CANADIAN PUBLIC HEALTH ASSOCIATION

ASSOCIATION CANADIENNE DE SANTÉ PUBLIQUE

Cannabasics

This information package is a set of fact sheets on cannabis for health and social service providers. It provides a basic overview of common cannabis plants and products, methods of consumption as well as information to better understand consumption and harm reduction. Each fact sheet is comprised of a high level overview with graphics followed by a detailed overview with links and references.

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Cannabasics

Plant and Products

Cannabis refers to the plant *Cannabis sativa* and has many forms from hash to hemp oils. There are several plant types that consumers may indicate they are accessing including sativa, indica, and hybrids, which are marketed as having different physiological effects.

SATIVA	HYBRID	INDICA
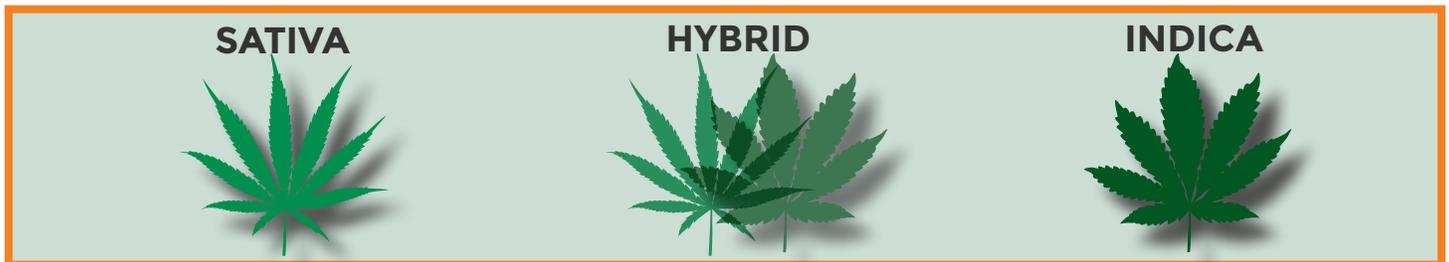
Cannabis has over 100 chemical compounds called cannabinoids

Cannabinoids interact with the human endocannabinoid system to produce a broad range of physiological effects. The two most commonly known active ingredients are:

CBD is most known for analgesic, anti-inflammatory and anti-anxiety properties without the intoxicating effects (the "high")

CBD
(cannabidiol)

THC
(delta-9 tetrahydro-cannabinol or d-9-THC)
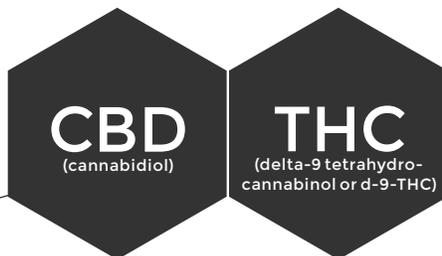
THC is most known for the "high" and for some therapeutic uses

NON-INTOXICATING

INTOXICATING (GETS YOU "HIGH")

FORMS OF CANNABIS

Some common forms of cannabis include the dried flower (bud) and concentrates. Concentrates have higher levels of cannabinoids relative to bud making it more potent.

Concentrates

Dried Flower (Bud)

HEAT

Cannabis product must be heated (decarboxylated) to activate its THC and other cannabinoids when consumed. Eating it raw will not produce any intoxicating effects. In the case of purchased edibles and some oils and tinctures the THC has already been activated and can be consumed as prepared.

Plant and Products

The cannabis plant is comprised of a stem, leaves and buds. Cannabis has many other names including marijuana, weed, dope and pot that most often refer specifically to the buds and products created from the bud. The term cannabis is more accurate as it refers to the whole plant. Key to understanding cannabis are the primary chemical compounds, plant types and products.

CHEMICAL COMPOUNDS

The cannabis plant contains chemicals called cannabinoids[1] that interact with the human endocannabinoid system to produce a myriad of physiological effects. The human endocannabinoid system is responsible for a variety of physiological as well as pathophysiological processes including neural development, immune function, inflammation, appetite, metabolism and energy homeostasis, cardiovascular function, digestion, bone development and bone density, synaptic plasticity and learning, pain, reproduction, psychiatric disorders, psychomotor behaviour, memory, wake/sleep cycles, and the regulation of stress and emotional state.[2] Although the cannabis plant contains over 100 different cannabinoids (and possibly more), the two most studied and discussed are THC (tetrahydrocannabinol) and CBD (cannabidiol).[3] THC produces an intoxicating effect by binding with receptors in the brain and CBD may help to manage pain and mediate the effects of THC on the endocannabinoid system. Although the intoxicating effects of cannabis are often highlighted, THC is the cannabinoid largely responsible for the "high" associated with cannabis.[4]

PLANT TYPES

Generally known by the name *Cannabis sativa (L),*[*] the most common types of cannabis, that consumers may indicate they are accessing, are sativa or indica. Most plants today are a hybrid of these two types and each type is marketed for different physiological effects. Cannabis derivatives include marijuana, hash and hemp products.

Hemp products, marijuana and hash are all derived from cannabis plants. Hemp is very low in THC (less than 0.3%), is not intoxicating, and it's fiber is used in the production of cars, body care products, clothing, construction, food and plastic. Marijuana is the dried bud of the cannabis plant with amounts of THC that are intoxicating (5%-30%) and is consumed for various desired effects. Hash is the pure resin of the cannabis plant, without the plant material of the dried bud and as such, has higher concentrations of THC than the whole bud (20%-60%).

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[*] The science community does not recognize sativas, indicas, and hybrids as separate species that are biochemically distinct. Instead, scientists recognize Cannabis sativa as the single species for all cannabis, and that only laboratory tests can determine the diverse biochemical profiles.

Plant and Products

Once a plant has matured, growers trim the flowers to produce what are referred to as dried flower (buds). The buds are coated with hair-like structures called trichomes which protrude from the plant material. There are many terpenes commonly found in cannabis. When terpenes are inhaled or ingested alongside cannabinoids, they may interact with the endocannabinoid system. In cannabis, this interaction has been called the entourage effect.

PRODUCTS

Although other parts of the cannabis plant can be consumed, the most common methods of consumption use the bud of the plant due to the concentration of cannabinoids. The two most common ways the plant is used are to create concentrates and to dry the bud. The dried buds are usually smoked, vaped or infused in fats to be consumed later as edibles. Examples of concentrates include hashish, shatter and tinctures. Concentrates are procured during an extraction process where the cannabis plants'

cannabinoids and terpenes are separated from the plant matter resulting in a concentrate with high levels of cannabinoids (more potent than the bud).

Cannabis concentrates are categorized as either solvent or non-solvent based.

- **Non-solvent concentrates** are extracted naturally (using water, scraping the resin off the bud, or drying the resin) to produce hash (cannabis resin) and kief (resin glands).

- **Solvent concentrates** are extracted commonly using carbon dioxide or alcohol. They produce many forms and textures known as shatter, wax, or oil.

Cannabis products must be heated (decarboxylated) to activate the THC and other cannabinoids when consumed. Eating it raw will not produce any intoxicating effects. Some oils and tinctures have already been activated, and do not need to be heated. In the case of purchased edibles, the THC has already been activated and can be consumed as prepared.

LINKS

For more information on the large variety of known types, please see phylos galaxy.

For more information on the Endocannabiniod System, please see the webinar on YouTube by Dr. Matthew Hill, Understanding the Endocannabinoid System (2018): https://youtu.be/NTLb2I8Yx-E

REFERENCES

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2 Leafly Holdings Inc. (2014). Cannabiniods 101: What Makes Cannabis Medicine. Retrieved in Oct 2018 from: https://www.leafly.com/news/cannabis-101/cannabinoids-101-what-makes-cannabis-medicine

3 Here to Help (2014). Learn about Cannabis. Retrieved in Oct 2018 from: http://www.heretohelp.bc.ca/factsheet/learn-about-cannabis

4 Government of Canada. About Cannabis. (2018). Retrieved in Oct 2018 from: https://www.canada.ca/en/health-canada/services/drugs-medication/cannabis/about.html
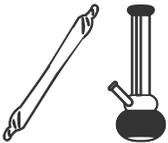
Cannabasics

Methods of Consumption

There are four basic delivery methods:

01 // Inhalation 02 // Oral-Mucosal 03 // Ingestion 04 // Topical

01 //

INHALATION
-
Inhalation is the most common way people have traditionally consumed cannabis. The onset of effects is rapid with most people feeling a "high" within minutes of inhalation. Common examples of delivery methods using inhalation are: hand pipe, bong, vaporizer, joint and hookah.

02 //

ORAL-MUCOSAL
-
The product (most commonly a tincture) is applied under the tongue or sprayed into the mouth and absorbed through the oral-mucosal lining.

03 //

INGESTION
-
Ingesting cannabis is most commonly in the form of a food or beverage item that was created using a fat or oil infused with cannabis that was then heated to ensure the cannabinoids are active when consumed. Edibles include any food or drink that contains cannabis.

04 //

TOPICAL
-
Topical cannabis products are applied and absorbed through the skin using a thick oil extract that contains active cannabinoids. The effects of the cannabinoids are generally localized and use of the product is generally not to confer intoxicating effects, but to provide localized relief from pain or inflammatory conditions (some exceptions apply).

Methods of Consumption

There are four basic delivery methods: Inhalation, Oral-Mucosal, Ingestion, and Topical. Each of these methods uses different forms of cannabis as well as hardware or tools to facilitate consumption, and will produce varying physiological effects. The physiological effects will also depend on the level of THC and CBD within a particular plant, no matter which type of method is used to consume it.

INHALATION

Inhalation is the most common way people have traditionally consumed cannabis[5] with many products to choose from (e.g. dried flower, concentrates). THC and other cannabinoids are absorbed into the body through inhaling vaporized or combusted cannabis into the lungs. The onset of effects is rapid with most people feeling a "high" within minutes of inhalation. Strain genetics and personal body chemistry make this a unique process for everyone. Examples of delivery methods using inhalation are: hand pipe, bong, vaporizer, joint, and hookahs.

ORAL-MUCOSAL

The product (most commonly a tincture) is applied under the tongue or sprayed into the mouth and absorbed through the oral-mucosal lining. Due to its rapid onset, this is the preferred delivery method for many serious medical conditions such as epilepsy and nervous system disorders. The most common methods are sprays or tinctures.

INGESTION

Ingesting cannabis involves consuming a food, drink or oil item containing cannabis that has been heated to ensure that cannabinoids are active when consumed. Cannabinoids are absorbed through the digestive tract and metabolized by the liver. As the digestive system takes a while to break down the compounds, the onset of effects can take up to two hours. Factors that can affect a person's experience with edibles includes whether they have eaten recently, the amount of cannabis consumed, their comfort level with cannabis and the potency of the product ingested. While potentially safer than inhalation methods because it bypasses the respiratory system, ingesting cannabis makes it difficult to determine dosing due to its delayed effect.

The term "edibles" refers to any food or drink that contains cannabis. These products most often are infused using ingredients high in fat like butter or olive oil that enable extraction of fat-soluble cannabinoids, whether the cannabinoids can be used by the body or not. If the cannabis has not been decarboxylated (heated), it will not cause intoxicating effects. If the cannabinoids have been activated with heat, edibles will produce

Methods of Consumption

powerful, full-body intoxicating effects; however, the onset of these effects will be slower than with inhalation. In addition to food and drink, ingestible oils can also be eaten, added to food or put into capsules to ingest with similar results as other food or drink items.

TOPICAL

Topical cannabis products are applied and absorbed through the skin using a thick oil extract that contains active cannabinoids. The effects of the cannabinoids are generally localized and use of the product is generally not to confer intoxicating effects, but to provide localized relief from pain or inflammatory conditions. Examples of products include balms, oils, rubs, personal lubricant, suppositories, salves and creams, which claim to offer relief from pain, muscle aches, soreness, and eczema.

LINKS

For more information on methods of consumption, please see the webinar on YouTube with Dr. Keith Warriner and Fatima Kamal (2018): Consumption, Risk Factors and Safety of Marijuana Edibles: https://youtu.be/cxt6DYQ2Lww

REFERENCES

5 Government of Canada. Canadian Cannabis Survey 2017: Summary (2017). Retrieved in Oct 2018 from:
https://www.canada.ca/en/health-canada/services/publications/drugs-health-products/canadian-cannabis-survey-2017-summary.html

METHODS OF CONSUMPTION DETAILED OVERVIEW

Cannabasics

Understanding Consumption

The primary reasons people consume cannabis (and other substances):

01 // Feelings of Well-Being 02 // Self-Medication 03 // Performance 04 // Discovery

01 // FEELINGS OF WELL-BEING

In some cases, people consume cannabis to increase feelings of well-being. Many people feel that cannabis products provide feelings of relaxation, satisfaction, and happiness as well as a means for socialization or spiritual and cultural expression.

02 // SELF-MEDICATION

Some people choose cannabis as a way to self-medicate. People may consume cannabis to reduce social anxiety or stress, or to reduce symptoms associated with trauma or depression.

03 // PERFORMANCE

People may consume cannabis to be more productive or perform better in certain tasks. Some people believe that cannabis consumption helps them to be more creative.

04 // DISCOVERY

In some contexts, people may consume cannabis to explore and discover. Some people believe cannabis can offer new experiences, feelings or insights they could not find otherwise.

Understanding Consumption

REASONS FOR CONSUMPTION

People consume cannabis for a variety of reasons. The primary reasons people consume cannabis are as follows:[6]

01. **Feelings of well-being:** In some cases, people consume cannabis to increase feelings of well-being. Many people feel that cannabis products provide feelings of relaxation, satisfaction, and happiness as well as a means for socialization or spiritual and cultural expression.

02. **Self-Medication:** Some people choose cannabis as a way to self-medicate. People may consume cannabis to reduce social anxiety or stress, or to reduce symptoms associated with trauma or depression.

03. **Performance:** People may consume cannabis to be more productive or perform better in certain tasks. Some people believe that cannabis consumption helps them to be more creative.

04. **Discovery:** In some contexts, people may consume cannabis to explore and discover. Some people believe cannabis can offer new experiences, feelings or insights they could not find otherwise.

CONSUMPTION PATTERNS

People will vary in their cannabis consumption patterns, ranging from:[7]

• Never consuming cannabis (abstinent);

• Occasional consumption with very little negative effects;

• Regular consumption with very little negative effects; and

• Regular consumption accompanied by difficulties in their lives due to consumption (around 10% of cannabis consumers).[8]

People may move along the continuum of cannabis consumption forwards and backwards, ranging from abstinence to regular consumption over time. Decreasing the potential harms associated with cannabis consumption may involve moving down the continuum and reducing consumption, or may involve changing the method of consumption.

CANNABIS USE DISORDER

For those who experience negative outcomes from frequent cannabis consumption, there are clinical characterizations for cannabis use disorder (CUD). Cannabis Use Disorder is characterized by a recurrent pattern of consumption where at least two of the following situations occur in a 12-month period:[9]

• increased tolerance;

• withdrawal;

Understanding Consumption

- consuming much more than intended;

- unsuccessful attempts to quit;

- a lot of time lost consuming or recovering;

- reduced activities;

- continued consumption despite persistent physical or psychological problems caused or made worse by cannabis consumption;

- failure to fulfill major roles at work, school or home;

- use in physically hazardous situations;

- continued consumption, despite social or interpersonal problems caused or intensified by cannabis consumption; and / or

- strong urges or cravings to consume.

REFERENCES

6 Canadian Institute for Substance Use Research. Understanding Substance Use: A Health Promotion Perspective (2017). Retrieved in Oct 2018 from:
   http://www.heretohelp.bc.ca/factsheet/understanding-substance-use-a-health-promotion-perspective

7 The Caring Campus Project. Substance Use Continuum Model. 2016. Retrieved in Oct 2018 from: http://caringcampus.ca/resources/

8 Volkow ND, Baler RD, Compton WM, Weiss SR. Adverse health effects of marijuana use. N Engl J Med 2014;370(23):2219-27.

9 American Psychiatric Association. (2013). Diagnostic and Statistical Manual of Mental Disorders. (5th Edition). Washington, DC.

UNDERSTANDING CONSUMPTION DETAILED OVERVIEW

Cannabasics

Harm Reduction

While the research is still evolving concerning the potential harms associated with cannabis consumption, the likelihood of developing a problematic relationship with cannabis (Cannabis Use Disorder or CUD) depends upon four factors:

// 01

LENGTH AND INTENSITY OF CONSUMPTION

longer, more intense consumption increases risk

// 02

POTENCY OF THE PRODUCT

consuming high levels of THC is more addictive
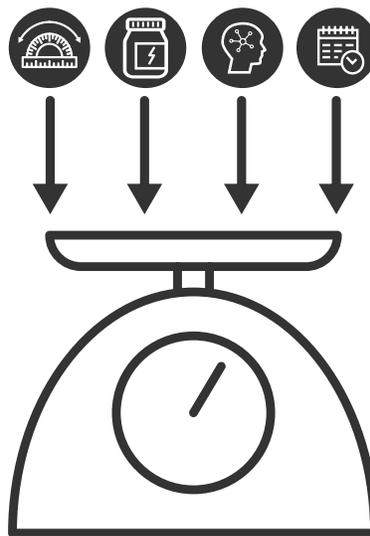
// 03

INDIVIDUAL FACTORS

genetic factors or individual vulnerabilities, such as personality or experiences of trauma, can impact whether a person experiences harms

// 04

AGE OF INITIATION

people who begin to consume cannabis at a young age (under 16 years old) at a high frequency are at greater risk

The physical harms of cannabis can be greatly reduced by practicing basic harm reduction methods, such as those included in:

Canada's Lower Risk Cannabis Use Guidelines

Here to Help's Safer Cannabis Use

Take Care with Cannabis from Vancouver Coastal Health

Pregnancy Info

Harm Reduction

RISKS

While the research is still evolving concerning the potential harms associated with cannabis consumption, the likelihood of developing a problematic relationship with cannabis (Cannabis Use Disorder or CUD) depends upon four factors:

01. Length and intensity of consumption: longer, more intense consumption increases risk.

02. Potency of the product: consuming high levels of THC is more addictive.

03. Individual factors: genetic or individual vulnerabilities, such as personality or experiences of trauma, can impact whether a person experiences harms.

04. Age of initiation: people who begin to consume cannabis at a young age (under 16 years old) at a high frequency are at greater risk.

Close to 1 in 10 people who use cannabis will develop an addiction to it, and this rises to about 1 in 6 for people who started using cannabis as a teenager.[10] The path to Cannabis Use Disorder is individual. Two people who use the same method of consumption, at the same frequency, with the same potency of product, may result in one person developing a dependence and the other person experiencing minimal harms. The specific reasons for these individual elements are not yet well understood.

Frequent cannabis use is associated with a variety of adverse health outcomes. Certain people are more vulnerable to the potential physiological harms of cannabis, such as children and youth under the age of 25, a fetus in-utero or a nursing child, and those with a personal or family history of psychosis. Certain behaviours can elevate risk, such as mixing cannabis with alcohol or prescription drugs, driving after consuming cannabis (which elevates the risk of motor vehicle collisions) and co-consumption with tobacco (which may increase cancer risk and respiratory problems).[11]

POTENTIAL HARMS

Some of the harms associated with cannabis include negative outcomes due to interactions with the criminal justice system that can result in insecure housing, trauma, and job instability. People experiencing social marginalization due to structural violence or the harms caused by systems and social institutions, including racialized persons, people with low incomes, people with mental health co-morbidities, or people who have experienced trauma, may disproportionately bear the burden of harms associated with cannabis consumption.[12]

Structural violence can compound the stress of social marginalization and result in poorer outcomes for Canadians. To reduce these harms, it is important to be sensitive to possible stigma and reframe language from "user" to "consumer". To encourage conversation and reduce harms

Harm Reduction

of cannabis consumption, the term "person who consumes cannabis" is preferred over "stoner" or "pot head". A simple change in language can help to increase service utilization and reduce perceptions of stigma by people who consume cannabis.

LINKS

For more information on anti-stigma and language, please see: Global Commission on Drug Policy. The World Drug Perception Problem 2017 Report: Countering prejudices about people who use drugs. (2017). Available at: http://www.globalcommissionondrugs.org/wp-content/uploads/2018/01/GCDP-Report-2017_Perceptions-ENGLISH.pdf

For more information on basic harm reduction methods see the following resources available on the Canadian Public Health Association website, under Resources (https://www.cpha.ca/harm-reduction-health-promotion-and-cannabis-screening-tools)

Canada's Lower Risk Cannabis Use Guidelines
Safer Cannabis Use
Take Care with Cannabis

For more information on harm reduction, the Government of Canada has published a series of evidence briefs which are available on the Canadian Public Health Association website (https://www.cpha.ca/federal) including:

Is cannabis safe to use? Facts for youth aged 13-17 years.
Is cannabis safe to use? Facts for young adults aged 18-25 years.
Does cannabis use increase the risk of developing psychosis or schizophrenia?
Is cannabis safe during preconception, pregnancy and breastfeeding?
Is cannabis addictive?

For more information on how cannabis interacts with alcohol and other prescription medications:

Health Canada. Information for health care professionals: Cannabis (marihuana, marijuana) and the cannabinoids. 2018. Available from: https://www.canada.ca/content/dam/hc-sc/documents/services/drugs-medication/cannabis/information-medical-practitioners/information-health-care-professionals-cannabis-cannabinoids-eng.pdf

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HARM REDUCTION DETAILED OVERVIEW

Cannabasics

The Chief Public Health Officer Health Professional Forum recognizes the leadership of the Canadian Public Health Association and the contributions of various members of the Forum in developing "Cannabasics", a toolkit to assist health professionals in providing evidence-based information on the risks and harms of cannabis to their patients.

Members of the CPHO Health Professional Forum:

- Association of Medical Microbiology and Infectious Diseases Canada
- Canadian Dental Association
- Canadian Geriatrics Society
- Canadian Indigenous Nurses Association
- Canadian Medical Association
- Canadian Nurses Association
- Canadian Paediatric Society
- Canadian Pharmacists Association
- Canadian Psychological Association

- Canadian Public Health Association
- College of Family Physicians of Canada
- Community Health Nurses of Canada
- HealthCareCAN
- Indigenous Physicians Association of Canada
- Infection Prevention and Control Canada
- Public Health Physicians of Canada
- Royal College of Physicians and Surgeons of Canada
- Society of Obstetricians and Gynecologists of Canada