

## Marijuana for Medical Use Patient Information

### Marijuana for Medical Use Patient Information



<u>Table of Contents</u>	<u>Page</u>
A. Marijuana (Cannabis) Strains .....	3
B. Cannabinoids.....	3
C. Routes of Administration .....	4
D. Dosing & Safety .....	4
E. Side Effects .....	5
F. Tolerance, Dependence & Withdrawal .....	6
G. Medication Interactions.....	7
H. Long-Term Effects .....	7
I. Cannabinoid Research .....	8
J. Signs & Symptoms of Substance Abuse .....	10
K. Substance Abuse Treatment Programs .....	10
L. Glossary .....	11
M. Usage Log .....	15

## A. Marijuana (Cannabis) Strains

It is important to select a strain that is best suited for your particular symptoms. Remember that the effects of various strains will differ from patient to patient. Following are some general guidelines:

### Sativa

- Common patient description: “mind effect”
- Used for pain, inflammation, nausea, and depression
- Stimulates brain activity, enhances mood, increases alertness
- Usually preferred for daytime use

### Indica

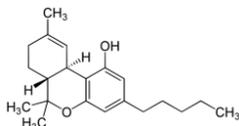
- Common patient description: “body effect”
- Effective for pain, inflammation, muscle spasms, anxiety, insomnia
- Relaxing, preferred for bodily ailments
- Usually preferred for sleep

### Hybrids

- Genetic combinations of strains
- Medicinal effects are combined and balanced
- Most commercial strains are hybrids
- Varying levels of THC, CBD, and other cannabinoids

## B. Cannabinoids

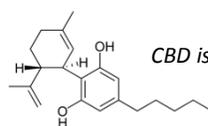
A group of over 100 molecular compounds unique to the cannabis (marijuana) plant that exert a variety of medicinal actions in the human body. Cannabinoids from the marijuana plant are “phyto”-cannabinoids; e.g., THC and CBD. The human body produces its own natural “endo”-cannabinoids.



**THC (tetrahydrocannabinol)**

Properties: pain relief, anti-inflammatory, antioxidant, anti-nausea, mood elevation

Vaporization temp: 315°F/157°C



**CBD (cannabidiol)**

Properties: pain relief, anti-inflammatory, antioxidant, anti-spasmodic, anxiety relief, nerve protection

Vaporization temp.: 356°F/180°C

*CBD is not “psychoactive” like THC.*

## C. Routes of Administration

**Smoking:** For example, “joint,” “bowl,” “bong.” Average duration of effects = 2-4 hours. Hash powder is a concentrated form of cannabis. Average duration of effects = 2-4 hours.

**Vaporization:** When cannabinoids are heated to the correct temperature (~380-385°F), they boil and vaporize, like water turning into steam. The smoke-free vapor can then be inhaled without tars, ash, and potentially harmful combustion byproducts. Vaporizer pens offer a convenient portable option. Average duration of effects = 2-4 hours.

**Tinctures:** A medicinal extract of cannabis that is consumed or taken sublingually. Tinctures may be alcohol-, oil-, or vegetable glycerin-based. Dosing is controlled via a dropper or sprayer. Average duration of effects = 4-6 hours.

**Edible Products:** There are a variety of ingestible marijuana-infused products available such as ethanol honey oil (“EHO”) and gel capsules. Dosing is a concern, it is important to begin with small amounts. Effects can take up to an hour to be felt and may last for up to 6-8 hours. All edibles must be kept safe from children.

**Topical Applications:** Topical preparations of cannabis (creams, ointments, balms, salves) may be used for local pain relief as well as for the treatment of dermatologic conditions such as dermatitis, eczema, and psoriasis. Topicals may be applied as needed.

## D. Dosing & Safety

“Less is More”...marijuana for medical use works most effectively when you *use the least amount necessary to achieve the desired effect.*

- **Warning:** Marijuana has not been analyzed or approved by FDA, there is limited information on side

effects, there may be health risks associated with its use, and it should be kept away from children.

- **Warning:** When under the influence of marijuana, driving is prohibited by *M.G.L. c.90, s.24*, and machinery should not be operated.
- **Note:** Registered qualifying patients may not distribute marijuana to any other individual. Any unused, excess, or contaminated product must be returned to the Massachusetts registered marijuana dispensary from which it was purchased for disposal.

**Potency:** The potency of marijuana and marijuana-infused products (MIPs) can vary considerably, as can effects related to the delivery system utilized and individual patient response. New users of marijuana for medical use are usually much more sensitive to its effects than more experienced users.

**Titration:** When using marijuana and MIPs, you should begin with very small doses until you are familiar with the strain/product and its effects. For example, a puff of vapor, a few drops of tincture, or a very small portion of an edible product. With edible products, be sure to wait at least an hour before consuming an additional dose.

## E. Side Effects

### Most Common

- Dry mouth, red eyes, increased appetite, fatigue, sleepiness.

### Less Common

- Pleasant change in mood/sensation, unpleasant change in mood/sensation, confusion, palpitations, fast heartbeat, nervousness, mental slowness, problems with memory (esp. short-term), dizziness, difficulty in completing complex tasks, increased talkativeness, cough, impaired motor skills, reaction time, and physical coordination.

- Symptoms of cannabis overdose include but are not limited to nausea, vomiting, disturbances to heart rhythm, numbness of the limbs, and hacking cough.
- For some patients, chronic use can lead to general apathy.
- Although cannabis has not been shown to produce a specific psychosis, the possibility exists that it may exacerbate schizophrenia and bipolar disorder in persons predisposed to those disorders.

**Avoiding Side Effects:** Side effects may be minimized by strategies such as using less, changing delivery method or strain, or including a period of abstinence.

## F. Tolerance, Dependence & Withdrawal

**Tolerance:** Some patients develop a tolerance to cannabis. This means that higher and higher doses are required to achieve the same level of symptom relief. Tolerance may be minimized by strategies such as using less, changing delivery method or strain, or taking a period of abstinence.

**Dependence:** Some patients can become dependent on cannabis with chronic use. Dependence may be psychological or physical (i.e., withdrawal syndrome) upon discontinuation of use.

**Withdrawal:** A cannabis withdrawal syndrome has been described in a small percentage of users (approx. 5-10%). Withdrawal symptoms, while generally mild, can include feelings of depression, sadness or irritability, restlessness or mild agitation, insomnia, sleep disturbance, unusual tiredness, trouble concentrating, nausea, and loss of appetite. Cannabis withdrawal symptoms generally resolve within several days to several weeks.

## G. Medication Interactions

There are few known interactions between cannabis and pharmaceutical medications or other herbs; however, very few well-controlled studies have been performed.

- Cannabis may lower blood pressure. Caution is advised in patients taking medication, herbs, or supplements that lower blood pressure.
- Cannabis may cause drowsiness or sedation. Caution is advised in patients taking sedatives, barbiturates, central nervous system depressants, or if consuming alcohol.
- Cannabis may lower blood sugar levels. Caution is advised in patients prone to hypoglycemia.
- Cannabis may decrease the effects of theophylline, a drug used for asthma and chronic obstructive pulmonary disease (COPD).
- Cannabis may interact with disulfiram (Antabuse) resulting in agitation, insomnia, and irritability.
- Cannabis may increase the effects of the blood thinner warfarin (Coumadin) resulting in an increased chance of bruising and bleeding.

## H. Long-Term Effects

Smoking marijuana regularly may have negative effects on the lungs including cough, bronchitis, and cellular respiratory airway changes, although it has not been associated with the development of lung cancer or a loss of pulmonary function. These effects can be avoided through the use of edibles, tincture, and vapor inhaled methods of administration.

In some users, long-term heavy use of marijuana has been associated with impaired thinking or memory problems, anxiety, apathy, or a worsening of schizophrenia in pre-disposed individuals.

Patients also report positive long-term effects associated with marijuana for medical use including improvements in chronic pain, sleep, and mood. There has never been a death from a marijuana overdose.

## I. Cannabinoid Research

### **Analgesic and anti-inflammatory activity of constituents of cannabis sativa.**

This study demonstrated that the cannabinoids delta 1-tetrahydrocannabinol (delta 1-THC), cannabinoid (CBD), and cannabidiol (CBN) were demonstrated to have pain and inflammation-relieving effects in mice.

Formukong EA, et al. 1988: *Inflammation*.

<http://www.ncbi.nlm.nih.gov/pubmed/?term=3169967>

### **The nonpsychoactive cannabis constituent cannabidiol is an oral anti-arthritic therapeutic in murine collagen-induced arthritis.**

This study concluded that CBD (cannabidiol), the major nonpsychoactive component of cannabis, has potent anti-arthritic effect in murine (mouse) collagen-induced arthritis through its combined immunosuppressive and anti-inflammatory actions.

Malfait AM, et al. 2000: *Proceedings of the National Academy of Science*.

<http://www.ncbi.nlm.nih.gov/pubmed/?term=10920191>

### **Cannabinoid analgesia as a potential new therapeutic option in the treatment of chronic pain.**

This study concluded that cannabinoids provide a potential approach to pain management with a novel therapeutic target and mechanism, that chronic pain often requires a polypharmaceutical approach to management, and that cannabinoids are a potential addition to the arsenal of treatment options.

Burns TL, Ineck JR. 2006: *Annals of Pharmacotherapy*.  
<http://www.ncbi.nlm.nih.gov/pubmed/?term=16449552>

### **Smoked cannabis for chronic neuropathic pain: a randomized controlled trial.**

This study concluded that a single inhalation of 25mg of 9.4% tetrahydrocannabinol herbal cannabis three times daily for five days reduced the intensity of pain, improved sleep, and was well tolerated.

Ware MA, et al. 2010: *Canadian Medical Association Journal*.  
<http://www.ncbi.nlm.nih.gov/pubmed/?term=20805210>

### **Randomized controlled trial of cannabis-based medicine in spasticity caused by multiple sclerosis.**

This randomized, placebo-controlled study of 189 human subjects with definite MS and spasticity concluded that cannabis-based medicines may represent a useful new agents for treatment of the symptomatic relief of spasticity in MS.

Collin, et al. 2007: *European Journal of Neurology*.  
<http://www.ncbi.nlm.nih.gov/pubmed/?term=17355549>

### **Cannabidiol reduces the anxiety induced by simulated public speaking in treatment-naïve social phobia patients**

This study showed that CBD significantly reduced anxiety, cognitive impairment, discomfort, and alert levels when compared with the control group.

Berchamaschi MM, et al. 2011: *Neuropsychopharmacology*.  
<http://www.ncbi.nlm.nih.gov/pubmed/?term=21307846>

### **Role of cannabinoid receptors in bone disorders: alternatives for treatment**

This review article examined the role of cannabinoid receptors in regulating bone mass, bone loss, and bone cell function in health and disease and provided support to the notion that cannabinoids show great promise in the treatment of bone

diseases including osteoporosis, rheumatoid arthritis, and bone metastasis.

Idris A. 2008: *Drug News and Perspectives*.  
<http://www.ncbi.nlm.nih.gov/pubmed/?term=19221634>

### **Cannabinoids in the treatment of cancer**

This review of 51 published scientific concluded that cannabinoids could be useful in the treatment of cancer due to their ability to regulate cellular signaling pathways critical for cell growth and survival.

Alexander A, et al. 2009: *Cancer Letters*.  
<http://www.ncbi.nlm.nih.gov/pubmed/?term=19442435>

### **J. Signs & Symptoms of Substance Abuse**

- Problems with family, work, school
- Neglected appearance
- Feeling that you have to use the drug regularly
- Failing in attempts to stop using the drug
- Engaging in abnormal behaviors, such as stealing
- Feeling that you need the drug to deal with your problems
- Engaging in risky activities (such as driving) under the influence of the drug
- Withdrawal upon discontinuation of use

### **K. Substance Abuse Treatment Programs**

#### **Massachusetts Substance Abuse Information and Education**

Help Line: 800-327-5050

Website: [http://helpline-online.com/getting\\_help.html](http://helpline-online.com/getting_help.html)

**Massachusetts Dept. of Health and Human Services  
Bureau of Substance Abuse Services**

Website:

<http://www.mass.gov/eohhs/gov/departments/dph/programs/substance-abuse/>

**U.S. Department of Health and Human Services  
Substance Abuse & Mental Health Services  
Administration (SAMHSA)**

Substance Abuse Treatment Facility Locator:

<http://findtreatment.samhsa.gov/TreatmentLocator/faces/addressSearch.jsp?state=MA>

## L. Glossary

**An Act for the Humanitarian Use of Marijuana for Medical Purposes (MGL 369)** – Massachusetts voter-approved ballot question allowing qualified patients with a debilitating medical condition to obtain and possess marijuana for medical use and requiring the Department of Public Health to develop regulations for patient and caregiver registration, operation of dispensaries, and other aspects of the law.

**Cannabis** – all parts of the *Cannabis* plant (marijuana).

**Cannabinoid** – a class of chemicals that include the medicinally active components in marijuana. There are cannabinoids that occur naturally in the body (endocannabinoids), cannabinoids that occur in the marijuana plant (phytocannabinoids), and cannabinoids that are created in a lab (synthetic cannabinoids).

**CB1/CB2 Receptors** – naturally occurring cell-membrane bound receptors located primarily in the nervous and immune systems to which cannabinoid molecules bind to initiate physiological actions.

**CBC** – Abbreviation for “cannabichromene.” CBC is a non-psychoactive component of cannabis that may play a role in

the anti-inflammatory and analgesic effects of marijuana for medical use.

**CBD** – Abbreviation for “cannabidiol.” CBD is a non-psychoactive component of cannabis with particular medical promise. Medicinal properties of CBD may include pain relief, anti-inflammatory, antioxidant, antispasmodic, anxiety relief, and nerve protection.

**CBN** – Abbreviation for “cannabinol.” CBN is the primary product of THC degradation, and there are usually minimal quantities in the fresh plant. CBN content increases as THC degrades in storage, and with exposure to light and air. It is mildly psychoactive.

**Controlled Substance** – A drug or other substance, or immediate precursor, included in schedule I, II, III, IV, or V of the U.S. Government's Controlled Substances Act. Marijuana and its phytocannabinoid constituents are currently included in the Schedule 1 category, defined as having no accepted medicinal value, along with heroin and methamphetamine. Cocaine and nabilone (Casemet®) are included in the Schedule II category and dronabinol (Marinol®) is included in the Schedule III category.

**DEA** – The United States Drug Enforcement Administration, whose main purpose is to enforce the controlled substances laws and regulations of the United States.

**Debilitating Medical Condition** – A patient must obtain a written certification from a physician for a debilitating medical condition. Massachusetts law specifies: cancer, glaucoma, AIDS, hepatitis C, amyotrophic lateral sclerosis (ALS), Crohn's disease, Parkinson's disease, multiple sclerosis and other conditions as determined in writing by a qualifying patient's physician.

**Efficacy** – the power to produce an effect. A drug is considered to have efficacy if it produces the desired effect.

**Endocannabinoid** – a cannabinoid that occurs naturally in the body. Examples include anandamide and 2-arachidonyl glycerol (2-AG).

**FDA** – The United States Food and Drug Administration, whose main goal is to protect the public health.

**Hashish** – compressed unadulterated resin from the flowering tops of the female *Cannabis* plant that may be smoked, chewed, or swallowed in a liquid.

**Hash Oil** – a dark green or black tar-like material made by solvent extraction of either cannabis resin or herbal cannabis.

**Hemp** – a variety of marijuana that contains virtually no THC (i.e., non-psychoactive) that is cultivated to produce food, oil, wax, resin, rope, cloth, pulp, paper, and fuel.

**IND Program** – The Investigational New Drug (IND) Program is a program sponsored by the FDA that allows researchers to test new drugs prior to approval.

**Joint** – a *Cannabis* cigarette. Often referred to as a reefer, spliff, etc.

**NIDA** – The National Institute on Drug Abuse (NIDA) is a U.S. government agency whose primary mission is "to lead the Nation in bringing the power of science to bear on drug abuse and addiction." NIDA is currently the only agency in the U.S. contracted to supply marijuana for research and IND programs.

**Phytocannabinoid** – a cannabinoid molecule that is produced by the marijuana plant. 108 cannabinoids have been identified in the marijuana plant, including tetrahydrocannabinol (THC) and cannabidiol (CBD).

**Psychoactive** – substances that affect the mind or behavior.

**Rescheduling** – moving a drug from one of the five controlled substance schedules to another. Marijuana for medical use advocates and knowledgeable physicians seek the rescheduling of marijuana from its current classification as a Schedule I substance to a lesser schedule or removal from the list altogether (descheduling).

**Sinsemilla** – The Spanish word for "seedless." The highest concentration of cannabinoids in the *Cannabis* plant are in the flowering tops of unfertilized female plants.

**Strain** – A group of plants with a presumed common ancestry. *Cannabis* strains are often generally referred to as "indica," "indica-dominant hybrid," "hybrid," "sativa-dominant hybrid," and "sativa." Sativa strains are generally considered to be more stimulatory in nature and Indica strains are generally considered to be more relaxing.

**THC** – Abbreviation for tetrahydrocannabinol. THC is the main psychoactive component of cannabis. The medicinal properties of THC include pain relief, anti-inflammatory, antioxidant, anti-nausea, and mood elevation.

**Titrate** – determining the smallest amount of a substance required to bring about a given effect. With marijuana for medical use, titrate refers to determining the least amount of medicine necessary in order to produce the desired effects.

**Toxicity** – relating to, or caused by a poison or toxin. A substance in small doses may not be harmful, but large doses can produce toxicity in the body. There has never been a death attributable to an overdose of marijuana.

**Trichomes** – microscopic resin glands located most abundantly in the upper leaves and flowering tops of female plants of the *Cannabis* plant. The droplets secreted by trichomes contain cannabinoid molecules.

