



MEDICAL CANNABIS 101:



A Patient's Guide

From John Malanca,
Cannabis Patient Advocate

“Why read this book?” is a great question.

Medical cannabis isn't new but, its popularity and legal status are growing at an exponential rate. As a result, there's much information from many different sources that can be confusing and even overwhelming to understand. To make matters worse, some information isn't true at all or is a mix of fact and fiction. Combine this with competing state, federal, and international laws that change regularly it's no wonder that what you see and hear can vary.

The Sacred Plant is dedicated to sorting through the many sources of information while also connecting with experts, patients, and medical professionals to explain the research without all the industry jargon. Our goal is to encourage education empowerment so that patients, caregivers, and physicians can make informed decisions.

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The Barriers With Traditional Medicine for Patients

While in most cases there's nothing wrong with traditional medicine, there is a barrier that places a significant divide between commonly accepted practices and non-traditional forms of treatment. Consider chiropractic care -- the therapy that uses spinal manipulation has helped millions reduce and even stop muscular pain altogether but the mainstream medical community didn't always accept it.

Although the practice of chiropractic care began in 1895, the World Federation of Chiropractic¹ notes that it wasn't recognized by all state medical licensing boards until 1974. In fact, during its first thirty years², more than 15,000 chiropractors were arrested for practicing the same spinal manipulation techniques that millions of patients, including infants, undergo today.

Other examples of non-traditional treatments with a long history of success include:

- Acupuncture
- Meditation
- Probiotics
- Herbs (Botanicals)



The National Center for Complementary and Integrative Health, a branch of the U.S. Department of Health & Human Services, and the National Institutes of Health³ consider herbs as common treatments that can be successful when used in conjunction with mainstream remedies. Unfortunately, despite the reference to “natural products,” the agency doesn’t mention the Cannabis sativa plant on its main page. However, they do offer a separate page⁴ for the ancient remedy that advises what many medical professionals are saying -- Federal restrictions make it difficult to conduct and document the results of this alternative treatment and limit the scope of what the agency can report to patients.

This is where the barrier between traditional treatments and medical cannabis meet. Despite the notion that these practitioners work together to offer patients the best possible treatment plans for their conditions, 80-plus years of Federal prohibition have left the majority of doctors uncomfortable with talking about cannabis with patients. And those barriers aren’t limited to the U.S.. With the exception of a few, select countries, cannabis prohibition is internationally widespread.



Learn About How the Cannabis Sativa Plant Helps Treat Medical Conditions

At this point, you are most likely reading this book because you've heard about one or more of the many healing benefits of cannabis, from anxiety and pain to nausea for chemo treatment and you would like to learn more. In this book, we will guide you through how your body is set up to interact with cannabis through its endocannabinoid system, and how the different parts of the plant communicate with each other and your body to reduce symptoms such as seizures, panic attacks, inflammation, nausea, and pain, to just name a few.

If you feel this is a right fit for you or a loved one, continue reading to learn how to talk to your doctor about starting a cannabis treatment plan, what to expect during that first appointment, the type of dosing that works for each condition, and how to access the medicine.



An Unjust Label

Similar to the fight to recognize chiropractic care in the medical community, cannabis has also been fighting for acceptance but on an even wider scale. Despite a history of medicinal use that dates back thousands of years to 2737 B.C., and regular prescribing by healthcare professionals until the early 1920s, it's still illegal for medicinal use in many areas around the world. Sadly, there is no science behind this unjust label. The Cannabis sativa plant is not a narcotic and research shows it does have medicinal properties. Notwithstanding an outcry from the American Medical Association in 1937, Congress went on to pass the Marihuana Tax Act⁵ which criminalized cannabis. Yet, despite this classification, the U.S. Government holds a patent for medicinal use.

The Sacred Plant - Our Mission

The Sacred Plant is dedicated to educating people about this amazing treatment and helping bring about change in the scientific, medicinal, and legal communities so it can be made available to everyone. With so many known beneficial qualities and new discoveries being made on a regular basis, the future possibilities for healing are nearly endless.

Whether you know very little and have just started your research or are an existing patient who wants even more knowledge about cannabis, this book intends to help people ease and even eliminate their pain, and regain control of their lives once again.

****Please, keep in mind that there are many terms, including slang, for the Cannabis sativa plant. Throughout this book and all publishings by the Sacred Plant, however, it will only be referred to by its proper given name or "the sacred plant." ****

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Exposing the Myths About the Sacred Plant



TIME

FOR

FACTS

From *Reefer Madness* to the war on drugs, cannabis carries more stigma than most illicit drugs, more even than cocaine and heroin. Decades of racism, bias, misinformation, and fears have led to dozens of myths about the healing plant which continue to harm public perception of this natural medicine. By exposing these myths and sharing the facts through scientific study, we hope to encourage more people to learn and understand how cannabis helps those individuals with specific medical conditions decrease their symptoms. These benefits include reducing chronic pain and opioid addiction treatment without the serious side effects of pharmaceuticals.

“Cannabis is a Gateway Drug.”

One of the leading myths¹ about the sacred plant is that it’s a gateway drug despite the lack of evidence that this valuable medicine is a pathway to “hard” drugs such as other Schedule 1 substances like LSD, heroin, and ecstasy. In fact, with a record 72,000² drug overdose deaths in 2018, states with medical programs are now approving the sacred plant as a substitute for opioids to reduce these alarming numbers.

Not only can cannabis decrease drug use, treating withdrawal symptoms with cannabis is safer than using conventional medications. Dr. Dustin Sulak, a specialist in the field and one of the leading experts in our web series, *The Sacred Plant: Healing Secrets Examined*, helps explain the situation in a July 2016³ report for Project CBD.

By exposing these myths and sharing the facts through scientific study, we hope to encourage more people to learn and understand how cannabis helps those individuals with specific medical conditions decrease their symptoms.



In residency, I learned about a 4-drug cocktail—a muscle relaxant, an anti-hypertensive agent, a diarrhea agent, an anti-nausea agent --we used them all together to get someone through withdrawal --four pharmaceuticals each with their own safety issues. But with cannabis, we have a non-lethal herb that can do all of that. Cannabis users experience decreased opioid withdrawal severity.

While there is some disagreement on the subject, top experts agree that cannabis is not addictive though all medications do have some risk of dependency. It is important to note that dependency on cannabis is not as strong as that of alcohol, tobacco, and opioids. Withdrawal symptoms include nausea, trouble sleeping, anxiety, and restlessness that cease between two days and two weeks after stopping use.



“People Can Die From a Cannabis Overdose.”

Unlike opioids and other addicting drugs, cocaine and meth as examples, no one has died from using cannabis. Even if usage is increased because of higher tolerance, a deadly overdose isn't possible. One of the leading experts⁴ who works with The Sacred Plant, Dr. David Bearman, explains:



The therapeutic index of cannabis is estimated to be somewhere between 4,000:1 to 40,000:1. We don't really know what it is because no one has ever died from an overdose of natural cannabis. This is because there are few or no CB1 receptors in the brain stem so there is NO respiratory depression from cannabinoids.

Taking a higher dose than the body is accustomed to *can* produce unpleasant results such as anxiety, paranoia, dizziness, and restlessness. This has become a particular problem for people new to the high concentrations in edibles. These mishaps often occur when someone eats too many delicious goodies such as the classic brownie, cookies, gummy candies, and other treats that are infused with THC. With the increasing interest in culinary cannabis, the products a patient can eat and even drink will continue to improve. Unlike smoking and tinctures, this mode of delivery doesn't work until after digestion, taking from 45 to 90 minutes to feel the full effects and varying by individual.

However, having CBD oil⁵ on hand can counteract the THC and put the mind at ease. If you have none, however, the symptoms are not life-threatening and should pass within a few hours. As an alternative, patients can also try a warm bath or shower and if possible, getting some sleep to help relieve the unpleasantness of consuming too much THC.

In 1988,⁶ the Drug Enforcement Agency's (DEA) Chief Administrative Law Judge, Francis Young wrote,

In strict medical terms, marijuana is far safer than many foods we commonly consume . . . marijuana in its natural form is one of the safest therapeutically active substances



known to man. By any measure of rational analysis, marijuana can be safely used within the supervised routine of medical care.

What about synthetic cannabis?

The above information is only for the natural plant. There is also a synthetic cannabinoid that private companies produce in laboratories which is legal with a valid prescription and safe to use under a physician's care. There is also an unknown, dangerous substance available on the black market that peddlers claim to be synthetic cannabis. This product is not synthetic nor is it safe.

You may have heard news stories concerning overdoses⁷ and deaths surrounding the drug “spice” or “K2,” products marketed for recreational use as a synthetic. Legality varies but in most locations they are illegal. These synthetics often use an unknown plant that may resemble the flowers of the sacred plant which the “manufacturer” sprays with a chemical mimicking the effects of THC. Sadly, it's often much stronger than the natural cannabinoid and can induce vomiting, strong hallucinations, seizures, coma, and even death. In early 2018,⁸ there were reports from the Illinois Department of Health about users bleeding from their eyes and ears. Please, don't use “spice” or “K2” -- these drugs have no medicinal value and are not safe to use.

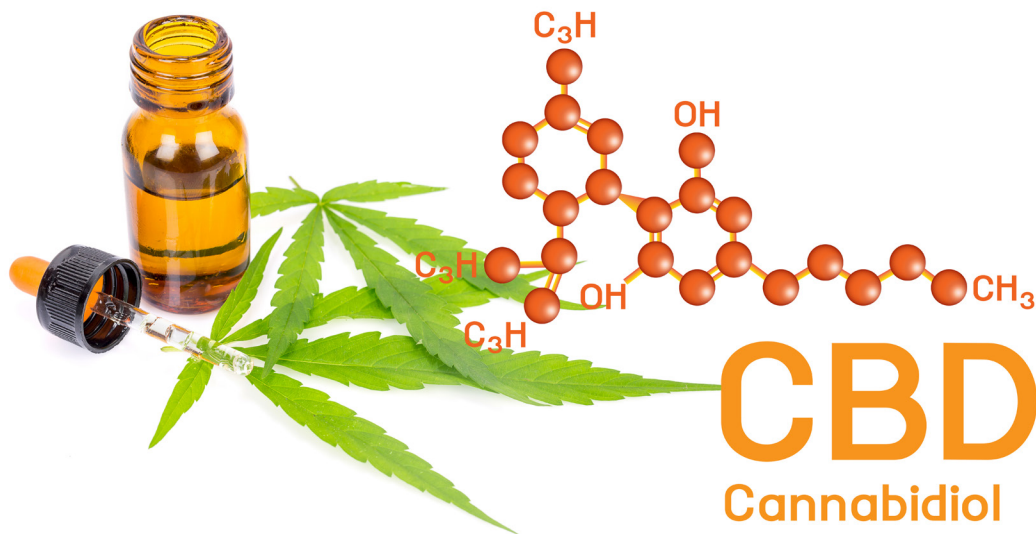


“You Have to Get High to Use This Medicine.”

While it is true that THC produces feelings of euphoria, this euphoria is incidental to the healing benefits of cannabis. THC is just one cannabinoid with a medicinal value from the sacred plant flower. The second most studied cannabinoid is cannabidiol, commonly known as CBD which won't get the patient “high” and can:

- Relieve painful muscle spasms⁹ from conditions from general overuse and muscle strain, to debilitating conditions like Multiple Sclerosis
- Reduce inflammation pain associated with arthritis,¹⁰ lupus, IBD, and Crohn's Disease
- Decrease the number and duration of several types of seizures¹¹ in children and adults
- Help lower¹² anxiety
- Relieve neuropathic¹³ pain
- Aid in sleep

Ongoing research also shows promise with cancer treatments, specific psychiatric disorders, and conditions affecting the female reproductive system.





“Smoking is the Only Way to Use Cannabis.”

Just as patients don’t need to get high, smoking as the only method of use is another myth. While smoking the dried flowers of the plant is a common mode of delivery, there are other ways to take this medicine, to include:

- Tinctures and sprays
- Vaping/vaporization
- Dabbing
- Eating (edibles)
- Capsules
- Transdermal patches
- Topicals

Each type of delivery offers different benefits depending on the patient’s needs.



“You Will Lose Your Sex Drive Smoking Cannabis.”

This misconception has the potential to turn lots of patients away from medicinal use. Men and women can relax as this is another myth.¹⁴ In fact, plant formulations with more CBD than THC can help reduce anxiety and promote a healthier sex life for couples. Along with decreasing anxieties, a few researchers say the sacred plant is a natural aphrodisiac,¹⁵ eliminating any cause for concern.

“Cannabis is Harmful to Your Memory.”

This myth is a bit trickier because there are mixed results and, for a few patients, such as those suffering from PTSD,¹⁶ a natural product that helps fade bad memories aids in recovery. However, it's obvious that no one wants educators, medical professionals, and people in other vital industries to have memory challenges. Some research shows there no long-term effects of memory impairment while other studies found prolonged¹⁷ use can lead to a decline in verbal recall.

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impairment.**



One explanation for the differences may be in the body's Endocannabinoid System (ECS) which also regulates short and long-term memory. Patients can review the *Association Between Lifetime Marijuana Use and Cognitive Function in Middle Age*, a 2016¹⁸ study by the Journal of American Medical Association for Internal Medicine that found "Past exposure to marijuana is associated with worse verbal memory but does not appear to affect other domains of cognitive function."

A similar claim, "Cannabis kills brain cells" is also a myth. In 2003,¹⁹ the Journal of the International Neuropsychological Society published *Non-acute (residual) neurocognitive effects of cannabis use: A meta-analytic study*, that put this inaccurate claim to rest.

"The small magnitude of effect sizes from observations of chronic users of cannabis suggests that cannabis compounds if found to have therapeutic value, should have a good margin of safety from a neurocognitive standpoint under the more limited conditions of exposure that would likely obtain in a medical setting."

In conclusion, these studies confirm that the effects of the sacred plant on memory and brain-function are minute compared to the medicinal benefits.

"There Are Not Enough Scientific Studies to Show Medical Cannabis Works."

There are thousands of studies going back decades concerning the effectiveness and safety of medical cannabis. Even though prohibition reduced research in the U.S., trials, including some with human participants, have taken place in other countries such as Israel,²⁰ a leader in medicinal cannabis studies. Other top research locations are:

- Canada²¹
- Czech Republic²²
- Netherlands²³
- Uruguay



Some physicians²⁴ and other healthcare professionals have said they are uncomfortable with discussing and suggesting cannabis for their patients a problem caused by Federal prohibition. Actually, the greatest problem is the lack of training in medical schools as well as a lack of continuing education on the conditions and symptoms it can help, dosing instructions, how to administer, and how it interacts with other prescription medications.

A few states²⁵ with therapeutic programs recognize this issue and have created a series of courses for medical professionals who apply to legally recommend cannabis treatments for their patients. Nevertheless, this isn't enough to make providers and patients completely comfortable with the sacred plant and this results in hurting patients. Contact your state government today to advocate for more physician and patient educational opportunities, as well as scientific studies to help advance this ancient medicine.



“Cannabis is a Cure-All for Everything.”

Although it may sound like medical cannabis can cure all of life's ills, this is not true. While on-going scientific research will improve what the medical community knows about the healing properties of cannabis, it most likely will never be a universal medicine for every illness.

These are just a few of the myths about the sacred plant and research continues to dispel lies and misinformation about cannabis. Over the next few chapters, we continue to explore the medicinal abilities of these beautiful flowers.



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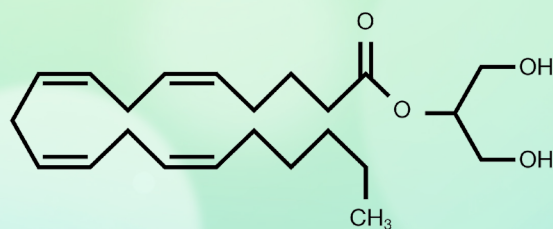
**Learn How
Cannabis Can
Fight Disease**



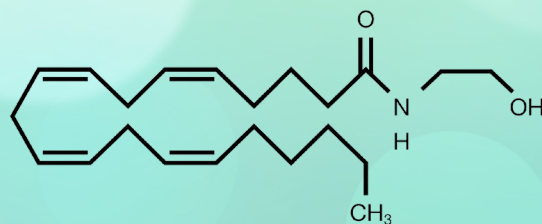
There is much for the medical community and the general public to learn about medical cannabis and how it treats disease, helps the body maintain homeostasis, and modulates the speed of neurotransmission. The endocannabinoid system¹ (ECS) is a neuromodulatory system within the human body, characterized in the late 1980s and early 90s. It consists of neurotransmitters called endocannabinoids and cannabinoid-1 receptor (CB1) and cannabinoid-2 receptors (CB2.) The ECS interacts with the phytocannabinoids in cannabis. The presence of the ECS allows the healing compounds from the plant to potentially and actually treat dozens of conditions affecting multiple systems within the body.

What is the Endocannabinoid System (ECS)

Experts don't know everything about the ECS because it's new in comparison to the body's long accepted 12 other major systems.² Despite centuries of medicinal use, they did not isolate the structure and function of the first known phytocannabinoid, Tetrahydrocannabinol (THC) until 1964.³ A phytocannabinoid is a plant-based cannabinoid. The prohibition of the cannabis plant in the U.S. and stigma around the world has limited study of THC and how it interacts with the body's major systems. But the ECS and phytocannabinoids are so exciting and potentially useful that every year since 1995, hundreds of scientists from around the world have gathered annually for the meeting of the International Cannabinoid Research Society⁴ (ICRS.)



2-arachidonoylglycerol



In 1988, scientists identified the endocannabinoid-binding sites in rats' brains -- the cannabinoid-1 receptor (CB1) and cannabinoid-2 receptors (CB2.) There are endogenous cannabinoids⁵ which are also known as endocannabinoids (EC) that are produced in the brain. In 1992,⁶ scientists found the first known ECs that binds to the CB1 and CB2 -- anandamide (AEA.) Three years later they learned of another EC -- 2-arachidonoylglycerol (2AG.)

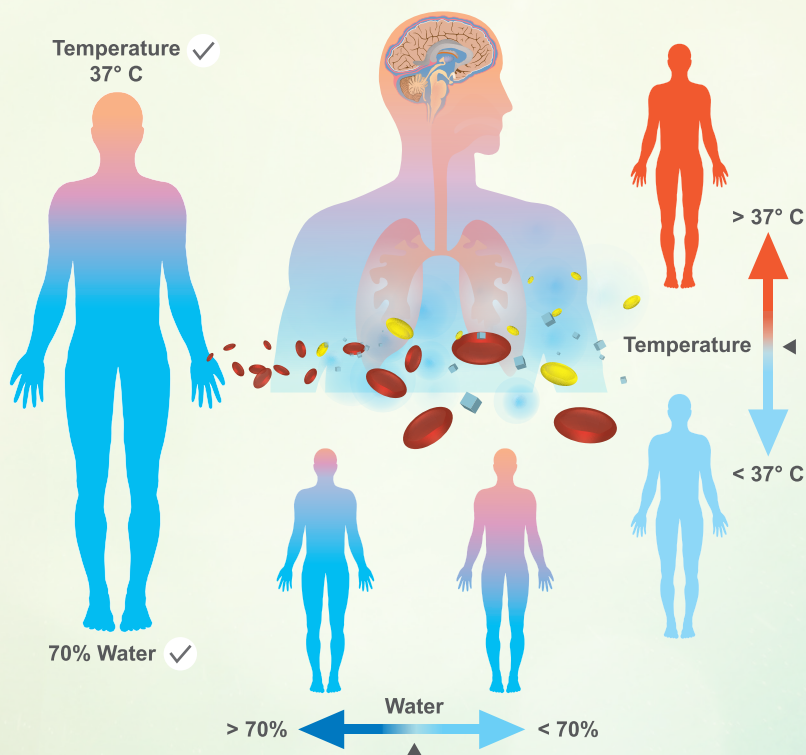
The ECS has two enzymes that metabolize the ECs and the phytocannabinoids -- fatty acid amide hydrolase (FAAH) and monoacylglycerol lipase (MGYL.) The FAAH⁷ breaks down the AEA, and the MGYL breaks down the 2AG.

What Does the ECS Do?

The main function of the ECS is bioregulation through cell-signaling⁸; this means it supports cell-to-cell communication. It also plays a large role in the overall function of other important biological systems, including the brain, endocrine, and immune tissues.

A large part of bioregulation is homeostasis or balance throughout the body's regulatory systems. This process is vital to maintaining healthy, harmonious organs. The endocannabinoids either block or stimulate the CB1 and CB2 receptors to create different effects that help maintain homeostasis.

Homeostasis



So far two endocannabinoids have been found in humans, anandamide (AEA) and 2AG. AEA has more than one job in the body. It also plays a role in other parts of the brain that regulate pain, memory, concentration, motivation, and appetite.

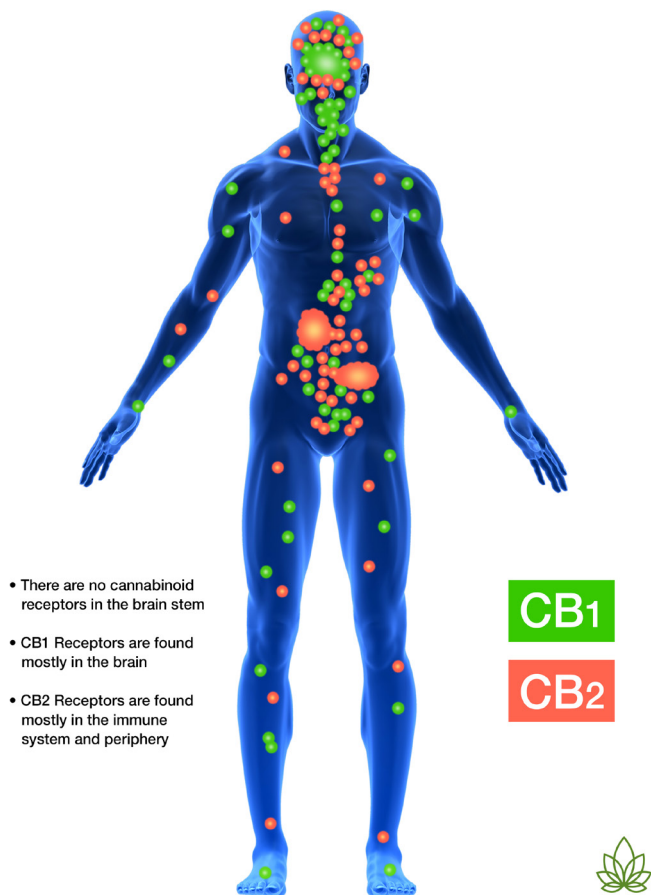
The ECS is found in all living organisms that have a spinal column. The constituents of the plant have a wide spectrum of therapeutic effects. This means cannabis has the potential to treat similar ailments in our beloved pets.

Understanding the CB1 and CB2 Receptors

The cannabinoid-1 receptor⁹ (CB1) and cannabinoid- 2 receptor (CB2) are the two known Class A G protein-coupled receptors¹⁰ (GPCRs) in the body that interact with the ECS and the plant's cannabinoids, terpenes, and flavonoids. The phytocannabinoids either stimulate or block the CB1 and CB2 receptors to elicit a response from the body.

The CB1 is primarily found in the body's central nervous system, and the CB2 are in the digestive system, the peripheral nervous system, and parts of the immune system. Overall, there are more CB1 receptors than CB2, and the CB1 is more widespread throughout the body than the CB2.

Scientists believe there are more receptors in the ECS. But current information at the time of writing this book isn't conclusive enough to include these other receptors.



What is the Entourage Effect and How Does it Work?

Medical cannabis scientists and other professionals commonly discuss the entourage effect. You may have also heard them mention whole plant medicine. The premise behind this plant-based treatment is to use the entire plant as medicine. Scientists and experts agree that the most beneficial approach with medicinal cannabis is to not use isolate plant compounds such as medicine that contains only CBD or only THC. The cannabis plant includes various combinations of over 512 molecules, many of which have healing properties; together they create the entourage effect (also known as the ensemble effect) with increased benefits and fewer possibility of side effects than using only a single isolate.

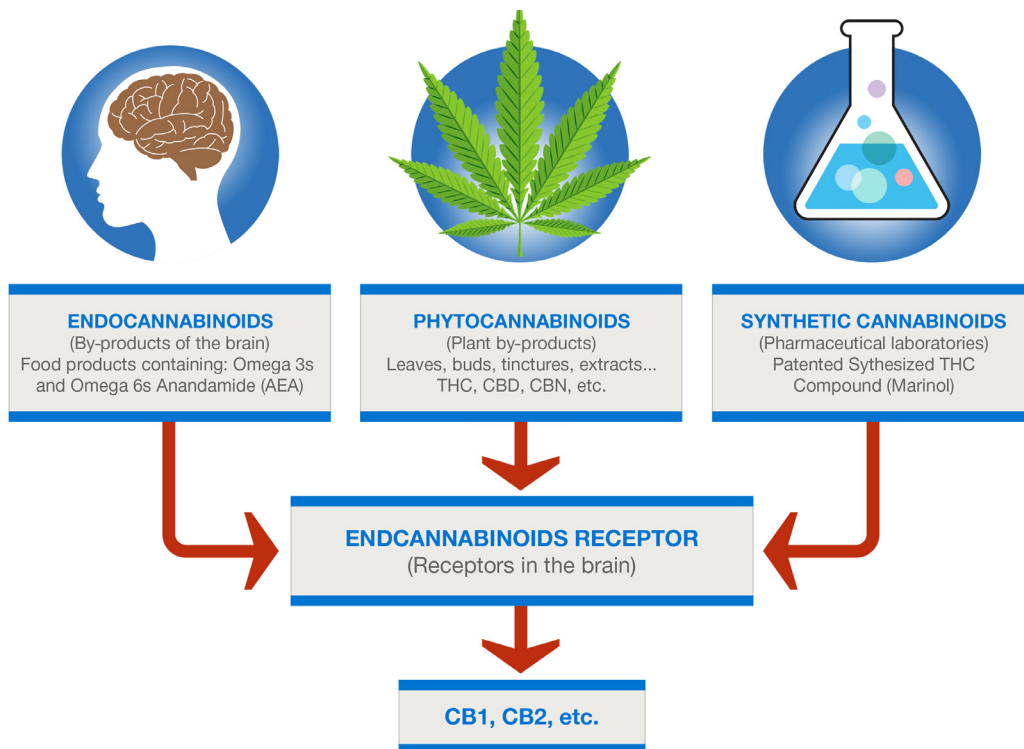
FDA-approved medications like dronabinol,¹¹ nabiximols,¹² and Epidolex¹³ (cannabidiol) are examples of single-compound medicines. CBD is an isolate that is also available. These can reduce symptoms but they lack the synergy¹⁴ of whole plant medicine. Other issues that can arise with single-compound drugs. Dronabinol doesn't work as well as cannabis, has more side effects, and costs more. This is troublesome because it delays the patient from trying other methods, such as a CBD: THC ratio that can show results within as little as a few minutes.



What is the Role of the Phytocannabinoids?

Just as endocannabinoids seek the CB1 and CB2 receptors, phytocannabinoids can block or stimulate the receptors when they are active in the body. People with “normal” levels of endocannabinoids have the balance the body needs for homeostasis. Phytocannabinoids can help them maintain healthy levels but they don’t necessarily need outside assistance. However, if levels of these internal compounds are insufficient, the plant-based cannabinoids can restore balance, reduce or eliminate symptoms, and improve overall health.

By understanding the different healing properties of phytocannabinoids, practitioners can develop exact ratios and even modify specific plant ratios for different conditions. But, due to suppression of research, clinicians and researchers are still learning. As of this report, some practitioners already know much about cannabis dosing from their experience. For example, to relieve nausea and vomiting from cancer treatments, patients¹⁵ should take divide 30 to 80 mg of THC throughout the day.



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A Partial List of Conditions and Symptoms Medical Cannabis Can Treat





Many patients, caregivers, and medical professionals are aware that cannabis can ease pain and increase appetite for some patients. Experts, however, know it can treat dozens of conditions by reducing or even eliminating symptoms, and they have the scientific data to prove it. The following is a summary of some of these ailments, their traditional treatments, and how cannabis can help.

Severe Acute Pain and Chronic Pain

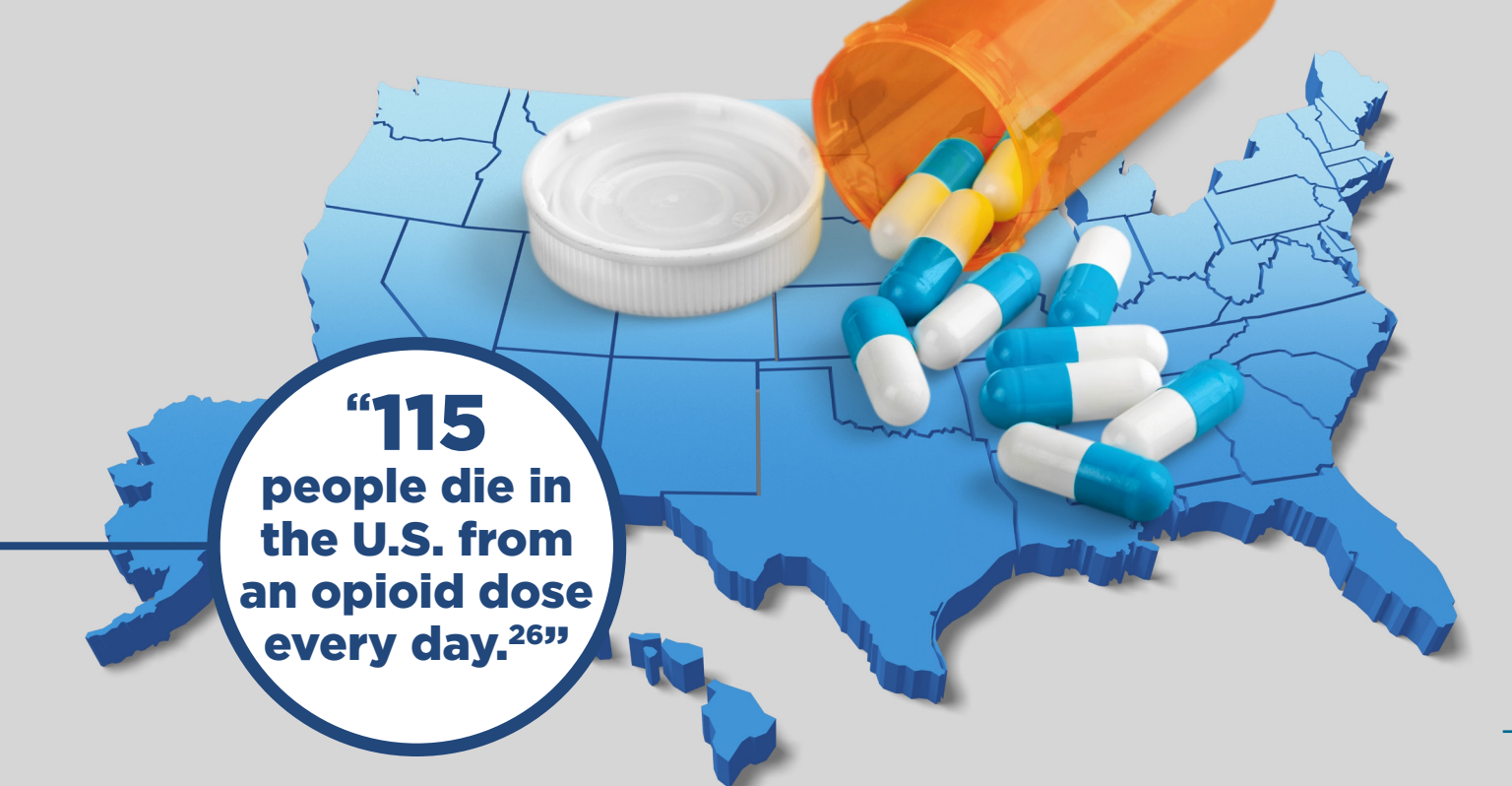
Pain is a leading reason people seek medical care and why many turn to cannabis for relief. The prescription pain medication epidemic in the U.S. has practitioners and politicians working together¹ to find a middle ground with medical cannabis in order to reduce the high rate of addiction and overdose. Experts agree that medical cannabis is a safer alternative to opioids and other drugs used to treat pain, such as:

- Muscle relaxers
- Anti-depressants
- Anti-seizure
- Corticosteroids



Pain is a leading reason people seek medical care and why many turn to cannabis for relief.





**“115
people die in
the U.S. from
an opioid dose
every day.²⁶”**

Even anti-depressants, some anti-seizure medications, and corticosteroids that are not as dangerous still have unpleasant side effects.² On the other hand, there hasn't been a recorded overdose death from cannabis in over 4,000 years of medicinal and recreational use. In the September 6, 1988 ruling on rescheduling cannabis, by the Drug Enforcement Agency (DEA), the Honorable Francis Young said³:

In strict medical terms, marijuana is far safer than many foods we commonly consume. For example, eating 10 raw potatoes can result in a toxic response. By comparison, it is physically impossible to eat enough marijuana to induce death. Marijuana in its natural form is one of the safest therapeutically active substances known to man. By any measure of rational analysis, marijuana can be safely used within the supervised routine of medical care.

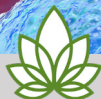
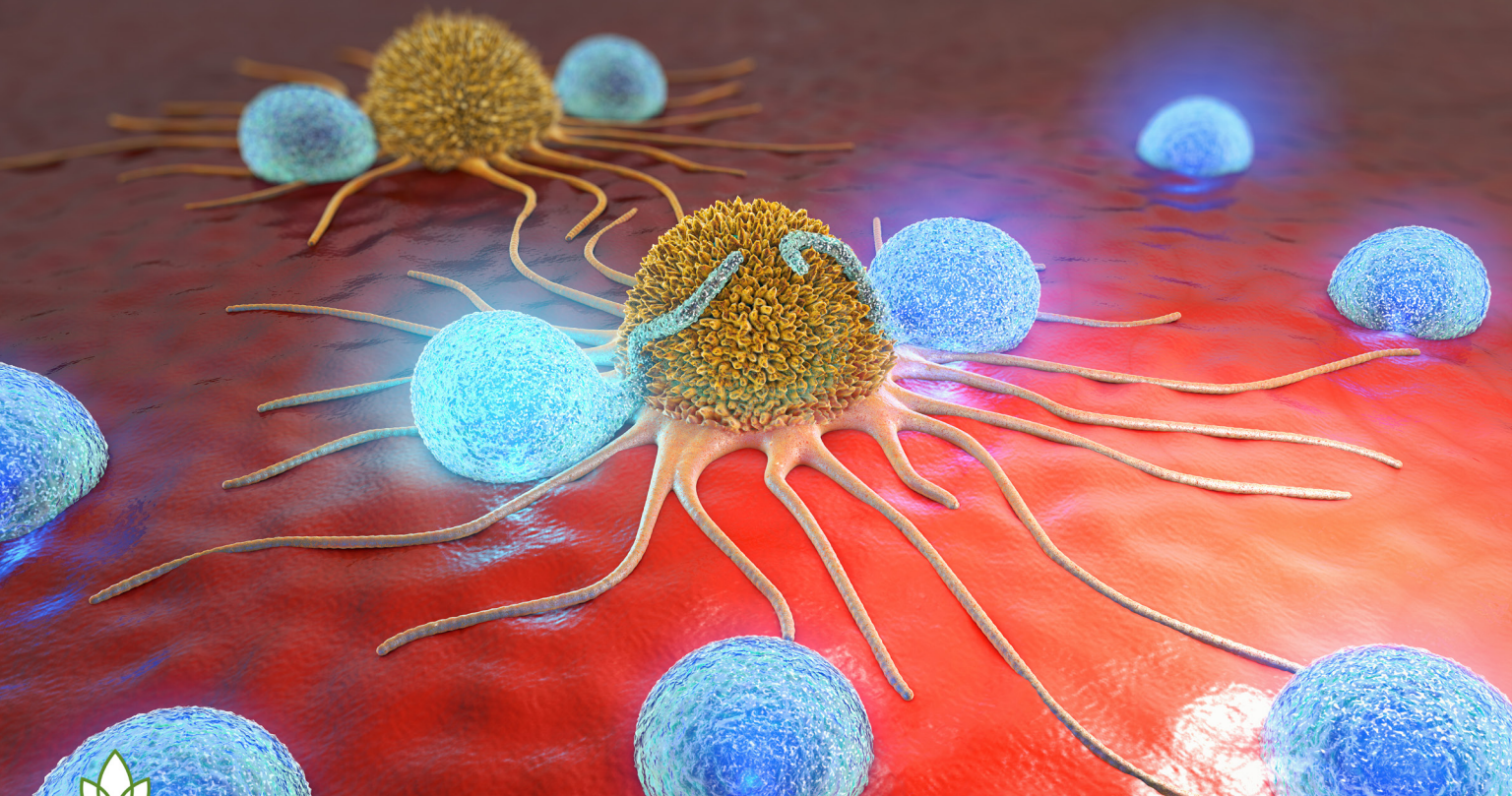
As you may guess, treating different kinds of pain with cannabis is a very broad topic, and it is impossible to cover all the information patients need in an overview.



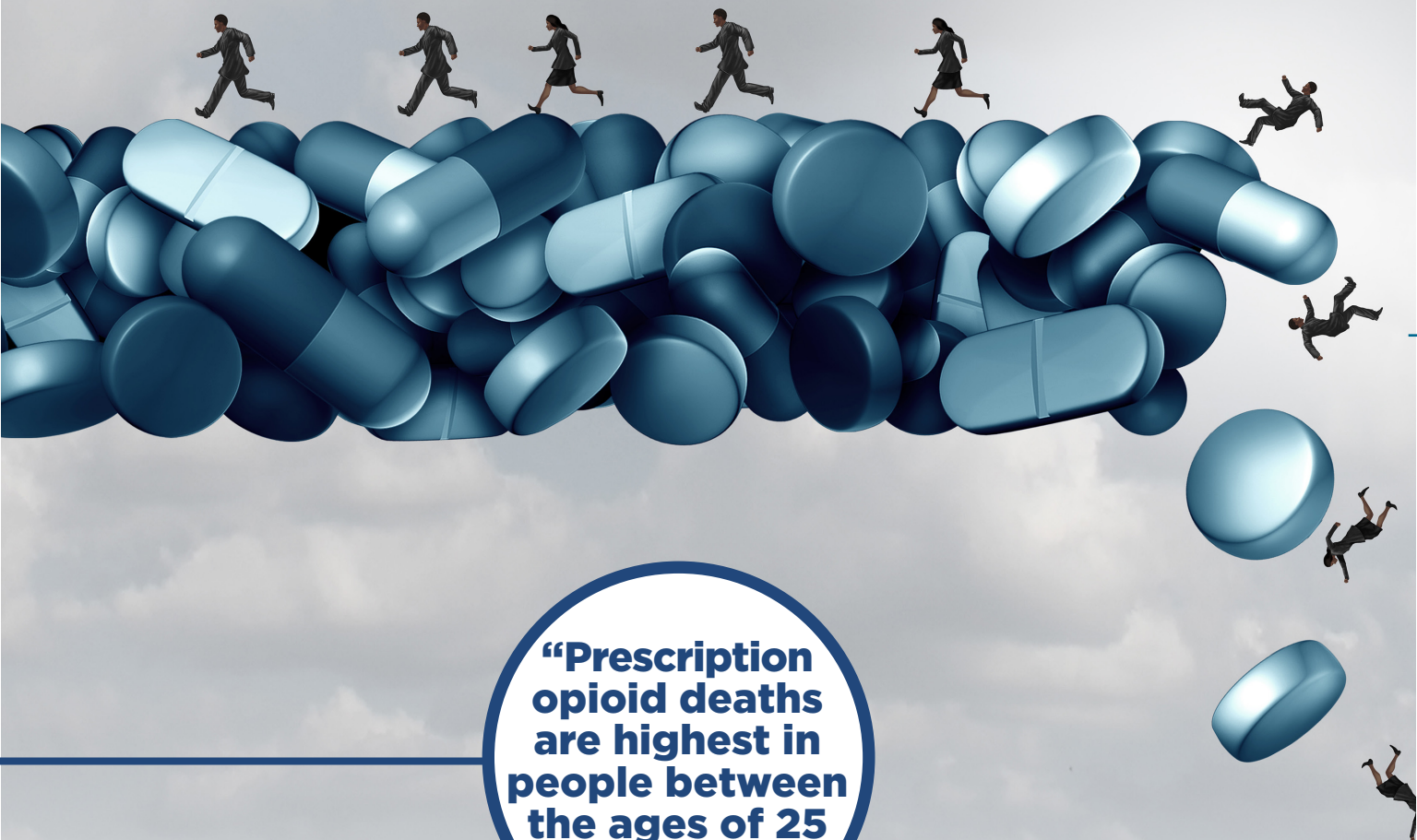
Cancer

There is some exciting research showing great promise in going beyond providing relief for pain, nausea, and increasing appetite in cancer patients. While these features offer comfort during chemo and radiation therapy, the potential⁴ to slow and even prevent tumor growth can be life-saving. But, cannabis and cancer practitioners agree,⁵ they need more solid data possible only through human clinical trials; with the current Schedule 1⁶ status, approval for these studies is difficult to obtain.

In a 2016 interview with Scientific American,⁷ Lester Grinspoon, 87, an associate professor emeritus of psychiatry at Harvard Medical School who has been studying cannabis since the 1960s, explained, “If you go to PubMed you’ll find that there are 23,000 papers published on cannabis. But [with rescheduling] we can open it up to large, double-blind clinical studies.”



It is important to caution that while the research shows cannabis has powerful, anti-cancer properties, it is not a cure-all or miracle cure for this terrible disease. Additionally, despite all the evidence supporting its beneficial use for patients fighting cancer, we would never recommend that you stop or change your ongoing treatment plan without speaking to your medical team which should include a medical practitioner that specializes in cannabis.



**“Prescription
opioid deaths
are highest in
people between
the ages of 25
and 54.²⁷”**



Digestive Disorders

From common heartburn to more severe gastrointestinal conditions, the protective properties of cannabis can help relieve symptoms and even prevent future discomfort. Practitioners are more open to recommending the herbal medicine for these issues because humans have been using it to relieve common stomach ailments for several centuries.⁸ The ECS has several receptors in the body's gastrointestinal system that help with its regulation. Some symptoms cannabinoids can reduce and eliminate include:

- Nausea and vomiting
- Abdominal pain
- Diarrhea

The exact ratios for achieving these results vary by the person and condition. Patients should avoid smoking medical cannabis because the smoke can cause further irritate the stomach. For immediate relief, consider vaporization that provides the same quick onset of smoking without the addition of the harmful carcinogens in smoke.



“There were 21.7 million hospitalizations in 2010 from digestive conditions.”²⁸”



Seizure Disorders

Probably one of the most well-known cannabis treatments is for seizures. In fact, this is one of only a handful of conditions that has FDA⁹ approval for a cannabinoid-based medication. Epidiolex is a non-synthetic medication¹⁰ that treats Dravet Syndrome and Lennox-Gastaut Syndrome, two rare forms seizures that don't respond to conventional pharmaceuticals.

However, supporters of medicinal cannabis knew about its anti-epileptic properties long before the FDA gave its blessing to the GW Pharmaceuticals, a UK drug manufacturer. There are more than 2,000 years¹¹ of anecdotal research from patients and medical practitioners documenting its success in treating seizures.

Although medical cannabis researchers and practitioners are happy that the FDA is changing its stance, many feel there is more to be done. They believe cannabis is safer and more beneficial for *all* patients with seizures and not just the select group using Epidiolex covers. There are a few decades of modern,¹² anecdotal research, the results of GW Pharmaceuticals, and other clinical trials to back up these findings. Doctors should have the choice to prescribe these medications and whole plant cannabis products to any patient who can benefit from the treatment.¹³



Movement Disorders

These neurological conditions vary by origin, onset, and severity but all reduce people's quality of life while traditional treatments have consequences that don't always restore patients to their pre-illness state. While symptoms vary,¹⁴ the overall characteristics of disorders are an increase in voluntary or involuntary movements or a decrease in reaction time. Other aspects of the diseases are severe nerve and muscle pain. Examples of these ailments include:

- Parkinson's Disease
- Chorea and Huntington's Disease
- Dystonia
- Tics and Tourette Syndrome
- Spasticity

The good news is that there is evidence that medical cannabis can help reduce¹⁵ and eliminate some symptoms that plague patients with these movement disorders and improve their quality of life. Research is also expanding for these neurological conditions; for example, a clinical trial¹⁶ is starting in early 2019 to study the potential treatment of adults with essential tremor (ET.)



Nausea, Vomiting, and Stomach Pains

These symptoms are common in many acute and chronic conditions. According to the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK¹⁷), a 2010 report shows 60 to 70 million people in the U.S. alone suffer from a digestive disorder. Specific ailments include:

- Hernias
- Diverticular Disease
- Gallstones
- Gastroesophageal Reflux Disease (GERD)
- Inflammatory Bowel Disease (IBD)
- Ulcerative Colitis (UC)
- Crohn's Disease (CD)
- Ulcers

Cannabis can help patients with these conditions with symptom relief being the most known benefit. The sacred plant has a long history of treating these illnesses, and now there are scientific studies¹⁸ to add to the credibility of decades of anecdotal reports from patients, caregivers, and medical practitioners.

Not only does this treatment work for most people with nausea and vomiting but, as a medicine, cannabis also exceeds the safety and success rates of traditional pharmaceuticals.

Loss of appetite is another symptom common to gastrointestinal disorders. The cannabinoid THC is a natural appetite stimulant. When patients find the right ratio for their illness, it can stop nausea, vomiting, and improve appetite.



PTSD, Anxiety Conditions, and Other Mental Health Issues

Post-Traumatic Stress Disorder is a devastating mental health condition that can occur after a terrifying or catastrophic experience. It is common among military members in combat, police officers, abuse survivors, crime victims, and after traumatic physical injuries. According to the U.S. Department of Veterans Affairs,¹⁹ about 7 to 8 percent of the population will develop PTSD in their lifetime.

Most patients can be treated with conventional therapy such as individual and group talk therapy. Practitioners prescribe traditional pharmaceuticals such as anti-depressants and anti-anxiety medications that come with terrible side effects. PTSD is often concurrent with other mental health ailments²⁰ like:

- Depression
- Anxiety disorders
- Substance use disorders (SUD)
- Neurocognitive issues
- Mood disorders



These conditions all have the same conventional treatment²¹ as PTSD -- talk therapy and medications. Using a combination of medical cannabis and talk therapy, however, patients can also treat these disorders with a combination²² of medical cannabis and talk therapy and avoid the unpleasant side effects of pharmaceuticals.

The use of these treatment plans isn't limited to PTSD. It also has the potential to help patients experiencing the other mental health disorders that are concurrent with this affliction and several others. Please note, we do not recommend patients taking medications for these conditions stop their current treatment without speaking to their prescribing practitioner. Abruptly stopping certain prescription medicines can be dangerous.





Alcohol, Tobacco, and Opioid Dependence

Most people are aware of the opioid abuse problem that has been plaguing America and, in reality, around the world. In Canada, a 2016²³ report indicates there were 2,816 opioid overdose deaths, and those numbers were already increasing in 2017. At the same time, Europe has not escaped the impact of opioid dependence. European Union (EU) reports from 2015²⁴ show 8,441 overdose deaths in member countries, with 31 percent in the UK alone. They also state this was a six percent increase from the previous year's mortality rates.

What many people may not know is the research that shows cannabis can reduce opioid use while still offering patients' pain relief while for some it has the potential to end their dependence on opioids and other prescriptions altogether. In fact, using cannabis in place of opioids can stop addiction before it starts. However, not all pain can be managed without some opioids. When patients use the two together, it slows their tolerance to opioids. Low doses of opioids are safe with increased danger in higher doses.

Medical cannabis also has the potential to help people with other dependencies such as alcohol and tobacco. Studies have found²⁵ it can curb cravings and offer a safer alternative to more harmful drugs. Practitioners and addiction specialists believe foremost in harm reduction as the first step in treating drug dependence.



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Know the Possible Side Effects of Treatment



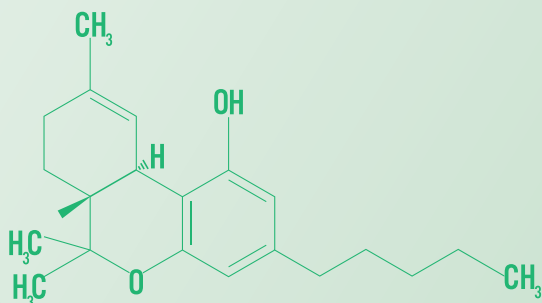
Cannabis, like all medications, can cause side effects for some patients. There is, however, one thing that separates the sacred plant from other prescription drugs and that is the severity of these side effects. Unlike the shocking warnings in pharmaceutical commercials, cannabis doesn't cause seizures, heart failure, rashes, hair loss, or any of the other unpleasant and sometimes deadly outcomes. Nonetheless, there are still mild reactions and, as part of the treatment, it's essential to understand what they are and learn how to counteract them.

What Are the Side Effects of Medical Cannabis?

Only one of the 113 known cannabinoids, THC, causes adverse reactions and like all medication side effects, they vary from person-to-person. Dr. Dustin Sulak, an expert¹ in the field who has been featured in the Sacred Plant docuseries, explains, "Some patients effectively use tiny amounts of cannabis, while others use incredibly high doses. I've seen adult patients achieve therapeutic effects at 1 mg of total cannabinoids

THC

TETRAHYDROCANNABINOL



daily, while others consume over 2000 mg daily without adverse effects.” Similar to many traditional medications, if you are new to this treatment, it’s important to start with a low dose and slowly increase to therapeutic levels.

Most side effects stem from taking more than 20 to 30 mg total per day or over 10 mg in a single dose. The most common responses include:

- Anxiety
- Paranoia
- Increased heart rate
- Dry mouth
- Dizziness
- Tiredness/feelings of sedation
- Cognitive and motor impairments

Although some may not consider it a side effect, the appetite² boost that benefits patients undergoing chemotherapy can be viewed as an adverse reaction for others.

Cannabis doesn’t cause seizures, heart failure, rashes, hair loss, or any of the other unpleasant and sometimes deadly outcomes as researchers have seen with pharmaceuticals.



So, there are no severe side effects? Cannabis has one rare but concerning side effect. Experts believe Cannabinoid Hyperemesis Syndrome³ (CHS) is the result of taking high doses of THC over a long time. First recorded in a 2004 medical report, the symptoms include nausea and vomiting, a complete reversal of the most common symptom cannabis treats. Fortunately, it's a problem for only a small percentage of people and it is not consistent. It is also more common with recreational use with edibles, or concentrates that have high amounts of THC.

The only known way to stop the symptoms is to abstain from the medication. Because this condition is rare, there is still much that the medical community needs to learn to properly diagnose and treat it accurately. If you experience signs of CHS, seek help from the recommending doctor as soon as possible. They can help rule out any other conditions that can cause the symptoms and help you find the best solution.



Delivery Method Can Enhance Side Effects

Patients using concentrates and edibles are more susceptible to adverse reactions because they contain large amounts of THC. Concentrates can contain up to 95 percent⁴ of the only cannabinoid with psychoactive properties. These dosages are unnecessary for most patients. Not only do they have the potential for side effects and CHS, but patients can also build a tolerance too quickly and reduce or even eliminate the benefits of cannabis treatment.

Although edibles don't hold the high amounts of THC common with concentrates, the delivery method takes much longer to work. This can lead to patients getting too much and dealing with side effects that last much longer than a typical dose of less of 5 to 10 mg. Unlike smoking, vaping, and tinctures, edibles can take 45-90 minutes to work and can last 5 or more hours. Even though the adverse reactions will decrease, it's still a long time to deal with anxiety, paranoia, and other unpleasant symptoms.



How to Handle Medical Cannabis Side Effects

There are several ways to reduce the body's reaction to too much THC. If you are new to medical cannabis treatment, keep in mind it takes about 10 to 14 days to build up a tolerance to your dose. In the meantime, consider some of these options to ease the side effects:

- Sleep
- Drink plenty of fluids to stay hydrated
- Take a warm shower or bath
- Avoid alcohol
- Peppercorn

Another option is taking a dose of CBD.⁵ This cannabinoid can counteract the adverse reactions of THC. Patients can find CBD products at their dispensary. Similar to CBD, THCA, and CBDA are raw, unheated cannabinoids that also reduce the effects of THC.

Pregnant and Breastfeeding Patients

Experts dispute the short and long-term effects of medical cannabis on pregnant and breastfeeding women. While the American Medical Association argues that any use of the sacred plant during pregnancy is dangerous, some patients⁶ feel it's safer than many of the prescriptions available for pregnant women experiencing extreme nausea. Despite positive studies that show it can be effective in treating nausea, we must recommend that these patients exercise caution and speak with their OB-GYN before continuing or beginning a cannabis treatment plan.



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The Anatomy of the Sacred Plant

Cannabis



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Cannabis is a complex flowering plant with 512 molecules and over 4,000 years of medicinal use. The 80-plus year prohibition in the U.S., as well as throughout most of the world, has left researchers well behind Israel which is the only country with extensive data on the cannabis plant. Nevertheless, even despite the stigma and related restrictions, thousands¹ of reliable scientific studies on its medicinal benefits are available for review. Below is the anatomy of cannabis and a breakdown of what researchers know about the different functions of each part of the plant.

What Are the Different Cannabis Species?

There are three varieties of cannabis -- sativa, indica, and the lesser-known ruderalis. Each varies in appearance, and because these are classifications from pre-modern scientific observations, 21st-century experts don't agree on whether they are one species or three subspecies.

Due to years of crossbreeding in nature and by ambitious cannabis growers, many strains are now hybrids² or a cross between the different species. These plants share a variety of characteristics from all three species which gives them unique benefits that were unavailable in the plant's long ago past.

Scientists today prefer the terms phenotype I, phenotype II, and phenotype III.

There are three varieties of cannabis -- sativa, indica, and the lesser-known ruderalis.



How do you tell the difference between the species?

Growers can identify plant-type by physical appearance and growing characteristics. The sativa is the tallest of the three, with narrow leaves and a longer growing cycle which allows it to develop better in areas with a warm to hot climate. Indica plants are shorter than the sativa but taller than the stout ruderalis. They have broad leaves and a short flowering cycle that fits a cool climate's growing season. Ruderalis is the easiest to distinguish. The species is two to two and a half feet tall, has short, stubby leaves, and is the only cannabis plant that has inherent auto-flowering capabilities triggering flower growth as the plant matures. The other species rely on the growing regions light/dark ratio to bloom. Botanists can crossbreed this feature in sativa, indica, and hybrid plants.



SATIVA



INDICA



RUDERALIS



What about male and female plants?

There is a considerable difference between the sexes. Cannabis plants are male, female, and although rare, hermaphrodite. However, the female plant has the most medicinal value.

Learn more about the medicinal value of cannabis and its variations with *The Sacred Plant's Healing Pain Masterclass* and our special reports like “*Hemp Vs. Cannabis*” which goes into detail about the plants and their differences.

The Body of the Plant

It is helpful to know the plant's anatomy and the purpose and benefits of each part to understand the healing properties of the sacred plant.

Fan Leaves -- the signature cannabis leaf plays a vital role in the successful cultivation of the plant. They develop in pairs, absorb the sun, and help deliver the energy to the rest of the parts. Although they have low amounts of cannabinoids and other compounds, patients can consume³ raw leaves to achieve some medicinal benefit.

Flowers -- also known as buds, they contain the highest concentration of the plant's healing properties. It's easy to distinguish the male from the female by size, location, and shape. Female plants have large, resin producing flowers that cluster at the top of the plant.



Nodes -- these form along the main stem and allow space for fan leaves and secondary growth.

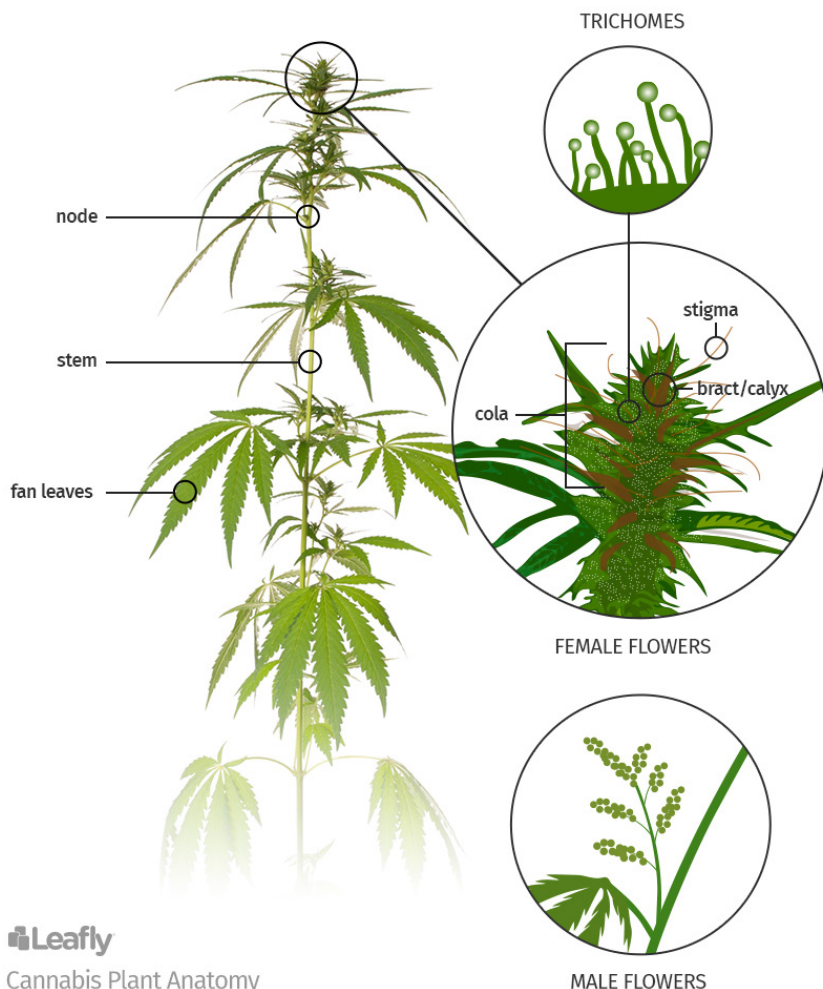
Stem -- the cannabis plant only produces one main stalk through the root. Fan leaves and nodes branch out from the main which transports essential nutrients to the rest of the plant. Stems also have small concentrations of cannabinoids.

Cola -- this refers to the main cluster of flowers at the top of the female plant or the smaller, secondary clusters on the lower branches. Cannabis cultivators use different techniques to safely increase the number of main colas.

Stigma and pistil -- the reproductive⁴ center of the flower, the pistils look like tiny hairs on the flower. On a sprouting plant, they are white, but they turn red, orange, brown, and even purple after it matures.

Bract -- the bract encloses⁵ the flower during the plant's maturation. It also holds the largest concentration of molecules.

Trichomes -- up close, the delicate crystal-like resin looks like a sea of raindrops or tiny mushrooms. They hold the highest concentration of the plant's healing molecules such as cannabinoids, terpenes, and flavonoids.



 **Leafly**
Cannabis Plant Anatomy



What's Inside the Trichomes?

From their aroma to their stickiness, here is more about these complex flower's chemicals and their medicinal properties.

Phytocannabinoids -- also known as plant-based cannabinoids, these are blocks of 21-carbon molecules that interact CB1 and CB2 receptors in the human body. Along with inside the trichome, these also grow along the bract. Of the 512 molecules, there are 113, and many of them have therapeutic value. Two of the most known and studied cannabinoids are THC and CBD. As time goes on, we are learning about not only these phytocannabinoids but also many more like CBG, CBC, and CBN. In the raw plants, all the cannabinoids are in the acid form.

Terpenes -- cannabis has a distinct scent that serves as the plant's protection from insects and reduces the need to use harmful pesticides. Many of the more than 200 terpene molecules contained in the cannabis plant have some healing properties. Terpenes are found in a variety of other plants such as citrus, pine, black pepper, hops, and roses, just to name a few. Because of their presence in other types of vegetation, there is a wealth of scientific data on the benefits of terpenes.



Flavonoids -- while cannabis' scent comes from the terpenes, the flavonoids⁶ are phytonutrients that help produce the deep color of the flowers and their distinct taste. Researchers don't know as much about the healing powers of these compounds as they do about the other contents of the trichomes. They do know that flavonoids, which, like terpenes, are found in other plants, have anti-inflammatory and antioxidant properties that are a significant part of the medicine's entourage effect. Of the 21 known properties, the three most significant are quercetin, apigenin, and cannafavin A. With greater acceptance of medical use, the increase in funding for research. This will generate data that should identify additional characteristics of these flavonoid molecules.

There is definitely more to learn more about the amazing constituents of the plant and how they help treat dozens of symptoms and reduce and in some cases, eliminate pain.



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The Importance of Cannabinoids





Researchers have been studying the healing power of these amazing chemical compounds since 19th century.

Now that you understand how the sacred plant interacts with the body's endocannabinoid system, let's look at the role each cannabinoid plays in treating medical conditions and their symptoms. Researchers have been studying the healing power of these amazing chemical compounds since 19th century and, despite prohibition, they've learned a great deal about the 113 known cannabinoids. This chapter will go beyond THC and CBD, the most recognized cannabis compounds, and discuss the less acknowledged ones to learn how they can help treat diseases, reduce pain, and prevent future illnesses.

Understanding the Decarboxylation Process

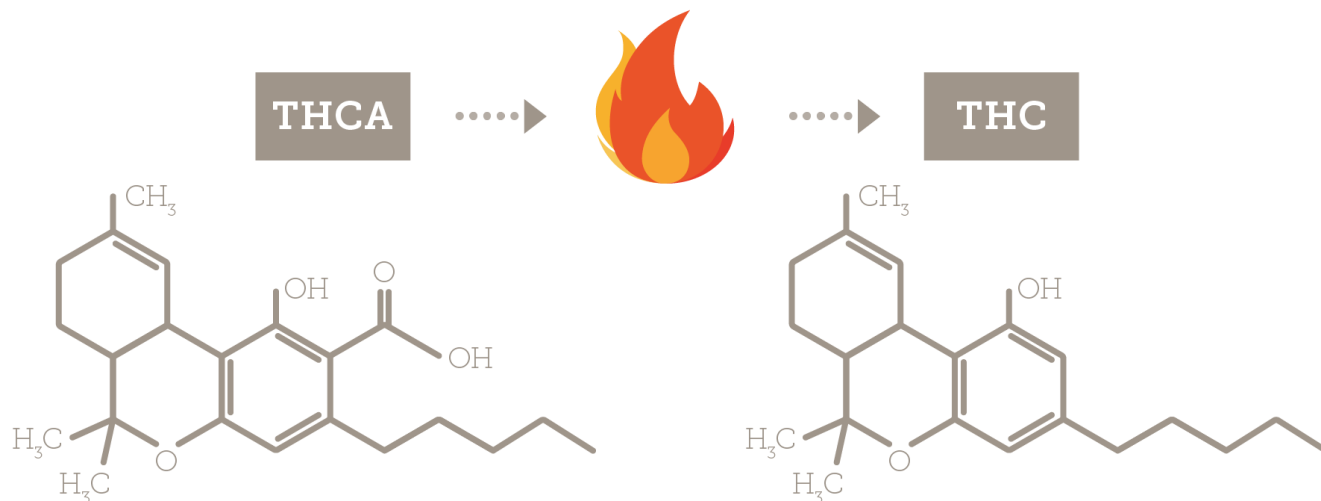
The potent cannabis compounds start their life cycle in the acid form. That is they contain a carboxyl group. When cannabis goes through a drying and heating process they lose the carboxyl group. This changes the way some of these molecules react

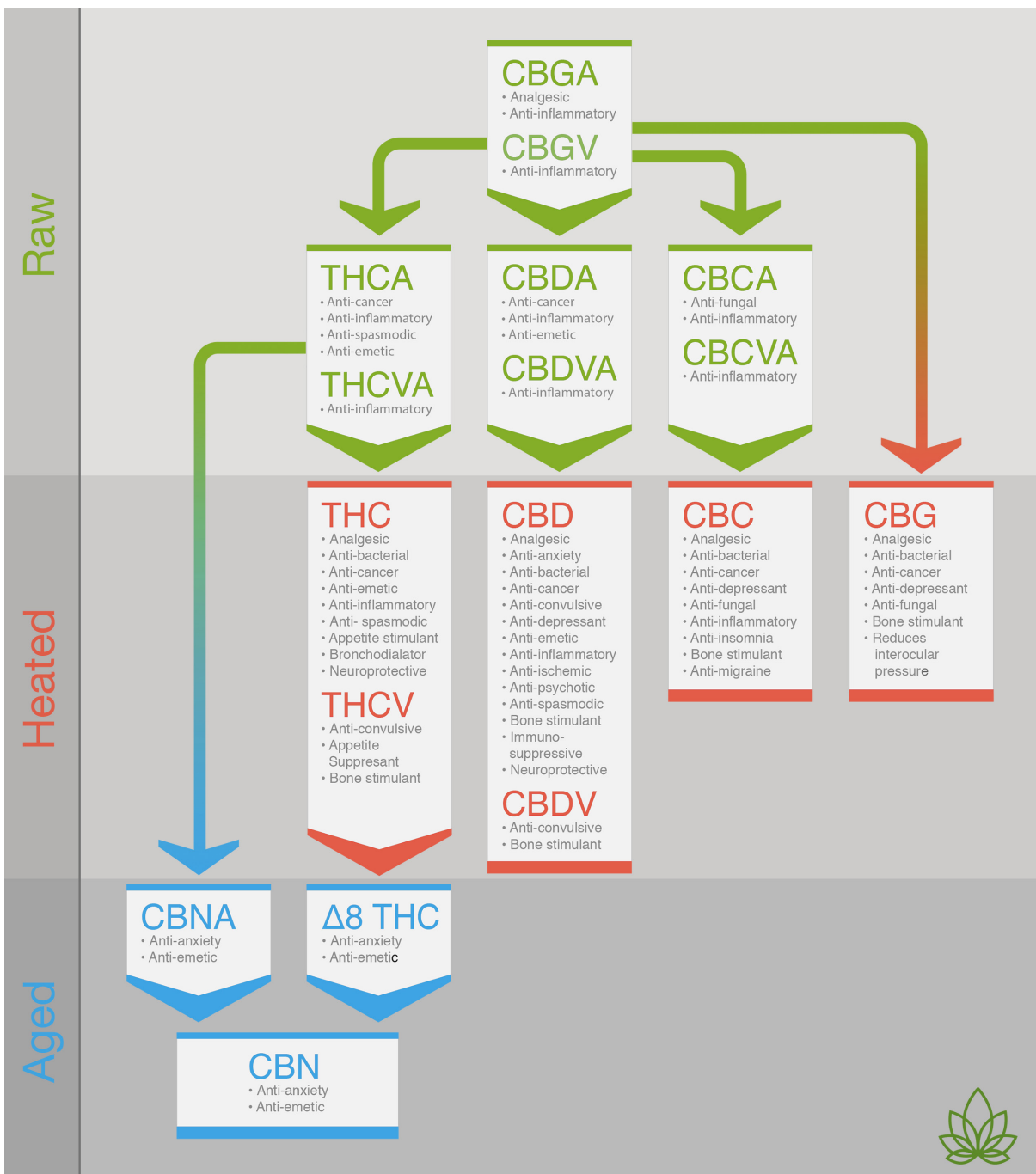


in the body. Diagram 1, shows that even after applying heat, they still have a similar structure. THCA becomes decarboxylated and changes at 157 degrees Celsius (315 degrees Fahrenheit). The remaining cannabinoids reach their boiling point at higher temperatures. For example, the range varies¹ between 160 to 180 degrees Celsius (320 to 356 degrees Fahrenheit) for CBDA. This is where there can be confusion -- too much heat degrades the new compound, causing it to change again. Other factors that can affect the process include:

- Age -- cannabinoids start to break down after harvesting due to drying
- Decarboxylation efficiency -- the method isn't precise. The ratio of cannabinoids before heating isn't necessarily the same after because it can lose molecules in the process
- Storage -- proper storage can slow down degradation while storing it in direct light, hot rooms, or non-airtight containers will speed up the process

This is another reason to learn about proper cannabis storage -- it helps prevent unwanted changes to the medicine. However, if you smoke or vape, you only need to consider specific temperatures to avoid changes to the medication. As a patient, caregiver, or provider, it's also essential to understand this process for reading product labels and lab reports. These only list the cannabinoid acids, such as THCA and CBGA, instead of the post-decarboxylation percentages of THC and CBD.





Cannabigerolic Acid (CBGA)

The amount of cannabinoids differs in each strain. Some minor strains only have a trace in each plant, but that's not the case for CBGA which is the second most abundant of the four major cannabis compounds. It's also more valuable than the others because it's the first to form in the plant. Without CBGA, THCA, CBDA, and CBCA cannot develop.

You may think that the plant in raw form is useless, but this is not the case. While it has no psychoactive properties before decarboxylation, the cannabis plant is valuable in every form, even as CDB, which you will read about later in this chapter. Juicing (including the plant's raw leaves in a juice or health shake) has become more popular because the patient can receive a high dose of cannabinoids without experiencing euphoria or dysphoria.

Raw cannabis expert Dr. William Courtney² explains, "If you smoke, bake, vaporize, sautee . . . CBDA, CBGA and quite probably THCA, you decarboxylate all the cannabinoid acids, sacrificing an interaction with 70 trillion cells." However, he also acknowledges that more research is necessary for this form of medicine and while it has many advantages, patients should use it in combination with dry flowers. He also notes that juicing the raw plant is helpful for some conditions. The Therapeutic range is not as broad as the conditions the plant treats following the decarboxylation process.



Dr. William Courtney

As a patient, caregiver, or provider, it's also essential to understand this process for reading product labels and lab reports.



The known perks of this compound acid³ are:

- Relieves pain
- Reduces inflammation
- Researchers are still studying the benefits of CBGA.
- 9-Tetrahydrocannabinolic Acid (THCA)

The acidic compound THCA is the precursor to THC, the only cannabinoid that can cause euphoria or dysphoria. There are two isoform⁴ or different proteins that start as CBGA -- THCA-A and THCA-B. While most medical cannabis formulations are THCA-A dominant, more research is necessary to determine their medicinal values.

The benefits of raw THCA include:

- Neuroprotective⁵
- Anti-inflammatory⁶
- Prevents, relieves, and reduces muscle spasms⁷
- Relieves nausea⁸
- Inhibits cell growth⁹
- Antioxidant¹⁰

Experts are still studying all the advantages of this cannabis compound. For example, there is promising research on its treatment of certain seizure disorders¹¹ while another study by the same professionals found it successful in preventing severe refractory migraines¹² in a teenage patient. As a preventative agent, THCA is a natural bug repellent.¹³

While it has no psychoactive properties before decarboxylation, the cannabis plant is valuable in every form.



Cannabidiolic Acid (CBDA)

The compound that decarboxylates¹⁴ to CBD originates as CBGA and has raw benefits similar to the other cannabinoid acids. Consumption of fresh leaves and flowers with CBDA may help to:

- Relieve nausea¹⁵
- Anti-inflammatory¹⁶
- Anticancer properties¹⁷

Along with these benefits, there is ongoing research into other advantages. In 2011, GW Pharmaceuticals¹⁸ filed a patent for CBD, CBDA, THCV, THCVA, CBC, CBCA, CBG, and CBGA as an antipsychotic medication. Advances in this area could help patients reduce their dosage of the strong psychiatric prescriptions that can have lethal side effects.¹⁹ Other studies include CBDA's potential as an antiepilepsy²⁰ treatment and how it can help reduce, or even eliminate, the use of NSAIDs²¹ for pain relief.

Other Cannabinoid Acids

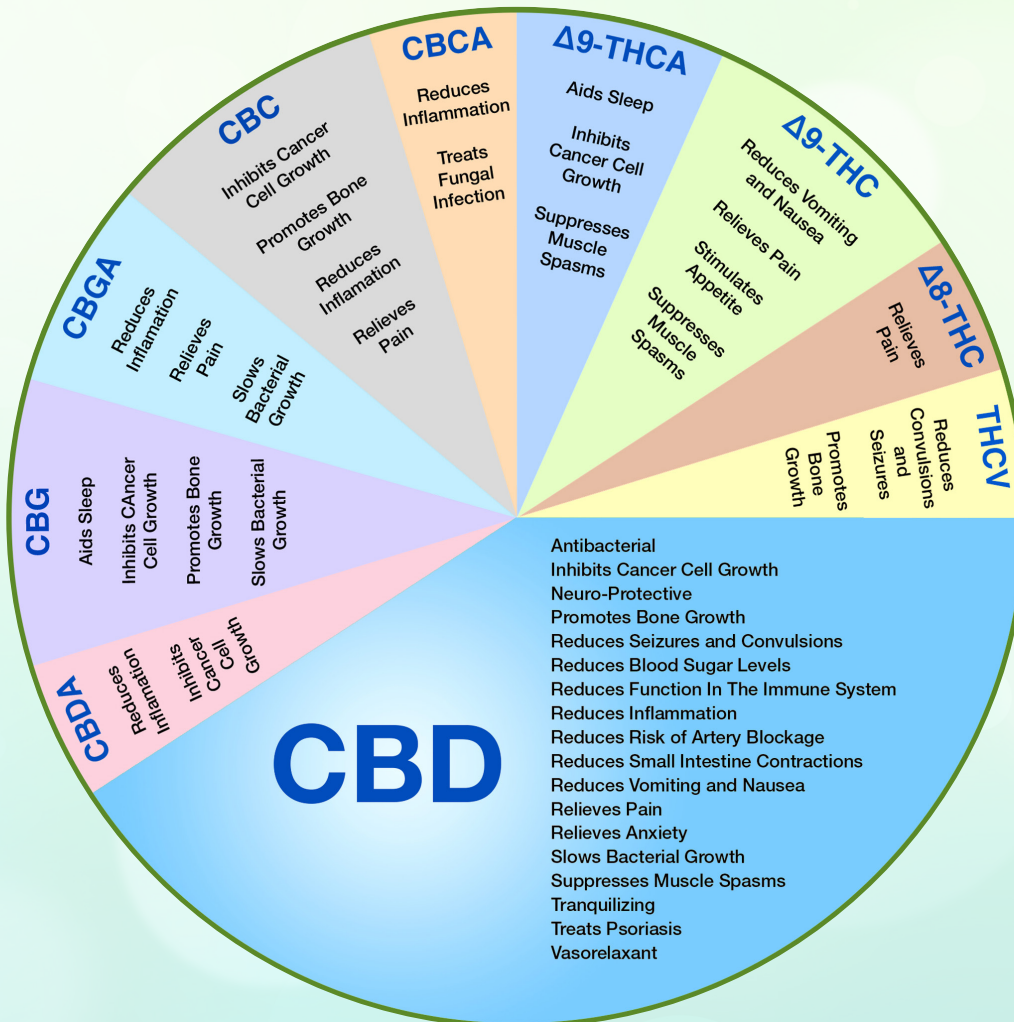
Scientists are still learning about the different healing properties of the 113 cannabis compounds. For example, they know cannabichromenic acid (CBCA) begins life as CBGA and changes to cannabichromene (CBG.) While there is little research about this specific compound, experts are studying its antibacterial and antifungal characteristics.

Another known cannabinoid, cannabigerovarinic acid (CBGVA) synthesizes or changes to tetrahydrocannabivarinic acid (THCVA) cannabidivarinic acid (CBDVA) and cannabichromevarinic acid (CBCVA).



Cannabinoids After Decarboxylation

As can see, medicinal qualities of the cannabis plant don't end with the raw flowers. From the harvest to the drying and heating process, the healing properties of cannabis have three stages. Now that you understand what the raw state of the plant can help with, here are the features that come after decarboxylation.



Cannabigerol (CBG)

Although CBGA is abundant in the flower after the heating process, it often contains less than 1 percent of the remaining chemical makeup as CBG. Nonetheless, it's still a valuable, natural healing compound. Some benefits of CBG include:

- Pain reliever²²
- Anti-inflammatory²³
- Antibacterial²⁴
- Antifungal

Studies also show it has neuroprotective properties²⁵ and may help patients with Huntington's Disease (HD.) This may stem from CBGA's protective role²⁶ which keeps the plant safe from insects while growing and a 2014²⁷ clinical study slowed the growth of colon cancer cells in mice. A 2013²⁸ research paper in the *Biochemical Pharmacology Journal* found it helpful in treating Inflammatory Bowel Disease (IBD.)

Scientists are also studying the anti-cancer properties of THC.



9-Tetrahydrocannabinol (THC)

The cannabinoid most people know or think they know is THC, the only part of the sacred plant which can cause euphoria or dysphoria. A quick Google search of the well-known acronym yields over 47 million results. While it is the most-studied cannabis compound next to CBD, there's still more to learn about how it interacts with other cannabinoids and the ECS.

Here's what experts understand about THC's medicinal benefits:

- Pain relief²⁹
- Antibacterial³⁰
- Antidepressant³¹
- Stimulates bone growth³²
- Nausea and vomiting relief³³
- Appetite stimulant³⁴
- Reduces and relieves muscle spasms³⁵

Along with reducing pain, increasing appetite, and reducing the nausea patients experience with cancer and chemotherapy treatments, scientists are also studying the anti-cancer properties of THC. More specifically, research³⁶ shows high doses of THC decreased tumor sizes in mice with certain cancers.



Cannabidiol (CBD)

In many states, you can find products containing CBD nearly everywhere -- from behind the counter at your local gas station, grocery store, or tobacco shop to dozens of online stores. The chemical compound results from decarboxylating CBCA.

How can they do that with a Schedule 1 substance? Medical cannabis laws across the U.S. and throughout the world vary considerably. Even in states without medicinal programs for the sacred plant, CBD products are legal if they have less than .3 percent of THC. Most strains of industrial hemp contain less than .3 percent, allowing manufacturers to sell oils, edibles, capsules, sprays, and muscle rubs as health supplements.

However, to receive the greatest benefit from the cannabinoid, medical cannabis experts recommend using non-industrial, high CBD strain. Here are some healing properties patients can experience:

- Anti-inflammatory³⁷
- Pain relief³⁸
- Reduces and relieves muscle spasms³⁹
- Appetite stimulant⁴⁰
- Reduces nausea and vomiting⁴¹
- Antianxiety⁴²
- Reduces painful small intestine contractions
- Antipsychotic properties⁴³
- Reduces seizures⁴⁴
- Antibacterial⁴⁵
- Neuroprotective⁴⁶
- Antidiabetic⁴⁷
- Treats psoriasis⁴⁸
- Stimulates bone growth



Research also shows CBD can help treat sleep disorders,⁴⁹ heart disease,⁵⁰ neuropathic pain,⁵¹ while it also has anticancer⁵² characteristics. Many practitioners recommend CBD to reduce the use of opioids as well as treat the symptoms of narcotic withdrawal.⁵³ CBD treats pain by decreasing inflammation. Several other cannabinoids have analgesic or pain relieving properties including THC, CBN, CBC, and CBG. A study done over 40 years ago demonstrated that 20 mg of THC had the equivalent analgesic effect as 60 mg of codeine.

Cannabichromene (CBC)

The nonpsychoactive, second most abundant cannabinoid forms from CBCA. Since its initial discovery in 1966, experts continue to learn about its medicinal value. Here are a few of the established findings:

- Reduces pain⁵⁴
- Anti-inflammatory⁵⁵
- Antibacterial
- Anticancer
- Stimulates bone growth

Although CBC doesn't have as many known healing properties, it hasn't been studied as long as other cannabinoids. Case studies do show the potential to treat depression⁵⁶ and acne⁵⁷ as well as promote healthy brain function.⁵⁸



Other Post-Decarboxylation Cannabinoids

Researchers are still studying the different cannabinoids such as tetrahydrocannabivarin (THCV), cannabidivarin (CBDV), cannabichromevarin (CBCV), and cannabigerivarin (CBGV.) Of these, THCV's healing properties are the most-known and include:

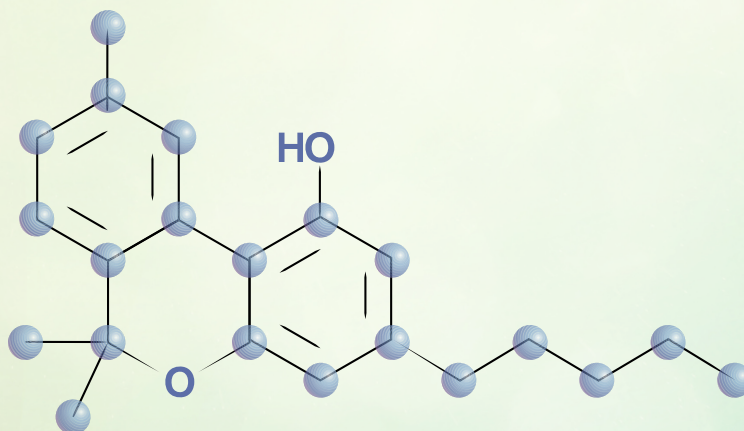
- Appetite suppressant
- Reduces seizures and convulsions
- Antidiabetic
- Stimulates bone growth

What About Cannabinol (CBN)?

Applying too much heat to THCA will form new compounds without the psychoactive properties of THC. This process also occurs as the flower ages. Although the characteristics of the medicine change, healing advantages of the sacred plant remain. The aged cannabinoids include cannabinolic acid (CBNA), cannabinol (CBN), delta-8-tetrahydrocannabinol (8 THC), cannabicyclol acid (CBLA), and cannabicyclol (CBL.) Researchers understand CBN offers these benefits:

- Relieves pain⁵⁹
- Aids in sleep and sleep disorders
- Antibacterial⁶⁰
- Reduces muscle cramps

While these chemical compounds have amazing healing powers on their own, together they create the entourage effect which professionals assert is the holy grail of medical cannabis treatment. Sources:



Cannabinol



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**What's in
the Scent?
Learning About
the Healing
Properties of
Terpenes**





While there has been a considerable focus on the cannabinoids, they aren't the only part of the plant with healing characteristics. Cannabis has over 200 known terpenes¹ that are responsible for its smell and taste. Much like cannabinoids, there are different ratios of terpenes that give each product its unique properties. Terpenes are found in many plants, such as pine, citrus, eucalyptus, and lilac trees with a primary function of protecting vegetation² from environmental factors such as insects, disease, and other pests during development.

Are Terpenes the Same as Terpenoids?

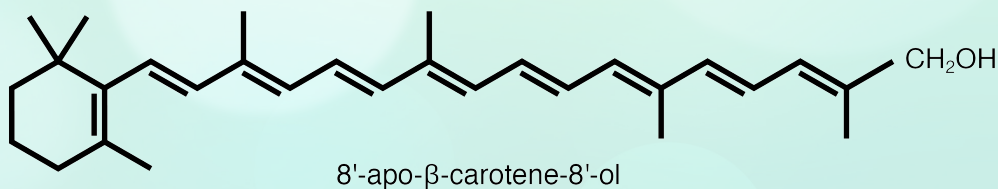
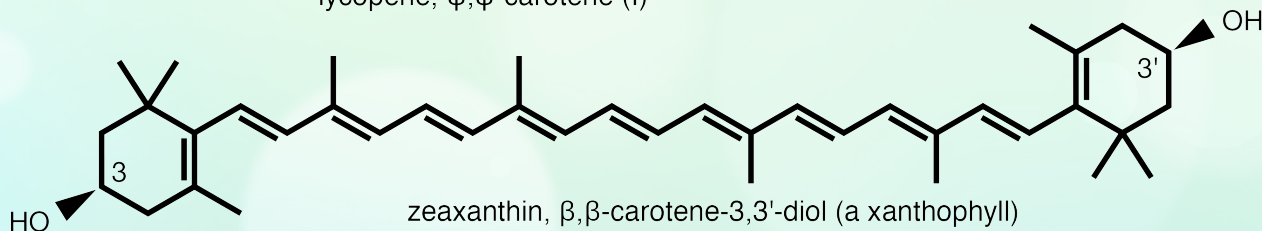
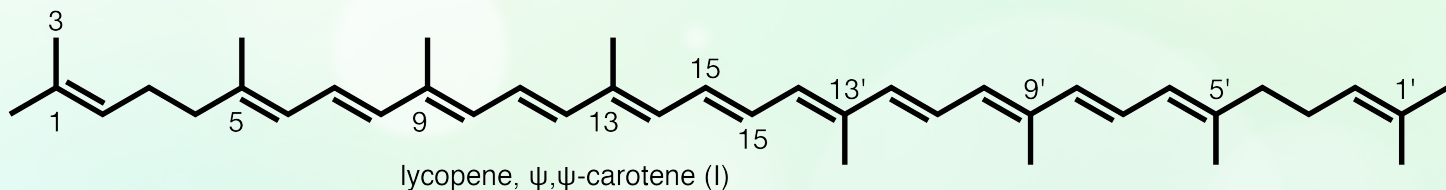
While some sources may use these terms interchangeably, the two are not the same compounds.³ Terpenes are hydrocarbons which means they only contain hydrogen and carbon. Terpenoids form after the oxidation process alters the terpene's chemical composition and are the oily compounds excreted by the plant's trichomes, along with cannabinoids and flavonoids. Researchers believe they make up to 10 percent⁴ of the trichomes secretions.



Why are the levels of terpenes lower in my medicine?

While more research on the subject is necessary, it is known that terpenes are even more fragile than cannabinoids. Many things occur between the farm and dispensary floor that reduces each plant's terpene level -- everything from too much agitation during their cultivation to excess light, heat, water, and overhandling the plants during processing can lower terpene counts. Even after you take the product home, too much heat while smoking or vaping will burn the terpenes rather than producing benefits. To achieve the best temperature to preserve these healing compounds, use a vaporizer and keep temperatures at or lower than those listed below for each terpene.

The unsaturated hydrocarbons are not only found in cannabis; at least 20,000 terpenes⁵ are found in various other plants. For example, the feeling of exhilaration many people describe after taking a deep breath in a pine forest isn't just in their imagination the natural bronchodilator effects of alpha-pinene expand the lungs and help you breathe better. It is also one of the major terpenes in cannabis. A list of the major terpenes and their medicinal benefits follows:



Alpha-pinene -- also known as a-pinene, this is a terpene common to cannabis and other plants. As mentioned previously, a-pinene helps expand the lungs and is very beneficial for people with asthma and other breathing issues. In addition, it's an anti-inflammatory⁶ and acts as an acetylcholinesterase inhibitor to improve memory. Although more research is necessary, studies show⁷ it may be helpful in the reduction of cancer cells and can treat antibiotic-resistant infections⁸ like Methicillin-resistant Staphylococcus aureus (MRSA.) There is also a beta-pinene. These terpenes⁹ are mirror images of each other, differing only in the position of their compounds. Terpenes are classified by how many isoprene units are in the molecule. For example, a monoterpene has two isoprenes and sesquiterpenes have three isoprenes.

In addition to cannabis and pine needles, you can find this terpene in:















































- Basil
- Dill
- Parsley
- Rosemary

A-pinene's boiling point is 311 degrees Fahrenheit (155 degrees Celsius.)

**To achieve
the best
temperature
to preserve
these healing
compounds, use
a vaporizer.**



10 COMMON TERPENES

	Myrcene	Linalool	Limonene	Pinene	Terpinolene	Carene	Eucalyptol	Caryophyllene	Humulene	Bisabolol
Reduces Inflammation										
Relieves Pain										
Inhibits Cancer Growth										
Suppresses Muscle Spasms										
Antibacterial										
Relieves Anxiety/Stress										
Sleep Aid/Relaxant										
Aids Digestive System										
Aids Immune System										
Antidepressant										
Antimicrobial										



Beta-caryophyllene -- this sesquiterpene is the only terpene to interact with the body's CB2¹⁰ receptors. Its healing properties include anti-inflammation,¹¹ pain relieving, sedation, and a muscle relaxant. There is also evidence it provides safe and natural gastric protection. Other studies show the sesquiterpene's potential in treating anxiety¹² and depression without the dangerous side effects that are all too common in traditional, modern pharmaceutical remedies. Beta-caryophyllene is also known as caryophyllene oxide.¹³

You can find this terpene in other plants such as:

- Black pepper
- Cinnamon leaves
- Cloves
- Oregano
- Thai basil

Beta-caryophyllene's boiling point is 266 degrees Fahrenheit (130 degrees Celsius.)

Beta-myrcene -- one compound that contributes to the sacred plant's sedating effects is myrcene. This terpene is also an anti-inflammatory, muscle relaxant, and painkiller. Its ability to sedate patients gives it the potential to treat sleep disorders. As a primary terpene, it helps with the later development of secondary terpenes. Along with cannabis, myrcene is found in several other plants including:

- Bay leaves
- Eucalyptus
- Hops
- Lemongrass
- Mango
- Thyme

Myrcene's boiling point is 332 degrees Fahrenheit (167 degrees Celsius.)



D-limonene -- another major terpene, Limonene, dissolves gallstones and helps with other gastrointestinal issues like reflux and heartburn. Studies also show positive results treating anxiety,¹⁴ depression,¹⁵ inflammatory pain,¹⁶ and the presence of anti-cancer properties and antimicrobial characteristics effective in fighting certain types of bacteria. This terpene is found primarily in citrus plants and fruits such as:

- Oranges
- Grapefruit
- Limes
- Mandarins
- Lemons

D-Limonene's boiling point is 348 degrees Fahrenheit (176 degrees Celsius.)

Geraniol -- a primary terpene which smells like sweet roses and is a natural mosquito repellent.¹⁷ Bees also produce¹⁸ this chemical compound to keep other colonies away from their nests. Geraniol is a neuroprotectant¹⁹ and an antioxidant with antibacterial, anti-fungal,²⁰ and anti-cancer²¹ properties. This terpene is found in several plants including:

- Lemongrass
- Geraniums
- Roses
- Peaches
- Passionfruit
- Blueberries

Geraniol's boiling point is 447 degrees Fahrenheit (230 degrees Celsius.)



Linalool -- cannabis plants that smell like flowers contain this simple terpene. Although it's found primarily in lavender, it is also present in dozens of other flowering plants. Linalool is an anti-epileptic, a pain reliever, and an anti-inflammatory,²² and reduces stress and anxiety. It increases serotonin-receptor transmission which allows it to act as a natural antidepressant. Used topically, this terpene topically to eliminates acne and treats burns.

The boiling point²³ of Linalool is 198 degrees Fahrenheit (93 degrees Celsius.)

Ocimene -- often found in perfumes and body sprays, it as anti-inflammatory,²⁴ antimicrobial,²⁵ and antifungal properties. Research shows ocimene also has anti-convulsant features that may help patients suffering from different seizure²⁶ disorders.

You can find ocimene in dozens of plants including:

- Tarragon
- Mint
- Parsley
- Allspice
- Basil

The boiling point of ocimene is 150 degrees Fahrenheit (66 degrees Celsius.)





Terpineol -- often added to soaps, perfumes, and other beauty products because it has a flower-like scent with a hint of fruit such as apple blossoms, terpineol exhibits antioxidant, antibiotic, and anti-anxiety properties.

You can find this compound in a few different plants including²⁷:

- Pine
- Conifer
- Eucalyptus

The boiling point of terpineol is 424 degrees Fahrenheit (218 degrees Celsius.)

Terpinolene -- with a sweet flavor and piney aroma, terpinolene is a common ingredient in bath and beauty products but it also has several medicinal benefits that aid in sleep²⁸ and reducing anxiety, and has the potential to prevent cancer²⁹ cell growth.

This terpene is also found in other forms of vegetation, such as:

- Conifer
- Cumin
- Lilac
- Marjoram
- Oregano

The boiling point of terpinolene is 365 degrees Fahrenheit (185 degrees Celsius.)



Valencene -- found in Valencia oranges it gives some plant compositions of cannabis a citrus scent. Although it doesn't have as many known medicinal properties as the other terpenes, it can relieve inflammation and keep mosquitos and ticks at bay during warm weather.

Humulene -- with anti-inflammatory³⁰ properties and the ability to subdue hunger, this terpene can also reduce the effect of THC's appetite increase while still providing relief for painful inflammation. Humulene is found in several other plants such as:

- Basil
- Cloves
- Coriander
- Hops

Humulene's boiling point is 222 degrees Fahrenheit (106 degrees Celsius.)





Borneol -- along with acupuncture therapy, this bicyclic monoterpene was common in traditional Chinese medicine. It has a minty scent and cooling properties similar to menthol. Borneol has the potential to act as a stronger anesthetic than lidocaine³¹ which is a common topical used to numb the skin for localized medical procedures. A 2008 study shows it also has anticoagulant³² properties which means it has the potential to act as a natural blood thinner and reduce the chances of a stroke. This terpene is found in other plants like:

- *Heterotheca*³³
- *Artemisia*³⁴
- *Callicarpa*³⁵

The boiling point for [Borneol](#)³⁶ is 451 degrees Fahrenheit (213 degrees Celsius.)



Phellandrene -- a secondary³⁷ terpene with a minty and peppery aroma and a citrus undertone. According to a 2017³⁸ journal article in Botanical Studies, phellandrene has antimicrobial properties that protect against many fungal and bacterial infections. This terpene also has the potential³⁹ to kill leukemia cells in successful studies with mice.

Phellandrene⁴⁰ is found outside of cannabis in more than a dozen other types of vegetation like:

- Black pepper
- Corn parsley
- Eucalyptus
- Water fennel
- Mint
- Dill
- Lavender
- Ginger grass
- Pine
- Canada balsam
- Ceylan cinnamon
- Grand fir
- Angelica

The boiling point for phellandrene is 340 degrees Fahrenheit (171 degrees Celsius.)



Terpinene -- the monoterpene is a common additive in food and beauty products that have antioxidant⁴¹ properties.

You can find⁴² terpinene in several other plants such as:

- Citrus
- Oregano
- Marjoram
- Eucalyptus
- Cuminum⁴³

The boiling point⁴⁴ of Terpinene is 343 degrees Fahrenheit (106 degrees Celsius.)

Phytol -- a secondary terpene which differs⁴⁵ from the others because it forms from the deterioration of chlorophyll. Phytol is an immunosuppressant with anti-itch, anti-inflammatory,⁴⁶ anti-anxiety,⁴⁷ and pain relieving⁴⁸ properties. Studies also indicate this terpene shows promise as an anti-cancer⁴⁹ and seizure⁵⁰ treatment.

Phytol's boiling point is 399 degrees Fahrenheit (204 degrees Celsius.)





Sabinene -- the monoterpene's aroma is a mix of pine, oak, and citrus with a pinch of black pepper. Like many of the terpenes in cannabis, studies show it has anti-inflammatory⁵¹ properties. Another study by in the Journal of the Science of Food and Agriculture reports it has antioxidant⁵² qualities. In addition to cannabis, sabinene is also found in these sources:

- Nutmeg⁵³
- Marjoram⁵⁴
- Cardamom⁵⁵

The boiling point⁵⁶ for sabinene is 327 degrees Fahrenheit (164 degrees Celsius.)

Isoborneol -- this terpene's scent is a mix of menthol and cinnamon; it is found in many products from topical anti-inflammatories⁵⁷ to soothing essential oils. Some studies⁵⁸ show it also has antiviral characteristics. As of the writing of this book, outside of cannabis, it is only known to be found in mugwort⁵⁹ and the camphor⁶⁰ tree.

The boiling point⁶¹ for isoborneol is 415 degrees Fahrenheit (213 degrees Celsius.)

Cedrene -- the sesquiterpene⁶² is only found in the essential oil of cedar. A 2014 journal article⁶³ discussed its anti-inflammatory, antispasmodic, antiseptic, sedative, antifungal, and diuretic properties. Another 2014 study shows the terpene may have anti-cancer⁶⁴ characteristics.

Cedrene's boiling point is 501 degrees Fahrenheit (261 degrees Celsius.)



Guaiol -- rather than an oily substance like most terpenes, this has a piney fragrance similar to pinene. Research⁶⁵ indicates it is an antibacterial that has anti-cancer properties such as the potential to improve the effectiveness of chemotherapy in non-small cell lung cancer treatment.

Guaiol is found in several other plants and natural substances such as:

- Cypress Pine
- Guaiacum
- Balsam⁶⁶
- Indian valerian⁶⁷

The boiling point of this sesquiterpenoid is 198 degrees Fahrenheit (92 degrees Celsius.)

Geranyl Acetate -- the secondary terpene has a heavy, floral scent with a hint of fruitiness that makes it popular in the fragrance industry. At this time, its only known healing ability is antimicrobial.⁶⁸

The terpene is found in different plant oils like:

- Citronella
- Lemongrass
- Roses

The boiling point of geranyl acetate is 468 degrees Fahrenheit (242 degrees Celsius.)



Eucalyptol -- the colorless⁶⁹ monoterpene has a minty fragrance and is common in many products such as mouthwash for its antimicrobial⁷⁰ benefits, and cold medicine for cough relief. Researchers believe eucalyptol has the potential to treat certain chronic diseases⁷¹ like cardiovascular, respiratory, and neurodegenerative conditions.

The monoterpene is found in plants such as:

- Eucalyptus
- Tea tree oil
- Wormwood
- Sagebrush

Eucalyptol's boiling point is 349 degrees Fahrenheit (176 degrees Celsius.)

Carene -- a secondary terpene with a sweet, earthy scent, also common in products, like deodorant, that reduces excess body fluids. Medical studies⁷² show it has the potential to diminish inflammation and aid bone⁷³ growth and repair.

Carene is found in several other plants like:

- Rosemary⁷⁴
- Basil
- Bell pepper
- Pine

The boiling point⁷⁵ for carene is 338 degrees Fahrenheit (170 degrees Celsius.)



Fenchol -- another terpene that's common in the beauty industry, fenchol is a popular ingredient. In nature, the secondary terpene is in basil. Studies are limited but show evidence of antibacterial⁷⁶ activity.

The boiling point⁷⁷ for this secondary terpene is 394 degrees Fahrenheit (201 degrees Celsius.)

Bisabolol -- this colorless monocyclic sesquiterpene has a sweet, floral scent and is used⁷⁸ often in dermatological and cosmetic products for its anti-irritant, anti-inflammatory, non-allergenic, and protective properties. Specific uses include UV protection, lotions, baby care products, and makeup.

It's also found other types of vegetation such as:

- German chamomile
- Sage
- Myoporum

Bisabolol's boiling point is 307 degrees Fahrenheit (153 degrees Celsius.)



Camphene -- found in various products to enhance flavor, it has a strong, musky, earthy scent that is not as pleasant as the odors produced by other terpenes and it's found in various products to enhance flavor.⁷⁹ A 2011 journal article shows it was able to reduce⁸⁰ plasma cholesterol and triglyceride levels in rats which gives it the potential to lower patients' risk of a stroke or heart attack without the side effects that accompany traditional medications. It also has antioxidant⁸¹ properties which makes it a good treatment for fungal and bacterial infections. Camphene is found primarily in nutmeg.⁸²

The boiling point for camphene is 316 degrees Fahrenheit (158 degrees Celsius.)

Camphor -- a monoterpene,⁸³ it is the main ingredient in natural moth repellent products and is the chemical compound that gives the cloth-saving balls their strong odor. Along with its ability to deter insects, it has anti-inflammatory, pain-relieving, anti-itch, and anti-infective properties. It's found in cannabis and several varieties of the camphor tree.⁸⁴

Camphor's boiling point is 408 degrees Fahrenheit (209 degrees Celsius.)

Menthol -- this well-known monoterpene with cooling properties⁸⁵ and a minty aroma is found in dozens of products including toothpaste, burn creams, and as a flavoring agent in candies, chewing gum, and many other processed foods. Menthol also exhibits an extraordinary number of healing characteristics such as:

- Antifungal
- Antipruritic
- Antibacterial
- Anti-Cancer
- Pain reliever

Menthol is procured exclusively from the *Mentha Canadensis* tree.

The boiling point for menthol is 414 degrees Fahrenheit (212 degrees Celsius.)





Nerolidol -- with a sweet floral scent, this secondary terpene is also a popular additive in the beauty product industry, but it also has several medicinal uses such as anti-fungal,⁸⁶ antimicrobial,⁸⁷ antiparasitic,⁸⁸ and antianxiety⁸⁹ values.

Nerolidol is found in several kinds of vegetation, such as:

- Neroli
- Lavender
- Tea tree
- Ginger

The boiling point⁹⁰ for nerolidol is 527 degrees Fahrenheit (275 degrees Celsius.)

Isopulegol -- is a minty terpene which is another popular additive in foods and beauty products because of its fresh scent. Its medicinal value includes antidepressant,⁹¹ anxiolytic (anti-anxiety), and antioxidant properties. A 2009 study⁹² suggests Isopulegol has the potential to reduce convulsions and seizures in mice.

Isopulegol is derived from plants like:

- Cornmint⁹³
- *Mentha pulegium* (European pennyroyal)
- Lemongrass
- Geranium

Isopulegol's boiling point is 413 degrees Fahrenheit (212 degrees Celsius.)



Cymene -- a colorless terpene with a mild aroma compared to other more pungent terpenes. To date, there are a few reports⁹⁴ that show cymene, found in cannabis, cumin, and thyme has the potential to treat pain from inflammation. The boiling point for cymene is 351 degrees Fahrenheit (177 degrees Celsius.)

Pulegone -- this monoterpene⁹⁵ also has a minty taste and aroma; it is a common additive in food and beauty products. Outside of having exceptional results as an insect repellent, studies show it may work as a natural expectorant as well.

Pulegone is obtained from cannabis and other plants including:

- Nepeta Cataria (catnip)
- Mentha species
- Rosemary⁹⁶

Pulegone's boiling point⁹⁷ is 433 degrees Fahrenheit (224 degrees Celsius.)



How Do Terpenes Work?

These plant hydrocarbons activate through heat. Like cannabinoids, terpenes have different boiling points for optimal results. Only patients who smoke or vape their medicine need to pay attention to temperature. It should be high enough to activate the hydrocarbons without overheating to achieve a therapeutic range with terpenes. Too much heat can reduce benefits.

The most favorable⁹⁸ temperature range to activate most of the healing properties is between 356-410 degrees Fahrenheit (180-210 degrees Celsius.) As with the other molecules in cannabis, terpenes work best with cannabinoids and flavonoids because they produce the entourage effect.

Now that you understand the basic medical science behind the cannabis plant and how it interacts with your body's endocannabinoid system (ECS) keep reading to learn about the different conditions and symptoms cannabis can treat.



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Talking to a Medical Cannabis Professional



The first step to medical cannabis treatment is to speak with a professional and ask for their recommendation, a sometimes confusing and scary process. Please, don't panic as it is no different from an initial appointment with any new doctor. Take a deep breath and keep reading to learn more about how to find the right doctor, your first dispensary visit, and how to get additional help with the process.

Finding a Qualified Physician to Recommend Medical Cannabis

Patients should start their journey with the sacred plant by speaking with their primary care provider. If they are unable or unwilling to help, it will be necessary to find a qualified practitioner who can. There are many reasons a primary care doctor won't discuss medical cannabis with patients -- one, they may not meet the requirements to recommend the treatment two, he or she might not feel comfortable giving out this advice; and, three, they could be under legal restrictions from an employer, medical institution, medical institution or insurance company.

The first reason can be confusing because legal issues can complicate this step. Most states and countries have strict rules about who qualifies to give recommendations regarding medical cannabis. Some states, like New York, further require those professionals to take continuing education courses to meet established standards. Other restrictions may include laws that limit the number of recommending doctors in an area or limit the number of patients each professional can treat with the sacred plant.

The second reason can stem from a few issues, one being that not all doctors are knowledgeable of medical cannabis practices, to include conditions and symptoms it can treat, dosing, ratios, and potential drug interactions. While outside courses and accreditations are available, they are far from mainstream education. Many practitioners

Patients should start their journey with the sacred plant by speaking with their primary care provider.



don't learn about the ECS or the importance of cannabinoids in medical school.

As a leading authority in the industry and one of the Sacred Plant's experts in our webinars, docuseries, and masterclass, Dr. David Bearman,¹ explains:

If a physician is unaware of the ECS, its constituents such as the neurotransmitters anandamide, 2AG and dopamine and/or the role of dopamine in retrograde inhibition, how will doctors ever understand how and why cannabis treats migraines, seizure disorder, Crohn's Disease, arthritis, and the myriad of other conditions cannabis has been shown to treat?

The third reason brings the problem back to Federal classification² of the sacred plant. Specific employers and medical institutions may require all physicians to follow Federal guidelines, or they may have liability insurance that doesn't cover cannabis recommendations.

To find a list of acceptable practitioners, visit your state or country's department of health website.



What to Expect on the First Visit

Great! You've made the appointment, and now it's approaching fast. After arriving at the office, check in at the front desk, and complete any forms they may require. As with any new patient appointment, the staff will take your vitals, get a basic health history, and go over your current medications, conditions, and concerns. During this time, he or she will discuss the pros and cons of this treatment to help determine if this treatment is right for you. If possible, bring a pen and paper or ask the practitioner for any handouts or other literature to help you understand any of the information he or she provides during the initial appointment.

Some of the questions you can expect a medical cannabis professional to ask at the initial appointment are:

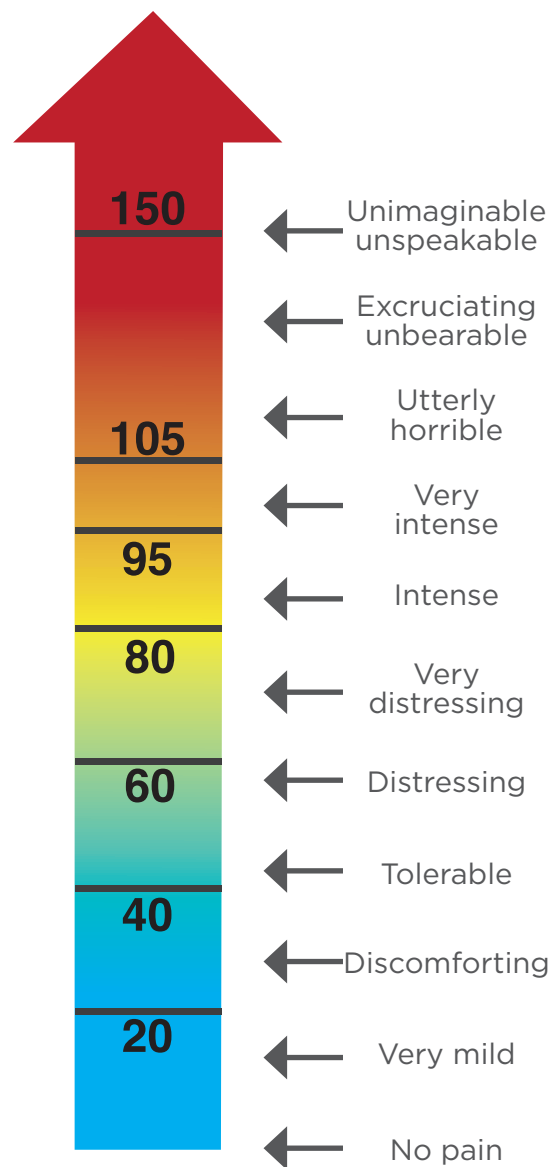
What do you hope to achieve with this type of treatment? For example, a patient with anxiety, depression, and sleep issues who has been taking multiple medications may want to reduce or eliminate some of these strong, and often dangerous prescriptions which can lead to death even under strict medical supervision. Pain patients may want to stop taking strong narcotics or lower their dependence, while someone undergoing chemotherapy for cancer could be looking to slow down weight loss by improving their appetite.



What is your pain level? This is a common question if your visit is for chronic pain. They will first ask you to answer on a scale of 1 to 10, with 10 being the most severe. In addition to pain levels, the professional will also ask if your pain is constant or intermittent. Additional questions may include:

- When did it start?
- What treatments have you tried to alleviate it?
- Which worked the best?
- What, if any, were the side effects?
- Have you tried recreational cannabis in the past? Although it may make you uncomfortable, this is an essential question. If you answer yes, you can expect further questions, such as:
 - How often and how long did you use it?
 - What method of delivery did you use the most?
 - How did it work?
 - Was there anything you didn't like about the experience?

Given Federal laws, these questions may seem intrusive but should not be a cause for concern as you are protected by doctor-patient confidentiality. These questions will help the doctor find out if you are a good candidate for this treatment and how to proceed. You can also expect a qualified professional to spend 15 minutes or longer going over your medical history and records to help find the right course of treatment for your ailment(s).



Towards the end of the appointment, the doctor will either give you a recommendation after confirming your condition, ask for additional information, or deny your request. Two common reasons you could receive a denial include:

The patient's symptoms or condition don't qualify in that state. These guidelines vary by state. For example, Autism qualifies in Minnesota,³ but not in New York State.⁴

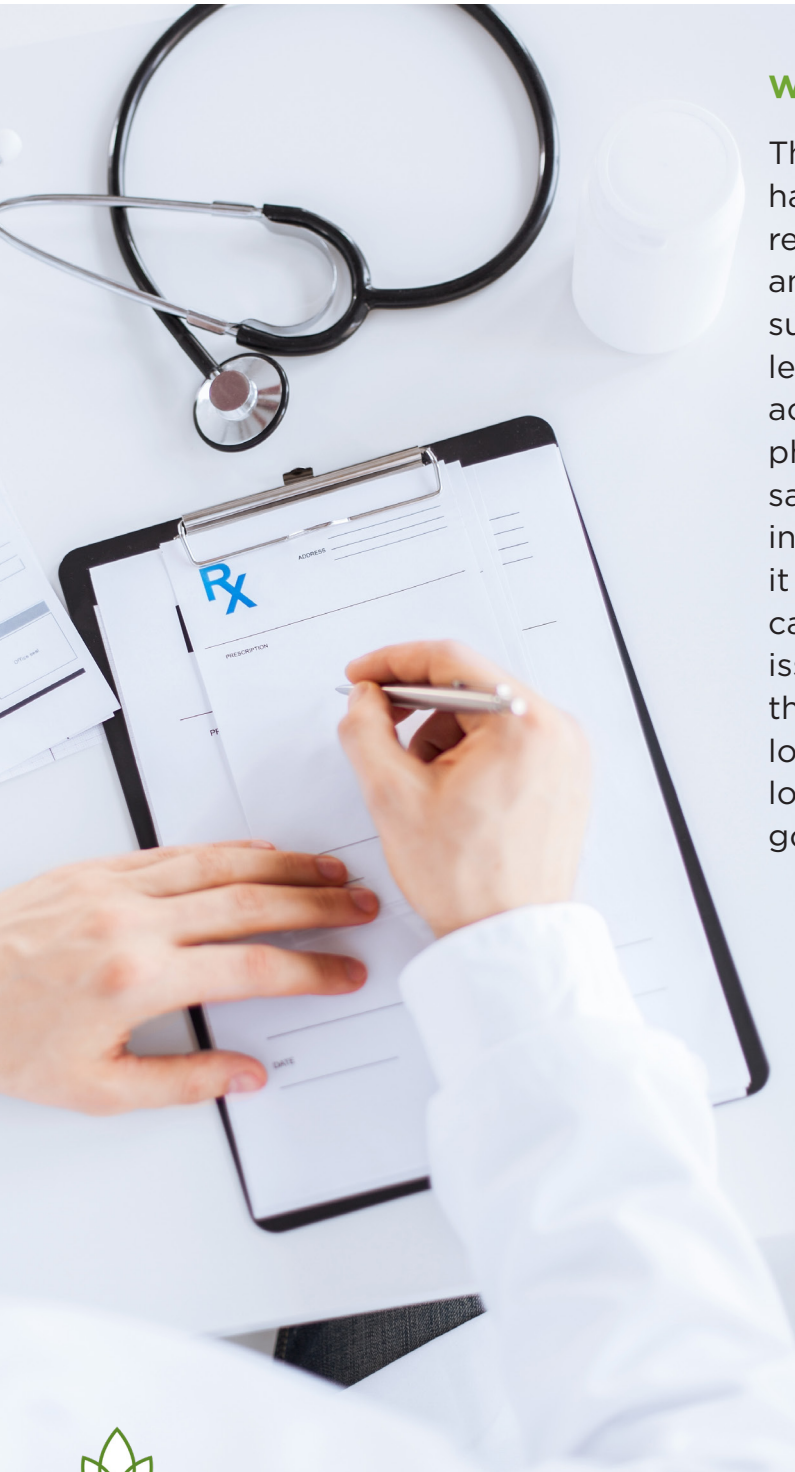
Medical cannabis can treat many conditions. However, not everyone⁵ is the right fit for this medication. To be more specific, pregnant and nursing mothers should seek additional guidance, and patients with schizophrenia and other conditions that require antipsychotic medications should only seek treatment with supervision from a mental health professional.

You don't have enough medical documentation to support your symptoms or condition. Patients with little or no medical history are often given a denial because physicians are held accountable for each recommendation they make and just like any prescriptions, there must be evidence of their claim.

Patients that disagree with the doctor's decision may get a second opinion.

Cannabis is still a Schedule 1 substance, doctors cannot prescribe with a legal prescription. Instead, state programs accept recommendations from licensed physicians.





Wait, where's the prescription?

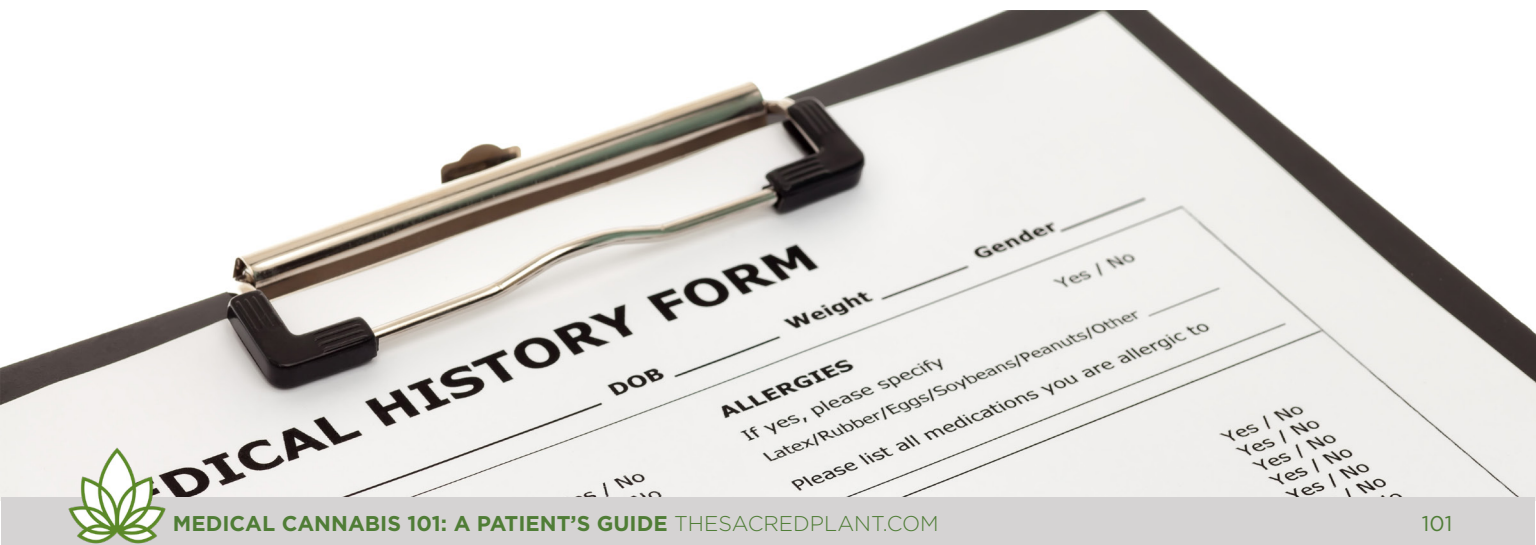
This is where patients and caregivers may have some confusion. Because Federal regulations apply to medical prescriptions, and cannabis is still a Schedule 1 substance, doctors cannot prescribe with a legal prescription. Instead, state programs accept recommendations from licensed physicians to grant patients access to the sacred plant. Keep the recommendation in a safe place as you will need to present it along with a valid medical cannabis card along with your state or government issued ID to enter and make purchases at the dispensary. Check with the doctor or local government agency to find out how long it is valid. Most recommendations are good for one year.



Things to Bring to the Appointment

If you are seeing a current medical professional, there may be no need to bring additional information. However, for a new physician, patients will need to bring supporting documents for their diagnosis. This may include⁶:

- Current medical records
- Letters from other medical professionals
- Any imaging, blood work, or other relevant test results
- List of current prescriptions and any over-the-counter medications, supplements, and vitamins
- Payment
- Other items include a valid state or military identification card, and proof of address, such as a rental agreement, bank statement, or utility bill. When you schedule the initial appointment, verify the specific medical documentation, and personal identification necessary.
- A quick note about medical insurance. Although dozens of states have medical cannabis programs, health insurance companies most likely won't cover the cost of an office visit. However, that could change in the future; in January 2017, New Jersey worker's compensation judge ruled in favor⁷ of medical cannabis for a chronic pain patient and ordered the insurance carrier to reimburse the injured worker for the cost of treatment.



Questions to Ask a Medical Professional About Cannabis

This is an important appointment, and it's understandable to be nervous. So you don't forget to ask a question, make a list to ask the doctor. Prepare this before the appointment to help reduce anxiety. Some things to consider asking include:

- What are the risks of this medication?
- How much should I take?
- Are there side effects?
- What can I do to reduce the side effects?
- How long have you been recommending cannabis?
- Do you have any formal education in the endocannabinoid system?
- What activities should I avoid while using this medicine?
- Can you recommend a delivery method?

These are only a few questions. Feel free to add more and ask as many as you need to reduce any concerns about the sacred plant. One thing the provider can't answer is questions about specific dispensaries or brands.

So you don't forget to ask a question, make a list to ask the doctor.



What is a Caregiver?

Patients don't have to be alone navigating medical cannabis treatment. If you or a loved one is physically or mentally unable to go through this process, there are options for support. From individual caregivers to nonprofit organizations that dedicate their time to helping patients find safe access to affordable, high-quality medicine.

Individual caregivers register with the state program to help patients through all steps of treatment. They can work with one or multiple patients. While the guidelines from state-to-state vary, most programs allow caregivers to purchase, grow, and prepare cannabis. Pay close attention to the state and local laws about how many plants you can grow. If anyone is found with more plants than the area allows, penalties⁸ can be steep. At the bare minimum, the caregiver will have to destroy the extra plants. However, despite the broad range of allowances, they can't use the sacred plant unless they are also a patient. Please note that registration as a caregiver doesn't offer protection from federal prosecution.⁹

States require anyone in treatment under the age of 18 to have a caregiver. In most cases, this will be a parent or legal guardian. Similar to patients that register, caregivers must pay a fee. To learn more about these fees and any waivers or assistance that may be available, check with your state program. Fee amounts vary by state, the number of patients a caregiver registers to help and the services they offer, such as cultivation.¹⁰ Other costs may include background checks or annual renewals.

The journey to symptom and pain relief for many ailments still isn't over. Stay with us as we guide you through the first dispensary visit in the next section, *Part II: A Beginner's Guide to Medical Cannabis Treatment*.



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Choosing a Mode of Delivery



talking to a belief, smoking is not the only way to use medical cannabis. Actually, there are several modes of delivery. Many patients choose to vape, which is a safe way to inhale cannabinoids while another option is the sublingual tincture that absorbs under the tongue. Topical and edible medications are also excellent options for most patients. The sections below provide information on about the different ways to take your medication, how it works, the pros and cons of each method, as well as any accessories necessary to use the mode of delivery.

Smoking

While smoking cannabis is a controversial way to use the sacred plant, it provides symptom relief in a few minutes which can last for two to three hours.¹ The controversy stems from the inherent danger that all smoke presents for the lungs though some studies show that because it is a natural substance, the damage from cannabis is less compared to tobacco -- it contains none of the additional, cancer-causing chemicals that are in cigarettes. Patients can smoke the dry cannabis flower or a concentrate.² Examples of these include:

- Shatter/Glass
- Kief/Dust
- Rosin
- Wax
- Budder
- Oil
- Isolates



However, because of the damage smoke causes to the lungs, those with respiratory conditions, such as asthma, or lung damage such as chronic obstructive pulmonary disease (COPD), emphysema, or lung cancer shouldn't use this method. For more information about smoking and medical cannabis, patients should consult with their pulmonary specialist and recommending physician.

Despite this research, some states and countries with medical programs prohibit smokable products, and in these cases, dispensaries will not carry any dry flowers for smoking. Another important factor in smoking is the smell -- smoking cannabis emits a strong aroma that may not be pleasant to nearby neighbors and other non-smokers. Patients can smoke the dried flowers in a pipe or as a joint. For the latter method, rolling the flowers right is the key to an effective delivery of the medicine. Unfortunately, many who seek relief can't adequately roll the dried flowers because their conditions include debilitating joint and nerve pain, or similar symptoms. However, many brands available at medical dispensaries understand this limitation and sell pre-rolled products.

**Contrary to popular belief,
smoking is not the only way
to use medical cannabis.**



Vaping and Vaporization

Vaping offers the same quick onset of medicine as smoking, but in a vapor form which has zero carcinogens and 70 percent fewer irritants. You can vape whole flowers, oils, and all the concentrates listed above under smoking. To create a vapor, place the product into the chamber where an electric heating element safely heats it to about 392 degrees.³

As well as being safer for your lungs, vaporization is more discreet than smoking because it looks similar to nicotine vape pens which are legal. Most importantly, when you use oils or concentrates, no one can smell the terpenes which can be unpleasant to non-users. The only negative for this method of delivery is cost -- vaping devices can be expensive.

The least expensive and most discreet devices are vape pens. These are specific to the form of cannabis you are using. For example, you can only use pre-filled containers in a cartridge system, and most dry-herb vaporizers won't work with oils. Along with pens, patients can investigate larger desktop models that plug into an electrical socket and don't require a rechargeable battery to function. If you have questions on how to correctly use your device, consider speaking to your budtender for assistance. The budtender will give you step-by-step instructions, as well as tips to help get the most out of this delivery mode.

As well as being safer for your lungs, vaporization is more discreet than smoking because it looks similar to nicotine vape pens which are legal.



Sublingual Tinctures, Sprays, and Oils

Sublingual tinctures have a long, successful history and are an excellent option for many patients. In the early to mid-1800s, Sir William O'Shaughnessy,⁴ a medical doctor and one of the founding proponents of modern medical cannabis used tinctures⁵ to treat humans and animals. These are liquid extracts from the sacred plant's flowers, leaves, and stem which are placed under the tongue for fast absorption into the bloodstream.¹

Not everyone is keen on using alcohol-based products. In these cases, patients and caregivers can look for products that use a carrier oil⁶ such as coconut, grapeseed, and extra virgin olive oil that are similar to edibles. You can take cannabis oils by mouth, but they will take about 45 to 90 minutes to work.

To get optimum benefit from your extract, choose a whole plant formula that includes all the cannabinoids, terpenes, and other healing chemical compounds. For the best results, users must keep the oil under their tongue for a minimum of five minutes. With the sublingual method, tinctures work in about 15 minutes. Sublingual sprays are available in droppers and spray bottles. The oil can also be added to drinks and edibles.



Why choose to ingest if it takes longer to work?

One issue is that the taste of a cannabis extract isn't for everyone -- it can be overpowering and unpleasant. Further, to get the most benefit, it needs to stay under the tongue for several minutes. While some adults can get past the taste for the benefit, young children and senior patients can have trouble making ingestion more beneficial for them. Many brands are adding natural and artificial flavors to the oils to improve the taste so these more vulnerable patients can use the faster mode of delivery.

If you live in a state that doesn't allow medical cannabis, it may still be possible to access hemp tinctures and sprays that contain less than .3 percent of THC. Although The THC isn't as beneficial as a whole plant medicine, it can still provide some relief to patients.



Transdermal Patches

Similar to nicotine patches for people trying to quit smoking or fentanyl patches for extreme pain, this method uses time-delayed doses that absorb through the skin. With a duration of 8 to 12 hours, the patch gives patients the most amount of pain relief. Users only need to place the patch on their skin and it delivers the medicine directly into the bloodstream. For the best results, they should be applied to the foot, wrist, or top of the hand because these areas have the most blood vessels for absorption. Areas with a lot of hair that could make it harder to adhere to the skin and could be painful when removing should be avoided. You should start to feel symptom relief about 20 minutes after applying the patch.

In addition to patches, patients can choose transdermal pens that allow them to absorb the medicine through the wrist. Much like opioid patches, most cannabis applications contain high amounts of THC for people experiencing chronic 24-hour pain.

However, new brands on the market have more options for all CBD patches and different ratios for a variety of other conditions such as anxiety and nausea. Unlike other modes of delivery, for example, tinctures, edibles, and smoking, there aren't many factors outside of human error that can affect the patch's dosage.

With a duration of 8 to 12 hours, the patch gives patients the most amount of pain relief.



Topical Medicines

There are a variety of topical treatments from creams, oils, and salves for everything from skin conditions and muscular pain, to balms for chapped lips and other skin issues⁷ like dryness. Other conditions that respond to topical treatments include:

- Muscle strain
- Inflammation
- Psoriasis⁸
- Eczema
- Allergic skin reactions
- Dermatitis

Because topical applications don't enter the bloodstream, they don't have the psychoactive properties⁹ from

THC. These can be pure cannabis products but are often mixed with other healing plants and natural additives, such as:

- Essential oils
- Menthol
- Beeswax
- Aloe vera

Topical cannabis works because the body has many CB1 and CB2 receptors which interact with the cannabinoids. There are whole plant salves and rubs, which practitioners recommend. However, for people in states without a medical cannabis program, products with only CBD may be available. Unfortunately, the topical delivery isn't a guarantee of relief for all patients with pain conditions.

Patients with concerns about drug testing when using topicals, including CBD only products, should know that there is a slight chance of testing positive for THC if the ointment seeps into the bloodstream via an open wound. Such cases are, however, rare.



Edibles

These are foods, drinks, and candies infused with cannabis. Edibles are very popular for obvious reasons -- it's a medicine that tastes great, is stronger, and lasts longer than other delivery methods. Also, similar to vaping concentrates, there's no scent to consider. Edibles can take 45 to 90 minutes to take effect, but they last 8 to 12 hours, making them an excellent choice for chronic pain. The list of edibles medications is growing by leaps and bounds with everything from traditional cookies and brownies, to a variety of candies such as lollipops and multiple flavors of gummy-style candies infused with cannabis oil.

California offers many more food and drink varieties of medicinal cannabis than any other state or international region. Patients there can access healthy foods infused with the sacred plant -- cashews, almonds, protein bars, dried fruits, teas, and waters, to name a few.

As knowledge of the healing properties of cannabis continues to grow, so does interest in infusing¹⁰ the oil into every meal, drink, and snack. It won't be long before someone who takes a daily dose of the sacred plant for treatment maintenance or preventative care can do so by simply eating breakfast, lunch, and dinner.



While these are a good option for many types of patients, some may find that their cannabis medical specialist isn't very fond of this method. Why? Medicine should be an exact science, and until research and technology catch up to this mode of delivery, it's more of a trial and error than other ways to take cannabis. For example, while experts say edibles will start to work after 45 to 90 minutes, the reality is that it can take up to two or three hours to provide relief for some people with a slower metabolic or digestion rate. As cannabis specialist, Dr. Jordan Tishler¹¹ so candidly puts it, "Take two brownies and call me in the morning" is not good medicine."

Another problem with edibles is that it's too easy for people to overindulge which can cause several problems. One, many of us don't want the extra calories, and unless you're in California or Colorado, the choice of edibles at the dispensary is most likely limited to treats high in sugar which makes it almost impossible to take a few bites and put away until the next dose. Many edibles also come in high ratios of THC -- a single brownie may contain 100 mg of THC which is nine times stronger than a standard, single dose of cannabis. This can lead to taking too much THC at once and leave patients feeling anxious, nausea, with a dry mouth, and other unpleasant symptoms.¹² However, no matter how sick you become, you will recover in a few hours.

If you take edibles, we suggest purchasing a similar product without cannabis. After using a portion of the medicinal treat, re-wrap or close the packaging, store it away until you need it again, and keep the non-medical product nearby instead. This way, if you're tempted to eat more, an unmedicated treat will be available.

As knowledge of the healing properties of cannabis continues to grow, so does interest in infusing¹⁰ the oil into every meal, drink, and snack.



Capsules

Just as standard pharmaceuticals, capsules can deliver an exact dose of cannabinoids. These are a good choice for anyone that doesn't need immediate symptom relief because like edibles capsules need to through the digestion process to work. Capsules dosages are more accurate than other methods because each contains an exact ratio that won't change during the metabolic or digestion process. For this reason, some recommending doctors may prefer this method for patients that don't need immediate symptom relief. At the same time, be a great starting point for anyone that's not comfortable taking medicine in other forms.

These are the common ways to take medical cannabis. With the recent changes in laws in the U.S. and around the world, research can lead to new, and more effective modes of delivery. If you have any questions or concerns about using these methods, we suggest speaking with the recommending physician or the budtender at your dispensary.



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Going to a Dispensary



You've spoken to a primary care physician or met with a cannabis specialist to discuss the pros and cons of how the sacred plant can help you and now have a treatment recommendation. After applying for and receiving your medical cannabis card, the next step is to locate and visit a dispensary for medicine. In the sections below, patients will learn more about dispensaries, including how to find the best one for your needs, product testing, and reading product labels and the "dos and don'ts" for first-time visitors.

How to Choose a Dispensary

A good place for up-to-date information about nearby locations is to use the state's department of health website. Most programs offer a list of doctors approved to recommend, and another for purchase locations.

Unfortunately, because laws differ by state and country, products, practices, and prices also vary. However, some stores have or are opening multiple locations which can help patients looking for a specific ratio or brand that works for them. This can also help provide you with an initial review of new venues in your area. While these won't give buyers a complete idea of a store, they do provide an overview.



A simple way to search for location reviews is by typing “Dispensaries near me” into a Google search engine which should provide a map and list of locations with reviews, address, phone number, and hours. These reviews should only cover the dispensary and not the products it has available. However, information about the abundance and overall quality is useful. Here are some questions about the venues to consider:

- Is the site easy to find?
 - How much parking is available?
 - Is there public transportation near the location?
 - Is there ample lighting in the parking area, walkway, and entrance?
 - How is security?
 - Is the atmosphere of the store calm and inviting?
 - Is the staff friendly?
 - Are the employees knowledgeable?
 - Do any of the staff members have professional certification in medical cannabis?
 - Are the store’s hours suitable for your schedule?
- What types of products do they stock?
 - How do their prices compare to other shops?



While they may not answer all these questions, knowing about hours, parking, security, and the staff is a good start to finding a dispensary that meets your needs.



What to Bring When Going to the Dispensary

To enter a medical dispensary, patients and caregivers must provide valid identification, an active medical cannabis card, and a current physician's recommendation. Try to visit the store's website before your first visit to view their product price list. Many dispensaries only accept cash payments. Because some products can be expensive, you will need enough available cash to make a purchase. When considering the purchase price, keep in mind the tax is higher for recreational dispensaries in most states with adult recreational use. The legality issues with medical cannabis and the Federal Government make banking difficult for all businesses in this industry. Nevertheless, many stores do have ATM machines available inside the facility so that patients don't have to carry large sums of money.

The industry understands this can create undue hardship for buyers and is working on solutions that can benefit everyone. For example, CanPay¹ is a debit payment system assisting locations that offer delivery services keep payments secure for both parties. According to the company, "To ensure privacy and security, all purchases are made using non-identifiable, single-use, and random payment tokens generated in the CanPay App."

To help eliminate the need for cash and special banking apps, please advocate for the sacred plant. Contact your state and local representatives and tell them patients need secure financial transaction methods to purchase medicine. Go [here](#)² for more information about how to advocate for medical cannabis access and help end the Federal Government's unjust demonization of the sacred plant.

Contact your state and local representatives and tell them patients need secure financial transaction methods to purchase medicine.



Dispensaries Don't Have a Typical Pharmacy Atmosphere

With limited images of dispensaries and no standard design, it's hard to give patients a good mental picture of what to expect. One thing most don't resemble is the iconic incense filled recreational smoke shop that sells a variety of glass pipes and rolling papers. Instead, they are clean³ and most have a serene, inviting atmosphere.

What should I expect when I get there?

While all have similarities, each dispensary is unique. All do have a security guard or staff member who greets you and checks identification, medical card, and recommendation when you enter. Entrance is not permitted without required documentation. Come alone or with a registered caregiver dispensaries can't allow anyone inside without a valid medical or caregiver card.

If other patients are being assisted, you may need to stay in a waiting room until they finish. Often qualified budtenders work one-on-one with each patient which can take anywhere from several minutes to 30 minutes or longer. First-time visitors can take longer because staff members guide them through different delivery methods and products before they make a purchase.



Get to Know Your Dispensary's Qualified Budtender

You've most likely heard the term "budtender." A budtender is someone who works in a dispensary and is, many times, knowledgeable of the cannabis plant, related state laws, modes of delivery, and all products available at their venue. Specific practices will vary by location because there are no formal regulations for qualified budtenders. However, as the number of states with medical and recreational cannabis programs increases, more companies are offering training classes to certify budtenders.

Patients can expect more positive changes in dispensaries. Besides more formal training, some experts in medical cannabis aren't happy with the term qualified budtender and are working to change this career title to something more professional, such as dispensary technicians.⁴

Don't be afraid to ask questions -- the dispensary staff is available to help people learn about different products and find what works best for their symptoms. Unfortunately, there are questions you can't ask because even qualified budtenders can't assist with specific conditions. Industry leaders are working to address this issue and want to have licensed⁵ medical professionals on-site to help patients with medical questions, similar to a traditional pharmacy that has pharmacists available to answer questions.



How to Read the Medicine/Product Labels

This isn't as straightforward as one might think. Again, a lack of universal regulations means what you see in Maine dispensaries may not be the same in Vermont, New York, Florida, Colorado, and international locations like Canada and Israel.

Most labels will have the following information⁶:

- Name of strain (i.e., Purple Haze, White Widow, Granddaddy Purple, and ACDC)
- Farm/grower's name
- Whether it's an indica, sativa, or hybrid
- Testing lab name
- Test date
- Weight
- Dose per milligram
- THC/CBD ratios
- Warning to keep away from children and pets
- Other items you may find on the label which we hope will become more universal as more states solidify their laws:
- Harvest date
- Serving size (for edibles)
- Calorie count and other nutritional information on edibles
- Expiration date
- Warning label for pregnant or breastfeeding patients



Patients may also come across labels that use the pre-decarboxylation ratios on dry flower products showing THCA and CBDA rather than THC and CBD. When considering these numbers, keep in mind that the decarboxylation process isn't exact and loses some molecules. If you monitor the temperature, the differences should be small. For more information on these steps, revisit Chapter 7: The Importance of Cannabinoids. You will also find more information about this delivery method there.



The Importance of Independent Product Testing

Dispensaries go through many steps before they receive approval to open and sell medical cannabis under state laws. Even after opening, all new product batches must undergo testing for molds, bacteria, toxins, leftover solvents in extracts, foreign material, heavy metals, and cannabinoid ratios. Some labs also offer terpene profiles. All inspections are at independent labs that acquire state approval before they can operate. Along with state approval, many labs also secure accreditation⁷ from an independent organization to add another layer of product safety assurance.

The number of facilities in each state or country can vary because the laws aren't uniform. This often causes confusion and delays in state programs, frustrating growers, dispensaries, and patients. At the same time, however, it's bringing the industry⁸ together to set their own universal rules that are on par with state requirements, and even strive for higher standards to ensure quality cannabis control.



Organizations working to create national standards include:

- American Herbal Products Association (AHPA)⁹
- Foundation of Cannabis Unified Standards (FOCUS)¹⁰
- American Herbal Pharmacopoeia (AHP)¹¹

Because of the lack of regulation across states, and the importance of standardized testing, there are organizations like Americans for Safe Access¹² that help dispensaries, laboratories, and even inspectors through training classes and certification.

When we refer to quality, it's not as much about the potency of the product, which is still an important feature but, instead, it's about the purity. The standards set by the industry advise growers, dispensaries, and the labs of exactly what levels of metals, chemical residues, and other byproducts that occur during the growing and manufacturing process are safe¹³ for consumption.

“Marijuana is unlike any other agricultural crop that we have ever dealt with.”



What do the labs test?

While each lab is different because of varying state laws, the basic test requirements for many jurisdictions include:

Pesticides -- although the sacred plant has a natural ability to repel insects, some growers still use dangerous pesticides to ensure their crop is safe from these pests. Some products that kill insects aren't safe for human consumption. Other restrictions exist because experts don't yet know how the pesticides will affect users when ingested through the plant's various delivery methods, such as cooking, vaping, and extraction.

Growers with crops that test positive for insect repellents may not know about the contamination because the plant's roots absorb the chemicals in the soil which can come from cross-contamination with nearby fields. Independent lab testing offers all parties peace of mind regarding product safety.

Expert John Scott,¹⁴ a section chief for the Colorado State Agriculture Department explains that what makes cannabis differ from other cash crops is the decarboxylation process. "Marijuana is unlike any other agricultural crop that we have ever dealt with."



Not only does heating the plant activate the cannabinoids, but it also enhances the effects of any pesticides and other contaminants increasing the risk to patients. The only way to track pesticide use is through lab tests, and even then they don't know the full long-term effect of different chemical levels in cannabis after consumption. Chemist Frank Conrad explains the ongoing issues to *Rolling Stone*,¹⁵

“Oftentimes, epidemiologists can't really see a pattern until enough numbers accumulate. I'm fairly certain that 10 years from now, we will get clusters of certain types of unusual illnesses in certain groups of people. And those may very well depend on who they are going to for their cannabis.”

Testing has proven to be effective in preventing products with these and other contaminants from harming patients. In 2016, Colorado found pesticides in 49 percent¹⁶ of samples and, after improving the review process, the failure rate fell to 13 percent the following year. As more states follow the strict guidelines set in states like Colorado and Oregon, patients can be confident that the products they purchase through a legal dispensary are safe.

Residual solvents -- these are the leftovers from the solutions used in preparing cannabis concentrates. Some chemicals used to extract¹⁷ cannabinoids are:

- Ethanol
- Butane
- Isopropanol
- Propane
- Acetone
- Heptane

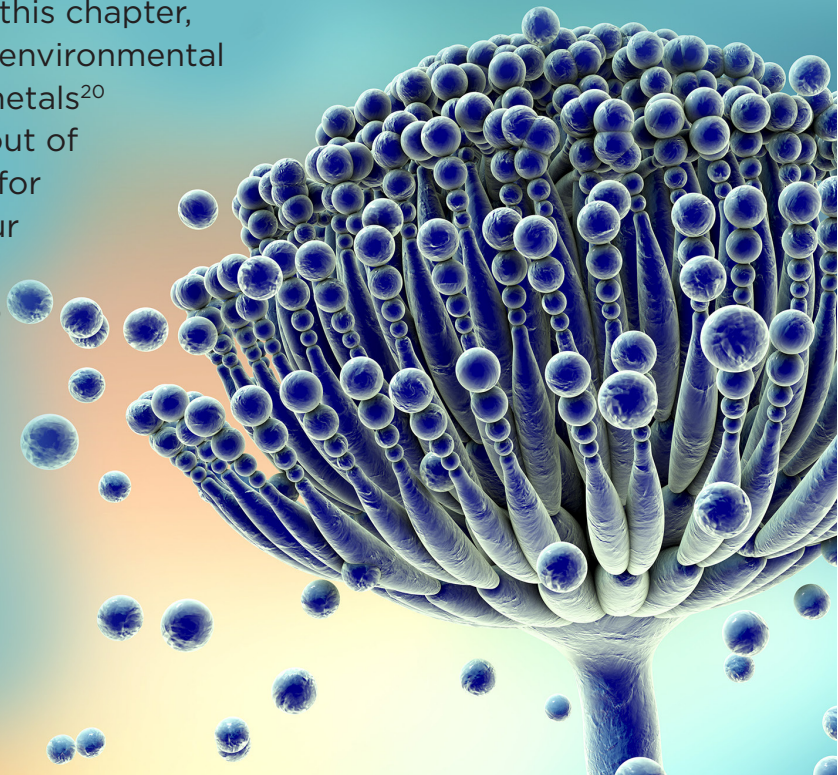


Patients that experience exposure to these chemicals can have acute adverse reactions that span from headaches, nausea, and dizziness to more serious consequences such as seizures. This is why The Sacred Plant recommends only using oils made with oils such as sunflower, olive, coconut, and grapeseed.

Mycotoxin -- all molds aren't created equally.¹⁸ Mycotoxins are natural, toxic molds that grow on crops and are dangerous to animals and humans. These molds can survive most forms of processing. The most common is mildew which is unpleasant for most people but is a severe health threat for patients with weak immune systems. Some of the more toxic molds, such as *Aspergillus*, are dangerous to anyone who comes in contact with them.

Foreign material -- not all labs require these tests but they are still important. These account for anything foreign¹⁹ in the product, such as insect remnants, animal hair, and excrement, and allowable levels of sand, soil, and cinders.

Heavy Metals -- as mentioned earlier in this chapter, cannabis roots are strong and useful in environmental clean up because they can pull heavy metals²⁰ such as chromium, cadmium, and iron out of the soil. However, as good as these are for soil, they are harmful to consume. If your dispensary doesn't test for these types of contaminants, it may be beneficial to have the products tested again at an independent lab, or consider finding a different location for purchasing medicine.



Cannabinoid and terpene ratios -- it is important for patients to know the cannabinoid and terpene profiles of products to get the correct dosage. For example, if you are new to medical cannabis, most professionals recommend starting with a low ratio of THC. If the label is wrong the THC percentage is too high, you may have an unpleasant experience. In 2015, a study published by the Journal of the American Medical Association²¹ (JAMA) only found 17 percent of 75 products from 47 different brands had the correct cannabinoid ratios on their labels. Testing is improving the accuracy of product labels, and universal rules are the key to continuing these advancements.

How do I know if my products are safe? The easiest way to know if your medicine is free of pesticides, molds, and other toxins is to view the most recent lab report. Dispensaries often keep²² a pamphlet or similar form of information about their testing process, and provide it to first-time buyers for reference. Always ask the qualified budtender for help if you don't understand the report.

For patients unsure about the reports available through the dispensary or just for peace of mind, you can contact the product's testing lab and ask them to verify the information on the label. Most are more than willing to check their records and make sure the dispensary is displaying the correct data on their labels.

A note about cost -- patients who are switching from the black market to a legal dispensary may notice prices on average are higher at legal shops. Professional testing

is both important and expensive. By paying the extra money at a dispensary, patients can be confident of their medicine's safety and potency. As more states legalize medical and adult-use only recreational cannabis and develop comparable testing²³ rules similar to other crops, prices should go down as costs stabilize.

The easiest way to know if your medicine is free of pesticides, molds, and other toxins is to view the most recent lab report.



Dispensary Etiquette

There's one last topic to cover before moving to the next chapter. It's important to adhere to some basic rules when visiting²⁴ a dispensary.

- No pictures or videos without staff permission
- Keep phones off or on vibrate when inside the store
- A parent or guardian must accompany any patient under 18
- You can smell, but, don't ask to touch products
- By law, most stores can't offer²⁵ samples
- Do not smoke or consume products in the store or parking lot unless you are in a dispensary with approved locations for consumption

The above are but a few practices patients may need to follow, and they will vary by location. Some venues may ask buyers to sign an agreement verifying they understand each rule before purchasing products. If you or a caregiver are uncertain of a store's guidelines, do not hesitate to ask.

If you are new to medical cannabis, most professionals recommend starting with a low ratio of THC.



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How to Store Your Medicine



Once you've gone to the dispensary and chosen a delivery method, it's necessary to know how to store your medicine. There are three aspects to appropriate storage -- preventing the sacred plant's compounds from changing, keeping it fresh, and keeping it out of reach of children. Below is a guide for storing flowers, oils, concentrates, edibles, and other forms of medical cannabis.

Keep Dry Cannabis Flowers Fresh

Like all plants, once the harvest begins cannabis flowers reach their peak freshness. To keep your dry flower from degrading too quickly after leaving the field or grow room, the best place to store it is in an airtight glass container,¹ such as a mason jar. If the dispensary doesn't sell or put flowers in this type of canister, you can find them where canning supplies are sold.

If you vacuum-seal dry flowers, a humidity pack should be included. While too much air will degrade the product faster, not enough humidity will cause it to dry out faster. The same advice goes for storing products in the freezer -- without proper moisture control,² the quality of the plant will degrade faster. Another reason to be cautious with freezing is that the defrosting process can be tricky. Not only can the wrong temperature conditions reduce the quality of cannabis, but mold growth is dangerous to patients, especially those with compromised immune systems.



BE sure to store the container away from sunlight and heat sources, to include electronics³ that emit warmth. Heat will further decarboxylate the flowers, which changes the THC into CBN faster than it would under proper storage conditions. Experts believe the optimal temperature for storing cannabis is between 60 and 70 degrees Fahrenheit.

It is important to remember that every time you open the container the exposure to oxygen breaks down the flower. If the grower harvests, dries, and cures the cannabis correctly and proper storage techniques are followed, these potent, healing flowers can stay fresh for six months to a year or longer.

Where is the Best Spot to Store Cannabis Oils and Tinctures?

Most of these products come in their own airtight container. For Rick Simpson Oil (RSO) which is known medically as a full extract cannabis oil (FECO), or other oils and tinctures you make at home, use a glass container and store them in a cool place away from sunlight and heat sources. Your product can last six months or longer if kept in the right conditions. The best location is in the refrigerator. However, these types of cannabis *will* degrade over time and lose their potency.



Storing Concentrates

It is best to keep dispensary items in their original package which is most likely an airtight container. This will also help to avoid over-handling of the product. For homemade concentrates which vary by consistency, storage is more complicated. While a mason jar works for crumble,⁴ it doesn't work for more sticky, liquid-style concentrates such as shatter which can stick to the inside of the container, making it very hard, if not impossible, to remove it without a special tool. Crumble does need the protection and space that a jar offers. Kief, dry sift, a form of hash that's similar to kief, and crystalline can also be stored in an airtight jar, in a dark, dry location

Use parchment paper, plastic, or silicone containers for short-term accommodation of up to a week, keeping it in a cool, dark location. Long-term storage of concentrates is a little more tricky. In particular, this can be more difficult for patients in hot weather climates that don't have a safe, cool place to keep their medicine. You can try to keep liquid concentrates in the freezer but remember to always use a container that's safe for cold temperatures. It's important to be alert to temperature changes which can cause frost to form, damaging and degrading the product. Be on the lookout for mold when defrosting as too much humidity can also cause mold to grow.

Long-term storage for this mode of delivery can depend on several factors, including:

- What was the extraction method?
- How fresh was the cannabis used?
- What was the cannabinoid ratio?
- How are you storing the concentrate?

The complexity of these questions makes it difficult to estimate⁵ a timeframe for long-term storage. As always, we suggest speaking with your dispensary staff for additional tips.



How Can You Keep Edibles Fresh?

Like most food products, edibles last longer when kept in an airtight container away from sunlight and heat. However, no matter how well you store them, edibles only have a shelf life equal to the original product. Regrettably, a specific timeframe isn't possible to provide because users need to take each ingredient⁶ into account when estimating a product's shelf life. However, most products can last 5 to 7 days when stored correctly. Most products have a best sell or use by date on the package.

Because labelling rules vary by state and country, some packages might not have an expiration date. If this is the case, the experts at Denver's Department of Environmental Health⁷ recommend following the same rules as regular items. For cookies, brownies, and other fresh baked goods, freshness degrades after the expiration date.

However, any drinks with dairy, such as cannabis-infused, pre-mixed coffees and chocolate or strawberry milk will taste sour and can lead to mild nausea. As edibles increase in variety to include more fresh ingredients, food safety will become more vital, and these guidelines will expand.

Unlike flowers, patients need not worry about degradation changing the chemical properties of the cannabis. The amount of THC, CBD, and other minor cannabinoids won't change. In any event, apart from "Day old Bakery Item" sales, most dispensaries dispose of the products after they expire.



Proper Storage of all Other Medical Cannabis Products

For any product type not listed, such as capsules and transdermal patches, always follow the instructions on the label. However, all forms of cannabis will retain their quality longer by keeping them away from the sun's UV lights, out of temperatures above 70 degrees, and in an airtight container. If you have questions, it's best to speak with the dispensary staff.

Medical Cannabis and Child Safety

While where you store cannabis is important for freshness, it's also important to keep it in a location out of reach by children. Edibles, in particular, can be mistaken for regular treats. Although there has never been an overdose death attributed to medical cannabis and practitioners regularly recommend this medication to children, it's something patients, caregivers, or parents wish to experience. Accidental access and consumption by a child could be a traumatic experience and the potential legal implications could be severe for all adults involved.

Accidental access and consumption by a child could be a traumatic experience and the potential legal implications could be severe for all adults involved.

If you live in a home with children, the best way to avoid this problem is to products under lock and key. For example, consider a mini refrigerator with a locking system for edibles and a lockbox for products that don't require refrigeration. This not only keeps cannabis away from children but it also safeguards items from intruders or anyone else who may be tempted to take it for personal use or resale. Medical and recreational cannabis states prohibit the resale of all products.

Patients and caregivers that follow proper storage techniques can keep their medicine fresh with no degradation problems. For more tips on how to store your medicine, consider speaking with your budtender during your next visit to the dispensary.



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Closing Notes



Thank you for joining us on this journey to learn the true medicinal values of The Sacred Plant. We are dedicated to educating, empowering, and ultimately changing the lives of many for the better in order to help others live a happier, healthier, and pain free life!

As a small company, we simply do not have the resources to compete with the misinformation that comes from big pharmaceutical groups with their endless amounts of funding and political influence. Without your continued commitment to helping us succeed against the misconceptions and outright lies about the sacred plant, we wouldn't be able to do this incredible work. So, again, thank you.

Please, continue to support our cause to change the world with medicinal cannabis. Through our professional and informative eBook series, masterclasses, docuseries, webinar, special reports, and articles, we strive to provide patients, medical professionals, and everyone we reach with these powerful facts about the plant's healing benefits.



A close-up photograph of a person wearing a dark suit, a light-colored shirt, and a dark tie. They are holding a pair of glasses with thin, metallic frames. Their hands are resting on an open book, which appears to be a dictionary or a glossary, given the dense, small text on the pages. The person's left hand is on the left page, and their right hand is on the right page, holding the glasses. The background is a plain, light color.

Glossary

#s

2-Arachidonoyl Glycerol - The 2-AG is an endogenous cannabinoid that interacts in the endocannabinoid system (ECS) with phytocannabinoids and other healing molecules from the cannabis plant. Also, see **endocannabinoid system**, **cannabinoid**, **cannabinoid-1 receptor**, **cannabinoid-2 receptor**, **cannabinoid**, **endocannabinoid**, and **anandamide**.

A

Access point - Access point is the term¹ many state medical cannabis programs use to describe locations that sell medicinal cannabis to patients with a recommendation from a medical practitioner. Also, see **medical dispensary**, **recreational dispensary**, and **budtender**.

Acupuncture - Acupuncture is an Ancient Chinese medical technique² that requires a well-trained professional to insert small, thin needles into certain areas of the body to relieve pain and treat specific conditions such as headaches, nausea, menstrual cramps, and allergic rhinitis. The nontraditional medical treatment is still being used today in China and throughout the world. Also, see **traditional medicine** and **Western medicine**.

Acute pain - Acute pain³ has various levels of intensity with a specific cause, such as a broken bone, dental work, or childbirth that can be severe that begins quickly and doesn't last more than six months. Also, see **chronic pain**.

Additive - An additive is a natural or artificial flavoring agent⁴ used in cannabis products such as oils, sprays, and vaporizer cartridges to improve taste. This is particularly useful with children and senior patients who may have difficulty with the natural taste of cannabis oils.

Adult-Use Recreational Cannabis - Some states and countries allow legal, recreational⁵ use of cannabis for residents. Most U.S. states with these laws have age requirements similar to alcohol and residents need to provide a valid identification that shows they are a minimum of 21-years old.

Agricultural Act of 2014 - The first law to reintroduce⁶ industrial hemp farming in America was the Agricultural Act of 2014. Although the intent was to grow hemp for fiber and seed, it has also allowed the CBD only market to grow in several states because it has less than .03 percent THC, the psychoactive ingredient in cannabis. This act was replaced by the Agricultural Improvement Act of 2018.⁷ Also, see **Agricultural Improvement Act of 2018**.

Agricultural Improvement Act of 2018 - The updated version of the Agricultural Act of 2014 was passed by the U.S. Senate on December 11, 2018. The new bill ends hemp prohibition in the U.S., allowing production on the federal level for all uses including the cultivation and production of CBD. Also, see the **Agricultural Act of 2014**.

Alcohol extraction - One of the most common ways to remove the active compounds from cannabis to make tincture oils and concentrates is with a high-grain alcohol extraction.

Anandamide (AEA) - AEA is an endogenous fatty acid or endocannabinoid in the body of all invertebrates that interacts with phytocannabinoids and the endocannabinoid system (ECS.)

Anecdotal Evidence - Anecdotal evidence⁸ is data based on first-person accounts, rather than science.

Antianxiety - Antianxiety refers to a medication or treatment that can reduce⁹ the symptoms of



anxiety and panic attacks. Also, see **antipanic** and **anxiolytic**.

Anticancer - Anticancer refers to cancer treatments. Some of these medications can slow or stop the growth of tumors.¹⁰ Also, see **antineoplastic**.

Anticonvulsant - An anticonvulsant is a medication that can control¹¹ seizures or convulsions by preventing or reducing them. Also, see **antiepileptic** and **antiseizure**.

Antidiabetic - An antidiabetic is a treatment¹² that can help control the amount of glucose (sugar) in the blood of a patient with diabetes. Insulin is an antidiabetic medication.

Antiepileptic - A medication or treatment¹³ that can stop, reduce, or prevents seizures. Also, see **anticonvulsant** and **antiseizure**.

Antiinfective - A medicine or treatment¹⁴ that prevents the spread of infections or kills infectious agents. Also see **antibacterial**, **antifungal**, **antimicrobial**, and **antiviral**.

Anti-inflammatory - An anti-inflammatory is any drug or treatment¹⁵ that can reduce inflammation. Also, see **inflammation**.

Antibacterial - A medication or treatment¹⁶ that can kill bacteria or prevent its growth. Also see **antiinfective**, **antifungal**, and **antiviral**.

Antibiotic-Resistant Infections - An antibiotic-resistant infection is a bacteria¹⁷ that doesn't respond to the traditional medications developed to treat them. These infections can have serious consequences including death if practitioners can't find a treatment that will kill the bacteria.

Antidepressant - An antidepressant is a medication or treatment¹⁸ that can prevent or reduce the symptoms of depression.

Antiemetic - An antiemetic is a medication or treatment¹⁹ to reduce, stop, and prevent vomiting and nausea.

Antifungal - An antifungal²⁰ is a medication or treatment that can stop and prevent fungal growth. Also, see **antiinfective**, **antibacterial**, **antimicrobial**, and **antiviral**.

Antimicrobial - An antimicrobial is a medication or treatment²¹ that can destroy or reduce the growth of microorganisms like bacteria, viruses, fungus, and mold. Also see **antiinfective**, **antibacterial**, **antifungal**, and **antiviral**.

Antineoplastic - An antineoplastic is a medication or treatment²² that can stop, slow, or prevent tumor growth. Also, see **anticancer**.

Antioxidant - An antioxidant is any medication or treatment²³ that protects cells.

Antipanic - An antipanic medication or treatment that can stop panic attacks or reduce their intensity. Also, see **anxiolytic**.

Antiparasitic - An antiparasitic is a medication that actively treats parasitic²⁴ infections.

Antipruritic - An antipruritic is a medication²⁵ or treatment that stops itching.

Antipsychotic - An antipsychotic is a medication or treatment²⁶ that prevents symptoms of psychosis.

Antiseizure - An antiseizure medication is any treatment²⁷ that reduces or stops seizures. Also, see **anticonvulsant** and **antiepileptic**.



Antiviral - An antiviral is a medication or treatment²⁸ that can kill viruses or stop them from reproducing. Also, see **antiinfective**, **antibacterial**, **antimicrobial**, and **antifungal**.

Anxiolytic - An anxiolytic is a medication or treatment that relieves²⁹ anxiety.

Aroma - The aroma of cannabis comes from a combination of different terpenes on the plant. Also, see **terpene**.

Autoflower - An autoflowering plant³⁰ does not need a specific amount of sun to produce flowers. This is a specific genetic trait. Most cannabis plants require a specific amount of sunlight before they will start flowering.

Batch Number - Each product that is available at a cannabis dispensary has a batch number that brands can trace if problems arise such as contaminants or mislabeling.

Boiling Point - In chemistry, the boiling point is when the compound's temperature³¹ is hot enough to turn a liquid into a vapor. Cannabinoids and terpenes have different boiling points. Patients that use vaporization need to watch these temperatures to achieve the best therapeutic range. Also, see **vaporization** and **vaporizer**.

Bowl - A bowl is a common device for smoking dry cannabis flowers. It's also known as a pipe.

Bronchodilator - A bronchodilator is a medicine or treatment³² that opens the small airways in the lungs and improves breathing.

Budtender - A budtender is a qualified sales associate at a medical or recreational cannabis dispensary. Also, see **medical dispensary** and **recreational dispensary**.

C

Co2 Oil - Co2 oil refers to cannabis oil extracted³³ with Co2 instead of butane, propane, or high grain alcohol. Also see **tincture**, **grain alcohol**, **concentrate**, **CBD oil**, and **cannabis oil**.

Cannabichromene (CBC) - CBC is a phytocannabinoid.

Cannabichromenic Acid (CBCA) - CBCA is a phytocannabinoid acid.

Cannabichromevarin (CBCV) - CBCV is a phytocannabinoid.

Cannabichromevarinic Acid (CBCVA) - CBCVA is a phytocannabinoid.

Cannabicyclol (CBL) - CBL is a phytocannabinoid.

Cannabicyclol acid (CBLA) - CBLA is a phytocannabinoid acid.

Cannabidiol (CBD) - CBD is a phytocannabinoid.

Cannabigerol (CBG) - CBG is a phytocannabinoid.

Cannabigerolic Acid (CBGA) - CBGA is a phytocannabinoid acid.

Cannabigerovarinic Acid (CBGVA) - CBGVA is a phytocannabinoid acid.

Cannabinoid - A cannabinoid is a 21-carbon molecule that either blocks or stimulates the CB1 and CB2 receptors in the body. Also, see **cannabinoid receptor type 1 (CB1)**, **cannabinoid receptor type 2 (CB2)**, and **endocannabinoid system (ECS)**.

Cannabinoid hyperemesis syndrome (CHS) - CHS is a rare disorder that experts believe results from long-term, heavy, recreational use of high-THC products such as pure THC concentrates.



Cannabinoid Receptor Type 1 (CB1) - The CB1 is one of two known G protein-coupled receptors in the endocannabinoid system (ECS) that interact with phytocannabinoids. Also, see **cannabinoid receptor type 2 (CB2)**, **endocannabinoid system (ECS)**, and **phytocannabinoids**.

Cannabinoid Receptor Type 2 (CB2) - The CB2 is one of two known G protein-coupled receptors (GPCRs) in the endocannabinoid system (ECS) that interact with phytocannabinoids. Also, see **cannabinoid receptor type 1 (CB1)**, **endocannabinoid system (ECS)**, and **phytocannabinoids**.

Cannabinolic Acid (CBNA) - CBNA is a phytocannabinoid.

Cannabinol (CBN) - CBN is a phytocannabinoid.

Cannabis Indica - Cannabis indica is a subspecies of the cannabis plant. It has a slightly changed appearance and grows in different conditions than the other three known subspecies. Also, see **cannabis sativa**, **cannabis ruderalis**, and **hybrid**.

Cannabis Oil - Cannabis oil is a whole plant³⁴ extract that uses a carrier oil to strip the active compounds from the flowers, leaves, stems, and stalk. Also, see **CBD oil**, **carrier oil**, and **whole plant medicine**.

Cannabis Ruderalis - Cannabis ruderalis is the lesser known of the cannabis subspecies. It has a noticeably different appearance and grows in the harshest conditions of the three subspecies. Also, see **cannabis indica**, **cannabis sativa**, and **hybrid**.

Cannabis Sativa - Cannabis sativa is a subspecies of the cannabis plant that has a slight difference in appearance. It also grows under conditions that vary from the other three known subspecies. Also, see **cannabis indica**, **cannabis ruderalis**, and **hybrid**.

Capsaicin - The active component in chili peppers³⁵ is capsaicin.

Capsules - A capsule is the closest mode of delivery for medical cannabis to traditional pharmaceuticals. Each dose is an exact ratio of CBD and THC that gives the patient a consistent dose every four to six hours. Also, see **mode of delivery** and **CBD: THC ratio**.

Caregiver - A caregiver is a person registered with a state medical cannabis program to help patients with a valid medical cannabis recommendation and card access and take their medicine. Also see **state medical cannabis program**, **medical cannabis card**, and **recommendation**.

CBD Oil - CBD oil is a concentrate that contains the cannabis compound cannabidiol (CBD.) Also, see **Cannabidiol (CBD)**.

CBD: THC Ratio - The CBD: THC ratio is the percentage of each cannabinoid in the medical product. Also see **product label**, **product testing**, **Cannabidiol (CBD)**, and **Tetrahydrocannabinol (THC.)**

Chronic pain - Opposed to acute pain, chronic pain³⁶ may not have a specific cause and lasts longer than six months. In many cases, patients pain continues for years. Common conditions with chronic pain include arthritis, nerve damage, and fibromyalgia. Also, see **acute pain**.

Clinical Trial - A clinical trial is a medical study³⁷ that uses human participants.

Clone - A clone is clipping from the female cannabis plant³⁸ that's used to grow a new plant to get the same ratios of terpenes, cannabinoids, and flavonoids.

Concentrate - Concentrates are pure cannabis compounds without any excess plant matter.



These are very potent, with some products containing over 90 percent THC. Also, see the **potency** and **mode of delivery**.

Controlled Substance - In legal terms, a controlled substance is any illegal drug.³⁹ Also see **Drug Enforcement Agency (DEA)**, **DEA/Drug Scheduling**, and **Schedule 1 substance**.

Cultivation - Cultivation is another term for farming.⁴⁰ Also, see **cultivator**.

Cultivator - A cultivator is someone who grows plants. People who grow medical cannabis are cannabis cultivators. Also, see **cultivation**.

Cure/Curing - Curing is the process of drying cannabis flowers.

D

DEA-Drug Scheduling - The U.S. Drug Enforcement Agency (DEA) enforces a list of five categories of drugs based on their potential for abuse and their medical benefit. Also, see **Drug Enforcement Agency (DEA)**, the **Marijuana Act of 1937**, the **U.S. Food and Drug Administration (FDA)**, **controlled substance**, and **Schedule 1**.

Decarboxylation/Decarboxylate -

Decarboxylation is the process of heating the molecules in cannabis to their boiling point to activate their medicinal properties. Also, see **boiling point**.

Delta-8-tetrahydrocannabinol (8 THC) - 8 THC is a phytocannabinoid.

Dravet Syndrome - Dravet Syndrome is a rare and serious medical condition⁴¹ that causes frequent, prolonged seizures.

Dronabinol - Dronabinol is the generic drug name for Marinol,⁴² a synthetic medicine that uses a

lab-created cannabinoid that mimics the effects of THC.

Drug Enforcement Administration (DEA) -

The U.S. Drug Enforcement Administration is responsible for the classification and misinformation of the cannabis plant and its medicinal value.

Dry Mouth - Dry mouth is one of the side effects⁴³ of medical cannabis.

Double-Blind Study - A double-blind study⁴⁴ is one where the participant and research know whether the participant is receiving the trial medication or a placebo.

Duration - In pharmacology, the duration⁴⁵ is the amount of time the medication is effective. The duration for cannabis varies by the delivery method. For example, smoking cannabis has a duration of one to two hours.

E

Edible - An edible is food or drink that's infused with cannabis.⁴⁶ Also, see **mode of delivery**.

Eighth - Dispensaries sell dry cannabis flowers by the gram or ounce. The term eighth is short for an eighth of an ounce, which is 3.5 grams. Also, see **gram**, **quarter ounce**, **half ounce**, and **ounce**.

Endocannabinoid - An endocannabinoid is an endogenous cannabinoid. Also, see **cannabinoid**, **endogenous**, and **endocannabinoid system (ECS)**.

Endocannabinoid System (ECS) - The ECS is a cannabinoid system inside the body. Also, see **endogenous**, **cannabinoid**, and **endocannabinoid**.

Endogenous - Something that originates inside⁴⁷ the body.



Entourage Effect - The entourage effect is the health benefits of all the active compounds (the cannabinoids, terpenes, and flavonoids.) within the cannabis plant working together rather than separating them. Also, see **whole plant medicine**.

Euphoria - The psychoactive effect of THC is also referred to as feelings of euphoria which is well-being or happiness. Also, see **psychoactive effects**, **tetrahydrocannabinol (THC)**, **potency**, and **tolerance**.

Fatty Acid Amide Hydrolase (FAAH) - The FAAH is an enzyme found only in humans and interacts with the endocannabinoid system (ECS.) Also, see **monoacylglycerol lipase (MAGL)** and **endocannabinoid system (ECS.)**

Female Plant - The female cannabis⁴⁸ plant is flowering and contains the highest ratio of active compounds. Also, see **male plant** and **hermaphrodite**.

Flavonoid - The flavonoids are active compounds⁴⁹ that give cannabis plants their color and flavor. Also, see **entourage effect**, **whole plant medicine**, **cannabinoid**, and **terpene**.

Flowering Stage - The flowering stage of cannabis cultivation is the final transformation of the medicinal plant. This step generally happens when the plant receives enough sunlight to mature. Also, see **mature plant**, **immature plant**, **vegetative stage**, and **autoflower**.

Food and Drug Administration (FDA) - The U.S. Food and Drug Administration is responsible for the protection of public health⁵⁰ through the rules and regulations regarding any product that can cause harm to people and pets. It also has the authority to enforce these safety guidelines. The agency's precursor, born under the Harrison Act of 1915,⁵¹ operated under the guidance of

the Department of Revenue (later the Internal Revenue Service.) The current FDA is a branch of the U.S. Department of Health and Human Services.

G

Genus - The genus defines a plant's grouping⁵² which is determined by shared characteristics. Also, see **species**.

Grain Alcohol - Grain alcohol is ethanol⁵³ and often used in the processing of cannabis concentrates. Also, see **concentrate** and **Co2 Oil**.

Gram - A gram of dry cannabis flowers is the smallest unit available at most dispensaries. Also see **eighth**, **quarter ounce**, **half ounce**, and **ounce**.

Grinder - A grinder is an accessory for patients that smoke medical cannabis. They put the dry flower in it to chop them up and make it easier to roll into a joint or put in a pipe or bowl. It also helps the flowers burn evenly and not overheat the cannabinoids.

GW Pharmaceuticals - GW Pharmaceuticals is a UK company⁵⁴ that holds several patents on medications derived from cannabis in the U.S. and several countries around the world.

H

Half Ounce - Cannabis is measured by gram and ounce at dispensaries. A half ounce of dry cannabis flowers equals 14 grams. Also, see **gram**, **eighth ounce**, **quarter ounce**, and **ounce**.

Hermaphrodite - A hermaphrodite is a rare cannabis plant⁵⁵ with male and female reproductive parts. Also, see **male plant** and **female plant**.



Hybrid - A hybrid is a cannabis plant that shares the characteristics of all three cannabis subspecies. Also see **Cannabis indica**, **Cannabis sativa**, and **Cannabis ruderalis**.

I

Immature Plant - An immature cannabis plant⁵⁶ doesn't have flowers. Also, see **mature plant**.

Industrial Hemp - Industrial hemp is a variation⁵⁷ of the cannabis plant that contains less than .03 percent of THC. Its main use is for industrial products such as paper products, textiles, and building materials. In states without legal access to medical cannabis, it's also used to make CBD oil. Also, see **CBD Oil**, **male plant**, and **female plant**.

Inflammation - Inflammation is a localized pain⁵⁸ that causes the skin to turn red and warm to the touch. It is a natural response by the body to injury and infection. Some inflammatory diseases like arthritis occur because of a breakdown in the body's immune system and not in response to an injury or illness. Also, see **anti-inflammatory**.

J

Joint - A joint is a method of smoking medical cannabis. Patients either roll their own joints using rolling papers or they can purchase pre-rolled ones at most dispensaries. Also, see **mode of delivery** and **pre-rolled joint**.

K

L

Lennox-Gastaut Syndrome (LGS) - LGS is a severe⁵⁹ and serious form of epilepsy that starts in early childhood and causes multiple types of seizures.

M

Male Plant - A male plant is a common term used to describe hemp. It is also the male species of the cannabis plant that does not flower and contains less than .3 percent of THC. Also, see **female plant**, **industrial hemp**, and **CBD oil**.

Marijuana - Marijuana is the derogatory name given to cannabis by opponents of the medicinal plant.

Marijuana Tax Act of 1937 - The Marijuana Tax Act of 1937⁶⁰ was the first act of cannabis prohibition by the U.S. Federal government.

Mature Plant - A cannabis plant that's in the flowering stage of cultivation. Also, see **immature plant**.

Medical Cannabis - The medicinal use of the cannabis plant to treat and reduce pain and other symptoms of several dozen conditions.

Medical Cannabis Card - State medical cannabis programs often issue cards to approved patients for legal issues and to gain access to safe access points. Also, see state **medical cannabis program** and **access point**.

Medical Cannabis Dispensary - A medical cannabis dispensary is a physical location that's similar to a traditional medical pharmacy, for cannabis flowers, concentrates, and infused products such as edibles and drinkables. These are separate from recreational dispensaries. In state medical cannabis programs, these are also known as an **access point**. Also see **recreational dispensaries**, **budtender**, **state medical cannabis program**, **recommendation**, **medical cannabis card**, and **access point**.

Mode of Delivery - The mode of delivery is one of the seven ways patients can take medical cannabis. Also see **bowl**, **joint**, **prerolled joint**,



rolling paper, vaporization, vaporizer, edible, transdermal delivery, tincture, topical, and cannabis oil.

Monoacylglycerol Lipase (MAGL) - MAGL is an enzyme that interacts with the endocannabinoid system (ECS.) Also, see **fatty acid amide hydrolase (FAAH)** and **endocannabinoid system (ECS.)**

Muscle Relaxant - A medication that relaxes⁶¹ muscles. These often require a prescription and are habit-forming with long-term use. Examples include cyclobenzaprine and carisoprodol.

N

Narcotic - A narcotic is a general⁶² term for a medication that relieves pain in small doses but can be dangerous in large quantities.

Neuropathic Pain - Neuropathic pain is another term for nerve pain.⁶³ This is often a form of chronic pain that results from nerve damage.

Neuroprotective - Neuroprotective refers to a medication or treatment that protects⁶⁴ people from nerve damage. Also, see **neuropathic pain**.

Nociceptor - The nociceptor is one of the body's pain receptors⁶⁵ that are found all over the body and alert the brain to pain-causing injuries.

O

Onset - Onset is how long it takes medical cannabis to potentially start reducing symptoms after each method of delivery. For example, a tincture has an average onset of 15 minutes.

Opioids - Opioids are a class⁶⁶ of plant-based and synthetic drugs used to treat pain. These include legal medications such as morphine and illegal drugs like heroin.

Ounce - Cannabis is measured in grams and ounces at the dispensary. An ounce of dry cannabis flowers is equal to 28 grams. Also see **gram, eighth, quarter ounce, and half ounce.**

P

Patent - A patent grants exclusive rights⁶⁷ to a creator or inventor for a specific period. In the U.S., the only holder of a patent for any of the molecules in the cannabis plant is the federal government.⁶⁸

Pharmaceutical - Pharmaceuticals are chemical compounds⁶⁹ sold as medicines that may require a physician's prescription.

Phytocannabinoid - A phytocannabinoid is a plant-based cannabinoid. Also, see **cannabinoid**.

Potency - The strength or intensity of a cannabis product. Items that are high in THC content can have a strong euphoria effect even for experienced patients. Also, see **CBD: THC ratio, tetrahydrocannabinol (THC), psychoactive effects, and euphoria**.

Pre-rolled Joints - Patients can either roll their own medicine to smoke with rolling papers or purchase pre-rolled ones at a dispensary. Also, see **rolling papers, joint, and mode of delivery**.

Product Testing - Independent labs in states with legal cannabis require certain tests on all batches of medical and recreational products. Some specific tests check for pesticides, foreign material, and CBD: THC ratios. Also see **batch number, CBD: THC ratios, and product label**.

Product Label - Product labels on cannabis-infused goods are important for safety. They vary by state regulation. But, most list the CBD: THC ratio, serving size, expiration date, batch number,



and the test labs information. Also, see **product testing**, **batch number**, and **CBD: THC ratio**.

Prohibition - Prohibition is the term that describes a long period in the U.S. and most of the world that the medicinal use of cannabis was prevented by the government. Also, see the **Marijuana Tax Act**, **Federal Drug Administration**, and the **U.S. Drug Enforcement Agency**.

Psychoactive Effects - The psychoactive effects of cannabis are also known as a feeling of euphoria that the cannabinoid tetrahydrocannabinol (THC) produces. Also, see **Tetrahydrocannabinol (THC)** and cannabinoid.

Q

Quarter Ounce - Dry cannabis flowers are measured in grams and ounces at the dispensary. A quarter ounce is equal to 7 grams. Also, see **gram**, **eighth**, **half ounce**, and **ounce**.

R

Raw Cannabis - Raw cannabis is the leaves, stems, and flowers of the sacred plant before it goes through the drying or curing stage. Some patients consume raw cannabis for a limited number of known benefits such as its anti-inflammatory properties. Also, see **medical cannabis**.

Recommendation - A recommendation is the equivalent of a prescription for medical cannabis. Practitioners can't write an actual prescription for patients because cannabis is still not legal on the federal level. Also, see **registered patient**, **medical cannabis program**, **medical cannabis card**, and **medical cannabis dispensary**.

Recreational Cannabis Dispensary - There are two types of dispensaries depending on the state's law. Recreational locations are for adult use only.

Patients in states without a medical program can visit states with recreational use to see if medicinal cannabis is the right treatment for their condition. Also, see **medical cannabis dispensary**.

Registered Patient - A person who is approved by a state medical cannabis program to purchase medicine at a dispensary. Also, see **medical cannabis program**, **medical cannabis card**, **medical cannabis dispensary**, and **recommendation**.

Residual Solvents - Residual solvents are byproducts left over from the extraction process that can be dangerous.

Rolling Paper - Rolling papers are used to roll medical cannabis into joints for smoking. Patients can purchase individual papers on their own or prerolled joints at their medical dispensary.

S

Schedule I drug - A Schedule I drug classification by the DEA⁷⁰ means the substance is considered highly addictive with no medicinal value. Also see **DEA-Scheduling**, **controlled substance**, and **Drug Enforcement Agency (DEA)**.

Single-Blind Study - A single-blind⁷¹ study keeps certain aspects of the research from the participants to prevent biased results. Also, see **double-blind study**.

Species - A species is a specific plant⁷² within a group of plants (Genus) that have similar characteristics. Also, see **genus**.

State Medical Cannabis Program - A state medical cannabis program provides safe and legal access to quality cannabis products for qualifying patients. Also, see **recommendation**, **medical cannabis card**, and **medical cannabis dispensary**.



T

Terpene - A terpene is a chemical compound in the cannabis plant that is responsible for its unique aromas and tastes.

Tetrahydrocannabinol (THC) - THC is the phytocannabinoid that gives cannabis its psychoactive properties, the ‘high’ users experience from taking the plant before they build a tolerance to it. Also, see **tolerance** and **cannabinoid**.

Tetrahydrocannabinol Acid (THCA) - THCA is a phytocannabinoid acid.

Tetrahydrocannabinolic Acid (THCVA) - THCVA is a phytocannabinoid acid.

Tincture - A tincture is one of the oldest ways to take medicine. It involves soaking the cannabis plant in high grain alcohol to strip out the active compounds and make an oil that patients can place under their tongue that absorbs into their bloodstream.

Tolerance - Tolerance is how the body responds to repeated exposures to specific conditions such as medications.⁷³ For example, patients who take opioids daily build up a resistance to the pain-relieving benefits and need to take more to get the same initial response again.

Topical Delivery - A topical delivery is one of the different ways to use cannabis as a medicine. These are creams or lotions that often contain other natural healing compounds that treat localized pain and skin conditions. Also, see **mode of delivery**.

Traditional Chinese Medicine (TCM) - TCM is a collection of medical practices⁷⁴ from ancient China that has evolved and is still in practice today

such as a tai chi, acupuncture, and Chinese herbal medicines. Also see **acupuncture**, **traditional medicine**, and **Western medicine**.

Traditional medicine - Traditional medicine varies by nation⁷⁵ and culture. The U.S. and many Western countries follow strict science-based medical treatment plans. In other countries, such as China, Traditional Chinese Medicine (TCM) is still a part of mainstream medicinal practices. Also see **acupuncture**, **Traditional Chinese Medicine**, **Western medicine**.

Transdermal Delivery - Transdermal delivery offers patients 6 to 8 hours of continuous relief through a slow release of cannabis that absorbs through the skin. Also, see **mode of delivery**.

Trichome - The trichome is part of the cannabis plant’s anatomy. It contains the majority of the plant’s active healing compounds. Also, see **terpene**, **flavonoid**, and **cannabinoid**.

U

Ultraviolet (UV) Protection - UV protection is the safeguarding⁷⁶ of plants, animals, and people from the sun’s dangerous radiation.

V

Vaporization - Vaporization is one of the seven ways to take cannabis as a medicine. This method uses heat to create a vapor without burning the flower or oil. It offers the same fast onset of symptom relief as smoking without the addition of dangerous carcinogens and other chemicals. Also, see **mode of delivery** and **vaporizer**.

Vaporizer - A vaporizer is a device patients use to vaporize medical cannabis flowers and concentrates. Also, see **mode of delivery** and **vaporization**.



Vegetative Stage - The vegetative stage⁷⁷ of cannabis cultivation occurs between the plant's germination and flowering stage. Also, see **mature plant**, **immature plant**, and **autoflower**.

W

Western medicine - Western medicine is a science-based system that use various pharmaceuticals and medical procedures such as blood tests, imaging, and surgery to reduce symptoms or cure diseases. See also, **traditional medicine** and **Traditional Chinese Medicine**.

Whole Plant Medicine - Whole plant medicine refers to using all of the plant's active compounds to get the most amount of benefit from cannabis. Also, see **entourage effect**.

X

Y

Z





Acronym Guide

Abbreviation	Term
Δ8 THC	Delta-8-tetrahydrocannabinol
2-AG	2-Arachidonoylglycerol
AEA	Anandamide
CB1	Cannabinoid receptor 1
CB2	Cannabinoid receptor 2
CBC	Cannabichromene
CBCA	Cannabichromenenic acid
CBCV	Cannabichromevarin
CBCVA	Cannabichromevarinic acid
CBD	Cannabidiol
CBDA	Cannabidiolic acid
CBDV	Cannabidivarin
CBDV	Cannabigerivarin
CBDVA	Cannabidivarinic acid
CBG	Cannabigerol
CBGA	Cannabigerolic acid
CBGVA	Cannabigerovarinic acid
CBL	Cannabicyclol
CBLA	Cannabicyclol acid
CBN	Cannabinol
CBNA	Cannabinolic acid
CDC	Centers for Disease Control and Prevention
CO2	Carbon dioxide
DEA	Drug Enforcement Agency
EC	Endocannabinoid
ECS	Endocannabinoid system
FAAH	Fatty acid amide hydrolase
FDA	Food and Drug Administration
FSE	Full spectrum extract
IBD	Inflammatory bowel disease
MIPs	Marijuana-infused products
MAGL	Monoacylglycerol lipase
MMJ	Medical marijuana

Abbreviation	Term
NIDA	National Institute on Drug Abuse
NIDDK	National Institute of Diabetes and Digestive and Kidney Diseases
NIH	National Institutes of Health
NSAID	Nonsteroidal anti-inflammatory drugs
THC	Δ9-tetrahydrocannabinol
THCA	Tetrahydrocannabinol acid
THCVA	Tetrahydrocannabivarinic acid
TRPV	Transient receptor
TRVP1	Transient receptor 1

