



## **Cannabis 101**

*Safe, Versatile & Effective*

***“Cannabis is a treasure trove of healing.”***

Dr. Raphael Mechoulam,

He is the father of cannabis science is an organic chemist and professor of Medical Chemistry, at Hebrew University. He isolated and elucidated THC and has led the field of cannabis research for the last 45 years.

### **SAFETY QUICK FACTS**

- Cannabis is one of the safest and most versatile herbal medicines on the planet! There are **no recorded deaths** as a result of cannabis over-consumption.
- The lethal dose of cannabis has **never been quantified** because it is so high and thought to be humanly impossible to achieve, but is estimated to be over 800 cigarettes in 15 minutes. Death at that point would be as a result of carbon monoxide poisoning not from the components of the plant.
- Medically speaking cannabis has a LOW toxicity profile. There are **no serious lasting side effects**. There are certainly risks and side-effects to consuming marijuana but they are milder than those of most prescription drugs and subside within 30 days of cessation.
- Smoking marijuana **has NOT been shown to cause lung cancer**. In fact there is substantial research that smoking cannabis imparts a preventative effect on lung cancer.
- Cannabis supports the body as an **anti-inflammatory, neuroprotective and anti-spasmodic**.

### **CANNABIS SCIENCE QUICK FACTS**

- Cannabis is one of the most pharmacologically active plants on the planet with over 400 different chemicals.
- THC is the psychotropic component of cannabis and must be heated to become psychoactive.
- **More research exists about the safety and efficacy of cannabis as medicine than 95% of FDA approved medicine.**
- The U.S. Department of Health & Human Services holds a patent on cannabis for its neuroprotectant and anti-inflammatory properties.
- **Cannabis is usually not addictive.** However, for those who have a problem with cannabis, withdrawal symptoms are mild compared to that of alcohol, tobacco, barbiturates, opiates and many other drugs. In most people, withdrawal symptoms last 5-10 days and in rare cases, up to a month.

***“To date we have more research and clinical evidence about the safety and efficacy of cannabis as medicine than 95% of FDA approved medicines.”***

– Gregory T. Carter, M.D. St. Luke’s Rehabilitation Center

## ORIGINS OF PROHIBITION

***Medical cannabis policy SHOULD BE based on science, NOT fear, and misinformation.***

Cannabis has been used throughout the world for healing, spiritual and recreational purposes for over 5,000 years without a single recorded death attributed to overconsumption.

Cannabis was a part of the U.S. Pharmacopoeia (USP) from 1854 to 1942. Highly regarded companies like Eli Lilly, Parke Davis and Squibb produced many prescription drugs with cannabis as an ingredient. **At one time there were over 2000 different medicines sold in the U.S. made from cannabis.** Those drugs addressed everything from pain, anxiety, and cough to insomnia and stomach problems. In 1971, cannabis was classified by the Controlled Substances Act as a schedule 1 drug meaning it has NO known medical use. **Yet the federal government holds a patent cannabis for its antioxidant and a neuroprotectant properties.**

This patent not only outlines how the components of can be used to address serious medical concerns but also how it supports changing disease progression for conditions like Alzheimer's, traumatic brain injury and cancer to name a few.

President Nixon was the first to commission federal research into cannabis. The report widely known as the Schafer Commission Report but formerly titled *Marihuana a Signal of Misunderstanding* suggested that cannabis be removed from Schedule 1 and recommended legalization up to 1 ounce. The report stated:

- “Cannabis was brought into narcotics framework because of unfounded assumptions about its ill effects.”
- “Considering the range of social concerns in contemporary America, marihuana does not in our considered judgment, rank very high. We would deemphasize marihuana as a problem.”

**President Nixon ignored the comprehensive medical report and promptly passed legislation to fund the War on Drugs that continues today based in politics NOT science.**

## WHAT IS CANNABIS?



Cannabis is a flowering plant. The flowers (also known as buds) and leaves of the female plant are cured resulting in what we generally regard as cannabis, or the more commonly used pejorative term “*marijuana*”.

The cannabis plant happens to be one of the most (if not the most) pharmacologically active plants on the planet, containing over 400 active chemicals. **The unique active components of cannabis are called *cannabinoids*** (for example THC & CBD), which are found alongside active chemicals called *terpenes* (we also refer to them as *terpenoids*) and *flavonoids*. These chemical components work together to provide a wide variety of therapeutic benefits to the human body. In fact, components of the

cannabis plant used together - what is known as “*whole plant*” extracts or medicine - are **four times more therapeutic** than any one isolated component is on its own.

## HOW DOES CANNABIS WORK?

Highly versatile, cannabis provides relief for many different ailments and symptoms with a high degree of safety. When plant matter is heated either by lighting it on fire, vaporizing or cooking, it changes the chemical make-up of the plant converting cannabinoid-acids to the better known chemicals called **cannabinoids** like delta-9 tetrahydrocannabinol (THC) and cannabidiol (CBD). Cannabinoids acids are also therapeutic but not well studied.

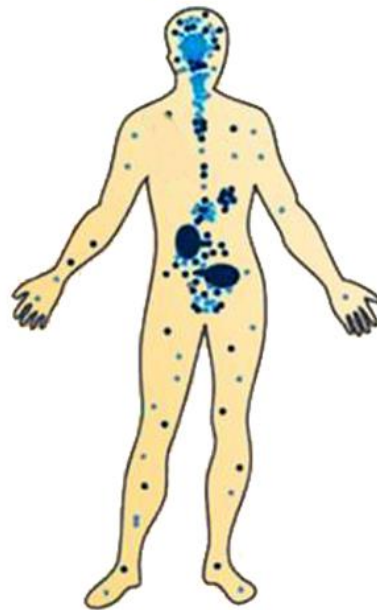
Cannabis that is inhaled, used sublingually or via suppository enters the blood stream directly. Cannabis products that are swallowed must be metabolized through the liver first before being delivered to the blood stream. **Once the pharmacologically active components of the cannabis plant hit the blood stream they immediately go to work in the body performing the highest priority needed by the body, be it reduced inflammation, control of nausea and vomiting or retarding the growth of cancer cells.**

The components of the cannabis plant act like a key that fit into certain receptors on cells throughout the body. The components of the cannabis plant or “the key” fit into the “key hole” or the receptor to unlock it, thus activating certain therapeutic actions or reactions.

What is unique about the way cannabis works in the body is that it is not a silver bullet that addresses one symptom. Instead **it works broadly to reduce inflammation, manage pain, balance brain chemicals and hormones all** at once throughout the different biological systems.

The reason cannabis benefits so many different illnesses and ailments boils down to the fact that **some of the active pharmacological components of the cannabis plant mimic an internal chemical harm reduction system in the human body that keeps our health in balance** – this is called the *Endocannabinoid System (ECS)*.

## Why Does Cannabis Work?



- Components of the cannabis plant **mimic** certain **chemistry in the human body**
- That chemistry is the foundation of our internal **harm reduction system**
- It controls or is involved in:
  - Pain modulation
  - Temperature control
  - Vomiting and nausea
  - Inflammation response
  - Newborn suckling
  - Immune function
  - Memory

## WHAT IS THE ENDOCANNABINOID SYSTEM (ECS)?

The ECS is controlled by chemicals that our body produces called *endocannabinoids*. Our endocannabinoids are responsible for keeping our most critical biological functions in balance such as sleep, appetite, the immune system, pain and more. When the body gets out of balance and moves into a state of stress, endocannabinoids go to work to fix the problem. The pharmaceutically active components in the cannabis plant mimic endocannabinoids and thus can be effective in helping the body manage crises and restore itself after trauma when the body's endocannabinoids are not able to restore balance alone.

A major reason cannabis is so versatile and works for a wide variety of issues **is that cannabis is highly effective in treating inflammation** which is the cause of most chronic illnesses and is a result of most injury.

## BENEFITS OF THE PRIMARY CANNABINOIDS: THC & CBD

Actions	THC	CBD
protects against cancer	✓	✓
reduces nausea	✓	✓
pain reliever	✓	✓
causes drowsiness	✓	
increases appetite	✓	
relieves spasms	✓	✓
decreases seizures	✓	✓
*reduces anxiety	✓	✓
muscle relaxant	✓	✓
antimicrobial	✓	
antibacterial	✓	✓
protects nervous system	✓	✓
anti-diabetic		✓
improves blood circulation	✓	✓
relieves psoriasis		✓
relieves Crohn's disease	✓	✓
anti-inflammatory	✓	✓
bone stimulant		✓
relieves rheumatoid arthritis		✓
antioxidant	✓	✓

\*reduces anxiety in low doses, promotes anxiety in high doses

Various levels and combinations of cannabinoids, terpenes and flavonoids provide many benefits to the human body.

While there are over 100 different cannabinoids that can occur in cannabis, the two most well known and studied compounds in the cannabis plant happen to also be the two that occur in the largest volume: delta-9 tetra-hydrocannabinol, commonly referred to as THC, and cannabidiol, known as CBD.

Like all other cannabinoids, these two must be heated to convert the cannabinoid acid to the active cannabinoid. **THC is the primary psychoactive component of cannabis** which gives the effect of what recreational users call the "high." **CBD is considered to be non-psychoactive** and when used in conjunction with THC helps dampen the psychoactivity and other side-effects some people consider undesirable. Both cannabinoids have an impressive list of ways they support the human body.

## ***Tetrahydrocannabinol (THC)***

THC is a strong anti-inflammatory and pain killer and has been shown to reduce the amyloid plaques in the brain that cause Alzheimer's. In pre-clinical trials THC has been proven to **reduce levels of vascular endothelial growth factor (VEGF) in glioma (brain cancer) cells**. This is important because a reduction in VEGF means that cancer tumors are unable to grow the new blood vessels they need to sustain themselves, grow and spread. This discovery offers great promise for the treatment of brain and other types of cancer. While CBD has received acclaim for its ability to reduce seizures, a large number of patients require THC and CBD together to control seizures.

THC is also a bronchodilator, anti-spasmodic, muscle relaxant, a powerful neuroprotectant and antioxidant. **In fact, it has 20 times the anti-inflammatory power of aspirin and twice that of hydrocortisone.**

## ***Cannabinol (CBD)***

CBD is the second most common cannabinoid in cannabis and the most common in hemp plants. CBD can generally represent 0.1-12 percent of the cannabinoid content of the plant. CBD rich cannabis (4% or more) provides potent therapeutic benefits for many different ailments. While THC is widely known for its psychoactive properties, CBD may be best known for its ability to help control severe forms of epilepsy and its ability to counterbalance anxiety, tachycardia (rapid heartbeat), hunger and sedation caused by high levels of THC. **CBD and THC have a synergistic effect. This means that when they are both present at therapeutic levels, they are more effective together than either are alone.**

CBD is as beneficial and versatile a cannabinoid as THC in addressing many hard to manage conditions such as **diabetes, rheumatoid arthritis, cancer, epilepsy, antibiotic-resistant infections, alcoholism, PTSD and neurological disorders**. CBD has very strong anxiolytic (reduces anxiousness), anti-convulsant, anti-emetic (reduces nausea), anti-inflammatory, antioxidant (**stronger than vitamins C & E**), anti-depressant and anti-psychotic properties. One of the most exciting aspects of CBD is its combined strong anti-inflammatory, anti-oxidant and neuro-protective properties which yields great promise for the treatment of Alzheimer's, Parkinson's disease, and all neurodegenerative-related diseases. CBD also helps regulate blood pressure and is **cytotoxic to breast cancer and certain other types of cancer cells while protecting healthy cells.**

## **THE CANNABIS IRONY**

Although possession of cannabis is illegal under federal law, twenty-nine states and the District of Columbia have some form of a medical cannabis law. The synthetic form of isolated THC, the component of cannabis that the federal government claims is the offending compound that makes cannabis illegal, is available with a doctor's prescription under the brand name Marinol. It is a Schedule III drug.

***Marijuana in its natural form is one of the safest therapeutically active substances known to man.***

Judge Frances L. Young, DEA Administrative Law Judge. In 1988, Judge Frances Young, after hearing testimonies from patients and cannabis experts, recommended that the DEA transfer cannabis from Schedule I to Schedule II. His recommendation was ignored.

## HOW IS HEMP DIFFERENT FROM CANNABIS?





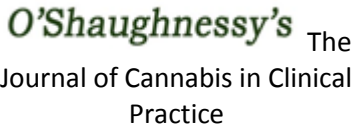


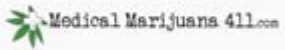






Hemp and medicinal cannabis are in the same genus – cannabis, (*Cannabis sativa*, *Cannabis indica*, and hybrids), and both have psychoactive components but the hemp plant has so little that its flowers are not effective to use for medical or recreational purposes. The difference is in breeding/growing methods; hemp is grown for its seed, oil and fiber, which is used to make food, health products, body care items, clothing, rope, paper, etc., and medicinal cannabis is bred to have larger buds and more psychoactive and therapeutic compounds. Hemp seed and oil are highly nutritious packed with protein, and high-quality essential fatty acids that are the chemical building blocks to our endocannabinoids.

## GET INFORMED

**“Cannabis is the single most versatile herbal remedy, and the most useful plant on Earth. No other single plant contains as wide a range of medically active herbal constituents.”**

- Dr. Ethan Russo, Neurologist, Ethnobotanist, and leading global medical cannabis expert.

The following are some of the premier resource about cannabis science and politics.

Organization	Website	Organization	Website
	<a href="http://MyChronicRelief.com">MyChronicRelief.com</a>		<a href="http://mpp.org">mpp.org</a>
	<a href="http://cannabis-med.org">cannabis-med.org</a>		<a href="http://projectcbd.org">projectcbd.org</a>
	<a href="http://beyondthc.com">beyondthc.com</a>		<a href="http://medicalcannabis.com">medicalcannabis.com</a>
	<a href="http://cannabis-med.org">cannabis-med.org</a>		<a href="http://medicalmarijuana411.com">medicalmarijuana411.com</a>
	<a href="http://safeaccessnow.org">safeaccessnow.org</a>		<a href="http://leafscience.com">leafscience.com</a>
	<a href="http://cannabinologist.com">cannabinologist.com</a>		<a href="http://medicaljane.com">medicaljane.com</a>
	<a href="http://theweedblog.com">theweedblog.com</a>		<a href="http://Norml.org">Norml.org</a>

The true crime regarding cannabis is doing nothing, when we know it can safely help millions of people. Please do your own homework and speak with your colleagues and constituents about this issue. It is time we dissolve the cloud of shame, secrecy and controversy about the use of this legitimate medicine and provide those in need SAFE, legal access!