

THE HARMFUL EFFECTS OF MARIJUANA A SERIOUS THREAT TO PUBLIC HEALTH AND SAFETY

A compilation of scientific research
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ABSTRACT

Seventeen million Americans smoke pot, impervious to the scientific evidence that shows this fat-soluble toxin adversely affects every cell in the body, particularly the brain and gonads (sexual organs). The age groups with the highest percentage of users is 18-25, followed by 12-17, when their underdeveloped brains are most vulnerable to harm and addiction. Marijuana interrupts the development of white matter in the brain and shrinks the hippocampus, the memory, learning and cognition center of the brain, leading to a significant loss of IQ later in life. Lack of white matter also is a known causal factor in schizophrenia, paranoia and suicidal depression. Roughly 30% of education is simply wasted on kids who are stoned, drop out of school or become addicted. Marijuana's impacts on a fetus include death, physical deformities and brain damage that results in behavioral problems for those who survive child birth, and the damage can carry forward to future generations. While pro-marijuana advocates propagate the myth that marijuana is medicine, the truth is components of the plant may have medicinal value, but the whole plant has many more harms and health hazards than virtues. Marijuana is a threat to public health and safety, particularly for adolescents, where the drug journey almost always begins, and the damage is not reversible

What Is Marijuana¹

Dr. Eric Voth

“Marijuana is a complex, unstable mixture of 483 chemicals, that when smoked, creates over 2,000 chemicals, many of which cause cancer. Over 60 of these chemicals are “cannabinoids,” some of which are psychoactive, all are bioactive, and all may remain the body's fatty tissues for long periods of time with unknown consequences.

THC, the primary psychoactive substance, varies in potency. The unknown concentrations of chemicals and THC make it impossible to create medically precise and uniform dosage. For that reason, marijuana cigarettes, marijuana brownies and other concoctions remain ineligible to be classified as a medicine.” (Dr. Eric Voth)

The potency of marijuana has increased from ½ of 1% THC content in the 1970's to a normal market range of 10 to 21%, and as high as 37%.

Smoked Marijuana is NOT “Medicine”ⁱⁱ

Dr. Robert DuPont

While scientists have confirmed that the cannabis plant contains active ingredients with therapeutic potential for relieving pain, controlling nausea, stimulating appetite and decreased ocular pressure, the FDA has not approved it as a medicine for the following reasons:

- Smoking marijuana causes changes in the brain similar to those caused by long-term use of cocaine and heroin.
- Smoking is not a safe or sensible way to deliver a drug. Currently, there is no way to control dose, ingredients or potency. Some marijuana is laced with cocaine, heroin, PCP and dangerous chemicals including formaldehyde. Without a verifiable, controlled source of the product, dangerous pesticides can also be present.

Marijuana Damages the Lungs and Respiratory System

Smoking anything is harmful to the lungs and respiratory system, but marijuana has 50 to 70% more carcinogens than tobacco.

- Marijuana causes impaired respiratory conditions including reduced lung density, lung cysts, and chronic bronchitis. It elevates the risk of testicular cancer and eightfold rise in lung cancer risk.ⁱⁱⁱ
- Marijuana is more harmful to lungs than tobacco. One joint is the equivalent of five cigarettes, and marijuana smoke has ammonia levels 20 times greater than tobacco, and 3 to 5 times more hydrogen cyanide, nitric oxide and aromatic amines.^{iv}
- Marijuana smoke causes deterioration of lungs 20 years ahead of tobacco smokers.

Marijuana – Can Cause Permanent Brain Damage

The human brain is **not fully developed until approximately age 25**, or even later. Until then, it is more susceptible to harm and addiction, particularly during adolescence. The **two age groups with the highest consumption are 18 to 25 and 12 to 17 years old**, both below the threshold of a mature brain, where smoking marijuana should be avoided. Scientific research has shown the following:

- Marijuana causes permanent brain damage in adolescents by disrupting development and reducing white matter by as much as 80%, and shrinking the hippocampus, the area of the brain involved in memory, cognition and learning. The earlier the use, the worse the damage.^v Lack of white matter is also a known causal factor in paranoia, schizophrenia and suicidal depression.
- Reported prior to the above study, “...There is now evidence that cannabis may affect the adolescent brain (**permanently alerting**) its development trajectory. While this may not occur in everyone, some people may be particularly vulnerable. ...using cannabis during adolescence may be like playing Russian roulette.” (Dr. McGrath)^{vi}

- Heavy use of marijuana during adolescence has resulted in a loss of 8 percentage points of IQ at age 38, twenty years later. Quitting after age 18 didn't reverse the problem.^{vii}
- Young people who smoke pot are **6 times more likely than others to develop psychosis; 3 times more likely to have hallucinations; 4 times more likely to have delusions.** Side effects which can appear years after you have quit.^{viii}
- Heavy marijuana users are **more likely to be diagnosed with schizophrenia later in life.**^{ix}
- Teens who smoke marijuana **at least once a month are three times more likely to have suicidal thoughts than are non-users.**^x
- **Prevalence of depression and anxiety increases** with higher rates of cannabis use.^{xi}
- “Recent, high-quality, longer term, robust research involving thousands upon thousands of people over generations of time, in several populations and countries, has shown that **marijuana, especially in teen boys, leads to measureable increase in the future development of schizophrenia**”^{xii}
- From a website **Schizophrenia.com**, the following were reported:
 - A recent Dutch study showed teenagers who indulge in cannabis **as few as five times** in their life significantly increase their risk of psychotic symptoms.
 - In Melbourne, a study revealed that regular use of cannabis by adolescent girls could trigger long-term depression, and for those vulnerable to a psychotic disorder, **even a small amount of cannabis could pose a threat.**
 - The risk is higher when drugs are used by people **under the age of 21**, a time when the human brain is developing rapidly and is particularly vulnerable.
- White matter growth accelerates in the teen years and continues into adulthood. The “growth” is actually the result of myelin encasing the brain's connecting wires while the white matter is being wrapped in its protective coating, the gray matter of the brain is undergoing its own changes. Inefficient or confusing connections between neurons, called synapses, are pruned and some cells die. **From age 14 to 16, people lose about 20% of the synapses in the brain.**^{xiii}

Marijuana - Cellular Damage

Marijuana is fat soluble, like DDT, and .DDT was banned because it accumulates in body cells and organs. (Dr. Nicolas Pace)^{xiv}

The detrimental effect on body cells is the most alarming finds of the harms of marijuana because “.....*They are the underlying cause of all of the other deleterious effects that have been reported by researchers. Not only do fat soluble cannabinoids clog the cells, inhibiting their function, but many studies have shown that chronic pot smokers have large numbers of abnormal cells.*”^{xv} (Dr. Gabriel Nahas)

“...In my twenty years of research on human cells, I have never found any other drug, including heroin, which came close to the DNA damage caused by marijuana.”^{xvi} Dr. Akira Miroshima)

(Study was done in 1973, when pot’s THC potency was only ½ of 1 percent.)

Miroshima pointed out that all animals and plants have their own specific number of chromosomes in the nucleus of each cell. Humans have 46, with the exception of sperm and eggs, which have 23 each. When the sperm and egg get together, the new starting cell has 46. Miroshima discovered that one-third of “weekend smokers” who average just two joints a week had only 20 to 30 chromosomes, about the same as a frog.

In over 300 studies, the results of cell damage from fat soluble marijuana include:

- Two cells most directly affected are sperm and ova ... **in short, our future.** Marijuana directly affects the sex organs, the eggs, the sperm and the placenta. It also **affects the pituitary**, a pea-like structure at the base of the brain, which is a control center for sex and reproductive hormones and in turn, sexual dysfunction.^{xvii}
- **Lack of sexual desire** and lower frequency of organism.^{xviii}
- Cannabinoids are **mutagenic – meaning they can transmit abnormalities across generations.** In one experiment with mice, they discovered a fetus with no skull, just the brain covered by skin, and the backbone was outside the body. Neither the parents or grandmother received THC, **just the grandfather**, which indicated that cannabinoids can transmit abnormalities across generations.^{xix}
- Decreased quantity and increased abnormalities in sperm **can lead to impotency, lack of interest in sex, and retarded development of sex organs during adolescence..**
- Pot smoking during pregnancy **adversely affects the fetus** and results in smaller birth weight babies with smaller head size, cardiac murmurs, small eye openings, broad low nasal bridge and low set ears. Overall, the course of labor is hazardous and 41% of pot smokers’ babies required oxygen resuscitation at birth, and 57% exhibited fetal feces (meconium) compared to 25% of normal babies. Meconium is hazardous to the newborn as it can get into the lungs when the baby takes its first breath.^{xx}
- **Higher birth loss.** In long term studies by Dr. Ethel Sassenrath at the Primate Research Center at UC Davis, in an experiment with Rhesus monkeys who had received THC human equivalency dose of 1 to 2 joints a day, 44% of the pregnancies of THC-treated mothers did not result in living off-spring, compared to 12% birth loss which was normal. The losses occurred as natural abortions, reabsorptions, *in utero* death, stillbirth or death just after birth.^{xxi}

Most of the findings cited above were achieved when pot had THC levels of ½ to 2%. Today’s pot is 20 to 60 times stronger and according to a new study **can cause fatal brain damage and physical deformities to a fetus two weeks after conception**, before the woman even knows she is pregnant. She can quit using, but it’s too late for the baby.^{xxii}

- **Behavioral problems in THC exposed offspring.** Lab tests showed subtle developmental abnormalities in various organ systems and tissues, and all showed deficits in attention and over-concentration on different stimuli in the environment, the

kind of deficits in behavior which indicate that the central nervous system has been affected. ^{xxiii}

- There is more that should be of concern to young ladies, including disrupted menstrual cycles to less estrogen. **Decreased estrogen results in decreased blood flow to the placenta, which means decreased nutrition to the developing baby.** ^{xxiv}

Marijuana Is NOT Safer Than Alcohol

Not that it really matters, because alcohol isn't going away, but marijuana is not safer than alcohol. It combines the harms of both alcohol and tobacco.

Dr. Nicolas Pace ^{xxv} states there are two important differences between alcohol and marijuana:

- 1) Alcohol has a single chemical and is water soluble. One ounce is metabolized and is completely excreted from the body within 12 hours.
- 2) Marijuana is a crude drug containing 421 known chemicals, that when combusted, turn into 2,000 chemicals. Of the 421 basic chemicals, 61 are known cannabinoids, four of which are psychoactive or mind-altering. But a few of the *nonpsychoactive* cannabinoids appear to be more harmful to certain organ systems than the psychoactive ones.

The most important, and ominous factor about cannabinoids is that they are fat soluble, even *fat loving* according to Dr. Pace. *“The fatty sections of cells and membranes and the fatty organs of the body act like magnets attracting the cannabinoids. The cells membranes, the coating around the cell, is at least 60% fat. When the fat soluble cannabinoids dissolve in the cell membrane, they make it difficult for the most important constituents of the cell, the proteins, to enter. And cannabinoids clogging of the cell, including the vital nucleus, has many additional deleterious effects.”*

“What about the organs? The chief fatty organs of the body are the gonads (sex glands) and the three pound human brain, which in one-third fat.”

- **Marijuana use is a causal factor in testicular cancer,** ^{xxvi} which can result in castration and even death. Mutations to sperm can cause physical deformities in a fetus.

According to Pace, all studies showed that it took the body three days to get rid of *one-half* the THC and cannabinoids in a single joint, and up to 30 days for all of it. So if a person smokes even just one joint every Saturday night, the new cannabinoids stack on top of the first.

Dr. Robert C. Gilkeson ^{xxvii}, who had spent 23 years in neurophysiologic research, stated: *“No drug or chemical improves the normal cell. Marijuana is a known intoxicant. Toxic means poison. Anyone who smokes or ingests more than the equivalent of one marijuana cigarette every 30 days will accumulate an acute neurotoxic substance in his or her body.”*

It is also commonly known that the risk of heart attack is increased 4.8 times within one hour after smoking marijuana.

Marijuana – Impact On Health, Particularly Young People

If a young person reaches age 21 without smoking, abusing alcohol or using drugs, it is virtually certain they never will. (Joseph Califano Jr.)^{xxviii}

- **Babies born to mothers who use marijuana during pregnancy have an eleven fold increase in nonlumphobiastic leukemia^{xxix} and as mentioned earlier, can result in smaller babies at birth, with lower IQ's whom later develop Acute Deficit Hyperactivity Disorder (ADHD) and other behavioral issues..**
- **Aside from damage that could already have occurred before birth, the quality, longevity and productivity of one's adult life is largely determined by what happens during this period of brain development, and within in a few years thereafter.**
- **Marijuana, smoked even a few times can interrupt the development of white matter in the brain and cause psychotic episodes years later like depression, anxiety and even suicide and lead to psychosis. (Hall and Degenhardt 2009)**
- **According to NIDA publication Research Report Series called Marijuana Abuse (Page 5), the consequences of marijuana abuse are impaired short term memory, impaired attention, judgment and other cognitive functions, impaired coordination and balance, increased heart rate and psychotic episodes.**
- **Persistent impacts that last after intoxication include impaired memory and learning skills and sleep impairment.**
- **People under the influence of marijuana are normally hyper-excited and tend to overreact, which in turn affects their ability to drive. Marijuana impaired drivers are two times as likely as other driers to be involved in car crashes.**
- **Long term cumulative effects include addiction (17% of those under 18), increased risk of chronic bronchitis, increased risk of schizophrenia in vulnerable individuals, and increased risk of anxiety, depression and amotivational syndrome.**

All of the above adversely affect academic achievement, undoubtedly a factor as to why America is now 26th in the world academically, with 1.2 million (33%) young people dropping out of high school. Marijuana can cap a young person's potential in life at age 12 or 13 years old, before they even get to the threshold of adulthood.

America will not retain its position of leadership in the world unless the marijuana problem is brought under control. To protect the nation, we must protect the kids.

END NOTES

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