

# Medical Cannabis Overview

*For Health Practitioners*





# Learning Objectives



1

What is Medical Cannabis?

2

The difference between CBD and THC

3

How does cannabis work in the brain? The Endocannabinoid System

4

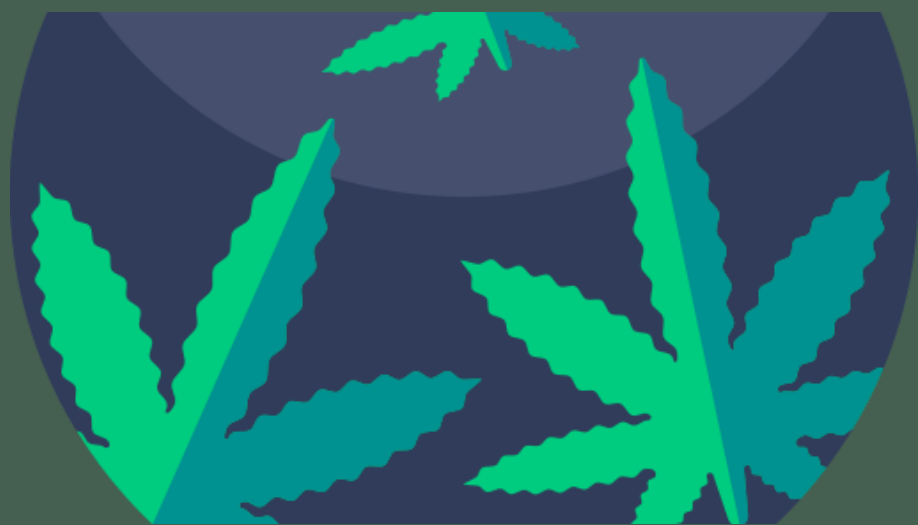
Medical Cannabis and Nutrition

5

Dosing Recommendations

The background of the image is a close-up, slightly blurred photograph of a green printed circuit board (PCB). The board is covered with intricate patterns of gold-colored traces and numerous small, circular components, some of which have blue and gold markings. The overall color palette is dominated by shades of green and teal, with the gold and blue components providing contrast. A thick, white L-shaped graphic element is positioned in the corners, framing the central text.

# MODULE 1



# WHAT IS CANNABIS?

# Module 1 Objectives

## Explain

Explain the history and origins of the cannabis plant, its properties, and most populous components

## Describe

Describe the difference between recreational and medical cannabis and common usages and application methods.

## List

List the states in which medical cannabis is legal both recreational and medicinal.

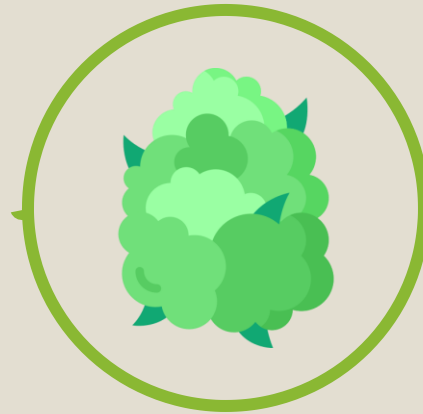


# Cannabis



1

Indigenous to Central and South Asia<sup>1</sup>



2

Cannabis refers to a group of three plants with psychoactive properties  
Cannabis sativa,  
Cannabis indica, and  
Cannabis ruderalis. <sup>1</sup>



3

483 identifiable chemical constituents<sup>1</sup>



4

More than 100 cannabinoids (Most popular CBD and THC) <sup>1</sup>

<sup>1</sup> Desjardins, J. (2018, September 11). *The Anatomy of a Cannabis Plant, and its Lifecycle*. Retrieved from Visual Capitalist: <https://www.visualcapitalist.com/anatomy-cannabis-plant/>

# Cannabis Usage



## Recreational <sup>1</sup>

- Mostly for euphoric effects
  - High or stoned
  - Relaxation



## Medical <sup>2</sup>

- Treatment of diseases or conditions
- Pain management, nausea and vomiting due to chemotherapy
- Research currently in Alzheimer's, Crohn's disease, schizophrenia seizures and reduce inflammation.

<sup>1</sup> Backes, M. (2017). Cannabis Pharmacy. (J. McCue, Ed.) New York, NY: Black Dog & Leventhal.

<sup>2</sup> Frye, P. (2018). Clinical Conditions. In P. Frye, & S. D, *The Medical Marijuana Guide : Cannabis and Your Health*. (pp. 576-103). Lanham, Maryland: Rowman & Littlefield. Retrieved from <http://survey.hshsl.umaryland.edu/?url=http://search.ebscohost.com/login.aspx?direct=true&db=cat01362a&AN=hshs.006133561&site=eds-live>.

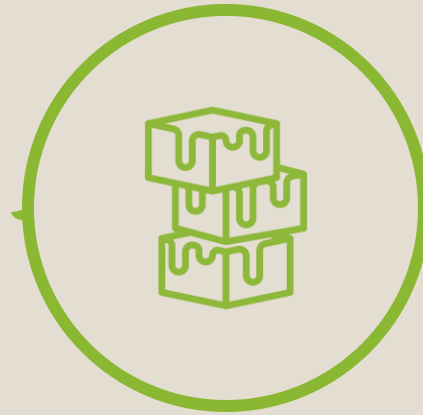
# Methods of Usage<sup>1</sup>



Smoke



Inhale device



Eat



Topical



Liquid

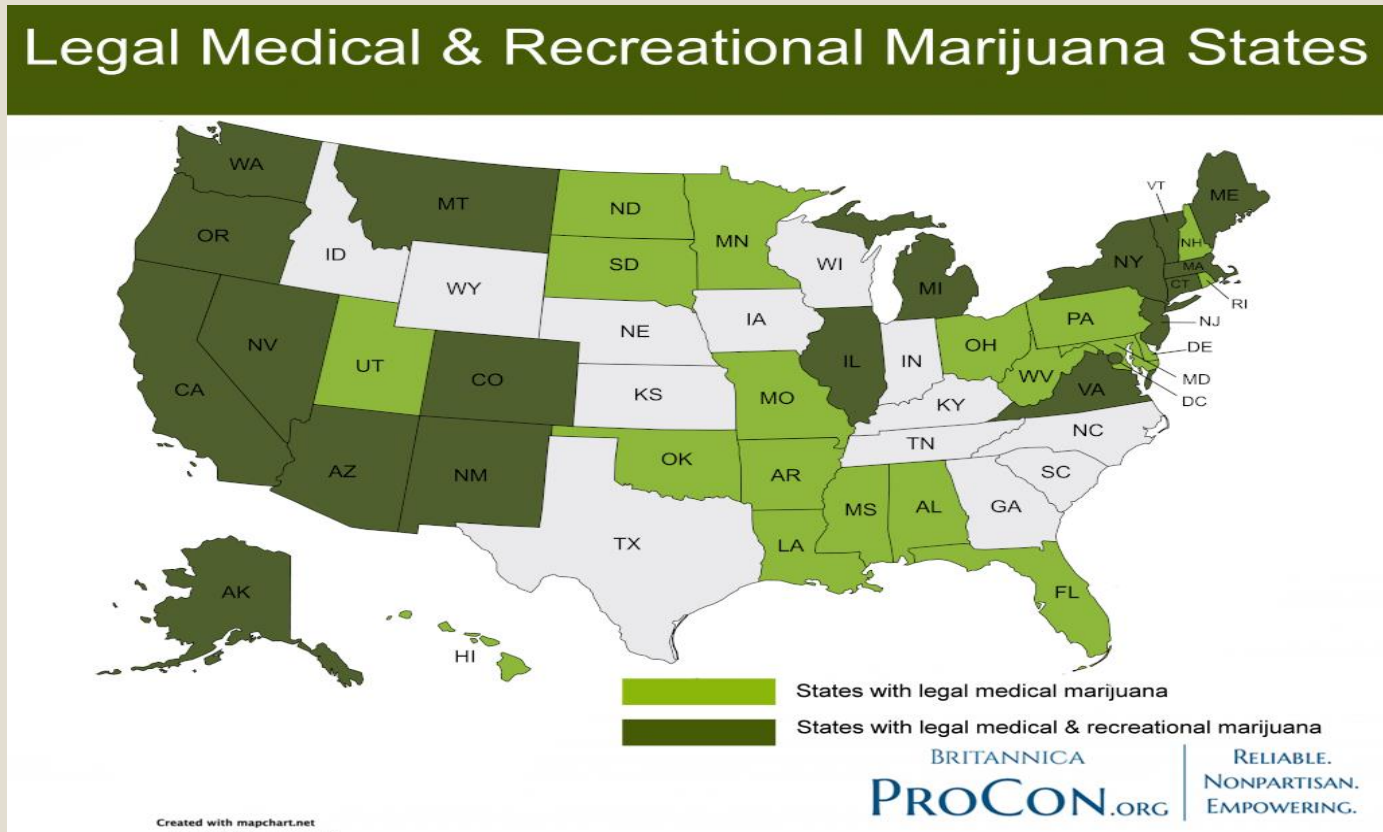
<sup>1</sup> Backes, M. (2017). Cannabis Pharmacy. (J. McCue, Ed.) New York, NY: Black Dog & Leventhal.





# Is Cannabis Usage Legal?

## Legal Medical & Recreational Marijuana States



Map taken from Encyclopedia Britannica, Inc. (2022, February 03). *Legal Medical Marijuana States and DC*. Retrieved from Britannica ProCon.org: <https://medicalmarijuana.procon.org/legal-medical-marijuana-states-and-dc/> National Conference of State Legislatures. (2022, February 3). *State Medical Cannabis Laws*. Retrieved from National Conference of State Legislatures: <https://www.ncsl.org/research/health/state-medical-marijuana-laws.aspx> (map updated 4/8/2022)

# Legal Requirements for Usage<sup>1</sup>



Written recommendation from a licensed doctor



Must have qualifying condition



Some states require ID cards



Every state is different



Purchases can be made from dispensaries

<sup>1</sup> National Conference of State Legislatures. (2022, February 3). State Medical Cannabis Laws. Retrieved from National Conference of State Legislatures: <https://www.ncsl.org/research/health/state-medical-marijuana-laws.aspx/>





# MODULE OVERVIEW

CLICK TO WATCH VIDEO





# Knowledge check



1. Which is not a method of ingestion for Cannabis.

- a) *Smoking*
- b) *Clear nail polish*
- c) *Brownies*
- d) *Lotion*

2. Recreational usage of Cannabis is mostly for the treatment of a disease or for improving medical symptoms.

- *True or False*

3. Washington DC does not have legalized medical Cannabis.

- *True or False*



# MODULE 2

## CBD Versus THC: What Is the Difference

**CBD**

- non-intoxicating
- available everywhere
- .3% THC or less
- Comes primarily from the hemp plant

**THC**

- Intoxicating
- .3% THC or more
- Comes primarily from the marijuana plant



THE  
DIFFERENCE  
BETWEEN  
CBD & THC





Given the online lesson content, the RD should be able to describe the difference between CBD and THC.

Explain

Explain the chemical structure of CBD and THC.

Describe

Describe the psychoactive components of CBD vs. THC.

List

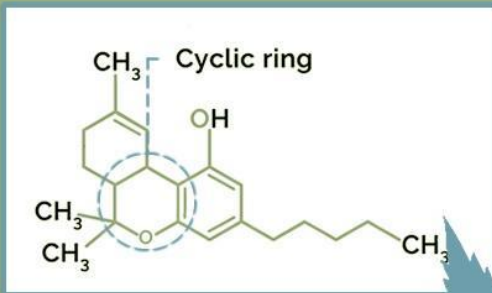
List three medicinal benefits and side effects of CBD and THC.

Describe

Describe how CBD and THC are detected during drug screening.

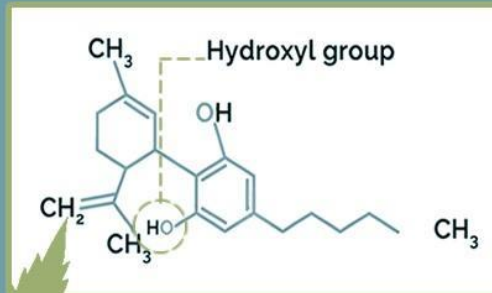


## Tetrahydrocannabinol (THC)<sup>1</sup>



Psychoactive

## Cannabidiol (CBD)<sup>2</sup>



Non-psychoactive

# CHEMICAL STRUCTURE

<sup>1</sup> PubChem. Delta9-Tetrahydrocannabinol. Nih.gov. Accessed February 27, 2022.  
<https://pubchem.ncbi.nlm.nih.gov/compound/delta9-Tetrahydrocannabinol>

<sup>2</sup> PubChem. Cannabidiol. Nih.gov. Accessed February 27, 2022.  
<https://pubchem.ncbi.nlm.nih.gov/compound/Cannabidiol>



## **CBD**

**Non-Psychoactive**

**Negative allosteric modulator of CB1**

**Suppresses CB1 and CB2 receptors**

## **THC**

**Psychoactive**

**Potent partial agonist of CB1**

**Directly Binds to CB1 and CB2**

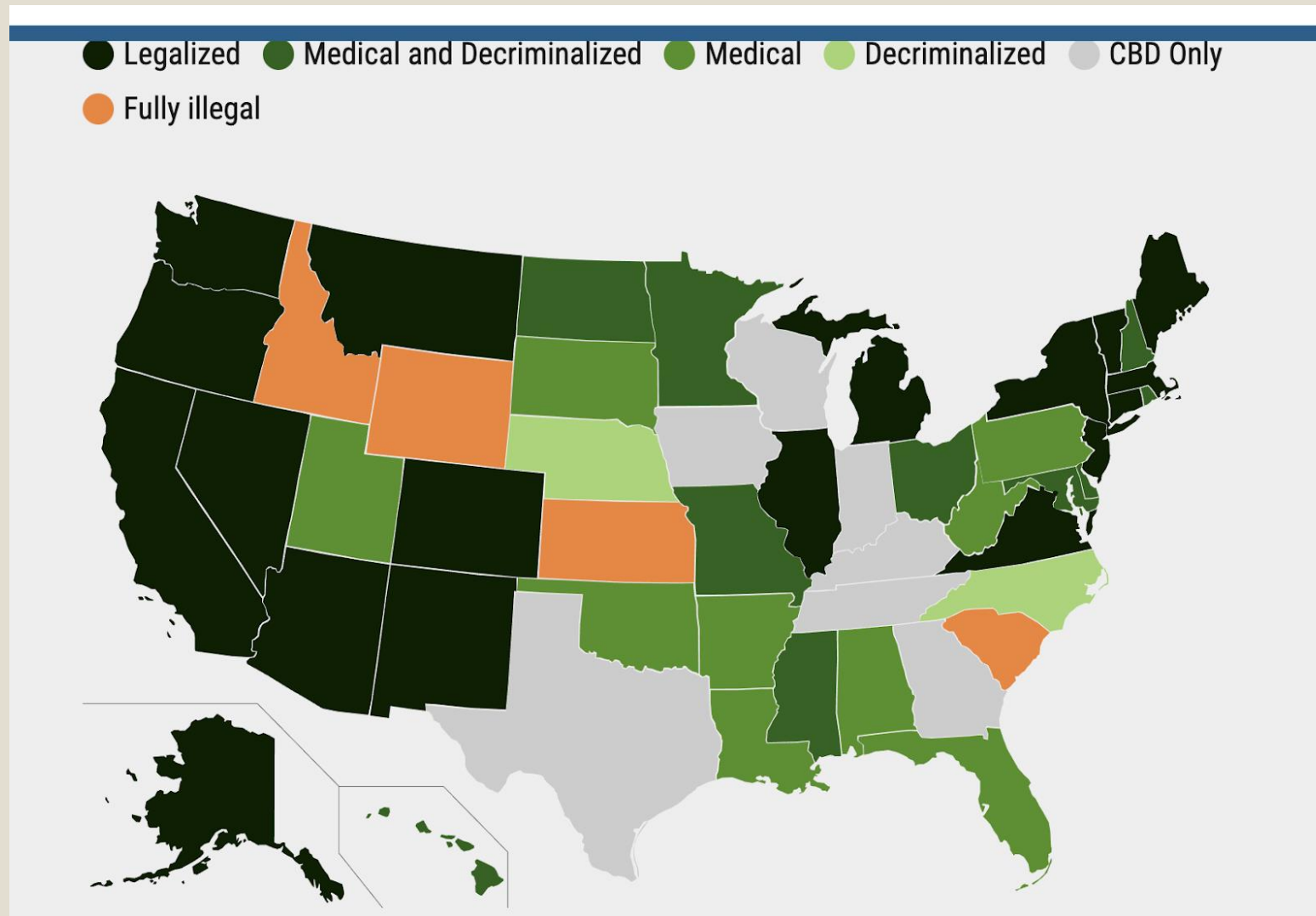
# Psychoactive Components<sup>1</sup>

<sup>1</sup>Betty Wedman-St.Louis. Cannabis : A Clinician's Guide. CRC Press; 2018. Accessed February 10, 2022. <https://search-ebSCOhost.com.proxy-hs.researchport.umd.edu/login.aspxdirect=true&db=nlebk&AN=1795874&site=eds-live>





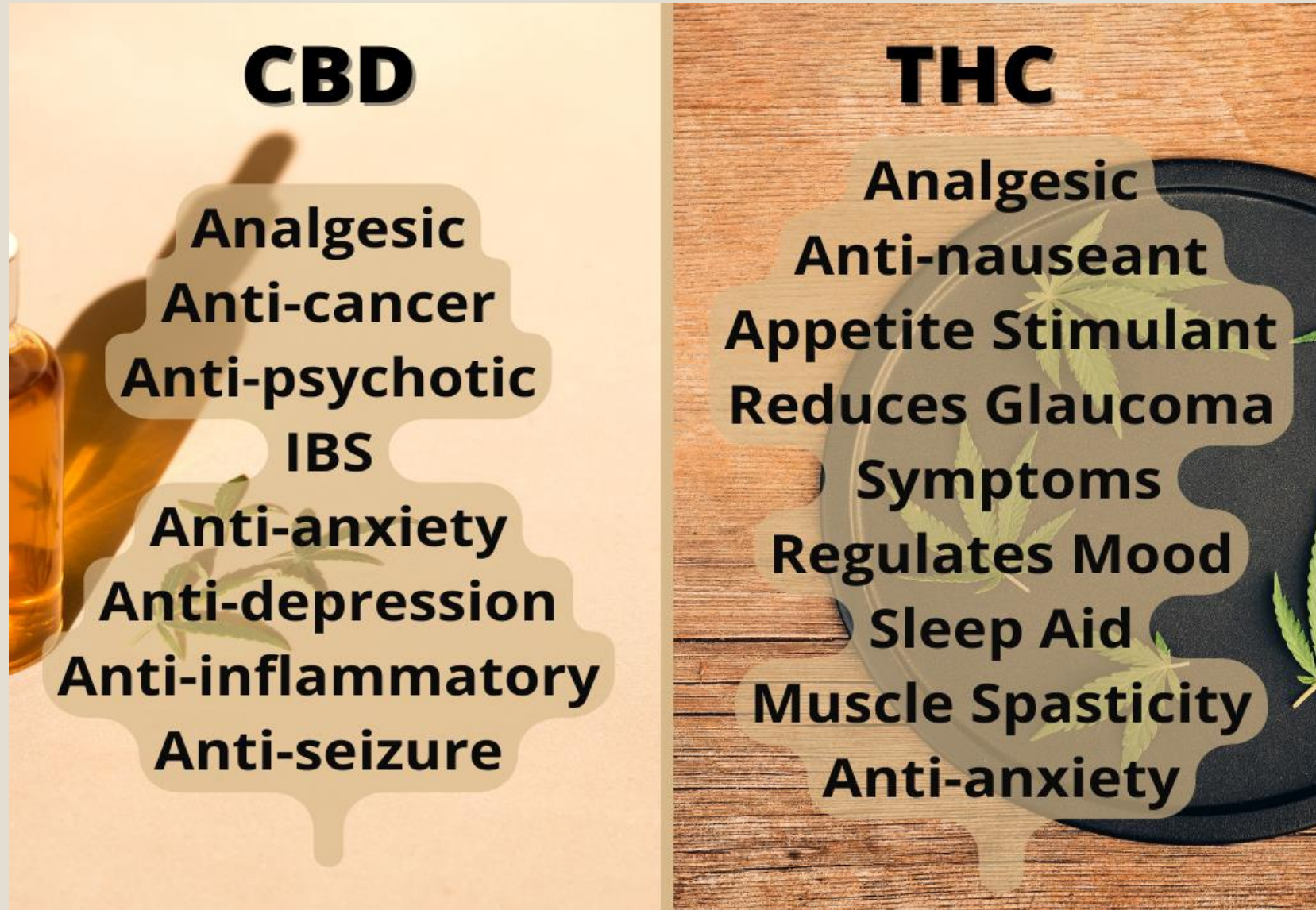
# The Legality<sup>1</sup>



<sup>1</sup> DISA Global Solutions. Map of marijuana legality by state. DISA. Published July 7, 2021. Accessed February 10, 2022. <https://disa.com/map-of-marijuana-legality-by-state>



# The Medicinal Benefits<sup>1</sup>



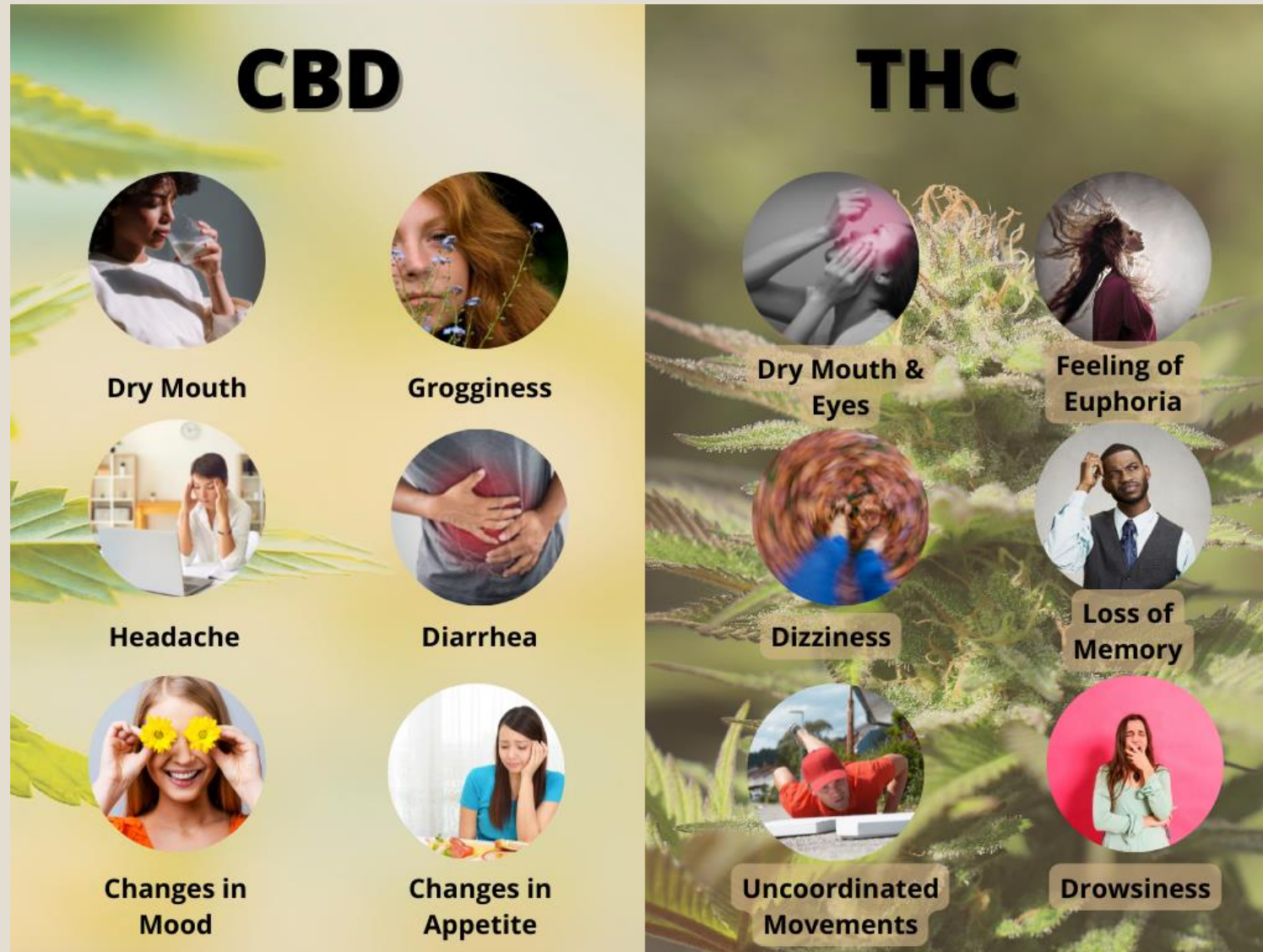
1

Betty Wedman-St.Louis. Cannabis : A Clinician's Guide. CRC Press; 2018. Accessed February 10, 2022. <https://search-ebSCOhost-com.proxy-hs.researchport.umd.edu/login.aspx?direct=true&db=nlebk&AN=1795874&site=eds-live>





# The Side Effects<sup>1</sup>



<sup>1</sup> Betty Wedman-St.Louis. Cannabis : A Clinician's Guide. CRC Press; 2018. Accessed February 10, 2022. <https://search-ebscobhost-com.proxy-hs.researchport.umd.edu/login.aspx?direct=true&db=nlebk&AN=1795874&site=eds-live>



## Questions and Answers

### What is CBD?

The cannabis plant contains more than eighty biologically active compounds<sup>3</sup> and CBD is one of the plant's main active ingredients.<sup>2</sup> CBD is also found in hemp plants, which have lower levels of psychoactive THC than marijuana. Commercially available CBD products that are not prescribed under medical marijuana laws must be derived from hemp, containing less than 0.3% of THC by weight.<sup>3</sup> However, testing of CBD products is currently neither uniform nor mandated. Thus, many CBD products are not free of THC and product packaging may not accurately reflect the actual THC content.<sup>4</sup>

### Why order the CBD/THC ratio urine test?

In instances where a donor tests positive for marijuana (THC metabolite present in urine), and the donor denies marijuana use but claims using CBD, then the measurement and comparison of CBD metabolites relative to THC metabolites may assist with distinguishing if the source of THC in the urine sample could have resulted from CBD use, or from surreptitious marijuana use.

### References

1. U.S. Food and Drug Administration. Statement from FDA Commissioner Scott Gottlieb, M.D., on signing of the Agriculture Improvement Act and the agency's regulation of products containing cannabis and cannabis-derived compounds. <https://www.fda.gov/news-events/press-announcements/statement-fda-commissioner-scott-gottlieb-md-signing-agriculture-improvement-act-and-agencys>. Accessed August 19, 2019.
2. National Institute on Drug Abuse. Researching marijuana for therapeutic purposes: The potential promise of cannabidiol (CBD). <https://www.drugabuse.gov/about-nida/noras-blog/2015/07/researching-marijuana-therapeutic-purposes-potential-promise-cannabidiol-cbd>. Accessed August 19, 2019.
3. U.S. Food and Drug Administration. FDA regulation of cannabis and cannabis-derived products: Questions and answers. <http://www.fda.gov/news-events/public-health-focus/fda-regulation-cannabis-and-cannabis-derived-products-questions-and-answers>. Accessed August 19, 2019.
4. Substance Abuse and Mental Health Services Administration. Use of marijuana oils or marijuana infused commercial products. <https://www.samhsa.gov/sites/default/files/workplace/07-cbd-memo-11-21-17-final-letterhead-signed.pdf>. Accessed August 19, 2019.



[www.LabCorp.com](http://www.LabCorp.com)

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### How is the CBD/THC ratio calculated?

The LabCorp CBD/THC ratio test measures CBD and THC metabolites in urine. The CBD/THC ratio is calculated using the sums of the respective metabolites. The ratio assists in differentiating the presence of THC metabolites due to either: the use of marijuana (medicinal or clandestine), or the use of CBD or hemp products containing unknown but presumably small amounts of THC. If the concentration of CBD metabolites greatly exceeds that of THC metabolites, the calculated metabolic ratio of a sample would indicate that the donor's sample appears consistent with the use of CBD products.

### How will the LabCorp CBD/THC ratio test result be reported?

CBD/THC Ratio	Interpretation*
$\geq 10.0$	Consistent with the use of CBD products only
1.0 – 9.9	Indeterminant
$< 1.0$	Consistent with use of either marijuana, THC products, or mixed use

\*Interpretive ranges are provided as guidance and should not be considered definitive. Interpretation of results should include consideration of all relevant clinical and diagnostic information.

If you have questions or would like additional information regarding this test, please contact your LabCorp representative or call our MDM support line at **877-474-5767**.

# DETECTABILITY IN DRUG TESTING<sup>1</sup>

<sup>1</sup> Cannabidiol (CBD)/Tetrahydrocannabinol (THC) Ratio, urine. Labcorp.com. Accessed February 25, 2022. <https://www.labcorp.com/tests/701907/cannabidiol-cbd-tetrahydrocannabinol-thc-ratio-urine>





# Knowledge check

1. CBD and THC have the same chemical formula which consists of 25 carbon atoms, 30 hydrogen atoms, and two oxygen atoms.

- *True or False*

2. This compound is non-psychoactive, is a negative allosteric modulator of CB1 and suppresses CB1 and CB2 receptors.

- a) *CBD*
- b) *THC*

3. Which of the following is a side effect shared between CBD and THC?

- a) *Dry Mouth*
- b) *Euphoria*
- c) *Diarrhea*
- d) *Uncoordinated movements*





# MODULE 3

The background is a composite image. On the left, a human brain is shown in a reddish-pink hue, with a network of yellow and white neural fibers extending from it. In the center, a hand is shown in a translucent, blue-grey color, holding the brain. On the right, a large, green cannabis leaf with serrated edges is visible. The overall image has a dark, semi-transparent overlay.

# HOW DOES MEDICAL CANNABIS WORK IN THE BODY?



# Module Objectives

1

1. Explain the endocannabinoid system.

2

2. Understand the location of cannabinoid receptors.

3

3. Understand the functionality of CB1 and CB2 receptors

4

4. Explain how cannabis is metabolized (first pass metabolism)





$$F = G \frac{m_1 m_2}{d^2}$$

# THE ENDOCANNABINOID SYSTEM

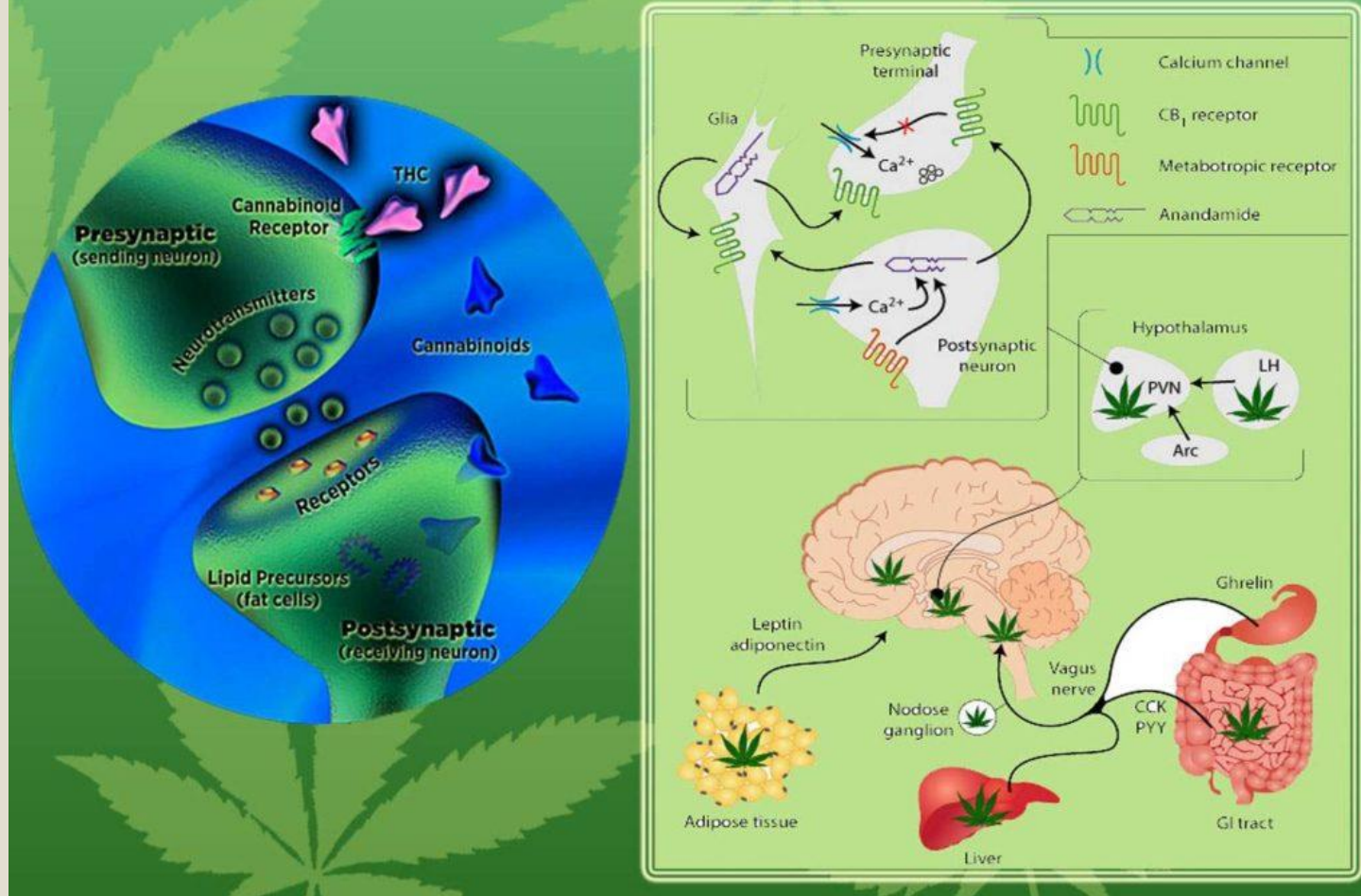
[The Endocannabinoid System, Part 1](#)

$$\frac{\partial^2 u}{\partial t^2} = c^2 \frac{\partial^2 u}{\partial x^2}$$

$$\frac{df}{dt} = \lim_{h \rightarrow 0} \frac{f(t+h) - f(t)}{h}$$



# ENDOCANNABINOID SYSTEM

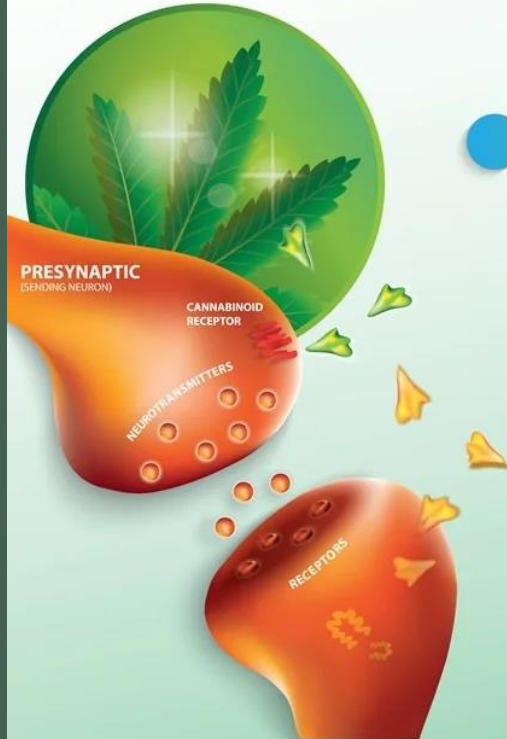


# The Human Endocannabinoid System

CBD,CBN and THC fit like a lock and key into existing human receptors. These receptors are part of the endocannabinoid system which impact physiological processes affecting pain modulation, memory, and appetite plus anti-inflammatory effects and other immune system responses. The endocannabinoid system comprises two types of receptors, CB1 and CB2, which serve distinct functions in human health and well-being.

CB1 receptors are primarily found in the brain and central nervous system, and to a lesser extent in other tissues.

Receptors are found on cell surfaces



**THC**

Tetrahydrocannabinol



**CB 1**



**CBD**

Cannabidiol



**CB 2**



**CBN**

Cannabinol

CBD does not directly "fit" CB1 or CB2 receptors but has powerful indirect effects still being studied.

CB2 receptors are mostly in the peripheral organs especially cells associated with the immune system.

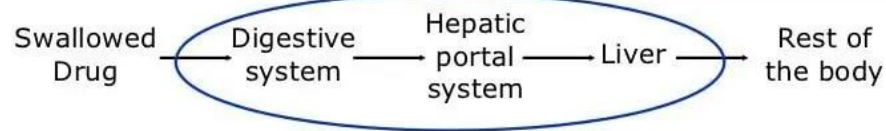
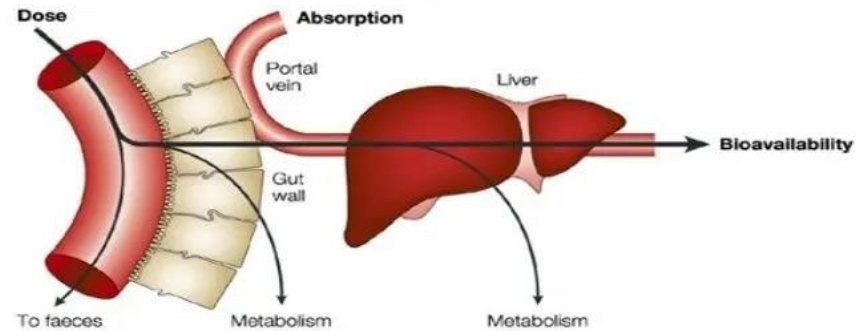
# CB1 AND CB2 RECEPTORS <sup>1</sup>

1 PDS. Crystal structure of the human cannabinoid receptor CB2. News. <https://www.news-medical.net/life-sciences/Crystal-Structure-of-the-Human-Cannabinoid-Receptor-CB2.aspx>. Published August 30, 2019. Accessed February 25, 2022.





## First Pass Metabolism



# WHAT IS FIRST PASS METABOLISM?<sup>1</sup>

<sup>1</sup>amit18289. First pass metabolism. www.medicapps.org. <https://medicapps.org/firstpass-metabolism-2/amp/>. Published July 27, 2020. Accessed February 25, 2022.





# THC Metabolites <sup>1</sup>

Name used here	Pronunciation	Molecular notation	Also known as
delta-9-THC	“ <i>delta 9 THC</i> ”	$\Delta 9$ -THC	THC
11-OH-THC	“ <i>hydroxy THC</i> ”	11-OH- $\Delta 9$ -THC	11-hydroxy-THC
11-COOH-THC	“ <i>carboxy THC</i> ”	11-COOH- $\Delta 9$ -THC	11-nor-9-carboxy-THC, 9-carboxy-THC, THC-COOH

<sup>1</sup>Author Marlene Rupp. Human metabolism of THC. Sapiensoup Blog. <https://sapiensoup.com/human-metabolism-thc>. Published December 21, 2016. Accessed February 25, 2022.



**$\Delta 9$ -THC**

"delta-9-THC"

**11-OH-THC**

"hydroxy-THC"

**11-COOH-THC**

"carboxy-THC"

psychoactive



sapiensoup.com



# Knowledge Check

1. The endocannabinoid system has 5 known receptors.
  - *True or False*
2. Carboxy THC is the psychoactive metabolite of THC
  - *True or False*
3. CB2 receptors are primarily located in the
  - a. CNS
  - b. Lungs
  - c. PNS
  - d. Feet
4. Drugs are metabolized in the
  - a. Liver
  - b. Hepatic Portal Vein
  - c. Gut Wall
  - d. Both a and c
5. The endocannabinoid system assists in maintaining homeostasis.
  - *True or False*





# MODULE 4



# MEDICAL CANNABIS AND NUTRITION THERAPY



# Module Objectives

1

1. To show the patient how and why cannabis therapy can be integrated into their nutritional care.


2

2. To show the patient how food and nutrition can accelerate the positive effects of cannabis therapy.

3

3. To show the patient how cannabis along with anti-inflammatory foods can alleviate certain conditions.





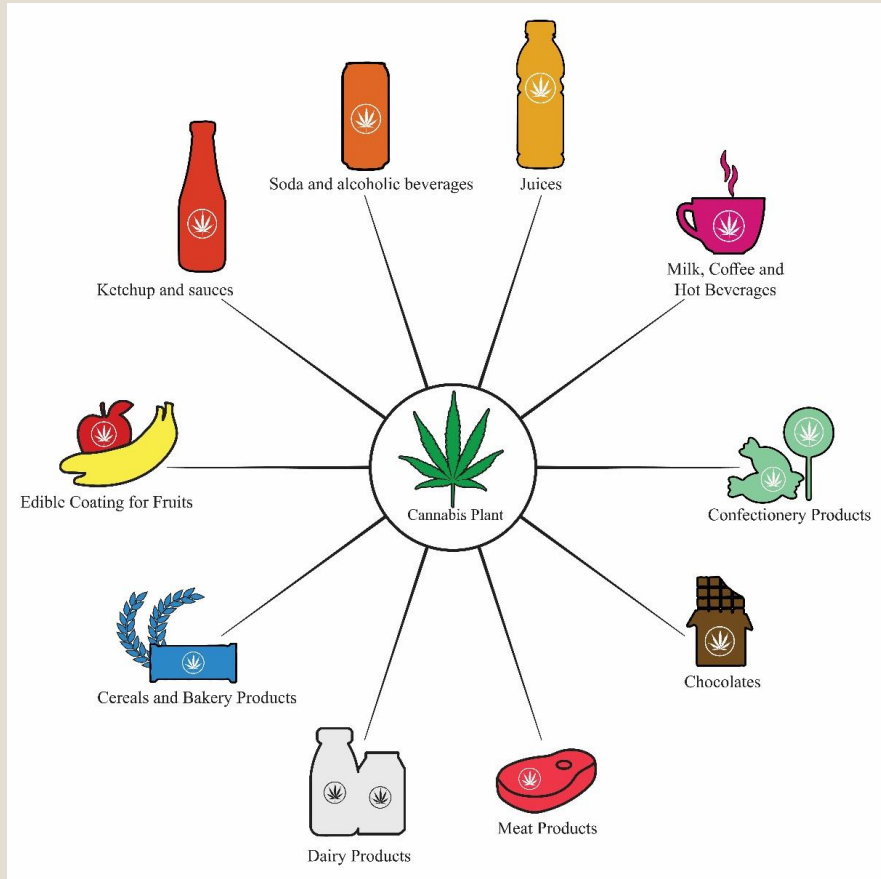
HOW CAN CANNABIS  
BECOME PART OF  
NUTRITION THERAPY?



WHAT TYPES  
OF FOODS  
CAN BE  
PREPARED  
WITH  
CANNABIS?



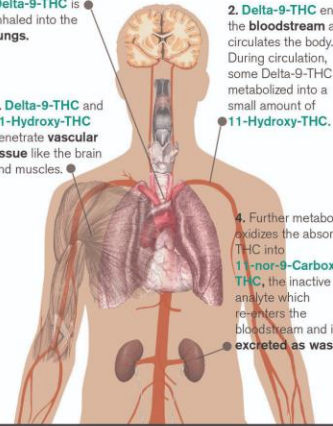
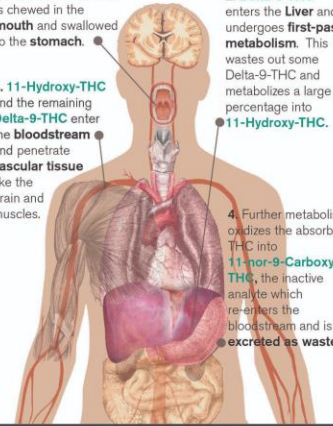
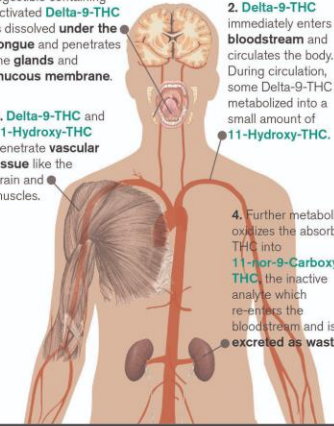




VARIOUS CANNABIS-  
INFUSED FOOD  
MATERIALS ARE BEING  
DEVELOPED IN THE  
FOOD AND BEVERAGE  
INDUSTRY



## HOW YOUR BODY METABOLIZES THC ACROSS DIFFERENT CONSUMPTION METHODS

<h3>Inhalation</h3> <p>Smoking, Vaporizing</p>	<h3>Oral Ingestion</h3> <p>Edibles</p>	<h3>Sublingual Absorption</h3> <p>Tinctures, Melting Edibles</p>
 <ol style="list-style-type: none"> <li>1. Smoke or vapor containing activated <b>Delta-9-THC</b> is inhaled into the <b>lungs</b>.</li> <li>2. <b>Delta-9-THC</b> enters the <b>bloodstream</b> and circulates the body. During circulation, some Delta-9-THC is metabolized into a small amount of <b>11-Hydroxy-THC</b>.</li> <li>3. <b>Delta-9-THC</b> and <b>11-Hydroxy-THC</b> penetrate <b>vascular tissue</b> like the brain and muscles.</li> <li>4. Further metabolism oxidizes the absorbed THC into <b>11-nor-9-Carboxy-THC</b>, the inactive analyte which re-enters the bloodstream and is <b>excreted as waste</b>.</li> </ol>	 <ol style="list-style-type: none"> <li>1. An edible containing activated <b>Delta-9-THC</b> is chewed in the <b>mouth</b> and swallowed to the <b>stomach</b>.</li> <li>2. <b>Delta-9-THC</b> enters the <b>Liver</b> and undergoes <b>first-pass metabolism</b>. This wastes out some Delta-9-THC and metabolizes a large percentage into <b>11-Hydroxy-THC</b>.</li> <li>3. <b>11-Hydroxy-THC</b> and the remaining <b>Delta-9-THC</b> enter the <b>bloodstream</b> and penetrate <b>vascular tissue</b> like the brain and muscles.</li> <li>4. Further metabolism oxidizes the absorbed THC into <b>11-nor-9-Carboxy-THC</b>, the inactive analyte which re-enters the bloodstream and is <b>excreted as waste</b>.</li> </ol>	 <ol style="list-style-type: none"> <li>1. A sublingual ingestible containing activated <b>Delta-9-THC</b> is dissolved <b>under the tongue</b> and penetrates the <b>glands</b> and <b>mucous membrane</b>.</li> <li>2. <b>Delta-9-THC</b> immediately enters the <b>bloodstream</b> and circulates the body. During circulation, some Delta-9-THC is metabolized into a small amount of <b>11-Hydroxy-THC</b>.</li> <li>3. <b>Delta-9-THC</b> and <b>11-Hydroxy-THC</b> penetrate <b>vascular tissue</b> like the brain and muscles.</li> <li>4. Further metabolism oxidizes the absorbed THC into <b>11-nor-9-Carboxy-THC</b>, the inactive analyte which re-enters the bloodstream and is <b>excreted as waste</b>.</li> </ol>
<p><b>Onset:</b> Very Fast - approx. 3-10 min.  <b>Duration:</b> Relatively Short - approx. 60-80 min.  <b>Strength of Effects:</b> Strong psychoactive effects, but less intense than Ingestion.</p>	<p><b>Onset:</b> Very Delayed - approx. 45-120 min.  <b>Duration:</b> Relatively Long - approx. 1-6 hr.  <b>Strength of Effects:</b> Typically much stronger than Inhalation due to increased 11-Hydroxy-THC.</p>	<p><b>Onset:</b> Mid-range - approx. 10-20 min.  <b>Duration:</b> Mid-range - approx. 60-120 min.  <b>Strength of Effects:</b> Similar to Inhalation due to similar THC metabolism in bloodstream.</p>

# HOW IS CANNABIS METABOLIZED IN THE BODY?

<sup>1</sup> Mack, S. (2021, August 6). How Edibles Work. Periodic Edibles. Retrieved February 12, 2022, from <https://www.periodicedibles.com/blog/science-of-edibles>





# Pharmacokinetics

The Principles of A.D.M.E.

## Absorption

How will the cannabis enter the body?

## Distribution

Where will the cannabis go when it enters?

## Metabolism

How is the cannabis broken down?

## Excretion

How does the cannabis exit the body?

Cannify®

## Cannabis Pharmacokinetics <sup>1</sup>

Absorption

Distribution

Metabolism

Excretion

<sup>1</sup> Grotenhermen F. (2003). Pharmacokinetics and pharmacodynamics of cannabinoids. Clinical pharmacokinetics, 42(4), 327-360. <https://doi.org/10.2165/00003088-200342040-00003>



# How CANNABIS fights against INFLAMMATION



**Inflammation** is a mechanism of defense by which the body's immune system **protects** us from infection with bacteria and viruses. In autoimmune diseases, like arthritis, the immune system triggers an inflammatory response without the presence of foreign invaders. In these cases, cells of the **Immune system** attacks the body, causing damage to its own tissues, fibrosis and even necrosis.

## Types of inflammation

	Acute	Chronic
<b>Caused by</b>	Bacteria , virus, tissue injury	Pathogens that the body cannot break down, including foreign bodies that remain in the system, some types of virus, or overactive immune responses
<b>Onset</b>	Rapid	Slow
<b>Duration</b>	Days	From months to years
<b>Outcomes</b>	Inflammation improves, turns into an abscess, or becomes chronic	Can be part of inflammatory diseases like arthritis, and support the development of cardiovascular and neurodegenerative diseases, diabetes, asthma, and cancer.

Cannabinoids have been tested in different animal models with inflammation like multiple sclerosis, rheumatoid arthritis, colitis or hepatitis. They protect from the harmful effects of inflammation through the **induction of antiinflammatory pathways.**

Cannabinoids could also be **beneficial in different types of cancer** that undergoes with chronic inflammation. In these cases, cannabinoids could not only suppress inflammation, but also inhibit the growth of the tumor, and the angiogenesis.

## Treatment

- Nonsteroidal antiinflammatories (Naproxen, Ibuprofen, Aspirin)
- Corticosteroids (Prednisone)

Numerous scientific publications (Nagarkatti et al, 2010) show a **potent effect of cannabinoids** (mainly THC and CBD) in the **regulation of the immune system** and, therefore, in the prolonged suppression of the inflammatory response through different mechanisms:

- Induction of apoptosis (programmed cellular death) in activated immune cells
- Supresion of cytokine and chemokine production
- Induction of regulatory T cells

## Terpenoids Flavonoids

Unlike THC and CBD, some terpenoids and flavonoids of *Cannabis* plant show a transient antiinflammatory effect that could be helpful for the management of acute inflammation (Gallily y cols., 2018; Serafini y cols., 2010). They also boost the actions of THC and CBD through the entourage effect.

## References

- Palwa R y Jalal I. StatPearls Publishing, 2019.
- Gallily R et al. Cannabis Cannabinoid Res. 2018.
- Nagarkatti P et al. Future Med Chem. 2010.
- Serafini M et al. Proc Nutr Soc. 2010.

An infographic by Glyph Illustration @i9th

Some diseases with inflammation or alterations in the immune system in which the treatment with cannabinoids could be beneficial:

**BRAIN**  
Depression, autem, Alzheimer's disease, multiple sclerosis

**THYROIDS**  
Autoimmune thyroiditis

**LUNGS**  
Bronchitis, asthma, allergy

**CARDIOVASCULAR**  
Vasculitis, diabetes

**KIDNEYS**  
Nephritis, hipertension

**GASTROINTESTINAL TRACT**  
Crohn's disease, irritable bowel syndrome, celiac disease, ulcerative colitis

**MUSCLES AND BONES**  
Traumatism, muscular pain, arthritis, tendonitis, sprains, arthrosis, spondylitis

# THE ANTI-INFLAMMATORY NATURE OF CANNABIS <sup>1</sup>

<sup>1</sup>Federica Pellati, Vittoria Borgonetti, Virginia Brighenti, Marco Biagi, Stefania Benvenuti, Lorenzo Corsi, "Cannabis sativa L. and Nonpsychoactive Cannabinoids: Their Chemistry and Role against Oxidative Stress, Inflammation, and Cancer", BioMed Research International, vol. 2018, Article ID 1691428, 15 pages, 2018. <https://doi.org/10.1155/2018/1691428>







# Medical Marijuana and Gastroesophageal Reflux Disease

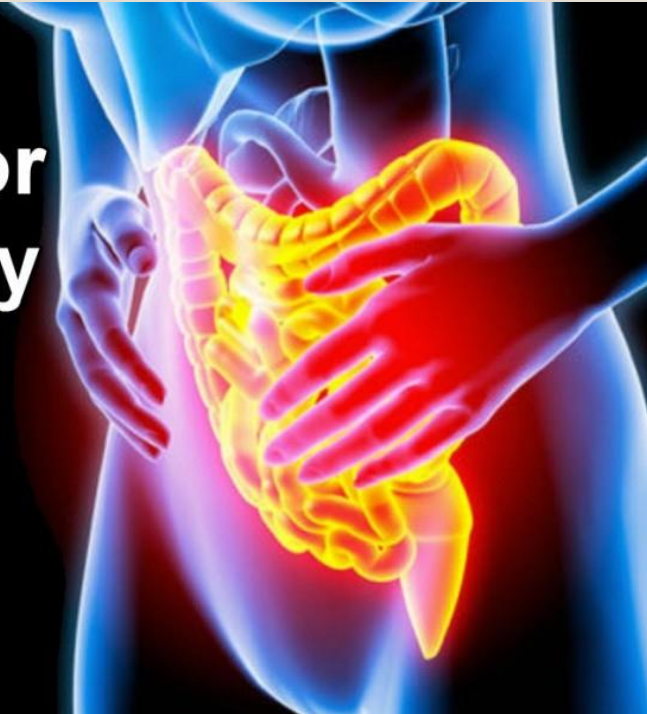
## CANNABIS AND GASTROESOPHAGEAL REFLUX DISEASE

1

<sup>1</sup> Gotfried, J., Kataria, R., & Schey, R. (2017). Review: The Role of Cannabinoids on Esophageal Function-What We Know Thus Far. *Cannabis and cannabinoid research*, 2(1), 252–258. <https://doi.org/10.1089/can.2017.0031>



# Cannabis For Inflammatory Bowel Disease

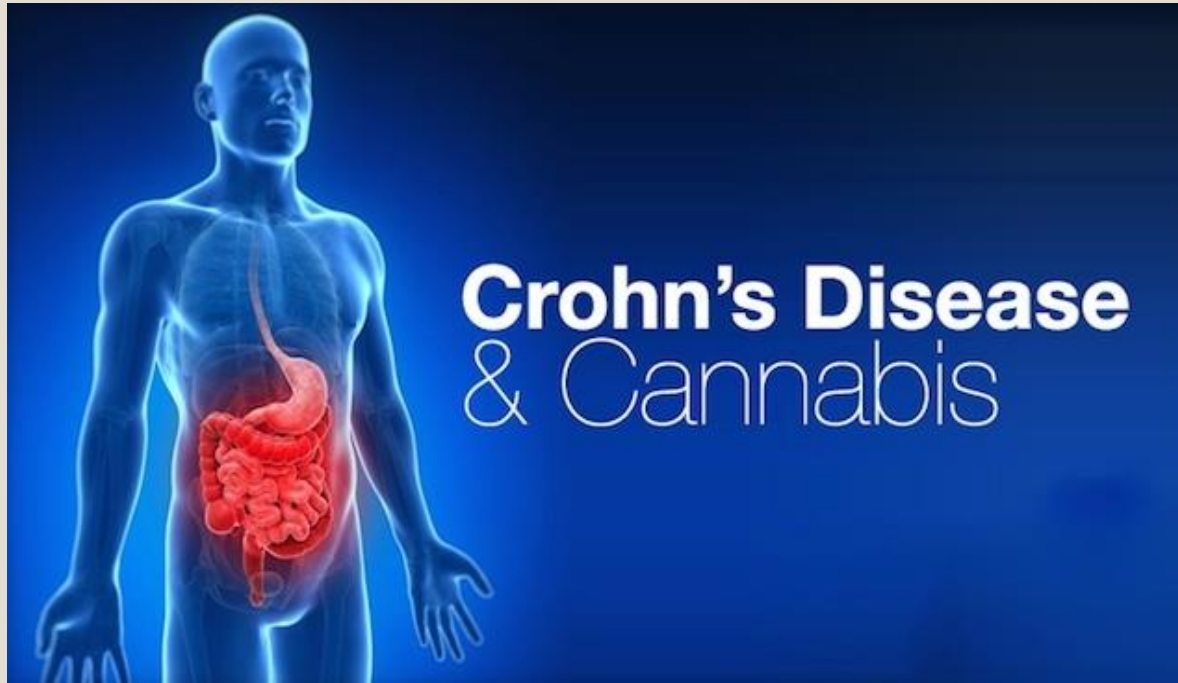


## CANNABIS AND IRRITABLE BOWEL DISEASE

1

<sup>1</sup> Ahmed, W., & Katz, S. (2016). Therapeutic Use of Cannabis in Inflammatory Bowel Disease. *Gastroenterology & hepatology*, 12(11), 668-679.





1

# CANNABIS AND CROHN'S DISEASE



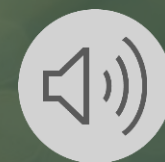
# Knowledge Check

1. Cannabinoids are very lipophobic
  - *True or False*
2. IBS is characterized by severe abdominal pain, bloating, cramping, and a significant change in bowel movements.
  - *True or False*
3. What percentage of the population is affected by GERD
  - a. 70%
  - b. 50%
  - c. 20%
  - d. 10%
4. Drugs are metabolized in the
  - a. Liver
  - b. Hepatic Portal Vein
  - c. Gut Wall
  - d. Both a and c
5. Firm conclusions regarding the efficacy and safety of cannabis and cannabis oil in adults with active Crohn's disease can be drawn.
  - *True or False*



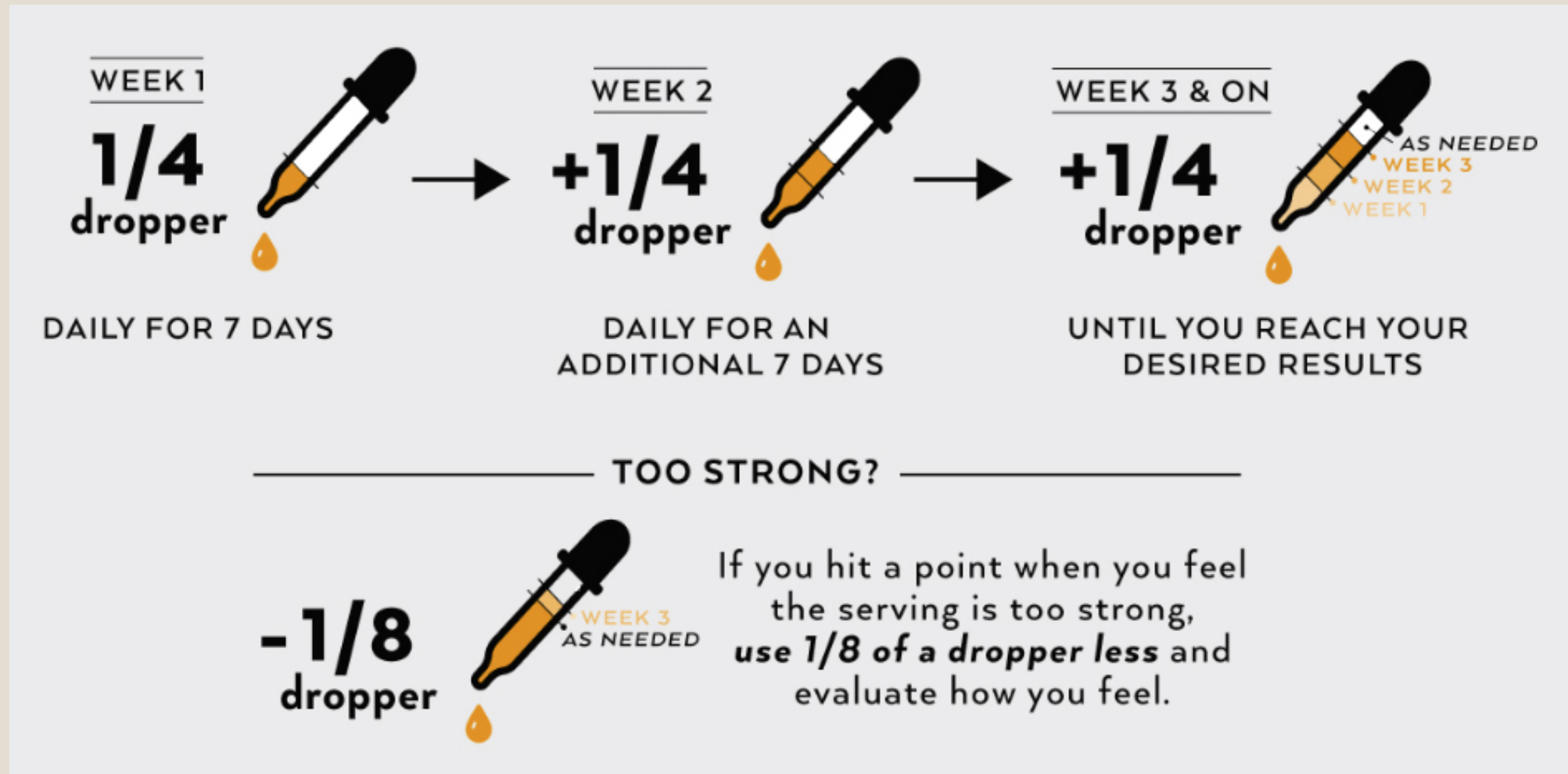


# MODULE 5

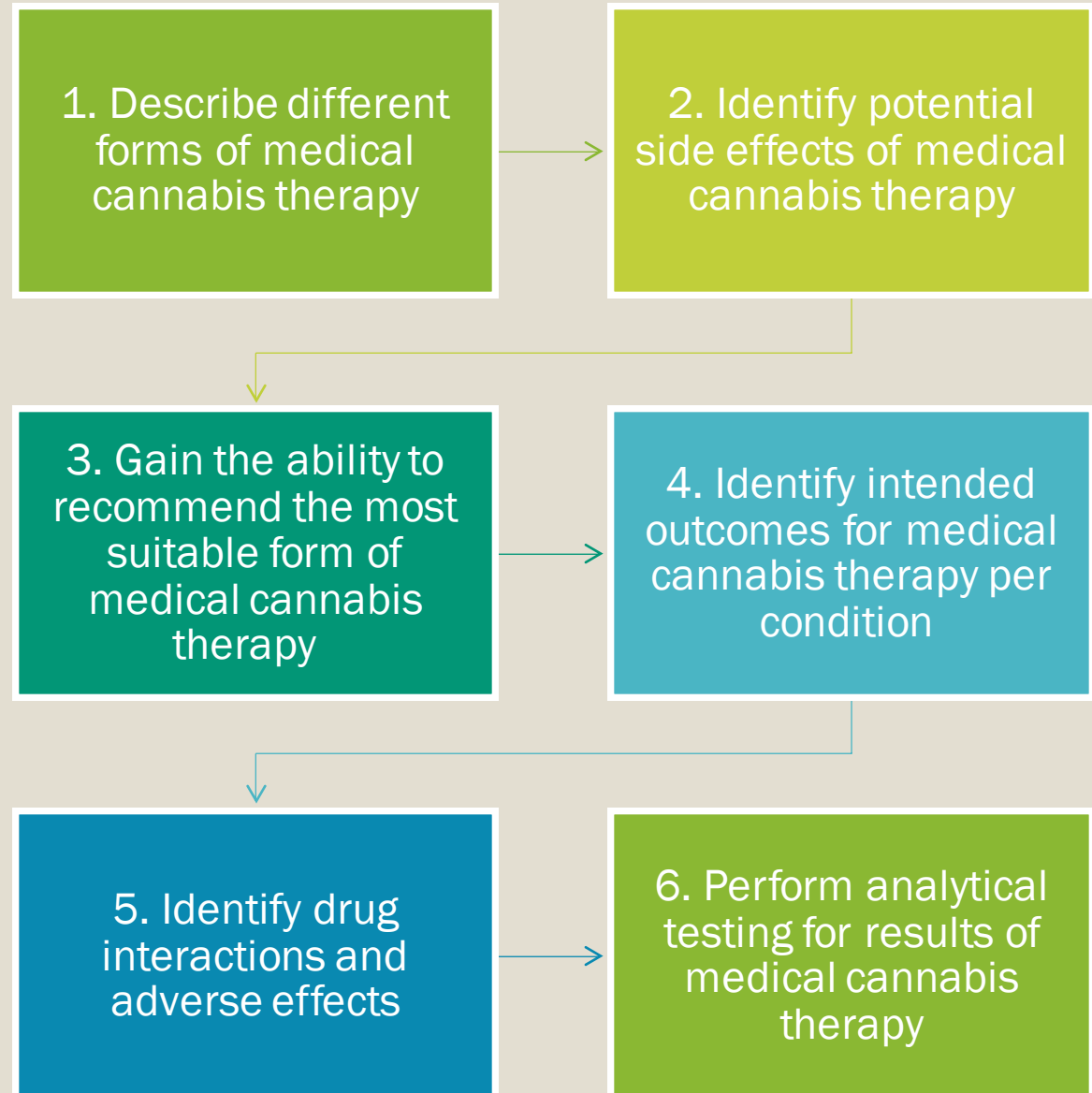


# DOSING RECOMMENDATIONS

## How should you recommend cannabis?



# Learning Objectives



# Describe Different Forms Of Medical Cannabis Therapy

- The different forms of therapy and dosing for CBD and THC
  - Inhalation by smoking or vaporization
    - Herbal cannabis, resin, concentrates
  - Oral
    - Prescription cannabinoids, edibles, tinctures
  - Oro-Mucosal or Sublingual
    - Lollipops, lozenges, nabiximols, ("The Different Forms of Marijuana", 2022)[1](#).
  - Topical or Rectal
    - Creams, ointments, suppositories
- Each form of therapy is best used to treat:
  - Inhalation forms are best to use for instant relief
  - Oral forms are best to use for a routine regime
  - Topical forms are best to use aid pain or an affected area on the skin



1. Rice, A., 2021. The Different Forms of Marijuana. [online] Verywell Mind. Available at: <<https://www.verywellmind.com/what-is-marijuana-are-there-different-kinds-63521>> [Accessed 27 February 2022].



# Identify Potential Side Effects Of Medical Cannabis Therapy

- One of the most convincing arguments for the use of medical marijuana instead of prescription drugs is the lower risk of side effects, particularly compared with prescription pain killers and opioids. ("Cannabis (Marijuana) DrugFacts | National Institute on Drug Abuse", 2022) [1](#).
- The choice between medicinal marijuana and traditional drugs is ultimately up to the patient and their physician, though there are certain factors to consider that may mean one or the other is most appropriate. ("Cannabis (Marijuana) DrugFacts | National Institute on Drug Abuse", 2022) [1](#).

## Potential Side Effects

- altered senses (for example, seeing brighter colors)
  - altered sense of time
  - changes in mood
  - impaired body movement
- difficulty with thinking and problem-solving
  - impaired memory
- hallucinations (when taken in high doses)
  - delusions (when taken in high doses)
- psychosis (risk is highest with regular use of high potency marijuana)



# Gain The Ability To Recommend The Most Suitable Form Of Medical Cannabis



## The difference between CBD and THC

THC and CBD have an effect on the endocannabinoid system, a system that plays an important role in maintaining homeostasis. CBD and THC affect different receptors in the brain. Because of this, CBD typically does not have psychoactive effects. CBD and THC have the same molecular structure, but there are differences in how these molecules are arranged that are responsible for the differing effects they have. ("Gastrointestinal Diseases: Symptoms, Treatment & Causes", 2022) [1.](#)

## When to recommend CBD vs THC

Recommend CBD when a patient may be diagnosed with conditions such as bipolar, depression, mood swings, anger issues. Recommend THC for conditions such as pain, sleep, appetite, anxiety. ("Gastrointestinal Diseases: Symptoms, Treatment & Causes", 2022) [1.](#)

## Signs and symptoms associated with most GI conditions

Many factors may upset your GI tract and its motility (ability to keep moving), including: Eating a diet low in fiber. Not getting enough exercise. Traveling or other changes in routine. Eating large amounts of dairy products. Stress. Resisting the urge to have a bowel movement, possibly because of hemorrhoids. Overusing anti-diarrheal medications that, over time, weaken the bowel muscle movements called motility. Taking antacid medicines containing calcium or aluminum. Pregnancy. ("Gastrointestinal Diseases: Symptoms, Treatment & Causes", 2022) [1.](#)

1. Cleveland Clinic. 2021. Gastrointestinal Diseases: Symptoms, Treatment & Causes. [online] Available at: <<https://my.clevelandclinic.org/health/articles/7040-gastrointestinal-diseases>> [Accessed 27 February 2022].

# IDENTIFY INTENDED OUTCOMES FOR MEDICAL CANNABIS THERAPY PER CONDITION



- Marijuana has been suggested for alleviating symptoms of a range of debilitating medical conditions, such as cancer, HIV/AIDS, multiple sclerosis, Alzheimer's Disease, post-traumatic stress disorder (PTSD), epilepsy, Crohn's Disease, and glaucoma, as well as an alternative to narcotic painkillers
- Patients should keep in mind that any controlled substance, including marijuana, comes with an associated risk of abuse or behavioral addiction. Additionally, marijuana use can contribute to impaired mobility, poor judgment, slow reactions, and mood disturbances. With this said, the risks and side effects of medical cannabis are generally much less severe than those associated with prescription opioids.
- The anticipated outcome should be from each form of therapy.
  - The intended outcome from each form of therapy is homeostasis, an increase in body performance and mental capacity

# Identify Drug Interactions And Adverse Effects

- I. Traditional medications that should not be taken in combination with medical cannabis and for those that can, list the recommended time frame in between doses. ("Pharmacology Classifications of Drugs (Drug Classifications) - Sana Lake Recovery Center", 2022) [1.](#)
  - All forms of cannabis therapy should be taken 2-3 hours before or after a dose of traditional medication is administered
  - Anti-Psychotics, Warfarins, Benzodiazepines, Opioid, Stimulants, Depressants
- II. The potential adverse effects and drug-drug interactions that results from combining traditional therapy with CBD and/or THC use. ("Pharmacology Classifications of Drugs (Drug Classifications) - Sana Lake Recovery Center", 2022) [1.](#)
  - Altered sense of time
  - Paranoia
  - Dizziness
  - Sedation
  - Dysphoria
  - Anxiety
  - Reduced coordination





- Compare and contrast signs and symptoms prior to medical cannabis therapy.
  - Before starting a patient with medical cannabis therapy, be sure to document symptoms they were experiencing before
  - Measure if symptoms are getting better or worsening after therapy has begun
- Inquire about patient's day to day productivity and how they perform in the workplace.
  - It is critical to know what the patient's day to day activities are when it comes to recommending cannabis
  - Some strands of cannabis can cause more of a drowsy and psychological effect than others

### [Terpene Chart 1.](#)

# Perform Analytical Testing For Results Of Medical Cannabis Therapy





# Knowledge Check

1. What are the different forms of therapy?

- a. *Topical*
- b. *Edible*
- c. *Oil*
- d. *Inhalation*
- e. *All of the above*

2. What is the main difference between CBD and THC?

- a. *Psychological effects*
- b. *Terpenes*
- c. *Smell*
- d. *Potency*

3. What is a reason to recommend CBD instead of THC?

- a. *Chemical brain imbalance*
- b. *Allergies*
- c. *Weight*
- d. *Preference*



THANK YOU

