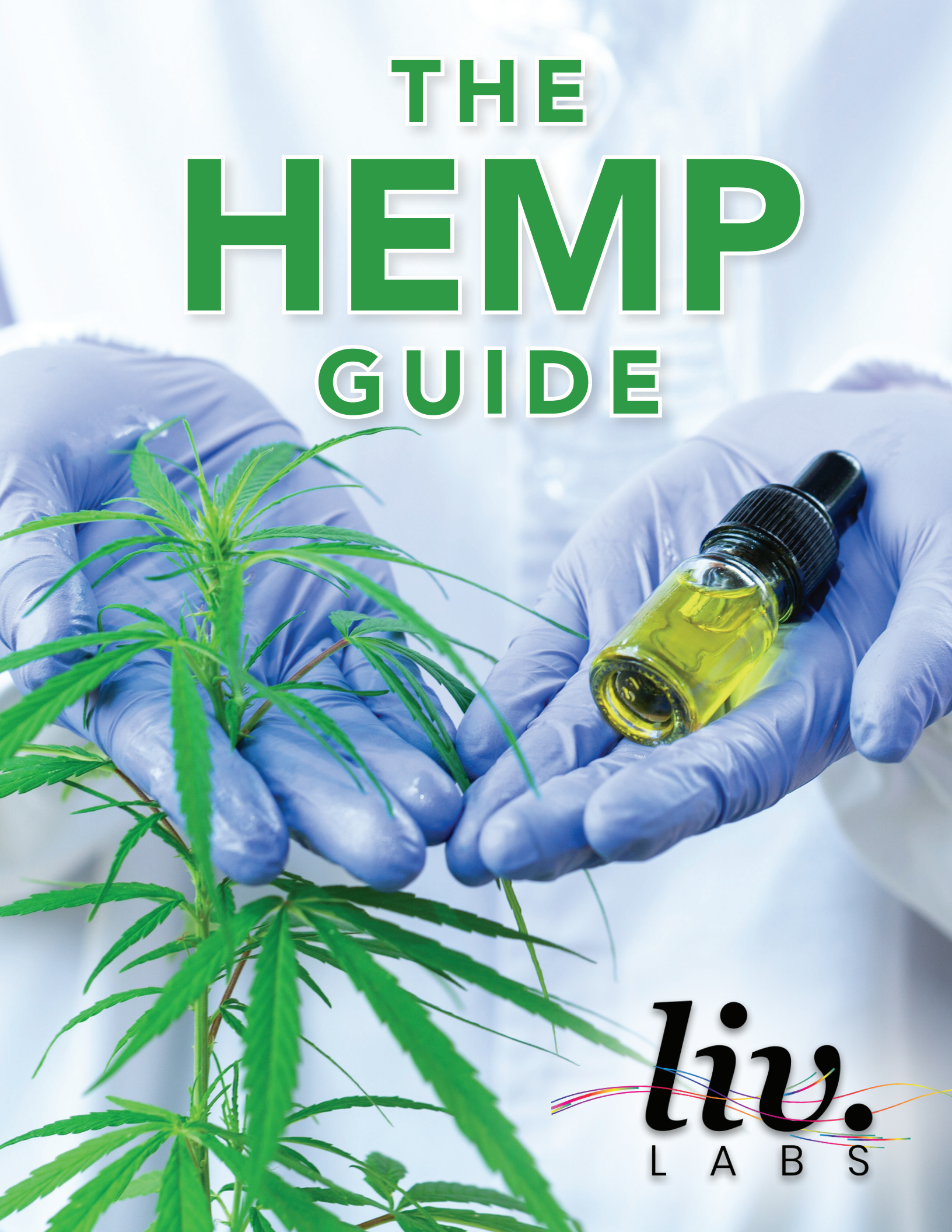
THE HEMP GUIDE



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WHAT IS INDUSTRIAL HEMP AND HOW IS IT DIFFERENT FROM MARIJUANA?

Let's be clear upfront: hemp is not marijuana. You cannot get high from smoking or ingesting hemp, and it is classified as a different substance from marijuana in most U.S. laws. So why does there continue to be so much confusion about the subject?

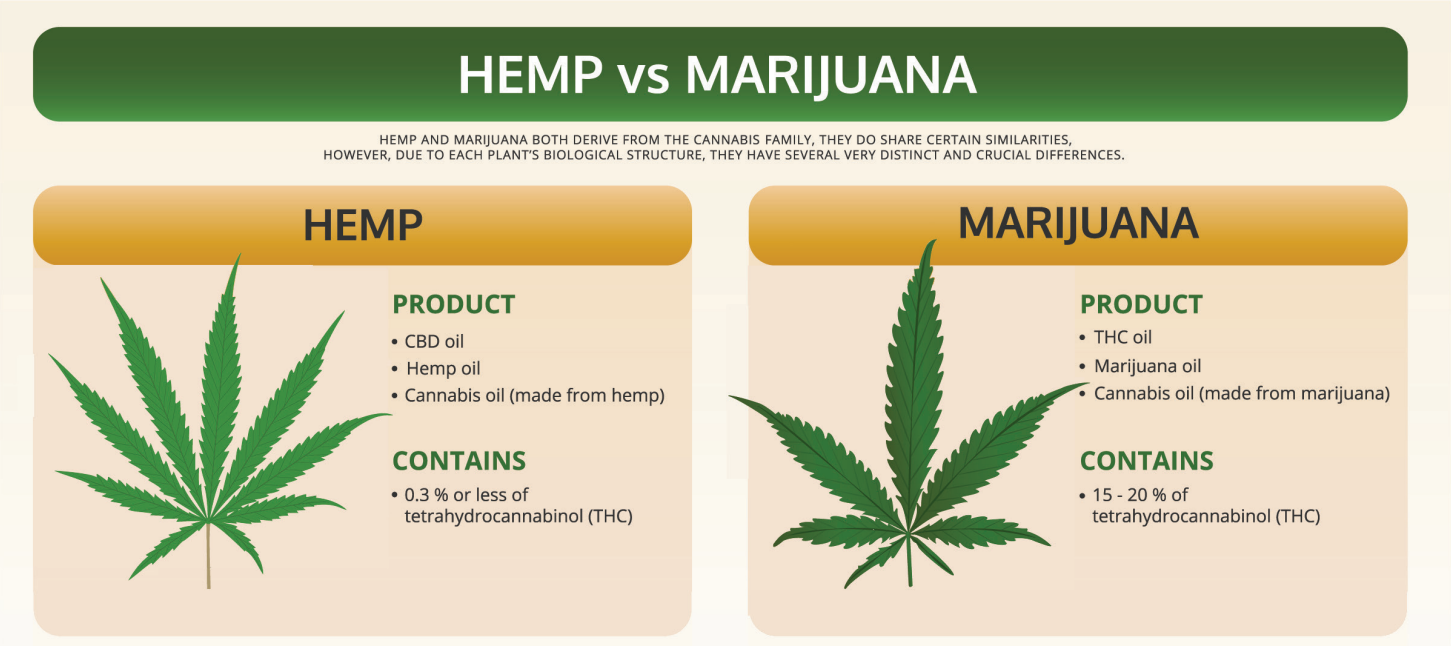
In short, the confusion stems from the fact that both hemp and marijuana are forms of a plant called cannabis. But they are two very different forms of the plant, which leads to taxonomic confusion amongst laypeople and scientists alike.

A SHORT HISTORY OF THE TAXONOMY OF CANNABIS

Historically, there has been no division between the various strains of the cannabis plant family. When Carl Linnaeus first classified cannabis in 1753, he named only one variety: cannabis sativa. But, in 1785, biologist Jean-Baptiste Lamarck said another cannabis species existed based on samples from India: cannabis indica. This set up a controversy that is still raging today: Exactly what is the dividing line between hemp and marijuana in the cannabis family?

The original scientific differentiations between sativa and indica were based on characteristics such as the shape of their leaves and flowers and not other factors that we often think of today, like THC or CBD concentrations. Under this classification system, all hemp plants – those grown for industrial rather than medicinal purposes – were assumed to be cannabis sativa. But these early, simplistic classifications based on physical characteristics have recently been found to be inadequate. With new technology and access to plant samples from across the world, scientists have been able to nail down more firmly on a biological level what's going on with the different strains and species of cannabis.

In a recent study with Indiana University, Karl W. Hillig grew 157 different cannabis plants from various geographical regions to determine whether there was a true genetic, morphological and biochemical variation among different plants. The study found good evidence to suggest at least two separate cannabis species, sativa and indica, and possibly a third – ruderalis – and did not concur with previous assumptions about all hemp falling into the cannabis sativa category.



The study found that there were hemp varieties – cannabis grown for industrial purposes – in both the indica and sativa categories. This suggests that hemp is not just a very low THC variety of cannabis sativa. In fact, another study of 124 cannabis plants found that hemp varieties had significant genetic differentiation from marijuana strains but that they generally had more in common with marijuana strains labeled indica. Hemp, it seems, defies a clear taxonomical definition.

Today, in the United States and across much of the world, there is a legal, if somewhat arbitrary, definition of what constitutes hemp versus marijuana. This definition is based solely on the content of one of hundreds of cannabinoids found in cannabis plants, namely THC, the psychoactive compound that can make you "high." Laws legalizing hemp in the United States have determined that anything containing less than .3% of THC is classified as industrial hemp and does not fall under the marijuana prohibition. Anything above that concentration of THC is considered marijuana.

The 0.3% number comes from an article that tried to create a "practical and natural taxonomy" for cannabis. In 1973, Canadian researcher Ernest Small and his partner, Arthur Cronquist, needed a benchmark to separate hemp from cannabis for their taxonomy study. They chose THC content as the marker and arbitrarily decided .3% would be the cutoff between the two.

Years later, Small stated in an interview that he and Cronquist never intended .3% to be a method of legal standardization. He indicated it was only meant to separate the subtypes for research purposes. But their intention didn't matter. In the 1970s, when marijuana was officially outlawed in the United States, the .3% threshold was written into law.

Many think the threshold is flawed for several reasons. A concentration of .3% THC is well below the 1% threshold, which is the amount required to get someone "high." Additionally, simple environmental factors are enough to change the THC content of a cannabis plant. An extra warm spring could easily push the THC level of any given crop from .27% to .31%, effectively destroying the farmer's whole crop for no reason except that it crept over the arbitrary, artificially low threshold for THC content.

There is currently a movement in a few states and some countries in Europe to change the laws so that the legal definition of industrial hemp is anything below 1% THC instead of the arbitrarily set .3%. Switzerland already has a 1% THC threshold as law. For perspective, most marijuana strains these days contain between 10% and 20% THC content.

What makes the .3% threshold even more arbitrary is the fact that industrial hemp often is used to create clothing, building materials, cosmetics and for other uses, where there is no concern whatsoever about the THC content since the products are not inhaled or ingested. In the case of CBD and other supplements, any small trace amount of THC allowed by law in most countries is nowhere near the threshold to have an intoxicating potential.

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USES OF INDUSTRIAL HEMP

Hemp has an incredible variety of uses that can benefit humanity and help heal the planet. For thousands of years, people have been using hemp as food, medicine, clothes, cosmetics, paper and rope. With new technology, the list of hemp's potential uses has grown dramatically.

Hemp can be made into a composite material that can replace plastic, cement and other environmentally destructive building materials. Hemp fiber can efficiently store and release energy, making it a great material for the production of super capacity batteries.

This chart shows just a few of the ways hemp is currently being used in the modern world.

At Liv Labs, we believe we've just scratched the surface of all of the potential uses and products made from hemp. With the recent legalization of industrial hemp, we are now free to harness technology and innovation to produce all kinds of amazing green products for our health and our homes.

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A BRIEF HISTORY OF HEMP

Humans have used hemp as a source of food, clothing, paper, medicine, building material, beauty products and more for millenniums. Used throughout Asia and Eastern Europe for thousands of years, it is one of the most important plants in human history. A case for the co-evolution of cannabis with the human species has even been advanced.

9,000-year-old hemp cloth found in ancient city of Çatalhöyük, Turkey.

USE OF CANNABIS FOR MEDICINAL PURPOSES

Although cannabis has been used for medicinal purposes for thousands of years in China and India, it came to the Western world courtesy of Irish physician William Brooke O'Shaughnessy in 1842. He was introduced to the cannabis plant as medicine in India and brought it back to England, where it soon crossed the Atlantic and spread to the United States.

The use of cannabis as an ingredient in many different medicines became so common that the period between 1840 and 1937 has been called the first golden age of cannabis medicines – at least for the Western world. Mainstream companies such as Eli Lily, Upjohn and Parke-Davis used cannabis as an ingredient in medicines for a wide range of ailments. For around a hundred years in the United States and Europe, it was common to see cannabis medicines sold at the local drugstore without a prescription. We believe at Liv Labs that we are just on the cusp of the second golden age of cannabis medicines in the Western world.

The demonization of cannabis, among other factors, such as the rise in the use of opiates, led to the decrease in the use of cannabis as a natural medicine. The taxation imposed by the Marijuana Tax Act of 1937 effectively ended the use of cannabis in medicines in the United States and around the world.

CANNABIS IN THE UNITED STATES

Hemp has been used in the United States from its inception. It was such an important crop for the fledgling new country that Thomas Jefferson once said:

> *The best hemp and the best tobacco grow on the same kind of soil. The former article is of the first necessity to the wealth and protection of the country. The later, never useful.*

1902 photo from Washington, D.C., "testing gardens." Cannabis indica L. (left) and Cannabis sativa L. (right).

So what happened? What caused the United States, and then most of the rest of the world, to go from using hemp as a long-cherished crop to outlawing it? There are many theories about why the whole cannabis family was demonized in the 1930s. Many believe it was other large industries, including the paper and plastic industries, that did not want to compete with hemp. Others theorize that the whole campaign was the brain-child of Harry J. Anslinger, who founded the Federal Bureau of Narcotics after his position at the Bureau of Prohibition was eliminated at the end of Prohibition. We will never know the exact forces behind it, but once the "reefer madness" campaign took hold, cannabis became public enemy number one.

Although the Marijuana Tax Act of 1937 effectively destroyed the hemp industry in the United States, it was not until the Drug Abuse Prevention and Control Act of 1970 was passed that industrial hemp was totally outlawed. It took nearly 50 years to bring it back. Finally, the Farm Act of 2018 once again made it legal to grow industrial hemp in all 50 states. This has led to an explosion of research and innovation with this amazing crop.

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WHAT IS CBD

CBD is an abbreviation of cannabidiol. Cannabidiol is a phytocannabinoid discovered in 1940 by Roger Adams. It is one of 113 identified cannabinoids and can account for up to 40% of industrial hemp's extract, making it one of the most prolific cannabinoids in the plant.

CBD is a naturally occurring substance in cannabis plants that is extracted and used in products such as oils and tinctures to impart a feeling of relaxation and calm and to reduce the symptoms of certain conditions and ailments. Unlike delta-9-tetrahydrocannabinol (THC), which is the major active ingredient in marijuana, CBD does not make you "high." In general, marijuana has higher amounts of THC and lower amounts of CBD, while industrial hemp has more CBD and much less THC.

HOW DOES IT WORK?

Because cannabidiol affects the brain, it is psychoactive, but not in the same way that THC is psychoactive. CBD does not produce any of the intoxicating effects that THC can produce. Instead, it can provide the user with a relaxed and calm sensation.

The exact cause for these effects is not clear. However, cannabidiol seems to prevent the breakdown of a chemical in the brain that affects pain, mood and mental function. Preventing the breakdown of this chemical and increasing its levels in the blood seems to reduce psychotic symptoms associated with certain conditions. Cannabidiol also appears to reduce pain and anxiety.

WHAT ARE SOME OF THE POTENTIAL BENEFITS OF CBD?

As a natural endocannabinoid, CBD supports many of our organ and body systems. The human physiology can utilize plant-derived CBD compounds to enhance and improve the gastrointestinal, cardiovascular, nervous, structural and connective tissue, biome and hormone systems. By providing important precursor molecules and stimulating natural processes in the body, plant-derived CBD can support improved health and wellness. The support of these basic systems has the potential to result in improved mood, reduced anxiety, healthier digestion, encouragement of "good" gut bacteria and flora, less systemic inflammation, better autonomic nervous system function, stronger bone and joint structures, enhanced hormone function and other positive benefits. The plant hemp/CBD oils and products act indirectly to augment the body's own natural endocannabinoid compounds to bring the body into balance. This amazing oil product can help the body restore the balance that nature intended. Your body is only as strong or healthy as its least common nutrient or function. Supplementing with a premium hemp/CBD product can help restore its vigor, health and vitality.

While clinical research of many of the uses of CBD are still in their infancy, we are witnessing an explosion of research and clinical trials for various ailments. This new research is quickly legitimizing what many have long known: This is one of the most effective natural remedies known to man.

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FULL SPECTRUM VERSUS BROAD SPECTRUM CBD

The answer to this question depends on many factors, including the desired outcome, delivery method and other factors in a person's life.

CBD products made from isolate are 99.9% pure CBD isolate. These are typically high-dose products for those who are looking to add CBD to their regimen. These are often layered into other products that may have a broader spectrum of plant attributes.

Broad spectrum CBD products have many of the original terpenes and cannabinoids found in the cannabis plant, with the exception of THC. All THC is removed from broad spectrum products, which is required by some countries' laws and by some testing requirements.

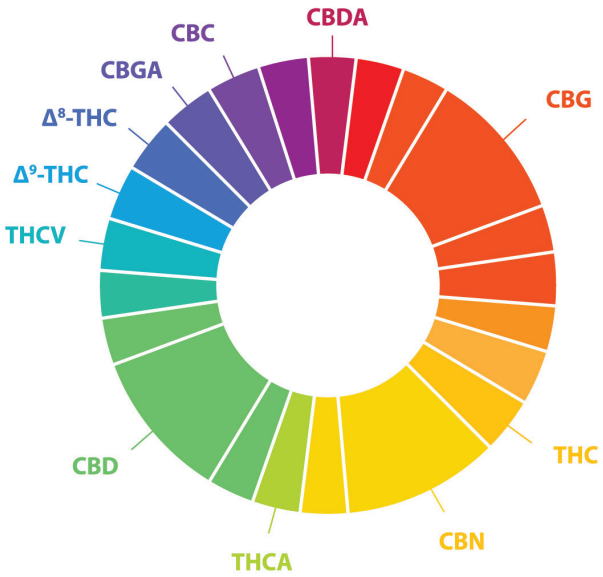
Full spectrum CBD products contain most of the original plant cannabinoids as Mother Nature intended. Trace amounts of THC included in full spectrum products are usually not enough to have an intoxicating effect.

WHAT IS THE ENTOURAGE EFFECT?

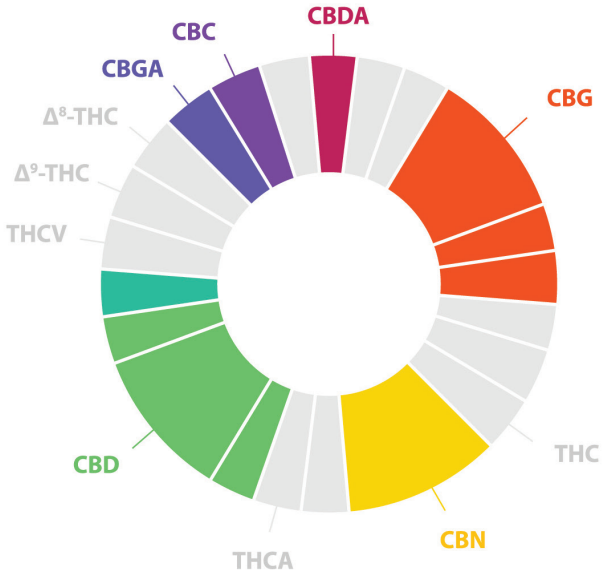
The entourage effect refers to the concept that all of the various terpenes and cannabinoids interact in ways that we do not totally understand to enhance each of the various properties. In other words, the healing potential is enhanced when more of the whole plant is used. Almost 80 years of prohibition have hampered research in this area, and we are just now beginning to understand how the various compounds in cannabis work together and how they may enhance one another.

In general, when it is allowed by law and a person's home and employment situation, it is generally believed that full spectrum is the most powerful combination of the cannabinoids available.

Full-Spectrum Cannabinoid Profile
(Everything from source plant)



Broad-Spectrum Cannabinoid Profile
(Everything except THC)



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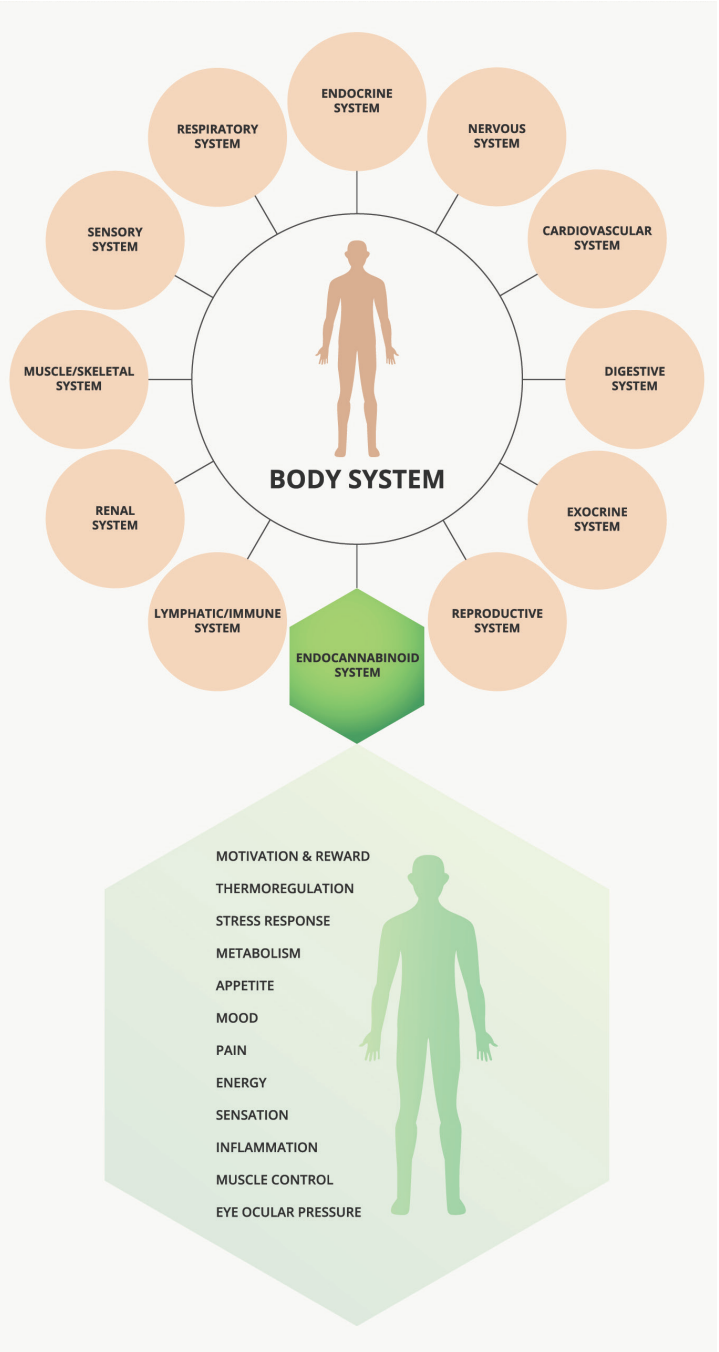
THE HUMAN BODY'S ENDOCANNABINOID RECEPTOR SYSTEM (ECS)

CBD & THC are the most well-known cannabinoids, there are many different types, and only recently have significant resources been poured into their study. Our brains and other cells have specific receptors designed to accept cannabinoids, known as CB1 and CB2 receptors. These receptors are responsible for the assimilation of cannabinoid molecules into your system, resulting in the psychoactive and immune responses correlated with cannabis consumption.

The endocannabinoid system is the largest self-regulating process in the human body. It has a receptor-based function that helps cells communicate among themselves and even cells in distant tissues of the body. This communication is vital. With various tissues having CB1 or CB2 receptors – or both – an "on-off" capability exists to enhance this cell-talk and the outcome of the cellular conversation. The gastrointestinal system might need to communicate with the brain; the peripheral nervous system may need to talk with the brain to reduce the intensity of pain signals; the immune complex might need to signal an exposure to a pathogen or invader that requires the activation of a proportional response; or your amygdala – the fear center of your brain – might be sending messages to other parts of the nervous system that it is getting overwhelmed. These are all issues addressed by the endocannabinoid system of receptors, hormones and compounds. Together, the ECS balances the chaos and noise, modulates or helps control the excesses or deficiencies in the body and levels or self-regulates unbalanced organs, tissues and cellular functions. The ECS is a beautiful but infinitely complex biological dance that is often punctuated by mis-timed choreography due to lifestyle, toxins, stresses and exposures. Supplementing with the right CBD product can be a wonderful health and wellness strategy by helping the body talk to itself and provide help where help is needed.



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WHAT IS IMPORTANT TO LOOK FOR WHEN PURCHASING CBD

1 The first thing to be aware of is the difference between hemp oil and CBD oil. Hemp oil is the natural oil pressed from the hemp seeds, much like sunflower seed oil. However, hemp seed oil does not contain CBD since there is no CBD or other cannabinoids in the seeds of the hemp plant. CBD oil is CBD extracted from the trichomes in the hemp flower and leaves, which is then added to a carrier oil. Unrefined coconut MCT – medium-chain triglycerides – oil is considered one of the best carrier oils. MCT oil absorbs better than most other oils, which provides greater CBD bioavailability.

2 The next thing to look for is the potency of the product. How much CBD is actually in the product and how much are you getting per serving? This varies wildly among different products on the market. The product's price is highly dependent on the amount of CBD and other cannabinoids it contains.

3 Another important factor is whether the Hemp was grown using organic farming methods. The hemp plant is a bio-accumulator and will pick up everything in its environment, which can include heavy metals, pesticides and other harmful byproducts that are in the soil and water.

4 The last but maybe most important thing to look at is the company's reputation. Specifically, is each and every batch of the products tested by an independent laboratory, and are those results available to the public? A certificate of analysis will show exactly which cannabinoids and how much of each is in the product.

8 CBD AND PETS

While dogs and cats have an endocannabinoid receptor system similar to the one found in the human body, research in this area is in its infancy. Preliminary evidence suggests that CBD may play a role in managing situational anxiety, chemotherapy management, joint pain and inflammation relief.

There are several products on the market formulated specifically for pets. The same criteria for choosing a good brand for your own use should apply for use with your pet. Make sure the CBD product is formulated for animals; some human CBD products have ingredients that are unhealthy for your pets.

Recommendations vary but serving size really is dependent on an animal's age and weight. It is always best to start low and slow and see how your pet reacts.

Since CBD is not approved by the Food and Drug Administration for use with pets, most veterinarians are not allowed to prescribe it yet.

- MAY REDUCE DISCOMFORT
- HELPS TO INCREASE MOBILITY
- ASSISTS WITH DIGESTION
- PROMOTES AGING WELLNESS

FREQUENTLY ASKED QUESTIONS

CAN I GET HIGH FROM HEMP CBD?

The answer is no. CBD does not have the intoxicating effects of THC. The trace amounts of THC in some CBD products are nowhere near the threshold of enough THC to have any intoxicating effect.

HOW MUCH DO I NEED?

There are no set serving guidelines for CBD. It is highly dependent on height, weight, age and the condition you are supporting. The best advice is to start low and increase the serving until the desired results are achieved.

WHAT IS THE BEST FORM OF CBD TO TAKE?

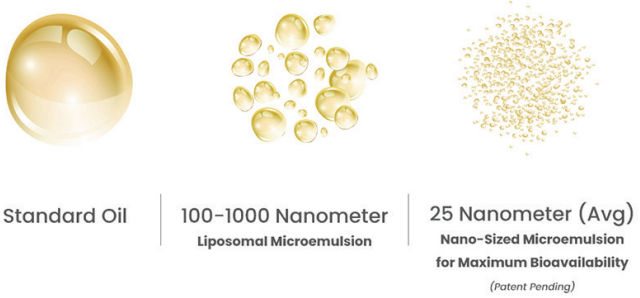
CBD can be administered in gel caps, tinctures, gels and almost any other delivery method. Some are more bio-available to your body than others. Generally, the most common delivery method is a tincture made with MCT oil.

WHAT IS NANO EMULSION TECHNOLOGY?

Nano emulsion technology is used by Liv Labs to deliver incredibly small CBD oil droplets into the blood and lymphatic circulations. Proprietary and highly complex production processes are used to mechanically shrink oil drops from 1,500 nanometers to 20 to 25 nanometers, or roughly 1% of their original size. This allows the hemp/CBD oil to pass easily between the cells in the body, specifically in the mouth or under the tongue, and go directly into the blood and lymphatic systems. By bypassing normal absorption of traditionally sized oils, the CBD can pass unimpeded into the circulation and be distributed to the brain, heart, digestive tissues, connective tissues, bones and joints to work in support of the needs of the body.

Absorption by the nano-modified oil is five to 8 times greater than with the 1,500-to-5,000-nanometer oils. Unlike the nano particles, these larger droplets need to be attached to special carrier molecules, like bile salts, chylomicrons or liposomes, to cross into the blood, lymphatic or cellular tissues. Further, these oils are often partially metabolized by the liver and rendered less effective. Manufactures of the traditional oils need to increase the concentration of the oil in order to compensate for the much lower rate of absorption – usually 5% to 15% of the original CBD is therefore "bioavailable."

Interestingly, not all nano products work the same. Many so called "premium nano" processed oils are still four to five times as large as Liv Labs Hydro Pro CBD/hemp oil. Although they are technically considered a nano-enhanced formulation, these larger nano oils are still too large to pass between the cells into the blood and lymphatic circulation. Twenty to 25 nanometers seems to be the sweet spot for effective absorption.



PROPRIETARY PROCESSES

CERTIFIED FREE OF THC*

*2500mg Full Spectrum Drops & Liv4Pets have less than 0.3% THC

Certified Free THC means select Liv Labs products produce absolutely no psychoactive effects or any of the side effects associated with THC.

EXTRACTION

Our proprietary hemp extraction process ensures the preservation of nearly all beneficial hemp. This process ensures that our products contain the synergistic compounds necessary to ensure the efficacy of our products.

NANO EMULSION ADVANCED TECHNOLOGY

Our patent-pending water-compatible hemp oil formulations are developed through our nano emulsion advanced technology (NEAT) platform. Our water-compatible technology transforms active compounds into Nano-sized emulsions making them highly bioavailable within your body and more permeable when applied to the skin.

MCT AS AN EFFECTIVE CARRIER OIL

MCT oil is best used with CBD and hemp products because MCT has a relatively small molecular structure. As a result, MCTs are absorbed more easily by the human body. For these reasons, MCT oil works very well as a carrier for CBD and other cannabinoids.

Hemp extract and MCT oil make a particularly strong combination due to the fact that MCT acts to increase the bioavailability of CBD within the oil. Therefore, when cannabinoids like CBD, CBG, CBN, etc. are broken down, they are stored in fat. Therefor, they tend to work the best when they are administered with fat, such as MCT oil

liv. LABS

BE MORE. DO MORE. LIV MORE.

Liv Labs offers premium, powerful, and proven hemp products designed to restore balance and wellness. Launched in 2018 by lifelong health & wellness entrepreneurs David and Debbie Reeder, Liv Labs is focused on creating more than just high-quality products. We also offer a lucrative opportunity for motivated and passionate people with an entrepreneurial spirit.

The company is founded on the idea that having products you believe in backed by a team that inspires you enables each of us to live our best lives.

The products are derived from 100% organically grown U.S. hemp. By employing a proprietary engineering process, we preserve nearly all beneficial hemp-derived cannabinoids and terpenes while simultaneously eliminating unwanted compounds.

The commitment to excellence begins with organically grown hemp extract formulated and packaged in our own state of the art laboratories and manufacturing! Each batch is triple tested for purity and potency backed by third party COA's.

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LIV.PLANET HEMP

EXPERIENCE THE POWER OF HEMP

Formulated for Your Lifestyle

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livlabsnow.com | contact the person who referred you