



Cannabis Class 101

Welcome to Cannabis Class with Cannabis Forward!

This information has been gathered to give you a basic understanding of cannabis and its use as medicine. There is much more to learn, and we encourage you to continue your education on cannabis by writing to us with any questions: cannabisforward@gmail.com

Thank you for learning with us!

www.cannabisforward.org

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Cannabis Class 101

- I. Introduction
 - A. What is Cannabis
 - B. What is Hemp
- II. Cannabinoids
 - A. Endocannabinoid System
 - 1. CB1
 - 2. CB2
 - B. Phytocannabinoids
 - 1. Non Psychotropic
 - 2. Psychotropic
 - C. Whole Plant Therapy
- III. Cannabis as Medicine
 - A. Leaf
 - 1. Smoking
 - 2. Vaping
 - 3. Juicing
 - B. Extracts
 - 1. Oil
 - 2. Edibles

What is Cannabis?

Cannabis Sativa / is a flowering plant originally from Central and South Asia. It has been used for over 5,000 years as medicine and as a psychoactive agent as well as for its flower, seeds, and seed oils. There are three subspecies of cannabis sativa /: sativa, indica, and ruderalis.

Cannabis Sativa

Cannabis sativa is typically higher in THC and are tall, thin plants with greener leaves. Its effect on the human body tend to be uplifting and energizing; therefore it is often used medicinally for depression and fatigue.

Cannabis Indica

Cannabis indica is typically higher in CBD and are short, bushy plants with darker leaves. Its effect on the human body tend to be more sedating and relaxing; therefore it is often used medicinally for anxiety and pain.

Cannabis Ruderalis

Cannabis ruderalis is set apart from Indica and Sativa due to its autoflowering qualities. It thrives in rugged areas and has lower concentrations of THC. It is commonly used to develop autoflowering hybrids.

What is Hemp?

Hemp is one of the oldest varieties of the cannabis plant. Hemp is non-psychoactive as it contains less than 1% tetrahydrocannabinol (THC). Hemp is grown as a renewable source for thousands of products.

There are generally two types of hemp: hemp for industrial use and hemp for medical use.

Industrial Hemp

Industrial hemp is hemp that is cultivated for non-drug use. It has many uses such as paper, fuel, textiles, biodegradable plastics, and food. Industrial hemp has the potential to become one of America's fastest growing manufacturing industries.

Medical Hemp

Medical hemp is hemp that is used for medical use. It is grown in a more controlled environment so that it is fit for human consumption even in its purest form.

What are Cannabinoids?

Cannabinoids are a class of diverse chemical compounds that act on cannabinoid receptors in cells that repress neurotransmitter release in the brain. Ligands for these receptor proteins include endocannabinoids and phytocannabinoids.

Endocannabinoid System

The endocannabinoid system is a group of neuromodulatory lipids and their receptors in the brain that are involved in a variety of physiological processes. The human brain has more cannabinoid receptors than ANY other G-protein coupled receptor type.

Endocannabinoids are even found in breast milk!

CB1

CB1 receptors are found primarily in the brain. They can also be found in the peripheral nervous system: the heart, liver, fat tissue, stomach, and testis. CB1 receptors are activated by

phytocannabinoids. CB1 receptors are not present in the medulla oblongata; which some scientists believe to be the reason why it is not possible to overdose on cannabis.

CB2

CB2 receptors are found mostly on the *T cells* of the immune system, macrophages (which eat cancer cells), *B cells*, and keratinocytes. Examples of where they are found are the tonsils, the spleen, thymus, and in bone marrow.

CB2 receptors regulate central responses during neuropathic pain.

Science is quickly expanding knowledge on CB1 and CB2 receptors and their involvement in the human body. You are encouraged to continue learning about these receptors.

Phytocannabinoids and Their Uses

The *Cannabis sativa L* plant has over 100 chemical compounds that are collectively known as phytocannabinoids. These phytocannabinoids are found in the trichomes and terpenes of the plant. The phytocannabinoids with the highest abundance are obviously the most studied. They include non psychotropic and psychotropic cannabinoids.

Non psychotropic Cannabinoids

There are nine known non psychotropic phytocannabinoids. Here we will discuss five of them.

Cannabichromene (CBC)

CBC is one of the most abundant naturally occurring cannabinoids. Much like CBD and THC it stems from cannabigerolic acid. Some of its benefits include:

- Antibacterial and Antifungal
- Anti-Inflammatory
- Relieves Pain
- Fights Depression
- Stimulates Brain Growth
- Anti-proliferative Effects

Cannabidiol (CBD)

CBD was first isolated from the cannabis plant in the late 1930s. It is the second most abundant cannabinoid.

Some of its benefits include:

- Promotes Bone Growth
- Reduces Seizures
- Reduces Blood Sugar Levels
- Reduces Anxiety
- Suppresses Muscle Spasms

Cannabidiolic Acid (CBDA)

CBD-a is the precursor for CBD. It becomes CBD when it has been decarboxylated. CBD-a was first isolated in

1996. Some of its benefits include:

- Anti-Inflammatory
- Relieves Vomiting and Nausea
- Anti-Bacterial
- Anti-Proliferative Effects
- Reduces Seizures

Cannabigerol (CBG)

CBG is found in higher concentrations in hemp than in THC dominant cannabis. Many cannabinoids begin as CBG. Some of its benefits include:

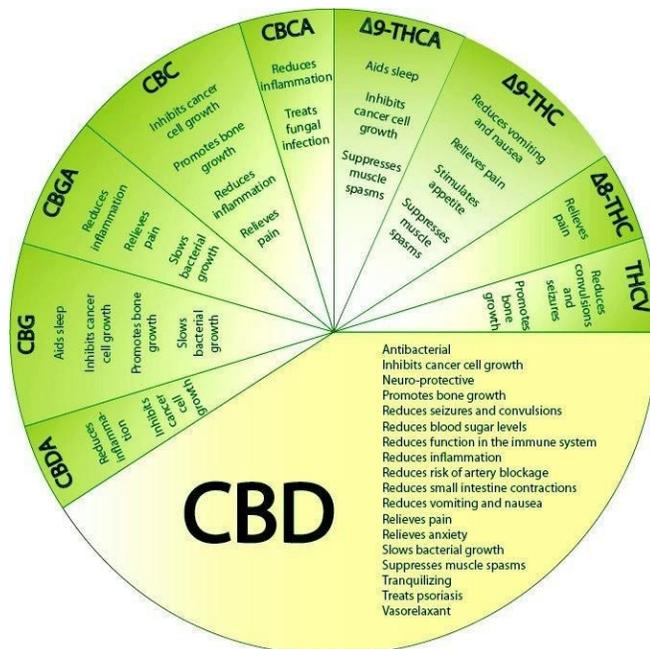
- Anti-Inflammatory
- Relieves Intraocular Pressure
- Relieves Pain
- Relieves Inflammatory Bowel Disease

Tetrahydrocannabinolic Acid (THCA)

THC-a is the precursor for THC. It becomes THC when it has been decarboxylated.

Some of the benefits of THC-a include:

- Neuroprotective
- Sleep Aid
- Increases Appetite
- Reduces Seizures



Psychotropic Cannabinoids

There are four known psychotropic cannabinoids and one sesquiterpene that activates CB1 and/or CB2 receptors.

Delta-9-Tetrahydrocannabinol (Δ 9-THC)

Delta-9-THC is the most commonly known component of cannabis. THC is thought to be a self-defense mechanism for the cannabis plant from herbivores as well as protection from harmful UV radiation exposure.

Some of the benefits of THC are:

- Appetite Stimulation
- Analgesic
- Post Traumatic Stress Disorder
- Asthma
- Glaucoma

Delta-8-Tetrahydrocannabinol (Δ 8-THC)

Delta-8-THC exhibits a lower psychotropic potency than Delta-9-THC. When THC is referenced it is usually a combination of 8 and 9 THC.

Some of the benefits of Delta-8-THC include:

- Appetite Stimulation
- Neuroprotective Qualities
- Anti-anxiety
- Appetite Stimulation

Cannabinol (CBN)

CBN is the degradation of THC. Pure forms of CBN have at most 10% of the potency of THC.

Some of the benefits of CBN include:

- Anti-insomnia
- Promotes Bone Cell Growth
- Anti-inflammatory

Delta-9-Tetrahydrocannabivarin (Δ^9 -THCv)

THCv increases the speed and effects of THC, but also causes the 'high' to end sooner. Cannabis that has a strong odor in dry-plant form may indicate a higher level of THCv.

Some of the benefits of THCv include:

Reduces Panic Attacks

May Help in Alzheimer's and Diabetes

Promotes Bone Cell Growth

What is Whole Plant Therapy?

Whole plant therapy is also known as the Entourage Effect. It is a common term in any treatment where a plant is used as the primary medicine. It is used to describe the therapeutic benefits of using the plant as a whole; all of its components working together: cannabinoids, terpenes, flavonoids, etc. The four basic mechanisms of whole plant therapy extract synergy in cannabis are as follows:

1. Ability to affect multiple targets within the body.
2. Ability to improve the absorption of active ingredients.
3. Ability to overcome bacterial defense mechanisms.
4. Ability to minimize adverse side effects.

How is Cannabis Used As Medicine?

Now that you have been informed of the components of cannabis and the benefits of the different compounds it is now time to learn how it is used as medicine. The common belief is that people sit on a couch and smoke a joint or a bowl until they are stoned and get the munchies. In this section you will learn how most patients use cannabis as medicine.

Leaf

Cannabis leaf refers to the bloom and leaf of the plant. It can be consumed fresh or dried.

Smoking

Smoking cannabis is the most commonly known method of delivery. The leaf has been dried and ground to be used in a paper roll or in a glass/metal smoking device. Smoking is one of the fastest methods of delivery for patients in acute onset pain and as a rescue medicine for seizures.

Vaporizing

Vaporizing is a highly effective method of cannabis administration. Extracted vapor may be collected in an inflatable bag, or may be collected in a metal or glass device. The cannabinoids do not vaporize until they reach their perspective boiling points. Vaporizing cannabis can be more accurate when following a specific dosage and may offset negative side effects of smoking. Vaporizing also delivers fast pain relief and is used as a rescue medicine for seizures.

Juicing

Juicing cannabis allows the patient to consume the cannabinoids in their raw, precursor form. The leaf and bloom can be processed through a juicer and drank alone or with other complimentary fruits and vegetables. The greatest benefit of juicing cannabis is the reduction of chronic inflammation; the primary cause of hundreds of illnesses. Due to the amount of cannabis required to produce a glass of juice, the patient would need to grow

their own plants as the cost of purchasing that amount would be very expensive.

Cannabis Extracts: Oils and Edibles

Cannabis extract is any oil concentrates from the plant's chemical compounds such as THC and CBD.

Oil

Cannabis oil is a product obtained by separating the the resins from cannabis flowers using a solvent extraction process. Cannabis oil delivers the benefits of whole plant therapy, whether CBD or THC dominant strain, allowing for accurate dosing. The oil can be taken orally, used as a suppository, vaporized, and applied topically. Shatter and wax are two other methods of cannabis delivery made from oil. Shatter and wax should be made by a professional extractor at a lab or dispensary.

Edibles

Edibles are food products made with cannabis in herbal or resin form as an ingredient. Cannabis oils, butters, or liqueurs are added to the ingredient list of foods whether savory or sweet. It can also be added to beverages. Patients eat small portions of the edible until the desired effect is achieved. It may take longer to feel the effects of edibles, but the effects do last longer.

It is important to know that most patients taking cannabis as medicine do so in a multi-layered approach. This allows for the patient to find a combination of cannabis dosing and delivery that allows them to function as a productive citizen while providing them with the benefits they need. A multi-layered approach can prevent the patient from being 'stoned' while still providing opportunities to use larger doses when necessary as an analgesic.

FACT OR MYTH?

MYTH: Marijuana is a gateway drug.

FACT: For every 104 people who have tried cannabis, there is only one regular user of cocaine, and less than one heroin addict.

Department of HHS, National Household Survey on Drug Abuse, 1997

MYTH: Cannabis is a harmful drug.

FACT: Numerous studies have found that cannabis is much less harmful than nicotine, alcohol, and other drugs.

Journal of Psychopharmacology, Weisenborn and Nutt, 2011

MYTH: Legal Marijuana has lead to nothing but problems for Colorado.

FACT: While the industry has had some difficulties, the benefits (decreased crime, increased tax revenue) have so far outweighed the flaws.

Colorado.gov, State of CO, November 2014

MYTH: Cannabis is addictive.

FACT: People can become emotionally dependent on cannabis, but it is chemically impossible to become addicted.

Psychology Today, Is Marijuana Addictive, Jan Gumbiner, Phd., 2010

