

The Case For Medical Cannabis

The History & Current State of Cannabis as Medicine



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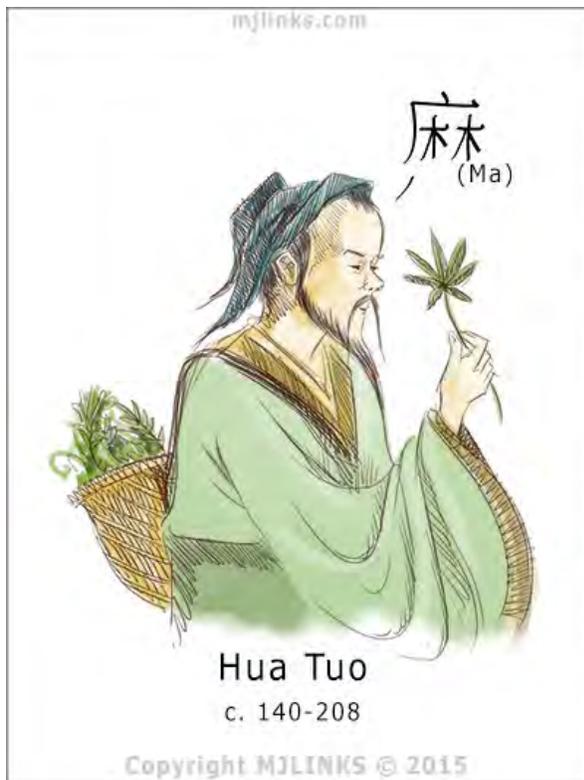
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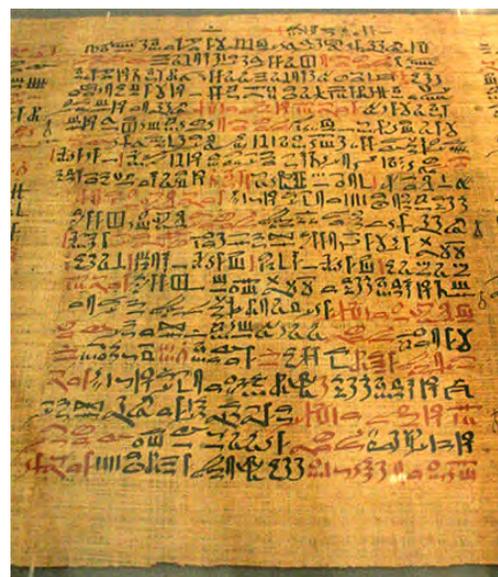


Early Chinese surgeon Hua Tuo is credited with being the first recorded person to use cannabis as an anesthetic. "Ma" means hemp or cannabis. The Chinese term "mazui" literally means "cannabis intoxication"

The Ebers Papyrus (c.1550 BC)

Describes medical uses of cannabis

The ancient Egyptians used cannabis in suppositories for hemorrhoid pain relief





Doctor William Brooke O'Shaughnessy

1809-1889

"The father of western medical cannabis research"

While in the British military, he was assigned to Calcutta, India and became a member of the Medical and Physical Society of Calcutta, where he published one of the first papers on medical applications of cannabis. By scientifically researching the folklore uses of cannabis in India, he discovered new medical applications for it and went on to recommend cannabis for a great list of therapeutic purposes.

OVER A CENTURY OF SCIENTIFIC RESEARCH

1894 - The India Hemp Drugs Commission Study was a 3000 page report on cannabis and its effects on health and society. Finding the banning of cannabis would be "supremely unjust."

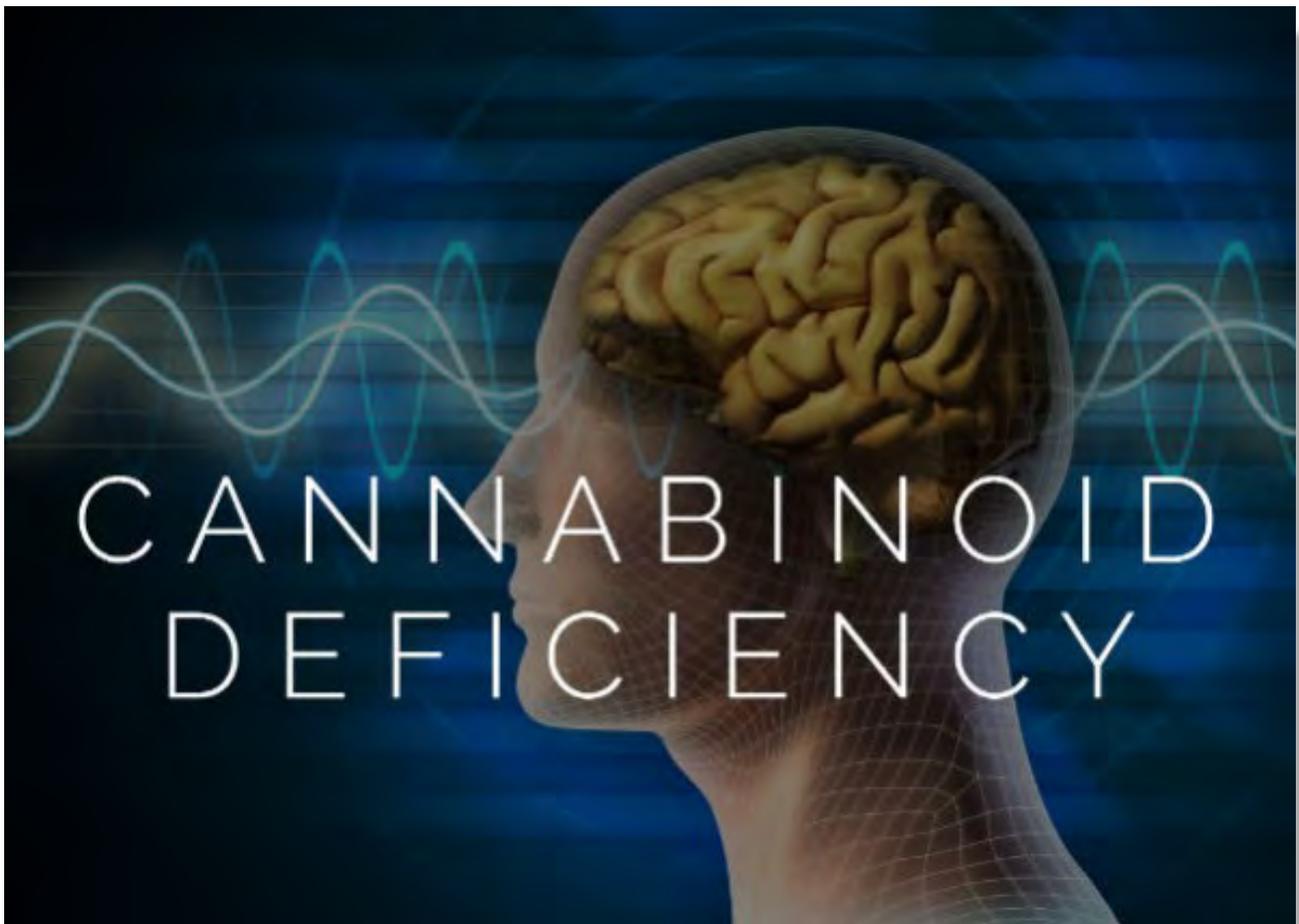
1944 - The LaGuardia Commission in New York issues a report refuting the medical basis for outlawing cannabis in the U.S.

2017 - The National Academies of Sciences, Engineering & Medicine publishes a 468 page report on *The Health Effects of Cannabis and Cannabinoids*. Largely concluding that much more research of cannabis is justified.

2018 - UCLA's Cannabis Research Initiative is one of the first academic programs in the world to study cannabis.

2019 - The IVC Research Center in Tel Aviv, Israel reports there are 68 companies in Israel active in the medical cannabis field.

2019 - Charles R. Broderick, Cannabis Investor, donates \$9 million to Harvard and MIT to study the health effects of cannabis.



Over 140 cannabinoids (chemical compounds) have been discovered in the cannabis plant.

It was only recently discovered that the body naturally produces cannabinoids (endocannabinoids) for the healthy balance of bodily functions. Cannabinoid deficiency in the body has been linked to a considerable list of human maladies.

In 1990, it was announced that a team, lead by Lisa Matsuda at the National Institute of Mental health, had mapped the DNA sequence that encodes a cannabinoid receptor (CB1) in the brain.

A second cannabinoid receptor, named CB2, was also identified at this time, which is present throughout the immune system and the peripheral nervous system.

Endocannabinoid Deficiency Syndrome has been linked to Menstrual Symptoms, Fibromyalgia, Migraine Headaches, Multiple Sclerosis, Irritable Bowel Syndrome, Schizophrenia, Anorexia, Huntington's Disease and Chronic Motion Sickness, among others.

DID YOU KNOW ?

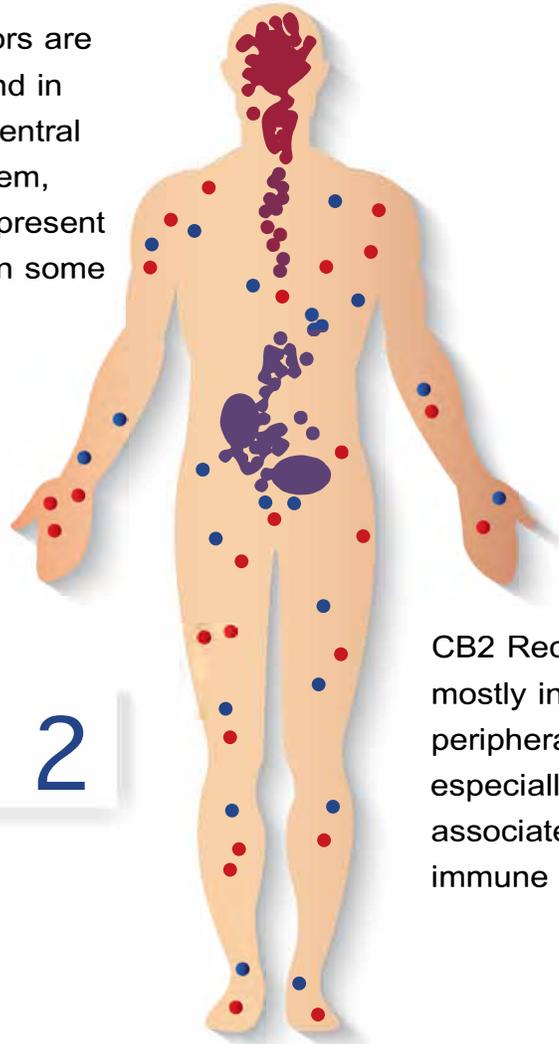
THE ENDOCANNABINOID SYSTEM IS
RESPONSIBLE FOR MAINTAINING :

- + Metabolism
- + Pain
- + Appetite
- + Sleep
- + Mood
- + Movement
- + Temperature
- + Memory & Learning
- + Immune Function
- + Inflammation
- + Neural Development
- + Neuroprotection
- + Cardiovascular Function
- + Digestion
- + Reproduction



THE HUMAN ENDOCANNABINOID SYSTEM

CB1 Receptors are primarily found in the brain & central nervous system, but are also present in nerves & in some organs.



CB 1

CB 2

CB2 Receptors are mostly in the peripheral organs especially cells associated with the immune system.

THE ENDOCANNABINOID SYSTEM ALSO REGULATES



TEMPERATURE
REGULATION



MEMORY



CARDIOVASCULAR
FUNCTION



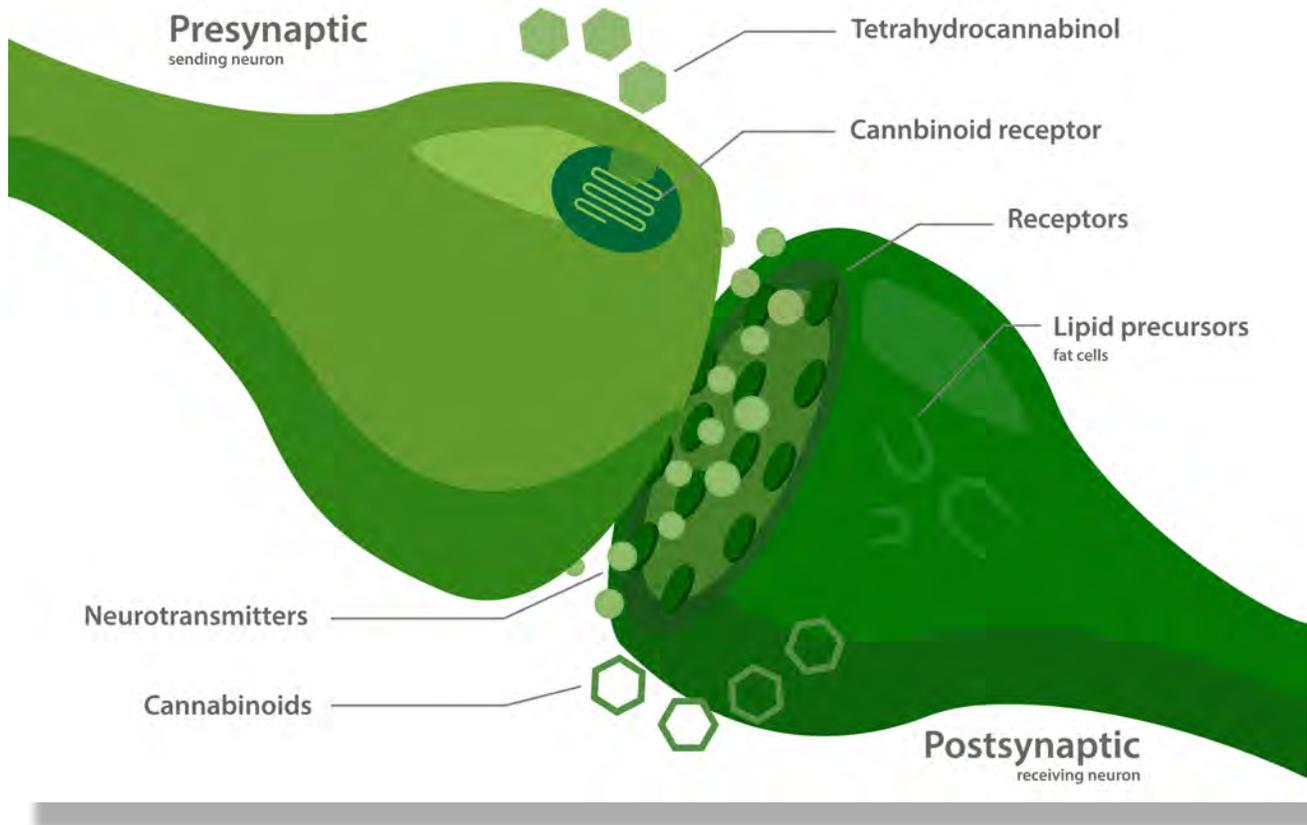
ENERGY BALANCE
& METABOLISM



DIGESTION

The Body's Neurotransmitter System

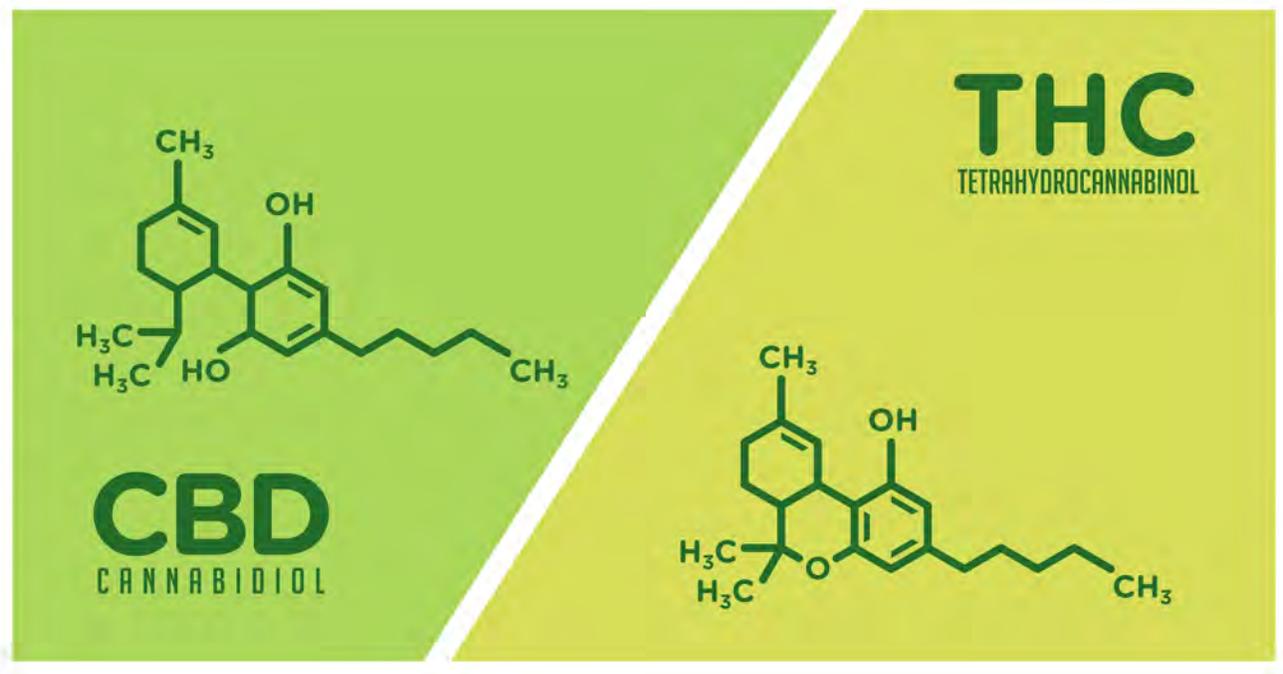
How cannabinoids are sent to affect different parts of the body



Endocannabinoids (internal) produced in our bodies or Phytocannabinoids (produced in plants) are distributed throughout our bodies by our neurotransmitter system.

Endocannabinoids favorably affect and balance a broad range of bodily functions. They are necessary for our health.

With the discovery of endocannabinoids, continued research into medical cannabis is now firmly set as a path to new health benefit discoveries for the use of the bountiful cannabinoids found in cannabis plants.



THE "ENTOURAGE EFFECT" COMPOUNDS WORKING TOGETHER FOR A BETTER RESULT.

CBD (Cannabidiol) and THC (Tetrahydrocannabinol) are the two primary cannabinoids in cannabis that are most often mentioned in medical cannabis research. There are more cannabinoids that are considered beneficial, as well.

It has been demonstrated that better results can be achieved by a specific ratio of CBD to THC in medical applications. Included in this so-called "Entourage Effect" are specific Terpenes (aromas) found in cannabis. They are known to contribute to the efficacy of the cannabinoids (CBD, THC, etc.) chosen to address a specific health issue.

Some of the "Entourage Effects" of Terpenes are set out in the next graphic:

TERPENES IN CBD OIL

THERE ARE MORE THAN 100 TERPENES IN JUST ONE CANNABIS FLOWER.
HERE ARE SOME OF THE MOST WELL KNOWN TERPENES RIGHT NOW, MOST OF WHICH YOU'LL FIND IN LEGAL CANNABIS PRODUCTS IN YOUR AREA.

Terpene Name	Aroma	Properties	Common Uses
Bisabolol	floral	anti-inflammatory, anti-irritant anti-microbial	cancer, skin lesion
Borneol	mint	anti-inflammatory antinociceptive	eyesight, pain relief
Camphene	fir needles musky earth	anti-oxidant	skin lesion cardiovascular diseases
Caryophyllene	spicy	anti-bacterial, anti-inflammatory anti-fungal	insomnia, muscle spasms pain relief
Delta 3 Carene	pine rosemary	anti-inflammatory	bone stimulant memory
Eucalyptol	mint	anti-bacterial anti-fungal	alzheimer's pain Relief
Geraniol	peach rose grass	anti-cancer, anti-oxidant neuroprotectant	cancer, pain relief
Humulene	earthy	anti-bacterial, anti-inflammatory anti-tumor effects	appetite suppression cancer, infections pain relief
Limonene	bitter citrus	anti-anxiety, anti-cancer	digestion, gallstones liver detoxification weight loss, sleep aid
Linalool	floral	anti-anxiety, anti-epileptic anti-psychotic, pain killing	depression, convulsions insomnia, pain relief
Myrcene	citrus cloves	relaxing, sedating	inflammation, insomnia spasms, pain
Pinene	pine	anti-depressant anti-inflammatory, anti-microbial	asthma, bronchitis cancer, depression memory, mental alertness
Phytol	balsamic floral	anti-insomnia immunosuppressant	reduce itching sleep aid wound healing
Terpinolene	smoky woody	anti-bacterial, anti-fungal anti-insomnia, antiseptic	cancer, heart disease sleep aid
Trans-nerolidol	citrus rose	anti-cancer, anti-microbial anti-oxidant, anti-parasitic	relaxing skin lesion
Valencene	sweet citrus	anti-inflammatory, antiallergic anti-melanogenesis	memory skin lesion

THE HISTORY OF CANNABIS PROHIBITION IN THE U.S.

COPIED VERBATUM FROM THE NATIONAL CANCER INSTITUTE (NATIONAL INSTITUTES OF HEALTH) WEBSITE:

<https://www.cancer.gov/about-cancer/treatment/cam/hp/cannabis-pdq>

"Cannabis use for medicinal purposes dates back at least 3,000 years. It was introduced into Western medicine in 1839 by W.B. O'Shaughnessy, a surgeon who learned of its medicinal properties while working in India for the British East India Company. Its use was promoted for reported analgesic, sedative, anti-inflammatory, antispasmodic, and anticonvulsant effects.

In 1937, the U.S. Treasury Department introduced the Marihuana Tax Act. This Act imposed a levy of \$1 per ounce for medicinal use of Cannabis and \$100 per ounce for nonmedical use. Physicians in the United States were the principal opponents of the Act. The American Medical Association (AMA) opposed the Act because physicians were required to pay a special tax for prescribing Cannabis, use special order forms to procure it, and keep special records concerning its professional use. In addition, the AMA believed that objective evidence that Cannabis was harmful was lacking and that passage of the Act would impede further research into its medicinal worth. In 1942, Cannabis was removed from the U.S. Pharmacopoeia because of persistent concerns about its potential to cause harm.

In 1951, Congress passed the Boggs Act, which for the first time included Cannabis with narcotic drugs. In 1970, with the passage of the Controlled Substances Act, marijuana was classified by Congress as a Schedule I drug. Drugs in Schedule I are distinguished as having no currently accepted medicinal use in the United States. Other Schedule I substances include heroin, LSD, mescaline, and methaqualone.

Despite its designation as having no medicinal use, Cannabis was distributed by the U.S. government to patients on a case-by-case basis under the Compassionate Use Investigational New Drug program established in 1978. Distribution of Cannabis through this program was closed to new patients in 1992."



This is the United State's definitive study to date on Cannabis. It was published in January 2017 and is now nearly two and a half years old.

Several of its findings have been revised since and several successful medical uses of cannabis have since been acknowledged and even approved by the U.S. Food and Drug Administration. Such as EPIDIOLEX for acute epilepsy seizures in children.

However, some key findings were made:

There is conclusive or substantial evidence that cannabis or cannabinoids are effective treatment for chronic pain in adults, and as treatment for chemotherapy induced nausea and vomiting and improving multiple sclerosis spasticity symptoms.

MEDICAL CANNABIS RESEARCH IS TAKING OFF

Charles R. Broderick, Cannabis Investor, has donated \$9 million to Harvard University and the Massachusetts Institute of Technology (MIT) for the study of the health effects of cannabis.

UCLA's Cannabis Research Initiative is among the first academic programs in the world to study cannabis.
www.uclahealth.org/cannabis/

The IVC Research Center of Tel Aviv, Israel reports there are 68 companies in Israel active in the medical cannabis field. Medical cannabis has been legal in Israel for over two decades. See the report at:
www.tiktakti.co.il/catalog/ivc/2018/magazine-feb/index.html#p=22

The National Institutes of Health, through its National Cancer Institute, has established a webpage devoted to the state of cannabis as medicine and its potential in treating cancer and cancer related symptoms.
www.cancer.gov/about-cancer/treatment/cam/hp/cannabis-pdq

EPIDIOLEX is an FDA approved cannabis (CBD) based drug for the effective reduction in seizures from two severe epilepsy conditions called Dravet and Lennox-Gautaut Syndrome in children two years and older.
www.epidiolex.com/about-epidiolex/story

A Few Random Cannabis Facts to Consider



In 1914, Hemp (Cannabis), and its many products, was so important to the U.S. industrial base that cannabis farming was portrayed on the \$10 Federal Reserve Note. It was even printed on Hemp paper.

First State

In 1996, California became the first state to legalize the medical use of Cannabis. Allowing licensed Doctors to "recommend" cannabis rather than prescribe it, because cannabis remained federally illegal and not recognized as an approved prescription drug. Vote was 56-44.

Legal versus Illegal Markets

According to Arcview Market Research, the 2016 United States cannabis market was estimated to be \$52 Billion. Legal cannabis sales made up just \$6.2 Billion of that, coming from the eight fully legalized and 28 medical states at that time.

87% of the sales were on the black market. A market supplying untested cannabis that provided no assurances of contaminant free content or cannabinoid content levels.

Cannabis Investments

According to the Associated Press, investors put \$10 Billion into North American Cannabis industries in 2018.

Higher Industry Wages

According to Glassdoor data, the median salary in the cannabis industry was \$58,511 in 2018. The median salary for US workers as a whole was \$52,863. A difference of 10.7%