

Let's discuss...

# Medical Use of Cannabis (Marijuana)

Cannabis is one of the oldest psychoactive plants known to humans. Its therapeutic potential has been recognized since ancient times—at least 4,000 years. In the second millennia B.C.E., cannabis was cited in the Atharva Veda, a sacred Indian text, as a remedy for anxiety. In Egypt, there is evidence that cannabis has been used in medicine since the days of the pharaohs. In China, cannabis was used as a surgical anaesthetic in the second century C.E. All around the ancient world, from Babylonia to Israel to Rome, cannabis has been used as a medicine.

The medicinal properties of cannabis became part of Western medicine in the mid-19 century when cannabis strains from Egypt and India were imported by the French and British, respectively. Between 1840 and 1940, English, Irish, French and then North American physicians and pharmacists testified to the usefulness of various cannabis preparations for pain relief and other conditions including malaria, rheumatism, migraine headaches, gout and glaucoma. Cannabis was in the Canadian pharmacopeia until it was added to a list of restricted drugs in 1923 and its possession, cultivation and distribution became illegal.

Although the medicinal benefits of cannabis have been understood for thousands of years, its use in medicine today is controversial. Studies indicate that between 1.9 and 4 per cent of the Canadian population is currently using cannabis for therapeutic purposes. A third of cannabis users in BC report using cannabis for medicinal reasons.

## How does cannabis work as medicine?

Cannabis leaves and flowers contain unique molecules called cannabinoids. There are more than 60 different cannabinoids, but the best known and the one with the most significant psychoactive effect, is called THC (delta-9-tetrahydrocannabinol). Medicinal effects have also been attributed to other cannabinoids, including CBD (cannabidiol), as well as other plant molecules (terpenoids and flavonoids). Together, these molecules contribute to the overall effect of cannabis.

The human body produces endocannabinoids, its own natural version of cannabinoids. They help to regulate the body's systems. Cannabinoid



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receptors are found throughout the body, especially in the nervous and immune systems. Endocannabinoids and cannabinoid receptors naturally respond to biological events—for example, endocannabinoid levels will increase in response to brain injury and strokes, and receptors will increase in response to nerve injuries and associated pain. Both plant cannabinoids and endocannabinoids bind to the body’s cannabinoid receptors. When this binding occurs, effects such as pain relief and the suppression of stress result.

Studies indicate that there are two main species of the cannabis plant, *Cannabis indica* and *Cannabis sativa*. Generally, the indica species (which has higher levels of THC) is used as a medicine, while the sativa species is used for hemp fibre and seeds (which contain nutritional essential fatty acids).

Plant breeders have developed hundreds of different strains of cannabis from these two species. The effects of cannabis vary depending on which strain is being used. Many people report experiencing different medicinal effects from different strains. Potency also varies with strain. Higher-

potency cannabis and cannabis extracts mean that less cannabis need be used to deliver the desired effect.

Although there has not been much formal research done into the medicinal effects of different strains, it appears that the different effects of cannabis strains are related to the concentration and balance of various active ingredients in the plant. It is important that medicinal users have access to a variety of cannabis strains to meet their individual needs. Most people rely on word of mouth and trial and error to choose a strain that they feel works for them.

## What conditions or symptoms is cannabis used to treat?

Cannabis can be used to treat a wide variety of medical conditions and symptoms, as well as the side-effects of pharmaceutical medications. In some cases, cannabis may be more effective than pharmaceutical options and have fewer negative side-effects. It is often recommended to improve quality of life for people who have critical and chronic illnesses.

Some of the symptoms cannabis is used to treat include:

- nausea
- loss of appetite
- chronic pain
- anxiety
- insomnia
- inflammation
- muscle spasms

There are many medical conditions that cannabis is used to treat. Some of the most common ones are:

- arthritis
- cancer
- HIV/AIDS
- hepatitis C
- glaucoma
- multiple sclerosis
- cerebral palsy
- spinal cord injuries
- epilepsy

“Indica” and “Sativa” are also the commonly used terms to categorize strains of cannabis that have different effects on the user. For example, people often say that “Indica” strains are sedating and good at reducing anxiety, pain, muscle spasms and tremors, among other symptoms. And people often say that “Sativa” strains are more energizing and good for appetite stimulation and relieving depression and migraines, among other symptoms. Other strains, commonly called “crosses” tend to be mood stabilizing and particularly good for the relief of nausea and appetite stimulation. While such categorizations are very helpful for selecting particular strains to match particular symptoms, these commonly used names do not correlate with the botanical species *Indica* and *Sativa*.

- Attention Deficit Hyperactivity Disorder (ADHD)
- Crohn's disease
- Fibromyalgia
- migraines
- Parkinson's disease
- depression
- Post Traumatic Stress Disorder (PTSD)

Cannabis has also been used for substance addiction and withdrawal as it can be effective for decreasing cravings and withdrawal symptoms. Some people have used it as a substitute for more harmful substances, including alcohol, and opiate-based drugs such as morphine and Oxycontin®.

Although cannabis can aggravate mental health conditions in certain circumstances, some people suffering from mental illness use it to relieve the symptoms of their disorder or the unpleasant side-effects of their medication. Cannabis is used by some people to treat depression—which may be their primary diagnosis, or related to another diagnosis. Some people with schizophrenia and bipolar disorder have also been able to use cannabis successfully to relieve their symptoms with no significant side-effects. The use of cannabis by people with these disorders should be monitored carefully, however, because negative side effects are possible.

## How do people use cannabis for medical purposes?

There are several ways to use cannabis, each with a different time of onset, duration and effect quality. Some methods may be more effective than others for certain symptoms and conditions, and they may be preferable in certain circumstances.

Smoking is one of the fastest and most efficient ways for patients to experience the therapeutic effects of cannabis. This is because, when inhaled, the medicine moves quickly into the blood stream through

capillaries in the lungs. The effects are usually felt within a few minutes, which makes it easy to find the right dosage. Because of its immediacy, this method may be ideal for symptoms such as nausea and muscle spasms. The effects from cannabis inhalation can last a few hours.

Vaporizing is another form of inhalation. When cannabis is vaporized, a vapour is produced rather than smoke, and the vapour can be inhaled. Vaporizing tends to be less irritating on the throat and lungs than smoking. Some people find the 'high' produced from vaporizing to be different than the 'high' from smoking. Since it does not produce smoke, vaporizing may be more suitable for indoor use such as hospitals or palliative care settings.

Cannabis can also be swallowed. Because it is fat soluble, the active ingredients can be extracted into butters, oils, or milk, which the patient can then eat or drink. For example, cannabis-infused butter can be used in baking, or cannabis can be blended into a milkshake. When cannabis is ingested, the effects are much stronger and last longer than when it is inhaled. This may be suitable for chronic pain or other persisting symptoms. However ingestion may not be suitable for everyone because it can take up to a few hours to feel the full effects and the effects depend on many factors. This makes the desired dosage more difficult to find. Too high a dosage can lead to vomiting and anxiety, while too low a dosage will be ineffective.

Although cannabinoids are minimally soluble in water, cannabis tea provides a less potent alternative with unique properties that may be suitable for some people. Oral-mucosal sprays (mouth sprays) are absorbed through the mouth's membranes. The effects are usually felt within 10–20 minutes; however since some of the spray will also be swallowed, dosage can be difficult to assess and the effects may come at different stages. Other methods of use include topical ointments.

## What is pharmaceutical cannabis, and how does it compare to herbal cannabis?

Pharmaceutical companies have developed drugs which either contain cannabinoids or have synthetic chemicals similar to those found in the cannabis plant. Some patients who want to use cannabinoids use pharmaceutical products only. Others use pharmaceutical products to complement their herbal cannabis use, or instead of cannabis, for example, when travelling. Other patients report that they prefer herbal cannabis.

Two kinds of synthesized THC (dronabinol or Marinol® and nabilone or Cesamet®) have been approved for treatment of chemotherapy-related nausea and vomiting. Marinol® has also been approved for appetite and weight loss associated with HIV/AIDS wasting syndrome. A recent pharmaceutical cannabis product called Sativex® has been approved in Canada for pain associated with advanced cancer and neuropathic pain associated with multiple sclerosis.

Pharmaceutical products with only some of the plant molecules do not have the same potential benefits as herbal cannabis. In herbal cannabis, different cannabinoids—as well as the terpenoids and flavanoids—act to balance the psychoactive effects of THC and have other have medical properties. Marinol® and Cesamet® are based on only one component of cannabis (THC, or a related synthetic molecule). Some studies show that this can increase the risk of panic attacks and dysphoria; many patients have reported such negative side effects. Sativex® contains molecules taken directly from the cannabis plant, including THC and CBD, and does not seem to have the same negative side effects as the other pharmaceutical products. Patient responses to this product vary. While some find it effective, others do not. This may be

because it is the equivalent of one strain of cannabis that is not effective for everyone.

With inhalation, herbal cannabis takes effect very quickly. Because Marinol® and Cesamet® are swallowed in pill form, their effects are slower to be felt and it is therefore harder for a patient to find the right dosage. It is also difficult for patients to swallow pills while experiencing nausea. Sativex® is delivered via a spray absorbed through the patient's mouth, so its onset time is quicker.

The costs of herbal cannabis are currently only covered by health insurance in very limited circumstances, but the costs of some of the pharmaceutical products are covered. At this stage in its approval process (it currently has a Notice of Compliance with Conditions) the cost of Sativex® is not covered by all provincial and territorial health insurance plans, making this option more expensive than other pharmaceutical and herbal cannabis products.

## What are the side-effects and risks of using cannabis to treat medical conditions or symptoms?

All drugs have side-effects and potential harms. The important question to consider when using any medicine is whether the benefits outweigh the potential harms. Many studies document the therapeutic effectiveness of cannabis. Beyond the scientific evidence, many people believe, based on personal experience, that cannabis has a direct impact in terms of improving their well-being with minimal adverse effects.

The side effects associated with cannabis are typically mild and are classified as “low risk”, particularly when compared to many of the pharmaceutical drugs used for the same conditions and symptoms. Serious complications are very rare and there is no

known case of a lethal overdose. The ratio of lethal to effective dose is estimated at more than 1,000 to one.

While over-consumption does not kill or seriously harm the user, it can be unpleasant. Someone who has consumed too much may become dizzy, agitated, nauseous, nervous, or paranoid. The most intense feelings will last about an hour and the effects should wear off in four to five hours. Some acute effects of too high a dose, particularly in new users, include tachycardia (accelerated heart rate) and hypotension (lowered blood pressure). Several studies have documented mild short-term impairments in motor-coordination, attention span and memory.

These short-term effects are dependent on factors such as the patient's familiarity with cannabis, the strain and dosage used, as well as the context of use.

Euphoric mood changes are among the most frequent side effects of cannabis. While some people find the 'high' that can accompany cannabis use to be a therapeutic benefit, others do not like the feeling. Heavy cannabis use may make symptoms worse for mood and personality disorders and can exacerbate existing schizophrenic psychosis or increase the risk for developing psychosis in predisposed persons.

There is not a lot of data about the long-term effects of using cannabis, and the data that does exist is inconsistent. Generally, the effects are believed to be limited. Inhaling cannabis smoke can lead to some respiratory problems such as bronchitis and phlegm production; however a link between smoking cannabis and chronic lung diseases such as Chronic Obstructive Pulmonary Disease (COPD) has not been proven. Studies do show that smoking cannabis and tobacco together increases the risks of COPD and lung cancer. However, smoking cannabis alone,

even regularly and heavily, does not appear to be associated with lung cancer. There is increasing evidence that endocannabinoids are able to inhibit the growth and spreading of cancer tumors.

Cannabis is generally perceived to have low risk for producing physical dependence; however long-term, frequent use of large amounts can lead to mild psychological dependence. Chronic, heavy use of cannabis may lead to the development of tolerance so that more cannabis must be used to achieve the desired effects. Using a different strain of cannabis, or stopping use for a short time can reduce tolerance levels. Some users (about 10 per cent) may find it difficult to stop. Some users experience minor withdrawal symptoms when they stop using cannabis, such as irritability, anxiety, upset stomach, loss of appetite, and disturbed sleep. These symptoms generally last for a few days at most.

### Contraindications

There are certain conditions that increase the risk of using cannabis. Patients with a history of psychotic disorders, particularly schizophrenia and bi-polar disorder, should be under careful psychiatric monitoring when using cannabis. Cannabinoids are contraindicated for patients with a history of active cardiac ischemias. Those receiving digitalis or other cardiac medications should use cannabis under careful supervision by a medical doctor. Cannabis use should be avoided where the immune system is needed to fight off infections, particularly intracellular pathogens, such as those that cause Legionnaire's disease, Leishmania and tuberculosis.



## Drug interactions

Because of the way cannabis is metabolized, it has been suggested that there is a potential for it to interact with other drugs. Clinically significant interactions have not been detected; however some study results and case reports indicate that there is the possibility that cannabis may increase or decrease the effectiveness of other medication. While inconclusive, these results suggest that patients should be monitored for a change in dosing requirements if they are taking other drugs.

Reports from patients indicate that negative drug interactions are not common. Patients report that they are able to reduce the doses of some of their pharmaceutical drugs (particularly opiate-based painkillers) when using cannabis. Cannabis has also been shown to mitigate the negative side effects of pharmaceutical drugs and other therapies. This helps patients stick to their treatment schedules.

## Quality

Depending on how cannabis is cultivated and stored, some mould, bacteria and other contaminants may grow on it. Some of these are harmless, but others may be toxic. These contaminants can usually be detected through a visual, olfactory and tactile inspection.

Synthetic pesticides, fungicides and other harmful chemicals often used in horticulture can also be toxic. It is believed that all cannabis meant to be used by humans, and especially medicinal-grade cannabis should be grown without these products. Many medical cannabis users report that they prefer organically grown cannabis. Laboratories are able to test for biological and chemical contamination; however due to the legal status of cannabis, it can be difficult to obtain such tests.

## Is using cannabis for medicinal purposes legal?

Cannabis is a controlled substance in Canada, which means that it is illegal to possess, grow, sell, import, and export it. However, Canada is one of a few countries in which cannabis is legal for medical use. It is also legal for medical use in the Netherlands, Spain, Israel and Finland and a growing number of US states.

A court ruling in 2000 found that Canadians have a constitutional right to use cannabis as a medicine, since they should not have to choose between their liberty and their health. As a result, Health Canada developed the Marihuana Medical Access Regulations (MMAR) in 2001. Under that program, an Authorization to Possess gives a patient the right to possess cannabis legally for medicinal purposes. A Personal Production License gives a patient the right to grow cannabis for his or herself, and a Designated Production License allows them to designate someone to grow cannabis for them. Health Canada also contracts the production of cannabis and sells it to those with an Authorization to Possess.

There are two categories of people who are eligible to obtain an Authorization to Possess cannabis, as described by Health Canada. The first category includes people suffering symptoms associated with terminal or other specific illnesses including MS, spinal cord injury, cancer, HIV/AIDS, arthritis and epilepsy. The second category includes people who have other debilitating symptoms due to medical conditions. It requires that a specialist confirms the diagnosis and agrees that conventional treatments have failed or are inappropriate for relieving symptoms.

Although it is possible for people to apply for the use of medical cannabis in Canada, the process is certainly not easy. Out of the estimated one million Canadians who

use cannabis for medicinal purposes, approximately 4,000 people currently hold an Authorization to Possess under the MMAR. There have been several court challenges by patients involving the barriers to accessing the program and the limited options for obtaining a legal supply of high-quality medicine. Only about 500 patients are currently accessing cannabis from Health Canada. Several courts have ruled that the MMAR are unconstitutional because of these problems and have ordered amendments to the program to allow other legal supply options. To date Health Canada has not made these court-ordered amendments.

### **What are compassion clubs?**

Compassion clubs are community-based medical cannabis dispensaries. They exist to provide high-quality cannabis to people with officially documented medical conditions—such as HIV/AIDS, cancer, glaucoma, hepatitis C, chronic pain and multiple sclerosis. Currently, there are about a dozen of these unlicensed dispensaries across Canada, serving an estimated 10,000 to 15,000 patients. Clients must be 18 or older, or have the written consent of a parent or guardian.

By offering safe, secure, and consistent access to a variety of high-quality cannabis strains and products, compassion clubs seek to reduce the potential harms often associated with illegal distribution. Medical cannabis users who are not clients of compassion clubs, producing their own supply or receiving it from Health Canada must obtain cannabis from other sources. These sources may be unreliable, unsafe, and difficult to find. The cannabis may be of lower quality, less effective, and more costly.

The existence of compassion clubs in Canada pre-dates Health Canada's medical cannabis program. Currently, Health Canada does not recognize compassion clubs, nor does the

MMAR allow for such enterprises. Although compassion clubs are not currently licensed, many police departments tolerate those that are rigorous in restricting their sales to people with verified medical conditions. However, this is a tentative, unspoken agreement that could be revoked at any time, and there are several recorded incidents of compassion club owners or managers being arrested. In most cases, the courts have ruled in favour of the compassion clubs and have recognized the important service they are providing.

In the absence of licensing, these dispensaries self-regulate. Most of the well-established clubs operate according to guidelines that have been established to ensure transparency, accountability and a high standard of care.

### **What are some barriers to using cannabis for medical purposes?**

Besides the potential for criminal penalties for the possession, cultivation, or distribution of cannabis, the legal status of cannabis creates many barriers for those who could benefit from its medical use.

**1. Healthcare practitioner support.** It is important for patients to be able to tell their doctors about the different treatments and therapies they are using. A recent study shows that family physicians adopt a 'don't ask' attitude toward their patients' use of cannabis and that most patients 'don't tell' their physicians whether they are using it.

Patients report that obtaining their physician's support is one of the biggest barriers they face in obtaining a license for Health Canada's program, or in becoming a client of a compassion club. Physicians report that they do not have adequate knowledge of the therapeutic benefits of cannabis and are reluctant to

associate themselves with this product because of its illegality and associated stigma. Professional associations across the country have cautioned physicians not to support the MMAR authorization process due to a perceived lack of scientific evidence supporting the medical benefits of cannabis. The Canadian Medical Association likewise expressed that it did not want physicians to act as gatekeepers to this therapy.

The Canadian Medical Protective Association (CMPA—the insurer of the medical profession) warned of potential legal difficulties that could be faced by physicians who followed the MMAR. After some amendments to the MMAR, the CMPA now recommends that physicians who complete the MMAR ask their patient to sign a release-from-liability form which addresses potential concerns about medical liability. Health Canada’s application forms have been changed over the years to shift the responsibility from physician to patient. Compassion clubs typically require the diagnosis of a condition or symptom for which cannabis has potential therapeutic purposes, and a recommendation for use rather than a prescription. Some clubs permit authorization from licensed health care practitioners who are more experienced with herbal medicine (e.g. doctors of traditional Chinese medicine and naturopaths).

- 2. Discrimination.** Despite considerable popular support in Canada for the medical use of cannabis, some patients experience a stigma around their use. In some cases this is because of its illicit status and the associated negative connotations from the “reefer madness” propaganda. Patients may experience negative reactions from family, friends, community members, colleagues, and

even health-care practitioners. Negative messages may also be portrayed in the media. This can be difficult for some people to deal with.

Stigma can lead to acts of discrimination that can have a very negative effect on a patient’s life—for example in regards to housing, employment, and child custody. Some medical cannabis users have even experienced discrimination in receiving treatments such as organ transplants and treatment for addiction to other substances. In such situations, having a license from Health Canada can be very helpful. Recently, the Quebec Human Rights Commission ruled that medical cannabis users are protected from discrimination under the Charter of Rights and Freedoms.

- 3. Cost.** Affordability is a problem for some people who use cannabis as a medicine. Some patients find they must sacrifice other necessities, such as food, or choose to use a medicine that is less effective and has worse side effects. The cost of cannabis is artificially elevated due to black market conditions. On the street, prices range from about \$10 to \$15 per gram. Health Canada sells their cannabis for \$5 per gram, and compassion club prices range from \$5 to \$10 per gram. While doses vary per patient, the price of cannabis may be prohibitive, particularly for people living on low or fixed incomes.

Patient advocacy groups have expressed how important it is for this medicine to be covered, as prescription drugs are—either through provincial or private health insurance plans. Veterans Affairs Canada will cover the costs of cannabis for Canadian veterans who have MMAR licenses in certain circumstances. Canada Revenue Agency allows a person authorized under the MMAR to claim the



costs of cannabis paid to Health Canada or a designated producer as a medical expense. Costs can be minimized by educating patients to use the smallest quantity possible to achieve the desired effects.

### What to do if you or someone you know needs more information about medicinal cannabis

To find out more about Health Canada's medical cannabis program, visit <http://www.hc-sc.gc.ca/dhp-mps/marihuana/index-eng.php> or call **Marihuana Medical Access Division** 1-866-337-7705

For links to compassion clubs and other information on the medical use of cannabis, visit:

Canadians for Safe Access at <http://safeaccess.ca>.

#### Other helpful resources:

Senate Report—  
<http://www.parl.gc.ca/37/1/parlbus/commbus/senate/com-e/ille-e/rep-e/repfinalvol1part5-e.htm#Chapter%209>

Canadian AIDS Society—  
<http://www.cdnaids.ca/web/casmisc.nsf/pages/cas-gen-0112>

Compassion Club Guidelines—  
<http://www.thecompassionclub.org/resources/guidelines%20for%20distribution.pdf>

Clinical Studies and Case Reports  
<http://www.cannabis-med.org/english/nav/home-science.htm>

For more information about cannabis and other substances, visit [www.heretohelp.bc.ca](http://www.heretohelp.bc.ca) or [www.carbc.ca](http://www.carbc.ca).

