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DISCLAIMER: This Guide was compiled using data from respected resources and is designed to provide basic information. This Guide is not designed to and does not provide medical advice, professional diagnosis, opinion, treatment or services to you or to any other individual. Information provided in this Guide is general information for educational purposes only. The information provided in this Guide, or through links to other sites, is not a substitute for medical or professional care, and you should not use the information in place of a visit, consultation or the advice of your physician or other healthcare provider. Reliance on any information provided in this Guide is solely at your own risk. The reader assumes all risk for any injury, loss or damage caused or alleged to be caused, directly or indirectly by using any information described in this Guide.

NOTE: The medical cannabis industry and laws pertaining to it are rapidly changing. This guide is current as of the Current Version Date listed below. The guide is updated when significant changes occur in the industry or with state or federal law.

Materials compiled and developed by S Orizaba and JK Dohm
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INTRODUCTION

“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... It would be unreasonable, arbitrary, and capricious for DEA to continue to stand between those sufferers and the benefits of this substance.”

~ Drug Enforcement Administration Chief Administrative Law Judge Francis Young, 9/6/1986¹

What is Cannabis?

Cannabis, also known as marijuana, is a plant that originated in Central Asia and is now grown in many parts of the world. The cannabis plant contains compounds called cannabinoids. This guide will cover the most common types of cannabis and cannabinoids, as well as the effects each have on the human body. **The terms cannabis and marijuana, will be used interchangeably throughout this guide to generally mean the flowers and leaves of the cannabis plant that are used medicinally or recreationally.**

What is Industrial Hemp?

Industrial hemp is also derived from the cannabis plant family, though it lacks the high levels of THC (the cannabinoid attributed to the psychoactive effects of cannabis). Therefore, it does not cause intoxication. **The term industrial hemp will be used throughout this guide to generally mean the parts of the cannabis plant (usually the stalk and seed) that are processed into textiles, foods, paper, cosmetics and other body care products, detergents, and building materials.**

State Laws versus Federal Law

In the United States, the Controlled Substance Act lists “marihuana” as a controlled substance. By federal law, the use, sale, and possession of “marihuana” are illegal. Until recently, there was no separate definition for industrial hemp. Twenty-three states and the District of Columbia have enacted laws to legalize medical cannabis. Two states, Colorado and Washington, have also made it legal to use cannabis recreationally. Additionally, fifteen states have passed industrial hemp farming laws. Many more states are considering cannabis and/or industrial hemp laws.

Goals and Objectives

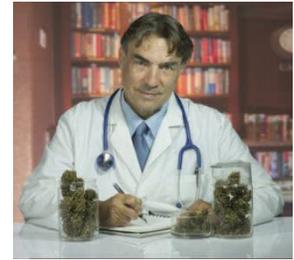
The goals of *A Guide to Medical Cannabis: The Basics* are to provide basic education about medical cannabis and raise awareness of the benefits of medicating with cannabis.

Readers will learn:

- The history of cannabis
- Medicinal benefits of cannabis
- Methods of medicating with cannabis
- Overview of federal laws related to cannabis
- Benefits of industrial hemp
- Tips for getting involved in medical cannabis advocacy

Proponents of Medical Cannabis

In 2009, the American Medical Association (AMA) members voted to adopt a policy urging the federal government to review the status of marijuana as a federal controlled substance to “facilitate the conduct of clinical research and development of cannabinoid-based medicines, and alternative delivery methods.” The AMA also calls “for further adequate and well-controlled studies of marijuana and related cannabinoids in patients who have serious conditions for which preclinical, anecdotal, or controlled evidence suggests possible efficacy and the application of such results to the understanding and treatment of disease.” Additionally, the AMA states in its policy that it “believes that effective patient care requires the free and unfettered exchange of information on treatment alternatives and that discussion of these alternatives between physicians and patients should not subject either party to criminal sanctions.”²



In February 2013, the New England Journal of Medicine presented its readers with a case vignette and asked whether a patient should be prescribed marijuana to help alleviate her symptoms. Opposing viewpoints from respected experts were provided. Readers were then asked if they were for or against the use of marijuana for medicinal purposes. A total of 1446 votes from 72 countries and 56 states and provinces were received. Seventy-six percent of all votes were in favor of the use of marijuana for medicinal purposes. The majority of the votes, 1063, came from North America (U.S., Canada, and Mexico). Voting across all regions of North America showed that 76% of voters supported medicinal marijuana.^{3, 4}

A January 2014 CBS News poll revealed 86% of Americans think doctors should be allowed to prescribe small amounts of cannabis for patients suffering from serious illnesses. CBS reports Americans have supported medical cannabis use since 1997 when CBS News began asking the question.⁵

According to the Marijuana Policy Project (MPP), the following national medical organizations and other prominent associations “have taken favorable positions” on medical marijuana.⁶

AIDS Care Ocean State	Associated Medical Schools of New York
AIDS Foundation of Chicago	British Medical Association
AIDS Project Rhode Island	California Academy of Family Physicians
Alaska Nurses Association	California Legislative Council for Older Americans
The American Academy of HIV Medicine (AAHIVM)	California Medical Association
American Anthropological Association	California Nurses Association
American Civil Liberties Union (ACLU)	California Pharmacists Association
The American Nurses Association (ANA)	Epilepsy Foundation
The American Public Health Association (APHA)	The Episcopal Church
Arthritis Research Campaign	Florida Medical Association



Hawaii Nurses Association
HIV Medicine Association of the Infectious Diseases Society of America
Iowa Democratic Party
King County Bar Association (Washington)
The Lymphoma Foundation of America (LFA)
The Medical Society of the State of New York
Michigan Democratic Party
Minnesota AIDS Project
Minnesota Nurses Association
Minnesota Public Health Association
Minnesota Senior Federation
Mississippi Nurses Association
Multiple Sclerosis California Action Network
National Black Police Association
New Jersey State Nurses Association
New Mexico Medical Society
New York AIDS Advisory Council
New York AIDS Coalition
New York County Medical Society
New York State AIDS Advisory Council
New York State Hospice and Palliative Care Association
New York State Nurses Association
New York Statewide Senior Action Council

North Carolina Nurses Association
Physicians for Social Responsibility (Oregon)
Rhode Island ACLU
Rhode Island Medical Society
Rhode Island State Nurses Association
San Francisco Medical Society
Senior Agenda Coalition (Rhode Island)
Texas Democratic Party
Texas Medical Association
Texas Nurses Association
The National Association for Public Health Policy
The National Nurses Society on Addictions
The Presbyterian Church USA
The Union of Reform Judaism
The Unitarian Universalist Association
The United Church of Christ
The United Methodist Church's Board of Church and Society
United Nurses and Allied Professionals (Rhode Island)
Virginia Nurses Association
Whitman–Walker Clinic
Wisconsin Nurses Association
Wisconsin Public Health Association



HISTORY OF CANNABIS

4000 BC	First of use of industrial hemp in China.
2900	First use of medical cannabis in China.
1500	First use of medical cannabis in the Chinese pharmacopeia.
1213	Cannabis is used in Egypt to treat glaucoma and inflammation.
1000	Bhang, a combination of milk and cannabis, is used in India as an anesthetic.
200	First reported use of medical cannabis in Ancient Greece.
1 AD	Chinese texts recommend cannabis use to treat over 100 ailments.
1611	Industrial hemp is brought to North America by Jamestown Settlers for farming and manufacturing.
1745	George Washington grows medical cannabis and industrial hemp.
1799	Napoleonic forces bring cannabis to France and Egypt.
1840	Cannabis becomes recognized as medicine in western society.
1850	Cannabis added to U.S. Pharmacopeia.
1908	Henry Ford's Model T is made from hemp plastic and powered by hemp ethanol.
1911	Massachusetts becomes first state to outlaw cannabis.
1937	Marihuana Tax Act passed. American Medical Association opposes Marijuana Tax Act. First Federal arrest for the sale of marijuana.
1942	Cannabis is removed from US Pharmacopeia.
1961	United Nations Single Convention on Narcotic Drugs includes marijuana.
1970	Controlled Substance Act Classifies marijuana as a Schedule I drug with no accepted medical use. NORML (National Organization for the Reform of Marijuana Laws) founded.
1985	Marinol (a synthetic cannabinoid) approved by U.S. Food and Drug Administration.
1996	California becomes the first State to legalize medical cannabis with proposition 215.
1998 to 2011	The District of Columbia and 15 more states legalize medical cannabis: AK, AZ, CO, DE, HI, ME, MI, MT, NJ, NM, NV, OR, RI, VT, WA
2012	CT and MA legalize medical cannabis. CO and WA are the first states to legalize recreational cannabis to be regulated/taxed.
2013	NH and IL legalize medical cannabis. Uruguay becomes the first country to legalize recreational cannabis to be regulated/taxed.
2014	First time legal sales of recreational cannabis take place in the U.S. since prohibition (Colorado). NY, MD and MN legalize medical cannabis. Medical cannabis is now legal in 23 states and DC. AK, OR, DC, and Guam legalize recreational cannabis.

Source: ^{7,8}



MEDICAL PROPERTIES AND BENEFITS OF CANNABIS

"I now know that when it comes to marijuana... It doesn't have a high potential for abuse, and there are very legitimate medical applications. In fact, sometimes marijuana is the only thing that works... We have been terribly and systematically misled for nearly 70 years in the United States, and I apologize for my own role in that."

~Sanjay Gupta, MD, Chief Medical Correspondent for CNN, "Why I Changed My Mind on Weed," 8/8/13⁹

Thousands of studies have shown that cannabis is a valuable aid in the treatment of a wide range of medical conditions and symptoms. Most notably, cannabis relieves pain and inflammation, nausea, glaucoma, muscle spasticity and other movement disorders. It is also a powerful appetite stimulant, which can be successfully used to treat those suffering from AIDS wasting syndrome or dementia. Additionally, research shows that the medicinal benefits of cannabis may also include protecting the body against certain types of malignant tumors and halt the spread of numerous cancer cells. See Appendix B for links to current research.

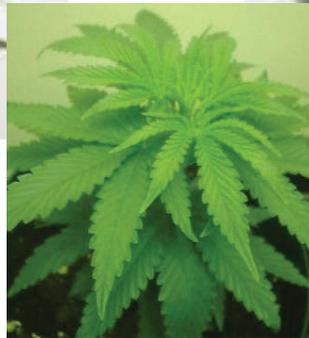
SPECIES: CANNABIS SATIVA L



Cannabis indica



Cannabis sativa



Hybrid

The Cannabis sativa L. plant has two main subspecies known as Cannabis sativa and Cannabis indica. A third subspecies known as Cannabis ruderalis is used less often. These strains have very different medicinal properties. Hybrids of the subspecies will have varying characteristics based on how they are crossbred.¹⁰

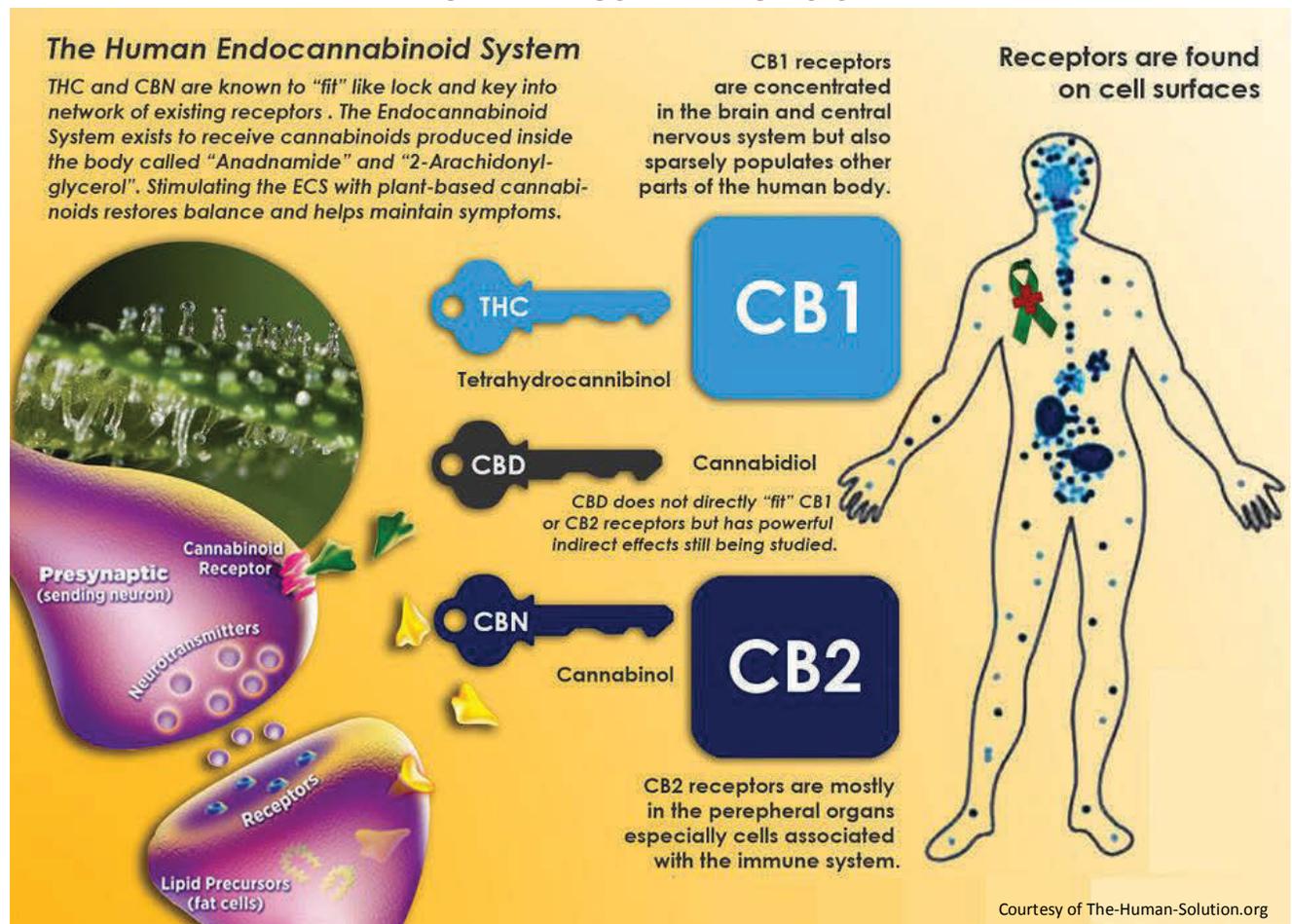
What are Cannabinoids?

The therapeutic compounds, active ingredients, in cannabis are known as cannabinoids.¹¹ Not only are cannabinoids found in cannabis, but also naturally occur in the nervous and immune system of humans and other animals. Cannabinoids can be categorized into three general types:

- *Phytocannabinoids (cannabinoids)*— produced in the cannabis plant
- *Endogenous Cannabinoids (endocannabinoid system)*—produced in the bodies of humans and other animals
- *Synthetic Cannabinoids*—produced in a laboratory

Over 100 unique cannabinoids have been identified in the cannabis plant. The most studied cannabinoid is tetrahydrocannabinol (THC), followed by cannabidiol (CBD). In addition to these two cannabinoids, there are many others that have been identified to interact with the cannabinoid receptors found in the human body. Two cannabinoid receptors have been identified in the endocannabinoid system of humans. These receptors have been named CB1 and CB2. Each cannabinoid has specific properties that correlate with the endocannabinoid system to treat specific medical conditions and relieve specific symptoms.¹²

THE HUMAN ENDOCANNABINOID SYSTEM



Cannabinoids – Active Ingredients in Cannabis

Cannabinoids interact with and regulate each other and have profound physiological effects on the human body. Depending on the type of effect you are looking to achieve, you may find that you prefer strains with a higher proportion of one cannabinoid to another.

The following table focuses on the properties of the 11 most commonly discussed cannabinoids.¹³

PROPERTIES	THC	CBD	CBN	CBG	CBC	THC _v	CBG _A	CGC _A	CBC _A	THC _A	CBD _A
Analgesic (relieves pain)	X	X	X		X		X				
Anorectic (suppresses appetite)						X					
Antibacterial (kills or slows bacterial growth)		X		X					X		
Anti-diabetic (reduces blood sugar levels)		X									
Anti-emetic (reduces vomiting & nausea)	X	X									
Anti-epileptic (reduces seizures & convulsion)		X				X					
Antifungal (treats fungal infection)									X		
Anti-glaucomatous (lowers intraocular pressure)	X	X		X							
Anti-inflammatory (reduces inflammation)		X		X	X		X	X		X	X
Anti-insomnia (aids sleep)			X								
Anti-ischemic (reduces risk of artery blockage)		X									
Anti-proliferative (inhibits tumors/cancer cells growth)		X		X	X					X	X
Anti-psoriatic (treats psoriasis)		X									
Antipsychotic (tranquilizing, manages psychosis)		X									
Antispasmodic (suppresses muscle spasms)	X	X	X							X	
Anti-viral (kills or slows viruses)					X						
Anxiolytic (relieves anxiety)		X									
Appetite Stimulant (stimulates appetite)	X										
Bone Stimulant (promotes bone growth)		X		X	X	X					
Immunosuppressive (modulates immune system function)		X									
Intestinal Anti-prokinetic (reduces small intestine contractions)		X									
Neuroprotective (prevents nervous system degeneration)		X									

THC = Tetrahydrocannabinol; CBD = Cannabidiol; CBN – Cannabinol; CBG = Cannabigerol; CBC = Cannabichromene;
 THC_v = Tetrahydrocannabivarin; CBG_A = Cannabigerolic Acid; CGC_A = Cannabigerol acid; CBC_A = Cannabichromenic Acid;
 THC_A = Tetrahydrocannabinolic Acid; CBD_A = Cannabidiolic Acid



What are Terpenoids and Terpenes?

In addition to the cannabinoids found in cannabis, there are a few other compounds known to have some health effects, including terpenoids and terpenes.¹⁴ Cannabis, as well as other plants, fruits, spices and herbs, derive its unique aromas and tastes from terpenoids and terpenes.¹⁵

Research indicates that terpenoids and terpenes interacting with phytocannabinoids may produce meaningful therapeutic benefits.¹⁶ It's believed that there are over 200 different terpenes and terpenoids in cannabis.¹⁷ The primary terpenes and terpenoids identified in cannabis include limonene, myrcene, linalool, pinene, *beta*-caryophyllene, nerolidol, caryophyllene oxide, phytol, eucalyptol, and γ -terpinene.¹⁸ For illustrative purposes, not to be considered all inclusive, the table below shows five of the most commonly studied terpenes and the therapeutic benefits identified.

TERPENE	FOUND IN CANNABIS and...	THERAPEUTIC BENEFITS
Limonene	 Citrus	Anti-depressant
Myrcene	 Hops Thyme	Alfatoxins (cancer-causing) blocker Analgesic Anti-inflammatory Muscle Relaxant Sedating
Linalool	 Basil Lavender	Anesthetic (local) Anti-anxiety Anti-cancer Anti-convulsant
Pinene	 Pine Needles, Pine Nuts	Aids memory Anti-inflammatory Bronchodilator
<i>Beta</i> -caryophyllene	 Black Pepper, Cloves	Anti-inflammatory Anti-malarial Protects lining of GI tract

Source: ^{19, 20, 21}

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

~Ethan Russo, MD, Senior Medical Advisor, Cannabinoid Research Institute²²



Cannabinoid and Terpene Profiling

Every cannabis strain has a unique compound profile (cannabinoids and terpenes), much like humans have unique fingerprints.²³ Each cannabis strain's effects can be predicted by the specific combination of its cannabinoids and terpenes. There are currently no comprehensive federal or state standards for strain profiling. However, there are some industry standards and many laboratories offer cannabinoid and terpene profiling services to medical cannabis growers, processors, and dispensaries.

Because there is no agreed upon method of naming strains based on profiles, it is very possible to have identical strain names with different cannabinoid and terpene profiles depending on the region, state, or dispensary. For example, a sativa-dominant strain called Sour Diesel purchased from a dispensary in Oregon, may affect you very differently than Sour Diesel acquired in Colorado. This is due to a number of factors, including but not limited to the growing conditions, plant genetics, and even issues related to lack of testing.

Many cannabis testing laboratories do a good job of calculating and reporting compounds in each strain. Most laboratories base the reports on scientific data and patient review data in an attempt to give a clear picture for the dispensary and ultimately for the consumer. Laboratories that conduct terpene profiling will include this information on its labels. Some state laws require this type of labeling.

Sample Labels provided by Laboratories

BudGenius
The most trusted name in alternative medicine

This medicine has been tested by a third party laboratory for your safety.
Strain ID: BG0010001D001

Sour Diesel
By Your Dispensary Name Here
Sativa ^{THC} **15.45%**

Results Valid Thru Dec 21, 2012
Cultivation Method: Indoor Pathogen Index: No Pesticides Found
CBD: 0.40% Organic: Yes
CBN: < 0.05%

HIGH RATING: 10
SLEEP AID: 6
PAIN RELIEF: 10
NAUSEA RELIEF: 2
ANXIETY RELIEF: 3
APPETITE BOOST: 10

Cannabaceutical™ Facts

Tested On: April 20, 2012

True OG Hybrid Indoor

Δ⁹-THC Max: 16.99 %	Sum of Top Terpenes 27.6 mg/g
Δ ⁹ -THCA 18.99 %	Limonene 9.5 mg/g
Δ ⁹ -THC 0.33 %	Myrcene 5.5 mg/g
CBD Max: 0.28 %	β-Caryophyllene 5.0 mg/g
CBDA 0.08 %	Germacrene B 2.3 mg/g
CBD 0.21 %	Valencene 1.9 mg/g
CBG Max 0.65 %	β-Pinene 1.8 mg/g
Δ ⁹ -THCVA 0.10 %	Linalool 1.6 mg/g
CBN ND %	

Pesticides Screen PASS Microbial Screen GOLD



Strain Characteristics and Effects

Although a cannabis plant’s cannabinoid and terpene profile are influenced by genetics and the environment in which it is grown, a general understanding of a strain’s parents (sativa or indica) gives one a general idea of what effects to expect.

The following table is a generalization of the effects of the subspecies of cannabis.

	SATIVA	INDICA	HYBRID
Effects	<ul style="list-style-type: none"> ➤ Mainly affects mind ➤ Increased focus/creativity ➤ Increased sense of well-being ➤ Increases appetite ➤ Elevates mood ➤ Reduces depression ➤ Relieves headaches/migraines ➤ Relieves nausea ➤ Stimulating/energizing ➤ Known as “Daytime” cannabis 	<ul style="list-style-type: none"> ➤ Mainly affects body ➤ Helps sleep/sedating ➤ Provides relaxation/reduces stress ➤ Reduces anxiety ➤ Reduces headaches/migraines ➤ Reduces intra-ocular pressure ➤ Relaxes muscles/spasms ➤ Reduces nausea, stimulates appetite ➤ Reduces pain/inflammation ➤ Reduces seizure frequency/anti-convulsant ➤ Known as “Nighttime” cannabis” 	<p>Sativa-dominant:</p> <ul style="list-style-type: none"> ➤ Maintains energy ➤ Stimulates appetite ➤ Increases muscle relaxation <p>Even Hybrids (50/50):</p> <ul style="list-style-type: none"> ➤ Balance of mind and body affects <p>Indica-dominant:</p> <ul style="list-style-type: none"> ➤ Effective for pain relief ➤ Mind relaxing

Source: ²⁴

High-CBD Strains

Another category of strains that are increasing in popularity are High-CBD strains. These strains have medicinal properties without the strong psychoactive effects. The medicinal effects include anti-anxiety, anti-inflammatory, anti-tumor, anti-seizure, and pain relief. These strains are ideal for patients who want the medicinal benefits without being impaired, especially for patients who need to drive or work.

Product Safety and Quality Standards

In addition to testing for cannabinoids and terpenes, laboratories also test for contaminants such as pesticides, mold, and residual solvents. Some states have standards and restrictions for pesticides, microbial contaminants (fungi, bacteria, etc.), and other contaminants. Some states require testing to show compliance.



MEDICATING WITH CANNABIS

*“The evidence is overwhelming that marijuana can relieve certain types of pain, nausea, vomiting and other symptoms caused by such illnesses as multiple sclerosis, cancer and AIDS -- or by the harsh drugs sometimes used to treat them. And it can do so with remarkable safety. Indeed, marijuana is **less toxic** than many of the drugs that physicians prescribe every day.”*

~Joycelyn Elders, former Surgeon General under President Clinton²⁵

Medical cannabis products are consumed in several forms, including dried flower buds or various types of oils, concentrates or resin extracted from the flowers or leaves.

Different people have different experiences. There are many factors that impact the effect of medical cannabis, including:

- Amount used (dosage)
- Strain of cannabis used and method of consumption
- Environment/setting
- Experience and history of cannabis use
- Biochemistry
- Mindset or mood
- Nutrition or diet



The *Complete Guide to Prescription and Nonprescription Drugs* (H. Winter Griffith, MD) is an excellent resource for help in determining how cannabis might interact with other drugs. See Appendix C.

Because some medical cannabis strains can cause drowsiness, one should not drive or operate heavy machinery when using this medicine. When first medicating with medical cannabis, it is important that it is done so in a safe environment. Wait at least 1-2 hours after medicating to determine the effects. Keeping a Medication Log/Journal is the best way to learn what an optimal medical cannabis treatment regimen is best for the individual. Such a log should include the following information:

- Amount used (dosage)
- Time dosage taken
- Time of last meal
- What was eaten at last meal
- Strain of cannabis used
- Method of consumption
- Other medications taken
- Time of onset of effects
- Noticeable side effects



Methods of Medicating

There are numerous ways to medicate with cannabis. It is generally a personal decision as to how one medicates with cannabis. Some methods can be more beneficial than others depending on the medical condition.

METHOD	DEVICE(S)	PROS	CONS
<p>INHALATION – Smoking</p> <p>Cannabis is burned.</p>	<p>Joint</p>  <p>Pipe</p>  <p>Steamroller</p>  <p>Water Pipe</p>  <p>Bubbler</p> 	<ul style="list-style-type: none"> ➤ The easiest way to find the appropriate dosage. ➤ Provides immediate relief ➤ Rolling papers (chemical-free recommended) are inexpensive ➤ Pipes (glass recommended) are inexpensive ➤ Steamrollers provide larger hits ➤ Bongos and bubblers provide filtration with water, smoother hits 	<ul style="list-style-type: none"> ➤ Can be harsh ➤ Can agitate asthma and other lung conditions ➤ Burning causes significant loss of terpenes and cannabinoids—less economical ➤ Burning can result in inhalation of tar and carcinogens. ➤ May result in inhalation of butane from lighters or chemicals from burning matches ➤ Possible inhalation of mold spores, if mechanisms not cleaned properly ➤ Some mechanisms can be difficult to clean—check instruction manual for cleaning tips
<p>INHALATION – Vaporization</p> <p>Cannabis is heated at a high temperature causing evaporation and creating a vapor.</p>	<p>Vaporizer</p>  <p>Portable Vaporizer</p> 	<ul style="list-style-type: none"> ➤ Heats instead of burns ➤ Higher proportion of medicine consumed—more economical ➤ Quick to take effect ➤ Relatively easy to judge dosage ➤ Predictable 2 to 3 hours of relief ➤ Healthier alternative to smoking 	<ul style="list-style-type: none"> ➤ Equipment can be expensive ➤ Short relief period may require continued use ➤ Mechanisms may be difficult to clean ➤ Possible inhalation of mold spores, if mechanisms not cleaned properly—check instruction manual for cleaning tips

Note: Due to the dangers of tobacco, spliffs (mixed with tobacco) and blunts (rolled with tobacco) are not recommended as a form of medicating.

Note: Because the vapor is not felt in the lungs like smoke, it's possible to take too many puffs. Wait a few minutes between puffs until you are accustomed to this method.

WARNING: Proper cleaning of inhalation devices is critical to prevent mold spores and other contaminants. ALWAYS follow manufacturer's instructions.



METHOD	DEVICE(S)	PROS	CONS
<p>INGESTION – Edibles/Medibles</p> <ul style="list-style-type: none"> ➤ Effects may be more pronounced than smoked cannabis, both physically and mentally. ➤ Small amounts should be ingested and then increased gradually until proper dosing is determined. 	<p>Oil and Butter </p> <p>Baked Goods </p> <p>Candy </p> <p>Beverages </p> <p>Misc. Foods </p> <p>Juicing </p>	<ul style="list-style-type: none"> ➤ Safer method to utilize medicinal aspects ➤ None of the known health problems associated with smoking ➤ Can be consumed anywhere without being conspicuous ➤ Longer lasting effects; doesn't require continued dosing throughout the day or night ➤ Juicing provides some benefits without the psychoactive effects 	<ul style="list-style-type: none"> ➤ Longer to take effect ➤ Difficult to gauge dosing ➤ Slow onset can lead patients to consuming more than is needed ➤ Elevated doses can be uncomfortable, causing panic or vomiting ➤ Food allergies must be taken into consideration ➤ May not be suitable for patients experiencing nausea or lack of appetite ➤ Edibles often contain large quantities of sugar, fat, and other highly processed ingredients. ➤ Long lasting effect (6-10 hours) may not be suitable for every situation ➤ Edibles must be kept away from children or others who may unknowingly consume the cannabis.
<p>INGESTION – Tabs/Capsules</p> <ul style="list-style-type: none"> ➤ Swallowed 	<p>Whole Plant </p> <p>Synthetic THC Dronabinol (Marinol) </p>	<ul style="list-style-type: none"> ➤ Convenient ➤ Higher potency ➤ More predictable dosing ➤ Marinol is legal in all 50 states ➤ Relaxed calm feeling 	<ul style="list-style-type: none"> ➤ Capsules can take longer to digest/dissolve ➤ Effectiveness depends on weight, metabolism, and eating habits. ➤ Not as effective as the whole plant ➤ Can cause social anxiety and mild paranoia ➤ Induces drowsiness

METHOD	DEVICE(S)	PROS	CONS
<p>ORAL MUCOSAL/ SUBLINGUAL</p> <ul style="list-style-type: none"> ➤ Applied in mouth or under the tongue 	<p>Sprays</p>  <p>Tincture</p> 	<ul style="list-style-type: none"> ➤ Higher potency ➤ Effective as a sedative ➤ More predictable dosing ➤ Discreet ➤ Provide immediate relief ➤ Long-lasting effects ➤ Fast or slow onset depending on how it is taken ➤ No throat and lung irritation from smoking ➤ Easy to measure doses once the required number of drops is known 	<ul style="list-style-type: none"> ➤ Effectiveness depends on weight, metabolism, and eating habits. ➤ May conflict with some patients' beliefs as tinctures contain some amount of alcohol ➤ Some consider the taste to be quite unpleasant ➤ Alcohol can evaporate, increasing the strength of the remaining tincture
<p>TRANSDERMAL/ TOPICAL</p> <ul style="list-style-type: none"> ➤ Applied to and absorbed through the skin 	<p>Body Oil/Salve</p>  <p>Lotion/Cream</p> 	<ul style="list-style-type: none"> ➤ Effective for skin disorders, muscle stiffness, and muscle and joint pain ➤ Least likely to cause psychoactive effects ➤ One will not experience the euphoric "high" feeling, rather, only local pain relief. 	<ul style="list-style-type: none"> ➤ The potency is limited ➤ External application will not treat certain symptoms treatable only by the ingestion of cannabis ➤ Local pain relief without euphoric "high"

WARNING: Due to slow onset of effects when consuming medical cannabis as an edible, capsule, spray, or tincture, one should take in small amounts gradually increasing to determine proper dosing. Ingesting too much at once may cause unpleasant side effects.

Concentrates

Concentrates, also known as resins and extracts, are created through different techniques. They are extracted from the resin-filled glands that form on the cannabis plant called trichomes. These trichomes contain the majority of the THC in a cannabis plant. Modern technology has enabled more refined methods of creating products with very high THC content. Concentrates are extremely potent.

Types of Concentrates

KIEF – powder sifted out from loose, dry flowers. Cold pressed is a compressed puck of the powder.

Can be smoked, vaporized, or used in edibles.



Hashish, or hash – compressed or concentrated resin glands (trichomes).

Can be smoked, vaporized, or used in edibles.



Hash oil/Honey oil – a mix of essential oils and resins extracted from mature cannabis plant.

Can be smoked, vaporized, used in edibles, or simply rubbed on gums.



Ear Wax – hash oil that has been whipped to add more oxygen. A more stable, highly potent concentrate.

Best method is vaporization.



WARNING: Concentrates are extremely potent. Great care should be used in consuming these. It is easy to consume too much, leading to unpleasant side effects.

SIDE EFFECTS, OVERDOSING, AND ADDICTION

“[E]xcept for the harms associated with smoking, the adverse effects of marijuana use are within the range of effects tolerated for other medications.”

~The 1999 Institute of Medicine Report²⁶

Like all medicines, medical cannabis may cause certain side effects. However, marijuana side effects are much milder and more manageable than those that come with traditional medicines. Unlike thousands of other medicines, there has never been a death attributed solely to cannabis overdose.²⁷

Common Negative Side Effects

When comparing the side effects commonly associated with pharmaceuticals to the side effects of cannabinoids, it is clear cannabinoids are more easily tolerated by the human body.^{28, 29, 30}

COMMON PHARMACEUTICALS*	COMMON NEGATIVE SIDE EFFECTS	CANNABINOIDS
X	Dizziness	X
X	Drowsiness	X
X	Dry Mouth or Thirst	X
X	Giddiness	X
X	Heart palpitations	X
X	Hunger	X
X	Insomnia	X
X	Loss of appetite	X
X	Red Eyes	X
X	Respiratory Issues	X (if smoked)
X	Short-Term Memory Loss	X
X	Uneasiness or Anxiety	X
X	Aggression	
X	Candidiasis	
X	Constipation or Diarrhea	
X	Headache	
X	Hearing Loss	
X	Hypotension	
X	Increased Bleeding	
X	Kidney or Liver Damage	
X	Muscle cramps, spasms, or weakness	
X	Nausea or vomiting	
X	Shortness of Breath	
X	Suicidal Thoughts	

*Vicodin, OxyContin, Prozac, Zoloft, Paxil, Xanax, Ambien, aspirin, acetaminophen, ibuprofen



Overdosing

“We can speculate ourselves into all kinds of fears about abuse, but if that was the case, we wouldn’t allow OxyContin, Vicodin and all other prescription drugs. They’re abused more widely and more lethally than marijuana would ever be. No one has died of an overdose of marijuana that I know of ever. But they’ve died from OxyContin, Vicodin and all these other drugs that are legal.”

~ Illinois Senator William Haine, D-Alton, IL³¹

Although the U.S. Centers for Disease Control and Prevention have listed alcohol and other drugs as a cause of death, it has never listed cannabis. Several studies have shown that cannabis has relatively low toxicity and lethal doses are impossible to reach.^{32, 33}

Prescription drugs have become one of the leading causes of accidental death in the U.S. When comparing the potential for overdose of prescription drugs to cannabis, it is clear cannabis is the safer drug. Drug overdose death rates in the United States have more than tripled since 1990 and have never been higher. In 2010, the number of drug overdose deaths in the U.S. reached 38,329, with prescription painkillers being responsible for 16,651 of those overdose deaths.³⁴

In toxicology, several terms are used to describe drugs and other substances. These terms include:

- Median Lethal Dose or LD50 - refers to the point where 50% of test subjects exposed to a substance would die. This is a general indicator of a substance's acute toxicity.
- Median Effective Dose or ED50 - refers to the effective dose for 50% of people receiving the drug. This is a general indicator of reasonable expectancy of a drug’s effect.
- Therapeutic Ratio or Safety Ratio – refers to the ratio of the effective dose (ED50) to the lethal dose (LD50). A high safety ratio is an indicator of a substance’s relative safety.

COMPARING CANNABIS’S SAFETY RATIO TO OTHER FAMILIAR SUBSTANCES

Substance	Ratio
Cannabis	1:20,000
Nitrous Oxide (anesthesia commonly used in dentistry)	1:150
Fluoxetine (Prozac)	1:100
Aspirin	1:20
Codeine	1:20
Cocaine	1:15
Alcohol	1:10
Dextromethorphan (cough suppressant)	1:10
Nutmeg	1:7
Heroin	1:5

Least Toxic



Most Toxic

Sources: ^{35, 36, 37, 38}

As the chart above indicates, in order to induce death by cannabis, one would have to smoke 20,000 times as much cannabis as is contained in a single cannabis cigarette (joint).³⁹



Addiction

There are several studies on addiction. Two well-known studies, one by Dr. Jack E. Henningfield of the National Institute on Drug Abuse and the other by Dr. Neal L. Benowitz of the University of California at San Francisco⁴⁰, developed a ranking system consisting of five criteria (effects). The effects were then applied to six commonly abused drugs, as seen in the following tables (prescription drugs were not included). In these ratings, 1 equals the highest capacity to cause the effect and 6 equals the lowest capacity to cause the effect.

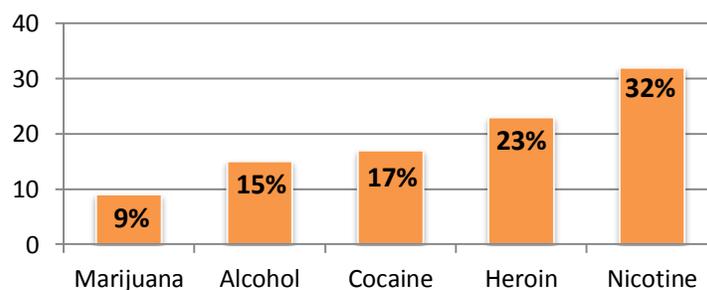
Henningfield Ratings					
Substance	Withdrawal	Reinforcement	Tolerance	Dependence	Intoxication
Nicotine	3	4	2	1	5
Heroin	2	2	1	2	2
Cocaine	4	1	4	3	3
Alcohol	1	3	3	4	1
Caffeine	5	6	5	5	6
Marijuana	6	5	6	6	4
Benowitz Ratings					
Substance	Withdrawal	Reinforcement	Tolerance	Dependence	Intoxication
Nicotine	3*	4	4*	1	6
Heroin	2	2	2	2	2
Cocaine	3*	1	1	3	3
Alcohol	1	3	4*	4	1
Caffeine	4	5	3	5	5
Marijuana	5	6	5	6	4

*Given equal rating

Definition of effects:

- Withdrawal – Presence and severity of characteristic withdrawal symptoms.
- Reinforcement – Substance's ability to get users to take it repeatedly.
- Tolerance – Amount needed to satisfy increasing cravings, and level of plateau that is reached.
- Dependence – Difficulty in ending use of substance, relapse rate, percentage of people who become addicted, addicts self-reporting of degree of need for substance, and continued use in face of evidence that it causes harm.
- Intoxication – Level of intoxication relative to addiction; personal, social damage that it causes.

Compared to other substances both legal and illegal, cannabis is the least addictive. As reported in the *Scientific American* article, "Experts Tell the Truth about Pot," researchers found that of those who had tried cannabis at least once, about 9 percent became addicted. This chart shows the corresponding figures for other common substances considered addictive.⁴¹



FEDERAL LAW

The Controlled Substances Act (CSA) was enacted into law by the Congress of the United States in 1970. The CSA regulates the manufacture, importation, possession, use and distribution of certain substances.⁴² The legislation created five Schedules (classifications), with varying qualifications for a substance to be included in each. Although Congress created the initial listing, the CSA authorizes the Drug Enforcement Administration (DEA) and the Food and Drug Administration (FDA) to determine which substances are added to or removed from the various schedules. Congress also has the ability to add or remove substances through legislation.



The CSA does not recognize the difference between medical and recreational use of marijuana. It is treated like every other controlled substance, such as cocaine and heroin. Under the CSA, marijuana is classified as a Schedule I drug. Schedule I drugs may not be prescribed. However, controlled substances that are still considered dangerous, but not a Schedule I drug may be prescribed. To be listed as a Schedule I drug, the CSA states that the drug meets the following findings:

- The drug or other substance has a high potential for abuse.
- The drug or other substance has no currently accepted medical use in treatment in the United States.
- There is a lack of accepted safety for use of the drug or other substance under medical supervision.

Although doctors may not "prescribe" cannabis for medical use under federal law, they can "recommend" its use under the First Amendment.

Contradictory to marijuana being listed as a Schedule I substance and the federal government's claim that there are no medical uses of cannabis, the U.S. government filed a patent for cannabis cannabinoids in 2001: US Patent 6630507.⁴³ An excerpt from the patent:

"Cannabinoids have been found to have antioxidant properties, unrelated to NMDA receptor antagonism. This new found property makes cannabinoids useful in the treatment and prophylaxis of wide variety of oxidation associated diseases, such as ischemic, age-related, inflammatory and autoimmune diseases."

Additionally, the federal government ran a program from 1978 to 1992 that allowed select patients to receive medical cannabis. Only four of the original patients are still alive and receiving cannabis through what was known as the Compassionate Investigational New Drug Program.^{44, 45}

In March 2014, the FDA gave approval for studies to begin on a medicinal form of cannabis for the treatment of intractable epilepsy in children⁴⁶ and the U.S. Department of Health and Human Services approved a study on medical cannabis for military Veterans with Post-Traumatic Stress Disorder.⁴⁷



Conflict between State and Federal Law.

The Congressional Research Service's January 13, 2014 report, *State Legalization of Recreational Marijuana: Selected Legal Issues*, states the "federal government is limited in its ability to directly influence state policy by the Tenth Amendment, which prevents the federal government from directing states to enact specific legislation, or requiring state officials to enforce federal law."⁴⁸

On August 29, 2013, the U.S. Department of Justice (DOJ) released a memorandum updating its cannabis enforcement policy.⁴⁹ It outlines the policy making it clear that cannabis remains an illegal substance and it will be aggressively enforced under the CSA. However, it outlines eight enforcement areas that will be the federal prosecutors' priority.

The DOJ states, "The Department's guidance in this memorandum rests on its expectation that state and local governments that have enacted laws authorizing cannabis-related conduct will implement strong and effective regulatory and enforcement systems that will address the threat those state laws could pose to public safety, public health, and other law enforcement interests." With this memorandum, the DOJ indicates that it will defer the right to challenge states' legalization laws at this time, but reserves the right to challenge them if there is "evidence that particular conduct threatens federal priorities." The eight priorities that guide the DOJ's enforcement of the CSA include:

- Preventing the distribution of cannabis to minors.
- Preventing revenue from the sale of cannabis from going to criminal enterprises, gangs, or Cartels.
- Preventing the diversion of cannabis from states where it is legal under state law in some form from going to other states.
- Preventing state-authorized cannabis activity from being used as a cover or pretext for the trafficking of other illegal drugs or other illegal activity.
- Preventing violence and the use of firearms in the cultivation and use of cannabis.
- Preventing drugged driving and the exacerbation of other adverse public health consequences associated with cannabis use.
- Preventing the growing of cannabis on public lands and the attendant public safety and environmental dangers posed by cannabis production on public lands.
- Preventing cannabis possession or use on federal property.



U.S. Department of Justice
Office of the Deputy Attorney General

The Deputy Attorney General Washington, D.C. 20530

August 29, 2013

MEMORANDUM FOR ALL UNITED STATES ATTORNEYS

FROM: James M. Cole
Deputy Attorney General

SUBJECT: Guidance Regarding Marijuana Enforcement

Congress Response to DOJ Efforts

In May 2014, the Rohrabacher-Farr-Young- Blumenauer-McClintock-Cohen-Broun-Polis- Stockman-Lee Amendment to the omnibus spending bill passed the U.S. House of Representatives. This amendment passed the Senate and was signed by the President in December 2014. It is valid through September 30, 2015. The new provision:



- Recognizes the right of states to implement medical cannabis laws and operate their own programs, without prohibitive interference from the U.S. Justice Department.
- Prohibits any funds made available to the Department of Justice from being used to prevent the states that currently have medical cannabis laws from implementing their programs.
- Does NOT prevent the Justice Department from using funds to enforce federal laws against those who do not operate in compliance with state and local medical cannabis laws.
- Does NOT reschedule or otherwise “legalize” medical cannabis.

This provision will have to be voted upon again to be valid in Fiscal Year 2016 and beyond.

Veterans Perspective

Federal law governs the Veterans Health Administration (VHA) and Veterans Affairs (VA) healthcare facilities. There are VA hospitals and/or clinics in every state. Veterans who live in states where medical cannabis is legal and who qualify for his or her state medical cannabis program cannot get a written certification or recommendation for medical cannabis from VA physicians. In fact, until recently, a Veteran could be denied treatment at a VA facility if he or she tested positive for cannabis.



In January 2011, the VA issued a new directive paving the way for Veterans to play a larger role in their healthcare, including the use of medical cannabis.⁵⁰ VHA Directive 2011-004 provides the following guidelines:

- VA practitioners may not complete forms or provide written statements recommending a Veteran's participation in a state medical cannabis program.
- Veterans may request copies of their personal medical records using the appropriate forms.
- Decisions to modify treatment plans of patients who participate in a state medical cannabis program need to be made by individual providers in partnership with their patients.
- Veterans who participate in a state medical cannabis program cannot be denied VHA services, including any clinical programs where the use of cannabis may be considered inconsistent with treatment goals.
- Chronic pain must be treated in accordance with VHA step-care model, and any prescriptions for chronic pain must be in accordance with VHA Pain Management Strategy.
- A Veterans participation in a state medical cannabis program will be entered in the non-VA medication section of the patient's electronic medical record.
- VA practitioners will not pay for or provide cannabis authorized by a non-VA entity.
- Possession of cannabis, even for authorized medical reasons, by Veterans while on VA property is in violation of VA regulation 1.218(a)(7) and places them at risk for prosecution under the Controlled Substances Act.

Because there are many states with medical cannabis programs that do not have a system in place to assist Veterans in obtaining medical cannabis without a physician's recommendation, Veterans are forced to receive medical care outside the VA in order to access medical cannabis. A few states do include a method for Veterans to obtain medical cannabis without a written recommendation. For more information about Veterans' access to medical cannabis see Appendix C.

BENEFITS OF INDUSTRIAL HEMP

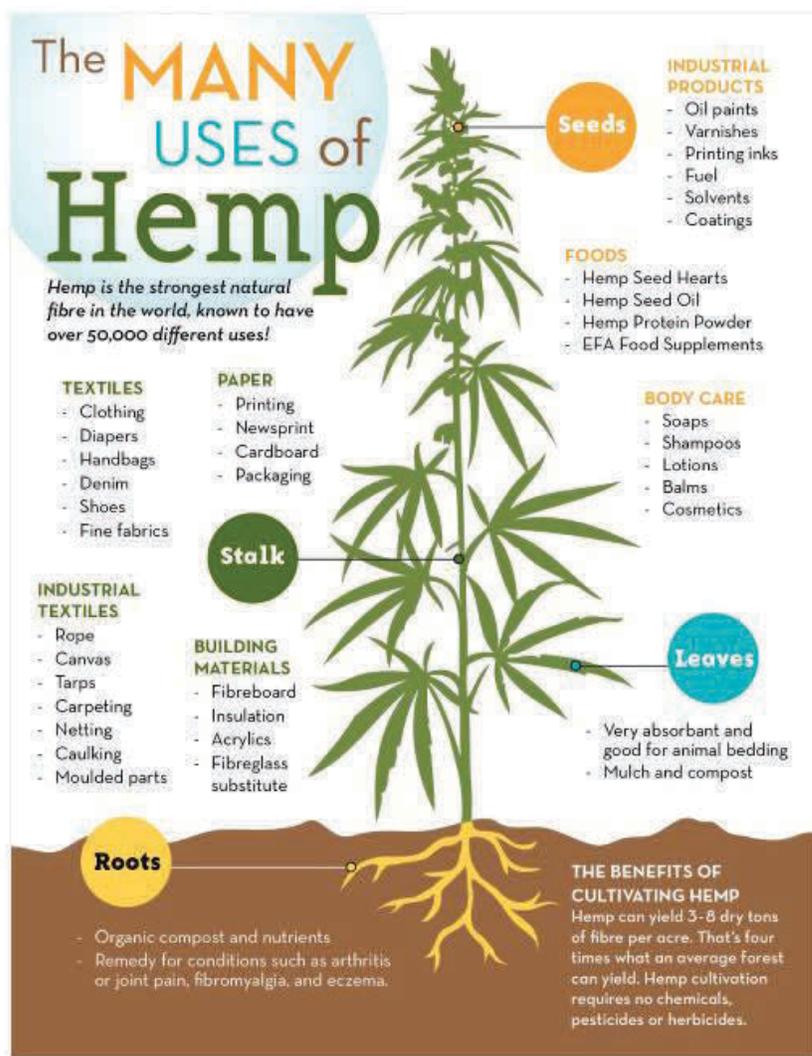
Industrial hemp comes from the Cannabis Sativa L plant. Not to be confused with the cannabis that contains high levels of THC, industrial hemp contains low levels of THC. These low-THC oilseed and fiber varieties of cannabis are non-psychoactive. In general, industrial hemp refers to the cannabis stalk and seed. Industrial hemp has been cultivated for over 10,000 years, yet many people across the U.S. know very little about its true capabilities.

First Agricultural Crops and Legal Tender

Industrial hemp was one of the first agricultural crops. Carbon tests have suggested that wild hemp dates as far back as 8000 B.C.⁵¹ In America, during the 17th century, the production of hemp was encouraged. In fact, in Virginia, Massachusetts and Connecticut farmers were legally required to grow hemp. In colonial America hemp was accepted as legal tender and taxes could be paid with it.

Sustainability and Production

Industrial hemp farming is completely sustainable and does not require pesticides, herbicides, or other synthetic chemicals to grow. It grows easily and is actually good for the soil. Industrial hemp can be harvested in a few months and can produce four times as much fiber per acre than pine trees. It takes many years to grow trees, yet a field of industrial hemp can be harvested in a few months making four times the paper over a few decades.⁵² Industrial hemp farming reduces our carbon footprint and decreases harmful chemicals leeching into the ground and our waterways.



Laws Pertaining to Industrial Hemp

- The 1937 Marihuana Tax Act regulations made hemp cultivation nearly impossible for American farmers.



- In 1942, during World War II, the government formed a private company called War Hemp Industries to subsidize hemp cultivation. The U.S. Department of Agriculture (USDA) made the film *Hemp for Victory* to encourage American farmers to grow hemp for war supplies—twine, rope, parachute webbing, and hosing.
- After WWII and until the 1960s, the government considered industrial hemp and marijuana two distinct varieties of the cannabis plant. However, without the government subsidies, it was cost prohibitive to comply with the tax and licensing regulations of the 1937 Marihuana Tax Act.
- In 1970, the U.S. Congress designated hemp, along with marijuana, as a “Schedule 1” drug under the Controlled Substances Act, making it illegal to grow. The U.S. is the only developed country that has not established hemp as an agricultural crop.
- On February 7, 2014, President Obama signed a new Farm Bill which included a provision that legalizes industrial hemp cultivation pilot programs.⁵³ This will allow colleges and state agencies to grow and conduct research on the crop in states where it is legal. This should pave the way for establishing hemp as an agricultural crop once again in the U.S.



Photo courtesy Australian Hemp Masonry Company

GET INVOLVED – ADVOCACY 101

Medical cannabis is gaining momentum worldwide as a natural medicine that provides safe alternatives to treatment with pharmaceuticals. It is through the advocacy of many that it will become accessible to patients who may benefit from its medicinal properties.

Change occurs when people get involved. Advocacy requires commitment and a passion. However, one can spend a lot of time or a little time and still make a difference. Advocacy can take many forms, including:

➤ **Decision-Maker Advocacy**

Express support for or concern about a public policy through voting and contacting elected and appointed decision-makers at the local, state, and national level.

➤ **Community Advocacy**

Share information with friends, family, faith community, and professional relationships to encourage support of and involvement in an important cause.

➤ **Media Advocacy**

Encourage issue-related reporting through social media, print, TV, or radio to raise public awareness about and promote involvement in an important cause.



Voting and Staying Involved in the Political Process

Voting is one of the most important and effective forms of advocacy. Encouraging others to register and vote goes a long way to affecting change. Voting for candidates who represent your interests will help influence public policies that matter to you. It's equally important to stay involved in the political process and policy making. Lawmakers want to hear from their constituents. Oftentimes, lawmakers base their decisions on what they believe their constituents want.

Everyone has a Story

Sharing your real, personal experiences is one of the most effective ways to influence popular opinion and shape public policy. By telling your personal story, the important issue or cause is humanized and de-politicized. Many issues are too abstract for the general public, media, and especially politicians. A personal story creates a connection and a reaction to help people relate to the issue.

By sharing your personal story, it can help ensure public policy is based on the real life needs of real people. With politicians, it helps take the issue away from being about a particular candidate or political party and allows them to make the issue about how the policy change will impact people's lives. Additionally, when the issue is a difficult one to discuss, a personal story can help start the conversation.



Tips for Advocating for Your Cause

Speaking freely for what you believe can sometimes be intimidating, especially to a group. Understand you have the right to speak up and share your opinion. Believe in yourself and what you have to say. If you believe your story is important and show that passion, others will listen.

Remember to always speak and write truthfully and respectfully.

The best tool for being self-assured and confident is to be prepared. In addition to your story, research the issue, develop talking points, consider possible questions and prepare answers for them. Connect with organizations that believe in the same issue. There are several medical cannabis advocacy organizations. See Appendix C for advocacy resources.

Suggested Actions to Take to Advocate for Your Cause

DECISION MAKERS	COMMUNITY	MEDIA
<p>Call, write, email, or visit.</p> <p>Develop relationship with the decision maker’s staff. Staffers are very influential. Sometimes it is only the staff that may be available to meet with you.</p> <p>Always follow up with more information and to “check in” on progress.</p> <p>Always say “Thank You.” Thank you notes are a great way to say thank you and follow up.</p> <p>Follow on Social Media. (Facebook, Twitter, etc.)</p> <p>Comment on Social Media pages.</p> <p>Tag decision maker in your posts when appropriate.</p> <p>Remember elected officials work for you!</p>	<p>Includes your friends, relatives, co-works, social groups, faith groups, and community leaders.</p> <p>Talk about your issue, share your story.</p> <p>Provide information and resources including links to advocacy organizations to encourage involvement.</p> <p>Help to raise funds for advocacy organizations that represent your cause.</p> <p>Use social media to inform others. Post pertinent and appropriate information about your cause. Always include information or a link for ways to get involved.</p> <p>Word of mouth is powerful!</p>	<p>Share your story with local media.</p> <p>Identify local and national publications. Research the letters policy for each publication.</p> <p>Letters to the Editor should be short, include your story, and make one succinct point that describes your issue.</p> <p>Call, write, or email a reporter you admire or feel would be open to your cause. Tell them your story and ask them to cover the issue.</p> <p>Reference a recent news story if it ties into your issue.</p> <p>Always follow up with a thank you note or quick phone call.</p> <p>Media is a primary source for information, help shape it!</p>



APPENDIX A – GLOSSARY

Acquired Immune Deficiency Syndrome (AIDS): As a syndrome, it is a complex illness with a wide range of complications and symptoms. The immune system is badly damaged and at risk for opportunistic infections. Medical intervention and treatment are needed to prevent death.

Access Point: A medical access point is an authorized location where patients can find and purchase medical marijuana. It can also be called a pick-up location, and while medication should be fairly easy to obtain, the facility must follow state guidelines so authorization, paperwork, and a store process should be expected. In the medical cannabis community, an access point is often synonymous with a dispensary depending on individual state legislation, guidelines, and regions.

Agitation of Alzheimer's disease: Uncontrollable, distressing behaviors in patients with Alzheimer's disease including, but not limited to irritability, anger outbursts, aggression, sleep disruption, pressured pacing and restlessness, and uncooperativeness with necessary care.

Amyotrophic Lateral Sclerosis (ALS): Also known as Lou Gehrig's disease. It is a rapidly progressive, invariably fatal neurological disease that attacks the nerve cells (*neurons*) responsible for controlling voluntary muscles. The disease belongs to a group of disorders known as *motor neuron diseases*, which are characterized by the gradual degeneration and death of motor neurons. The nerve cells affected are the ones reaching from the brain to the spinal cord (upper motor neurons) and the spinal cord to the peripheral nerves (lower motor neurons) that control muscle movement. This leads to a progressive loss of the ability to move virtually any of the muscles in the body.

Arachnoiditis: A neuropathic disease caused by inflammation of the arachnoid, one of the membranes that surround and protect the nerves of the central nervous system, including the brain and spinal cord. The arachnoid can become severely inflamed because of adverse reactions to chemicals, infection from bacteria or viruses, as the result of direct injury to the spine, chronic compression of spinal nerves, or complications from spinal surgery or other invasive spinal procedures. Inflammation can sometimes lead to the formation of scar tissue and adhesion that can make the spinal nerves "stick" together. This can be extremely painful, especially in last stage adhesive arachnoiditis.

Arnold-Chiari Malformation: Occurs in the region where the brain and the spinal cord join. In this disorder, the portion of the brain called the cerebellum and/or brainstem lies lower than usual. Often, a portion of the cerebellum called the cerebellar tonsils protrudes out of the base of the skull into the spinal canal. This protrusion causes pressure in the brain, contributing to the symptoms such as headaches, especially at the base of the skull, dizziness, double vision, weakness in the arms, and/or difficulty walking.

Aroma: Aroma is a term used to describe the general smell and/or taste of a certain plant or flower. Because consumers' individual definition of aromas (such as "earthy," "skunky," or "citrus") can differ somewhat, aroma descriptions are meant as a basic guideline.



Backcross (BX): A hybrid plant that has been bred with one of its parents (or a plant that is genetically similar) in order to create offspring that is closer to that of the original parent. For example, a grower could breed a plant with its own father to make sure the baby has its dad's height. This is often done to maintain rarer strains or strengthen those with desired recessive genes.

BHO: BHO stands for butane hash oil and is a potent concentrate of cannabinoids made by dissolving marijuana in its plant form in a solvent (usually butane). The resulting product has very high THC levels (generally more than flowers or hashish) and is a thick, sticky oil. BHO is also referred to as honey oil, "dabs" or "dabbing," earwax, or shatter, depending on the manufacturing method.

Bud: Bud refers to the actual flower of the cannabis plant. See Flower.

Cachexia/Wasting Syndrome: A condition characterized by dramatic weight loss associated with chronic fever and diarrhea. A clinical complex associated with chronic renal insufficiency, which is attributed to a combination of poor nutrition, endocrine dysfunction, catabolic stresses—e.g., infection, uremia, dialysis. Wasting is also related to anorexia and protein catabolism secondary to infection. This dramatic weight loss and muscle atrophy is seen in patients with chronic illness including type I diabetes, multiple sclerosis, HIV, cancer, and in individuals with age-associated 'failure to thrive' syndrome.

Cancer: A group of over 200 diseases involving unregulated cell growth. In cancer, cells divide and grow uncontrollably, forming malignant tumors, which may invade nearby parts of the body. If the cell growth is not controlled, cancer can result in death. The most common cancers are skin cancer, lung cancer, colon cancer, breast cancer and prostate cancer. In addition, cancer of the kidneys, ovaries, uterus, pancreas, bladder, rectum and blood and lymph node cancer (leukemias and lymphomas) are also included among the 12 major cancers that affect most Americans.

Cannabinoids: A class of diverse chemical compounds that act on cannabinoid receptors on cells that repress neurotransmitter release in the brain. These receptor proteins include the endocannabinoids (produced naturally in the body by humans and animals), the phytocannabinoids (found in cannabis and some other plants), and synthetic cannabinoids (manufactured chemically).

Cannabis: Cannabis is a plant genus that produces three species of flowering plants: Cannabis sativa, Cannabis indica, and Cannabis ruderalis. Cannabis sativa and Cannabis indica are used to produce both recreational and medical marijuana. Cannabis ruderalis is rarely farmed due to its natural lower THC content and small stature, but with ruderalis's unique ability to auto-flower rather than mature based on light, there is potential for this variety to grow in popularity. Cannabis is native to Asia, but grows almost anywhere and has long been cultivated both for the production of hemp and to be used as a drug.

Causalgia: A chronic pain condition most often affecting one of the limbs (arms, legs, hands, or feet), usually after an injury or trauma to that limb. Causalgia is now classified as CRPS-II and is believed to be caused by damage to, or malfunction of, the peripheral and central nervous systems. CRPS is characterized by prolonged or excessive pain and mild or dramatic changes in skin color,



temperature, and/or swelling in the affected area. CRPS-II is the term used for patients with confirmed nerve injuries.

CBD: CBD is the abbreviation for Cannabidiol. It provides medicinal relief without the psychoactive effects (the "high" or "stoned" feeling) associated with THC.

Concentrates: Concentrates are a potent consolidation of cannabinoids that are made by dissolving marijuana in its plant form into a solvent. The resulting product has very high THC levels (generally more than flowers or hashish), and can produce varying products that range from thick sticky oils (BHO) to moldable goo (wax) to resinous bits (shatter). Referred to by a variety of slang terms, the classification of concentrates is often dependent on the manufacturing method and the consistency of the final product.

Cross (genetics): A cross (referring to crossbreeding) is the result when two different plant strains are bred together. For example, Blue Dream is a cross between Blueberry and Haze strains.

Chronic Inflammatory Demyelinating Polyneuropathy: A neurological disorder characterized by progressive weakness and impaired sensory function in the legs and arms. The disorder, which is sometimes called chronic relapsing polyneuropathy, is caused by damage to the myelin sheath (the fatty covering that wraps around and protects nerve fibers) of the peripheral nerves. It often presents with symptoms that include tingling or numbness (beginning in the toes and fingers), weakness of the arms and legs, loss of deep tendon reflexes (areflexia), fatigue, and abnormal sensations. Closely related to Guillain-Barre syndrome, it is considered the chronic counterpart of that acute disease.

Complex Regional Pain Syndromes Type I (CPRS-I): A chronic pain condition most often affecting one of the limbs (arms, legs, hands, or feet), usually after an injury or trauma to that limb. CRPS is believed to be caused by damage to, or malfunction of, the peripheral and central nervous systems. CRPS is characterized by prolonged or excessive pain and mild or dramatic changes in skin color, temperature, and/or swelling in the affected area. Unlike CRPS-II, nerve injury is not confirmed.

Complex Regional Pain Syndromes Type II (CRPS-II): A chronic pain condition most often affecting one of the limbs (arms, legs, hands, or feet), usually after an injury or trauma to that limb. CRPS is believed to be caused by damage to, or malfunction of, the peripheral and central nervous systems. CRPS is characterized by prolonged or excessive pain and mild or dramatic changes in skin color, temperature, and/or swelling in the affected area. CRPS-II is the term used for patients with confirmed nerve injuries.

Crohn's Disease: A type of inflammatory bowel disease (IBD), resulting in swelling and dysfunction of the intestinal tract. Crohn's disease is a chronic disorder.

Cultivation Center: A facility operated by an organization or business that is authorized to grow and harvest medical cannabis for dispensing organizations (Dispensaries)

Dab/Dabbing: A dab is a slang term used to refer to a dose of BHO received through butane combustion and inhalation. The act of "dabbing" refers to partaking in dabs.



Dispensary: A general term used to refer to any location where a patient or consumer can legitimately and safely access cannabis, whether the business is technically an access point, pick-up location, co-op, collective or any other version of a legal cannabis distributor.

Dystonia: A state of sustained muscle contractions in certain muscle groups or repetitive, involuntary movements with painful spasms and fixed postures. It can lead to an abnormal body position and problems with walking or performing other voluntary movements. This is often caused by a disturbance in a deep area of the brain called the basal ganglia. This area controls the basic tension (rigidity) of the muscles and coordination of movements.

Edibles/Medibles: Edibles and medibles are medicated edible goods that have been infused with cannabis extracts. They are commonly baked goods such as cookies and brownies, but options as varied as flavored coffee drinks, breads, and candies exist as well. Dispensaries also often sell marijuana-infused butters or oils for patients or consumers to make their own edibles. Consuming edibles means the active components from the extracts require longer to take effect as they need to be absorbed through the digestive system.

Epilepsy: A brain disorder that causes people to have recurring seizures. The seizures happen when clusters of nerve cells, or neurons, in the brain send out the wrong signals. Seizures can be strange sensations and emotions or they can be violent muscle spasms and can cause a loss of consciousness.

Fibrous Dysplasia: A condition characterized by the fibrous displacement of the osseous tissue within the bones affected. The distinct kinds of fibrous dysplasia are monostotic fibrous dysplasia, polyostotic fibrous dysplasia, and polyostotic fibrous dysplasia with associated endocrine disorders. Any bone may be affected with monostotic fibrous dysplasia. The polyostotic type usually displays a segmental distribution of the involved bones, all of which show varying degrees of the characteristic fibrous replacement of the osseous tissue. The initial signs may be a limp, a pain, or a fracture on the affected side. Pathologic fractures are frequently associated with this process, and angulation deformities may follow. The involved extremity may be shortened, and the classic "shepherd's crook" deformity is common.

Flower: The reproductive organ of the female cannabis plants. Cannabis flowers are the hairy, sticky, crystal-covered bits that are harvested and dried to be used as medication. When they are allowed to be fertilized by male plants, these flowers will produce cannabis seeds. If not, they will continue to produce the resin that contains their active cannabinoids until they are harvested or begin to die.

Glaucoma: A group of eye diseases characterized by damage to the optic nerve usually due to excessively high intraocular pressure (IOP). This increased pressure within the eye, if untreated can lead to optic nerve damage resulting in progressive, permanent vision loss, starting with unnoticeable blind spots at the edges of the field of vision, progressing to tunnel vision, and then to blindness.



Hash/Hash Oil: Short for hashish, which is derived from cannabis plants and can be used for consumption or medication. Production involves the removal of the plant's trichomes by sieving or filtering. Once the cannabinoid-laden powder has been collected, it is typically pressed and ready to be used. Hash ranges in potency, but is generally stronger than straight flowers since everything but the active part of the plant has been removed. A similar concentrated product can also be produced chemically using a solvent; however, this product is commonly referred to as hash oil or "honey oil."

Heirloom: Refers to a cannabis strain that was taken from its native homeland and propagated in another geographical location.

Hemp: A fibrous product that can be produced from the male cannabis plant and can be used in the manufacture of rope, paper, beauty products, and a vast array of other products. Hemp plants have no value as a drug since they are males. However, they are still considered illegal in the United States.

Hybrid: - Refers to a plant that is genetically a cross between one or more separate strains of cannabis. Hybrids can happen unintentionally, but they are usually bred specifically to combine desired traits of the original plants. Most marijuana on the market today is some form of hybrid.

Hydroponics: - Refers to a system of gardening that does not use soil. Plants are grown in water and receive their nutrients from the addition of solutions rather than soil. For growers, hydroponic advantages include more control over nutrient intake and stability. In terms of marijuana production, plants grown hydroponically are sometimes said to have cleaner, more distinct flavors.

Hepatitis C: A form of liver inflammation that causes primarily a long-lasting, chronic liver disease.

Human Immunodeficiency Virus (HIV): A virus that weakens the immune system by destroying important cells that fight disease and infection. It attacks and destroys key disease fighting cells, T-cells or CD4 cells. HIV infection can lead to AIDS.

Hydrocephalus: An abnormal expansion of cavities (ventricles) within the brain that is caused by the accumulation of cerebrospinal fluid. The fluid can increase pressure on the soft tissues of the brain. This squeezes and distorts them. This process also results in damage to these tissues

Hydromyelia: Involves an abnormal collection of fluid within the spinal cord. As fluid builds up, it puts pressure on the spinal cord and can damage nerve cells and their connections. The cavity that forms is connected to the fourth ventricle (normal fluid space in the brain). Symptoms include weakness of the extremities, pain or a heavy sensation in the neck, headaches, loss of sensation in the hands and feet, walking difficulty, problems with bladder control, stiffness in the legs, and visual disturbances.

Indica: The less scientific name for the Cannabis indica species of cannabis. Generally these plants originated in the Middle East and Asia and include both of the famous kush and Afghan lineages. Compared to their sativa counterparts, the plants are shorter, bushier and have more compact



flower structure. This species tends to produce more relaxing physical effects and can have a sedative quality.

Interstitial Cystitis: A chronic condition characterized by a combination of uncomfortable bladder pressure, bladder pain and sometimes pain in your pelvis, which can range from mild burning or discomfort to severe pain.

Joint: Term used for a cannabis cigarette, cannabis flower rolled in paper.

Kief: A collected amount of trichomes that have been separated from the rest of the cannabis flower. Kief is known to be extremely potent. Kief is sometimes mistakenly referred to as pollen and is the primary ingredient in hashish production.

Kush: Refers to a line of cannabis plants that hail from the Hindu Kush mountains in Afghanistan and Pakistan. Kush strains are indicas and have a unique aroma. Specific breeds and plants are unique, but their aroma is generally described as "earthy" and often piney combined with citrus or sweet.

Lupus: A disorder of the immune system. The body thinks that its own cells are foreign organisms and releases antibodies to attack these cells the way it would attack bacteria and viruses. This causes tissues to become inflamed (red and swollen).

Marijuana: Slang term for cannabis.

Medibles/Edibles: Medibles and edibles are medicated edible goods that have been infused with cannabis extracts. They are commonly baked goods such as cookies and brownies, but options as varied as flavored coffee drinks, breads, and candies exist as well. Dispensaries also often sell marijuana-infused butters or oils for patients or consumers to make their own edibles. Consuming edibles means the active components from the extracts require longer to take effect as they need to be absorbed through the digestive system.

Multiple Sclerosis (MS): A chronic autoimmune disorder affecting movement, sensation and bodily functions. It is caused by destruction of the myelin insulation covering nerve fibers (neurons) in the central nervous system (brain and spinal cord).

Muscular Dystrophy: A group of inherited disorders in which strength and muscle bulk gradually decline. Nine types of muscular dystrophies are generally recognized: Duchenne muscular dystrophy (DMD), Becker muscular dystrophy (BMD), Emery-Dreifuss muscular dystrophy (EDMD), Limb-girdle muscular dystrophy (LGMD), Facioscapulohumeral muscular dystrophy (FSH), Myotonic dystrophy (also known as Steinert's disease), Oculopharyngeal muscular dystrophy (OPMD), Distal muscular dystrophy (DD), Congenital muscular dystrophy (CMD).

Myasthenia Gravis: An autoimmune disease that causes muscle weakness. It affects the neuromuscular junction, interrupting the communication between nerve and muscle, and thereby causing weakness.



Myoclonus: A movement disorder that typically affects the upper half of the body. Individuals with this condition experience quick, involuntary muscle jerking or twitching (myoclonus) that usually affects their arms, neck, and trunk. Less frequently, the legs are involved as well. More than half of affected individuals also develop dystonia, which is a pattern of involuntary muscle contractions that causes twisting and pulling movements of specific body parts.

OG: A term originally used to describe Southern California's Ocean Grown Kush, which was shortened to OG Kush. It's now used to describe many strains, most are different variations of the original OG Kush genetics or ocean grown on the West Coast.

Nail-Patella Syndrome: Also known as Fong Disease, Hereditary Onycho-Osteodysplasia (H.O.O.D.), Iliac Horn Disease, and Turner-Kieser syndrome. A genetic disease of the connective tissue that produces defects in the fingernails, knee caps, and kidneys. Other common abnormalities include elbow deformities, abnormally shaped pelvis bone (hip bone), and kidney (renal) disease.

Neurofibromatosis: Also known as, von Recklinghausen disease, this is a genetic disease in which patients develop multiple soft tumors (neurofibromas). These tumors occur under the skin and throughout the nervous system.

Parkinson's Disease: A disease of the central nervous system that causes problems with body motions, including tremor (shakiness), rigidity (muscle stiffness), slowed body movements, unstable posture and difficulty walking. It happens when nerve cells (neurons) in a part of the brain, called the substantia nigra, gradually die. These cells normally produce a chemical called dopamine that helps to relay messages between areas of the brain that control body movement. The death of cells in this area of the brain leads to abnormally low levels of dopamine, which makes it difficult for a person with Parkinson's disease to control muscle tension and muscle movement, both at rest and during periods of activity.

Pharmacopeia: A book containing an official list of medicinal drugs together with articles on their preparation and use.

Post-Traumatic Stress Disorder (PTSD): A type of anxiety disorder. It can occur after one has experienced an extreme emotional trauma that involved the threat of injury or death.

Pre-roll: Refers to a pre-rolled cannabis cigarette, commonly called a joint. Many dispensaries have pre-rolls available for purchase.

Reflex Sympathetic Dystrophy (RSD): A chronic pain condition most often affecting one of the limbs (arms, legs, hands, or feet), usually after an injury or trauma to that limb. RSD is now classified as CRPS-I and is believed to be caused by damage to, or malfunction of, the peripheral and central nervous systems. It is characterized by prolonged or excessive pain and mild or dramatic changes in skin color, temperature, and/or swelling in the affected area. Unlike CRPS-II, nerve injury is not confirmed.



Residual Limb Pain: Associated with amputation. “Phantom” pains emanate from the amputated portion of the limb.

Rheumatoid Arthritis (RA): A chronic autoimmune disease that causes inflammation and deformity of the joints. Other problems throughout the body (systemic problems) may also develop, including inflammation of blood vessels (vasculitis), the development of bumps (called rheumatoid nodules) in various parts of the body, lung disease, blood disorders, and weakening of the bones (osteoporosis).

Sativa: The less scientific name for the Cannabis sativa species of cannabis plant. In general, these plants originated outside of the Middle East and Asia and include strains that are from areas such as South America, the Caribbean, Africa, and Thailand. These strains tend to grow taller as plants (usually over 5 feet), are lighter in color and take longer to flower. When consumed, sativas tend to produce more cerebral effects as opposed to physical and sedative ones.

Strain: A specific variety of a plant species. Strains are developed to produce distinct desired traits in the plant and are usually named by their breeders. Strain names often reflect the plant's appearance, its promised effects, or its place of origin.

Severe Fibromyalgia: A neurosensory disorder characterized by widespread muscle pain, joint stiffness, and fatigue. The condition is chronic, but pain comes and goes and moves about the body.

Sjogren's Syndrome: A disorder of the immune system. The mucous membranes and moisture-secreting glands of the eyes and mouth are usually affected first — resulting in decreased production of tears and saliva.

Spinal Cord Disease: A result of diverse pathologic processes including trauma that leads to significant impairment of motor, sensory, or autonomic function.

Spinal Cord Injury: Damage to the spinal cord that causes loss of sensation and motor control.

Spinocerebellar Ataxia (SCA): A form of genetically inherited disorder that is characterized by abnormalities in the person's brain functioning. It is a degenerative condition that affects the cerebellum, which is located behind the brain stem. Symptoms include progressive atrophy, or muscle wasting leading to spasticity and the inability to coordinate movement.

Syringomyelia: Involves an abnormal collection of fluid within the spinal cord. As fluid builds up, it puts pressure on the spinal cord and can damage nerve cells and their connections. The cavity that forms does not communicate with any other fluid spaces, and occurs primarily in adults who have experienced spinal cord trauma. Symptoms include weakness of the extremities, pain or a heavy sensation in the neck, headaches, loss of sensation in the hands and feet, walking difficulty, problems with bladder control, stiffness in the legs, and visual disturbances.

Tarlov Cysts: Cysts are fluid-filled sacs that affect the nerve roots of the spine, especially near the base of the spine (sacral region). Individuals may be affected by multiple cysts of varying size.



Symptoms sometimes caused by Tarlov cysts include pain in the area served by the affected nerves, numbness and altered sensation, an inability to control bladder and bowel movements, impotence, and, rarely, weakness in the legs.

Terpenes: A large and diverse class of organic compounds produced by a variety of plants, including cannabis. Many terpenes are aromatic hydrocarbons and thus are believed to have a protective function. Terpenes are the primary constituents of the essential oils of many types of plants and flowers. Terpenes affect the aroma and flavor of cannabis.

Terpenoids: Naturally occurring organic chemicals similar to terpenes. Terpenoids are widely found in plants, and can form cyclic structures such as sterols.

THC: An abbreviation for delta-9-tetrahydrocannabinol. It is the most well-known and most abundantly available cannabinoid in cannabis. It is responsible for the psychoactive effects, or the "high."

Tincture: A liquid cannabis extract usually made with alcohol or glycerol that is often taken with a dropper.

Topical: A type of cannabis product where the active properties of the flowers have been extracted and added to a product such as a lotion or a cream that's applied to the skin.

Tourette's Syndrome: A disorder of the nervous system, characterized by a variable expression of unwanted movements and noises (tics). Other symptoms can include obsessive compulsive disorder, attention deficit disorder, self-injuring behavior, depression, and anxiety.

Traumatic Brain Injury and Post-Concussion Syndrome: Caused by a head injury. The condition can cause a variety of physical, cognitive, emotional and behavioral symptoms, including, but not limited to: memory or concentration problems; persistent headaches; dizziness or loss of balance; sensory problems; mood swings; fatigue; difficulty sleeping; convulsions or seizures; difficulty remembering new information; loss of appetite or unable to control eating; unable to regulate body temperature.

Trichomes: The fine outgrowths or appendages on plants. They are the sticky crystals that contain the vast majority of the plant's cannabinoids.

Vape Pen: A portable device used to consume cannabis. It heats either flowers or marijuana-infused oils to a temperature that produces a cannabinoid-laced vapor to inhale.

Vaporizer: A device used to consume cannabis. It heats either flowers or marijuana-infused oils to a temperature that produces a cannabinoid-laced vapor to inhale.

Wax: A form of cannabis concentrate.

Weed: Slang term for cannabis.



APPENDIX B – REFERENCES AND RESEARCH LINKS

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Additional Research and Related Links

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- <http://www.cannabis-med.org/>
- <http://www.mpp.org/issues/research/>
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- <http://medicalmarijuana.procon.org/view.answers.php?questionID=000638>
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APPENDIX C – ADVOCACY AND ADDITIONAL RESOURCES

Advocacy Groups



Americans for Safe Access: www.safeaccessnow.org



Marijuana Policy Project: www.mpp.org



NORML: www.norml.org



National Cannabis Industry Association: <http://thecannabisindustry.org/>



Veterans for Medical Cannabis Access: www.veteransformedicallmarijuana.org



Medical Cannabis Declaration: www.medical-cannabis-declaration.org

Additional Resources

Complete Guide to Prescription and Nonprescription Drugs 2015

<http://www.penguin.com/book/complete-guide-to-prescription-and-nonprescription-drugs-2015-by-h-winter-griffith/9780399171345>

www.medicalcannabis.com

www.patientslikeme.com

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