

# Medical Marijuana Background

## What You Need to Know About Medical Cannabis

Cannabis, or marijuana (*Cannabis sativa*) is known for its psychoactive properties and its illegal recreational use to get “high” or “stoned”. The main psychoactive chemical in cannabis is tetrahydrocannabinol, commonly known as THC. This was isolated in 1964. Another important component, nonpsychoactive cannabidiol (CBD), was identified in 1963. All together, there are more than 60 pharmacologically active compounds called “cannabinoids”.

In the 1980s the endocannabinoid system was discovered. It is a complex neurotransmitter or signalling system consisting of receptors, endogenous ligands and enzymes that exists throughout the central nervous system (including the brain) as well as the peripheral nervous system.

This endocannabinoid system has been found to express elevated signalling in various neurodegenerative diseases including Parkinson’s disease, Alzheimer’s disease, allergic encephalomyelitis and multiple sclerosis. The purpose of this activation seems to be to reduce neuronal hyperactivity and local inflammation which could cause damage as well as to reduce tremors and spasticity.

## People Who Use Recreational Cannabis

By recreational use we usually mean “smoking weed” that is high in the psychoactive chemical THC.

THC has been shown to increase anxiety levels and present symptoms of psychosis in healthy individuals. As a contrast,

CBD has been shown to reduce anxiety and depression, mediate pain perception, reduce nausea and vomiting, improve sleep, reduce inflammation, and displays anti-psychotic effects.

Many recreational users of marijuana simply concentrate on the THC levels and ignore CBD levels in the product they use. But, CBD levels may be important in the long term effects of marijuana use.

A study was done to analyze hair samples of 140 people. They were separated into groups based upon whether their hair showed THC (20 individuals), THC+CBD (27 individuals), CBD (8 individuals), or none of these compounds (85 individuals). The CBD only group was too small to analyze and was dropped from the analysis.

The short form of the [Oxford Liverpool Inventory of Life Experiences](#) was administered to the remaining 132 individuals. This questionnaire investigates ways of thinking including aberrations, magical thinking, hallucinations, poor decision-making, social anxiety, impulsive, anti-social, and eccentric forms of behavior.

The group with only THC in their hair showed a higher level of “unusual experiences” (such as aberrations, magical thinking, hallucinations) than the TCH+CBD group ( $p < 0.021$ ) and a very significant high level of “unusual experiences” compared with the non-cannabis group ( $p < 0.001$ ).

This study indicates the negative effects of use certain strains of marijuana and suggests that CBD could have a psychologically protective effect on marijuana users.

Another [more recent study](#) confirmed that when THC and CBD were administered together, CBD was efficient in blocking most of the effects of THC, including reducing anxiety.

# Marijuana Strains

Not all marijuana plants are the same. Like most plants, marijuana has been bred to produce varying levels of psychoactive THC and nonpsychoactive cannabidiol or CBD.

Some recreational [marijuana strains](#) with high levels of THC include

- Cookies Kush (15-18% THC and 3% CBD)
- Violator Kush (19-23% THC and 2% CBD)
- Vanilla Kush (up to 20% THC and 1% CBD)

Medical [marijuana strains](#) high in CBD and low in THC include:

- ACDC (up to 20% CBD and 0.42% to 6% THC)
- Charlotte's Web (up to 20% CBD and less than 0.3% THC)
- Ringo's Gift (up to 20% CBD and as low as 1% THC)
- Harle-Tsu (up to 22% CBD and less than 1% THC)

# Medical Marijuana



Photo by [Jeffrey Beall](#)



The Chinese used marijuana more than 4600 years ago for ailments such as cramps, joint and menstrual pains. But, it wasn't until the 19th century that western doctors began an investigation of marijuana. And, it was only in 1964 that the chemical structure of psychoactive component THC was identified.

It's actually the ratio of nonpsychoactive cannabidiol (or CBD) to the psychoactive substance tetrahydrocannabinol (or

THC) that determines therapeutic vs psychoactive effects. Those strains with low THC will not enable users to get “high.” Most people use medical marijuana with high levels of CBD. But, even THC can be beneficial for treating nausea from chemotherapy and weight loss from AIDs.

Medical marijuana laws typically allow patients with a physician recommendation to obtain marijuana at state supervised dispensaries. [One study](#) has found that states with such dispensaries have reduced opioid abuse and opioid deaths.

## **A doctor’s case for medical marijuana | David Casarett**

Physician David Casarett was tired of hearing hype and half-truths around medical marijuana, so he put on his skeptic’s hat and investigated on his own. He comes back with a fascinating report on what we know and what we don’t – and what mainstream medicine could learn from the modern medical marijuana dispensary.

Here are just a few of the hundreds of published studies that show the effectiveness of medical marijuana.

## **Medical Marijuana for Epilepsy**

For many years only anecdotal evidence or small clinical trials were available to indicate the usefulness of medical marijuana for use in seizure control for epilepsy.

The first large study involved 162 patients who were studied for the complete 12 weeks of the program. A number of the patients experienced adverse effects and stopped taking oral cannabidiol, leaving 137 patients who were included in the efficacy evaluation. Patients were 1-30 years of age, all with childhood onset epilepsy.

The main goal of the study was to determine the safety, tolerability and effectiveness of cannabidiol.

In addition to their normal antiepileptic drugs, patients were given 2-5 mg of oral cannabidiol per kilogram of body weight per day in two divided doses. Over time the dose was increased until a maximum dose of 50 mg/kg or the patients reached intolerance. The mean dose was 22.7 mg/kg.

The patients and caregivers monitored and recorded the seizures of a patient during the study. The seizures affecting the motor complex were of particular interest in this study.

During the final four weeks of the trial, 15 (11%) patients were free of all motor seizures and 9 (7%) patients were free of all seizure types. In addition, 39% of the patients had a reduction of 50% or more in motor seizures and 21% saw motor seizures drop by 70% or more. The average person experienced a 34.6% decrease in seizures using cannabidiol.

This trial demonstrated a clinically meaningful reduction of seizures in most patients with safe and tolerable doses of cannabidiol.

## **Medical Marijuana for Anxiety and Sleep**

Various studies have shown the positive effects of cannabidiol on posttraumatic stress disorder (PTSD). This case of a ten year old girl illustrates this effectiveness.

This girl's mother used marijuana for the entire pregnancy. She was molested by an 11 year old boy when she was 3 years old. She received very little supervision from her parents. Her mother was addicted to methadone, suffered from alcoholism, bipolar disorder and depression. Her father died in a motor vehicle accident and she was cared for by her grandparents who received permanent guardianship.

This girl, at age 10, was evaluated and received a diagnosis of PTSD secondary to sexual abuse. She exhibited anxiety, insomnia, outbursts at school, had suicidal thoughts, and displayed self-destructive behaviors.

She was put on CBD supplementation with 25 mg at bedtime. She could use a sublingual spray during the day to help combat anxiety.

Gradually her sleep quality and quantity increased and here anxiety decreased. After 5 months the girl was sleeping much better and was able to handle the new school year without difficulties. No negative side effects of the CBD oil were noted.

The ultimate goal in this treatment is to slowly reduce the use of CBD oil and move into lifelong coping behaviors such as yoga, meditation and other such activities.

## Conclusions You Can Use

While some strains of marijuana plants have concentrations of THC that will get users “high,” other strains will not.

The compound in the marijuana plant called CBD is effective in treating a number of ailments.

Access to medical marijuana is another option for treating numerous ailments and should be made available to the medical community.

## References

- [Effectiveness of Cannabidiol Oil for Pediatric Anxiety and Insomnia as Part of Posttraumatic Stress Disorder: A Case Report](#) as published in *The Permanente Journal*
- [The endocannabinoid system and its therapeutic exploitation](#) as published in *Nature Reviews*

- [Systematic review: Efficacy and safety of medical marijuana in selected neurologic disorders](#) as published in *Neurology*
- [Cannabidiol in patients with treatment-resistant epilepsy: an open-label interventional trial](#) as published in *The Lancet*
- [Effects of cannabidiol on schizophrenia-like symptoms in people who use cannabis](#) as published in *The British Journal of Psychiatry*