

What Americans Need
To Know About
MARIJUANA



*Important facts about our nation's
most misunderstood illegal drug*

OFFICE OF NATIONAL DRUG CONTROL POLICY

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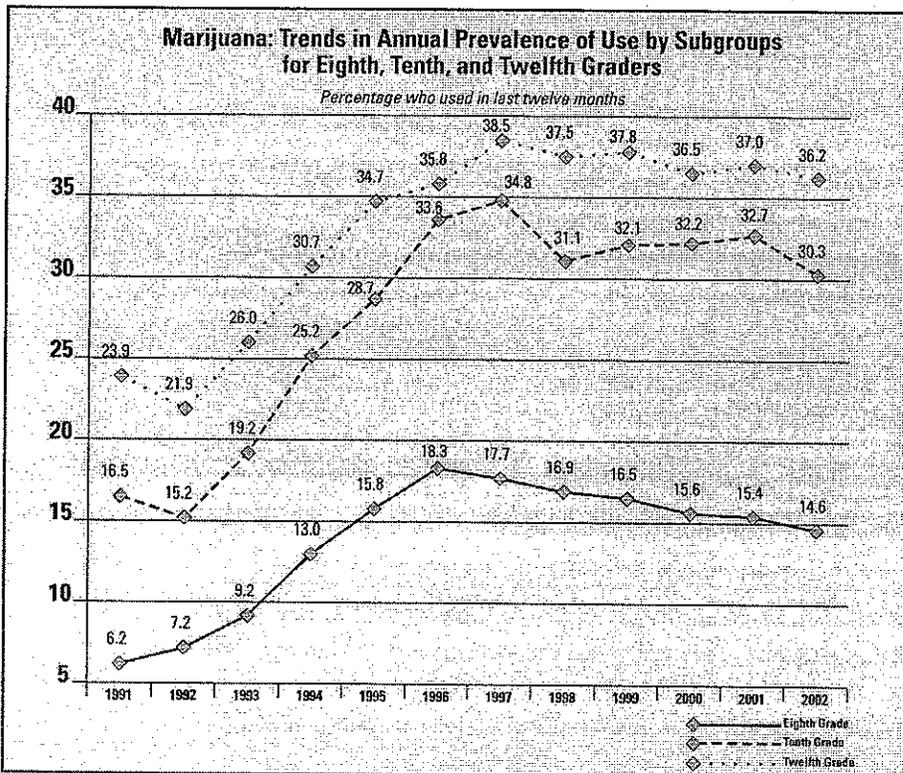


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I. There is a serious drug problem in this country, and marijuana is a much bigger part of the problem than most people realize.

- Marijuana is the most widely used illicit drug in America. Of the nearly 20 million current illicit drug users, 14.6 million (about 75 percent) are using marijuana.¹
- Of the 7.1 million Americans suffering from illegal drug dependence or abuse, 60 percent abuse or are dependent on marijuana.²
- Of all youth age 12-17 in drug treatment in 2000, nearly 62 percent had a primary marijuana diagnosis.⁴ Approximately half were referred to treatment through the criminal justice system and half through other sources, including self-referral.⁵
- The average age of initiation for marijuana use generally has been getting younger.⁶
- Along with the bad news, however, come signs of improvement (see graph, below):
 - Among 10th graders, past-year and past-month use of marijuana or hashish decreased from 2001 to 2002, as did daily use in the past month.⁷
 - There has been slow but steady progress toward reduced marijuana use rates among 8th graders. Their past-year marijuana-use rate of 14.6 percent in 2002 is the lowest since 1994, and well below their recent peak of 18.3 percent in 1996.⁸

More young people are now in treatment for marijuana dependency than for alcohol or for all other illegal drugs combined.³



- At 30.3 percent for past-year marijuana use, 10th graders are at their lowest level since 1995 and somewhat below their recent peak of 34.8 percent in 1997. The past-year use rate for 12th graders is down, albeit only modestly, from 38.5 percent in their recent peak year (1997) to 36.2 percent in 2002.⁹

Monitoring the Future, National Survey Results on Drug Use, 1975-2002

II. Myths and Misperceptions

Many of the things Americans “know” about marijuana are myths or misperceptions. People need to know the truth about this harmful drug.

MYTH 1

Marijuana is harmless.

Marijuana is far from harmless; in fact, recent scientific findings about the drug are startling. Most of the drug treatment for young people in the United States is for marijuana alone. Marijuana emergency-room mentions have skyrocketed over the past decade, and the drug is associated with an increased risk of developing schizophrenia, even when personality traits and pre-existing conditions are taken into account.

FACTS:

Health Consequences

- Marijuana smoke contains 50 percent to 70 percent more carcinogenic hydrocarbons than does tobacco smoke.¹⁰ Using marijuana may promote cancer of the respiratory tract and disrupt the immune system.¹¹
- Marijuana smokers have a heightened risk of lung infection.¹²
- Long-term use of marijuana may increase the risk of chronic cough, bronchitis, and emphysema, as well as cancer of the head, neck, and lungs.¹³
- Mentions of marijuana use in emergency room visits have risen 176 percent since 1994, surpassing those of heroin.¹⁴
- In 2001, marijuana was a contributing factor in more than 110,000 emergency department visits in the United States.¹⁵
- Marijuana can cause the heart rate, normally 70 to 80 beats per minute, to increase by 20 to 50 beats per minute or, in some cases, even to double.¹⁷
- In a 2003 study, researchers in England found that smoking marijuana for even less than six years causes a marked deterioration in lung function. The study suggests that marijuana use may rob the body of antioxidants that protect cells against damage that can lead to heart disease and cancer.¹⁸
- Marijuana affects alertness, concentration, perception, coordination, and reaction time—skills that are necessary for safe driving. A roadside study of reckless drivers in Tennessee found that 33 percent of all subjects who were not under the influence of alcohol and who were tested for drugs at the scene of their arrest tested positive for marijuana.²⁰ In a 2003 Canadian study, one in five students admitted to driving within an hour of using marijuana.²¹

Smoking marijuana leads to changes in the brain similar to those caused by the use of cocaine and heroin.¹⁶

- Marijuana users have more suicidal thoughts and are four times more likely to report symptoms of depression than people who never used the drug.²²
- The *British Medical Journal* recently reported: "Cannabis use is associated with an increased risk of developing schizophrenia, consistent with a causal relation. This association is not explained by use of other psychoactive drugs or personality traits relating to social integration."²³

The British Lung Foundation reports that smoking three or four marijuana joints is as bad for your lungs as smoking 20 tobacco cigarettes.¹⁹

Social Consequences

- Heavy marijuana use impairs the ability of young people to concentrate and retain information during their peak learning years. Tetrahydrocannabinol (THC), the main active chemical in marijuana, changes the way sensory information gets into and is processed by the part of the brain that is crucial for learning and memory.²⁴
- Animal studies indicate that marijuana use may interfere with brain function and create problems with the perception of time, possibly making the user less adept at tasks that require sustained attention.²⁵
- Marijuana use has been associated with poor performance in school. One report showed that youths with an average grade of D or below were more than four times as likely to have used marijuana in the past year as youths with an average grade of A.²⁶
- Marijuana users in their later teen years are more likely to have an increased risk of delinquency and more friends who exhibit deviant behavior. They also tend to have more sexual partners and are more likely to engage in unsafe sex.²⁷

Economic Consequences

- Use of marijuana and other illicit drugs comes at significant expense to society in terms of lost employee productivity, public health care costs, and accidents.²⁸
- Americans spent \$10.6 billion on marijuana purchases in 1999.²⁹

MYTH 2

Marijuana is not addictive.

Marijuana has been proven to be a psychologically addictive drug. Scientists at the National Institute on Drug Abuse have demonstrated that laboratory animals will self-administer THC in doses equivalent to those used by humans who smoke marijuana.³⁰

FACTS:

- Marijuana is much more powerful today than it was 30 years ago, and so are its mind-altering effects. Average THC levels rose from less than 1 percent in the mid-1970s to more than 6 percent in 2002. Sinsemilla potency increased in the past two decades from 6 percent to more than 13 percent, with some samples containing THC levels of up to 33 percent.³¹
- Subjects in an experiment on marijuana withdrawal experienced symptoms such as restlessness, loss of appetite, trouble with sleeping, weight loss, and shaky hands.³²
- According to one study, marijuana use by teenagers with prior serious antisocial problems can quickly lead to dependence on the drug. The study also found that, for troubled teenagers using tobacco, alcohol, and marijuana, progression from their first use of marijuana to regular use was about as rapid as their progression to regular tobacco use, and more rapid than the progression to regular use of alcohol.³³

Some heavy users of marijuana show signs of dependence, developing withdrawal symptoms when they have not used the drug for a period of time.

M Y T H 3

Youth experimentation with marijuana is inevitable.

Drug use can be prevented. The majority of young people do not use drugs, and there are proven ways to keep kids from starting. Contrary to popular belief, marijuana use is not a rite of passage. It is a risky behavior with serious consequences. Every American has a role to play in the effort to reduce marijuana use—at home and on the job, in schools, places of worship, and civic or social organizations. Working together, we can reaffirm healthy attitudes about marijuana use.

FACTS:

- Surveys show that parents are the biggest influence in their children's decisions about drug use.³⁴ Parents must actively engage in educating their children and help them make healthy decisions.
- We know that when we push back against the drug problem, it recedes. Marijuana use has been dramatically lower in the past—even in the last decade—and it can be reduced again.³⁵

Contrary to popular belief, marijuana use is not a rite of passage. It is a risky behavior with serious consequences.

M Y T H 4

Marijuana is not associated with violence, as are drugs like cocaine and heroin. The criminalization of marijuana is what leads to crime, not the drug itself.

It's not simply the trafficking of drugs that causes crime at home and abroad. Crime also results from the behavior of people who have drug dependencies.

FACTS:

- Research shows a link between frequent marijuana use and increased violent behavior.³⁶
- Young people who use marijuana weekly are nearly four times more likely than nonusers to engage in violence.³⁷
- More than 41 percent of male arrestees in sampled U.S. cities tested positive for marijuana.³⁸

M Y T H 5

Prisons are filled with non-violent, casual marijuana users.

Most law enforcement officials would attest that simple marijuana users rarely get sent to jail. In fact, a substantial number of states and localities rate simple possession of marijuana as a misdemeanor, subject only to a small fine. Our prisons are not filled with people whose only crime was smoking marijuana. The vast majority of those behind bars for marijuana offenses are mid- and large-scale traffickers and distributors.

FACTS:

- Less than one percent of all state prison inmates in 1997 were serving time just for marijuana possession (0.7 percent), and only 0.3 percent of marijuana-possession offenders were in prison on a first offense.³⁹
- On the federal level, nearly 98 percent of the 7,991 offenders sentenced for marijuana crimes in 2001 were guilty of trafficking. Only 2.3 percent—186 people—were sentenced for simple possession of marijuana.⁴⁰
- The median amount of marijuana involved in the conviction in federal court of marijuana-only possession offenders in 1997 was 115 pounds. In other words, half of all federal prisoners convicted just for marijuana possession were arrested with quantities exceeding 115 pounds.⁴¹

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III. The Mission

Responsible public policy seeks to reduce access to and availability of marijuana. Once people know the facts about the drug, it is important that they work to develop a comprehensive approach for preventing and reducing its use. Moreover, law enforcement agencies at all levels should make it a top priority to intensify detection and removal of marijuana-growing operations.

- Curbing access to marijuana is a major challenge. A 2001 survey found that 55 percent of kids age 12-17 agreed that marijuana would be "fairly easy" or "very easy" to obtain and was available from a wide variety of sources.⁴²

Our responsibility as employers, colleagues, neighbors, family members, and friends is to get the marijuana user beyond denial and into effective treatment and lifelong recovery.

- Reduce the denial gap
 - Of the 5.6 million people who met the criteria for drug dependence and abuse specified in the 4th edition of the *Diagnostic and Statistical Manual of Mental Disorders* in 2001, 4.6 million (92 percent) did not acknowledge they had a problem.⁴³
- Treatment works
 - Federal spending for substance-abuse treatment has risen sharply in recent years, increasing from about \$2.2 billion in 1993 to nearly \$3.3 billion in 2003.⁴⁴
 - The federal government sponsored the Cannabis Youth Treatment Study (CYT),⁴⁵ which developed innovative and effective treatment methodologies.
 - ❖ Using these treatment approaches, the percentage of young people reporting abstinence from marijuana use went from 4 percent upon entering the study to 13 percent within 3 months, and to 34 percent after 6 months. The percentage of those having no past-month symptoms of marijuana abuse or dependence went from an initial 19 percent to 39 percent within 3 months, and to 61 percent after 6 months.
 - ❖ The CYT study found that brief interventions, or structured efforts to interrupt and stop an individual's drug use, could be very successful, especially with low-severity clients (such as those who are not yet dependent).
 - ❖ The advantage of brief interventions is that they can be carried out in non-medical environments by non-medical staff. The screening and brief intervention approach is currently being used in a variety of settings (such as emergency rooms and social service agencies), and it has been found to be both clinically and cost effective.

Treatment for marijuana is widely available in a variety of forms. There is no "wrong pathway" to treatment.

- Drug courts, or supervised programs that offer alternatives to incarceration, are a common means of providing treatment for drug users. Established to handle the growing caseload of low-level drug offenses, drug courts separate non-violent users from people charged with trafficking and other serious drug crimes.
 - ❖ Recidivism rates among all drug court participants have ranged from 5 percent to 28 percent; for graduates of drug courts, the recidivism rate is less than 4 percent.⁴⁶
 - ❖ Drug courts are expanding rapidly, and the federal government is helping to fuel this growth. The President's proposed FY 2004 budget includes an increase in drug-court funding from the currently enacted \$45 million to \$68 million.⁴⁷ More than 1,000 drug courts are in operation around the country, and approximately 400 are in development. To date, some 300,000 adults and juveniles have enrolled in drug court programs.⁴⁸
- Communities can take action now. We urge treatment programs and providers to employ these proven methods. For materials and more information, visit www.health.org.

Related Issues

1. Marijuana v. tobacco and alcohol: the case against legalization

- Alcohol and tobacco pose significant risks, especially to young people.
- Alcohol and tobacco cost society a great deal every year in terms of crime, lost productivity, tragedies, and deaths. Why legalize marijuana and add a third drug to the current list of licit threats?
- As a result of legal settlements and vigorous public education efforts, many Americans are aware of the dangers of dependence and addiction associated with alcohol and tobacco use. Even so, alcohol and tobacco remain a significant part of the American health problem.

Why legalize marijuana and add a third drug to the current list of licit threats?

2. Gateway theory

- A direct cause-and-effect relationship between marijuana use and subsequent use of other drugs is hard to prove. Studies show, however, that of the people who have ever used marijuana, those who started early are more likely to have other problems later on. For example, adults who were early marijuana users were found to be:
 - 8 times more likely to have used cocaine;⁴⁹
 - 15 times more likely to have used heroin;⁵⁰
 - 5 times more likely to develop a need for treatment of abuse or dependence on *any* drug.⁵¹
- The *Journal of the American Medical Association* reported a study of more than 300 sets of same-sex twins. The study found that marijuana-using twins were four times more likely than their siblings to use cocaine and crack cocaine, and five times more likely to use hallucinogens such as LSD.⁵²

3. Medical marijuana

- Our medical system relies on proven scientific research, not polling results.
- About 100 years ago, leaders in this country created the U.S. Food and Drug Administration (FDA) to make sure that medicine falls under the “safe and effective” standard before it is sold on the open market.
- Research has not demonstrated that smoked marijuana is helpful as medicine.⁵³
- A component in marijuana—THC—has been approved in pill form by the FDA. It’s called Marinol, and though it is not frequently prescribed, the U.S. supports the right of doctors to prescribe this drug if they feel it would best serve their patients’ needs. The U.S. Drug Enforcement Administration (DEA) even lowered the scheduling on Marinol to make it easier for doctors to prescribe the drug.
- Marijuana smoke contains more than 400 chemicals and increases the risk of cancer, lung damage, and poor pregnancy outcomes.⁵⁴
- The U.S. continues to support research into the medical efficacy of certain isolated properties of marijuana.
- Even if smoking marijuana makes people “feel better,” that is not enough to call it a medicine. If that were the case, tobacco cigarettes could be called medicine because they are often said to make people feel better. For that matter, heroin certainly makes people “feel better” (at least initially), but no one would suggest using heroin to treat a sick person.
- Marijuana use causes precancerous changes in the body similar to those caused by tobacco use. Smoking pot delivers 3 to 5 times the amount of tars and carbon monoxide into the body. It also damages pulmonary immunity and impairs oxygen diffusion.⁵⁵ How could changes such as these be good for someone dying of cancer or AIDS?

4. State initiatives

- Voters at the state and local levels want to make decisions that are appropriate for their communities, but to do so they must have accurate information.
- Well-financed and organized campaigns have contributed to the misperception that marijuana is harmless or may even have health benefits.
- These campaigns are led not by medical professionals or patients-rights groups, but by pro-drug donors and organizations in a cynical attempt to exploit the suffering of sick people.

Marijuana is being used as a wedge issue by a small minority to push a political agenda calling for drug legalization.

5. The European experience

- The “nirvana” offered by the Dutch example is extremely dubious; in fact, the Dutch government is now reconsidering its laws and policies regarding drugs.
- Increased availability of marijuana leads to increased use of this and other drugs, and it creates additional problems as well:
 - After coffee shops started selling marijuana and use of the drug became normalized, marijuana use between 1984 and 1996 nearly tripled—from 15 percent to 44 percent—among 18- to 20-year-old Dutch youth.⁵⁶
 - While our nation’s consumption of cocaine has decreased by 70 percent over the past 15 years, cocaine consumption in Europe (primarily Western Europe) has increased.⁵⁷

6. Drug testing in schools

- Marijuana use affects the growth and development of young minds; it can inhibit students' ability to concentrate and retain information during the critical learning years.
- Student drug testing can be an important tool in preventing and treating youth drug use.
- It is important for parents, school officials, and community leaders to examine the nature and extent of their youth drug problem to determine if testing is appropriate for their schools.
- The goal of school-based drug testing is not to trap and punish students who do drugs. Rather, it is to prevent drug dependence and to help drug-using students stop and find treatment before the problem gets worse.⁵⁸
- According to the *Journal of Adolescent Health*, a school in Oregon that drug-tested student-athletes had a rate of drug use that was one-fourth that of a comparable school with no drug-testing policy.⁵⁹
- After two years of a drug-testing program, Hunterdon Central Regional High School in New Jersey saw significant reductions in 20 of 28 drug-use categories. Cocaine use by seniors, for example, dropped from 13 percent to only 4 percent.⁶⁰
- Testing provides a way for teens to resist peer pressure.⁶¹
- Testing helps prevent drug use at a critical time in young people's lives. Research shows a strong link between drug dependence and the age of initiation. If people can be prevented from using drugs as teenagers, their chances of experiencing drug problems as adults are greatly diminished.⁶²

Student drug testing helps prevent drug use at a critical time in young people's lives.

Sources

- 1 Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, *2002 National Survey on Drug Use and Health, 2003*:
<http://www.samhsa.gov/oas/nhsda.htm#NHSDAinfo>
- 2 *Ibid.*
- 3 Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, *Treatment Episode Data Set, 2000*:
<http://www.dasis.samhsa.gov/teds00/5.1a.htm>
- 4 *Ibid.* See also: <http://www.dasis.samhsa.gov/teds00/5.1b.htm>
- 5 *Ibid.* See also: <http://www.dasis.samhsa.gov/teds00/5.2a.htm>
- 6 Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, *Initiation of Marijuana Use Special Report, 2001*:
<http://www.samhsa.gov/oas/NHSDA/2k1NHSDA/vol1/Chapter5.htm>
- 7 Johnston, L.D., O'Malley, P.M., & Bachman, J.G. Monitoring the Future national survey results on drug use, 1975-2002. *Volume I: Secondary school students* (NIH Publication No. 03-5375). Bethesda, MD: National Institute on Drug Abuse, August 2003:
http://monitoringthefuture.org/pubs/monographs/vol1_2002.pdf
- 8 *Ibid.*
- 9 *Ibid.*
- 10 Hoffman, D.; Brunnemann, K.D.; Gori, G.B.; and Wynder, E.E.L. On the carcinogenicity of marijuana smoke. In: V.C. Runeckles, ed., *Recent Advances in Phytochemistry*. New York: Plenum, 1975.
See also NIDA, Research Report Series: Marijuana Abuse, Oct. 2002:
<http://www.nida.nih.gov/ResearchReports/Marijuana/Marijuana3.html>
- 11 Zhu, L.X.; Stolina, M.; Sharma, S.; Gardner, B.; Roth, M.D.; Tashkin, D.P.; and Dubinett, S.M. Delta-9 tetrahydrocannabinol inhibits antitumor immunity by a CB-2 receptor-mediated, cytokine dependent-pathway. *J Immunology*. 165(1):373-380, 2000:
- 12 Tashkin, D.P. Pulmonary complications of smoked substance abuse. *West J Med* 152: 525-530, 1990.
See also <http://www.nida.nih.gov/ResearchReports/Marijuana/Marijuana3.html>
- 13 *Ibid.*

- 14 Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Drug Abuse Warning Network, Midyear 2002:
<http://www.samhsa.gov/oas/dawn.htm>
- 15 *Ibid.*
- 16 de Fonseca, R. et al. Activation of Corticotropin-Releasing Factor in the Limbic System During Cannabinoid Withdrawal. *Science*. Vol. 276, 1997:
<http://www.druglibrary.org/crl/behavior/rodriguez-01.pdf>
- 17 Gilman, A.G.; Rall, T.W.; Nies, A.S.; and Taylor, P. (eds.). Goodman and Gilman's The Pharmacological Basis of Therapeutics, 8th Edition. New York: Pergamon Press, 1998.
See also <http://www.nida.nih.gov/ResearchReports/Marijuana/Marijuana3.html>.
- 18 Nuttall, SL; Raczi, JL; Manney, S; Thorpe, GH; Kendall, MJ. Effects of smoking and cannabis use on markers of oxidative stress in exhaled breath condensate. Division of Medical Sciences, University of Birmingham, Birmingham, England, 2003.
- 19 A Smoking Gun: The Impact of Cannabis Smoking on Respiratory Health. The British Lung Foundation, 2002: <http://www.ukcia.org/research/SmokingGun/ASmokingGun.pdf>
- 20 Brookoff, D.; et al. Testing Reckless Drivers for Cocaine and Marijuana. *New England Journal of Medicine*, 331:518-522, 1994: <http://content.nejm.org/cgi/content/abstract/331/8/518>
- 21 Adlaf, et al. Drinking, Cannabis Use, and Driving Among Ontario Students. *Canadian Medical Association Journal*. 168, March 2003: <http://www.cmaj.ca/cgi/content/full/168/5/565>
- 22 Bovasso, G. *American Journal of Psychiatry*. 158:2033-2037, 2001:
http://ajp.psychiatryonline.org/cgi/content/abstract/158/12/2033?maxtoshow=&HITS=10&hits=10&RESULTFORMAT=&fulltext=Bovasso&searchid=1053459102669_3546&stored_search=&FIRSTINDEX=0&volume=158&issue=12&journalcode=ajp
- 23 Zammit et. al. Self reported cannabis use as a risk factor for schizophrenia in Swedish conscripts of 1969: historical cohort study. *British Medical Journal*. 325:1199, 2002:
<http://bmj.com/cgi/content/abstract/325/7374/1199?etoc>
- 24 NIDA, *Marijuana: Facts Parents Need to Know*, November 1998:
<http://www.nida.nih.gov/MarijBroch/MarijparentsN.html>
See also: Pope, H.G. et al, "The Residual Cognitive Effects of Heavy Marijuana Use in College Students," *Journal of the American Medical Association*. Vol. 275 No. 7, 1996.
- 25 Crystal, J.D., Maxwell, K.W., & Hohmann, A.G. Cannabinoid modulation of sensitivity to time. *Behavioural Brain Research*, April 2003. Abstract:
[http://dx.doi.org/10.1016/S0166-4328\(03\)00062-7](http://dx.doi.org/10.1016/S0166-4328(03)00062-7)

- 26 Department of Health and Human Services, Substance Abuse and Mental Health Services Administration. *The NHSDA Report: Marijuana Use Among Youths*, July 2002:
<http://www.samhsa.gov/oas/2k2/YouthMJuse/YouthMJuse.htm>
- 27 Brook, J.S. et al. The risks for late adolescence of early adolescent marijuana use. *American Journal of Public Health*, October 1999.
- 28 Office of National Drug Control Policy, *The Economic Costs of Drug Abuse in the United States, 1992-1998*. Washington, DC: Executive Office of the President, 2001:
http://www.whitehousedrugpolicy.gov/publications/pdf/economic_costs98.pdf
- 29 What America's Users Spend on Illegal Drugs: 1988-2000, Office of National Drug Control Policy, December 2001:
http://www.whitehousedrugpolicy.gov/publications/pdf/american_users_spend_2002.pdf
- 30 Self-administration behavior is maintained by the psychoactive ingredient of marijuana in squirrel monkeys, Gianluigi Tanda, Patrik Munzar, and Steven R. Goldberg, *Nature Neuroscience*, doi: 10.1038/80577, November 2000, Volume 3, Number 11, pp 1073 – 1074. Abstract:
http://www.nature.com/cgi-taf/DynaPage.taf?file=/neuro/journal/v3/n11/abs/nn1100_1073.html
See also: <http://www.drugabuse.gov/MedAdv/00/NR10-15.html>
- 31 *Marijuana Potency Monitoring Project*. University of Mississippi, 2002. See also:
<http://www.usdoj.gov/dea/pubs/intel/01020/index.html#ma4>
<http://www.recoverymonth.gov/2003/kit/OverviewAndGeneralFacts.pdf>
- 32 Budney et al., Marijuana abstinence effects in marijuana smokers maintained in their home environment. *Archives of General Psychiatry*. 58 (10): 917-924. 2001. (NIDA Notes Vol. 17 No. 3):
http://www.drugabuse.gov/NIDA_notes/NNVol17N3/Demonstrates.html
See also *Marijuana: Facts for Teens*, NIDA, Revised 1998:
<http://www.nida.nih.gov/MarijBroch/Marijteenstxt.html>
See also State Resources and Services Related to Alcohol and Other Drug Problems for Fiscal Year 1995: An Analysis of State Alcohol and Drug Abuse Profile Data, National Association of State Alcohol and Drug Abuse Directors, Inc., July 1997.
- 33 Crowley, T. J.; Macdonald, M. J.; Whitmore, E. A.; and Mikulich, S. K. Cannabis Dependence, Withdrawal, and Reinforcing Effects Among Adolescents With Conduct Symptoms and Substance Use Disorders. *Drug and Alcohol Dependence*, 1998. Abstract:
<http://www.drugabuse.gov/ICAW/treatment/treatmentfindings298.html>
- 34 National Survey on American Attitudes on Substance Abuse V: Teens and Their Parents. The National Center on Addiction and Substance Abuse at Columbia University (CASA), 1999:
http://www.prevlink.org/clearinghouse/catalog/research_statistics/other_research_statistics/attitudes_on_substance_abuse.pdf

- 35 Johnston, L.D., O'Malley, P.M., & Bachman, J.G. *Monitoring the Future: National Survey Results on Drug Use, 1975-2001. Volume I: Secondary School Students* (NIH Publication No. 02-5106). Bethesda, MD: National Institute on Drug Abuse, c. 503 pp. 2002:
http://monitoringthefuture.org/pubs/monographs/vol1_2001.pdf
- 36 *Adolescent Self-reported Behaviors and Their Association with Marijuana Use*, Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, 1999: **<http://www.samhsa.gov/press/980922fs.htm>**
See also: Brook, J.S. et al. The risks for late adolescence of early adolescent marijuana use. *American Journal of Public Health*, October 1999.
- 37 *Ibid.*
- 38 Preliminary Data on Drug Use & Related Matters Among Adult Arrestees & Juvenile Detainees 2002, Arrestee Drug Abuse Monitoring Program (ADAM):
http://www.adam-nij.net/files/2002_Preliminary_Data.pdf
- 39 Bureau of Justice Statistics estimates based on the "1997 Survey of Inmates in State and Federal Correctional Facilities," National Archive of Criminal Justice Data. For a public-use copy of the survey data: **<http://www.icpsr.umich.edu/NACJD/SISFCF/index.html>**
- 40 U.S. Sentencing Commission's 2001 *Sourcebook of Federal Sentencing Statistics*:
<http://www.ussc.gov/ANNRPT/2001/SBTOC01.htm>
<http://www.ussc.gov/ANNRPT/2001/table33.pdf>
- 41 BJS estimates based on the "1997 Survey of Inmates in State and Federal Correctional Facilities," National Archive of Criminal Justice Data. A public-use copy of the survey data is available at **<http://www.icpsr.umich.edu/NACJD/SISFCF/index.html>**
- 42 Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, *National Household Survey on Drug Abuse, 2001*:
<http://www.samhsa.gov/oas/nhsda/2k1nhsda/vol1/toc.htm>
- 43 Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, *National Household Survey on Drug Abuse, 2001*:
http://www.samhsa.gov/oas/NHSDA/2k1NHSDA/vol2/appendixh_5.htm#tableh.70
<http://www.samhsa.gov/news/content/2001nhsda.htm>
- 44 National Drug Control Strategy, FY 2004 Budget Summary, February 2003:
<http://www.whitehousedrugpolicy.gov/publications/policy/04budget/fy04budget-sum.pdf>
- 45 *The Cannabis Youth Treatment (CYT) Experiment: Preliminary Findings*, Sept. 2000:
<http://www.samhsa.gov/centers/csat/content/Recoverymonth/0900cannabis.pdf>

- 46 *Looking At a Decade of Drug Courts*, Office of Justice Programs Drug Court Clearinghouse and Technical Assistance Project at American University, Washington D.C., 1999:
<http://www.american.edu/academic.depts/spa/justice/publications/decade1.htm>
- 47 National Drug Control Strategy, FY 2004 Budget Summary, February 2003:
http://www.whitehousedrugpolicy.gov/publications/policy/04budget/exec_sum.pdf
- 48 Office of Justice Programs Drug Court Clearinghouse and Technical Assistance Project, American University: <http://www.american.edu/justice/publications/drgchart2k.pdf>
See also National Drug Court Institute: <http://www.ndci.org/courtfacts.htm>
- 49 *Initiation of Marijuana Use: Trends, Patterns, and Implications*. Analysis Based on data from NHSDA in 1999 and 2000. Department of Health and Human Services Substance Abuse and Mental Health Services Administration, 2002:
<http://www.samhsa.gov/oas/MJinitiation/MJinitiation.pdf>
- 50 *Ibid.*
- 51 *Ibid.*
- 52 Lynskey et al. Escalation of Drug Use in Early-Onset Cannabis Users vs. Co-Twin Controls, *JAMA*, 289:427-433, 2003: www.csdp.org/research/joc21156.pdf
- 53 See *Marijuana and Medicine: Assessing the Science Base*, Institute of Medicine, National Academy of Sciences, 1999: <http://www.nap.edu/html/marimed/>
- 54 *Ibid.*
- 55 There is a plethora of literature explaining marijuana's adverse affect on the respiratory and immune systems. For a sample, see: Barbers R.G. et al. Differential examination of bronchoalveolar lavage cells in tobacco cigarette and marijuana smokers, *Am Rev Respir Dis*. 1987;135:1271-1275;
- Barsky SH, Roth MD, Kleeup E.C, Simmons M, Tashkin DP. Histopathologic and Molecular Alterations in Bronchial Epithelium in Habitual Smokers of Marijuana, Cocaine, and / or Tobacco, *Journal of the National Cancer Institute*, 1998; 90:1198-1205 (Bronchial mucosa biopsy specimens and brushings demonstrated statistically significant molecular abnormalities in marijuana and/ or cocaine smokers that have been associated with an increased risk of development of lung cancer.);
- Caiaffa WT, Vlahov D, Graham NHM, Astemborski J, Solomon L, Nelson KE, Munoz A. Drug smoking, *Pneumocystis carinii* pneumonia, and immunosuppression increase risk of bacterial pneumonia in human immunodeficiency virus-seropositive injection drug users, *Am J Respir Crit Care Med* 1994;150: 1493-1498. (Incidence of bacterial pneumonia was 1.93 in seropositive subjects who smoked illegal drugs. Pts reported 87.9 percent smoked marijuana, 25.9 percent used cocaine, and 9.1 percent smoked crack cocaine.);

Fligiel SEG, Roth MD, Kleerup EC, Barsky SH, Simmons MS, Tashkin DP. Tracheobronchial histopathology in habitual smokers of cocaine, marijuana, and/or tobacco. *Chest* 1997; 112:319-326 (smokers of cocaine, marijuana, or tobacco had greater abnormalities than controls and the effects were additive. The effects of marijuana were greater than tobacco.)

Gong, H., et al. Acute and subacute bronchial effects of oral cannabinoids. *Clin Pharmacol Ther.* 1984; 35:26-32;

Roth MD, Arora A, Barsky SH, Kleerup EC, Simmons M, Tashkin DP. Airway inflammation in young marijuana and tobacco smokers. *Am J. Respir Crit Care Med* 1998;157:928-937 (conclusion that smoking marijuana by young adults is associated with significant airway inflammation similar to tobacco smoking.);

Tashkin, D.P., Shapiro, B.J., Lee, Y.E., and Harper, C.E. Subacute effects of heavy marijuana smoking on pulmonary function in healthy men, *NEJM.* 1976;294:125-129;

Van Hoozen, BE, and Cross, CE. Marijuana: Respiratory tract effects. *Clinical Reviews in Allergy and Immunology* 1997; 15:243-269 (review of the literature on the respiratory effects of marijuana).

56 MacCoun, R., & Reuter, P. Interpreting Dutch cannabis policy: Reasoning by analogy in the legalization debate. *Science.* 278, 47-52, 1997:

<http://ist-socrates.berkeley.edu/~maccoun/scienc97.html>

57 *World Drug Report*, United Nations Office for Drug Control and Crime Prevention, 2000:

http://www.unodc.org/unodc/wdr_executive_summary_2000.html

http://www.unodc.org/pdf/world_drug_report_2000/report_2001-01-22_1.pdf

58 *What You Need To Know About Drug Testing in Schools*, Office of National Drug Control Policy, 2002: **www.whitehousedrugpolicy.gov/pdf/drug_testing.pdf**

59 Goldberg et al. Drug testing athletes to prevent substance abuse: background and pilot study results of the SATURN (student athlete testing using random notification) study, *Journal of Adolescent Health*, 32: 1: 16-25, 2002.

60 *What You Need To Know About Drug Testing in Schools*, Office of National Drug Control Policy, 2002: **www.whitehousedrugpolicy.gov/pdf/drug_testing.pdf**

61 *Ibid.*

62 *Initiation of Marijuana Use: Trends, Patterns, and Implications*, Substance Abuse and Mental Health Services Administration, 1999 and 2000 National Household Survey on Drug Abuse, July 2002: **<http://www.samhsa.gov/oas/MJinitiation/MJinitiation.pdf>**

See also: Grant, B. F., & Dawson, D. A. (1998). Age of onset of drug use and its association with DSM-IV drug abuse and dependence: Results from the National Longitudinal Alcohol Epidemiologic Survey. *Journal of Substance Abuse*, 10, 163-173.

Early-onset drug use and risk of later drug problems, Anthony JC, Petronis KR. Department of Mental Hygiene, Johns Hopkins University, Baltimore, MD, 1995.