

## **MEDICAL MARIJUANA NEGATIVE SIDE EFFECTS**

Before a drug is used as a medicine there should be an analysis to see if the negative side effects are outweighed by the benefits of the drug. Approximately 40 to 60% of people who use marijuana report unpleasant side effects. The Institute of Medicine (IOM) states that marijuana a "powerful drug with a variety of effects." <sup>1</sup>

### **A Rise in Marijuana's THC Levels**

The amount of THC in marijuana has been increasing steadily over the past few decades. For a person who's new (naive) to marijuana use, this may mean exposure to higher THC levels with a greater chance of a harmful reaction. Higher THC levels may explain the rise in emergency room visits involving marijuana use. The popularity of edibles also increases the chance of harmful reactions. Edibles take longer to digest and produce a high. Therefore, people may consume more to feel the effects faster, leading to dangerous results. Higher THC levels may also mean a greater risk for addiction if people are regularly exposing themselves to high doses. <sup>2</sup>

THC acts on numerous areas in the brain and the body. The below facts are from the National Institute on Drug Abuse <sup>3</sup>

### **Short-Term Effects**

When a person smokes marijuana, THC quickly passes from the lungs into the bloodstream. The blood carries the chemical to the brain and other organs throughout the body. The body absorbs THC more slowly when the person eats or drinks it. In that case, they generally feel the effects after 30 minutes to 1 hour. THC acts on specific brain cell receptors that ordinarily react to natural THC-like chemicals. These natural chemicals play a role in normal brain development and function. Marijuana overactivates parts of the brain that contain the highest number of these receptors. This causes the "high" that people feel. Other effects include:

- altered senses (for example, seeing brighter colors)
- altered sense of time
- changes in mood
- impaired body movement
- difficulty with thinking and problem-solving
- impaired memory

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<sup>1</sup> "Medical Marijuana: Clinical Considerations and Concerns," Richard G. Soper, MD, [AZ Medicine](#), Summer 2011  
For complete reprints of the original article, contact Dr. Soper at the Center for Behavioral Wellness, 2830 Bransford Ave., Nashville, TN, 37204; phone: 615-292-5747, fax: 615-2925749; email: mdjd@justice.corn.

<sup>2</sup> <https://www.drugabuse.gov/publications/drugfacts/marijuana>

<sup>3</sup> <https://www.drugabuse.gov/publications/drugfacts/marijuana>

hallucinations (when taken in high doses)  
delusions (when taken in high doses)  
psychosis (when taken in high doses)

## **Long-Term Effects**

When people begin using marijuana as teenagers, the drug may impair:

thinking  
memory  
learning functions  
how the brain builds connections between the areas necessary for these functions.

### Loss of IQ

A study from New Zealand conducted in part by researchers at Duke University showed that people who started smoking marijuana heavily in their teens and had an ongoing marijuana use disorder lost an average of 8 IQ points between ages 13 and 38. The lost mental abilities didn't fully return in those who quit marijuana as adults.

Marijuana use may have a wide range of effects, both physical and mental <sup>4</sup>

### Physical Effects

Breathing problems. Marijuana smoke irritates the lungs, and people who smoke marijuana frequently can have the same breathing problems as those who smoke tobacco. These problems include daily cough and phlegm, more frequent lung illness, and a higher risk of lung infections. Increased heart rate. Marijuana raises heart rate for up to 3 hours after smoking. This effect may increase the chance of heart attack. Older people and those with heart problems may be at higher risk.

### Mental Effects

Long-term marijuana use has been linked to mental illness in some people, such as:

temporary hallucinations  
temporary paranoia  
worsening symptoms in patients with schizophrenia—a severe mental disorder with symptoms such as hallucinations, paranoia, and disorganized thinking

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<sup>4</sup> <https://www.drugabuse.gov/publications/drugfacts/marijuana>

Marijuana use has also been linked to other mental health problems, such as depression, anxiety, and suicidal thoughts among teens.

#### How Does Marijuana Affect a Person's Life? <sup>5</sup>

Compared to those who don't use marijuana, those who frequently use large amounts report the following:

- lower life satisfaction
- poorer mental health
- poorer physical health
- more relationship problems

People also report less academic and career success. Use of marijuana eliminates a large portion of jobs available such as physicians, pilots, commercial drivers, etc. Marijuana use is also linked to a higher likelihood of dropping out of school. It's also linked to more job absences, accidents, and injuries.

#### **Can a person overdose on marijuana?**

An overdose occurs when a person uses enough of the drug to produce life-threatening symptoms or death. There are no reports of teens or adults dying from marijuana alone. However, the person who does overdose can die from the side effects of overdose such as vomiting, aspiration and accidental deaths due to intoxication. Some people who use marijuana can feel some very uncomfortable side effects, especially when using marijuana products with high THC levels. People have reported symptoms such as anxiety and paranoia, and in rare cases, an extreme psychotic reaction (which can include delusions and hallucinations) that can lead them to seek treatment in an emergency room. While a psychotic reaction can occur following any method of use, emergency room responders have seen an increasing number of cases involving marijuana edibles. Some people (especially preteens and teens) who know very little about edibles don't realize that it takes longer for the body to feel marijuana's effects when eaten rather than smoked. So they consume more of the edible, trying to get high faster or thinking they haven't taken enough. In addition, some babies and toddlers have been seriously ill after ingesting marijuana or marijuana edibles left around the house.<sup>6</sup>

#### Teens

According to Dr. Claire McCarthy, MD, Faculty Editor, Harvard Health Publishing, marijuana can:

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<sup>5</sup> <https://www.drugabuse.gov/publications/drugfacts/marijuana>

<sup>6</sup> <https://www.drugabuse.gov/publications/drugfacts/marijuana>

1. impair short-term memory, concentration, attention span, and problem-solving.
2. lead to damage to lungs from inhaling the smoke
3. increase risks of long-term psychiatric problems such as depression or psychosis
4. increase risk of long-term problems with memory and executive function, even after use of marijuana has ceased.
5. cause addiction - 9% of those who use will become addicted. 17% for those who start in adolescence and 25% to 50% in teens who smoke marijuana daily.
6. cause growth and learning problems in babies whose mothers smoke during pregnancy.
7. cause damage in teens whose brains are still developing.
8. Health problems because the smoke of marijuana is toxic to the person smoking it and the people around them. <sup>7</sup>

**Additional adverse side effects of marijuana use are many and include: <sup>8</sup>**

1. Disruptive effect on coordination beyond the period of intoxication which cause increased risk for adverse incidents such as motor vehicle crashes, industrial accidents.

2. Physical Adverse Effects include:

- Altered body temperature
- Altered pulmonary status
- Decreased coordination
- Decreased cerebral blood flow
- Dry mouth
- Headache
- Increased heart rate
- Increased food consumption
- Nausea
- Nystagmus (involuntary eye movement)
- Reduced muscle strength
- Tremor

3. Reproductive abnormalities

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<sup>7</sup> Parents: As more states legalize marijuana, here's what you need to know and do, Posted February 28, 2017, 10:30 AM , Updated March 03, 2017, 4:28 PM, Dr. Claire McCarthy, MD, Faculty Editor, Harvard Health Publishing

<sup>8</sup> Marijuana: Medical Implications, John R. Hubbard, M.D., Ph.d., Sharone E. Franco, M.d., and Emmanuel S. Onaivi, Ph.D., Vanderbilt University School of Medicine, Nashville, Tennessee, [American Family Physician](https://www.aafp.org/afp/1999/1201/p2583.html). 1999 Dec 1;60(9):2583-2588. <https://www.aafp.org/afp/1999/1201/p2583.html>

- Change in sperm morphology/motility
- Chromosomal damage
- Decreased libido
- Fetal exposure
- Gynecomastia
- Impotence
- Increase in the risk of nonlymphoblastic leukemia in children
- Infertility
- Lower testosterone levels
- Menstrual abnormalities
- Prolonged childbirth
- Reduced fertility in offspring
- Reduced testicular size
- Reduction of the size of the fetus and the birth weight

#### 4. Side effects on pre-existing medical conditions

- Impairment of pulmonary defenses against infection.
- Increase of cognitive deficits
- Increased risk of damage to coronary arteries cerebrovascular system
- Increased damage to already damaged airways - marijuana smoke has significantly higher tar content than tobacco and has carcinogens and is smoked unfiltered.

#### 5. Side effects caused by marijuana withdrawal

- Altered sleep/wake cycles
- Behavioral
- Decreased appetite
- Depressed mood
- Increased body temperature
- Insomnia
- Irritability
- Nausea
- Perspiration
- Physiologic
- Restlessness/agitation
- Salivation
- Sleep
- Tremor
- Weight loss
- Cravings<sup>9</sup>

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<sup>9</sup> <https://www.drugabuse.gov/publications/drugfacts/marijuana>

## 6. Neuropsychiatric Side Effects

- Addictive behaviors
- Aggressiveness
- Altered libido
- Amotivational syndrome
- Anxiety and panic
- Confusion
- Depersonalization
- Derealization
- Hallucinations
- Paranoia
- Poor sense of time
- Possible suicidal ideation
- Sedation
- Worsened short-term memory

The neurological disadvantages to using marijuana include:

1. Problems in the domains of attention and memory that persist beyond abstinence
2. Macrostructural brain alterations such as morphometry changes in gray matter tissue and changes in white matter tract integrity such as poorer coherence in white matter fibers.
3. Abnormalities of neural functioning such as increased brain activation
4. Changes in neurovascular functioning.<sup>10</sup>

There are neurocognitive disadvantages to using marijuana in the domains of attention and memory that persist beyond abstinence.<sup>11</sup>

### **Other side effects**

Cannabinoids are known to have biphasic effects in that a lower dose may relieve a symptom but a higher dose may make it worse and people vary widely in their response to marijuana and this has not been studied with marijuana. How marijuana is delivered may also affect both the efficacy of its use and number of side effects. Marijuana dispensaries deliver it in elixirs, honeys, baked goods, candies and beverages but there is no reliable data to indicate if these preparations are more efficacious and/or better tolerated. People with chronic medical conditions, the elderly

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<sup>10</sup> Is CBD Oil Harmful or Healing? What No One is Telling You  
<https://www.thehealthyhomeeconomist.com/cbd-oil-dangers/#comment-643247>

<sup>11</sup> Is CBD Oil Harmful or Healing? What No One is Telling You  
<https://www.thehealthyhomeeconomist.com/cbd-oil-dangers/#comment-643247>

patients and those who are not experienced with marijuana may be more sensitive to side effects. There are also gender differences in response.<sup>12</sup>

**Acute effects of pure THC and high-THC marijuana include:**

- Abuse and dependency
- Anxiety (including panic attacks),
- Cognitive impairment
- Confusion
- Dizziness,
- Dry mouth
- Hallucinations and other psychotic-like symptoms
- Intoxication (including dysphoria)
- Orthostatic hypotension
- Psychomotor impairment
- Somnolence,
- Tachycardia<sup>13</sup>

The Journal of the American Medical Association (JAMA) released an article on cannabinoids for medical use that claimed that there was an increased risk of short-term adverse effects including some serious adverse effects. The most common adverse effects included:

- asthenia
- balance problems
- confusion
- dizziness
- disorientation
- diarrhea
- euphoria
- drowsiness
- dry mouth
- fatigue
- hallucination
- nausea
- somnolence

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<sup>12</sup> “Medical Marijuana: Clinical Considerations and Concerns,” Richard G. Soper, MD, AZ Medicine, Summer 2011 For complete reprints of the original article, contact Dr. Soper at the Center for Behavioral Wellness, 2830 Bransford Ave., Nashville, TN, 37204; phone: 615-292-5747, fax: 615-2925749; email: mdjd@justice.com.

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vomiting.<sup>14</sup>

## **Are People with Health and Age-Related Problems More Vulnerable to Marijuana's Risks?**

State-approved medicinal use of marijuana is a fairly new practice. For that reason, marijuana's effects on people who are weakened because of age or illness are still relatively unknown. Older people and those suffering from diseases such as cancer or AIDS could be more vulnerable to the drug's harmful effects, but more research is needed.<sup>15</sup>

### **Cancer**

Marijuana use is associated with cancer. Marijuana contains 50% more carcinogens than tobacco smoke and marijuana smokers report serious symptoms of chronic bronchitis and other respiratory illnesses.<sup>16</sup> The risk for lung cancer may not appear to be consistently increased by marijuana use, however, three independent studies have shown that the risk for testicular cancer is doubled by regular use.<sup>17</sup> Marijuana smoke is associated with lung disease and the development of some cancers. High levels of the cannabinoid receptor that is preferentially activated by THC (CB1) correspond to shorter survival in many cancers.<sup>18</sup>

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<sup>14</sup> <http://jamanetwork.com/journals/jama/fullarticle/2338251>

<sup>15</sup> <https://www.drugabuse.gov/publications/drugfacts/marijuana-medicine>

<sup>16</sup> <https://learnaboutsam.org/science>

<sup>17</sup> Cancer

Ladin DA, Soliman E, Griffin L, Van Dross R. Preclinical and Clinical Assessment of Cannabinoids as Anti-Cancer Agents. *Front Pharmacol.* 2016;7:361. eCollection 2016.

#### **Testicular Cancer**

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<sup>18</sup> Carpi S, Fogli S, Polini B, Montagnani V, Podestà A, Breschi MC, Romanini A, Stecca B, Nieri P. Tumor-promoting effects of cannabinoid receptor type 1 in human melanoma cells. *Toxicol In Vitro.* 2017 Apr;40:272-279. doi: 10.1016/j.tiv.2017.01.018. Epub 2017 Jan 26

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