoxication with alcohol, it can impair reflexes, judgment and cognitive capacity. Both immediate and long-term exposure to marijuana impair driving ability. Studies have established a relationship between blood THC concentration and impairment in performance in driving. Marijuana is the illicit drug most frequently reported in connection with impaired driving and accidents, including fatal accidents.

When it comes to the use of marijuana by teenagers, another significant safety concern comes to mind. The human brain continues to develop from the prenatal period through childhood and adolescence until about age 21. During this period of development the brain is more vulnerable to long-term effects of THC. There have been reports of association between frequent long-term exposure to marijuana during adolescence into adulthood and significant declines in IQ. Repeated marijuana use during adolescence may result in long-lasting changes in brain function that can jeopardize educational, professional and social achievements.

Add to this the fact that the cannabis of today is very different and much stronger than it was 20 years ago. The

potency of marijuana (as measured by THC concentration) on the streets has gone from 4 per cent to 12 per cent. With increased potency the effect is stronger and so is the potential impairment. In states that have legalized marijuana, the number of visits to the emergency departments due to marijuana intoxication has increased. In Colorado, the number of auto accidents in which marijuana was involved increased after it was legalized (critics question the data since such data was not available for periods prior to its legalization in 2014). Pediatricians have also expressed concerns about toxicity caused by accidental ingestion of edible forms of marijuana that are mistaken as chocolates or candy by children.

Another common myth is that marijuana is not addictive. We know for a fact that regular use of marijuana results in addiction. Withdrawal symptoms are experienced when it is stopped. These include anxiety, irritability, cravings, sleep difficulties, and changes in mood. This makes it very difficult to stop and often results in relapse. Indeed, approximately 9 per cent of those who experiment with marijuana will become addicted. The number goes up to about 1 in 6 among those who start using marijuana as teenagers and to 25 to 50 per cent among those who smoke marijuana daily. In fact, 1 in 11 adult and 1 in 6 adolescent cannabis users meet the criteria of marijuana addiction or cannabis use disorder.

Some argue that marijuana is safer than alcohol and since alcohol is legal, marijuana should also be made legal. Alcohol is not the best benchmark to establish safety. Both have dangerous implications for a developing brain and are associated with significant harm. Neither alcohol nor marijuana is evil and neither needs to be eliminated from the face of the earth. For some, marijuana is benign when used in moderation; the same is true for alcohol. The context may be very different for someone with end-stage illness using marijuana for severe neuropathic pain than from a healthy adolescent user of marijuana. The risk in making it legal is that the number of people using will likely increase. Historically, there has been an inverse correlation between mari-

juana use and the perception of its risks among adolescents. Besides, people don't choose between the two substances. Typically, co-use of alcohol and marijuana is common. The risk of impaired driving ability associated with the use of alcohol in combination with marijuana appears to be greater than that associated with the use of either drug alone. Data from Washington Traffic Safety Commission shows that the number of marijuana-impaired drivers involved in fatal car crashes in Washington rose by 33.8 percent in 3 years, from 2014 to 2017 (NJ.com, November 10, 2018).

Legal drugs (alcohol and tobacco) offer a sobering perspective, accounting for the greatest burden of disease associated with drugs not because they are more dangerous than illegal drugs but because their legal status allows for more widespread exposure.

Some argue that marijuana increases vulnerability of those with mental illness. Regular marijuana use is associated with an increased risk of anxiety and depression although the causality has not been established. Also, even though the causality has not been established, some experts have suggested that marijuana increases the risk of psychosis (including those associated with schizophrenia), especially in individuals with a pre-existing genetic vulnerability. This can make matters worse when control is sought on the psychotic symptoms.

There is controversy about the assertion that marijuana is a gateway drug and its use primes the brain for enhanced responses to other drugs, making them more vulnerable to using other drugs. This phenomenon is not fully understood, and many experts are not convinced about this assertion.

States that have legalized or are in the process of legalizing marijuana tout the economic benefit to the state from collection of taxes (a tax of 25% on marijuana sales in New Jersey has been mentioned). Some estimates have found that if New Jersey legalizes marijuana, it could generate more than \$1 billion in weed revenue annually, leading to a few hundred million dollars in taxes, depending on the rate. They may acknowledge the risk of impaired driving but at the end of the day, the argument of economic gains prevails.

New Jersey, in the process of legalizing marijuana, is preparing by hiring more DREs (drug recognition experts) and educating the drivers that driving while high is just as dangerous as drunk driving (NJ.com, November 10, 2018).

American Society of Addiction Medicine (ASAM), has opposed legalization of marijuana. Regardless of what the experts say, the battle of legalizing marijuana is being won by consensus of public opinion. More and more people are in favor of legalization. ASAM asserts that the anticipated public health costs of marijuana legalization are significant and are not sufficiently appreciated by the general public or by policymakers. In New Jersey, nearly 50 percent of people said they think marijuana is less harmful than alcohol, while just 12 percent said they believe it to be more harmful.

In summary, there is a high level of confidence in the evidence that marijuana is addictive, and is associated with diminished lifetime achievements, increased motor vehicle accidents, and chronic bronchitis. The evidence is less strong and is considered of medium confidence, when it comes to association between marijuana and abnormal brain development, progression to use of other drugs, depression, anxiety and schizophrenia. People who use in moderation say that it is relaxing and even beneficial. Occasional use in moderation may not be harmful. People argue that coffee, when consumed in moderation, also is not harmful and even helpful and becomes harmful when too much is consumed. However, it is legal. So is alcohol. People in favor of legalization do have a point in such argument.

The bottom line is if you are given a bottle with a magic elixir that can make you feel wonderful with a small chance that it can harm you or even kill you, will you take it? If you want to learn more, there is an excellent and objective review article on Adverse Health Effects of Marijuana Use by Nora D. Volkow, M.D, and others in *The New England Journal of Medicine* (June 5, 2014).

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