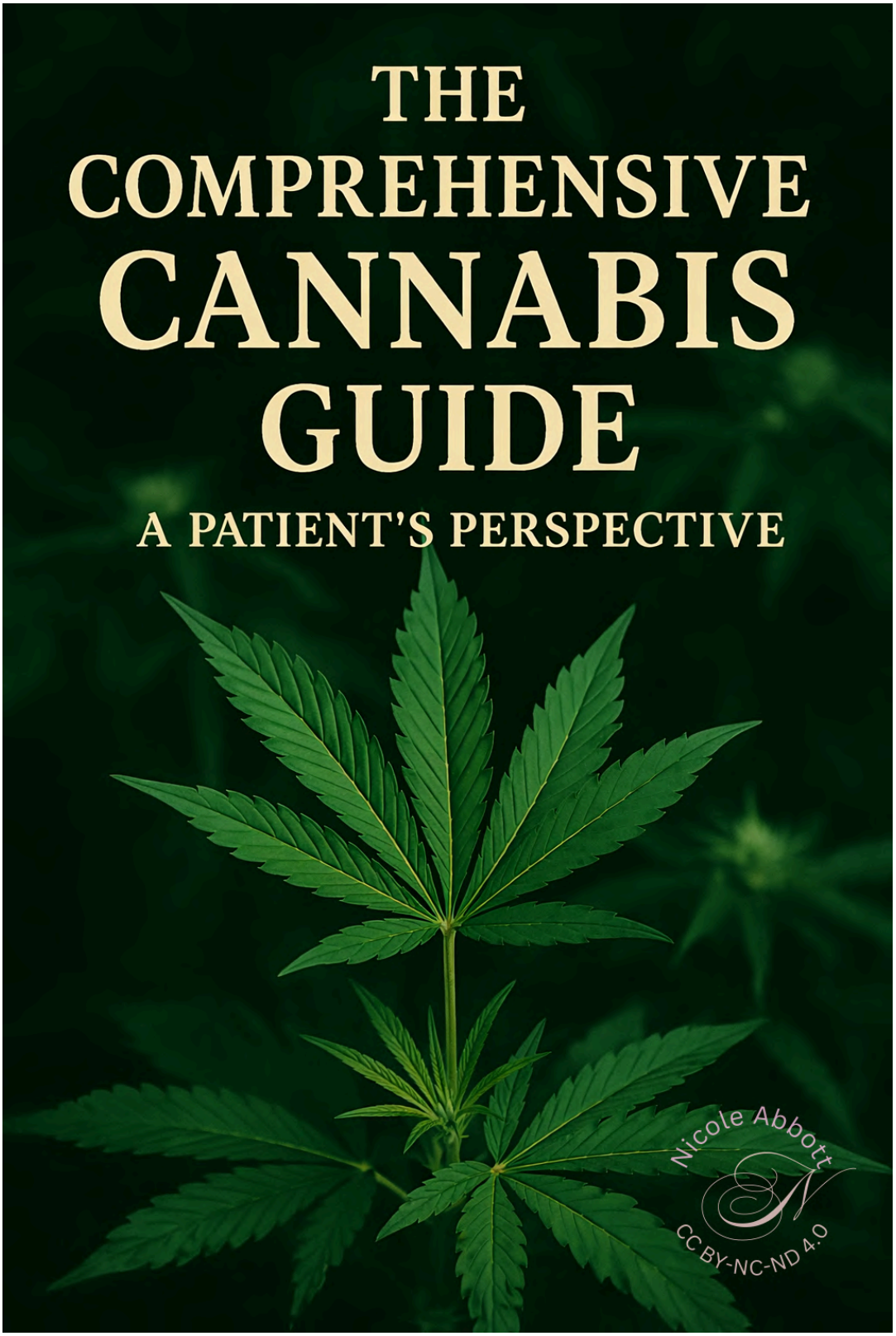

The Comprehensive Cannabis Guide

A Patient's Perspective

By Nicole Abbott

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About the Author: As an Arachnoiditis Warrior and active volunteer, the author's deep dive into research was spurred by the challenge of finding an arachnoiditis specialist in Canada. This naturally led to writing articles, facilitating meetings and events, and administrative duties, a journey that revealed the truly amazing, therapeutic, and pain-reducing benefits of helping others. This guide stands as the largest body of that dedicated work.

Credits: This glossary was developed with the aid of the Merriam-Webster dictionary. While the guide's content draws heavily from detailed sources, such as the National Library of Medicine, the glossary aims to translate complicated technical terms into clear, everyday language.

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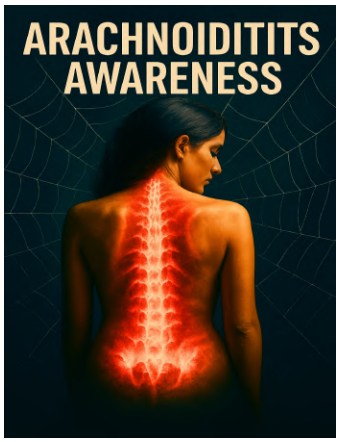
With grateful acknowledgement of the essential support of Generous Editor Volunteers, whose efforts included crucial editorial guidance and thorough verification of the work. I could not have done it without them.

Dedication

This Guide is dedicated to Arachnoiditis Warriors navigating the fire of chronic pain—you are the reason for this research.

It is offered in solidarity with a community that refuses to be silent, built on the belief that no patient should have to walk this path in isolation. This work stands as a testament to the power of volunteer-driven advocacy and the hope that shared knowledge can turn the tide of pain.

You are seen, you are heard, and you are not alone.



Foreword

"Being the first clinical trialist of cannabis a decade ago, time is now catching up for arachnoiditis sufferers to also experience the 'sledgehammer effect' that replaces multiple medications. Nicole has written a comprehensive guide of the knowledge I also gained."

– Scott Groves, Host of Hack Your Brain, Hack Your Pain | Patient Advocate
Manawatu, New Zealand

Data & Research Context:

Source of Data: The information, clinical data, and insights presented in this guide are the result of dedicated inquiry. This includes significant research, reading, and review of numerous research articles, studies published in medical and scientific journals, and other reputable documents from public domains. In instances where scientific and medical opinions presented opposing views, efforts were made to delve deeper into the nuances of the evidence. Furthermore, this integrated knowledge base has been enriched by consulting the experiences of individuals living with arachnoiditis.

Approach & Methodology: This work presents an integrated knowledge base, combining rigorous scholarly evidence with invaluable insights drawn from lived experience.

Specific Limitations:

Focused Scope: This guide's scope is intentionally focused on the interconnected areas of arachnoiditis, nerve pain, and chronic pain. As such, it does not cover the full spectrum of medical knowledge or other related conditions.

Non-Exhaustive Data: While extensive, the data and research included are not exhaustive of all available literature on these complex topics. New research and insights are constantly emerging.

Dynamic Nature of Science: Medical and scientific knowledge is constantly evolving. While efforts have been made to ensure accuracy at the time of publication, new research, discoveries, or clinical guidelines may supersede the information presented in this guide.

Author's Role/Expertise: The author is not a medical doctor or licensed healthcare provider and does not offer medical diagnoses or treatments. The insights and interpretations presented are based on a thorough review and synthesis of the available scientific literature and public data, not on direct clinical practice. Links to much of the available scientific literature and public data are available on line.

Date of Data Cut-off: Data analysis for this publication was completed in June 2025.

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The Comprehensive Cannabis Guide: A Patient’s Perspective

Cannabis has a long history, we can write book after book. Research is currently in a dynamic and rapidly evolving stage, moving beyond basic discovery into more applied and clinical areas. We learn new things everyday. So this in-depth guide will focus on the basics, a special interest in arachnoiditis, nerve pain, and chronic pain. We’ve got your back!

Explore the essential facts about cannabis (hemp), from understanding unique plant components like CBD, THC, and terpenes, to how they interact with your body's endocannabinoid system. We'll cover important safety precautions, consumption methods including microdosing, and discuss its potential applications for various pain conditions, -guiding you on how to begin prudently.

Safety And Legal Considerations

Always verify that cannabis use is legal in your region, as laws vary widely. Beyond legalities, personal safety is paramount, and cannabis of all types can affect everyone differently. Therefore, it is crucial to consult your medical professional before use, especially to understand how cannabis may interact with existing medications, and impact your health. Such a consultation enables a thorough risk-benefit analysis, helping to assess if any predisposing conditions could be exacerbated or put you at a higher risk. Closely monitor your body’s response, particularly if combining it with other drugs/medications.

Furthermore, some pain specialists may suggest medical cannabis as a treatment option for you. While others may not permit the use of cannabis, even if you have a medical authorization or license. Some may require you to take a drug test to monitor your use of prescribed medications, and other substances. This is especially true if you are already taking other pain medications. So have an open, direct conversation with your pain specialist about their specific policies, and any potential impact on your treatment plan before you consider or start using cannabis (even medical cannabis), to avoid any issues.

In Canada, if a medical professional provides you with a medical document (prescription) for cannabis, and you purchase it from a licensed producer, the cost of that medical cannabis is generally considered an eligible medical expense for tax deduction purposes. This can help reduce your taxable income.

Additionally, some individuals are fortunate enough to have private health insurance plans that cover a portion or all of their medical cannabis prescriptions.

It's essential to understand that laws and regulations concerning cannabis, including potential tax benefits and coverage for medical expenses, vary significantly across different countries and even within regions of the same country. These legal frameworks are dynamic and subject to ongoing change. Therefore, if you're considering medical cannabis or its financial implications, it is always highly recommended to consult with a local tax professional, legal expert, or relevant government authority in your specific area to obtain accurate and up-to-date information.

(Responsible Consumption Practices) Adhere to dosage guidelines, especially if you're new to cannabis consumption, or trying a new product. Start with small amounts and adjust based on your tolerance and desired effects. Closely monitor your body's response. Remember that finding what's most beneficial for you may involve trying different cannabinoid profiles.

(Specific Health Risks & Vulnerable Populations) It is well-established that cannabis, specifically THC, causes abnormal changes in the brains of children and adolescents because their brains are still developing. Medical professionals should be consulted regarding any cannabis use for minors, such as the widely discussed use of CBD (e.g., Charlotte's Web) for children with seizures.

(Product Safety and Sourcing) A significant concern in the cannabis market is the proliferation of counterfeit products, extending even to THC cartridges commonly used in vaping. These illicit carts pose major health risks due to unknown and untested ingredients, as evidenced by past public health crises. To mitigate these dangers, always source your cannabis products from reputable channels, such as local or online dispensaries, licensed suppliers, cultivators, or licensed producers, depending on where you reside.

(Impaired Driving Risks) Driving after using THC is unsafe. Numerous studies indicate that THC in the bloodstream negatively impacts driving ability. In fact, cannabis is frequently linked to vehicle collisions. This is because THC impairs essential driving skills such as motor coordination, reaction time, judgment, attention span, concentration, and perception of time and distance. All crucial factors needed in a safe driver.

(Understanding THC's Side Effects) Acute side effects of THC can include reduced reaction times, anxiety, memory loss, increased heart rate and coordination issues. While it is unavoidable that minimal side effects will occur, you can reduce your risk of developing any additional adverse effects by buying high-quality THC products. Microdosing may also help manage these side effects.

Furthermore, ongoing research is still needed to fully investigate the long-term effects of THC use, particularly in younger adults.

(International Travel Prohibition) It is absolutely critical to remember that transporting cannabis across international borders is illegal, even if both the origin and destination countries have legalized it.

Hemp And Cannabis

Hemp and cannabis (often informally called marijuana) are indeed the same plant species, Cannabis sativa L., but they are legally and often genetically distinct varieties based primarily on their THC content. While both contain terpenes and various cannabinoids, and can offer health benefits, the specific balance of these compounds means they often provide different effects and therapeutic profiles.

Let’s put it another way, the crucial legal and practical distinction between "hemp", "marijuana" is based solely on their THC content, even though they are the same plant species. It's like how you wouldn't confuse a cherry tomato with a beefsteak tomato even though they're both tomatoes – they serve different purposes, and have different compositions. Furthermore, farmers and breeders have cultivated tomato varieties for specific traits like size, shape, color, flavor, and even nutrient content like being higher in lycopene. The same things happen with Cannabis sativa L. plants, for their THC, CBD, terpenes etc. You should also know that if you are allergic to hemp seeds and or hemp seed oil, you may not be allergic to the oil from the Cannabis sativa L. plant. Speaking from experience, this Arachnoiditis Warrior can still enjoy the benefits of oil from the flower/leaves, just nothing from the seeds.

When people talk about CBD oil, they're often referring to two main types, both derived from the cannabis plant (like the tomato plant), but with important differences:

Hemp-Derived CBD (NOT hemp seed oil)

Hemp-derived CBD oil comes from hemp plants, which are legally defined as Cannabis sativa L., containing 0.3% THC or less by dry weight (in many regions). You may see it listed as Delta-9 THC (or Δ9-THC), this is a specific chemical compound (a cannabinoid) found in hemp plants**.**

These plants are naturally low in THC, and often cultivated to be relatively high in CBD (like a farmer cultivating a tomato plant to be high in lycopene). This oil contains CBD along with other beneficial compounds like vitamins, minerals, and other non-psychoactive cannabinoids.

For example, in the USA, THCA's legal status is a gray area. While raw THCA, derived from hemp (under 0.3% delta-9 THC), is often sold as federally legal, the DEA's stance is that total potential delta-9 THC (including what THCA converts to upon heating) must be considered for the 0.3% limit.

This means many "THCA products" would exceed the legal limit if consumed as intended, and state laws also vary.

Even in regions where traditional high-THC cannabis remains restricted or illegal, there's a growing global trend towards legalizing industrial hemp, typically defined by a very low THC content. While a 0.3% total THC limit (or occasionally 0.2%) is a widely adopted benchmark for distinguishing legal hemp from cannabis, significantly influenced by major economies, this standard is not universal worldwide. Numerous countries have established different thresholds, some allowing up to 1% THC in hemp, while others enforce near-zero or absolute zero-THC requirements for hemp-derived products like CBD. Furthermore, a substantial number of nations still maintain outright prohibitions on all cannabis and its derivatives, regardless of THC levels (like not being allowed any tomato plants at all).

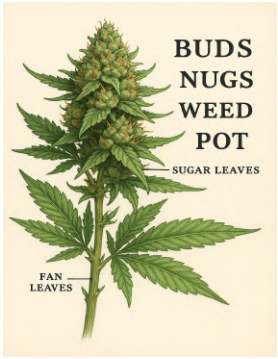
While hemp strains are specifically bred for high CBD content, the efficacy of hemp-derived CBD products is highly dependent on their overall cannabinoid and terpene profile, potency, and quality. Many high-quality, full-spectrum hemp-derived CBD products do provide significant medicinal effects due to their rich cannabinoid and terpene content, even with minimal THC. However, highly processed "industrial hemp" (grown for fiber/seeds) may yield less potent CBD extracts. While both are derived from the hemp plant, their composition and benefits differ considerably.

It's important to distinguish hemp seed oil from CBD oil. While both are derived from the hemp plant, their composition and benefits differ significantly.

Hemp seed oil is cold-pressed from the seeds of the hemp plant. These seeds themselves are highly nutritious, being a complete source of protein (providing all nine essential amino acids), with about 9.46g of protein per 30 grams (approximately 3 tablespoons). Hemp seeds and their oil offer nutritional benefits such as helping to lower cholesterol and blood pressure, improving the immune system, reducing inflammation, and potentially aiding in blood sugar control and weight management. However, hemp seed oil typically contains little to no CBD or other cannabinoids. Its benefits are derived from its rich profile of omega fatty acids, vitamins, and minerals.

Therefore, when encountering products labeled 'hemp oil,' it's crucial to double-check which type the seller is referring to, to ensure you're getting the product aligned with your needs – whether it's for nutritional support from hemp seeds/oil or cannabinoid benefits from CBD oil.

Furthermore, for all products do your due diligence about who is making the product, how it is made, what is in it, look for third-party lab-tested certification to ensure quality and accurate labeling. There are poor producers in this space who do not do their testing which not only results in worse products but potentially dangerous outcomes. Especially when not purchasing from a licensed producer.



Cannabis-Derived CBD (from 'Marijuana' varieties)

The term flower is botanical, slang terms are buds, nugs, weed, and pot. Sugar leaves (the little ones) are considered trim. The fan leaves (the large iconic ones) are mostly discarded.

CBD oil is extracted from the flower and leaves of CBD rich cannabis plants. These plants are specifically cultivated for their cannabinoid content, resulting in oils rich in CBD. Often containing other beneficial cannabinoids and terpenes. They also exceed the 0.3% THC threshold, but are specifically cultivated to be low in THC and high in CBD for medicinal purposes. These varieties often boast a richer, more diverse profile of minor cannabinoids and terpenes compared to some lower-resin hemp varieties, due to their genetic makeup.

When medical experts discuss the significant benefits of CBD oil, they are referring to CBD sourced from high-quality, CBD-rich cannabis plants, regardless of whether they are legally classified as hemp or 'marijuana,' varieties. The effectiveness of these oils has been consistently shown to help treat various debilitating conditions, primarily due to their potent medicinal properties, and the enhanced “entourage effect” (the synergistic interaction of all the plant's compounds, including cannabinoids and terpenes). The key factor for efficacy stems from the cannabinoid and terpene content, rather than solely the legal classification of the source plant.

Precautions To Consider When Using Cannabis

There is definitely a sweet spot with THC, and it can be easy to go past it. That point where the enjoyable effects tip over into feeling uncomfortable is a clear sign you’ve likely had more than your

body can tolerate. It is best to start low and slow. Another option is to use a balanced THC and CBD ratio, CBD is reported to lessen some of THC's psychoactive effects.

If you've had too much, remember the effects will subside with time. Try eating something, staying hydrated with water. Try engaging in enjoyable distractions to shift your focus and mood. Citrus might offer some mild relief for some individuals due to its potential mood-lifting and anxiolytic properties, but it shouldn't be relied upon as a guaranteed solution.

Beyond tolerance, dosage, and body chemistry, your "set and setting" (mindset and environment) are vital for a positive cannabis experience. A negative mood or anxiousness, or an uncomfortable environment like a large crowd for a non-social person, can lead to negative effects. "Set and setting" are highly personal; some enjoy social settings, others prefer private spaces or nature.

Dry mouth is a common side effect of consumption, prevent this by staying hydrated.

Cannabis has remarkably low toxicity. There are no documented cases of fatal overdoses from cannabis alone. The amount required to be lethal would be physically impossible to consume.

Cannabis use can affect heart rate and blood pressure. While rare, it may potentially trigger heart attacks in individuals with pre-existing risk factors, but more research is needed to fully understand this relationship.

Cannabinoid Hyperemesis Syndrome

Users who regularly and heavily use cannabis one or more times a week are at risk of developing a rare but serious condition known as cannabinoid hyperemesis syndrome. Symptoms include severe yet persistent bouts of nausea, abdominal pain, and vomiting that can quickly lead to dehydration. The condition affects both short- and long-term users. Some users who develop the condition end up in the emergency room for treatment.

If you are consuming medical cannabis, chances are you are using it for a specific health reason. No matter what you're trying to treat or manage, the truth is that we will all react differently to cannabis, and their different types. Because of this, it may be helpful to keep a medical cannabis journal to help you monitor and achieve your health goals. Select an option that allows you to stay consistent in recording your experiences. Be sure to be specific regarding the details. Include date and time, strain, delivery method, dosage, current symptoms, other medications, what you ate and drank beforehand, your mood beforehand. You need to allow the cannabis to take its full effect before you record your post-dosage findings. Depending on your delivery method, this might take about two hours. Then, here are the things to take note of: how you're feeling, how long the effects lasted, physical activity you were able to do, symptom relief, side effects, allergies, illness, pain levels, effect on your mood. This will also help you find the right dosage.

Titration

Titration in this case means start with a tiny amount, wait to see how you feel, and only slowly take a little bit more next time until you find what works best for you.

When starting cannabis the process of "start low and go slow" especially for medical purposes is critical. Finding the optimal dose that provides therapeutic benefits while minimizing adverse effects.

How to titrate cannabis dosage

"Start Low and Go Slow": The Golden Rule!

Initial Dose: Begin with the absolute lowest possible dose. This often means 1-2.5 mg or 0.1-0.25 ml (do what your doctor has advised for you). This is especially true for someone new to cannabis, but also true with new product introductions.

Gradual Increases: Increase the dose very slowly, typically every 2-7 days, and only if the current dose isn't providing the desired effect and is well-tolerated. Avoid increasing too quickly, especially with edibles, as their effects can be delayed. If you experience unwanted side effects, reduce the dose to the previous well-tolerated amount. It can take several weeks to find your optimal dose. Don't rush the process, be patient.

For medical use, the goal is often symptom control with minimal psychoactivity “high”, so a minimal amount of medicine for the optimal results. Higher doses don't always get you better therapeutic effects, and can increase side effects due to cannabis's biphasic properties (2 effects). It's interesting how cannabis works, smaller doses can be stimulating, while larger ones can be more sedating. Push the dose too high, and you might actually find your symptoms worsen, or you could experience a higher tolerance more quickly. Furthermore, microdosing for some can work better than increasing the dose (covered within the guide). Speaking of tolerance, your body can adapt to regular cannabis use, meaning you'll need an increased dose to feel the same effects over time. To help prevent or reset this, consider taking planned breaks from cannabis, like 2-3 days, it will also reset your endocannabinoid system. You can also explore different strains to alleviate tolerance. In fact, this Arachnoiditis Warrior finds mixing strains reduces tolerance issues.

Cannabis can affect everyone in various ways, the best dose for you depends on many factors. We are all unique with a different metabolism, body weight, age, genetics, and individual endocannabinoid system. Even different conditions may respond differently with varying cannabinoid profiles, dosages and types of products (covered within the guide). Furthermore, two people with the exact same conditions taking the exact same cannabis can respond differently. Potential drug interactions should always be discussed with a healthcare professional. Some patients use higher CBD products during the day, and higher THC products at night. Some experts suggest trying CBD

first, then introducing THC to your titration process, a 1:1 (THC:CBD) oil may be better tolerated with THC use.

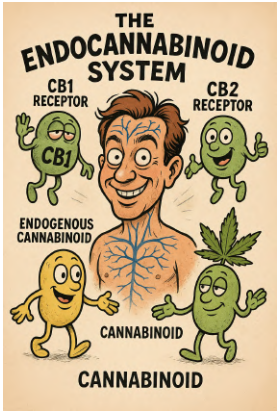
It can not be repeated enough, consult a healthcare professional, even discuss the best terpene formulations for you. Keep a symptoms diary with all the details.

Product labeling is another important factor. Understand the concentration (mg/ml, mg/g, or percentage) and ratios of THC and CBD in your products. Be aware that labeling can sometimes be inconsistent. Never be afraid to ask suppliers about their products (they will not give medical advice).

By following a "start low and go slow" approach, meticulously tracking your response, and working with a healthcare professional, you can effectively titrate your cannabis dosage to find the most beneficial, and well-tolerated regimen for your needs.

Storage Of Cannabis Products

Keep in a cool, dark and dry place. At stable temperatures in an airtight container. Keep away from children and pets, using the original packaging. When stored properly, cannabis products generally have a shelf life of 1 to 2 years from the manufacturing date, for most stable products like edibles, oils, and well-stored flower/concentrates. Always check the "best by" or expiration date provided by the manufacturer. While they might not be harmful past this date, their potency can gradually decrease.



The Endocannabinoid System

pronounced as en-doh-CAN-uh-buh-noid

The endocannabinoid system (ECS) is a complex and crucial communication network within your body, vital for maintaining overall health. A built-in control center. Imagine it as your body's internal balancing system, constantly working to keep things stable.

At its core, the ECS operates through naturally occurring signaling molecules that act as neurotransmitters called endocannabinoids, which are essential for balancing brain and body functions. Think of these endocannabinoids as tiny "keys" that your body produces as needed. These keys, like anandamide and 2-AG, fit into specific "locks" (receptors) on your cells. 2-AG: This endocannabinoid is a full agonist for both CB1 and CB2 receptors, meaning it binds efficiently and triggers a strong, complete response. Anandamide (AEA): While AEA also binds to both CB1 and CB2 receptors, it functions as a partial agonist, meaning it initiates a less pronounced or partial cellular response compared to a full agonist like 2-AG.

When they engage these locks, they instruct your body to perform various actions, such as relaxing a muscle or easing stress. Once an endocannabinoid has done its job (like bringing your body back into balance), special "cleaner" chemicals called metabolic enzymes break them down so they are no longer needed.

While the exact mechanisms of the ECS are still being unraveled by experts, it's clear that its primary and most important physiological role is to maintain homeostasis (balance)—the stability of your internal environment. If an outside force, like pain from an injury or a fever, throws your body's homeostasis off balance, your ECS kicks in to help your body return to its ideal operation.

Researchers have linked the ECS to a vast array of vital bodily functions, including: appetite and digestion (“brain-gut” connection, a line of communication between the brain and the enteric nervous system that operates in the digestive tract—the body’s “second brain.”), metabolism, chronic pain, inflammation in other immune system responses, mood, learning and memory, motor control, sleep, cardiovascular system function, muscle formation, bone remodeling and growth, liver function, reproductive system function, stress, skin and nerve function.

Since we've learned about this system (1988-1990’s), scientists are very excited about how it can help treat many health problems, like reducing pain, fighting cancer, protecting our brains (to prevent diseases like Alzheimer's), and improving overall well-being. Basically, the endocannabinoid system is super important for making sure our body's defense system (immune system) and messaging system (nervous system) are working right. If we can find ways to adjust this system, it opens up new possibilities for treating a wide range of long-term illnesses and conditions.

The endocannabinoid system (ECS) plays a critical role in pain modulation, a finding comprehensively reviewed by **Horváth et al. (2012)** in their study, 'The Endocannabinoid System and Pain.

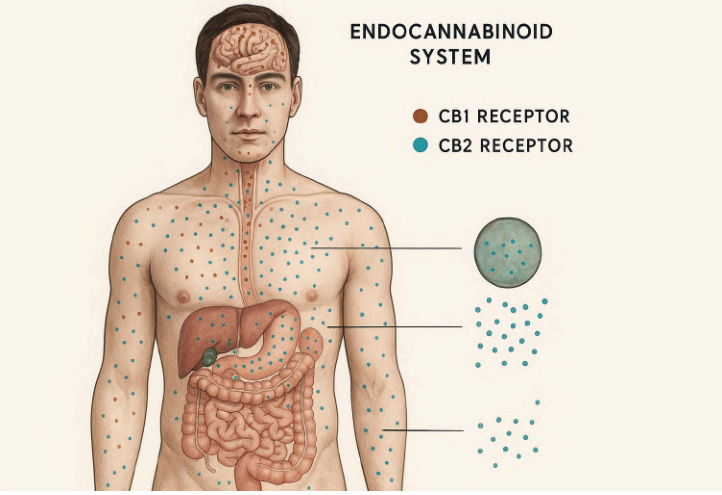
It highlights that the ECS, with its cannabinoid receptors and natural cannabinoid-like substances (endocannabinoids like anandamide and 2-AG), is present throughout the body and brain, and can suppress pain signals. The study explores how these endocannabinoids, whether naturally released or influenced by medications that block their breakdown, can affect different types of pain (acute, inflammatory, and neuropathic). Ultimately, it emphasizes the potential of targeting the ECS as a promising strategy for developing new pain treatments.

An important safety aspect of cannabinoids is that the endocannabinoid system (ECS) does not govern the fundamental life-sustaining centers in your brainstem, which regulate breathing and heart function. Unlike certain substances that can suppress these vital processes, cannabinoids allow your essential bodily functions to continue working, making a fatal overdose from cannabis or its cannabinoids alone extremely rare, and typically not possible.

Without the ECS working properly, it's challenging for the body to maintain balance, leading to potential disruptions in many functions, such as temperature regulation, fluid levels, and immune system response. Everyday activities and outside influences can cause the levels of these active endocannabinoids in your body to fluctuate, highlighting the dynamic nature of this essential internal system.

Now, think about cannabis. The compounds within it, such as THC and CBD, are also cannabinoids. However, these originate outside your body, coming from the plant – we call them phytocannabinoids. These plant-based cannabinoids can also act like keys, fitting into some of the same locks within your ECS. These keys from an external source are known as exogenous cannabinoids. The ECS largely determines how cannabis affects you, regardless of how it's used or taken.

So, the ECS is the whole network, your body's own endocannabinoids are the keys your body makes, and the cannabinoids from cannabis are like extra keys that can also interact with the system. They all work together within this ECS to help keep things balanced inside you. They can modulate or enhance your natural endocannabinoid system's activity, triggering various physiological responses and offering potential health benefits, affecting things like sleep, mood, and even how your body handles inflammation.



Endocannabinoid receptors are located throughout the body, with more in some spots than others. CB1 receptors are mainly in the brain and spinal cord. Cannabis compounds that connect with CB1 receptors can often help with brain-related issues like neurodegenerative and mental health problems, reducing stress and anxiety, increasing appetite, easing nausea, balancing your immune system, and fighting tumors. CB2 receptors are mostly in immune cells outside the brain and spinal

cord, and they mainly affect how your immune system works, fighting inflammation and repairing damaged tissue. Some cells even have both types of receptors, each doing a different job.

Imagine THC is like a special key that unlocks certain doors in your body. When you use cannabis with THC, this "key" travels through your body and finds these "doors," which are called CB1 and CB2 receptors, they are a type of protein.

When the THC "key" goes into the CB1 "door" in your brain, it can make you feel really happy (euphoria), super hungry (induced appetite), and sometimes a little anxious or sleepy. It can also make your heart beat faster. CB1 locks are mostly found in your brain.

The THC "key" can also fit into the CB2 "door," which is more in other parts of your body. When it does, it can help with pain and swelling (inflammation).

So, even though THC can unlock both doors a little bit, it really likes the CB1 door in your brain, which is why it makes you feel "high" and can have those other effects.

Since cannabis interacts with the body’s endocannabinoid system it can also influence digestion and bowel function. THC and CBD affect gut health in different ways. THC can stimulate appetite and food intake, relax gastrointestinal muscles to ease cramping and spasms, and increase gut motility to aid bowel movements. CBD can reduce inflammation and oxidative stress, regulate gut bacteria and balance the microbiome. It may help with irritable bowel syndrome (IBS) symptoms, improve nutrient absorption, reduce nausea, vomiting, and provide aid with diseases like Crohn’s and ulcerative colitis. Learning that our bodies make their own cannabinoids has helped scientists understand why they're so important for our health.

Let’s put it another way, imagine your body is a beautiful, complex garden. For it to thrive, everything needs constant care and perfect balance. The ECS is your master gardener, constantly monitoring and fine-tuning everything to keep your body's functions—like mood, sleep, appetite, pain, and immunity—perfectly balanced, strong and healthy.

Here's how it works:

Endocannabinoids (the "tiny adjustments"): These are your body's natural signals, like the precise actions the gardener makes on demand—adding fertilizer or pruning—to restore balance.

Cannabinoid receptors (the "plant sensors"): These are like the tiny sensors on the plants themselves (your cells). They "feel" the gardener's adjustments (endocannabinoids) and respond by growing better, feeling less stress, or defending themselves. CB1 Receptors: Mostly in the "main growth

areas" (brain), influencing overall vitality and how you experience the garden. CB2 Receptors: Mostly in the "defense systems" (immune cells), helping protect the garden from pests and disease.

Enzymes (the "clean-up crew"): These quickly break down the adjustments once they've done their job, ensuring the garden doesn't get too much of anything and stays perfectly managed.

How Cannabis Fits In: Cannabis compounds (like THC and CBD) are specialized garden supplements. THC acts like a strong, direct growth stimulant for the "plant sensors". It can make some functions surge (like appetite or relaxation), but too much might overwhelm the garden's natural balance. CBD works more subtly, like a gentle soil conditioner or a helpful assistant. It supports the master gardener by helping your body's own "adjustments" last longer or by fine-tuning how the "plant sensors" respond, encouraging overall harmony without drastic changes.

In short, the ECS is your body's built-in master gardener, constantly tending to all your functions to keep them in perfect balance. Cannabis compounds can interact with this system, helping the garden thrive.

Cannabinoids have the potential to treat many diseases and conditions. A popular theory regarding how the ECS affects our overall health, is the proposed Clinical Endocannabinoid Deficiency Syndrome, or CECD. This concept originated with researcher E.B. Russo (2004), who suggested that the body's failure to generate sufficient endocannabinoids could be the root cause of several conditions, including migraines, fibromyalgia, and Irritable Bowel Syndrome (IBS). Russo further elaborated on this hypothesis in 2016, a theory that continues to be discussed in recent literature (Russo, 2016; Smith & Wagner, 2014).

Adjusting the ECS could potentially help treat several diseases and conditions, such as: pain, inflammation, arthritis, multiple sclerosis, anorexia, Crohn's disease, IBS, epilepsy, cancer, glaucoma, obesity, schizophrenia, cardiovascular disorders, Parkinson’s disease, Huntington’s disease, Alzheimer’s disease, Tourette’s syndrome.

One big hurdle for cannabis in medicine is the concern about its psychoactive effects – in other words, getting “high”. However, many ways to use the body's endocannabinoid system (ECS) for health don't involve this issue at all. For example, strategies that focus on adjusting the production or movement of the body's natural cannabinoids, or utilizing non-psychoactive compounds like CBD, are key to leveraging the ECS for health without intoxication. Non-psychoactive compounds like CBD (from cannabis) are known for their therapeutic benefits without causing a “high”. Unlike THC, CBD's effects are not primarily due to direct binding and activation of CB1 or CB2 receptors. Instead, CBD is believed to work through multiple pathways, including influencing the body's natural endocannabinoid levels, interacting with other receptor systems (like serotonin and vanilloid receptors), and indirectly modulating the activity of both CB1 and CB2 receptors.

It's not just cannabis that can affect the ECS. Other plants contain compounds like terpenes and flavonoids that can also interact with our endocannabinoid system, even though they aren't traditional cannabinoids.

Interestingly, plant-based cannabinoids can interact with your endocannabinoid system, potentially supporting its function and helping to maintain balance. Regular interaction with these compounds might help to modulate your body's natural endocannabinoid signaling, contributing to overall well-being.

Researchers worldwide are actively studying this vital system to understand its full impact on our health. They're exploring how boosting our natural endocannabinoid production with plant-based compounds could play a significant role in improving our overall well-being, often without any psychoactive effects.

What about Endocannabinoid Deficiency?

Subsequent research has confirmed that underlying clinical endocannabinoid deficiency (CECD), marked by low endocannabinoid levels or ECS dysfunction, indeed play a role in conditions like migraine, fibromyalgia, irritable bowel syndrome and a growing list of other medical conditions. These conditions often lack clear causes, are resistant to treatment, and can co-occur. Over a decade of research supports CECD as a potential explanation, suggesting that targeting the ECS could offer new treatment avenues. Clinical experience is bearing this out. Further research and especially, clinical trials will further demonstrate the usefulness of medical cannabis. As legal barriers fall and scientific bias fades this will become more apparent.

Strains/Plant Type: Sativa, Indica, Hybrid, Blend

Simply types or classifications of cannabis plants, primarily distinguished by their physical appearance and how they tend to grow.

The common understanding of indicas and sativas is that indica strains are physically sedating, perfect for relaxing with a movie or as a nightcap before bed, and sativa strains are energizing with uplifting cerebral effects that pair well with physical activity, social gatherings, and creative projects. Hybrid strains are thought to have a mix of indica

and sativa effects. The common belief that "indica" strains are always sedating and "sativa" strains are always energizing is a misconception. These terms originally described the plant's physical characteristics, not their effects. Furthermore, individual body chemistry means a strain can affect each person differently.

Despite this, the idea that indicas, sativas, and hybrids have distinct effects remains widespread in cannabis culture, even though scientific evidence doesn't support it.

Common understanding/belief

Sativa strains are a great choice for daytime use. They can be energizing, uplifting. You can remain active, creative, and mentally alert. For those looking to boost focus, productivity, or social interactions, sativa strains are often preferred. While less likely to induce drowsiness, THC will still deliver a full-body high, especially in larger amounts. This makes them suitable for users wanting mood enhancement or relief from mental fatigue without excessive sedation.

Indica strains are more sedative, calming, and relaxing. For individuals seeking calm and tranquility, especially those battling insomnia or anxiety, indica edibles can be particularly helpful. Their stronger physical effects also make them a go-to for many users seeking relief from pain and inflammation, including chronic conditions. Indica edibles are a valuable option for unwinding at the end of the day and achieving restful sleep.

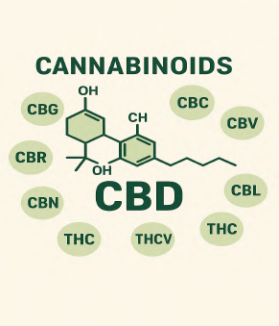
Hybrid strains offer a balance between sativa and indica. Considered more versatile, and are the most common strain found in cannabis oil products. The balance of sativa and indica in hybrid edibles allows for a range of effects, from uplifting to calming, making them a highly versatile option for all-day use. People often prefer hybrids when they desire the mental clarity and euphoria of sativa combined with the relaxation and physical relief of indica. This blend offers a flexible solution for those seeking productivity alongside pain or stress management, avoiding both excessive sedation and overstimulation.

Blend typically refers to a curated mix of different cannabis products, rather than a single plant type. This could mean combining flower from distinct sativa, indica, or hybrid strains to achieve a specific effect, or even mixing different forms like concentrates with flower. Often, a blend is created by producers or consumers to customize the cannabinoid and terpene profile, aiming for a very specific experience that might not be found in a single, naturally occurring hybrid plant.

So if indica and sativa aren't the best predictors of effects, what are?

More than 100 cannabinoids, 150 terpenoids, 26 flavonoids, and 11 steroid alcohols or “sterols” have been identified in cannabis. These compounds are believed to work together to increase therapeutic effects – known as the “entourage effect or synergistic effect”.

Research is still exploring how terpenes, and their combinations, shape the effects of cannabis strains. While cannabinoids (like THC or CBD) primarily determine a strain's impact, terpenes also significantly contribute overall.



Cannabis Components/Cannabinoids

Cannabinoids are chemical compounds found in the cannabis plant (like THC and CBD) that interact with our bodies and can cause various effects, including the "high" and potential therapeutic benefits.

Cannabinoids interact with the cannabinoid receptors in the body. Even experienced cannabis users need to decide between thousands of different variables that have their own uses. It's not like they have a plant flower just for arachnoiditis, that will hit the target for everyone. Arachnoiditis Warriors deal with health issues many other medical cannabis patients have, so you can easily find matching components based on your symptoms, or what you are trying to achieve. Like help with sleep or staying awake while reducing pain.

CBD, CBG, CBC, CBV, CBR, CBL, CBN, THC, THCV, Balanced, Synthetic Cannabinoids

Cannabis has over 100 active parts called cannabinoids, with CBD and THC being the most common. CBD is the part that doesn't make you feel "high" and is known for its medicinal uses, while THC is the main part that causes the "high." While the benefits of some cannabinoids overlap with each other, each cannabinoid has unique traits. Producers rely on cannabinoids to relieve patients' symptoms.

CBD (Cannabidiol) has a wide variety of therapeutic effects on the body without the psychotropic properties. It acts as a regulator to THC, which is why it's so effective at counteracting the THC "high". A high CBD product can reduce seizures (antiepileptic), reduce anxiety (OCD social phobia, PTSD), antidepressant, anti-inflammatory, antipsychotic, reduce spasms, anxiolytic, analgesic, antipsychotic, antioxidant, antispasmodic, help with sleep problems, mood issues, pain-relieving, anticonvulsant, neuroprotective (protective effects on the brain), and anxiety-reducing properties. It has also shown to kill breast cancer cell lines. According to research, CBD is regarded as a multipurpose medicine for treating a variety of neurological and neurodegenerative disorders, including neoplasms of the nervous system due to its broad spectrum of pharmacological actions (e.g., neuroprotective, antioxidant, and anti-inflammatory effects), epilepsy, Parkinson disease, amyotrophic lateral sclerosis (ALS), Huntington disease, Alzheimer disease, and multiple sclerosis.

In 2018 research, CBD was shown to ease MS-related muscle stiffness and pain by reducing inflammation. It also helps with fatigue from neurological illness by calming chronic inflammation, which often over-activates the vagus nerve. While direct research on CBD and mobility in MS is lacking, its ability to lessen fatigue suggests it *could* indirectly improve mobility for those with neurological disorders, so why not arachnoiditis. CBD oil for neurological disorders affects a wider range of biological targets in the brain (including receptors and channels) associated with the occurrence and persistence of neurodegenerative disorders. CBD oil offers a simple, natural, and pure plant-based medicine. Its oil form avoids extra ingredients found in pills or lozenges, and allows for precise, controlled dosing.

It's worth noting that we owe some of this research to Charlotte Figi's remarkable health improvement from life threatening seizures. Using a high-CBD, low-THC cannabis oil dramatically improved quality of life. It became a global phenomenon, documented by Dr. Sanjay Gupta. Her story, widely publicized, showed the potential therapeutic benefits of CBD and profoundly challenged negative perceptions of cannabis, fundamentally challenging the stigma around cannabis. This awareness fueled immense public demand for CBD products, directly propelling the growth of companies like Charlotte's Web. Beyond commercial expansion, her case spurred critical legislative changes, inspiring laws that legalized CBD for medical use and significantly contributing to broader cannabis reform and scientific research.

CBG (Cannabigerol) is the decarboxylated form of CBG-A. It reportedly has an affinity for receptors that enhance anandamide's function, an enzyme/neurotransmitter that affects appetite, pain, sleep, pleasure, and motivation. It can kill bacteria (antibacterial benefits), reduce inflammation, relieve pain, and resolve even more symptoms. Like, anxiety and depression, muscle relaxation, glaucoma, improving digestion, reducing nausea, peripheral neuropathy, colorectal cancer.

CBGa (Cannabigerolic acid), is raw cannabis, a compound considered to be the "stem cell" of cannabinoids as it can also be converted into CBD, CBC, or THC through enzymatic process. This cannabinoid doesn't necessarily have to be decarboxylated to become bioavailable for our bodies to use.

Cannabinoids interact with our body's natural endocannabinoid system (ECS). This system has CB1 and CB2 receptors that, when activated by cannabinoids, help regulate bodily functions. Both CBD and CBG work with the ECS, but in different ways, offering unique benefits. CBD enhances the ECS by preventing the breakdown of a natural cannabinoid called anandamide, which helps regulate our nervous system. This means more anandamide stays in your system, potentially easing symptoms.

CBG, on the other hand, partially activates both CB1 receptors (affecting the brain and nervous system) and CB2 receptors (influencing the immune system), providing widespread body benefits. It may also act as a GABA reuptake inhibitor. What this essentially boils down to is that CBG may help with both neuropathic and inflammatory pain.

CBC (Cannabichromene) is the result of CBGA converted into CBCA, a minor cannabinoid. Like CBD, CBC is non-psychoactive. It is unique among many cannabinoids in that it shows very little direct binding affinity for CB1 or CB2 receptors. Its therapeutic benefits are thought to arise from other pathways, including interactions with specific transient receptor potential (TRP) channels. Not much is currently known about it, but there are clinical studies underway to learn more about its potential cancer-fighting properties. CBC reportedly has anti-inflammatory, pain relieving, antibiotic, antibacterial, anticonvulsant, neuroprotection, neuroregeneration, and antifungal properties. Also to maintain healthy brain functions with a positive effect on the viability of mammalian adult neural stem cell progenitor cells. CBC-rich strains are emerging by selecting a recessive gene through crossbreeding.

CBV (Cannabinodivarin) is a cannabinoid that reportedly has anti-inflammatory and pain-fighting benefits.

CBR (Cannabiripsol) is not as popular as other cannabinoids. Currently, little is known about this cannabinoid except that it exists.

CBL (Cannabicyclol) While research on CBL is still in its infancy compared to other cannabinoids, preliminary studies suggest potential therapeutic applications. One area of interest is its anti-inflammatory properties. Inflammation is linked to various chronic diseases, including arthritis, inflammatory bowel disease, and neurodegenerative disorders. In addition to its anti-inflammatory and analgesic properties, CBL has shown promise in neuroprotection. Neurological disorders such as epilepsy, multiple sclerosis, Parkinson's and arachnoiditis diseases involve neuronal damage or dysfunction. Preliminary studies indicate that CBL may possess neuroprotective effects, potentially mitigating the progression of these conditions. Further clinical studies are warranted to establish its safety, efficacy, and optimal therapeutic use in humans. With continued research and collaboration, CBL may emerge as a valuable addition to the arsenal of medical cannabis-based therapies, offering new hope for patients.

CBN (Cannabinol) Research into CBN's potential and its effects on the body is still limited. However, early claims suggest it offers a range of benefits, including being antibacterial, anti-inflammatory, neuroprotective, providing pain relief, appetite stimulation, and anticonvulsant properties. CBN is generally considered to have a mild psychoactive effect by some research; however, its intoxicating properties are far less potent than THC's, and the degree of perceived mental alteration varies greatly among individuals, some experiencing almost none.

Despite its reputation for causing drowsiness, CBN shouldn't make you feel "high" or alter your mental state in the way THC does. This makes it an excellent choice if you need symptom relief without any mind-altering side effects. One of CBN's most promising uses is as a sleep aid for those struggling with insomnia or irregular sleep patterns.

THC is the cannabinoid responsible for its psychoactive effects. It also reportedly has therapeutic benefits for pain and nausea. A high THC product can have a range of effects including appetite stimulation (promoting weight gain through increased caloric consumption), reduced nausea and vomiting (antiemetic effects), improved sleep and reduced nightmares, anti-inflammatory and pain-reducing (analgesic) properties, reduced tic severity (in Tourette Syndrome), reduced spasms (muscle relaxant properties), and psychoactive effects impacting mood, motivation, and memory. It also possesses antioxidant, thermoregulation, muscle control, neuroprotective, itch-relieving (antipruritic), and bronchodilatory properties. Furthermore, THC has shown promise in reducing Alzheimer's symptoms. There is potential for increased sensitivity in some individuals with chronic pain or neurological conditions.

There is also ***THCV (Tetrahydrocannabivarin)***, which was discovered barely 50 years ago. THCV is a rare cannabinoid that can be synthesized from the cannabis plant. We can get THCV when we add heat to THCVA. It is not found in high concentrations in many cannabis plants because the genetic trait for producing the specific enzyme that converts CBGVA to THCVA is relatively uncommon in most cultivated varieties. Now that technology, selective breeding and methods are advancing, it is now easier to grow plants that produce THCV. Some products are now available for purchase.

THCV offers many unique benefits when it is compared to other cannabinoids. It has therapeutic properties as well as physiological benefits to users. It has the potential to fight inflammation, THCV could be a superhero against inflammation, the body's defense mechanism. With some similarities to sativa strains, earning it the "super sativa" label, it might contribute to a more relaxed state within the muscular system. Unlike some cannabis components, THCV is reported to be stimulating and may enhance mental clarity without causing a typical "high." It could offer unique benefits for cognitive function. THCV may naturally boost energy, helping individuals feel more awake, alert, and focused throughout the day.

When you use THCV, it starts working very quickly, faster than THC (the stuff that makes you feel "high"). But just as fast as it comes on, its effects also disappear relatively quickly. So many people find it's best to use THCV with other parts of the cannabis plant. It's like having a team of players instead of just one.
If you mix THCV with other cannabinoids that give you a mild "high" (by working on certain brain receptors called CB1 receptors), you might get that slight buzz along with the unique benefits of THCV (like energy and focus).
If you combine THCV with other cannabinoids that are good for healing and helping your body, you

might get even better results for your overall health. It's like THCV can help boost the power of the other medicinal parts.
So, think of THCV as a fast-acting but short-lived effect that people often pair with other cannabis components to create a more balanced and longer-lasting experience, whether they're looking for a subtle buzz or enhanced health benefits. THCV is primarily recognized for its stimulating and clarity-enhancing properties. Research also suggests it holds potential as an analgesic (pain-reliever), though further studies are ongoing.

In terms of the endocannabinoid system (ECS), if THC is like a key that opens specific CB1 'doors' in your brain, causing a “high” and increased appetite, THCV interacts with those same doors in a unique way. At typical doses, THCV can act as an antagonist or modulator, meaning it can block or reduce THC's ability to activate those receptors. This is why it generally doesn't make you feel high like THC does, and instead of making you hungry, it can actually help to reduce appetite.

Another cool thing THCV might do is help control the sugar levels in your blood. Imagine your blood has sugar in it, and THCV could be like a little helper that keeps the sugar from getting too high. Studies are in the early stages. Research shows it might help with weight loss. We're still learning the full extent of THCV's benefits for humans through ongoing research. Even so, it's been an incredible discovery, and we're all eager to see what else it can do.

Benefits of a CBD/THC ***Balanced product***: decreased multiple sclerosis spasticity, reduced cancer-related and neuropathic pain, improved sleep quality. Some studies indicate that while THC might offer more direct pain relief, CBD's anti-inflammatory and neuroprotective properties could contribute to overall symptom improvement, and potentially mitigate some of THC's psychoactive effects. Arachnoiditis Warriors have reported to have found benefit from a 1-1 balanced CBD/THC oil with FS (full-spectrum). This type of extract contains all the naturally occurring compounds found in the plant, other minor cannabinoids, terpenes, and flavonoids. A key reminder of start slow and go slow, just changing companies, brand, type of flower it’s made from will also change your dose even if it remains a 1-1 balanced product.

Also available CBD/CBG 2-1, 1-1 found in oils and softgels. This Arachnoiditis Warrior finds benefits from it.

Why CBD (Cannabidiol) works better with a little THC (Tetrahydrocannabinol) even if you don’t want to get high!

CBD and THC are natural compounds found in the cannabis plant. While both interact with our body's internal system ECS, as mentioned before, they have different effects.

THC directly attaches to specific receptors in the brain (CB1 receptors), which is what causes the feeling of euphoria or "a high". CBD, however, binds only weakly to these same CB1 receptors. Its

more significant interaction is as an allosteric modulator, meaning it can change the shape of the CB1 receptor to influence how other compounds (like THC) bind to it, or how the receptor functions. Because of this, CBD does not produce the "high" associated with THC.

In medical products, CBD and THC are often combined in various ratios to achieve different therapeutic outcomes. This idea that various cannabis compounds work together to enhance each other's effects is known as the "entourage effect".

Doctors adjust THC to CBD ratios in cannabis medicines to get the best patient results. Most medical cannabis has more CBD than THC (pure CBD products have under 0.3% THC). This ratio customizing lets them use the unique effects of CBD, THC, or both, for specific patient needs.

THC and CBD work together to potentially enhance pain relief due to their analgesic and anti-inflammatory properties. The optimal ratio depends on the type and severity of pain. CBD-dominant products are often effective for mild to moderate inflammatory pain without causing intoxication. Neuropathic pain may respond better to higher THC ratios, adjusted for patient tolerance and condition severity. For very severe pain, such as cancer pain, THC-dominant medications might be necessary.

THC's effect on anxiety is dose-dependent: low doses may reduce it, while higher doses can increase it. CBD is effective for treating various types of anxiety, with CBD-dominant or even pure CBD products often being most beneficial. While THC has sedating properties, using it alone can cause anxiety. Adjusting the CBD:THC ratio can mitigate unwanted effects while retaining sedation. Doctors may recommend a higher THC ratio at night for maximum sedation and a lower ratio for daytime use.

Finding the sweet spot; There is a definite advantage in adjusting the ratio of THC:CBD in the medicinal cannabis preparation, which allows to maximize the particular benefits desired, while minimizing any unwanted negative side effects.

THC is psychoactive, and can impair tasks like driving; CBD is non-psychoactive and non-sedating, allowing for higher doses. Effective medical cannabis use hinges on managing THC's psychoactive effects. The aim is to find a comfortable CBD-rich dose with just enough THC for benefit, often below the psychoactive threshold. Finding the optimal dose and ratio may require some trial and error.

Cannabinoid-Based Medicines (Pharmaceuticals/Synthetic cannabinoids) Beyond whole-plant cannabis, several cannabinoid-based medicines are available by prescription. These are highly standardized, often manufactured in labs, or purified from the plant, and used to treat specific conditions. It's crucial to distinguish these regulated medications from illicit, dangerous synthetic compounds.

Examples include:

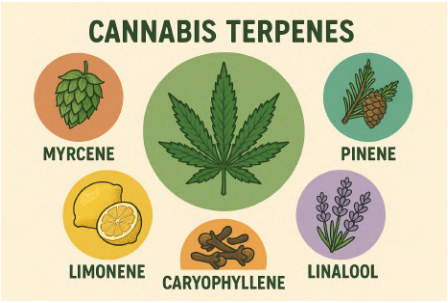
Dronabinol (Marinol) and Nabilone (Cesamet): These are synthetic versions of THC or THC-like compounds. They primarily activate CB1 receptors, mimicking some of THC's effects, and are prescribed for conditions such as chemotherapy-induced nausea and vomiting, and anorexia in AIDS patients. A healthcare professional told me, the capsule could be opened, and the powdery contents could be put in 1-2 cups of water to be ingested more slowly, sipped kind of like microdosing.

Nabiximols (Sativex): This is a pharmaceutical-grade, standardized extract derived directly from the cannabis plant, containing both THC and CBD in a roughly 1:1 ratio. It interacts with both CB1 and CB2 receptors, and is approved in many countries for conditions like spasticity and neuropathic pain in multiple sclerosis. Its sublingual spray format allows for relatively quick absorption.

Cannabidiol (Epidiolex): This is a highly purified, plant-derived CBD extract. Unlike THC or its synthetic analogs, Epidiolex does not primarily target CB1 receptors in the same way. Its effects are mediated through a wide array of mechanisms, making it effective for treating certain severe forms of epilepsy.

These pharmaceutical options provide precise, standardized dosing under medical supervision. While effective for their approved uses, single-compound or standardized products like these generally lack the full entourage effect believed to be present in whole-plant cannabis, which is an important distinction for medical accuracy. Though they're worth mentioning, as some Arachnoiditis Warriors have tried Sativex spray, and find it absorbs instantly, helping with neuropathic pain.

Illicit Synthetic Cannabinoids (e.g., 'Spice' or 'K2'): It is vital to differentiate these pharmaceutical medicines from illicit synthetic cannabinoids found on the street (often sold as 'Spice' or 'K2'). These are chemically diverse compounds, typically manufactured in unregulated labs, designed to act as potent full agonists at the CB1 receptor. Unlike pharmaceutical cannabinoids, these unregulated substances often have potencies far higher than any natural phytocannabinoid, and come with a significantly higher, unpredictable risk of severe adverse effects, including psychosis, seizures, and organ damage. They are dangerous, and are not used in legitimate medicine.



Terpenes

Terpenes are aromatic organic compounds found in many plants (including cannabis) that give them their distinct scents and flavors, and are believed to contribute to their effects.

Think about the vibrant aromas and flavors of the plant world – the zest of your fruit, the earthiness of your vegetables, the fragrance of your herbs. These sensory experiences are often thanks to terpenes, a diverse group of over 20,000

naturally occurring compounds identified by science. This illustrates that plants offer a wealth of compounds beyond just vitamins.

Cannabis, like these other plants, are loaded with precious terpenes. Over 100 different terpenes have been identified in cannabis plants. The unique properties of different cannabis strains are the result of terpenes. The scent and aroma of different strains (from citrus to stinkweed) is from the specific strain's terpene content. A quick smell of your strain can give you a clue about its other therapeutic compounds.

The extraction process, methods manufacturers use can also affect terpene retention, you are looking for a more diverse profile.

With edibles, even decarbing at home involves heat. While this avoids the extreme temperatures of combustion that would destroy most terpenes, the temperatures required for efficient decarboxylation are still high enough that a portion of terpenes may be lost or altered. When you eat something with terpenes, like in an edible, your body processes them in the liver first. Think of your liver as a filter that changes these compounds. Because of this filtering, only a small amount of the original terpenes actually makes it into your bloodstream. So, even though the terpenes weren't burned away like with smoking, they do get changed quite a bit by your body. If cannabis oil containing terpenes is used to make edibles, the terpenes will still filter in the liver first.

However taking cannabis sublingually by placing cannabis oil under the tongue allows for direct absorption into the bloodstream. This way of using cannabis oil (under the tongue) avoids the liver, and the changes it can make. If the oil kept its terpenes during processing, you'll likely get more of those original terpenes into your system than if you ate it.

While terpenes in topical cannabis oils can have local effects (e.g., anti-inflammatory), they are generally not absorbed into the bloodstream in significant amounts to provide systemic terpene benefits in the same way that inhalation or sublingual application might.

You may have also heard people talk about terpenoids. The words terpene and terpenoid are increasingly used interchangeably, although these terms do have different meanings. Terpenes are the original compounds, made only of carbon and hydrogen. Think of them as the fresh, raw scent molecules. Terpenoids are terpenes that have been changed, usually by drying and curing the plant, or by other chemical processes. This changes their structure slightly.

In summary, cannabis oil *can* preserve terpenes if extracted and processed carefully, particularly in full-spectrum!! and broad-spectrum formulations. Solventless extraction methods tend to be excellent for terpene preservation. Sublingual application of terpene-rich cannabis oil may also offer better terpene bioavailability compared to edibles. The key is to choose cannabis oil products that are specifically formulated to retain terpenes, avoid significant metabolic alteration (like edibles). Always check the product information to see if terpenes are listed and if the product is described, as terpenes do more than just provide scent. They can also work with our brain chemicals (neurotransmitters)

and cell receptors. They easily mix with fats in our body. Some terpenes *may* influence mood-related chemicals like serotonin, norepinephrine, and dopamine, potentially acting like antidepressants. Certain terpenes *may* also increase the calming chemical GABA, which helps balance out stimulating chemicals. While we know terpenes have these effects, we need more specific research to fully understand how the terpenes in cannabis can be used as medicine for different health problems.

We're still learning exactly how terpenes work with our bodies, but we do know they interact in unique ways. For example, beta-caryophyllene is unique among terpenes as it directly binds to the CB2 receptor, a cannabinoid receptor primarily found in the immune system and peripheral tissues. Other terpenes have different mechanisms. Even without fully understanding their precise interactions, we can observe their effects. There's much more to discover about terpenes in the future!

Terpenes can be isolated, and like CBD are non-psychoactive. They're sold as food additives or supplements, similar to fish oil. They can also be used as a supplemental therapy with medical cannabis. The range of conditions terpenes might treat is vast, though only about 6-8 are commonly discussed.

Medical cannabis strains can differ quite a bit, even from one harvest to the next. However, strains with high amounts of certain terpenes are often easier to identify by their smell. Most agree that varieties that smell musky or of clove are commonly associated with sedative, relaxing effects (often attributed to high levels of the terpene myrcene); piney smells are believed to help promote mental alertness and memory retention (thanks to high levels of the terpene pinene); and lemony aromas are favored for a general uplift in mood and attitude (due to high levels of limonene).

Why Terpenes Matter:

Terpenes are not just for scent and flavor. They are believed to have their own therapeutic properties and can also work synergistically with CBD and other cannabinoids. Terpenes are bioactive, and some research suggests that terpenes may impact how the body absorbs and uses cannabis, possibly multiplying the positive health effects of other cannabinoids found in cannabis. This is called the “entourage effect”, where the combined effect of these compounds is greater than the sum of their individual effects.

Inflammation is our body's way of healing, but too much can cause pain. When tissue becomes inflamed, it presses on nerves, triggering a pain response. Cannabinoids help by calming the immune response, reducing inflammation signals (cytokines), and decreasing swelling. Terpenes also play a role, suppressing a protein called NF-kb, a protein that drives inflammatory diseases. While we don't fully understand all the details, both cannabinoids and terpenes seem to help reduce inflammation, which in turn helps alleviate pain caused by swollen tissue.

Extracts

Full-spectrum: This type of extract contains all the naturally occurring compounds found in the plant, including other minor cannabinoids, terpenes, and flavonoids.

Broad-spectrum: Similar to full-spectrum, but with all THC removed. It still retains other cannabinoids and terpenes.

Isolate: This is pure CBD or THC etc., with all other plant compounds, including terpenes, removed.

So, if you're looking for the potential benefits of the entourage effect, and with arachnoiditis you are, opt for full-spectrum!! or broad-spectrum products that retain the natural terpenes of the plant.

Common Terpenes Found In Cannabis Products:

Some of the common terpenes you might find in products include:

Myrcene (β-Myrcene): is thought to be the most abundant terpene found in cannabis today. This terpene is also found in cardamom, mango, bay, thyme, lemongrass, hops, parsley, eucalyptus, and ylang-ylang as well as others throughout nature. The aroma and flavor profile of this terpene is known for being earthy, musky, and spicy with herbal undertones. Myrcene typically provides an overall relaxing and sedating effect for most.

This terpene, also found in high concentrations in mango, is part of a popular theory that it may increase and intensify the effects of THC by potentially influencing the permeability of the blood-brain barrier or boosting CB1 receptor activation. Consequently, some users believe that consuming mangoes prior to cannabis may produce more intense effects, though robust scientific evidence to confirm this interaction in humans is currently lacking.

The potential therapeutic benefits of myrcene are highly documented through various research studies. To date, research suggests that this terpene possesses the following properties and more! Anti-inflammatory, antimicrobial, antioxidant, antitumor, anxiolytic (antianxiety), muscle relaxant, sedative. With myrcene being the most prevalent terpene in modern cannabis, it is easy to find a strain that contains it in abundance.

Limonene (D-Limonene): is a prevalent terpene found in cannabis that is also found in high concentrations in lemon, lime and orange rinds, juniper, rosemary, fennel, pine, peppermint as well as in several pine needle oils. Limonene, known for offering a fruity citrusy aroma and flavor profile, is easily taken into your body when you inhale it, quickly making its way into your bloodstream. It even helps other beneficial terpenes get absorbed through your skin and other tissues. This terpene is associated with providing uplifting, energetic effects and anxiety-reducing properties. Analgesic (pain relieving), antibacterial, anticonvulsant, antifungal, anti-inflammatory, antioxidant. This

remarkable compound is well-known for its ability to discourage the growth of many fungi and bacteria, making it a helpful natural option for issues like toenail fungus. Limonene also shows promise in protecting against various cancers, and it's currently being studied in clinical trials. Some research even suggests it might aid in weight loss.

In nature, plants use limonene as a natural insect repellent. While it was once mainly found in foods and perfumes, it became more widely recognized as a key ingredient in citrus cleaners in recent decades. The good news is that limonene has very low toxicity, and negative side effects are rarely seen.

Pinene (β-pinene): Being that it is the most prevalent terpene in the natural plant world, there is an abundance of research supporting its therapeutic potential. It's known for its strong scent of pine and fir trees. There are two slightly different versions of it, called alpha (a)-pinene and beta (β)-pinene, both found in nature. They are key ingredients in pine resin and in "wood turpentine". You can find pinene in many different conifers (like pine trees), but also in other plants, especially in their resins, and in some citrus fruits.

Pinene is important for how plants and animals function. It's quite reactive, and can easily transform into other important compounds, including other terpenes like limonene. Pinene has demonstrated various beneficial properties, including: Analgesic (pain relieving), anticancer (Traditional Chinese medicine using it for years), anti-inflammatory, antimicrobial, antiseptic, anxiolytic (antianxiety), antidepressant, expectorant, bronchodilator (helps open airways), helps combat short-term memory impairment from THC, neuroprotectant. Pinene can be found in hundreds of cannabis strains today.

Linalool: is a common terpene found in cannabis that is also highly associated with lavender. This terpene can also be found in citrus fruits, cinnamon, birch, hops, basil, bergamot, eucalyptus, and coriander, among others. Linalool is known for offering a fresh floral scent and aroma with light undertones of wood. Its vapors have been shown to be an effective insecticide against fruit flies, fleas and cockroaches.

This terpene commonly produces feelings of relaxation in patients, used for centuries as a sleep aid. It seems to have a gentle way of easing the anxious feelings that can sometimes be brought on by THC. Research to date suggests that it offers the following therapeutic potentials and more: Analgesic (pain relieving), antibacterial, anticancer, anticonvulsant, antidepressant, anti-inflammatory, antioxidant, antiproliferative, anxiolytic (antianxiety), improves memory loss, mood enhancement (increases serotonin), neuroprotectant, sedative. Early research also suggests that linalool may support our immune system, can play a role in reducing lung inflammation, and even shows promise in helping to restore brain function related to memory and emotions, which could be beneficial in conditions like Alzheimer's disease.

Caryophyllene (or beta (β)-caryophyllene): is a common terpene found in many plants, including black pepper, rosemary, oregano, cinnamon leaves, clove, allspice, marjoram, thyme, Thai basil, ylang-ylang, and hops. It has a spicy, herbal, and woody scent. Most people find it creates a relaxing

and euphoric feeling. Studies for many decades have shown that this terpene offers various therapeutic properties. Cannabis strains that are high in caryophyllene are often recommended for patients who have heart disease, liver, or kidney disease, neurological or neurodegenerative diagnoses, immune system disorders, and gastrointestinal problems such as irritable bowel syndrome (IBS). Caryophyllene can contribute to improved health and wellness, impacting five main areas of the nervous system and immune system. The anti-inflammatory properties of caryophyllene are very valuable for therapeutic use in patients diagnosed with cancer, muscular dystrophy, diabetes, and other chronic diseases that are caused by unmanaged inflammation. Health experts in neurological and neuropathic pain are familiar with the potential of caryophyllene to provide pain relief. Like CBD, caryophyllene can help reduce seizures and painful involuntary muscle spasms. Other properties include but are not limited to the following: Analgesic (pain relieving), antibacterial, anticancer, antidepressant, antifungal, antimicrobial, antioxidant, antiseptic.

Interestingly, caryophyllene is thought to be the only terpene known to directly bind to the CB1 (brain) and CB2 receptors (organs) in the human endocannabinoid system. That is unique. It's interesting because it can attach to the CB2 receptor in your body, just like cannabinoids do, but without causing a "high". When it does this, it acts as a powerful anti-inflammatory.

The Fine/Rosenfeld pain study, primarily focuses on the potential of the endocannabinoid system and plant-derived cannabinoids to manage chronic pain **(Fine & Rosenfeld, 2013).** It suggests that while THC's psychoactive effects have been a barrier, other cannabinoids like CBD and beta-caryophyllene, especially when taken orally, show promise for pain relief due to their high safety and low adverse effect profiles. The study emphasizes the need for more scientific insight into how these compounds can effectively treat the wide variety of chronic pain conditions.

The **Jeena, Liju et al. (2014)** study "Antioxidant, Anti-inflammatory and Antinociceptive Properties of Black Pepper Essential Oil (Piper nigrum Linn)") investigated the essential oil of black pepper (Caryophyllene). It found, black pepper essential oil, rich in compounds like caryophyllene and limonene, possesses significant antioxidant, anti-inflammatory, and pain-relieving (antinociceptive) properties. This suggests it may be useful in treating some medical issues such as neuropathy pain and arthritis.

Humulene (alpha humulene or a-humulene): is a terpene found in cannabis as well as ginseng, hops, black pepper, cilantro, and tobacco, among other plants. This terpene has a woody, earthy, and spicy aroma and flavor profile with strong herbal notes throughout. Aromatically this terpene produces a calming yet uplifting effect for many. It is currently being explored for a range of potential benefits. Researchers are looking into its antitumor, antibacterial, and anti-inflammatory properties, suggesting it could play a role in supporting our bodies' natural defenses and easing discomfort. Interestingly, humulene is also thought to act as an anorectic, meaning it may gently help to curb appetite, which is a promising area of study. You'll often find Humulene working hand-in-hand with beta-caryophyllene, and their combined effect is a key area of interest for managing inflammation. It's

also worth noting that plants rich in Humulene have been valued and used for generations in Chinese medicine, highlighting its historical significance. The idea that it might support weight management by influencing appetite is another exciting avenue researchers are investigating. While humulene isn't the most abundant terpene in cannabis, it is commonly found in many strains and can be present in significant amounts.

Terpinolene: is a terpene found in many cultivars of cannabis as well as parsnip, rosemary, sage, cumin, lilacs, apples, tea tree, and nutmeg. This terpene is known for offering flavor and aroma profiles that encapsulate the smell and tastes of many other terpenes all in one. Terpinolene offers a complex flavor and aroma, blending piney, floral, citrus, and herbal notes with hints of wood and earth. In higher amounts, it often provides uplifting effects. Although not the most common terpene in cannabis, terpinolene is well-researched due to its presence in many other plants. Studies show it has various therapeutic properties, including being: Analgesic (pain-relieving), antibacterial, anticancer, antifungal, anti-inflammatory, antinociceptive (reduces pain sensation), anti-insomnia, sedative, wound healing. Even though it's not the most prevalent, you can still find it in high concentrations in certain strains.

Camphene: is a fascinating terpene that contributes a distinctive camphoraceous, piney, and woody aroma to the natural world. While not as abundant as some other terpenes, it plays a role in the complex scent profile of certain cannabis strains, often those with earthy or forest-like notes. Beyond its aromatic contributions, camphene is being investigated for a range of potential therapeutic properties, including anti-inflammatory, analgesic, and antioxidant effects, with some research also exploring its antimicrobial and potential cardiovascular benefits.
Phellandrene: is a unique terpene, actually a pair of organic compounds known as alpha (a)-phellandrene and beta (β)-phellandrene, characterized by a refreshing aroma that can be described as minty, woody, slightly citrusy, and sometimes peppery or spicy. While considered a "secondary" terpene in cannabis, it still contributes to the nuanced profiles of certain cannabis varieties. First discovered in eucalyptus oil, phellandrene has a long history of use, particularly in Traditional Chinese Medicine where it's believed to have special medicinal values and has been employed to treat digestive disorders. It's notably one of the main compounds in turmeric leaf oil, which is utilized to prevent and treat systemic fungal infections. Beyond this, phellandrene is found in a number of common herbs and spices, including cinnamon, garlic, dill, ginger, and parsley, with beta-phellandrene specifically found in plants like lavender and grand fir. Research into phellandrene suggests a range of potential properties, including anti-inflammatory, analgesic (pain-relieving), antifungal, and antibacterial effects, with some promising preliminary studies exploring its potential in reducing anxiety, fighting certain cancers, and even supporting respiratory health.

Geraniol: is known for its delightful, sweet, and rosy scent, making it a staple in the fragrance industry. It's a key aromatic compound found in the essential oils of numerous plants, including roses, palmarosa, geranium, citronella, and lemongrass, and is also present in some cannabis varieties. Beyond its aromatic qualities, geraniol is also an effective natural mosquito repellent.

From a medicinal perspective, it is generating significant interest for its potential therapeutic properties, particularly in the realm of neuropathy. Neuropathy, which involves damage to peripheral nerves causing pain, numbness, and weakness, is an area where geraniol is being investigated for its potential to offer therapeutic benefits, with promising results seen primarily in preclinical studies. Research, largely in preclinical stages, suggests it helps by reducing inflammation, acting as an antioxidant to protect nerve cells from damage, and directly exerting neuroprotective effects that can lead to improved nerve health and reduced discomfort. While these findings are promising, further human clinical trials are needed to confirm its efficacy, and safety for this application.

Other anti-inflammatory common terpenes: bisabolol, borneol, delta 3 carene (also used for memory), eucalyptol, valencene

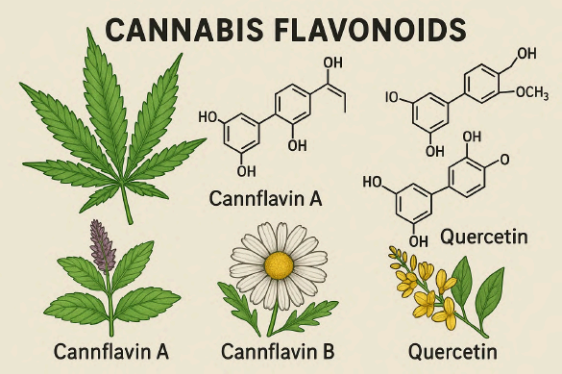
Getting Terpenes In Your Diet Provides Health Benefits Too

Combining high-terpene foods with cannabis is a popular concept, with some theorizing it could contribute to enhanced benefits. While the entourage effect from the terpenes, THC/CBD, and flavonoids within medical cannabis is already recognized for its synergistic potential, it's hypothesized that adding other terpene-rich plants, herbs, and spices *might* further complement or influence its medicinal value. However, robust scientific evidence directly proving this enhanced synergy in humans is currently limited. This is why people are exploring food pairings and terpene-rich recipes.

A simple way to start is by adding fresh herbs and dried spices to your meals. Whenever possible, consume organic terpenes raw, as heating can reduce their wellness benefits. Beta-caryophyllene, a unique non-cannabinoid that activates human cannabinoid receptors, is abundant in spices like basil, cinnamon, rosemary, oregano, cloves, and black pepper.

Other beneficial terpenes include menthol, and those found in Ginkgo Biloba. Curcuminoids, known for their wellness benefits, are in turmeric and mustard seed. Myrcene is found in mangoes, bay leaves, and lemongrass, while limonene (responsible for citrus-scented cannabis strains) is present in peppermint, rosemary, and many raw fruit rinds.

Research into all aspects of cannabis are being done, including life changing terpenes. Imagine if an edible was formulated with the right terpenes for pain relief? Combined with THC, terpenes, and cannabidiol (CBD) work together to reduce inflammation. That is well documented by researchers worldwide, and since chronic pain symptoms originate from inflammation, you can see the link. Lower the inflammation, reduce the pain without the dangerous side-effects and overdose risks of opioid medications.



Flavonoids: are a huge group of beneficial compounds found in almost all fruits and vegetables, with over 9,000 types identified by scientists, and growing. In the cannabis plant alone, about 26 of these have been found, including unique ones like cannflavin A and B, alongside others such as apigenin and quercetin. Multiple studies have shown flavonoids to possess powerful antioxidant and anti-inflammatory properties. They're also responsible for the vibrant colors in many foods we eat, like the blues in blueberries or the reds in raspberries. Some flavonoids from cannabis have shown promising results in initial studies for their medical effects. However, more research is needed to fully understand their role in cannabis's therapeutic benefits, especially how they interact with cannabinoids—whether by boosting or reducing their effects, “entourage effect”.

Sterols: Plant sterols, also known as phytosterols, are a group of compounds found in plants that have a chemical structure similar to cholesterol. While broadly recognized for their potential to help lower cholesterol in the human diet (by interfering with its absorption), the specific roles and therapeutic benefits of the sterols found in cannabis (such as beta-sitosterol, campesterol, and stigmasterol) within the context of the plant's overall effects are still an area of ongoing research.

Consumption/Product Type

Every cannabis product has its pros and cons. What works for one person may not work for someone else, and vice versa. The therapeutic benefits of cannabis come from its cannabinoids and their rate and amount of absorption into the bloodstream — bioavailability. In order for users to experience the therapeutic effects of cannabis, it must be taken in a form that’s easily absorbable by the body. Some key factors; formulation, interactions with other substances, composition, blood flow, metabolic rate, digestive health.

When cannabis is consumed with fatty foods like full-fat dairy products, meats, its bioavailability (how much actually gets absorbed) can increase due to cannabinoids being fat-soluble. Conversely, consuming cannabis with other specific foods, drinks, or substances can lead to *lower* bioavailability.

Smoking and vaping Smoking cannabis, particularly with long-term use, presents health concerns for both cannabis and tobacco users due to the introduction of toxins into the lungs. These toxins can damage lung tissue and contribute to respiratory problems over time. Inhaling smoke has harsh effects. The dangers of smoking on the lungs are well-documented, and many of them apply to users who smoke cannabis. Smoke inhalation causes irritation and inflammation of the lungs, causing users to develop breathing issues like coughing, congestion, and respiratory infection. Research suggests that smoking is not recommended for older adults.

When inhaling the effects are nearly immediate as the cannabinoids rapidly enter your bloodstream through the lungs, with rapid onset of psychoactive effects normally within minutes. This high generally peaks approximately within 30 minutes after inhaling and can last 2-3 hours.

In contrast, when cannabis flower is consumed with a medical vaporizing device, it represents a generally healthier alternative to smoking. These devices allow you to control the specific temperature used to heat the cannabis flower to a point just before combustion, resulting in a vapor rather than smoke. This process ensures a cleaner inhalation with significantly fewer harmful byproducts for your lungs. Setting it to a lower temperature allows for a healthier process, reduces exposure to harmful substances, and can lead to greater preservation of terpenes, which are often destroyed by the higher temperatures of smoking or lost in un-inhaled smoke. Furthermore, close control of the temperature can also allow you to fine-tune the desired effects of the cannabis flower, as the same product may have different effects based on the temperature it's exposed to. This type of cannabis vaping eliminates the risks associated with inhaling additives like PG and VG entirely, as it uses dry flower, not oil cartridges.

Vapes/Cartridges/Pens Prepared liquid vape products often contain concentrated cannabinoids mixed with thinning agents or terpenes to achieve the desired consistency and flavor. Historically, Propylene Glycol (PG) and Vegetable Glycerin (VG) were common additives, though many regulated cannabis vape products now primarily use cannabis-derived or botanically-derived terpenes as diluents. A little research goes a long way, for your health! If the information is not available, don't be afraid to ask what is in their products. Other potential side effects from vaping cannabis, particularly those linked to specific components in vape liquids or individual sensitivities, include headaches, chest tightness, nausea, congestion, coughing, dehydration, or on rare occasions, allergic reactions. When PG and VG are mixed with flavorings, it can lead to acetals, which come with a whole other set of risks. Even without acetals, while flavorings enhance the user experience, their inhalation carries known and potential risks due to the chemicals themselves, and the byproducts formed upon heating. This is why many advocates recommend avoiding flavored vape products, or at least sticking to regulated products that rigorously test for harmful additives and byproducts. Research suggests that vaping is not recommended for older adults.

As with anything you consume, or any new consumption method, you should always take it low and slow until you know how it will personally affect you. Purchasing vape products from a legally

licensed source that can provide third-party testing verifying the purity of the product being sold is the best route for obtaining cannabis vape products. When choosing to vape cannabis, some people prefer to eliminate the risk of any potentially dangerous additives and opt to instead utilize a device that allows them to vape dried cannabis herb/flower.

Edibles(gummies/chocolates/Confectionery/Baked goods) Cannabis edibles have significantly increased in availability, now commonly found as gummies, chocolates, or even made at home. These forms offer a discreet and convenient way to consume cannabinoids, as they bypass the lungs entirely. Instead, the cannabinoids travel through the digestive system, where THC is metabolized in the liver into 11-hydroxy-THC, a more potent compound. This metabolic process typically results in a high that is often more powerful, full-bodied, and can feel more relaxing and potent compared to the faster-acting effects of inhalation. The effects also extend for a considerably longer period, typically 4-8 hours or more, depending on the amount consumed and individual metabolism. Some very high doses or highly sensitive individuals might report effects lasting up to 12 hours or even longer. This sustained effect is why many individuals find edibles particularly appropriate for the long-term management of chronic pain, anxiety, or stress.

However, precise dosing is paramount with edibles. As always, carefully read the product label or recipe to understand the potency and recommended dosages. It's crucial to "start low and go slow", waiting at least 1-2 hours to feel the effects before consuming more, to avoid accidental overconsumption. Remember, edibles can have a delayed and more intense effect compared to inhalation, and individual responses and metabolisms vary. Over time, you may find your tolerance increases, potentially requiring dosage adjustments.

Cannabis gummies are popular, convenient edibles offering a discreet, precisely dosed way to consume cannabinoids like THC, CBD, or both. Unlike inhaled cannabis, they are absorbed via digestion, leading to a slower onset (30 mins - 2 hrs) but much longer-lasting effects (4-8+ hrs), beneficial for sustained relief or sleep. Available in various cannabinoid profiles, including balanced 1:1 THC:CBD ratios and full-spectrum extracts for an enhanced "entourage effect", gummies cater to diverse needs.

However, it's crucial to approach their consumption with caution and awareness. Always "start low, go slow" due to delayed onset and individual metabolic differences to avoid overconsumption. Additionally, combining THC (gummies) with alcohol or other psychoactive substances is strongly discouraged, as this can lead to unpredictable and potentially dangerous reactions, amplifying effects and impairing judgment. It’s best to consume THC gummies on their own to mitigate these risks. Always keep them safely away from children and pets. When choosing gummies, consider their potency, quality, and ingredient list to ensure a safe and desired experience.

Cannabis confections and baked goods, a beloved category of edibles, offer a palatable and often nostalgic way to consume cannabinoids through items like brownies, cookies, chocolates, and candies. While they provide precise dosing and a discrete nature, coming in various cannabinoid profiles, it's crucial to approach their consumption with caution and awareness. Beyond consumption

practices, cannabis edibles like these have a shorter shelf life than flower due to their perishable ingredients, typically lasting 2-6 months or as indicated by a "best by" date. Signs of staleness include changes in texture, color, taste, or mold growth. To maximize freshness, store edibles in a cool, dry place or refrigerate as directed on the packaging, as the perishable food ingredients will spoil long before the cannabis itself. Always keep cannabis confections and baked goods securely stored away from children and pets, and consider the product's potency, quality, and ingredient list from reputable sources.

Beverages Drinkables generally take 30 to 60 minutes to kick in, but the effects last for 4 to 8 hours and then slowly descend. However it is worth noting that some advanced emulsion technologies (nanotechnology) used in modern cannabis beverages can significantly speed up the onset time, sometimes to as little as 10-20 minutes, mimicking the faster onset of inhalation more closely (though not quite as fast). It's because of these long-lasting effects that people find drinkables particularly helpful in the treatment of conditions such as nausea and chronic pain.

When you drink cannabis, the THC tends to affect your whole body more than when you smoke it, and the impact feels more evenly spread out. This systemic and sustained effect can be particularly beneficial for conditions requiring longer-lasting, widespread relief, such as muscle spasms and epilepsy. Plus, that "burned-out" feeling you sometimes get after smoking is less common when you drink it, likely due to the slower, more sustained onset and offset of effects from oral consumption.

Just like with any other way you enjoy cannabis, finding your perfect dose will involve a little bit of experimentation. If you're completely new to cannabis, it's a great idea to start with just a tiny bit. This will help you get comfortable with how it makes you feel and what to expect.

Diamonds Cannabis diamonds are one of the most potent and visually striking forms of cannabis concentrate, resembling clear, crystalline structures. Primarily composed of THCA, they deliver an incredibly strong dose of THC once heated, making them ideal for experienced users or medical patients needing high potency. Primarily composed of THCA, pure cannabis diamonds are essentially devoid of terpenes in their crystalline form, resulting in little flavor or aroma. For this reason, they are often paired with terpene-rich 'sauce' (also from the original extraction) for enhanced taste and a more comprehensive cannabis experience. Consumed by dabbing, vaporizing, or adding to flower, their extreme potency means they are not recommended for beginners due to the risk of side effects like anxiety or paranoia; starting with a very small amount is crucial.

Dried Flower Dried cannabis flower, is best stored in an airtight container in a cool, dark place with 55-65% humidity to maintain potency. Properly stored, it lasts 6-12 months. After about a year, THC converts to CBN, leading to more sedative effects. Signs of staleness include loss of aroma, dry/brittle texture, and fading color. While still safe to consume, older flower may offer different effects.

Extracts (shatter/live resin/rosin/distillate/hash/kief) Cannabis extracts, often referred to as cannabis concentrates, are highly potent forms of the cannabis plant. They are created by separating

the desirable compounds—primarily cannabinoids like THC and CBD, and terpenes—from the raw plant material, resulting in a product with a much higher concentration of these active ingredients compared to traditional dried flower. These extracts come in a wide array of forms, each with unique textures, consistencies, and consumption methods, often named after their appearance or the extraction process used. Common types include shatter, a brittle, glass-like concentrate typically amber in color; wax, budder, and crumble, which are softer, opaque concentrates with textures ranging from waxy or buttery to crumbly; and live resin/rosin, known for preserving a high terpene profile. Live resin made from fresh-frozen cannabis plant material maintains freezing temperatures throughout the extraction process to protect terpenes and other volatile compounds in the plant, leading to a more aromatically complex and flavorful cannabis experience.

Rosin, by contrast, is a solventless extract produced using heat and pressure. Distillate is another form, a highly refined and purified oil, often clear and viscous, that is nearly pure THC or CBD with most terpenes removed, frequently used in vape cartridges or edibles. More traditional concentrates like hash and kief are made by separating trichomes from the plant material, often through physical means like sieving (kief) or pressing (hash). Extracts offer several advantages, including significantly higher potency, with THC levels typically ranging from 40% to over 90% compared to dried flower's 15-30%, meaning smaller amounts are needed for desired effects. When inhaled, they offer a faster onset of effects and boast versatility, being consumable in various ways—inhaled, ingested in edibles or tinctures, or even applied topically. While potent, some forms like distillates also allow for very precise dosing. However, their high potency also means they are not recommended for beginners or those with low tolerance, as overconsumption can easily lead to uncomfortable side effects like anxiety, paranoia, or dizziness.

Due to its often intense effects, live resin can be particularly potent even for experienced cannabis users. Before you run to the dispensary to buy these for the first time, it’s a good idea to read about its benefits and drawbacks. Experts recommend that you start with a very small, very low dose until you know for yourself what effect it will have on you, especially with concentrates. The safety of extracts also depends heavily on the production method, and whether they come from regulated, tested sources to ensure they are free from harmful residual solvents, pesticides, or other contaminants. Live resin, along with live rosin, is particularly valued for preserving a remarkably high percentage and diverse profile of the terpenes found in the cannabis plant. This is what gives live resin its delicious flavor and pleasantly intense aroma, often exceeding that of concentrates made from cured biomass.

Tinctures While tinctures *can* be made from extracts (like distillate), tinctures themselves are traditionally defined by their solvent (alcohol) and are often made directly from flower. Tinctures also allow for very precise dosing. It's also worth noting that cannabis-infused alcohol-based tinctures can offer relatively good bioavailability, especially when administered sublingually, by allowing for direct absorption into the bloodstream. When absorbed sublingually, effects can typically begin within 15-45 minutes and last 2-6 hours. Tinctures can also be swallowed (where they will act more like an edible with a slower onset), or mixed into food and drinks, offering a discreet and versatile consumption

method. Alcohol-based tinctures can have a strong, sometimes bitter, taste that some users dislike. Watch for added flavorings as they are often added.

Pre-Rolls/Infused Pre-Rolls Cannabis pre-rolls offer ultimate convenience as ready-to-smoke joints containing ground flower, while infused pre-rolls elevate this experience by adding various cannabis concentrates like kief, oils, live resin, THCA diamonds, or hash. This infusion dramatically boosts potency, often to 40-90% THC, and can enhance flavor and create a slower, more even burn, allowing for a more intense and often longer-lasting experience. While convenient and versatile, their significantly elevated potency means infused pre-rolls are primarily recommended for experienced users, with beginners urged to exercise extreme caution, and start with minimal consumption, always ensuring purchase from reputable, lab-tested sources.

Oils can be used as sublingual or “Under-the-Tongue” using a syringe.

Unlike the top of the tongue or other parts of the mouth the skin under your tongue is super thin and full of tiny blood vessels. This direct route means the substance gets into your bloodstream faster and in a higher amount (higher bioavailability), dissolving quickly.

Cannabis can be found in concentrated oils and tinctures. Sublingual administration allows users to place liquid under their tongue for fast absorption directly into the bloodstream. Because sublingual dosing bypasses much of the digestive system, and first-pass metabolism, bioavailability is generally higher than when simply swallowing cannabis oil, allowing for more direct absorption into the bloodstream. While precise absorption rates vary widely depending on the product and individual factors, sublingual administration is recognized as a relatively efficient method of consumption.

The carrier oil used can vary by provider, olive oil, hemp seed oil, MCT oil. When MCT oil is listed it may be from coconut or palm kernel oil.

Users with swallowing or reflex difficulties or who prefer to take their medicinal cannabis treatments orally can also use the buccal method. It involves placing their medical cannabis into the deep pocket of the cheeks between the teeth and gums.

When taking cannabis sublingually, it’s best to place the liquid under the tongue, and to avoid swallowing or moving the liquid around for at least 30 to 60 seconds. This optimizes absorption and lessens the amount that gets processed by the digestive system.

When it comes to how quickly something gets into your system, sublingual administration is the second-fastest method, right after smoking or vaping. It will typically take 15 to 45 minutes for effects to begin when administered sublingually. Now if you just put it on your tongue or randomly in your mouth, you will find it doesn't all absorb efficiently, so after 30-60 seconds, you will end up ingesting it, which will then have a delayed onset more akin to edibles (45 minutes to 3 hours), especially for individuals with slower metabolisms or if taken on an empty stomach. One benefit of finding products in higher concentrations is so you have less liquid to take at one time, making it easier to absorb

under the tongue or buccally. This Arachnoiditis Warrior learned this the hard way: under the tongue (not on) is significantly faster, more efficient, and delivers better results, often requiring a smaller dose.

The shelf life of oils typically ranges from 12 to 24 months, but this varies based on several factors. Key elements that cause degradation of cannabinoids and terpenes include exposure to light, heat, oxygen, and time. To maximize longevity, store oil in cool, dark, dry, and still environments, such as a refrigerator, freezer, or low cabinet. Storing bottles upright also helps.

Several factors influence how long your CBD oil remains effective. Quality and ingredients, higher quality products generally last longer. Fewer added ingredients, like flavorings, can also extend shelf life. Extraction process, the CO2 extraction method is known for its ability to produce high-quality extracts, and maintain compound stability. Packaging, dark-colored, airtight glass containers protect the oil from air and sunlight, crucial for preservation.

While cannabinoids inevitably change over time (e.g., THCA degrades to CBN, causing darkening), proper storage significantly helps maintain freshness and potency. Always choose a good quality product. If you find an old bottle, check its appearance and smell; if it seems off, it's best to discard it. Proper storage is crucial to maintain freshness, and potency over time, keeping oils away from light and air. Oils can last a good amount of time if stored properly.

It’s worth noting that manufacturers often provide a “best by” date on their products. This date can be a useful guideline, but remember that it’s not a hard expiration date. If your oil still smells, tastes, and looks fine beyond this date, it’s likely still good to use.

Oil Sprays Cannabis oil sprays are products designed for oral administration, dispensing a fine mist directly into the mouth, either under the tongue (sublingually) or inside the cheek (buccally). These sprays typically consist of concentrated cannabinoid extracts (like CBD or THC) dissolved in a carrier oil (such as MCT oil, olive oil, or hemp seed oil), though some are alcohol-based tinctures. In such cases, the alcohol serves as the solvent for extracting the cannabinoids. The carrier helps ensure consistent dosing and facilitates absorption. Oral sprays offer precise, metered dosing with each pump, making them convenient and discreet. When absorbed sublingually or buccally, cannabinoids bypass much of the digestive system and first-pass metabolism, leading to relatively good bioavailability and a quicker onset of effects compared to swallowed edibles (often within 10-45 minutes), with effects typically lasting several hours. Many oil sprays are also flavored to enhance palatability, but watch those added flavorings as they can carry their own set of risks. Check for an ingredient list, if none is available, don’t be afraid to ask.

Isolates As a tasteless and odorless powder, CBD or CBG isolate lend themselves to many applications. Try using them under the tongue, placing isolate under your tongue lets it enter your bloodstream through your mucous membrane. You can hold it in your mouth for about 60 to 90 seconds to get the best results. Typically it takes 15-45 minutes for noticeable effects, similar to sublingual oils and tinctures.

To make homemade oil from isolates, mix the powder into a cooking oil like olive or grapeseed oil to make CBD or CBG oil. You can then take the oil as-is or use it in cooking. Remember that cannabis oil begins to degrade when it reaches around 320 to 350°F. If your recipe involves heat higher than this temperature range, you can mix the oil into your food after cooking.

It can be mixed into a beverage, more easily in something fat-soluble. Isolate mixes well into drinks like smoothies, coffee, and almond milk. Add it to your favorite beverage to get your daily dose of CBD etc.

Sweet tooth, you can also blend isolate into honey or agave nectar using a double boiler. Heat the sweetener, then stir in the isolate until it dissolves.

CBD or CBG isolate works like a concentrated form of cannabis. Experienced users can vape or dab it for quicker effects, as inhaling allows it to enter the bloodstream directly. CBD isolate vapor should be odorless and flavourless.

While isolates offer many treatment options, it's not as effective as full-spectrum. Full-spectrum products include terpenes and other cannabinoids that work together with CBD or CBG, creating an entourage effect for enhanced benefits. To achieve the same results with isolates, you'll generally need a higher dose.

Intranasal administration of cannabinoids, such as through nasal sprays, are a recent addition, offering a promising route for delivery due to its potential to promptly enter the bloodstream, and bypass the liver’s first-pass metabolism. Most users notice the effects within the first 10-30 minutes of use with a different metabolic breakdown of cannabinoids compared to oral ingestion. These characteristics may be particularly advantageous for certain pain conditions, like arachnoiditis, where quick and targeted relief is desired.

However, this method isn't without its challenges and limitations. The nasal cavity's mucociliary clearance can quickly remove substances, reducing absorption time, and the total absorption area is relatively small. Formulating cannabinoids for intranasal use is complex due to their poor water solubility, requiring advanced delivery systems. Additionally, issues like potential nasal irritation, limited dose volume, and variability in user technique need to be considered. While promising, more human clinical data is needed to fully understand the efficacy, long-term safety, and optimal use of intranasal cannabinoid products.

Capsules/Softgels You take a cannabis capsule just like you would a capsule with a different medication. Swallow it down with plenty of water, and take it when you have food in your stomach. A softgel is an oral dosage form for medicine in the form of a specialized capsule. They consist of a gelatin based shell surrounding a liquid fill. It will typically take 45 minutes to 2hrs, this can extend to 3 hours, especially for individuals with slower metabolisms or if taken on an empty stomach. The effects generally last 4-8 hours or more. These are convenient and portable, always start slow and go slow. When stored properly, cannabis capsules and softgels generally have a shelf life of 1 to 2

years from the manufacturing date. Always check the "best by" or expiration date provided by the manufacturer. While they might not be harmful past this date, their potency can gradually decrease, improper storage can lead to mold or bacterial growth and is a separate risk.

Sublingual strips Cannabis sublingual strips are thin, cannabinoid-infused films designed for placement under the tongue or against the cheek, offering a unique consumption experience. Their effectiveness stems from sublingual absorption, where cannabinoids directly enter the bloodstream via oral mucous membranes, bypassing liver metabolism. This results in a faster onset of effects, typically within 15-45 minutes, and potentially more predictable, controlled effects. Some users report these effects to feel clearer-headed compared to edibles. Highly discreet and convenient, these strips are accurately dosed, providing a smoke-free alternative. While quicker than edibles, the "start low, go slow" principle remains crucial; users should wait 90 minutes to 2 hours before redosing, ensuring the strip dissolves fully for optimal absorption. Effects generally last 2-6 hours, making them ideal for those seeking controlled, rapid relief without the intensity or long duration of traditional edibles.

Suppositories For those who prefer not to smoke, vape, or ingest cannabis orally, rectal suppositories offer an alternative. When it comes to unmodified THC, it gets into your bloodstream for effects throughout the body, via this route is generally very low, often resulting in little to no psychoactive "high".

However, the situation is different for other cannabinoids like CBD, or for specially designed cannabis compounds called "prodrugs" – like THC-hemisuccinate (THC-HS). These can show significant bioavailability, with some studies suggesting an exceptional absorption, effectively entering the bloodstream, and bypassing much of the liver's processing.

This ability means that absorbed cannabinoids can have a faster onset of effects (since they don't wait for full digestion), and lead to different proportions of cannabinoids and their breakdown products in the bloodstream compared to oral ingestion. This, along with the potential for localized absorption within the pelvic region, could offer benefits for specific pain types like arachnoiditis. However, more definitive clinical research is still needed to fully understand their effectiveness for various conditions.

Topicals customarily a cream, ointment, gel, or stick. Something that you can apply directly to an area of your body/skin for wellness benefits, working well for localized symptoms. Cannabis-infused topical products are available in every medical dispensary and can help a variety of symptoms. They can also be made at home, creating something to benefit you, using ingredients tailored to you. You may also like to try rubbing on some cannabis oil even just to give it a try, see if you find benefits from it. Antioxidant and anti-inflammatory properties, after being absorbed into the skin, the body's biggest organ, cannabinoids can provide many health benefits. Topicals work locally, as cannabinoids absorb into your skin and connect with receptors there, particularly CB2. This action targets pain and swelling right where it's applied. Onset of effects is typically gradual, appearing within 20-60 minutes. Most topicals recommend application up to three times daily, rub it in fully so that it is absorbed.

There are other types of topicals you may be able to find, they may provide relaxation, condition the skin, provide antioxidant and anti-inflammatory properties. Such as, bath oils, soaps, lip balms, shampoo, and conditioner, leaving hair oil, nail products, cosmetics, intimate lubricants, face mask, hydrating lotions, foot creams.

For people living with diabetes, foot care is very important. Neuropathy can cause changes to skin and nails, areas of the body that have less blood flow can also develop painfully dry and cracking skin. Cannabis-infused diabetic foot cream could help reduce infections by addressing dryness of the skin. Since Arachnoiditis Warriors also deal with neuropathy this can also be true for us.

Most CBD or THC creams do not cause intoxication. It is highly improbable to experience a “high” from a cannabis cream, even when applied generously to broken skin. Do a little research before you buy to make sure you are getting a trustworthy brand, in a cannabis cream/product. Be cautious: some products marketed broadly as 'hemp creams' may not contain cannabinoids like CBD. While hemp seed oil has its own skin conditioning benefits, for products designed to deliver CBD, always look for clear labeling of the CBD content (in milligrams). 'CBD cream' or 'cannabinoid-rich topical' indicates the presence of these active compounds. As always choosing a topical made with full-spectrum cannabinoids is a good choice. That can include cream or oil that has CBD, THC, CBG, CBC, CBN, and CBDV. Your topical may also have other terpene or herbal additives, like menthol or calendula oil. Wash your hands well after using, some extra ingredients that may be added can cause a bad burning feeling if they get in your eyes, nose, or other sensitive spots.

Though applied to the skin like topicals, ***transdermal patches*** deliver medication directly into your bloodstream. This means that if you're using cannabis patches, you could become impaired depending on their strength. Patches work by slowly releasing the medicine through your skin into your veins, allowing it to build up gradually in your system. This makes them ideal for extended-release treatment of chronic symptoms. However, because of their slow release, patches won't provide quick relief for sudden flare-ups. If you need immediate effects, patches aren't the best option.

Cannabis topicals typically last 6-12 months. Their shelf life is affected by perishable ingredients like oils and waxes. Watch for changes in color, texture, scent, or ingredient separation, as these indicate spoilage or reduced potency. To maximize longevity, store in cool, dark, dry, and still environments, such as a refrigerator, freezer, or low cabinet.

Microdosing

Microdosing means taking very minimal amounts of cannabis more often, so little that you don't feel high or intoxicated, but might still experience subtle benefits like improved mood, focus, and pain relief.

Microdosing cannabis, particularly THC, has gained significant attention as it allows individuals to potentially tap into the plant's therapeutic benefits without experiencing the strong psychoactive effects “high” or impairment typically associated with higher doses. What's truly fascinating about microdosing THC is how effective it can be, enabling users to discover that optimal "sweet spot" where relief or enhancement is achieved while remaining clear-headed, and fully functional. This is often accomplished by introducing cannabinoids in minimal amounts, which gently and consistently activates the endocannabinoid system (ECS), promoting a balanced physiological response without overwhelming the system. This strategy is particularly effective when utilizing full spectrum formulations, such as those with a 1:1 THC to CBD ratio.

A key reason for this approach lies in THC's biphasic effects, meaning that low doses can actually yield different, often more desirable outcomes than high doses. For instance, a small amount of THC might help ease anxiety or sharpen focus, whereas a larger quantity could ironically amplify anxiety, induce paranoia, or impair cognitive function. Microdosing strategically leverages the more beneficial side of this curve, allowing individuals to find relief from issues like anxiety, stress, depression, insomnia, or even to subtly boost focus and creativity throughout their day. The primary aim is to gain gentle relief or a mild mood lift, enabling them to manage symptoms effectively while maintaining clarity and productivity. Research has, in fact, shown that low-dose cannabis therapy can effectively manage chronic pain, including particularly challenging types such as neuropathic pain, arthritis, migraines, and fibromyalgia. For managing these ongoing conditions, the strategy often involves taking smaller, more frequent doses throughout the day to maintain a consistent, low-level therapeutic effect without ever reaching a psychoactive threshold. Furthermore, microdosing significantly reduces the likelihood of experiencing common side effects associated with higher THC doses, such as heightened anxiety, paranoia, memory impairment, or dry mouth.

For those who use cannabis regularly, microdosing can also play a role in managing or resetting their tolerance to THC, enabling them to achieve desired effects with smaller amounts over time. Additionally, at very low doses, THC may contribute to improved sleep onset and duration without the typical grogginess that can come with higher doses or conventional sleep aids. Emerging research even suggests that THC, particularly in tiny quantities, might offer neuroprotective benefits, and potentially support neuroplasticity, which refers to the brain's capacity to form new connections. This remains a dynamic and evolving area of scientific inquiry.

When embarking on microdosing, the widely recommended approach is to "start low and go slow". This generally means beginning with a very small amount, perhaps 1-2.5 mg of THC, especially if using edibles or tinctures, and then patiently waiting for an adequate period, typically 60-120 minutes for edibles, to observe the effects before considering a small increase. Yes this can also be done with other products like vape. Many find it helpful to keep a journal to meticulously track their doses and the corresponding effects, which is invaluable for pinpointing their individual "minimum effective dose". It's also important to remember that each person's response to THC can vary considerably due to factors like body weight, metabolism, tolerance, and unique body chemistry. This Arachnoiditis Warrior is a big fan, doing this for years.

Infusing Cannabis

Infusing cannabis means transferring its active compounds (like THC and CBD) into another substance, usually a fat or alcohol, to make products like edibles, oils, or topicals.

Online you can find endless recipes!
How to make cannabis infused coconut oil is a popular one, for ingesting and topicals. It is rich in saturated fat which makes it a superior carrier for cannabinoids. This ensures more efficient extraction of cannabinoids into the oil during infusion, and better absorption by the body when consumed. Additionally, selecting a stable fat, like coconut oil, can contribute to a longer shelf life for your finished product, when stored properly. The fat you choose will also affect potency, and change the dosages.
You can also find machines like the Magic Butter Machine, to make your life easier. Keep in mind that some infusion machines will require a minimum amount of fat (for example, some models require 2 cups). This might mean you'll be making a larger batch of infused oil than you would with a simple double boiler method, but it doesn't necessarily mean you'll need a lot more cannabis; the amount of cannabis depends on your desired potency and the fat-to-cannabis ratio you choose for your recipe.

Decarboxylation

pronounced as dee-kar-box-ill-LAY-shun, or you can use decarb

Decarboxylation is the process of using heat to chemically change the inactive compounds in raw cannabis (like THCA and CBDA) into their active forms (like THC and CBD).

While there isn't a consensus on whether CBD cannabis requires a significantly different decarboxylation process than THC cannabis, research suggests some nuances. If you ask twenty different cannabis users what temperature they decarb their product at, you'll likely get twenty different answers.

Similarities: Both THCA (the acidic precursor to THC) and CBDA (the acidic precursor to CBD) undergo decarboxylation when heated, releasing carbon dioxide, and converting into their active forms (THC and CBD, respectively).

General Recommendations:

For most home decarboxylation methods, aiming for a temperature in the range of 220-245°F (104-118°C) for 30-60 minutes should effectively decarboxylate both THCA and CBDA. However, please note that if you're using fresher cannabis with more moisture, it could take up to 90 minutes.

A more commonly cited range for efficient THCA decarboxylation, balancing conversion and degradation, is around 110-120°C (230-248°F) for 30-60 minutes.

Research suggests that CBDA may require slightly higher temperatures or longer times compared to THCA for complete decarboxylation. Another study found that CBDA decarboxylated more slowly than THCA in cannabis extracts. Some sources suggest an optimal range of 120-140°C (248-284°F) for 60-90 minutes for efficient CBDA to CBD conversion. However, it's also noted that the total mass of CBDA + CBD can decrease over time, suggesting potential for other reaction pathways.

Decarboxylation kinetics have also been studied for other cannabinoids like CBGA (cannabigerolic acid), which tends to decarboxylate at a rate slower than THCA.

Important Considerations:

Strain Variation: The optimal decarboxylation conditions can vary slightly between different cannabis strains and its cannabinoid profile. Ask your provider, how best to decarb their strain of product.

Terpene Preservation: Lower temperatures (around 220°F) are generally better for preserving volatile terpenes, which contribute to the aroma, flavor, and potential effects of cannabis.

Overheating: Avoid temperatures above 300°F (149°C) as this can lead to the degradation of both THC and CBD into other compounds like CBN.

Accurate Temperature: Using an oven thermometer is essential for maintaining a consistent and accurate temperature during decarboxylation. Preheat the oven.

Time Dependence: At a given temperature, the longer the exposure time, the more complete the decarboxylation process will be, up to a point where degradation becomes significant.

Lower and Slower vs. Higher and Faster: There's a trade-off between using lower temperatures for longer durations (which may better preserve terpenes) and higher temperatures for shorter times (for faster activation).

Grind the cannabis: Gently break up the cannabis into smaller, even pieces for consistent heat exposure. Remove any seeds and stems if any. If using a special infusion machine, its blades will grind the cannabis to a fine grind.

Use an oven-safe dish: Spread the cannabis in a thin, even layer on an oven-safe dish or baking sheet. Cover with the dish's lid or aluminum foil, this helps maintain a consistent temperature and prevents the cannabinoids from vaporizing into the air.

Further: You are looking for a toasted brown color and fragrant aroma when it is done.

Remove from the oven and allow to cool completely with the lid on.
Your decarbed cannabis flower is now ready for immediate use.
Be sure to store it in an airtight container in a cool, dark place if you don't use it immediately.

Naturally, if you are making your own, then run your own tests and make up your own mind about the time and temperature you most prefer. It's wise to continue exploring different sources, and potentially even experimenting with small batches to find the conditions that work best for your specific needs and the cannabis material you are using. A cannabis decarb machine is a specialized device that heats cannabis to activate its beneficial compounds, making them ready for use in edibles or tinctures. These machines simplify the decarboxylation process, ensuring precise temperature control and minimizing odor during the process.

One Of Many Varying Decarboxylation Temperature Charts

Compound Temperature Time
THC 245°F (118°C) 30-40 minutes
CBD 280°F (138°C) 60-90 minutes
CBG 220°F (104°C) 60 minutes
CBN 250°F (121°C) 60-120 minutes

THC: The temperature for THC is lower to avoid vaporizing the compound. The time frame allows for a complete conversion from THCA.

CBD: CBD requires a higher temperature for decarboxylation. The longer time ensures thorough activation.

CBG and CBN: These lesser-known cannabinoids have their own specific temperature and time settings for effective decarboxylation.

How-To Create Cannabis Oils And Or Butter

If you love using butter and making edibles, you can make your own infused butter at home. Create delicious cannabis butter for your toast, cooking and enjoyment.
You can also use this exact method to create cannabis-infused coconut oil in its solid form or MTC (liquid) oil form, for cooking. Coconut oil is the base of many baked goods, and sauces.

Step 1: Decarb your cannabis

Step 2: Get out your crockpot

Step 3: Place 1.5 cups of butter in the crockpot. You can use salted, unsalted, or vegan butter

Step 4: Add ½ ounce of decarboxylated cannabis

Step 5: Simmer on low for approximately 4 hours, stirring occasionally

Step 6: Strain the butter (to remove the cannabis). You can use a straining cloth, 'cheesecloth' or micron filter bag for this step to catch all the cannabis fibers

Step 7: Place the finished cannabis butter in a mason jar or container with an airtight lid. You can batch cook cannabis butter and freeze it for up to six months. Use it for baking, cooking, or on your toast.

Cooking With Cannabis

Cooking with cannabis means preparing food or drinks by incorporating specially prepared cannabis (like a purchased cannabis oil, an infused butter/fat, or other concentrate) to create edibles that produce effects when consumed.

Online you can find endless recipes! These will require infused coconut oil, butter, fat of choice, or a cannabis oil product you purchased. As always, carefully read the product label or recipe to understand the potency and recommended dosages. Start low and go slow! Wait at least 1-2 hours to feel the effects before enjoying more. Edibles can have a delayed and more intense effect compared to inhalation, and again everyone responds differently.

Cannabinoids themselves are relatively stable at typical cooking temperatures typically below around 350°F or 177°C. Excessive heat can degrade them and reduce potency! Generally it's best to use cannabis oils in recipes that will not require very high heat or to add the oils towards the end of the cooking process if possible.

Ensure the cannabis oil is thoroughly mixed into your recipe to ensure consistent dosing in every serving!, here also speaking from experience. Depending on what you are making you can also add it to each individual portion separately. It can also be added to smoothies, tea, coffee etc.

Clearly label any food items or topicals containing cannabis, and store them securely out of reach of children, pets, visitors, and family members who may not know better. Yes again, also speaking from experience.

Why Try It

Cannabis is proving effective for many health issues like chronic pain, anxiety, depression, PTSD, and neurological disorders such as epilepsy. Its anti-inflammatory and pain-relieving qualities offer a significant alternative to opioid treatments.

Chronic pain often accompanies neurological conditions. While conventional drugs manage severe nerve pain from central nervous system damage, increasing numbers of patients are now exploring CBD-based treatments. This shift is driven by growing research into CBD's pain-relieving potential and its fewer side effects. Studies indicate CBD oil may alleviate pain associated with neurological illnesses.

Pain comes in three main types: somatic (a deep ache from movement), visceral (organ pain, sometimes felt elsewhere), and neuropathic (nerve damage, often described as burning, and notoriously hard to treat).

University of Calgary researchers studied how cannabis affects bladder problems in MS patients. Of 775 MS patients surveyed, 19 used cannabis mainly for bladder issues, and nearly 90% of them reported improvement. Recent cannabis use was linked to twice the likelihood of better urinary frequency, urgency, leakage, pad use, and bladder emptying. While this was a small pilot study, it offers early insights into how MS patients use cannabis to help with bladder symptoms **(Kim-Fine et al., 2021)**.

Cannabis And Pain Relief

Medical cannabis shows promise for pain relief, especially neuropathic pain, which is difficult to manage with traditional painkillers. This is because cannabinoids in cannabis interact with our body's natural endocannabinoid system (ECS).

Our bodies produce their own cannabinoids, like anandamide (AEA), which helps mute pain signals by binding to CB1 receptors in the brain's pain center. However, AEA's effects are short-lived.

THC, the main psychoactive cannabinoid in cannabis, acts similarly to AEA. When THC binds to these same CB1 receptors, particularly in an area of the brain called the medulla oblongata, it can decrease pain sensitivity. This interaction, along with how cannabis cannabinoids interact with receptors on peripheral nerves, helps suppress pain signals through different mechanisms than opioids.

Using Cannabis To Treat Arachnoiditis

Arachnoiditis causes chronic nerve pain (neuropathy), which is often unbearable, sudden, and very difficult to predict and control with conventional pain relievers. This makes it a notoriously challenging condition to treat. Medical cannabis can provide a source of significant pain relief for this condition. Unlike some prescription narcotics, cannabis generally presents fewer side effects and a lower risk of addiction, making it a potentially safer option for long-term management.

Another benefit of using cannabis as a treatment for arachnoiditis and its intractable pain, is that it can treat other symptoms that accompany the condition. These are complications that other medications are unable to address. If you're living with this debilitating disorder, exploring how medical cannabis could improve your quality of life is certainly worthwhile. Studies and patient experiences suggest that cannabis is particularly effective for the nerve pain of arachnoiditis. It may also help with other symptoms such as, stinging or burning, shooting pain, numbness/tingling in arms and or legs, muscle spasms/cramping, problems with neurological functions, joint pain, nausea, sleep problems/insomnia, muscle stiffness/loss of mobility, psychological symptoms, emotional distress, inflammation.

The main reason medical cannabis is effective for a variety of conditions, including arachnoiditis, is because the compounds present in the plant mimic receptors in our endocannabinoid system (ECS) as previously discussed. This intricate system is a series of receptors that are found throughout our body. The ECS influences everything from sensations of pain and digestion to emotional health and much more.

When chronic disorders like arachnoiditis affect our health, the ECS is unable to function optimally. Cannabinoids, the compounds in cannabis like CBD and THC, mimic receptors in the ECS and potentially help the brain and body with certain physiological and psychological issues. That’s why, although medical cannabis is an extremely effective pain reliever, it can be used for so many applications.

If you have arachnoiditis, medical cannabis may be a beneficial treatment option for you. It is crucial to consult your medical professional before starting any cannabis treatment. Cannabis, in all its forms, can affect everyone differently, and may not be right for your specific health profile. Furthermore, it is vital to understand how cannabis might interact with other medications you are taking, and how it could impact your health.

For some individuals, meditation and breathing techniques may offer more beneficial outcomes than medications like Gabapentin and Celebrex. Similarly, medical cannabis and Ketamine are being explored by certain patients as potentially more effective or sustainable alternatives to traditional prescriptions and opioids, which can present challenges with long-term use. Furthermore, for those who experience allergic reactions to medications such as Gabapentin, incorporating breathing techniques, daily exercise, and medical cannabis can serve as valuable supportive tools.

Ultimately, every individual's journey is unique, and what works best can vary significantly. Given your specific symptoms and needs, consulting with experienced professionals and exploring various approaches through a process of careful trial will be key to discovering what provides the most relief for you.

A special note

The paramount message for anyone with arachnoiditis is to seek advice from a highly qualified and experienced medical professional who specializes in complex spinal conditions or chronic pain. They can provide personalized guidance regarding all potential treatment options, including the very specific risks and benefits of any spinal interventions, ensuring the safest and most appropriate course of action for your unique situation. An arachnoiditis specialist may not be easy to find, if at all. This condition involves inflammation and scarring of the delicate arachnoid membrane around the spinal cord and nerves. Any procedure that could introduce more irritation or scar tissue carries a significant risk of worsening symptoms or causing further neurological damage to an already compromised area. Personally I have only encountered one doctor so far that has understood this condition, his advice to me was *Do Not touch the spine with anything,* injections for example. I've met at least one Arachnoiditis Warrior that said she wished she had heard that, and we should shout it from the rooftops. So here is a shout out to proceed with caution.

READER NOTICE *This guide is provided for general informational purposes only and is not a medical manual. The author is a patient advocate, not a physician. Nothing in these pages is intended to diagnose, treat, or cure any condition. This information is intended to facilitate informed conversations with your healthcare specialist and* ***must not*** *be used as a substitute for professional medical management.*

Bonus Material: Cannabis Tea/Infusions And THCA

Cannabis Tea: A Guide To Enjoying And Or Crafting Your Own

Cannabis tea offers a soothing way to enjoy the benefits of cannabis, whether for relaxation, medicinal purposes, or simply as a unique beverage experience. Here's what you need to get started, about purchasing, preparing, and personalizing cannabis tea.

Purchasing Cannabis Tea Bags/Infusions

If you're looking for ready-made cannabis tea bags or infusions, both local and online dispensaries, suppliers, cultivators or licensed producers depending on your location, are excellent starting points. Many of them carry cannabis-infused tea bags under various brands or as part of a broader range of edibles and beverages. If you're unsure about dosages or ingredients, their knowledgeable staff can guide you based on your preferences.

For those who enjoy experimenting, making your own cannabis tea at home is a rewarding alternative. Below, we'll explore how to prepare cannabis leaves, flower (buds) and craft your perfect cup.

Using Cannabis Leaves, Flower (Buds) For Tea

Selecting the Right Cannabis Material

Dispensary, suppliers, cultivators, licensed producer, Purchases: High-quality cannabis flower (buds) are readily available.

Homegrown Options: If you grow your own cannabis, flower (buds) and smaller sugar leaves are preferred over larger fan leaves due to their higher cannabinoid content.

Preparing Your Type Of Cannabis

For most home decarboxylation methods, aiming for a temperature in the range of 220-245°F (104-118°C) for 30-60 minutes should effectively decarboxylate both THCA and CBDA. However, please note that if you're using fresher cannabis with more moisture, it could take up to 90 minutes.

Decarboxylation for CBD:

To activate the therapeutic properties of CBD, raw cannabis must be decarboxylated. Research suggests that CBDA may require slightly higher temperatures or longer times compared to THCA for complete decarboxylation. Another study found that CBDA decarboxylated more slowly than THCA in cannabis extracts. Some sources suggest an optimal range of 120-140°C (248-284°F) for 60-90 minutes for efficient CBDA to CBD conversion. However, it's also noted that the total mass of CBDA + CBD can decrease over time, suggesting potential for other reaction pathways. This step is essential for unlocking its full benefits, even though CBD is non-psychoactive. It may help with pain relief, anxiety, and inflammation.

*For nerve pain, the method of CBD absorption can influence its effectiveness:

Bloodstream (e.g., sublingual or inhalation): Taking CBD sublingually (under the tongue) or through inhalation allows it to enter the bloodstream directly, bypassing the digestive system. This method provides faster relief and higher bioavailability, making it a preferred option for acute nerve pain.

Stomach (e.g., edibles, tea or capsules): When CBD is ingested, it passes through the digestive system and liver before entering the bloodstream. This process, known as first-pass metabolism, reduces the amount of CBD that reaches the bloodstream. However, the effects last longer, which might be beneficial for chronic nerve pain.

For immediate relief, sublingual tinctures or vaping are often recommended. For sustained effects, edibles or capsules might be more suitable.

For THC/THCA: To decarb or not to decarb, consider these options:

Decarboxylation for THC: Similarly, decarboxylation converts THCA into THC, which is responsible for cannabis's psychoactive effects. Without this step, THCA remains non-intoxicating but still offers therapeutic benefits. The temperature of boiling water (around 212°F or 100°C) is typically not enough or maintained long enough to complete this conversion, especially without a fat source. Without decarboxylation, most of the cannabinoids in your cannabis remain in their acidic form—THCA in the case of THC. THCA itself is not psychoactive, whereas THC is. Most of the desired therapeutic or psychoactive effects come from THC, so if your recipe relies on the potency of THC, you'll want to decarb your cannabis before brewing your tea.

While precise parameters can vary slightly among sources and depend on specific goals (e.g., maximizing conversion versus preserving terpenes), a commonly cited and effective range for efficient THCA decarboxylation, balancing conversion and minimizing degradation, is around 230-248°F (110-120°C) for 30-60 minutes.

For instance, heating cannabis at approximately 220°F (105°C) for 30-40 minutes is a widely recognized method for converting THCA to THC by removing a carboxyl group. Similarly, a temperature of 245°F (118°C) for 30-40 minutes is also commonly cited as an effective target. These specific temperatures and times fall within the broader optimal range and are all considered effective for achieving decarboxylation.

Not decarbing for THCA:

So, if you skip the decarbing step, you'll end up with THCA in your tea, which will likely result in minimal psychoactive effects.

You can make tea without decarbing, and avoid the psychoactive effects, you can still have relaxing or medicinal benefits. THCA, or tetrahydrocannabinolic acid, is the acidic precursor to THC and is found in raw cannabis. In its natural state, it is non-intoxicating, which means you can potentially enjoy its therapeutic benefits without experiencing the "high" associated with THC.

Here are some of the benefits associated with THCA:

Anti-Inflammatory Properties: Preliminary research and anecdotal evidence suggest that THCA may help reduce inflammation. This can be beneficial for conditions characterized by chronic inflammation, for instance, arthritis or inflammatory bowel disorders. The anti-inflammatory potential of THCA may make it a useful adjunct for individuals seeking relief from inflammatory symptoms without the psychoactive effects of THC.

Antinausea and Appetite Stimulation: Similar to THC, THCA has shown promise in alleviating nausea and vomiting. Some users report that even without converting THCA into THC through heat, its ingestion can help reduce nausea. Additionally, THCA may also stimulate appetite, which can be particularly beneficial for people dealing with conditions or treatments that suppress hunger, such as chemotherapy.

Neuroprotective Effects: Early studies indicate that cannabinoids in their acidic forms, including THCA, might have neuroprotective qualities. This suggests a potential role in safeguarding brain cells, which could be promising for research into neurodegenerative conditions. However, this area is still under investigation, and more research is needed to fully understand these effects.

Potential Antiproliferative Properties: Some emerging research hints at THCA's potential to exert antiproliferative effects against certain types of cancer cells. Although these findings are preliminary and require more extensive clinical studies, they open up an intriguing area for future research into THCA as part of complementary cancer therapies.

Suitability for Non-Psychoactive Use: Since THCA does not bind well to the brain's CB1 receptors in its raw form, it does not produce the psychoactive effects typical of THC. This non-intoxicating nature makes THCA particularly appealing for daytime use or in situations where maintaining a clear head is important while still obtaining some of the cannabis plant's potential therapeutic benefits.

It's important to note that research on THCA is still in its early stages. While many of these benefits look promising, more clinical studies are necessary to definitively establish the efficacy and safety of THCA for various therapeutic applications.

Grinding: Lightly grind the cannabis for better infusion.

Brewing Cannabis Tea

Simmer the Cannabis: Add the prepared cannabis to hot water and simmer for 10–15 minutes. Since cannabinoids are not water-soluble, include a fat source like butter, coconut oil, MCT oil, or milk to help extract cannabinoids effectively.

When storing extra tea in the refrigerator keep in mind some of these fat sources will become solid once again. Store in a jar to be able to shake up, or individual portions to reheat. Personally testing THCA tea, adding a CBD oil as the fat source was the most pleasant, and provides further benefits.

Strain the Mixture: Use a fine strainer to remove plant material after steeping. Caution it will be very hot, you may want to let it sit a bit.

Optional Additions: Customize the flavor with honey, lemon, ginger, or herbs like chamomile for added relaxation. The options are endless.

You may want to taste your tea before adding anything, some are surprisingly delicious on their own. In testing CBD tea, it was found to be weaker in flavor, another alternative is adding peppermint leaves or regular tea leaves/bag of choice. This could be done after simmering and tasting as it will still be very hot.

Cannabis Tea Recipes (more can be found online)

Simple Cannabis Tea

Ingredients: 1 gram ground cannabis, 1 tablespoon butter/coconut oil, or fat of choice, 4 cups water, and a tea bag of your choice if desired.

Instructions: Boil water with butter/coconut oil or fat of choice. Add cannabis and simmer for 15 minutes. Strain, steep your tea bag, and sweeten to taste if desired.

Remember to prepare your cannabis, to decarb or not as explained and grind.

Cannabis Chai Latte

Ingredients: 1 gram ground cannabis buds, 1-inch fresh ginger, ½ tsp cardamom pods, ½ tsp whole cloves, 1 cup whole milk, and a chai tea bag.

*Instructions***:** Boil spices and cannabis in water for 10 minutes. Add milk and simmer for 5 minutes. Strain, steep the chai tea bag, and add sweetener or vanilla if desired.

Remember to prepare your cannabis, to decarb or not as explained and grind.

Safety And Legal Considerations

Always verify that cannabis use is legal in your region. Consult your medical profession, cannabis of all types can affect everyone differently and may not be right for you. Adhere to dosage guidelines, especially if you're new to cannabis consumption. Start with small amounts and adjust based on your tolerance and desired effects. Trying different cannabinoids will help you find which is most beneficial for you.

Final Thoughts

Cannabis tea offers a versatile way to experience the potential benefits of cannabis. Whether you are using pre-made tea bags or crafting your own, the possibilities for customization are endless. Experiment with flavors, fat sources, and cannabinoids to find the blend that best suits your individual needs.

READER NOTICE *This guide is provided for general informational purposes only and is not a medical manual. The author is a patient advocate, not a physician. Nothing in these pages is intended to diagnose, treat, or cure any condition. This information is intended to facilitate informed conversations with your healthcare specialist and* ***must not*** *be used as a substitute for professional medical management.*

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Undefined Terms(Glossary)

Acetals: put simply, acetals are like a disguise for a specific part of a chemical molecule, used by chemists to temporarily make that part less reactive. 🧪

Agonist: something that *starts* a specific action in the body, like a key fitting into a lock to turn it on. 🔑

Allosteric: describes a way that a protein's activity is changed when a molecule binds to it at a spot *different* from where its main action happens. Think of it like a remote control for the protein. 🎮

Analgesic: pain-reducing, pain-reliever, a medicine that relieves pain without making you lose consciousness. Think of it simply as a painkiller. An agent producing diminished sensation to pain.

Anecdotal: based on or consisting of reports or observations of usually unscientific observers.

Antagonist: a chemical that acts within the body to reduce the physiological activity of another chemical substance.

Antiproliferative: used or tending to inhibit cell growth.

Anxiolytic: antianxiety, a medication or substance that reduces anxiety.

Apigenin: is a natural plant compound, specifically a flavonoid, found in many fruits, vegetables, herbs, and spices like parsley, celery, chamomile tea, and oregano. It's widely studied for its potential health benefits, particularly its anti-inflammatory, antioxidant, and anticancer properties. 🌿

Cannabinoids: are chemical compounds found in the cannabis plant (like THC and CBD) that interact with our bodies and can cause various effects, including the "high" and potential therapeutic benefits.

Cannflavin: refers to a group of special compounds found only in the cannabis plant. They are known for their strong anti-inflammatory properties, even more potent than aspirin in some lab studies, and are being researched for various other potential health benefits.

Concentration (mg/ml, mg/g, or percentage) and ratios: In the world of cannabis, "concentration" tells you how much of the active compounds (like THC or CBD) are present in a product. This is typically expressed in two main ways:

mg/mL (milligrams per milliliter): This unit is commonly used for liquid cannabis products like oils, tinctures, and edibles where the active compounds are dissolved in a carrier liquid. It tells you the exact weight (in milligrams) of a cannabinoid (e.g., THC or CBD) in every milliliter of the product.

Example: A label reading "THC 10 mg/mL" means there are 10 milligrams of THC in every 1 milliliter of that oil.

Percentage (%): This is often used for dried cannabis flower, concentrates (like wax or shatter), and some edibles. It represents the percentage of the total weight or volume that is made up of a specific cannabinoid.

Example: "THC 20%" on a dried flower product means that 20% of the flower's total weight is THC. So, in 1 gram (1000 mg) of that flower, there would be 200 mg of THC (0.20 * 1000 mg = 200 mg).

Conversion Tip: To roughly convert mg/mL to percentage, you can think of 10 mg/mL as approximately 1%. (More precisely, for a liquid with a density close to water, 10 mg/mL is 1% by weight if 1 mL weighs 1 gram).

In cannabis, a “ratio” typically refers to the proportional amount of different cannabinoids in a product, most commonly CBD to THC.

Meaning: Ratios like 1:1, 2:1, 10:1 (CBD:THC), or 1:2 (THC:CBD) indicate the relative amounts of these cannabinoids.

A 1:1 CBD:THC ratio means there's an equal amount of CBD and THC.

A 2:1 CBD:THC ratio means there's twice as much CBD as THC.

A 1:2 CBD:THC ratio means there's twice as much THC as CBD.

Why it Matters: The ratio is crucial because CBD can moderate some of the psychoactive effects of THC.

High THC, low CBD (e.g., 10:1 THC:CBD or just high % THC): More potent psychoactive effects (stronger "high").

Balanced (e.g., 1:1 CBD:THC): Offers benefits from both cannabinoids with potentially milder psychoactive effects.

High CBD, low THC (e.g., 10:1 CBD:THC): Less to no psychoactive effect, focusing on the therapeutic benefits of CBD, with a small amount of THC potentially enhancing those effects.

In short: Concentration (mg/mL or %) tells you the strength or amount of a specific cannabinoid.

Ratio tells you the balance between different cannabinoids, especially CBD and THC, influencing the overall experience and therapeutic effects.

Consumption: broadly means the act of using something up, the act or process of consuming.

Emulsion: An emulsion is a mixture of two liquids that don't normally mix, where one liquid is dispersed evenly throughout the other in tiny droplets. Think of it like oil and water vigorously shaken together. 🧴

Enzymes: any of numerous complex proteins that are produced by living cells and catalyze specific biochemical reactions at body temperatures.

Flavonoids: are a large group of natural compounds found in almost all fruits, vegetables, grains, bark, roots, stems, flowers, tea, and wine. They are responsible for the vibrant colors in many plants and are widely studied for their beneficial effects on human health, primarily due to their antioxidant and anti-inflammatory properties. 🌈

Gastrointestinal: of, relating to, affecting, or including both stomach and intestine. 🍎➡️🚽

Hypothesized: means proposed as a possible explanation or theory, but one that hasn't yet been proven or confirmed. It's an educated guess or a starting point for further investigation. 🤔

Insomnia: is a common sleep disorder where a person regularly has trouble falling asleep, staying asleep, or getting good quality sleep, even when they have enough time and a good environment for it. As a result, they often feel tired, irritable, and have difficulty concentrating during the day.

Lycopene: is a natural, bright red pigment found in certain fruits and vegetables, most notably tomatoes, watermelon, and pink grapefruit. It's a type of carotenoid, which means it's also a powerful antioxidant. In simpler terms, lycopene is the stuff that makes red foods red, and it helps protect your body's cells from damage.

Mammalian adult neural stem cell progenitor cells: (often shortened to NSPCs or adult neural stem cells) are special cells found in the brains of adult mammals, including humans, that have the remarkable ability to both self-renew (make more of themselves) and differentiate (turn into) different types of brain cells, specifically neurons (nerve cells) and glial cells (support cells like astrocytes and oligodendrocytes).
Think of them as a small, specialized repair and renewal crew in the adult brain. While most brain cells are fixed once formed, these cells persist in specific areas and can generate new cells throughout life.

Microbiome: is the collection of all the microorganisms (like bacteria, fungi, viruses, and other microbes) and their genes that live in and on a particular environment, especially the human body.

Think of it as a vast, invisible ecosystem teeming with life, where these tiny organisms interact with each other and with their host. 🦠

Modulate: means to adjust, regulate, or vary something, often within certain limits or to achieve a desired effect. Think of it like fine-tuning a radio dial to get a clearer signal. 📻

Molecules: are the smallest units of a chemical compound that retain the chemical properties of that compound, formed by two or more atoms held together by chemical bonds. Think of them as the tiny building blocks that make up everything around us, from the air we breathe to the water we drink and the very cells in our bodies. 🧱

Mucociliary: In the nasal cavity, the mucociliary system is the body's crucial self-cleaning mechanism that constantly works to trap and remove inhaled particles, allergens, pollutants, and pathogens before they can reach the lungs. 👃🧹

Mucous membrane: (or mucosa) is a moist, inner lining found in various cavities and passages of the body that are exposed to the outside environment, such as the nose, mouth, lungs, and digestive tract. Its main role is to protect these areas and keep them moist by producing a slippery fluid called mucus. 🌊

Neurodegenerative: describes diseases or conditions that involve the progressive loss of structure or function of neurons (nerve cells), eventually leading to their death. This means the brain or nervous system gradually gets worse over time because its essential cells are breaking down and dying. 🧠📉

Neuropathy: is a general term for damage, disease to or dysfunction of one or more nerves especially of the peripheral nervous system that is typically marked by burning or shooting pain, numbness, tingling, or muscle weakness or atrophy, is often degenerative, and is usually caused by injury, infection, disease, drugs, toxins, or vitamin deficiency. 🦵⚡

Neurotransmitters: are the chemical messengers that transmit signals between neurons (nerve cells) and other target cells, such as muscle cells or gland cells, throughout your body. They're essential for virtually every function, from thinking and breathing to feeling emotions and moving your muscles. 🧠➡️💡

Oxidative stress: physiological stress on the body that is caused by the cumulative damage done by free radicals inadequately neutralized by antioxidants and that is held to be associated with aging. Like an imbalance in your body's cells where there are too many harmful molecules called free radicals and not enough antioxidants to neutralize them. This imbalance can lead to damage to cells, proteins, and DNA. 💥

Quercetin: is a natural plant pigment, specifically a flavonol (a type of flavonoid), found abundantly in many common fruits, vegetables, and beverages. It's widely recognized and studied for its potent antioxidant and anti-inflammatory properties. 🍎🧅🍷

Receptors: are specialized protein molecules that act like "locks" on or within cells. They recognize and bind to specific signaling molecules (called ligands, like keys 🔑), and this binding triggers a specific response or chain of events inside the cell. They are essential for how cells communicate with each other and their environment. A cell or group of cells that receives stimuli.

Sedating/Sedation/Sedative: all relate to the act of calming, quieting, or inducing a state of reduced arousal, often leading to sleepiness. Think of it as slowing down the brain's activity to make someone feel relaxed, drowsy, or even unconscious. 😴

Steroid/Sterols: In biochemistry, steroids and sterols are related but distinct terms, both referring to types of lipids (fats) characterized by a specific chemical structure.

Stimulating: means causing something to be more active, energetic, or to develop and function more effectively. Think of it as waking something up or giving it a boost. ⚡

Synergistically/Synergistic/Synergy: These terms all relate to the concept of elements working together to produce a result greater than the sum of their individual effects. Think of it as 1 + 1 = 3 instead of 2. ✨

Synthesized: When we say something is synthesized from the plant, it means that the plant itself naturally produces that substance through its own biological processes. It's not created by humans in a lab, but rather by the plant's internal chemistry. 🌱

Terpenoids/Terpenes: While the terms are often used interchangeably, there's a technical distinction. Terpenes are aromatic organic compounds found in many plants (including cannabis) that give them their distinct scents and flavors, and are believed to contribute to their effects. Terpenoids are modified terpenes where the molecular structure has been altered, typically by the addition of oxygen-containing functional groups (like hydroxyl, carbonyl, or carboxyl groups). They can also have undergone rearrangements or the removal of methyl groups.

Tolerance: in the context of biology and medicine (especially pharmacology), refers to a diminished response to a substance (like a drug or alcohol) following its repeated exposure. This means that over time, a person needs a higher dose of the substance to achieve the same effect they initially experienced. In this guide it also refers to finding your level of tolerance, or how much you can handle, your body can handle or endure.

Trichomes: are tiny, specialized outgrowths or appendages found on the surface of many plants, algae, lichens, and certain protists. The word comes from the Greek "tríchōma," meaning "hair,"

which accurately describes their often hair-like appearance. While they can be simple hairs, scales, or other structures, in the context of cannabis, the most relevant types are glandular trichomes.