THE FACTS ON MARIJUANA
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Several jurisdictions in the U.S. have taken steps toward decriminalizing marijuana possession for personal use or when prescribed by a physician for medicinal purposes. Other jurisdictions have pending ballot initiatives or legislative bills proposing such changes in the law.

The Board of Directors of the National Association of Drug Court Professionals (NADCP) has determined that it is essential for drug court practitioners to be fully and objectively informed about the effects of marijuana on their participants and the public at-large. This document briefly reviews the scientific evidence concerning the effects of marijuana.

Incarceration for Marijuana Possession

It is exceedingly rare to be incarcerated in the U.S. for the use or possession of marijuana. According to the National Center on Addiction & Substance Abuse at Columbia University (CASA, 2010), less than 1 percent (0.9%) of jail and prison inmates in the U.S. were incarcerated for marijuana possession as their sole offense.

Excluding jail detainees who may be held pending booking or release on bond, the rates are even lower. Prison inmates sentenced for marijuana possession account for 0.7 percent of state prisoners and 0.8 percent of federal prisoners (see Table). And, considering that many of those prisoners pled down from more serious charges, the true incarceration rate for marijuana possession can only be described as negligible.

	State Prisoners	Federal Prisoners
Marijuana offense only	1.6%	N.R.
Marijuana possession only	0.7%	0.8%
First-time marijuana possession	0.3%	N.R.

Source: Office of National Drug Control Policy, *Who's Really in Prison for Marijuana?* [NCJ #204299] (*citing* BJS, 1999, *Substance abuse and treatment, state and federal prisoners, 1997* [NCJ #172871]; U.S. Sentencing Commission, *2001 Sourcebook of Federal Sentencing Statistics*). N.R. = not reported.

Addiction Potential

By the early 1990's, the scientific community had concluded from rigorous laboratory and epidemiological studies that marijuana is physiologically and psychologically addictive. Every drug of abuse has what is called a *dependence liability*, which refers to the statistical probability that a person who uses that drug for nonmedical purposes will develop a compulsive addiction. Based upon several nationwide epidemiological studies, marijuana's dependence liability has been reliably determined to be 8 to 10 percent (Anthony et al., 1994; Brook et al., 2008; Budney & Moore, 2002; Kandel et al., 1997; Munsey, 2010; Wagner & Anthony, 2002). **This means that one out of every 10 to 12 people who use marijuana will become addicted to the drug.**

Importantly, the dependence liability of any drug increases with more frequent usage. Individuals who have used marijuana at least five times have a 20 to 30 percent likelihood of becoming addicted to the drug, and those who use it regularly have a 40 percent likelihood of becoming addicted (Budney & Moore, 2002).

The hallmark feature of physical addiction is the experience of uncomfortable or painful *withdrawal symptoms* whenever levels of the substance decline in the bloodstream. This is, in part, what drives addicts to continue abusing drugs or alcohol despite suffering severe negative medical, legal and interpersonal consequences. Carefully controlled, rigorous laboratory studies have proven beyond further dispute that marijuana addiction is associated with a clinically significant withdrawal syndrome. When marijuana-addicted individuals stop using the drug, they experience symptoms of irritability, anger, cravings, decreased appetite, insomnia, interpersonal hypersensitivity, yawning and/or fatigue (Budney et al., 2001; Preuss et al., 2010). In fact, the features and severity of the marijuana withdrawal syndrome are virtually indistinguishable from those of nicotine (cigarette) withdrawal.

A second hallmark feature of addiction is *psychosocial dysfunction* resulting from repeated use of the substance. The most commonly diagnosed symptoms of psychosocial dysfunction among marijuana addicts include persistent procrastination, bad or guilty feelings, low productivity, low self-confidence, interpersonal or family conflicts, memory problems and financial difficulties (Budney & Moore, 2002; NIDA, 2005). This constellation of symptoms has been collectively referred to as an "amotivational syndrome" (e.g., Hubbard et al., 1999) because marijuana abusers tend to be characteristically languid and often achieve considerably below their true intellectual potentials.

Based on this substantial body of empirical research, the American Psychiatric Association (APA) has long recognized cannabis dependence as a valid and reliable psychiatric disorder in the *Diagnostic and Statistical Manual of Mental Disorders (DSM).* The *DSM* is the official psychiatric diagnostic classification system in the U.S. A diagnosis of cannabis dependence has been continuously included in the 3rd and 4th editions of the *DSM* since 1980 (APA, 1980, 1987, 1994, 2000). In the soon-to-be published 5th edition of the *DSM*, a cannabis withdrawal syndrome will now also be officially recognized as part of the diagnostic criteria for cannabis dependence.

Medical Harm

In many respects, smoked marijuana has the potential to be as, or more, harmful than cigarettes. Although marijuana does not contain nicotine, it does contain 50 to 70 percent more carcinogenic compounds, including tar, than cigarettes (NIDA, 2005; Hubbard et al., 1999). Marijuana also produces high levels of a particular enzyme which converts certain hydrocarbons into their carcinogenic or malignant forms (NIDA, 2005).

Although gram for gram, marijuana smoke is clearly more carcinogenic than cigarette smoke, it is difficult to predict whether actual incidence rates of induced cancers are likely to be as high as they are for cigarettes. On one hand, cannabis smokers tend to use the drug on fewer occasions than cigarette smokers. On the other hand, they typically inhale larger amounts of the drug per occasion, hold the smoke in their lungs for longer intervals of time, and are unlikely to employ filters. This makes it difficult to compare the predicted magnitudes of the harms. The best estimate from the National Institutes of Health (NIH) is that a person who smokes five marijuana cigarettes per week is likely to be inhaling as many cancer-causing chemicals as one who smokes a full pack of cigarettes every day.[1]

1 *See* U.S. Dept. of Justice, Drug Enforcement Administration, *Exposing the myth of medical marijuana: The facts. Available at* http://www.justice.gov/dea/ongoing/marijuanap.html.

Like nicotine, cannabis increases heart rate, alters blood pressure, can induce tachycardia (rapid or irregular heartbeat), increases myocardial (heart) stress, decreases oxygen levels in the circulatory system, and exacerbates angina (Hubbard et al., 1999). As a result, a person's risk of a heart attack is increased *four-fold* during the first hour after smoking marijuana (NIDA, 2005).

There is no question that regular marijuana use is associated with a wide spectrum of chronic respiratory ailments. A nationally representative study of 6,728 adults found heavy marijuana use to be substantially associated with chronic bronchitis, coughing on most days, wheezing, abnormal chest sounds and increased phlegm (Moore et al., 2005).

Marijuana has undisputed negative effects on cognitive functioning, including memory, learning and motor coordination. These negative effects persist long after the period of acute intoxication, averaging **approximately 30 days of residual cognitive impairment** (Bolla et al., 2002; NIDA, 2005; Pope et al., 2001). This means that individuals are apt to wrongly believe they are capable of performing critical tasks, such as driving a car, operating heavy machinery, caring for children or solving work-related intellectual problems, when in fact they may be performing in the mildly to moderately impaired range of functioning.

Like any drug, marijuana's negative effects tend to be most pronounced in elderly persons, individuals with chronic medical illnesses, and those with compromised immune systems. This is of particular concern given that marijuana is being specifically touted for "medicinal" use by elderly patients, cancer patients, and those with immunodeficiency

syndromes such as HIV/AIDS (e.g., Munsey, 2010). Rather than benefiting such individuals, marijuana has the serious potential to further suppress or compromise their immune systems and exacerbate the disease process (NIDA, 2005).

Medicinal Effects

Marijuana is a "Schedule I" drug according to the Drug Enforcement Administration (DEA), meaning it has a high abuse potential and no recognized medical indication. However, the Food and Drug Administration (FDA) has approved a particular ingredient within marijuana (THC) in a non-smoked form for certain medical indications, such as for treatment of nausea, vomiting and poor appetite. Recent studies have also supported its use in treating chronic neuropathic pain (e.g., Munsey, 2010).

To date, research indicates that oral THC (when administered at adequate doses) is as effective as smoked marijuana in achieving these therapeutic effects (e.g., Munsey, 2010). Anecdotal testimonials are the only evidence favoring smoked marijuana over oral THC for therapeutic purposes. Further research is called for to determine whether other compounds within marijuana might have medicinal properties as well, but at this juncture any such indications are purely experimental and speculative.

Regardless, smoked marijuana could no more be considered a "medication" than cigarettes or alcohol. Although cigarettes and alcohol have undeniable effects that many people may find palliative (such as alleviating short-term stress), they are very "dirty" drugs. This means they contain dozens, if not hundreds, of other physiologically active compounds which are irrelevant to their palliative effects and may actually work at cross-purposes against those effects. For example, many people believe alcohol and nicotine lower their stress level, but in fact these drugs are proven to increase anxiety, lower stress tolerance and exacerbate insomnia over the longer term. These drugs are also associated with a host of serious medical conditions, including cancer, heart disease, liver disease and respiratory illnesses. For these reasons, physicians would rarely, if ever, "prescribe" these drugs to treat a medical condition.

More research is needed to isolate the potential therapeutic effects of specific compounds within marijuana, and to determine how to administer those compounds in a manner that is medically safe and does not threaten to cause heart, lung and other diseases. Administering the "dirty" form of the drug would never be a legitimate medical end-goal.

Impact on Crime

Two recent meta-analyses (advanced statistical procedures) have concluded that marijuana use during adolescence or young adulthood significantly predicts later involvement in criminal activity and criminal arrests (Bennett et al., 2008; Pedersen & Skardhamar, 2010). **The risk of criminal involvement was determined to be between 1.5 and 3.0 times greater for cannabis users than for non-users.** 5 The results suggest that, all else being equal, cannabis users are at a statistically increased risk for associating with antisocial individuals, engaging in illegal conduct, and eventually getting a criminal record.

crime. And Mental Health Courts monitor those with mental illness who find their way into the justice system, many times only because of their illness.

Today, the award-winning NADCP is the premier national membership, training, and advocacy organization for the Drug Court model, representing over 27,000 multi-disciplinary justice professionals and community leaders. NADCP hosts the largest annual training conference on drugs and crime in the nation and provides 130 training and technical assistance events each year through its professional service branches, the **National Drug Court Institute**, the **National Center for DWI Courts** and the **National Veterans Treatment Court Clearinghouse**. NADCP publishes numerous scholastic and practical publications critical to the growth and fidelity of the Drug Court model and works tirelessly in the media, on Capitol Hill, and in state legislatures to improve the response of the American justice system to substance-abusing and mentally ill offenders through policy, legislation, and appropriations.

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