

NORML's Marijuana Health Mythology

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Myth: Marijuana is a Dangerous Drug

Any discussion of marijuana should begin with the fact that there have been numerous official reports and studies, every one of which has concluded that marijuana poses no great risk to society and should not be criminalized. These include: the National Academy of Sciences' "Analysis of Marijuana Policy"(1982); the National Commission on Marihuana and Drug Abuse (the Shafer Report) (1973); the Canadian Government's Commission of Inquiry (Le Dain Report) (1970); the British Advisory Committee on Drug Dependency (Wooton Report) (1968); the La Guardia Report (1944); the Panama Canal Zone Military Investigations (1916-29); and Britain's monumental Indian Hemp Drugs Commission (1893-4).

It is sometimes claimed that there is "new evidence" showing marijuana is more harmful than was thought in the sixties. In fact, the most recent studies have tended to confirm marijuana's safety, refuting claims that it causes birth defects, brain damage, reduced testosterone, or increased drug abuse problems.

The current consensus is well stated in the 20th annual report of the California Research Advisory Panel (1990), which recommended that personal use and cultivation of marijuana be legalized: "An objective consideration of marijuana shows that it is responsible for less damage to society and the individual than are alcohol and cigarettes."

References: The National Academy of Sciences report, "Marijuana and Health" (National Academy Press, 1982), remains the most useful overview of the health effects of marijuana, its major conclusions remaining largely unaffected by the last 10 years of research. Lovinger and Jones, *The Marihuana Question* (Dodd, Mead & Co., NY 1985), is the most exhaustive and fair-handed summary of the evidence against marijuana. Good, positive perspectives may be found in Lester Grinspoon's *Marihuana, the Forbidden Medicine* (Yale Press, 1993) and *Marihuana Reconsidered* (Harvard U. Press 1971), which debunks many of the older anti-pot myths. See also Leo Hollister, "Health Aspects of Cannabis," *Pharmacological Reviews* 38:1-20 (1986).

Myth: Marijuana is Harmless

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Just as most experts agree that occasional or moderate use of marijuana is innocuous, they also agree that excessive use can be harmful. Research shows that

the two major risks of excessive marijuana use are: (1) respiratory disease due to smoking and (2) accidental injuries due to impairment.

Marijuana and Smoking:

A recent survey by the Kaiser Permanente Center found that daily marijuana-only smokers have a 19% higher rate of respiratory complaints than non-smokers.¹ These findings were not surprising, since it has long been known that, aside from its psychoactive ingredients, marijuana smoke contains virtually the same toxic gases and carcinogenic tars as tobacco. Human studies have found that pot smokers suffer similar kinds of respiratory damage as tobacco smokers, putting them at greater risk of bronchitis, sore throat, respiratory inflammation and infections.²

Although there has not been enough epidemiological work to settle the matter definitively, it is widely suspected that marijuana smoking causes cancer. Studies have found apparently pre-cancerous cell changes in pot smokers.³ Some cancer specialists have reported a higher-than-expected incidence of throat, neck and tongue cancer in younger, marijuana-only smokers.⁴ A couple of cases have been fatal. While it has not been conclusively proven that marijuana smoking causes lung cancer, the evidence is highly suggestive. According to Dr. Donald Tashkin of UCLA, the leading expert on marijuana smoking:⁵

"Although more information is certainly needed, sufficient data have already been accumulated concerning the health effects of marijuana to warrant counseling by physicians against the smoking of marijuana as an important hazard to health."

Fortunately, the hazards of marijuana smoking can be reduced by various strategies: (1) use of higher-potency cannabis, which can be smoked in smaller quantities, (2) use of waterpipes and other smoke reduction technologies⁶, and (3) ingesting pot orally instead of smoking it.

Footnotes

1. Michael R. Polen et al. "Health Care Use by Frequent Marijuana Smokers Who Do Not Smoke Tobacco," *Western Journal of Medicine* 158 #6: 596-601 (June 1993).
2. Donald Tashkin, "Is Frequent Marijuana Smoking Hazardous To Health?" *Western Journal of Medicine* 158 #6: 635-7 (June 1993).
3. D. Tashkin et al, "Effects of Habitual Use of Marijuana and/or Cocaine on the Lung," in *Research Findings on Smoking of Abused Substances*, NIDA Research Monograph 99 (1990).
4. Paul Donald, "Advanced malignancy in the young marijuana smoker," *Adv Exp Med Biol* 288:33-56 (1991); FM Taylor, "Marijuana as a potential respiratory tract carcinogen," *South Med Journal* 81:1213-6 (1988).

5. D. Tashkin, "Is Frequent Marijuana Smoking Hazardous To Health,?" op. cit.
6. Nicholas Cozzi, "Effects of Water Filtration on Marijuana Smoke: A Literature Review," MAPS (Multidisciplinary Association for Psychedelic Studies) newsletter, Vol. IV #2 (1993) (Reprints available from MAPS and Cal. NORML).

Myth: One Joint Equals One Pack (or 16, or maybe just 4) Cigarettes

Some critics exaggerate the dangers of marijuana smoking by fallaciously citing a study by Dr. Tashkin which found that daily pot smokers experienced a "mild but significant" increase in airflow resistance in the large airways greater than that seen in persons smoking 16 cigarettes per day.¹ What they ignore is that the same study examined other, more important aspects of lung health, in which marijuana smokers did much better than tobacco smokers. Dr. Tashkin himself disavows the notion that one joint equals 16 cigarettes.

A more widely accepted estimate is that marijuana smokers consume four times as much carcinogenic tar as cigarettes smokers per weight smoked.² This does not necessarily mean that one joint equals four cigarettes, since joints usually weigh less. In fact, the average joint has been estimated to contain 0.4 grams of pot, a bit less than one-half the weight of a cigarette, making one joint equal to two cigarettes (actually, joint sizes range from cigar-sized spliffs smoked by Rastas, to very fine sinsemilla joints weighing as little as 0.2 grams). It should be noted that there is no exact equivalency between tobacco and marijuana smoking, because they affect different parts of the respiratory tract differently: whereas tobacco tends to penetrate to the smaller, peripheral passageways of the lungs, pot tends to concentrate on the larger, central passageways.³ One consequence of this is that pot, unlike tobacco, does not appear to cause emphysema.

Footnotes

1. D. Tashkin, "Respiratory Status of 74 Habitual Marijuana Smokers," Chest 78 #5: 699-706 (Nov. 1980).
2. T-C. Wu, D. Tashkin, B. Djahed and J.E. Rose, "Pulmonary hazards of smoking marijuana as compared with tobacco," New England Journal of Medicine 318: 347-51 (1988).
3. Donald Tashkin et al, "Effects of Habitual Use of Marijuana and/or Cocaine on the Lung," loc.cit.

Myth: Prohibition Reduces the Harmfulness of Pot Smoking

Whatever the risks of pot smoking, the current laws make matters worse in several respects: (1) Paraphernalia laws have impeded the development and marketing of water pipes and other, more advanced technology that could significantly reduce the harmfulness of marijuana smoke. (2) Prohibition encourages the sale of pot that has been contaminated or adulterated by insecticides, Paraquat, etc., or mixed with other drugs such as PCP, crack and heroin. (3) By raising the price of marijuana, prohibition makes it uneconomical to consume marijuana orally, the best way to avoid smoke exposure altogether; this is because eating typically requires two or three times as much marijuana as smoking.

Unlike the government, NORML is interested in reducing the dangers of pot smoking; California NORML and MAPS (the Multidisciplinary Association for Psychedelic Studies) are currently researching the use of waterpipes and other advanced smoke reduction technology.

References on Marijuana and Smoking: Donald Tashkin, "Is Frequent Marijuana Smoking Hazardous To Health?", *Western Journal of Medicine* 158 #6: 635-7; June 1993; *Research Findings on Smoking of Abused Substances*, ed. C. Nora Chiang and Richard L. Hawks, NIDA Research Monograph 99 (National Institute on Drug Abuse, Rockville, MD 1990); NATIONAL ACADEMY OF SCIENCES Report, op. cit.; California NORML, "Health Tips for Marijuana Smokers."

Myth: No One Has Ever Died From Using Marijuana

The Kaiser study also found that daily pot users have a 30% higher risk of injuries, presumably from accidents. These figures are significant, though not as high as comparable risks for heavy drinkers or tobacco addicts. That pot can cause accidents is scarcely surprising, since marijuana has been shown to degrade short-term memory, concentration, judgment, and coordination at complex tasks including driving.¹ There have been numerous reports of pot-related accidents -- some of them fatal, belying the attractive myth that no one has ever died from marijuana. One survey of 1023 emergency room trauma patients in Baltimore found that fully 34.7% were under the influence of marijuana, more even than alcohol (33.5%); half of these (16.5%) used both pot and alcohol in combination.² This is perhaps the most troublesome research ever reported about marijuana; as we shall see, other accident studies have generally found pot to be less dangerous than alcohol.

Nonetheless, it is important to be informed on all sides of the issue. Pot smokers should be aware that accidents are the number one hazard of moderate pot use. In addition, of course, the psychoactive effects of cannabis can have many other adverse effects on performance, school work, and productivity.

Footnotes

1. Herbert Moskowitz, "Marihuana and Driving," *Accident Analysis and Prevention* 17#4: 323-45 (1985).
2. Carl Soderstrom et al., "Marijuana and Alcohol Use Among 1023 Trauma Patients," *Archives of Surgery*, 123: 733-7 (1988).

Myth: Marijuana is a Major Road Safety Hazard

A growing body of research indicates that marijuana is on balance less of a road hazard than alcohol. Various surveys have found that half or more of fatal drivers have alcohol in their blood, as opposed to 7 - 20% with THC, the major psychoactive component of marijuana (a condition usually indicative of having smoked within the past 2-4 hours).¹ The same studies show that some 70% - 90% of those who are THC-positive also have alcohol in their blood. It therefore appears that marijuana by itself is a minor road safety hazard, though the combination of pot and alcohol is not. Some research has even suggested that low doses of marijuana may sometimes improve driving performance, though this is probably not true in most cases.²

Two major new studies by the National Highway Transportation Safety Administration have confirmed marijuana's relative safety compared with alcohol. The first, the most comprehensive drug accident study to date, surveyed blood samples from 1882 drivers killed in car, truck and motorcycle accidents in seven states during 1990-91.³ Alcohol was found in 51.5% of specimens, as against 17.8% for all other drugs combined. Marijuana, the second most common drug, appeared in just 6.7%. Two-thirds of the marijuana-using drivers also had alcohol. The report concluded that alcohol was by far the "dominant" drug-related problem in accidents. It went on to analyze the responsibility of drivers for the accidents they were involved in. It found that drivers who used alcohol were especially culpable in fatal accidents, and even more so when they combined it with marijuana or other drugs. However, those who used marijuana alone appeared to be if anything less culpable than non-drug users (though the data were insufficient to be statistically conclusive). The report concluded, "There was no indication that marijuana by itself was a cause of fatal accidents." (It must be emphasized that this is not the case when marijuana is combined with alcohol or other drugs).

The second NHTSA study, "Marijuana and Actual Driving Performance," concluded that the adverse effects of cannabis on driving appear "relatively small" and are less than those of drunken driving.⁴ The study, conducted in the Netherlands, examined the performance of drivers in actual freeway and urban driving situations at various doses of marijuana. It found that marijuana produces a moderate, dose-related decrement in road tracking ability, but is "not profoundly impairing" and "in no way unusual compared to many medicinal drugs." It found that marijuana's effects at the

higher doses preferred by smokers never exceed those of alcohol at blood concentrations of .08%, the minimum level for legal intoxication in stricter states such as California. The study found that unlike alcohol, which encourages risky driving, marijuana appears to produce greater caution, apparently because users are more aware of their state and able to compensate for it (similar results have been reported by other researchers as well). It should be noted that these results may not apply to non-driving related situations, where forgetfulness or inattention can be more important than speed (this might explain the discrepancy in the Baltimore hospital study, which looked at accidents of all kinds). The NHTSA study also warned that marijuana could also be quite dangerous in emergency situations that put high demands on driving skills.

Footnotes

1. Dale Gieringer, "Marijuana, Driving, and Accident Safety," *Journal of Psychoactive Drugs* 20 (1): 93-101 (Jan-Mar 1988).
2. H. Klonoff, "Marijuana and driving in real-life situations," *Science* 186: 317-24 (1974).
3. K.W. Terhune et al., "The Incidence and Role of Drugs in Fatally Injured Drivers," NHTSA Report # DOT-HS-808-065 (1994).
4. Hendrik Robbe and James O'Hanlon, "Marijuana and Actual Driving Performance," NHTSA Report #DOT-HS-808-078 (1994).
5. Klonoff, loc. cit.; A. Smiley, "Marijuana: On-road and driving simulator studies," *Alcohol, Drugs and Driving: Abstracts and Reviews* 2#3-4: 15-30 (1986).

Myth: Marijuana Prohibition Improves Public Safety

There is no evidence that the prohibition of marijuana reduces the net social risk of accidents. On the contrary, recent studies suggest that marijuana may actually be beneficial in that it substitutes for alcohol and other, more dangerous drugs. Research by Karyn Model found that states with marijuana decriminalization had lower overall drug abuse rates than others; another study by Frank Chaloupka found decriminalization states have lower accident rates too.¹ In Alaska, accident rates held constant or declined following the legalization of personal use of marijuana.² In Holland, authorities believe that cannabis has contributed to an overall decline in opiate abuse. Recent U.S. government statistics show that the highest rates of cocaine abuse in the West were in Nevada and Arizona, the states with the toughest marijuana laws.

Footnotes

1. Peter Passell, "Less Marijuana, More Alcohol?" New York Times June 17, 1992.
2. Michael Dunham, "When the Smoke Clears," Reason March 1983 pp.33-6.

Myth: Drug Urinalysis Improves Workplace Safety

There has never been a single, controlled scientific study showing drug urinalysis improves workplace safety. Claims that drug testing works are based on dubious anecdotal reports or the mere observation of a declining rate of drug positives in the working population, which has nothing to do with job performance. Such scientific studies as have been conducted have found little difference between the performance of drug-urine-positive workers and others.

The largest survey to date, covering 4,396 postal workers nationwide, found no difference in accident records between workers who tested positive on pre-employment drug screens and those who did not.¹ The study did find that drug-positive workers had a 50% higher rate of absenteeism and dismissals; put another way, however, drug users had a 93.4% attendance record (versus 95.8% for non-users) and fully 85% kept their jobs for a year (versus 89.5% for non-users). An economic analysis of postal workers in Boston concluded that the net savings of drug testing were marginal, and that there could be many situations where it is not cost-effective.² Another survey of health workers in Georgia found no difference in job performance between drug-positive and drug-negative workers.³

Footnotes

1. Norman, Salyard and Mahoney, "An Evaluation of Preemployment Drug Testing," Journal of Applied Psychology 75(6) 629-39 (1990).
2. Zwerling, Ryan and Orav, "Costs and Benefits of Preemployment Drug Screening," JAMA 267(1): 91-3 (1992).
3. David Charles Parish, "Relation of the Pre-employment Drug Testing Result to Employment Status: A One-year Follow-up," Journal of General Internal Medicine 4:44-7 (1989).

Myth: Random Urinalysis is Needed in Safety-Sensitive Transportation Jobs

Government rules mandating random drug testing were promulgated without any prior statistical evidence that illicit drugs constituted an inordinate safety hazard. Not a single commercial passenger airline accident has ever been attributed to marijuana

(or, for that matter, alcohol) abuse.¹ Drug tests on rail workers found no elevated incidence of drug use among workers involved in accidents.²

Random drug testing of transportation workers was enacted as a hysterical reaction to a single 1987 train collision, in which 16 Amtrak passengers were killed by a Conrail train that failed to stop. The engineer and brakeman of the Conrail train at fault were found to have recently smoked marijuana, though it was never firmly proven that marijuana caused the accident. The Conrail engineer had an extensive record of speeding and drunken driving offenses and was known by management to have drinking problems. Critical safety equipment that would have averted the accident was missing or disabled. A subsequent investigation by the National Transportation Safety Board recommended that Conrail improve both its management and equipment, but did not recommend random testing. Nonetheless, Congress responded by mandating random drug testing on the entire transportation industry, from airline flight attendants to gas pipeline workers.

Footnotes

1. Dale Gieringer, "Urinalysis or Uromancy?" in *Strategies for Change: New Directions in Drug Policy* (Drug Policy Foundation, 1992); testimony of R.B. Stone in Hearings on the Airline and Rail Service Protection Act of 1987, Senate Committee on Commerce, Science and Transportation, Feb. 20, 1987.

2. Gieringer, *op. cit.*; statistics reported in *Federal Register* Vol. 53 #224, Nov. 21, 1988 p. 47104.

Myth: A Single Joint Has Effects That Linger for Days and Weeks [28]

While it is true that THC and other cannabinoids are fat-soluble and linger in the body for prolonged periods, they do not normally affect behavior beyond a few hours except in chronic users. Most impairment studies have found that the adverse effects of acute marijuana use wear off in 2-6 hours, commonly faster than alcohol.¹ The one notable exception was a pair of flight simulator studies by Leirer, Yesavage, and Morrow, which reported effects on flight simulator performance up to 24 hours later.² The differences, described by Leirer as "very subtle" and "very marginal," were less than those due to pilot age. Another flight simulator study by the same group failed to find any effects beyond 4 hours.³ Similar "hangover" effects have been noted for alcohol.⁴

Chronic users may experience more prolonged effects due to a build-up of cannabinoids in the tissues. Some heavy users have reported feeling effects weeks or even months after stopping. However, there is no evidence that these are detrimental to safety.

References on Accidents and Drug Testing: Alcohol, Drugs and Driving: Abstracts and Reviews Vol. 2 #3-4 (Brain Information Service, UCLA 1986); Dale Gieringer, "Marijuana, Driving, and Accident Safety," *Journal of Psychoactive Drugs* 20 (1): 93-101 (Jan.-Mar 1988); Dr. John Morgan, "Impaired Statistics and the Unimpaired Worker," *Drug Policy Letter* 1(2): May/June 1989, and "The 'scientific' justification for drug urine testing," *The University of Kansas Law Review* 36: 683-97 (1988); John Horgan, "Test Negative: A look at the evidence justifying illicit-drug tests," *Scientific American*, March 1990 pp. 18-22, and "Postal Mortem," *Scientific American*, Feb. 1991 pp. 22-3; Dale Gieringer, "Urinalysis or Uromancy?" in *Strategies for Change: New Directions in Drug Policy* (Drug Policy Foundation, 1992).

Footnotes

1. Alison Smiley, "Marijuana: On-Road and Driving Simulator Studies," *Alcohol, Drugs, and Driving* 2 #3-4: 121-34 (1986).
2. V.O. Leirer, J.A. Yesavage and D.G. Morrow, "Marijuana Carry-Over Effects on Aircraft Pilot Performance," *Aviation Space and Environmental Medicine* 62: 221-7 (March 1991); Yesavage, Leirer, et al., "Carry-Over effects of marijuana intoxication on aircraft pilot performance: a preliminary report," *American Journal of Psychiatry* 142: 1325-9 (1985).
3. Leirer, Yesavage and Morrow, "Marijuana, Aging and Task Difficulty Effects on Pilot Performance," *Aviation Space and Environmental Medicine* 60: 1145-52 (Dec. 1989).
4. Yesavage and Leirer, "Hangover Effects on Aircraft Pilots 14 Hours After Alcohol Ingestion: A Preliminary Report," *American Journal of Psychiatry* 143: 1546-50 (Dec. 1986).

Myth: Pot is Ten Times More Potent and Dangerous Now Than in the Sixties

The notion that pot has increased dramatically in potency is a DEA myth based on biased government data, as shown in a recent NORML report by Dr. John Morgan.¹ Samples of pot from the early '70s came from stale, low-potency Mexican "kilobricks" left in police lockers, whose potency had deteriorated to sub-smokable levels of less than 0.5%. These were compared to later samples of decent-quality domestic marijuana, making it appear that potency had skyrocketed. A careful examination of the government's data show that average marijuana potency increased modestly by a factor of two or so during the seventies, and has been more or less constant ever since.

In fact, there is nothing new about high-potency pot. During the sixties, it was available in premium varieties such as Acapulco Gold, Panama Red, etc. , as well as

in the form of hashish and hash oil, which were every bit as strong as today's sinsemilla, but were ignored in government potency statistics. While the average potency of domestic pot did increase with the development of sinsemilla in the seventies, the range of potencies available has remained virtually unchanged since the last century, when extremely potent tonics were sold over the counter in pharmacies. In Holland, high-powered hashish and sinsemilla are currently sold in coffee shops with no evident problems.

Contrary to popular myth, greater potency is not necessarily more dangerous, due to the fact that users tend to adjust (or "self-titrate") their dose according to potency. Thus, good quality sinsemilla is actually healthier for the lungs because it reduces the amount of smoke one needs to inhale to get high.

Footnote

1. John Morgan, "American Marijuana Potency: Data Versus Conventional Wisdom," NORML Reports (1994). See also T. Mikuriya and M. Aldrich, "Cannabis 1988: Old drug, new dangers, the potency question," *Journal of Psychoactive Drugs* 20:47-55.

Myth: Pot Kills Brain Cells

Government experts now admit that pot doesn't kill brain cells.¹ This myth came from a handful of animal experiments in which structural changes (not actual cell death, as is often alleged) were observed in brain cells of animals exposed to high doses of pot. Many critics still cite the notorious monkey studies of Dr. Robert G. Heath, which purported to find brain damage in three monkeys that had been heavily dosed with cannabis.² This work was never replicated and has since been discredited by a pair of better controlled, much larger monkey studies, one by Dr. William Slikker of the National Center for Toxicological Research³ and the other by Charles Rebert and Gordon Pryor of SRI International.⁴ Neither found any evidence of physical alteration in the brains of monkeys exposed to daily doses of pot for up to a year. Human studies of heavy users in Jamaica and Costa Rica found no evidence of abnormalities in brain physiology.⁵ Even though there is no evidence that pot causes permanent brain damage, users should be aware that persistent deficits in short-term memory have been noted in chronic, heavy marijuana smokers after 6 to 12 weeks of abstinence.⁶ It is worth noting that other drugs, including alcohol, are known to cause brain damage.

Footnotes

1. Dr. Christine Hartel, Acting Director of Research, National Institute of Drug Abuse, cited by the State of Hawaii Dept of Health, Alcohol and Drug Abuse Division in memo of Feb. 4, 1994.

2. For an overview, see NATIONAL ACADEMY OF SCIENCES Report, op. cit., pp. 81-2.
2. R.G. Heath et al, "Cannabis sativa: effects on brain function and ultrastructure in Rhesus monkeys," Biol. Psychiatry 15: 657-90 (1980).
3. William Slikker et al., "Chronic Marijuana Smoke Exposure in the Rhesus Monkey," Fundamental and Applied Toxicology 17: 321-32 (1991).
4. Charles Rebert & Gordon Pryor - "Chronic Inhalation of Marijuana Smoke and Brain Electrophysiology of Rhesus Monkeys," International Journal of Psychophysiology V 14, p.144, 1993.
5. NATIONAL ACADEMY OF SCIENCES Report, pp. 82-7.
6. "Cannabis and Memory Loss," (editorial) British Journal of Addiction 86: 249-52 (1991)

Myth: Marijuana Causes Sterility and Lowers Testosterone

Government experts concede that pot has no permanent effect on the male or female reproductive systems.¹ A few studies have suggested that heavy marijuana use may have a reversible, suppressive effect on male testicular function.² A recent study by Dr. Robert Block has refuted earlier research suggesting that pot lowers testosterone or other sex hormones in men or women.³ In contrast, heavy alcohol drinking is known to lower testosterone levels and cause impotence. A couple of lab studies indicated that very heavy marijuana smoking might lower sperm counts. However, surveys of chronic smokers have turned up no indication of infertility or other abnormalities.

Less is known about the effects of cannabis on human females. Some animal studies suggest that pot might temporarily lower fertility or increase the risk of fetal loss, but this evidence is of dubious relevance to humans.⁴ One human study suggested that pot may mildly disrupt ovulation. It is possible that adolescents are peculiarly vulnerable to hormonal disruptions from pot. However, not a single case of impaired fertility has ever been observed in humans of either sex.

Footnotes

1. Dr. Christine Hartel, loc. cit.
2. NATIONAL ACADEMY OF SCIENCES Report, pp. 94-9.
3. Dr. Robert Block in Drug and Alcohol Dependence 28: 121-8 (1991).
4. NATIONAL ACADEMY OF SCIENCES Report, p. 97-8.

Myth: Marijuana Causes Birth Defects

While experts generally recommend against any drug use during pregnancy, marijuana has little evidence implicating it in fetal harm, unlike alcohol, cocaine or tobacco. Epidemiological studies have found no evident link between prenatal use of marijuana and birth defects in humans.¹ A recent study by Dr. Susan Astley at the University of Washington refuted an earlier work suggesting that cannabis might cause fetal alcohol syndrome.²

Although some research has found that prenatal cannabis use is associated with slightly reduced average birth weight and length,³ these studies have been open to methodological criticism. More recently, a well-controlled study found that cannabis use had a positive impact on birthweight during the third trimester of pregnancy with no adverse behavioral consequences.⁴ The same study found a slight reduction in birth length with pot use in the first two months of pregnancy. Another study of Jamaican women who had smoked pot throughout pregnancy found that their babies registered higher on developmental scores at the age of 30 days, while experiencing no significant effects on birthweight or length.⁵

While cannabis use is not recommended in pregnancy, it may be of medical value to some women in treating morning sickness or easing childbirth.

Footnotes

1. NATIONAL ACADEMY OF SCIENCES Report, p. 99.
2. Dr. Susan Astley, "Analysis of Facial Shape in Children Gestationally Exposed to Marijuana, Alcohol, and/or Cocaine," *Pediatrics* 89#1: 67-77 (January 1992).
3. Dr. Barry Zuckerman et al. "Effects of Maternal Marijuana and Cocaine Use on Fetal Growth," *New England Journal of Medicine* 320 #12: 762-8 (March 23, 1989); Dr. Ralph Hingson et al., "Effects of maternal drinking and marijuana use on fetal growth and development," *Pediatrics* 70: 539-46 (1982).
4. Nancy Day et al., "Prenatal Marijuana Use and Neonatal Outcome," *Neurotoxicology and Teratology* 13: 329-34 (1992).
5. Janice Hayes, Melanie Dreher and J. Kevin Nugent, "Newborn Outcomes With Maternal Marijuana Use in Jamaican Women," *Pediatric Nursing* 14 #2: 107-10 (Mar-Apr. 1988).

Myth: Pot Causes High Blood Pressure

According to the NATIONAL ACADEMY OF SCIENCES, the effects of marijuana on blood pressure are complex, depending on dose, administration, and posture.¹

Marijuana often produces a temporary, "moderate" increase in blood pressure immediately after ingestion; however, heavy chronic doses may slightly depress blood pressure instead. One common reaction is to cause decreased blood pressure while standing and increased blood pressure while lying down, causing people to faint if they stand up too quickly. There is no evidence that pot use causes persisting hypertension or heart disease; some users even claim that it helps them control hypertension by reducing stress.

One thing THC does do is to increase pulse rates for about an hour. This is not generally harmful, since exercise does the same thing, but it may cause problems to people with pre-existing heart disease. Chronic users may develop a tolerance to this and other cardiovascular reactions.

Footnote

1. NATIONAL ACADEMY OF SCIENCES Report, pp. 66-67.

Myth: Marijuana Damages the Immune System

A variety of studies indicate that THC and other cannabinoids may exercise mild, reversible immuno-suppressive effects by inhibiting the activity of immune system cells known as lymphocytes (T- and B-cells) and macrophages. It is dubious whether these effects are of import to human health, since they are based mainly on theoretical laboratory and animal studies. According to a review by Dr. Leo Hollister:¹ "The evidence [on immune suppression] has been contradictory and is more supportive of some degree of immunosuppression only when one considers in vitro studies. These have been seriously flawed by the very high concentrations of drug used to produce immunosuppression. The closer that experimental studies have been to actual clinical situations, the less compelling has been the evidence."

The immune suppression issue was first raised in research by the notorious cannabiphobe Dr. Gabriel Nahas, but a flurry of research by the Reagan administration failed to find anything alarming. The recent discovery of a cannabinoid receptor inside rat spleens, where immune cells reside, raises the likelihood that cannabinoids do exert some sort of influence on the immune system.² It has even been suggested that these effects might be beneficial for patients with auto-immune diseases such as multiple sclerosis. Nevertheless, not a single case of marijuana-induced immune deficiency has ever been clinically or epidemiologically detected in humans.

One exception is the lungs, where chronic pot smokers have been shown to suffer damage to the immune cells known as alveolar macrophages and other defense mechanisms.³ It is unclear how much of this damage is due to THC, as opposed to

all of the other toxins that occur in smoke , many of which can be filtered out by waterpipes and other devices.⁴

There is no reason to think marijuana is dangerous to AIDS patients. On the contrary, many AIDS patients report that marijuana helps avert the deadly "wasting syndrome" by stimulating appetite and reducing nausea. Cannabinoids do not actually damage the T-cells, which are depleted in HIV patients: one study even found that marijuana exposure increased T-cell counts in subjects (not AIDS patients) whose T-cell counts had been low.⁵ Epidemiological studies have found no relation between use of marijuana or other drugs and development of AIDS.⁶

Footnotes

1. Dr. Leo Hollister, "Marijuana and Immunity," *Journal of Psychoactive Drugs* 20(1): 3-8 (Jan/Mar 1988).
2. Sean Munro, Kerrie Thomas and Muna Abu-Shaar, "Molecular characterization of a peripheral receptor for cannabinoids," *Nature* 365:61-5 (Sept. 2, 1993); Leslie Iversen, "Medical Uses of Marijuana?", *ibid.* pp. 12-3.
3. D. Tashkin, "Is Frequent Marijuana Smoking Hazardous To Health,?" *op. cit.*
4. Nicholas Cozzi, *ibid.*
5. Donald Tashkin et al., "Cannabis 1977," *Ann. Intern. Med.* 89:539-49 (1978).
6. Richard A Kaslow et al, "No Evidence for a Role of Alcohol or Other Psychoactive Drugs in Accelerating Immunodeficiency in HIV-1-Positive Individuals," *JAMA* 261:3424-9 (June 16, 1989).

Myth: Marijuana Causes Chromosome and Cell Damage

According to the NATIONAL ACADEMY OF SCIENCES,¹ "Studies suggesting that marijuana probably does not break chromosomes are fairly conclusive." Cannabinoids in themselves are neither mutagenic nor carcinogenic, though the tars produced by marijuana combustion are. Some laboratory studies have suggested that high dosages of THC might interfere with cell replication and produce abnormal numbers of chromosomes; however, there is no evidence of such damage in realistic situations.

Footnote

1. NATIONAL ACADEMY OF SCIENCES Report, p. 101.

Myth: Marijuana Leads to Harder Drugs

There is no scientific evidence for the theory that marijuana is a "gateway" drug. The cannabis-using cultures in Asia, the Middle East, Africa and Latin America show no propensity for other drugs. The gateway theory took hold in the sixties, when marijuana became the leading new recreational drug. It was refuted by events in the eighties, when cocaine abuse exploded at the same time marijuana use declined.

As we have seen, there is evidence that cannabis may substitute for alcohol and other "hard" drugs. A recent survey by Dr. Patricia Morgan of the University of California at Berkeley found that a significant number of pot smokers and dealers switched to methamphetamine "ice" when Hawaii's marijuana eradication program created a shortage of pot.¹ Dr. Morgan noted a similar phenomenon in California, where cocaine use soared in the wake of the CAMP helicopter eradication campaign.

The one way in which marijuana does lead to other drugs is through its illegality: persons who deal in marijuana are likely to deal in other illicit drugs as well.

Footnote

1. "Survey: Hawaii war on pot pushed users to 'ice,'" Honolulu Advertiser, April 1, 1994 p. 1.