



INDIE HEMP CO

CBD 101: A Guide to CBD

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HEMP

CBD ██████████
THC █



MARIJUANA

CBD █
THC ██████████

What is CBD?

Marijuana vs. Hemp; What's the difference?

"Hemp" is a term used to classify varieties of Cannabis that contain 0.3% or less THC content (by dry weight).

"Marijuana" is a term used to classify varieties of Cannabis that contain more than 0.3% THC (by dry weight) and can induce psychotropic or euphoric effects on the user.

*The defining characteristic between hemp and marijuana is the chemical composition contained within each plant.

Both hemp and marijuana can produce high amounts of CBD, the non-intoxicating cannabis compound; however, THC is produced at very different levels.

While hemp can contain no more than 0.3% THC by dry weight, marijuana can contain up to 30% THC content.

A common misconception about the 2018 Farm Bill is that it legalized CBD regardless of if it was derived from hemp or marijuana. This is not true. Based on the guidance of the DEA, CBD is still considered a Schedule I controlled substance.

If, however, the CBD is derived from hemp which contains no more than 0.3% THC, it would not be regulated as a controlled substance and is federally legal.

This part is very important; "derived from hemp."

The 2018 Farm Bill explicitly applies to "hemp and hemp-derived products."

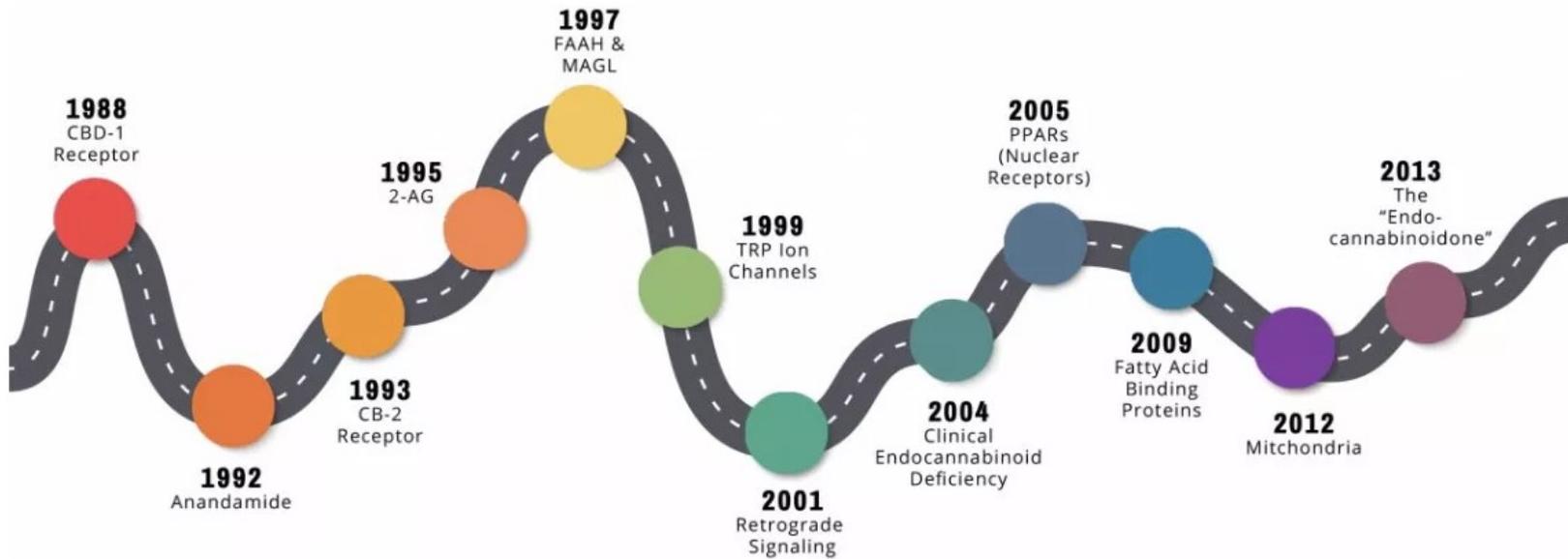
It does not include marijuana-derived CBD, which remains under the regulation of the Food and Drug Administration (FDA) as a controlled substance.

Even if the CBD contains 0.0% THC, if it is derived from marijuana, it is not legalized under the 2018 Farm Bill.



SO HOW DOES IT WORK?

ENDOCANNABINOID DISCOVERY TIMELINE



What is the Endocannabinoid System (ECS)?

Probably one of the most important discoveries of our time was the (ECS) Endocannabinoid system. This system resides within all animals that have a spine. It's a six hundred million year old messenger and receptor system integral to *homeostasis* (the management of balance within your BODY). There is not a single function in our bodies that is not somehow influenced or modulated by the ECS. You can think of it as a switchboard functioning in and across all physiologic processes and organs, acting and reacting to internal and external stimuli to direct correct and overall manage your health.

DISCOVERY OF THE ENDOCANNABINOID SYSTEM

- THC was isolated in 1964, but the discovery of the endocannabinoid system began in 1988 when researchers first discovered the CB1 receptors, followed by anandamide in 1992, then the CB2 receptor and 2-AG.

The endocannabinoid system (ECS) regulates everything from relaxation to eating, sleeping, inflammation and even cognitive function. In a nutshell, the ECS is responsible for making sure the entire body is working optimally. CBD has been shown to positively regulate your ECS and our bodies' response and management of anxiety, insomnia, chronic pain, and inflammation. What is most important? Its natural, causes no adverse side effects and is generally safe with most medications. All it takes is saying, Why NOT





MICRO DOSING CBD FOR MAXIMUM BENEFITS.

What is a “Sweet Spot” Dosage?

Your “sweet spot” dose is the amount of CBD that gives you the desired results that you are looking for. And it’s important to understand that this “sweet spot” is different for each person. Think of it this way...people can take 2 aspirin and it will generally be effective for them. But since everyone’s endocannabinoid system is very different, CBD oil users need to expect to do their own experimentation to find the CBD dose that is optimal for them.

This is due to several factors that combine together. There is no "one dose fits all" for any specific disease or disorder. We look at the body as a whole and consider the cellular conditions too. Genetics, metabolism, toxin levels, age, degradation of the systems can all be factors. Not just weight at height. Take the time to learn how your body responds. This is what gives the best results long term, and the most success with consumers of CBD products.

For many, less is more. We regularly hear from CBD oil users who experience headaches, nausea or other ill effects when taking CBD. Unfavorable results such as these can often be the result of too high of a dose and the user may benefit from lowering it. Plus smaller doses can save you money and also be more effective than larger ones. They allow you to maintain proper balance so that you are at less risk of over stimulating your cannabinoid receptors.



One of the most common methods for finding your “sweet spot” dose is called micro dosing. CBD micro dosing is a technique that involves taking very small amounts of CBD on a regular schedule.

Some important notes before we get into how to micro dose:

The micro dosing technique is not a way to take CBD every day. It is an approach to take for over time to figure out your optimal dosage level.

Once you find your optimal dosage level using micro dosing, most users switch to taking their optimal dose two or three times per day based on what works best for them.

How To Microdose With CBD Oil

Here are some specific instructions for how to micro dose with CBD to find your “sweet spot” dose. These instructions are based on a system described by **Dr. Dustin Sulak**, a medical cannabis expert and leading facilitator in the world.

Consume 1 drop of CBD oil placed under your tongue. Before consuming, ask yourself 3 questions and answer on a scale of 1 to 10: How easy is it to breathe, how comfortable and calm does your body feel and how easy is it for you to smile authentically, to feel content and grateful. After [writing down your scores](#), take the CBD oil, wait 45 minutes and ask yourself the questions again. If there’s been no change in your scores and you’ve felt no effect, increase the dose by one drop in your next dose.

Repeat the process over the next few days, increasing the dose by small increments. (Best to increase every three days to give your body time to acclimate) When you reach a point where you feel any difference after consuming, you’ve found your minimal effective serving size.

To find your max, continue raising the dose by tiny amounts. At some point, there will be no further benefit from a higher dose. You’ve established your therapeutic range, and can take the minimum dose. Continue to experiment with the **timing** of consumption as well, to find what works best for you. Some people report that CBD gives them stimulating effects and choose not to dose at night. Others the opposite. Everyone is different and beautifully made, so listen to what your body is telling you. And be grateful for this healing plant.



COA'S 101. EVERYTHING YOU NEED TO KNOW.



What is a Certificate of Analysis?

A Certificate Of Analysis, also known as a third-party or independent lab report, is a document that details the breakdown, composition, and compounds found in CBD product samples sent for analysis to an independent and certified cannabis testing laboratory. It can be as simple as just containing a potency profile or go as deep as showing ppb (parts per billion) values of pesticides, solvents, and other contaminants.

What types of tests are included in a COA?

The types of tests you should look for are:

Cannabinoid content and potency

This report will show how much CBD and other cannabinoids are present per milliliter (ml) of product. CBD content should match the advertised ml/dose or full-bottle value, which can have a 10% variance, which is deemed acceptable by most. For example, a 1000mg CBD product should contain 1000mg of CBD. If [full-spectrum](#), it should contain 1000mg of CBD *plus* the other cannabinoids—800mg of CBD and 200mg of other cannabinoids would not be acceptable. The same is true for broad-spectrum, where THC content should always 0.3% or less as [defined by federal law](#).



Terpene profile

If a company advertises specific [terpenes](#) in their products, they should be tested for and validated.

Pesticide testing

This should be a comprehensive list of pesticides and ideally, they should all be reported as PASS, 0, ND, or 10x lower than the upper limit allowed.

Solvent testing

This should be a comprehensive list of solvents and should ideally be reported as PASS, 0, ND or 10x lower than the upper limit allowed.

Heavy metals

The most common metals tested for are lead, mercury, arsenic, and cadmium. You don't want any heavy metals in your CBD products.

Microbiological

Aerobic Bacteria, Coliform Bacteria, Bile-tolerant gram-negative bacteria, yeast, and molds are most commonly tested. Like heavy metals, you do not want any of these in your CBD.

In some cases, you may see very trace amounts of one pesticide or solvent, as long as that doesn't get anywhere near the upper limit, it's good. However, if you get a small result in every tested compound in each section, something is clearly not right. For example: If a product shows a small result for 20 solvents, you have to ask, how did all those trace contaminants get there and what else is present that isn't tested for?

Do all CBD companies perform all these tests?

Testing for potency is an obvious one, but a lot of companies are not even doing this. Which is not only outrageous, but also incompetent or purposely avoided due to the product being fake or containing little to no cannabinoids whatsoever.

Absolute Nature doesn't take this responsibility lightly and takes this a step further, testing for not only potency and cannabinoid profile, but heavy metals, pesticides, microbiological contaminants, and volatile solvents. We absolutely don't cut corners or take risks when it comes to our product quality, consistency, and customers' health.



If your customer is putting your product into their body, you better know exactly what is in it and they must too. Relying on trust and promises is not adequate, especially in this industry right now.

Is this absolutely necessary? We think so and we think it should be mandatory too! If your customer is putting your product into their body, you better know exactly what is in it and they must too. Relying on trust and promises is not adequate, especially in this industry right now.

However, we don't publicly declare terpenes, as we make no promises to our terpene levels and don't advertise any specific terpenes. Why not? Doing so would require us to start adding in terpenes to guarantee a certain profile. We do not remove or add any compounds, and terpenes vary with every plant, even under strict growing conditions. We don't see any benefit adding in isolated vegetable terpenes just for the sake of marketing.

COAs can be a little technical. How can a first-time buyer of CBD read a COA?

We attached an image showing at a quick glance what to look for. The image below shows the main areas to validate the products cannabinoid profile and content.

The cannabinoid profile on a Certificate of Analysis for one of Absolute Nature CBD's oils.

Certificate ID # – This is the lab's ID number for the records of that report. This is used to verify with the lab that the report is real and untampered with.

End Product Name – This should match the product you're planning to purchase. It should not be a base oil, crude, or distillate sample. It must pertain to the actual end product.

Lot/Batch Number – This will be the end product's batch number. It's used to verify the batch you have matches the advertised claims and contents.

Vendor Details – This should be the name of the company that produces or sells the branded product. If the vendor details do not match the brand on the CBD product, it's likely invalid.

Product/ Sample Photo – This one isn't essential, but really great to have. It shows the actual product the lab tested and a sample taken from said product.

Weight % – Shows the weight of each compound tested by % of total volume, which is most important when looking at the THC value—ensure it's 0.3% or less.

Conc – Concentration in milligrams (mg) per ml. Used to verify the advertised CBD content is correct. Content of CBD per ML – Take that number and multiply it by the volume of the bottle, in this case, 30 ml. With this, you will get a CBD content of 1,002 mg. Make sure it's CBD total, and not total cannabinoids.



Understanding the above basics will, in most cases stop you from falling prey to fakes, low-quality, mislabeled garbage. If you can't validate the above as a minimum for the product you wish to purchase, walk away.

What do all the acronyms like ND and LOQ, mean?

- **NT (Not Tested)** – Meaning the compound is listed by the lab as testable, but the CBD producer hasn't requested testing.
- **ND (Not Detected)** – This means the compound tested did not trigger a positive result. However, a positive result requires the compound to be detected above the set LOQ/LOD.
- **LOQ (Limit of Quantitation)** – LOQ is the lowest concentration at which the analyte cannot only be reliably detected, but at which some predefined goals for bias and imprecision are met.
- **LOD (Limit of Detection)** – The smallest concentration of a measurand that can be reliably measured by an analytical procedure. The lab according to their state regulations for said compound can set predefined limits.
- **LLD (Lower Limit of Detection)** – Predefined limits can be set by the lab according to their state regulations for said compound.
- **PPB (Parts Per Billion)** – How many parts per billion have been detected.
- **PPM (Parts Per Million)** – How many parts per million have been detected.
- **UG/KG** – Concentrations of compounds or chemicals measured in units of the mass of chemical (*milligrams, mg or micrograms, ug*) per mass (*kilogram, kg*). This is written as mg/kg or ug/kg.
- **CFU/g (Colony-Forming Units per gram)** – Used to measure the amount of live bacteria, microbes, or fungal cells present in the sample.

The LOQ/LOD/LLD should be declared next to each compound test result, or above or below the corresponding contaminant section.

The lab testing CBD samples should always disclose lower limit of detection (LOD), or the LOQ or LLD, when reporting on contaminants so the buyers know the maximum amount of the compound that could be present and still reported as "ND"

This becomes particularly important for people looking for THC-"Free" CBD products. It's currently legal to label "THC-free" if the product contains the legal limit of 0.3% or less THC. You bet your bottom dollar this happens a lot!

More so, you'll hear people saying "isolate is THC-free, just buy that, you'll be good." Now, in a regulated and perfect world, that may be true, however, right now, that's not true at all. This is where understanding what ND means on the product you're planning to buy is important.

An isolate may show “ND” as a result for THC, however, the LOQ/LOD/LLD could be set as high as 0.099%. This would mean you cannot guarantee it is in fact THC free; if there's 0.098% THC, the report would still read “ND” because of the set LOQ/LOD/LLD. To verify a product is in fact THC-free, you want the report to show the result in percentage form to a value of at least two digits from the decimal point, of 0.00% THC.

What should the minimum testing be for different types of CBD products?

The minimum testing for:

- Ingestible products ([edibles](#), [CBD oil drops](#), [CBD tinctures](#)) should be full, batch-specific lab reports detailing potency for all expected or advertised cannabinoids, heavy metals, solvents, pesticides, molds, yeast, and bacteria.
- Topicals should be potency and other claimed compounds. As long as companies have pre-process reporting, which fully tests their raw material or distillate for contaminants.
- Inhalants (e.g. [CBD vapes](#), [flower](#)) should be tested for potency, pesticides, molds, microbes, bacteria, heavy metals, and solvents (solvents can be omitted for flower). These should always be end-product and batch-specific, as this will pick up if contaminants are present in any added ingredients like propylene glycol (PG) or vegetable glycerin (VG).

Publishing the raw, base oil, or distillate tests and not carrying out batch-specific end product testing on products that are inhaled or ingested is a common deception, and cost saving exercise used by many companies. This practice is simply margin saving and isn't sufficient to prove the end product is sound. How do they know the carrier oil they purchased isn't tainted and heavily contaminated? Truth is, they don't and worst of all, they don't care enough to check and prove it to their customers.

Why should consumers use CBD products that are tested?

Within this market, it is no surprise that some CBD products not only contain less CBD than advertised but also have failed important safety concerns such as high amounts of heavy metals, solvents, pesticides, or extremely dangerous synthetics. COAs ensure the consumer they are buying correctly labeled and safe product.

Why are there so many potential contaminants in CBD/cannabis/hemp products you ask? Let's start with the Cannabis plant itself.



Cannabis is known as a phytoremediator, also known as a “super plant” or hyper-accumulator, that performs a process called [bioremediation](#). In short, cannabis will suck everything from the soil, air, and rain with an almost unique efficiency. So efficient in fact, hemp is used to reduce, degrade, or remove toxic residue from the soil in heavily polluted areas of the world.

A diagram of a phytoremediator, like hemp, in action. *Image courtesy of Rhizospheric Plant-Microbe Interactions: Key Factors to Soil Fertility and Plant Nutrition on [ResearchGate](#).* Add in human error, unclean facilities, improper cleaning of machinery, and purposeful inclusion of substances contaminating the product during processing, and you can see why testing is so important.

Certificates of Analysis are the only line of defense to ascertain whether the product is what it's advertised to be. Is it full-spectrum, broad-spectrum, or isolate? Mislabelling as a means to sell products at higher margins happens more often than not, currently. Isolate is often labeled and sold as full- or broad- spectrum, sometimes with legitimate lab reports showing it to be isolate. Some are not even trying to hide their deception at all. Some are relying on the lack of education or confusion around reading reports.

Can you break down full-spectrum, broad-spectrum, and isolate?

- Full-spectrum CBD products should contain multiple cannabinoids, including trace amounts of [THC](#) (0.3% or less).
- Broad-spectrum should be as above, but *without* THC.
- Isolate should be nothing more than CBD.

How can buyers verify a trustworthy lab tested their products?

It is important to make sure the lab is reputable, accredited, and state-approved. State regulations and rules do differ slightly.

The most important accreditations to look for is [ISO/IEC 17025](#) - you can usually find this on the lab's website by searching for their accreditation info. This is an accreditation towards being technically proficient and able to produce precise and accurate test and calibration data. Look to see if the lab is able to test for cannabinoids, heavy metals, residual solvents, bacteria, and mold.

Avoid any company that tests their own product in house or republishes their own version of a report. There is no reason to take a valid independent report and repopulate the data on an in-house report for publishing, other than hiding something. In-house reporting can be inherently inaccurate as there will be no regulation on the accuracy or calibration of testing processes used.

The reason you want a third-party report is so you can have an outside and unaffiliated source to verify the stated claims.

Avoid any company that tests their own product in house or republishes their own version of a report.

How can buyers tell if a COA is legit?

Having access to batch-specific end product reports from an accredited independent lab allows you to do one final check, which is calling the lab and submitting the batch and test number to verify it is a real and un-tampered report. Report tampering in any form is deemed as fraud and in many states can land you legal trouble.

Report tampering can be anything from replacing a brand name or logo for your own, editing the results in any way (e.g. cropping sections out, changing values, batch numbers, product name, etc), or claiming other brands' lab reports as your own.

This is more common than you would care to imagine. This is why validating reports is crucial. If in doubt, contact the lab directly to verify the report is correct.

What is the current state of regulations around CBD?

Unfortunately, where product is concerned, there are no regulations. Companies can and some do, take [hemp seed oil](#), rebadge it, mark it up 500% and off they go! Therefore, never buy from a company who does not publish correct reports.

However, there are some [regulations pertaining to labelling](#) that can lead to companies being sued for labeling fraud if a state wants to pursue them.

It is up to us and other leading companies to lead by example and show legislators the steps needed to ensure a safe product. Absolute Nature is under no legal obligation to show potency or contaminant tests. We do it to set a standard within the industry and ensure what we sell is clean, safe, and correctly labeled.



How does someone choose a quality CBD brand?

The brand's willingness to educate and be as transparent as possible. Lab reports produced by a third party are really the only weapon the consumer can use to separate truth from marketing. Look at the brand's willingness to publicly post COAs instead of asking for the consumer to request.



Where can a buyer find a company's COAs?

Certificates of Analysis should always be uploaded on the website and made available to the public on the product page, or in a repository that's linked to from the product page.

Lab reports produced by a third party are really the only weapon the consumer can use to separate truth from marketing.

If the product has QR codes, scan it and it should take you to the report or to a location of the report. If you are at a retail CBD store, ask for lab results if a QR code is not printed on the packaging. If there's no lab report, we highly recommend you pass on that brand until you can verify its contents.

We publish [our latest batch reports](#) on each product page and have a website section just for reports. We also have QR codes on all the products and if you don't see them, just ask!

What is the one thing you wish readers take away from our chat about COAs?

That we have helped to teach readers how to understand the basics of report reading. That they are now better armed to tackle the minefield that is CBD and know what they're buying and putting in their bodies.

To use COAs is not a luxury; it's an absolute must. They should be standard across the board and publicly available for everyone. Third-party Certificates of Analysis are the last line of defense on the consumer end to hold the supplier accountable for the advertised product. COAs are the consumers' best friend! We hope that through this short education piece we have equipped not only the new supporters of CBD, but also taught someone who has been in the CBD market for a long time.



CBD AND ARTHRITIS

Arthritis affects about 350 million people across the globe. Although about 50 percent of arthritis sufferers are age 65 or older, children can also suffer from the condition. Because arthritis causes stiff, painful joints, it can be debilitating. It can limit range of motion and cause whole-body fatigue.

The disease has no cure, but scientists continue to learn more about arthritis medications that can relieve symptoms. Some arthritis treatments can slow the progression of the inflammatory process. Others simply mask your body's pain response.

All drugs are associated with side effects, some of which can be severe. CBD oil is a promising alternative to conventional arthritis medications. It works on many levels to reduce the symptoms and progression of arthritis.

Arthritis: An Overview

Arthritis is not a single disease. It is an umbrella term that describes more than 100 conditions that can bring about joint pain, swelling and stiffness. Some types of arthritis affect the organs as well as the joints.

Osteoarthritis is the most common form of the disease. This is the type of arthritis with which most people are familiar. It is marked by a deterioration of the cartilage that protects the ends of the bones from friction, and it tends to affect elderly people more than young ones.

Overuse or misaligned joints often cause osteoarthritis. The wear and tear that occurs over a period of someone's life can lead to deterioration of the cartilage, which damages the joints. Inflammation is a result of this type of arthritis and can lead to further degeneration.

In some cases, chronic inflammation causes the joint impairment to begin with. Inflammatory arthritis is normally associated with autoimmune conditions. Rheumatoid and psoriatic arthritis are two forms of this disease. The body's immune system usually protects the body from invaders. In people with inflammatory arthritis, the body mistakenly judges the bones and organs as dangerous and attacks them, causing uncontrolled inflammation and pain.

Infectious arthritis occurs when a virus or bacterium invades the joints. Antibiotic treatment can clear the infection if it's administered early. Some people with this condition experience chronic effects. Metabolic arthritis is caused by a buildup of uric acid. Also known as gout, this condition can happen concurrently with other types of arthritis.

Once joint deterioration occurs in patients with arthritis, the area tends to continue to worsen. Nerve pain can occur as the disease progresses. Treatments for arthritis should target the inflammation as well as the various types of pain that restrict mobility.

How Can CBD Help With Arthritis?

The Arthritis Foundation lists CBD as a natural treatment in the "supplements and herbs" category.

To understand how CBD may work to improve symptoms of arthritis, it's important to familiarize yourself with the endocannabinoid system.



The Endocannabinoid System

The endocannabinoid system is a relatively new discovery. It is named after the cannabis plant because it was discovered while researchers were looking into the effects of cannabis on the body.

Although cannabis has been used therapeutically for centuries, no one really knew the mechanisms through which it exerted its effects until 1964. At that time, researchers isolated tetrahydrocannabinol, or THC.

THC is the most abundant active ingredient in cannabis. It's the one that's responsible for delivering a mind-altering high.

Scientists realized that THC influenced the neuronal signaling system in the body, and they continued to research this target. Of particular interest to researchers was the fact that THC is a lipid. In 1964, experts believed that the only neuroactive compounds that could interact with cells were water-soluble molecules. As they continued to learn about THC, they realized that this cannabinoid could influence cells in novel ways.

Cannabinoid Receptors

By the early 1990s, specific cannabinoid receptors were identified within the human body. Lab tests demonstrated that THC works by binding to CB1 receptors, which are the most plentiful in the central nervous system.

The CB2 receptor is more abundant outside of the central nervous system and primarily modulates immunity. Cannabidiol, or CBD, is another substance in cannabis that may work more closely with the CB2 receptor.

After these receptors were discovered, researchers went on to investigate the natural chemicals that the body produces to activate CB1 and CB2. They hypothesized that our bodies wouldn't have evolved to develop these receptors if an external chemical, such as cannabis, only activated them. They learned that we have natural cannabinoids, which influence the endocannabinoid receptors.

There are more than two types of endocannabinoid receptors in the body. Scientists are still learning about this system. What they do know is that the endocannabinoid system serves as a feedback loop for the body. Neurotransmitter signaling involving cannabinoids flows in multiple directions, giving the body a mechanism for communicating with itself and maintaining balance.



The Endocannabinoid System, Pain Signaling and Inflammation

The endocannabinoid system is involved in the following processes:

- High-order behavioral functions
- Executive function
- Learning
- Memory
- Decision-making
- Sensory reception and responsiveness
- Motor function
- Emotions

Cannabinoid receptors are highly concentrated in regions that communicate pain signals within the central nervous system. They're also located on peripheral nerves that transmit pain responses.

Altering the endocannabinoid system by introducing external chemicals that interact with it may help manage symptoms involved with the any of the aforementioned processes.

CBD is an exogenous cannabinoid that influences this system. CBD can alter the perception of pain and emotions that are involved with physical distress. It also has anti-inflammatory and anti-oxidant properties, which may be responsible for its ability to help people manage their arthritis symptoms.

CBD doesn't attach directly to receptors. However, it does influence the activity of other neurotransmitters that bind to endocannabinoid receptors. It exerts its effects by activating or inhibiting certain functions within the endocannabinoid system.

What Do Studies on CBD and Arthritis Show?

CBD has been shown to improve arthritis symptoms in a variety of ways. It suppresses immunity, which can be helpful for people with rheumatoid arthritis. It reduces inflammation, which can aid in controlling all types of arthritis. It has a few indirect benefits for arthritis patients too.

However, many of the studies haven't explored CBD directly. Instead, they've looked at the endocannabinoid system as a mechanism for sending pain signals to the brain in people with arthritis. Instead of using CBD in their research, some experts use other chemicals that activate or suppress endocannabinoid receptors. From their data, it can be assumed that CBD may have the same effects because it influences the same receptors.



CBD, Rheumatoid Arthritis and Immunity

The first controlled trial using a cannabis-based medicine for rheumatoid arthritis was conducted in 2006. In this study, 58 participants with rheumatoid arthritis took Sativex or a placebo.

Sativex is a prescription mouth spray that contains CBD and THC and is approved for treating muscle spasms associated with multiple sclerosis. Each dose of Sativex that was used in the study contained 2.7 milligrams of THC and 2.5 milligrams of CBD. Volunteers used one spray within 30 minutes of going to bed. The administration frequency was gradually increased based on the response of each participant.

In the individuals who used Sativex, pain was substantially diminished whether subjects were moving or at rest. The reduction in disease activity was clinically significant. The researchers also measured inflammatory activity and found that it was reduced in participants who took Sativex.

These findings are consistent with a similar study that was conducted on mice. In that study, rodents were induced with arthritis, and CBD was administered after they began showing symptoms.

The results indicated that CBD, administered without THC this time, stopped the disease from progressing. The optimal dose of CBD was 5 milligrams per kilogram of body weight per day when injected and 25 milligrams per kilogram of body weight per day when taken orally.

A daily oral dosage of 50 milligrams per kilogram of body weight worked almost as well as the lower oral dosage. The increased oral dosage probably takes into account the limited bioavailability of CBD when it goes through the digestive system compared with the instant entry into the bloodstream via injection.

In this study, the anti-arthritic effects of CBD were attributed to its anti-inflammatory properties as well as its ability to suppress the immune system. Its immunosuppressive qualities are significant for treating rheumatoid arthritis because this condition causes a release of T-cells and cytokines.

CBD and Osteoarthritis

Osteoarthritis is not associated with the same immune system changes as rheumatoid arthritis. Therefore, you might wonder if people with osteoarthritis would benefit from taking CBD oil. Evidence demonstrates that they may experience pain reduction and reduced inflammation.

In a 2011 study, researchers looked at the effects of a synthetic CBD analog on pain signals in the central nervous system. They noticed that an atypical cannabinoid receptor exists in the body. The GPR55 receptor is found in large concentrations on sensory neurons in mice and plays a significant role in pain communication. Activating the GPR55 receptor with a man-made CBD analog changed the experience of physical distress in a model of acute inflammatory arthritis.



Although it's interesting that stimulating the GPR55 receptor activates the endocannabinoid system in a way that mediates pain, the researchers indicated that different cannabinoids have distinct effects. CBD may act differently than the synthetic abnormal Cannabidiol that was used in this study.

Other researchers have confirmed that CBD helps control inflammation and prevent nerve damage associated with arthritis. In a 2017 study, researchers investigated whether CBD influenced pain and neuropathy via its anti-inflammatory properties.

They found that using CBD in a localized area reduced inflammation and reduced the pain signals sent out from the joint. Administering CBD preventatively stopped joint pain from developing later. The compound was also found to protect the nerves.

An older study had demonstrated similar results. This one examined whether injecting rats with a chemical that stimulates the CB1 receptor could influence pain sensations in rats with arthritic knees. The compound that was used was more comparable to THC than to CBD, but it still showed that the endocannabinoid system plays a large role in regulating pain.

CBD May Help Pain Sufferers Sleep

In the study that examined the benefits of Sativex for rheumatoid arthritis sufferers, many participants slept better while using the medication. A 2008 review considered the way that cannabinoids affect people who deal with chronic pain. They found that many synthetic and natural cannabinoid products mediated physical discomfort and reduced inflammation. They also noted that study volunteers who used Sativex experienced better sleep.

But Sativex contains THC. What about using CBD alone to help you sleep when you're dealing with pain from arthritis?

Most of the studies that have examined the link between CBD and sleep have included THC. However, in a 1981 study, healthy volunteers as well as those with insomnia or epilepsy slept longer after taking up to 160 milligrams of CBD than the participants who took a placebo.

If sleep is the main concern, people who use CBD should be careful about the dosing. CBD may improve sleep when high doses are used. Low doses may keep you awake.

This can be helpful if you find yourself feeling fatigued from your arthritis during the day. Using CBD to remain energetic during daylight hours may help you doze off at night.



How to Use CBD for Arthritis

The Arthritis Foundation recommends using low doses of CBD. This is especially important for people who are just introducing the product to their systems.

A typical starting dose is between 5 and 10 milligrams. This dose can be taken twice a day.

If symptoms don't improve, people can gradually increase the dosage to up to 100 milligrams per day. If using CBD alone doesn't help arthritis symptoms, patients may want to try using a product with a low concentration of THC.

Some other recommendations for using CBD for arthritis include:

- Taking the product only at night to begin with.
- Trying vaping or using a topical product before edibles because the effects come on more quickly and don't last as long.
- Using caution with products that contain THC, especially if you're 25 or younger.
- Sampling different strains to achieve the best results.

One of the benefits of using CBD as an alternative to traditional arthritis medications is that it produces fewer side effects. The results may vary depending on the administration of the product.

Vaping CBD extract gets the product into your bloodstream fairly rapidly. You may feel some of the effects more quickly, which is important if you need acute pain relief. Also, vaping CBD bypasses the digestive system, allowing more of the product to be absorbed. However, the pain relief that's delivered through vaping doesn't last as long as the effects from methods of CBD administration.

If you take CBD orally, your body may not absorb it for about an hour. Once it is in your system, however, the effects last a long time. Dropping CBD under your tongue instead of eating an edible or swallowing a capsule delivers faster effects than consuming it.

Because the pain associated with arthritis is often localized, a topical CBD remedy could soothe it. Cannabinoid receptors have been found in the skin. Applying a lotion, salve or balm that contains CBD may produce analgesic effects rapidly.

Research shows that applying a CBD gel to the affected area reduces swelling, acute pain and inflammation markers. The results are dependent on the quality of the topical product as well as its concentration of CBD. In this study, the researchers found that higher doses didn't necessarily work better than moderate doses. Applying the product directly to the skin surrounding the arthritic joint is the best way to deliver the therapeutic effects while minimizing adverse systemic reactions.



Should You Combine CBD and THC?



Some people with arthritis want to avoid taking THC because they're worried about the psychotropic effects. In studies that have explored Sativex use, however, many participants reported that they didn't feel high after taking the medication. Low doses of THC may not produce the same euphoria as recreational marijuana.

THC has many therapeutic effects. Like CBD, it is a potent anti-inflammatory and can help control pain. Much of the research on cannabis and pain includes THC. Medical marijuana is prescribed to individuals with pain from a variety of conditions, including arthritis.

When CBD and THC are used together, they work synergistically. THC activates CB1 receptors, but CBD is a CB1 receptor antagonist. Therefore, CBD can reduce the paranoia that can occur from higher doses of THC. Moderating the intoxication from THC is important when considering it for therapeutic benefits.

There are several studies that show that CBD alone can reduce physical sensitivity. However, plenty of research indicates that THC is an effective analgesic too. If you decide to use CBD oil that contains THC, you may have to contend with legal issues. CBD that contains more than 0.3 percent THC is prohibited in states that haven't legalized marijuana.

If you have access to a medical marijuana dispensary, you might want to consult with the professionals there to determine the best version of CBD for your needs. You can also ask your doctor about using cannabis to treat your arthritis.

Many physicians are not experienced with CBD. However, as researchers continue to discover new breakthroughs, more medical professionals are becoming familiar with CBD as a promising therapy.

CBD AND PETS



You might use cannabidiol, or CBD, to manage pain, reduce anxiety, help you relax or improve your sleep quality. Did you know that you can administer CBD to your dog for many of the same purposes? CBD is a holistic remedy that has therapeutic benefits for many of your four-legged friends.

Can You Give Cannabis to Your Dog?

With the legalization of medical and recreational marijuana spreading across the U.S., you may read scary stories about marijuana intoxication in pets. Consuming marijuana is rarely fatal for dogs. However, it can produce adverse effects, such as poor balance, hyperactivity and strange vocalizations. Cannabis for dogs is a controversial topic. More than ever, THC is poisoning dogs. However, THC is only one of the cannabinoids found in marijuana. When most people refer to dosing their dogs with cannabis, they're referring to low-THC strains or CBD oil. The type of CBD oil that's legal across the nation is made from industrial hemp. It may contain trace amounts of THC, but many companies remove all of the THC from the products. CBD is prohibited for sale in many states if it contains more than 0.3 percent THC. This makes a difference because THC is the cannabinoid that intoxicates you. It produces the mind-altering effects that make you feel euphoric or high. CBD will not make you high. Although it is similar to THC, it works differently in the body. Therefore, it can positively impact your dog's health without making Fido feel funny. In other words, you don't have to worry about poisoning or negative consequences when you use CBD oil for your dog. It doesn't contain enough THC to produce adverse effects.

Why Your Vet Can't Prescribe CBD

Although you're probably tempted to check with your veterinarian before giving CBD to your dog, you might be met with a blank stare. Many veterinary professionals aren't familiar with CBD and don't understand how it's different from marijuana. Those that understand that CBD can be a beneficial treatment tend to use holistic and alternative approaches to pet care. This doesn't mean that you should avoid talking to your veterinarian about CBD oil. It's ideal if your veterinarian can help you explore the topic. Unfortunately, law from prescribing, administering, dispensing, recommending or approving cannabis prohibits veterinarians for their patients. This refers to medical marijuana that contains THC as well as its derivatives, which include CBD. As scientists discover more about the safety and efficacy of CBD, more veterinarians are on board with using it as a remedy for dogs. They just can't prescribe it. They can discuss treatment with you, though, and they can point you to helpful resources. If your dog takes other medications, it's worth it to ask your vet before giving it CBD.

Why You Might Want to Give Your Dog CBD

If your dog suffers from a chronic illness, your vet might have prescribed a medication. Most medications for anxiety, pain and digestive distress are associated with adverse side effects. CBD is not. A 2016 study collected responses from 632 pet owners who had given hemp products to their companion animals. More than 93 percent of the respondents claimed that the CBD products were at least as effective as other medications or remedies that they had tried. Over two-thirds of dog owners gave the CBD product for an ailment that was diagnosed by a veterinarian. The most common conditions for which respondents used CBD included:

- Seizures
- Cancer
- Anxiety
- Arthritis

When side effects were noted, they were typically limited to fatigue, increased thirst and appetite changes. You might want to give CBD to your dog because it may help relieve distressing symptoms without side effects. Some pet owners give the product to their canines regularly. Others use CBD for acute ailments, such as wound healing or anxiety attacks. In this article, we'll explain in detail how CBD can help your pet. We'll describe the conditions that CBD can help with and how to administer the product to your dog.



Do You Have An Anxious Dog?

Dogs can experience anxiety when they're separated from their owners, riding in a car or exposed to loud noises. Some animals have obvious symptoms when they're feeling nervous. Others respond to stress triggers more subtly. Certain breeds are more likely to develop anxiety than others. Some signs that your dog may have anxiety include:• Premature muzzle grayness• Reduced activity• Soiling inside the house• Hiding• Trembling• Destroying objects• Panting• Drooling• Pacing• Vocalizing Many of the studies on CBD and anxiety use animals as their subjects. A 2017 review looked at a wide range of human and animal studies that explore the effects of CBD on panic behaviors. The authors concluded that CBD has evident anti-anxiety properties.

What if Your Dog Is Depressed?

While many dog owners realize that their pets can develop anxiety, they may not realize that their pooch can also get the blues. Depression in dogs is similar to the mental health condition in humans. When something changes in a dog's life, such as the introduction or loss of another pet, a baby coming home, a move or a shift in the owner's availability, the animal can become listless. It might stop eating, refuse to go on walks or hide from you. These could be signs of a physical ailment, and it's always important to have your pet undergo a medical examination. If the problem is psychological, however, CBD could help. One study looked at the effects of CBD on a mouse model of depression. The researchers found that CBD works quickly and produces long-lasting anti-depressant effects. CBD may work in a similar manner as Clomicalm, a medication that is FDA-approved for relieving separation anxiety in dogs. Both may work on serotonin receptors to enhance the levels of the mood-boosting neurotransmitter in the nervous system. This medication should not be used in dogs with history of seizures, whereas CBD has been used to treat seizures. CBD may also produce fewer side effects than Clomicalm.

Can CBD Relieve Pain in Dogs?

Dogs can experience pain for a number of reasons. CBD can be administered acutely to manage pain associated with wounds and lesions. It can also be given regularly to reduce chronic pain.



CBD and Canine Wound Care

If your dog has gotten in a fight or scratched itself with something, it might have a laceration. Cuts can be painful and may lead to excessive licking. CBD can improve healing in surface wounds. Ancient societies used cannabis for wound healing. Modern researchers aren't sure how cannabinoids help, but they have found that cannabinoids contribute to wound closure in the intestines. This may be due to the fact that cannabinoid receptors exist in the colon. CBD may help with dermal wounds because it influences the [cannabinoid receptors in the skin](#). It helps the skin maintain homeostasis, which is important when dogs are affected by disease or injury. CBD may also regulate pain sensations, modulating pain and itch. It diminishes skin inflammation by working on cannabinoid receptors and immune cells. CBD also has antibacterial properties. Applying it directly to a wound may ward off infection.

CBD and Inflammatory Pain in Dogs

Arthritis is an inflammatory condition that is associated with joint pain and cartilage damage. Approximately 20 percent of dogs develop arthritis at some point in their lives. Osteoarthritis is the most common form of this disease. It usually affects more than one joint and may be induced by structural problems with the joint. The joints that are commonly affected by arthritis are the:

- Hips
- Elbows
- Lower back
- Knees
- Wrists Other inflammatory conditions can cause degeneration in the joints.

These include:

- Diabetes
- Fungal or bacterial infections
- Increased activity levels
- Obesity
- Cushing's disease Research has consistently demonstrated that CBD can relieve inflammation.

It may inhibit the activity of certain enzymes that are linked with inflammatory processes. Caprofen, an NSAID anti-inflammatory medication that's often used for canine arthritis, works by inhibiting the same enzymes. Therefore, treating an arthritic dog with CBD can improve the condition by protecting the joints. It may even prevent the arthritis from getting worse. CBD may be preferable to NSAIDs because it is associated with fewer adverse effects. While many dogs tolerate NSAIDs, some experience digestive, kidney and liver problems when they consume these drugs. Large doses of these medications can cause overdose. Natural CBD oil has not been associated with any overdoses.



Some synthetic CBD products have caused health problems. Stories about the adverse effects of synthetic CBD highlight the importance of buying high-quality CBD from reputable suppliers. In addition to NSAIDs, some dogs are regularly dosed with opioids to relieve pain. These don't have anti-inflammatory effects at all. Narcotics work by altering pain signals and working with the brain's reward and pleasure centers. They don't address inflammation and joint damage. CBD may be more effective and safer to use than other medications for long-term pain. It has been found to be more powerful than certain narcotics. CBD can also be used along with traditional drugs for pain. Although CBD has not been extensively studied for use in dogs, researchers are trying to learn more about it. A veterinary researcher at Colorado State University recently completed a trial that used CBD to treat dogs with arthritis symptoms. Researchers at Cornell University also studied hemp-based CBD supplements to get an idea of proper dosing requirements. They found that administering 2 milligrams per kilogram of body weight twice a day was effective for increasing mobility and enhancing comfort in dogs with osteoarthritis.

CBD May Relieve Cancer Pain

Dogs with cancer may experience pain from tumors, surgeries and other treatments. Cannabinoids interfere with tumor growth. CBD may also recruit the body's own "killer cells" to destroy malignancies and abnormalities. Therefore, they show promise for treating cancer. Reducing the size of tumors can make them stop pressing on nerves that send pain signals to the brain. This may also diminish the need for invasive surgery to remove tumors. Most of the studies of CBD for cancer pain use human participants and involve a combination of THC and CBD. More research needs to be conducted to learn about CBD for cancer in dogs. However, the current research indicates that CBD may be useful because it has anti-inflammatory effects.

CBD May Treat Inflammatory Central Nervous System Diseases

Researchers have found that dogs with inflammatory central nervous system diseases have more activity in their endocannabinoid system. They have higher numbers of CB2 receptors, which are affected by neurotransmitters that CBD oil modulates. Therefore, treatment methods for canine inflammation that work with the endocannabinoid system may be effective. Some inflammatory central nervous system conditions that affect canines include:

- Distemper
- Toxoplasmosis
- Rocky Mountain spotted fever
- Granulomatous meningoencephalomyelitis

These conditions often cause seizures and other neurological deficits. If CBD can reduce inflammation, it may be helpful for reducing the number of symptoms associated with these diseases. CBD can also reduce seizures. Most of the research into CBD and seizures involves human epileptic patients, but dog owners list seizures as the primary reason for giving CBD to their pets. Inflammation can contribute to autoimmune disease. There is evidence that CBD can inhibit certain processes that worsen autoimmune conditions.

Does Your Dog Have Hot Spots?

Cancer and arthritis may be more likely to affect older dogs than younger ones. Canines of any age can develop allergies and skin conditions, though. Sometimes, dogs lick their skin raw when it's itchy and uncomfortable. The hot spots that develop are notoriously hard to treat. CBD can help by killing bacteria at the site and possibly reducing pain signals that tell your dog to lick. It's also safe for your animal to consume, making it preferable to some other medicated ointments. When researchers have investigated the endocannabinoid system's role in allergic skin diseases in canines, they have found increased



endocannabinoid reactivity in animals with skin allergies. This indicates that using CBD to influence the endocannabinoid system may improve symptoms.

CBD Can Improve Digestive Health

Has your dog ever refused to eat or had an unexplained bout of nausea or diarrhea? A veterinarian should check out digestive issues in dogs if they persist, but sometimes they're hard to pinpoint. As long as your dog doesn't need urgent care for a digestive problem, CBD may help. CBD can reduce nausea and vomiting. It may also boost the appetite. CBD acts on the body by increasing anandamide, a neurotransmitter that helps improve mood and increase appetite. If your dog hasn't been eating well, you might want to try using CBD. Products that contain CBD may also help improve inflammatory digestive diseases, such as colitis. In one animal study, researchers found that CBD reduced inflammation that was already present. Giving the subjects CBD before introducing inflammatory agents prevented inflammation from occurring. Some dogs have recurring diarrhea from these types of medical conditions. In these cases, regular administration of CBD may improve their digestive distress. If your dog got into the garbage or ate something that it wasn't supposed to consume, it might have acute inflammation that makes it sick. Giving CBD immediately can soothe its stomach.

Can CBD Be Used for Preventive Treatment?

You might wonder if you should use CBD on a dog that doesn't have any observable health problems. If the breed is prone to developing certain cancers or inflammatory ailments, CBD may work as a preventive therapy for the reasons that we have already discussed. CBD is also a potent antioxidant. It can protect cells from oxidative stress, which can cause a wide variety of diseases. Oxidative stress damages the DNA. It has been linked to cancer, inflammation and age-related degeneration. It is also associated with the cognitive decline that affects many aging dogs. Some experts believe that dietary changes and supplements can help your dog stay sharp as it gets older. In humans, CBD has been studied for its ability to protect the brain from the neurodegeneration that occurs in patients with Alzheimer's and Parkinson's disease. If your dog is developing confusion or losing its mental agility as it gets older, CBD may help with these symptoms. Offering it as a daily supplement while your pet is young may prevent these signs of aging from occurring.

How Should You Dose Your Dog With CBD?

CBD is most commonly available in the form of an oil, tincture or extract. You can use a dropper to administer this to your dog if it's willing to open its mouth and swallow the liquid. Some pet owners may have better luck mixing CBD oil with food or treats. A dab of peanut butter mixed with CBD oil usually goes down quite smoothly. When you're giving CBD with food, it can take some time to exert its effects. The CBD has to make its way through the digestive system before it's absorbed. The fact that the dog has to metabolize the food can make this process take longer. Therefore, some dog owners find that giving CBD regularly works better than offering it for acute symptoms. This is especially true if you combine the CBD with food. Using CBD topically delivers rapid results if it's applied directly to a wound. You can use CBD oil directly on the skin as long as it is not a tincture that's produced with alcohol, which can sting. Start with a small amount to make sure that your dog tolerates the CBD with no adverse reactions. Most experts consider a low dosage of 0.1 milligrams per kilogram of body weight to be a good starting point. A medium dosage of 0.25 milligrams per kilogram of body weight can be used if the low dose doesn't produce results. A high dosage is considered to be 0.5 milligrams per kilogram of body weight.



CBD AND INFLAMMATION

Inflammation is a necessary immune response to anything that can cause injury in the body. However, too much inflammation can be harmful. Disease, medications and lifestyle choices can lead to chronic inflammation, which is thought to be the cause of many health problems.

Treating inflammation can diminish acute symptoms. It may also be a target for combating lifelong medical conditions. Taking too many anti-inflammatory drugs can bring about a variety of side effects. CBD is a plant-based option for tackling inflammation and healing your body.

What Is Inflammation?

Inflammation occurs when the body targets a general area of your body that is experiencing some kind of crisis.

If you twist your ankle, the damaged tissue sends out cytokines. These chemicals are signalers that call in the emergency responders. Blood vessels expand, sending more nutrient-rich blood to the necessary spot. White blood cells cluster in the damaged body part to encourage healing.

Prostaglandins trigger clots to slow bleeding. These hormone-like compounds can also start the fever process, which inhibits the growth of infectious organisms and contains infection. The fever further increases the body's inflammatory response, encouraging the production of disease-fighting antibodies.

This process is supposed to slow down as the body heals. Healthy tissue sends out less emergency signals, and the inflammation process grind to a halt as the body returns to equilibrium.

Inflammation can cause discomfort while it's occurring. A fever can make you achy or even lethargic. Swelling can make you stiff and sore.

That's why some people treat acute inflammation with medication. They're trying to stop the negative side effects of inflammation. However, anti-inflammatory medications can cause problems of their own. If you're suffering from pain caused by an immediate injury, CBD oil can minimize it as well as the associated swelling with few side effects. We'll discuss its mechanisms for managing physical discomfort and acute inflammation below.

Acute Inflammation

Acute inflammation isn't supposed to hang around as long as it does. It should go away when your body heals, leaving you feeling better. This doesn't always happen.

Sometimes, the immune system responds to threats to your health it shouldn't. Your body responds as it would if you had an injury or disease, setting off the inflammation process.

White blood cells, which are supposed to attack invaders, can't find their targets. Therefore, they begin to attack healthy cells.

Chronic inflammation can also be caused by pathogens that stay in your system. It comes on slowly and can stick around for years. Eventually, it damages healthy tissues, contributing to health problems. Many factors can lead to ongoing inflammation, including your diet, chemicals in your environment, stress, genes and health conditions.

Environmental factors can throw your body into an inflammatory state. One of the reasons that smoking causes cancer is that it triggers inflammation.

Experts don't always know why the inflammation begins. This is often the case with autoimmune disorders. One of the main symptoms of any autoimmune disease is inflammation.

The way that you handle the chaos of life can even influence your inflammation. Stress operates in a similar manner as your immune system. It's critical to survival. Stress amplifies signals that help you protect yourself in times of crisis. Those signals are supposed to balance out when the disaster is over. Our modern culture perpetuates stress, however. Many people have stress hormones coursing through their bodies all the time. This leads to disease. Researchers are starting to realize that chronic stress causes illness by way of inflammation.

Whether you're trying to manage an acute injury or optimize your general health, you have to address inflammation. Some scientists believe that chronic inflammation is linked to cancer, irreversible damage to the central nervous system, cardiovascular disease and asthma.



Keeping inflammation at bay could prevent you from developing life-threatening illness. A 2012 study found that people who took aspirin regularly had a lower risk of developing cancer.

How do you know if this is a problem for you? Some signs of chronic inflammation may include:

- Belly fat
- High blood sugar levels
- Digestive issues
- General fatigue or lack of energy
- Rashes, psoriasis or red skin
- Allergies
- Puffiness in the face
- Gum disease
- Mental illness or lack of clarity
- Erectile dysfunction in men

Why You Shouldn't Overdo Anti-Inflammatory Medication

Now that you realize how dangerous and uncomfortable chronic inflammation can be, you might wonder what you can do about it. Medications can keep your inflammation down.

Non-steroidal anti-inflammatory drugs, or NSAIDs, neutralize an enzyme that's associated with inflammation. They can reduce swelling as well as pain.

Even though NSAIDs are available over the counter, they can produce serious side effects if they're taken in large quantities or for a long period of time. Some of the dangers associated with NSAIDs include:

- Stomach ulcers
- Gastrointestinal bleeding
- Worsening of asthma symptoms
- Kidney damage
- Increased risk of heart attack or stroke

Acetaminophen, or Tylenol, can also relieve pain. This drug doesn't act on inflammation, however. Therefore, it may be an appropriate remedy for people who want to diminish discomfort while allowing the body's inflammatory processes to promote healing.

Corticosteroids are another type of anti-inflammatory medication. They also block certain mechanisms that are associated with inflammation and are often prescribed for people with arthritis, dermatitis, inflammatory bowel disease, asthma and allergic reactions.

Taking corticosteroids on a long-term basis can cause negative effects, such as:

- Weight gain
- Increased appetite
- Insomnia
- Irritability
- Fluid retention
- Diabetes
- Hypertension
- Osteoporosis
- Eye disorders

CBD as an Herbal Remedy for Inflammation

Because medications can cause detrimental effects, some people avoid them or seek out alternatives. Some herbal preparations can help with inflammation, including turmeric and ginger. Cannabidiol, or CBD, is another plant-based product that can be helpful in treating inflammation.

CBD is one of the primary compounds in the cannabis plant. Different strains of the plant contain distinct levels of CBD. Scientists have discovered how to isolate the chemical so that it can be used in a variety of products in an unadulterated form.

You can find CBD oils, topical products, edibles, tinctures and vape liquids. All of these may be beneficial for regulating inflammation. Some are more effective than others. We'll discuss the administration options for CBD later in this article.

A 2010 study referred to cannabinoids, the group of chemicals with therapeutic properties that are found in cannabis, as "anti-inflammatory drugs." However, the government is careful about what can be approved as a drug. The regulation of dietary supplements is also strict.

CBD falls into a gray area. It's not a drug or a supplement. However, as long as it contains less than 0.3 percent THC, the psychoactive compound in cannabis, it is legal throughout the U.S. It's a product that comes from a plant and provides many health benefits.



How Does CBD Reduce Inflammation?

In the past two decades, scientists have pinpointed the endocannabinoid system, a signaling network within the body, as one of the primary targets for homeostasis and maintaining good health. This system consists of receptors and chemicals that activate them.

One of those chemicals is anandamide. Anandamide is a neurotransmitter that has a variety of benefits. It relaxes the cardiovascular system, offers sedative effects, improves cognitive function and improves the way that your respiratory system works. Anandamide also diminishes pain sensations and influences the brain regions responsible for feeling pleasure and reward.

Moreover, anandamide boosts your mood. Some refer to it as “natural cannabis” because it produces such positive feelings.

Many researchers have found that anandamide also reduces inflammation. It does so via the cannabinoid receptors as well as other receptors in the body.

Researchers are still identifying the mechanisms through which CBD works to deliver health benefits. They have found that it exerts its effects in part by enhancing anandamide signaling. CBD inhibits the reuptake of anandamide.

Neurotransmitters are constantly being secreted and reabsorbed. They're usually released or synthesized as a result of a particular trigger. They work their magic while they're circulating through the central nervous system. Eventually, the chemicals degrade and are reabsorbed, minimizing their activity.

CBD does not always work directly on the cannabinoid receptors. It does influence other neurotransmitters that are associated with the endocannabinoid system, including anandamide. CBD delays the reabsorption of this chemical. In doing so, it increases levels of working anandamide, allowing it to exert its effects for a longer period of time.

Anandamide has produced anti-inflammatory effects in a number of models. In a 2012 study, researchers found that anandamide reduced inflammation associated with gum disease. The chemical was effective even when the subjects were exposed to stress, which normally exacerbates the inflammatory process.



CBD and Rheumatoid Arthritis

Rheumatoid arthritis is one of the most common autoimmune diseases. It's marked by inflammation in the joints, which ultimately damages the tissues. As the disease progresses, patients may experience increased pain and reduced mobility. Symptoms may come and go. The disease can go into remission, but it is not curable.

Because people with rheumatoid arthritis are often in so much pain, they may live a sedentary lifestyle. Lack of exercise can make joint stiffness worse. It also contributes to obesity, another medical condition that has been linked to inflammation.

In 2006, scientists conducted the first clinical trial to assess the effects of cannabinoid medication on arthritis. They gave Sativex, a medication that contains THC and CBD, to participants for five weeks. The mouth spray was administered every night, and the results were observed in the mornings. The volunteers that used Sativex had less pain when they were moving and at rest. They also slept better than the control group.

You don't have to use cannabis orally to benefit from its anti-inflammatory effects. A 2016 study found that topical CBD reduces pain and inflammation. Because it bypasses the digestive system, it enters the bloodstream consistently. Applying it directly to inflamed joints may be the best way to use topical CBD.

CBD and Irritable Bowel Disease

Irritable bowel disease, or IBD, is the second most common ongoing inflammatory medical condition. It affects more people every year. People in industrialized countries are more likely to suffer from IBD than those in non-industrialized areas. Some inflammatory diseases that involve the intestines are Crohn's disease, diverticulitis and celiac disease.

No treatment has been consistently effective in improving symptoms of IBD. However, CBD is just starting to gain traction as a remedy for this ailment. It may work in part because of its effects on anandamide.

Studies show that anandamide can reduce intestinal inflammation. Furthermore, patients with active IBD have been found to elevate anandamide levels.

People with IBD often self-medicate with cannabis. Experiments show that there is a scientific reason that they feel better when they use marijuana. Cannabinoids counteract inflammatory responses in the gut, reduce hyper motility and diminish sensitivity.

Abdominal pain is a significant symptom of IBD. People with the disease may avoid enjoyable activities or even daily obligations because they're in so much pain.

Cannabinoids have been associated with pain reduction. The reduced sensitivity to physical discomfort is especially notable in patients with gut inflammation.



CBD for Athletes

Although exercise is good for you, it is inflammatory. A moderate amount of movement can reduce inflammation. An intense workout can have the opposite effect, though.

Consistent, regular exercise is healthy over a long period of time, but acute exercise can produce immediate inflammation. This is especially true for athletes that train intensely.

Rigorous workouts damage muscle fibers. As your body repairs them, it also activates its immune response.

Athletes often integrate anti-inflammatory practices into their daily lives. They may use ice after a long run or take antioxidants. Many are on regular doses of NSAIDs.

CBD may aid in exercise recovery. Experts hypothesize that CBD's benefits for athletes come from its anti-inflammatory and antioxidant properties. Topical administration might be especially effective for soothing sore muscles.



CBD and Stress

Because stress and inflammation go hand in hand, combating one may diminish the other. Many studies have been conducted to evaluate the relationship between the endocannabinoid system and stress. The endocannabinoid system is supposed to help your body maintain balance after a period of stress.

Research shows that chronic stress may impair the signaling that occurs within the endocannabinoid system. This further promotes the cycle of stress that exacerbates inflammation.

Activating the cannabinoid receptors can prevent cognitive dysfunction that stems from low-level, consistent stress. Although CBD may not act upon the cannabinoid receptors directly, it can increase the levels of the neurotransmitters that do. Diminishing constant stress may reduce ongoing inflammation.

One of the most significant findings regarding CBD and stress is that CBD has anti-anxiety effects. Using CBD regularly may facilitate the endocannabinoid signaling that is responsible for helping you feel calm even as you go about your busy life.

How to Use CBD for Inflammation

Even if you have not been diagnosed with an inflammatory disease, you may have inflammation from time to time. Chemicals in processed foods can inflame the digestive system. Toxins in the environment can cause damage to your cells. Treating inflammation before it becomes a problem may be one of the most effective ways to prevent disease.

There haven't been enough studies to conclude that CBD is a miracle cure for inflammation. However, the experiments that have been conducted show that CBD is a promising treatment because it works on inflammatory pathways. It is also generally regarded as safe, which is not the case for prescription painkillers such as opioids.

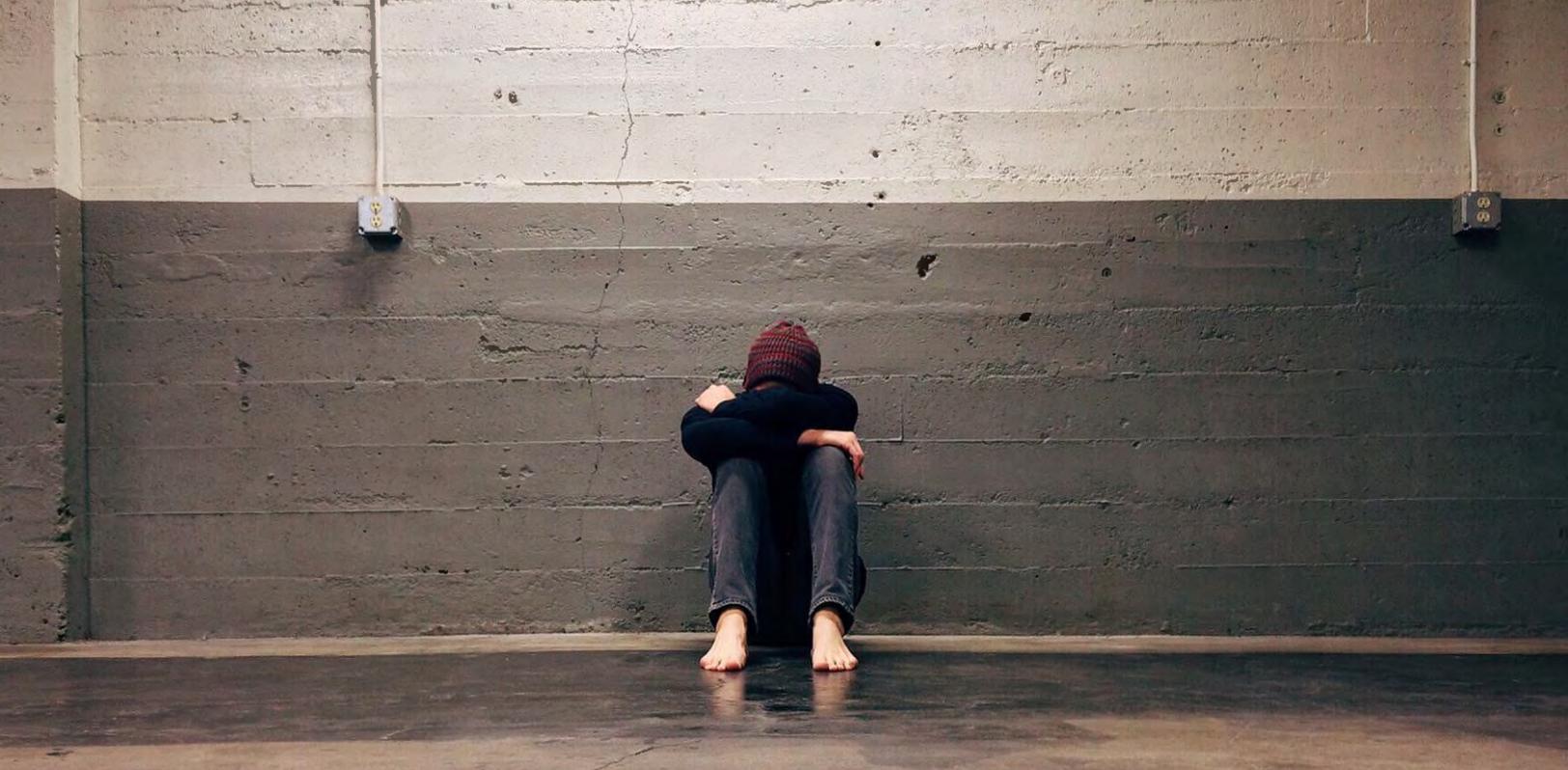
CBD can be administered in a variety of ways. Dropping CBD oil under the tongue is one of the most popular ways to use it. However, oral administration comes with some downsides.

If more of the CBD is swallowed than absorbed by the mucous membrane, it could take a while to exert effects. Smoking it is more effective for delivering rapid results, but the effects go away more rapidly than with oral administration.

Topical use is promising because you don't have to worry about metabolizing the CBD before it reaches its target. However, there are some questions about the amount that gets absorbed by the skin.

Because inflammation is often an ongoing, gradual problem, using CBD regularly may be the best option. You might want to keep a vape pen on hand for managing immediate pain. In the long term, though, administering CBD consistently might provide the most effective therapeutic effects on inflammation.





CBD AND ANXIETY

Although anxiety is a normal emotion, it can take over your mind and body. When you're experiencing intense feelings that range from stress and nervousness to uncontrollable worry, you may be unable to think about anything else. When it's mild, anxiety can be irritating. Full-blown anxiety disorders can be debilitating. Some pharmaceuticals, including SSRIs, antidepressants, benzodiazepines and MAOIs, can reduce the symptoms of anxiety, but their usefulness is limited. Many are associated with serious side effects, such as confusion, dizziness, hallucinations, insomnia, weight loss, sexual dysfunction and gastrointestinal problems. Those are only a few of the many possible adverse reactions. Some of these medications list anxiety as a side effect. This makes their practicality questionable at best. Whether you have mild anxiety from time to time or have been diagnosed with an anxiety disorder, you might benefit from using a quality CBD product. Scientific research into the uses of CBD has changed the conversation about using cannabis to treat different diseases.

Doesn't Cannabis Make You Paranoid?

You may be surprised to hear that CBD oil can help treat anxiety. CBD comes from the cannabis plant, and many people are familiar with marijuana's potential to cause paranoia, which is similar to anxiety. Marijuana's primary active component is THC, which is a cannabinoid that has psychoactive effects. When THC acts on the part of your brain that's responsible for managing emotions such as fear and stress, it changes the way that your neurons communicate.

In small doses, THC tends to relieve stress. Higher doses of THC tend to generate more negative emotions. Researchers aren't sure why this happens, but they do know that everyone reacts to THC differently. An individual's mood may even be responsible for the way that THC affects him or her. CBD is different. It doesn't make you high. In fact, it can counteract the psychotic effects of THC. It won't make you paranoid, and it has a wide range of therapeutic effects. People who experience anxiety can use CBD oil to unwind and reduce stress.

CBD is not always extracted from the marijuana plant. It is often derived from hemp, which contains minimal, if any, THC. Most hemp oil is legal throughout the U.S. as long as its THC content is below a certain threshold.

CBD Reinforces the Body's Ability to Control Anxiety

Medical experts are becoming increasingly interested in the body's endogenous cannabinoid system. It's made up of signaling chemicals and receptors that help your body stay balanced regardless of what's going on in your environment. It may be the most important bodily system involved in maintaining good mental and physical health.

Your body produces endocannabinoids. These chemicals influence a number of physical and mental processes, including many that are related to mood. Exogenous cannabinoids are those that come from external sources, such as CBD. They can affect the receptors in your body that are meant to work with your natural cannabinoids.



CBD and Serotonin

Research also shows that CBD interacts directly with serotonin receptors. Serotonin is a neurotransmitter with an extensive receptor system. It's a feel-good chemical that's linked with emotional states as well as a variety of physiological functions. CBD binds to some of these receptors, mimicking the effects of serotonin.

This is not the first time that serotonin has been targeted for its role in regulating mood. Many drugs that are prescribed for anxiety, such as Prozac, work by prohibiting the reuptake of serotonin, leaving it active for longer than usual. They may not work immediately, though. Also, many of them cause undesirable side effects.

Although researchers still have a lot to learn about the way that CBD regulates the release of serotonin, they do have a few explanations.

CBD is particularly attracted to the 5-HT_{1A} receptors. These are located throughout the brain, including in one area that produces high levels of serotonin. This receptor works as a feedback module. When it's activated by high levels of serotonin, it tells the body to produce less of the neurotransmitter.

This may counteract the effects of an anti-anxiety agent, such as CBD oil or antidepressants, for a little while. Eventually, however, the 5-HT_{1A} receptor becomes desensitized and doesn't provide precise feedback. At that point, the body makes normal amounts of serotonin. Therefore, if you're using CBD for anxiety, it might be best to use it consistently so that desensitization occurs more quickly. CBD also influences the 5-HT_{2A} receptor, but the cannabinoid doesn't activate it. Instead, CBD inhibits its activity. This also enhances its ability to decrease anxiety. Slowing down the activity of this receptor can be linked to a decrease in stress hormones, OCD, and sleep disturbances.

What Does This Mean for You?

Now that you know the science behind using CBD oil for anxiety, you might wonder how taking CBD will make you feel.

When you're in panic mode, your heart rate goes up, your palms sweat and your breathing quickens. Many researchers have linked CBD with reduced heart rate in panic situations.

Sometimes anxiety doesn't produce obvious physiological symptoms, but the turmoil going through your mind is debilitating. Feelings of concern or dread can prevent you from doing activities that you love.

Most of the time, these are responses that are deeply conditioned in you. You may know exactly what triggers your anxiety. It's common for your subconscious to drive these feelings. In either case, CBD oil can make you feel calm. It may also give you the urge to break free of worry and live your life again.



Research on CBD and Anxiety

There are many studies to back this up. In some, subjects are conditioned to experience fear from a neutral situation. They might be shocked whenever they touch a box, for example.

Even after the shock has been eliminated, the subjects continue to exhibit signs of anxiety, such as an elevated heart rate. After taking CBD, they seem to lose the memory of the conditioned fear more quickly, exerting normal responses after the negative stimulus has been disassociated from the box. Many studies use the elevated plus maze to measure anxiety in animals. The maze is shaped like a plus sign. Walls enclose two of the arms, while the others are open on the sides. Rodents are often afraid of open spaces and naturally spend more time in the enclosed arms. However, those that have been dosed with CBD are more likely to explore the open arms, demonstrating that their anxiety is reduced.

Many human anxieties are also caused by fear. Although some degree of fear protects you from threats to your survival, extreme dread or worry can be disabling. Post-traumatic stress disorder is one example of this.

Distressing experiences can be lodged in the psyche and expressed as anxiety. This apprehension can stick around long after the danger has passed. CBD has been studied in models that mimic PTSD. Results show that the product can reduce the anxiety that persists after a threat.

CBD has even been studied for its ability to help individuals overcome social anxiety. In a scenario in which participants were asked to take part in a public speaking activity, using CBD before they had to perform helped them feel less panic and maintain mental clarity.

Another study found that users with social anxiety reported feeling better after taking CBD. Brain imaging also revealed that blood flowed differently to certain parts of the brain after the participants were given CBD.

What Types of Anxiety Can CBD Treat?

Preclinical evidence backs the use of CBD for the following types of anxiety:

- Generalized anxiety disorder
- Panic disorder
- Social anxiety disorder
- Obsessive-compulsive disorder
- Post-traumatic stress disorder
- Stress-induced anxiety

Most of these studies have looked into acute administration of the substance. In other words, research shows that dosing with CBD can provide fast results. Even if you haven't been diagnosed with an anxiety disorder, you may find that CBD helps you relax during a busy, overwhelming day.



User Experiences With CBD for Anxiety

Anecdotal evidence backs up many of these scientific findings. People who have tried using CBD for anxiety report positive results.

A volunteer mentor at Mayo Clinic Connect said that CBD helped reduce anxiety that was caused by painkiller withdrawal. She mentioned that drinking CBD water produced almost immediate results. However, the feeling was so subtle that she questioned whether it was a placebo effect. After using various CBD products regularly, she determined that they helped improve her symptoms.

Health line has also reported on people who use CBD oil for anxiety. One registered nurse started using it for pain. Now, she says that it's the first thing that she turns to when she's feeling anxious. She takes between 50 and 100 milligrams of CBD oil every day.

A Medium author said that taking CBD oil relieved her continual anxiety, which was making it hard for her to sleep. CBD worked better than herbal remedies and melatonin.

Another story on Refinery29 reflects one user's experience with CBD. She was hesitant to try it at first because of its association with cannabis. When she learned that CBD oil doesn't produce the same effects as THC, she gave it a try.

After taking the initial 0.6 milliliters of CBD oil, she felt calmer but attributed it to a placebo effect. On the second day, she had a stressful morning and found that drinking CBD oil in her coffee slowed down her thoughts and made her feel more peaceful. By the end of the week, she admitted that she was more composed after dealing with the general stress of her daily routine when she took CBD oil.

How to Take CBD for Anxiety

Everyone responds differently to CBD. Therefore, you might need to experiment with the method of administration and dosage to get the most therapeutic effects.

CBD oil is common and can be used topically or orally. Concentrated oil can be vaped. Some edible CBD products come as lozenges, gel caps and candies. You can even find the cannabinoid in some types of coffee and other food products.

Sublingual Administration

You can use most liquid CBD products sublingually. This may deliver faster results than oral administration because the capillaries in the mucous membranes absorb it before it is swallowed. It takes about 5 to 15 minutes to absorb the product into your bloodstream after you place it under your tongue. The effects last for 2 to 7 hours.

To use this approach, place the desired dosage of liquid CBD under your tongue. Hold it there for 60 seconds before swallowing it.



Oral Administration

Taking CBD in a capsule form doesn't allow it to be absorbed before it goes through your gastrointestinal tract. Therefore, it has to make it to your intestines and be metabolized before you feel anything. This can take some time, but the results may be worth it because you'll experience a longer active period. On the other hand, your stomach acid could destroy some of the CBD before it reaches your gut.

Many edibles combine the benefits of sublingual and oral administration. Sucking on a lozenge can bring on subtle effects that last a long time.

Some people don't like the taste of CBD oil. These individuals can look for oils with flavorings, such as peppermint, which mask the flavor. Many edibles, such as gummies, taste better than sublingual CBD oils. Pre-dosed edibles also make it easy for you to use the right amount.

The consistent dosing is one benefit of CBD candies and gummies. Eating your CBD may also be less obvious than vaping or dropping it under your tongue. Some users turn to these products because they're so discreet. If you need to take regular doses of CBD to diminish your anxiety while you're at work, for instance, you might prefer CBD candy or coffee.

Inhaling CBD

Inhaling CBD with a vape pen is probably the fastest way to experience effects. The relaxation should hit you within a few minutes and last for a few hours.

It's important to use high-quality CBD as well as a reliable vape pen if you're inhaling the substance. Pure CBD oil is not linked with harmful health effects. Synthetic CBD could be dangerous, however. KNOW WHERE IT COMES FROM AND HOW IT IS MADE!!!!



Topical CBD

You can apply CBD oil to your skin. Many topical creams and lotions are made with CBD for this purpose. However, those are better suited for treating skin conditions and physical pain. Using CBD topically may not help with your anxiety unless muscle aches; joint pain or skin problems are stressing you out.

How Much CBD Should You Take?

Because CBD is not officially a dietary supplement, there is no recommended daily allowance. Most doctors learn about patented pharmaceuticals and may not know how to properly recommend Cannabidiol to patients.

The effectiveness of CBD depends on your weight, metabolism and genes. Your environment and mood can also alter the results. Some believe that women are more sensitive to the effects of CBD than men and can therefore use smaller doses.

There seems to be an optimal dose for everyone, and more is not always better. In most initial studies of CBD's effects on anxiety, lower doses seemed to be the most effective. This bell-shaped dose-response curve indicates that higher doses may hinder the anti-anxiety actions of the compound. A 2011 study found that participants' anxiety was relieved when they took 400 milligrams of oral CBD every day. Taking up to 1,500 milligrams per day of CBD is usually well tolerated. Using CBD regularly has not been shown to have any negative effects. MOST PEOPLE USE AROUND 5-35MG A DOSE.

Most experts recommend that you start with a small dose of CBD. Liquid oil, tinctures and extracts as well as edibles should have a suggested serving size on the label. You can use this as a guideline. Because CBD comes from a living plant, however, the amount in each bottle may vary.

It can be harder to gauge how much CBD to use if you're inhaling it. Start with one breath. If you don't feel effects within a few minutes, try another one and see how you feel.

Keeping a journal can be helpful when you're experimenting with CBD for anxiety. Track your mood as well as the foods that you eat, stressful situations that may occur and daily events. Record the type of CBD product that you used as well as the dosage and frequency. You'll probably notice certain patterns, and you can use your observations to adjust your CBD usage as necessary.

Are There Any CBD Side Effects?

When taking CBD for anxiety, you might wonder if you'll feel any side effects. CBD is not usually associated with psychomotor or psychological changes. Using it doesn't give you the munchies, and it doesn't usually change your heart rate, blood pressure or body temperature.

The National Institute on Drug Abuse reports that it is not associated with any significant side effects regardless of its administration method or dosage.

Some data shows that CBD can cause fatigue, diarrhea and changes in appetite and weight. However, most adverse effects were discovered in animal and in vitro studies.



Could CBD Interfere With Anxiety Medication?

If you take any pharmaceuticals, you might want to research whether there could be negative interactions between them and CBD oil.

Liver enzymes metabolize medications. CBD inhibits some of these enzymes, making pharmaceuticals that are processed via similar pathways less effective. Some medicines also inhibit enzymes that are necessary to process CBD, leaving higher levels of the cannabinoid in your system.

Drugs that can increase CBD concentrations in the blood include:

- Some antifungals
- Ritonavir – Treats HIV infections
- Clarithromycin – Treats bacterial infections

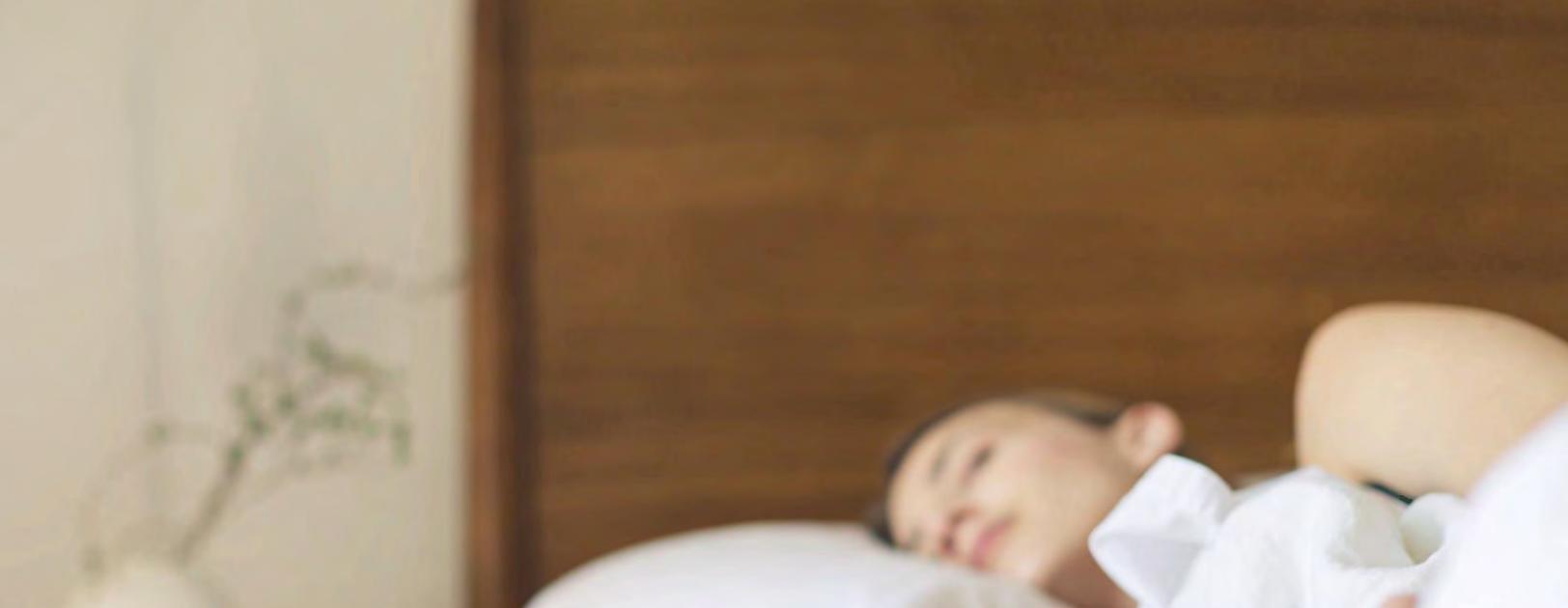
Other medications do the opposite. Some drugs that reduce the bioavailability of CBD include:

- Phenobarbital – Treats anxiety, seizures and insomnia
- Rifampicin – Treats tuberculosis
- Carbamazepine – Treats bipolar disorder, seizures and nerve pain
- Phenytoin – Treats seizures

This list is not exhaustive. If you take pharmaceuticals, you may want to consult with your physician before taking CBD oil.

Still, health experts generally regard CBD oil as safe. If your life is hampered by anxiety, you might want to add CBD to your treatment options. The low incidence of side effects and wide variety of administration methods make it convenient for regular use.





CBD AND SLEEP

Many people use cannabis to relax. In some states, cannabis is prescribed to people who suffer from insomnia or other sleep disturbances. However, marijuana is not legal everywhere, and some individuals don't want to use a psychoactive substance.

As more research is coming out about the potential therapeutic effects of marijuana, scientists are discovering that Cannabidiol, one of most active substances in the plant, is responsible for many of the benefits. Cannabidiol, or CBD, acts on the central nervous system, but it doesn't intoxicate you.

It does exert unique neurological effects. It may protect brain cells against damage, relieve pain, hinder the growth of tumors and relieve anxiety. CBD also promotes sleep in a number of ways.

What Sleep Disorders is CBD Used For?

Insomnia is the general term that most people use to describe their sleep troubles. What exactly is insomnia? The definition of insomnia includes personal dissatisfaction with the amount or quality of sleep. The stress or fatigue that people experience when they don't get enough rest can affect the way that they function during the day. Approximately 33 percent of people suffer from some level of insomnia.

Sleep disruption often stems from another issue. Physical and psychological ailments can impair restfulness.

CBD can be used for a variety of conditions that can impair your quality of sleep, including:

- Insomnia
- Restless leg syndrome
- Anxiety
- Migraines
- Arthritis
- Muscle or skeletal pain
- REM sleep behavior disorder

How CBD Helps You Sleep

Your body is set up with an endocannabinoid system, which provides much of the neural communication that affects your health. Endocannabinoid signaling may be partly responsible for helping you maintain a restorative sleep cycle. This system has been implicated in the circadian rhythm and may even play a role in determining what you dream about.

CBD is an exogenous cannabinoid. Although it's not produced naturally in the human body, it interacts with the endocannabinoid system.

If sleep is influenced by the endocannabinoid system, CBD can most certainly help regulate it. That's what researchers have been finding since the 1970s. Moreover, CBD has been shown to improve symptoms of certain medical conditions that can cause sleep problems.

Physical pain can stop you from getting high-quality sleep. Psychiatric disorders, including anxiety and depression, affect your sleep cycle. The medications that some people take can also interfere with getting decent shut-eye.

Some people don't have insomnia. They sleep great on most nights but toss and turn when they're particularly worried or stressed out. CBD can help with these underlying factors that disrupt your sleep. It can even be used to improve daytime fatigue that prevents you from falling asleep at night.



CBD Reduces Pain

CBD has been extensively studied for its ability to relieve chronic pain, which is a problem for millions of people. Only 31 percent of pain sufferers in the U.S. say that they get a great deal of relief from their current remedies, which often include prescription painkillers.

Perhaps because they can't find an effective solution, approximately 12 million Americans have tried using cannabis to reduce physical discomfort. But pain affects senior citizens more than anyone. This demographic may be less likely to consume mind-altering marijuana, especially if it's prohibited where they live. CBD is legal in every U.S. state.

There are many mechanisms by which CBD mediates pain. It inhibits the secretion and reuptake of many neurotransmitters that are required for communication within the central nervous system. As that communication slows down, so do some pain signals.

CBD has been shown to delay the progression of arthritis by reducing inflammation and influencing certain immune system functions. The cannabinoid can also reduce pain from the muscle spasms that often plague people who suffer from multiple sclerosis.

Cannabis has been used for centuries to treat headaches. Current research shows that CBD may be a promising treatment for migraine and cluster headaches. Some specialists theorize that migraine may be caused by an endocannabinoid deficiency. If this is the case, CBD could improve pain in the 38 million people who suffer from this debilitating condition.

If these autoimmune and inflammatory conditions cause pain that prevents people from sleeping, CBD may be able to soothe them into a good night's sleep. Plus, CBD doesn't pose the addiction risk that is associated with narcotics.

CBD Relieves Anxiety

Anxiety can prevent you from resting. A restless mind can keep you awake. Over time, the fatigue can make you feel more anxious. Eventually, you're so worried that you're not going to be able to sleep that you perpetuate the cycle.

Many studies have demonstrated that CBD has anti-anxiety effects. To further investigate CBD's benefits, researchers have also looked into using the compound to treat anxiety-induced sleep. They had rodents repeat a series of tests to generate anxiety. When they weren't treated with CBD, the REM sleep cycle in the mice was suppressed for about 4 to 10 hours after the tests. Non-REM sleep was also decreased. This is representative of the disturbances that people with anxiety disorders, including PTSD, experience.

After being dosed with CBD, the mice experienced normal REM sleep. Their non-REM sleep was not affected. This demonstrates that CBD may not directly influence sleep. Instead, it might help manage the emotions and mental anguish that can prevent people from fully relaxing.



CBD Can Help You Stop Smoking

If you smoke cigarettes, the nicotine may be keeping you up at night. Nicotine is a stimulant, and using it close to bedtime can make falling asleep difficult. Moreover, cigarette smokers sleep less and take longer to reach deep sleep stages than non-smokers.

What if you smoke marijuana to help you sleep? With regular use, marijuana may produce habituation that makes it harder for individuals to get to sleep without it. When these people try to stop using marijuana, they have trouble sleeping.

CBD may be the ideal substitute. Those who use marijuana to take the edge off or relieve anxiety can continue to get those benefits without the intoxicating high or potential for abuse.

One case study revealed that CBD was extremely useful for helping a patient with bipolar disorder curb a marijuana addiction. The patient started using a dosage of 24 milligrams and gradually reduced it to 18 milligrams. He reported feeling less anxious and establishing a consistent sleeping pattern.

CBD Can Keep You Awake

CBD can keep you awake during the day so that you can get better sleep at night. Low doses of CBD have been associated with increased periods of wakefulness, which could help people who get sleepy when the sun is out.

A long afternoon nap can interrupt your body's natural cycle. You'll go to bed later and might not experience deep sleep the next night. In the morning, you feel abnormally tired, and you snooze again after work just to make it through dinner.

If this describes you, you might want to look into using CBD to help you stay alert during the day. We discuss dosage in more detail below, but if you want to use CBD for this purpose, you might consider starting with 5 milligrams at a time.



Indirect CBD Benefits for Sleep

Unlike most sleeping pills, CBD isn't something that you take and then plan to pass out. It might produce subtle sedation, but it does so by affecting the chemicals deep within your body that regulate your circadian rhythm, emotions and mental state.

It's also good for your health. It works better than vitamins C and E as an antioxidant. Oxidative stress occurs at the cellular level when oxidation occurs. The free radicals that are emitted as waste products wreak havoc in your body, stealing electrons from other cells and damaging them in the process. Oxidative stress has been linked to a wide range of health problems, including obesity, inflammation, heart problems, autoimmune disease, diabetes and cancer.

Loss of sleep can also produce inflammation. If you haven't been getting enough rest, you might already be dealing with chronic inflammation issues. CBD can target both the sleep problems and the inflammation to improve your health from both sides.

Free radicals can lead to neuron damage. CBD has been shown to have neuroprotective effects. Sleep deprivation may exacerbate oxidative stress. Again, CBD serves as a holistic remedy that affects multiple mechanisms of action that allow you to stay healthy and maintain your body's natural rhythms.

Different Dosages of CBD Affect Sleep In Various Ways

CBD may not always exert sedative effects. Its ability to make you sleepy may depend on the dose that you take and other substances that you consume with it.

In one study, young adults were given varying doses of THC or a combination of THC and CBD before they went to sleep. The product was sprayed into their mouths. Various results were measured, including wakefulness during sleep and the length of time that it took subjects to fall asleep. Administering 15 milligrams of THC from 9:30 to 10:30 p.m. did not affect sleep overnight. It did help subjects doze off faster and make them feel sleepier in the morning.

When 15 milligrams of CBD was added to the mix, it reduced the likelihood of entering or staying in stage 3 sleep. This is one of the most important sleep stages.

As the brain creates delta waves, you move into deep sleep. Eye movement and muscle activity stop. You won't wake up easily and you're less likely to notice external stimuli during this stage. Stage 3 sleep prepares you for the following stage, during which your body does the most replenishing and healing.

Taking 15 milligrams of CBD with THC also led to more wakeful periods throughout the night. This did not happen when participants took 5 milligrams of each compound together.

This implies that CBD might work better for sleep when it's used on its own. The researchers involved with this study also concluded that CBD might counteract the sleepiness that people might feel the day after they take THC.



Other researchers had different results. They also experimented with different CBD dosages.

In the 1993 study that looked into the way that CBD affected cortisol levels, researchers found that 600 milligrams of CBD produced sedative effects in healthy participants who had at least six hours of sleep. A 1981 clinical trial investigated the way that CBD affected healthy volunteers as well as those with insomnia and epilepsy. The researchers gave the insomniacs dosages of 40, 80 or 160 milligrams of CBD. Each group slept longer than the group that received a placebo.

Although those studies are a few decades old, experts have continued to come to similar conclusions. A 2008 review indicated that it is well known that CBD encourages wakefulness at low doses but sedation when taken in higher quantities.

In 2013, a group of researchers published a study that indicated that prior research had not comprehensively investigated the systematic administration of CBD at various doses. These researchers gave rodents different amounts of CBD via injections.

Those that received 10 or 40 milligrams per kilogram slept longer than those that received a placebo on the day that the CBD was administered. The rodents that were given the higher dose took longer to reach REM sleep. It's interesting to note that the subjects that were administered the lower dose reached REM faster the day after they were given CBD.

How Much CBD Should You Take for Sleep?

Your dosage depends on your doctor's recommendations as well as your metabolism, weight, diet and condition. Most experts suggest that you start out with a low dose and increase it as needed. Keep in mind that the research shows that higher doses of CBD tend to induce sleep better than lower ones.

A standard dose for many CBD products is 10 to 20 milligrams. You may consider starting with the suggested serving size. You can adjust it gradually as necessary.

Some other factors to consider when administering CBD are timing and frequency. Vaporizing a CBD isolate produces results much more quickly than eating it. If it's close to bedtime and you have trouble falling asleep, you might try inhaling CBD. If you don't have trouble falling asleep but wake up bright-eyed and bushy-tailed around 2 a.m., on the other hand, an edible option may take longer to kick in but produce effects that keep you asleep for longer.

Taking CBD regularly can affect you differently than taking it only when you feel like you really need it. As we discussed earlier, you might fall asleep faster the day after you take CBD than the day that you take it.

Trying different dosages at various times may be the only way to find out what works best for you.



Why Take CBD Instead of Sleeping Pills?

CBD has been found to produce an extremely limited range of side effects. Most people who take it have no side effects. When they do experience negative consequences, they may feel drowsy. That's ideal if you're trying to use CBD for sleep.

However, that's not exactly the way that CBD works. It seems as though CBD is more likely to regulate the levels of chemicals in the body that help promote healthy sleep cycles than make you nod off immediately. It works from the inside out, and you might not notice its effects because they're subtle. You could just feel like you're able to sleep normally again.

On the contrary, many sleeping pills make you so drowsy that you're not supposed to drive an automobile or operate heavy machinery while using them. The effects of some powerful medications can last for hours after you wake up, making you groggy after you use them.

Commonly used sleeping pills include:

- Benzodiazepines
- Barbiturates
- Hypnotics

Benzodiazepines are habit-forming. They also cause problems with attention and memory. They're not recommended for long-term use. If you do use benzodiazepines for a significant length of time, you can put your life in danger when you stop using them.

Withdrawal from regular benzodiazepine use should only be done under the supervision of a health professional. You shouldn't stop using benzodiazepines cold turkey if you've been taking them frequently.

Barbiturates can also be dangerous. It's not difficult to overdose on this medication. Withdrawal can cause difficulty sleeping.

The fact that many sleeping pills cause dependency is part of the problem. This leads them to mask the issues that contribute to your sleep disruptions. If you want to stop using them, you might have more trouble sleeping than you did before.

Although CBD has only been researched for the past 40 years or so, most experts agree that it's not addictive, toxic or dangerous. It hasn't been associated with overdose, and few people who use it have adverse reactions.

If you've tried everything else but still have trouble sleeping, you might want to consider using a high-quality CBD product. Check with your doctor before trying it. CBD can interact with some medications, including certain sedatives.





CBD AND PAIN

Pain is a major problem for 100 million Americans. Although the pharmaceutical industry is constantly coming up with new solutions to help people with pain symptoms, medication is becoming part of the dilemma. More people than ever are dying from opioid overdoses, but many don't know that there are non-narcotic treatments to manage their conditions.

CBD oil is generating a great deal of buzz for its pain-relieving potential. It has been studied for its benefits in treating a wide variety of ailments, including arthritis, epilepsy and multiple sclerosis. It's not addictive and has few side effects.



Is Replacing Opioids With Cannabis Really the Best Solution?

Cannabidiol, or CBD, is one of the primary active compounds in marijuana. Therefore, you might wonder if using it will give you a buzz or alter your cognitive function. Pure CBD doesn't contain THC, the psychoactive component of marijuana. CBD is not intoxicating and has no potential for addiction. Opioids, on the other hand, produce euphoria and have mind-altering qualities. As they exert changes on your central nervous system, opioids influence your brain's reward and pain pathways, leading to tolerance and dependence. Some individuals who use these powerful drugs become addicted rather quickly.

Marijuana is classified as a Schedule I drug by the DEA. This means that it's on the same schedule as heroin. However, FDA-approved drugs that contain CBD and have THC content below 0.1 percent have been moved to schedule 5.

The CBD oil that is widely available in retailers across the country is not considered a drug. In fact, it's difficult to categorize because it's not regulated as a dietary supplement or medication.

Replacing powerful narcotics with CBD may be an ideal solution for people suffering from pain. CBD has even been studied for its use in countering other addictive behaviors. Its ability to alter brain pathways related to addiction enhances its benefits for those who want to quit using painkillers while treating their physical discomfort.

Whether or not you have been using painkillers to treat your symptoms, CBD can help in a number of ways. In this article, we'll discuss the therapeutic effects of CBD for pain.

How Does CBD Relieve Pain?

The body contains cannabinoid receptors throughout the spinal cord, central nervous system and tissues. After researchers began discovering these receptors in 1988, they began to look into their influence on a variety of medical conditions, including chronic pain.

The two main receptors, CB1 and CB2, work somewhat differently. CB1 is more prevalent and influences the stimulation of nerve cells. CB2 is involved in mediating pain and suppressing inflammation.

Proteins that bind to these receptors are called endocannabinoids. These work with the endocannabinoid system to provide relaxation, regulate appetite, help people sleep, control memory functions and influence learning. CBD is an exogenous cannabinoid. It comes from outside of the body but mimics some of the actions of endocannabinoids, indirectly working on various receptors to control pain.

In fact, cannabinoids may be 10 times more powerful than morphine in relieving certain types of pain. They have even been shown to relieve inflammation and itching in patients with allergic contact dermatitis.



Some researchers have found that individuals who suffer from certain conditions that are resistant to treatment, such as migraine and fibromyalgia, have endocannabinoid deficiencies.

Therefore, introducing exogenous cannabinoids to the system with CBD oil may enhance the body's own pain-relieving processes. CBD doesn't bind to CB1 and CB2 receptors. However, it does alter the way that certain neurotransmitters communicate with those receptors, exerting its effects indirectly.

What Types of Pain Can CBD Treat?

CBD has been studied for its ability to relieve various types of pain, including:

- Chronic pain
- Arthritis
- Discomfort associated with cancer and chemotherapy
- Nerve pain
- Spasm-related pain
- Sports pain
- Migraine
- Digestive pain

CBD for Arthritis

In 2016, researchers conducted a study to determine whether CBD could attenuate some of the symptoms of arthritis. A topical CBD gel was applied to rodents with joint inflammation. Using CBD topically prevents it from becoming inactivated as it goes through the gastrointestinal tract and provides steadier blood levels than taking it orally.

The results indicated that CBD:

- Reduced swelling in the joints
- Diminished acute pain
- Thinned the synovial membrane, which becomes thickened in patients with arthritis
- Reduced pro-inflammatory biomarkers

No significant side effects were noted. Doses of 6.2 to 62.3 milligrams per day seemed to help the most, although the researchers noticed that the higher doses didn't necessarily provide more pain relief than the moderate doses. The lower doses were not as effective.

It can be deduced that using a modest amount of topical CBD may alleviate symptoms in people with joint pain from arthritis.



Other studies have found similar results. In one, subjects received oral or injected CBD. Hypersensitivity and inflammation diminished.

Optimal effects were not produced with the highest dose. The oral dosage that produced the best results was 25 milligrams per kilogram of body weight per day. In another study, oral CBD dosages of 5 and 7 milligrams per kilogram were effective for reducing inflammation.

CBD for Cancer Pain

Cannabinoids have been studied in clinical trials for treating cancer pain, which affects up to 90 percent of patients with advanced forms of the disease. Opioids are usually the standard course of treatment for this type of pain. However, they don't always work, and they can produce undesirable side effects.

In some trials, cannabinoids worked just as well as codeine in relieving cancer pain. An oromucosal spray that combines THC and CBD allows for customized dosing and has been shown to improve pain symptoms. A combination of THC and CBD seems to work better than THC alone.



One study investigated the use of CBD for patients who experienced nerve pain as a side effect of the chemotherapy drug Paclitaxel. Dosing subjects with CBD before administering Paclitaxel prevented the onset of pain. CBD seemed to avert nerve damage even after its use was suspended.

More human studies need to be done to confirm that CBD is effective for cancer pain. However, preclinical and anecdotal evidence suggests that it is helpful and safe.

CBD for Nerve and Multiple Sclerosis Pain

Many people who suffer from multiple sclerosis experience peripheral neuropathy. This disorder occurs when damaged nerves don't communicate sensation properly. They may send pain signals when no painful stimulus is present. Because multiple sclerosis destroys the sheath that insulates the nerves, it can cause pain or numbness.

Some of the nerve damage that is caused by diseases such as multiple sclerosis and Huntington's disease comes from glutamate. Glutamate is a neurotransmitter that transmits signals between nerve cells and is important for learning. Abnormally high levels of glutamate can overexcite nerve cells and damage them, though.

As an antioxidant, CBD may protect nerve cells from damage. The cannabinoid has also been studied for its potential to safeguard nerve cells in conditions such as Parkinson's disease, which also destroys neurons.

CBD for Fibromyalgia

Fibromyalgia has also been linked to nerve damage. It has no known cause, and treatments usually focus on minimizing pain and maximizing quality of life.

A 2013 review claims that medicinal cannabis may help with fibromyalgia pain. Some trials suggest that smoking cannabis may provide more pain relief than taking it orally. Also, most studies of fibromyalgia and cannabinoids use products that contain THC instead of CBD alone.

Because CBD is associated with far fewer side effects than THC, it may be a more suitable option for some people. It is not guaranteed to work, but its neuroprotective and anti-inflammatory properties make it a promising approach.

CBD for Spasm-Related Pain

Another problem that arises for many people who suffer from multiple sclerosis is spasm-related pain. The CB1 receptors have been found to control tremors and spasms in mice with multiple sclerosis.

During the early stages of multiple sclerosis, there is high inflammatory activity in the central nervous system. The endocannabinoid system is also triggered. Some researchers have noted that patients who self-medicate with marijuana experience relief of symptoms associated with the disease, such as incontinence, spasms, tremor and pain.

The studies that have found benefits for treating muscle spasms with cannabis have mainly used extracts that contained THC. However, CBD is a promising remedy for cramps and spasms because of its anti-inflammatory properties. It also increases levels of anandamide, an endocannabinoid that has been linked to improvement in spasticity.

CBD for Sports Pain

Many endurance athletes can probably describe the feeling of wellbeing that they get during and after their workouts. This is often linked to the release of endorphins, feel-good chemicals in the body that reduce pain and intensify pleasure.

Endorphin levels in the blood do rise in response to prolonged exercise. These molecules are so large that they don't cross the blood-brain barrier, though. Therefore, it's unlikely that they are exclusively responsible for the euphoric sensations associated with intense exercise.



The levels of anandamide in the blood also go up with a good workout. Anandamide is an endocannabinoid that can produce feelings of happiness and bliss. Because anandamide can enter the brain, some experts believe that it's responsible for producing a "runner's high."

CBD prevents the reabsorption of anandamide after it is released in the body. Therefore, CBD could accentuate the pain-relieving effects of anandamide in athletes.

In a 2015 study, scientists found that mice had elevated levels of endocannabinoids and endorphins after running on a wheel. They were also less anxious and more tolerant of pain.

Then, the mice were given chemicals that blocked the effects of endorphins or endocannabinoids. Blocking the endorphins didn't appear to affect the exercise-induced "high." When the endocannabinoids were blocked, however, the mice showed signs of anxiety and pain sensitivity after running.

Humans have to run the equivalent of about three miles a day to experience this type of euphoria. However, if taking CBD can elevate levels of anandamide, perhaps they don't have to exercise at all to reap the benefits.

CBD also exerts anti-inflammatory effects. This may help many athletes relieve pain without turning to pills. Taking too many anti-inflammatory medications can even be harmful. Many professional sports associations are developing lenient guidelines toward CBD use because of its many benefits and low incidence of side effects. CBD might help prevent sports injuries and aid in recovery.



Even if you're not an athlete, you might get sore from time to time. Whether you suffer from muscle tension that creates knots in your back or feel a little achy after moving some furniture around, you might want to try using CBD for its ability to reduce inflammation and promote relaxation.

CBD for Migraine

Migraine is a complex disorder that is characterized by more than headaches. People who get migraines often have nausea and sensitivity to light and sound in addition to cranial discomfort. Hormones and environmental factors can trigger headaches.

Endocannabinoid deficiencies have been associated with migraine pain. The endocannabinoid system is important for regulating pain signals. It helps the body maintain homeostasis when it is subjective to extreme stimulation. If migraine sufferers are deficient in endocannabinoids, it would make sense that their systems would have trouble balancing the response to certain stimuli. This could account for the sensitivity to light and sound that they experience.

People who get migraines have lower levels of anandamide in their cerebrospinal fluid. Anandamide is related to blood vessel dilation. This also points to a link between the endocannabinoid system and migraine.

Many studies that have looked into using cannabis to treat migraines have used THC or a combination of THC and CBD. Although CBD has not been well studied for migraine treatment, the European Pharmaceutical Review claims that it may be effective as a preventative approach.



In a study referenced by the author, 200 milligrams of a product that contained either 19 percent THC or trace amounts of THC and 9 percent CBD were effective in reducing acute migraine pain by 55 percent. A combination of THC and CBD also reduced the number of attacks as effectively as amitriptyline, an antidepressant that is commonly prescribed to migraine sufferers. The cannabinoids did not produce acute pain relief in people who suffered from cluster headaches, though.

CBD for Digestive Pain

In the migraine study, researchers found that female subjects experienced a reduction in stomach pain and colitis as a beneficial side effect. Other articles reveal similar advantages of using CBD for digestive distress.

Cannabis is known for its appetite-stimulating properties. Those are more closely correlated with THC than CBD, though. Other cannabinoids, such as CBD, may help improve symptoms in inflammatory digestive conditions.

There is evidence that increasing endocannabinoid levels can reduce swelling when the colon is inflamed. Activating the CB1 and CB2 receptors protects against colitis. Even though CBD doesn't bind directly to those receptors, it may alter activity of the endocannabinoid system in a way that reduces inflammation in the gut. For example, it is an antagonist to GPR55, a receptor that plays a [pro-inflammatory role in the bowel](#).

How To Take CBD for Pain

There are a variety of CBD products for pain, with different routes of administration for each. Oils and extracts may produce the fastest effects when they're vaped. Inhaling CBD may help with acute pain but is not always helpful for chronic pain.

People who suffer from constant discomfort might want to look into sublingual, oral or a high-quality topical CBD for pain. Spraying a tincture or oil beneath the tongue allows the product to be absorbed quickly into the bloodstream. The rest is processed by the digestive tract.

When you swallow CBD in a capsule form, it must be digested before it is absorbed. Although this may not provide fast pain relief, the results typically last longer, which may be preferable for those with enduring pain.

Using CBD topically limits its absorption. However, it might be valuable massage oil when it's applied at the location of superficial discomfort, such as muscle aches.

The most effective dosage varies from person to person. Your own physiology changes over time, making it difficult for anyone to suggest the optimal dose. Therefore, you might need to experiment and change the amount that you take based on your symptoms, the type of CBD and other personal factors.

A good rule of thumb is to take smaller doses at first and increase them if you don't experience relief. Be aware that larger doses don't always provide more benefits.

Because CBD influences a wide range of receptors, a small dose hits its primary targets quickly. As you increase the amount that you take, the substance reacts with more receptors, producing completely different effects. When treating some conditions, such as anxiety, researchers have found that CBD may not be effective at all in higher doses.



The Controversy Surrounding CBD and Pain Management

There is some controversy surrounding the use of CBD oil. While many preliminary studies have found significant benefits to using CBD, critics point out that there have not been enough large and long-term clinical trials. Some criticize CBD's use because researchers aren't sure how the substance works in the body.

That hasn't stopped other health treatments from being used by medical professionals. Approximately 18 percent of drugs do not have a well-understood mechanism of action. Experts haven't even pinpointed the mechanism of action for acetaminophen, more commonly known as Tylenol, even though the U.S. Food and Drug Administration approved the drug in 1951.

The same goes for other approaches to medical treatments. For example, repetitive trans cranial magnetic stimulation, a treatment that has been used for more than 30 years and is approved by the FDA, may combat depression in people who haven't responded to other forms of therapy. However, experts are still not certain about the mechanisms involved.

The FDA requires researchers to prove that a drug is effective and safe through clinical trials. Proponents of CBD point to the many studies and anecdotal evidence showing that the extract relieves pain. Out of the 13 percent of American adults who have tried CBD for a health condition, almost 90 percent say that they have experienced positive results.

With research indicating that CBD is regarded as safe and experts as well as consumers saying that it works, it seems like it would be worth trying for millions of pain sufferers. Moreover, CBD oil is legal in every U.S. state as long as it is extracted from industrial hemp and doesn't contain THC. Some states allow CBD with trace amounts of THC, while others have legalized marijuana products that have THC in them.

Using CBD for pain is a largely personal matter. Its effectiveness may depend on the type of pain as well as your age and general health and the quality of the CBD product being used. Because CBD has many health benefits beyond managing pain, it is often touted as a multifunctional wellness product that can make you feel better in many ways.





CBD AND DEPRESSION

Although everyone feels sad or moody from time to time, millions of adults have at least one episode of major depression every year. The condition can be mild or absolutely life altering. Scientists are always researching treatment protocols to allow for more options to improve mental health. CBD products could be an amazing, natural alternative to pharmaceuticals and a useful supplement to add to non-medical therapy for anyone who suffers from depression.



What Is Depression?

It's important to understand the differences between a sad mood and diagnosed depression. Our naturally cycling emotions are vital for driving our behaviors in life. Nothing ever happens in a vacuum and you won't feel the same way... every day...for the rest of your life. Who would want that?? Most people are motivated to take action that brings them the best 'feels' and driven to avoid the bad ones. Therefore, they seek out activities that bring them pleasure and try to avoid those that deliver sadness or anxiety.



But emotions are complex. They also serve as a language that helps humans understand each other. Emotions influence your decisions and the friends that you make. A varied emotional experience is necessary to a well-rounded mental health situation. As I said before, "We are not Robots".

Sometimes, emotions don't seem to be serving our best interests. You may be taking all the right actions to fill your life with enjoyment, but you can't escape those bad feelings. If your sadness feels like it is endless or nothing ever seems to make a dent in the dark cloud, you may be suffering from depression.

Depression occurs when your emotions are at an inescapable low for at least 10-14 days. It is usually accompanied by a loss of pleasure. You may also be less motivated to engage in activities that you used to find enjoyable. Which leads to a cycle of feeling like there is no end to this feeling. This mental health disorder can also affect your sleep, appetite and concentration. You may have low self-esteem or even feel as though life is not worth living.

Types of Depression

There are several different types of diagnosed depression. The condition is not always obvious to your friends and family or even yourself. Learning to recognize the different types can help you determine whether you might benefit from treatment.

Major depressive disorder is the most common type of depression. It can happen only once in your life. Most people, however, have more than one episode. The symptoms can make you miserable and interfere with daily obligations.

Persistent depressive disorder involves low-level melancholy or sadness that sticks around for at least two years. It may not seem overtly detrimental, but it can produce low energy and make you feel hopeless. People with persistent depressive disorder may feel like their thinking is always clouded. They often have trouble making decisions.



Bipolar disorder is characterized by dramatic shifts from euphoria to melancholy. People who suffer from this condition may have periods during which they feel great. They are especially energized and exhilarated. Then, they rapidly transition to intervals of paranoia, fatigue or depression.

Seasonal depression usually hits as the weather becomes cooler and the days get shorter. It affects more women than men. So does postpartum depression, which can come on after women deliver children. Up to 10 percent of new dads can experience postpartum depression too.

Psychotic depression typically affects people with bipolar disorder or major depression. It produces symptoms such as hallucinations and delusions.

How Depression Affects Your Physical Health

Most people know that depression affects your mental health. It can also produce changes in the health of your body.



These symptoms occur because depression is linked with chemical changes in the brain. Some of the brain chemicals that are influenced by the disease are responsible for controlling physical functions. For example, when your levels of mood-enhancing neurotransmitters are diminished, you become more susceptible to pain.

People with depression find their immune systems can't function well when they're consistently flooded with stress hormones. This can increase their likelihood of developing colds and flus, which can make getting out of bed even harder.

CBD Can Overcome Barriers To Depression Treatment

Almost half of people with depression don't get the treatment that they need. Some of the things that prevent people from getting the help they need with depression include:

- Lack of transportation
- No health insurance
- Concerns with people finding out
- Worries about the way that treatment will affect their job
- Time commitment

If any of these concerns have made you avoid treatment, you might want to look into a CBD product. You don't need transportation to access it. You can buy it online and have it shipped to your house. As long as it contains less than 0.3 % THC, CBD products are legal in every U.S. state.

You don't need health insurance to purchase CBD. Depending on the type that you buy and the way that you use it, CBD can be much more affordable than traditional medication for depression. No one has to know that you are using CBD for depression. It comes in a variety of methods for delivery, most of them very easy to keep discreet.

Perhaps most importantly, CBD doesn't affect your behavior or ability to function throughout the day. It's safe to use whether you're working or driving a car. Plus, CBD is associated with very few side effects. More than 90 percent of people who have used CBD say that it has helped them.

How Does CBD Treat Depression?

Now that we've introduced CBD as an alternative or complement to traditional depression treatment, we would like to tell you a little more about the way that it works. There have been at least 15 significant studies that have investigated the correlation between CBD and depression. Additional research has demonstrated that CBD addresses physical symptoms of depression.

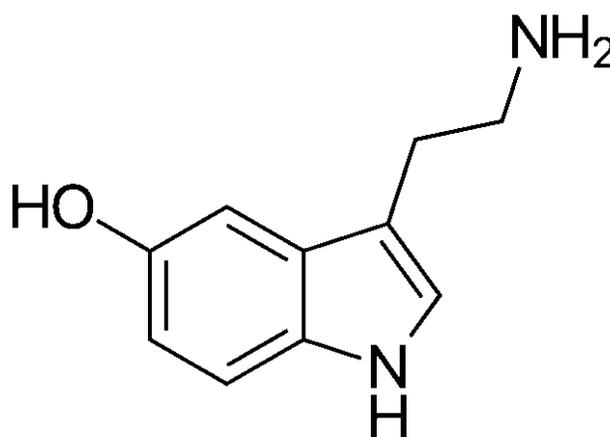
Serotonin and CBD

Like some antidepressants, CBD affects the 5-HT1A neuro-receptor. This serotonin receptor plays a major role in controlling depression.

Serotonin is produced in the brain and transmits messages from one area of the central nervous system to others. Serotonin influences almost every type of brain cell. Researchers have found that people with depression may have malfunctioning serotonin systems.

After serotonin is produced in the brain, it travels through the body, distributing its effects on various systems and is eventually taken back up by the body. Antidepressants generally act by slowing down the serotonin recovery process. This allows the chemical to stay in the system for a longer period of time. The result is that you typically feel better for a longer period of time.

Using a CBD product diminishes the emotional spikes and dips that occur with highly charged situations so the release and recovery of Serotonin is more balanced. This is a more natural way to control Serotonin and thus gives the user a more calm and collected experience.



That also applies to how you react towards non-medicinal treatments for depression such as Therapy. If CBD is helping you process your emotions in a more balanced way. Therapy will then progress more productively towards some sort of resolution as you can calmly process and explore these emotional experiences with your therapist. All the benefits are stacking up on top of one another to create a more balanced and collected individual.

One more example of this balance is regarding reward-seeking behavior. Depression can often lead to seeking out experiences that make us feel bad, because it reinforces the depressed state, which is the new 'normal'. CBD use can motivate you to 'feel better' and seek out reward-based activities that perpetuate this feeling. You may feel more motivated to exercise, which then releases endorphins to reward this behavior therefore driving your motivation to duplicate. Again, the long-term benefits will stack and affect all aspects of your mental health.

CBD Can Help With Depression-Induced Pain

Pain is a very real medical condition. It can be hard for doctors to treat pain because it is so subjective.

Approximately 20 percent of patients that visit primary care physicians every year have chronic, debilitating pain. These patients are four times more likely to depression or anxiety than patients who don't suffer from persistent pain.

Individuals with chronic discomfort are more likely to have to deal with depression throughout their lives.

In other words, being in constant pain can make you depressed. Depression can also cause pain.

Approximately two-thirds of people with depression feel physical pain because of the mental disorder. CBD has repeatedly been shown to have analgesic properties. It may increase levels of anandamide, a neurotransmitter that's involved in managing pain signals. Anandamide also helps you feel happy.

Earlier in this article, we discussed serotonin's role in depression symptoms. This neurotransmitter is also linked with pain perception. Serotonergic medications are often used to treat pain from migraine and fibromyalgia. CBD may have similar effects treating pain as those pharmaceuticals.

CBD also has anti-inflammatory properties. By reducing inflammation, it can also lower the cause of some types of pain.

CBD Can Improve Sleep Quality

Sleep disruption is a classic symptom of depression. Some people with the mental illness have trouble falling or staying asleep. Others have trouble waking up in the morning. Oversleeping could be caused by poor quality sleep.



Sleep issues can make depression symptoms worse. Everyone needs a certain amount of high-quality sleep to maintain optimal physical and mental health. If don't feel good in your body, it's hard to stay in good spirits.

Have you ever noticed that you're especially moody when you're sleep deprived? Lack of rest can exacerbate the emotional ups and downs that can come with depression. You might be able to handle stress and overwhelm better when you're getting enough sleep. If you're chronically exhausted, you might have a hard time managing intense emotions.

Even if you're not depressed, sleep deprivation can increase your chances of developing a mental illness. Therefore, treating sleep issues may make you less prone to depression.

Low levels of CBD may improve sleep quality. In one study, participants with insomnia who took CBD slept longer than a group that took a placebo. Other researchers found that low to moderate doses of CBD improved sleep length and quality, but higher doses affected REM sleep.



How To Use CBD Oil For Depression

You should not stop taking medications for depression or discontinue your current treatment without consulting with your doctor. However, you might want to ask a medical professional about using CBD instead of or in addition to other approaches.

If your depression is constant, you might want to take CBD regularly for the best results. Dropping CBD oil under your tongue allows your body to absorb it rapidly. You can also take CBD oil in capsules, which go through your digestive system and are absorbed in the gut.

Vaping CBD lets it get into your bloodstream more quickly. This means that it also leaves the body rapidly. Inhaling CBD extract is usually most effective for acute symptoms, such as pain flare-ups or anxiety attacks.

There are also time-released Transdermal patches that have been shown to keep a low-level base amount of CBD in your system throughout the day.

No matter how you use CBD, you should start with a low dose and gradually increase it as necessary. Many people begin by taking 5 to 10 milligrams once or twice a day. After a week, you should be able to notice how it affects you. If you don't notice a difference in your depression symptoms, you might want to try:

- Increasing the dosage
- Taking the CBD more frequently
- Using a different method of administration
- Trying a different strain

Everyone responds differently to CBD. A product that works well for one person may have no effects on another. Be sure you're using only the best CBD oils as quality and purity can vary considerably from company to company. Also, your body is constantly changing. The same product or dosage may produce distinct results over time.

Keeping a record of your depression symptoms and CBD usage can help you track and analyze its effectiveness. Write down:

- Any depression symptoms that you're having as well as their intensity
- The dosage of CBD that you take
- When you take the CBD
- How you feel after taking CBD

Sometimes, it's difficult to notice the subtle changes that CBD can bring about. Monitoring the way that you feel can provide you with an objective assessment of its value. You can always experiment with a different type of CBD product or change your dosage if you feel that it's not working the way that it once did.





CBD AND ADD/ADHD

About 6.4 million children in the U.S. have been diagnosed with attention deficit hyperactivity disorder, or ADHD. This condition affects executive function. If it is not identified, children may be mistakenly branded as delinquents or troublemakers. ADHD can also make it hard for adults to concentrate, potentially affecting their job performance and communication skills. CBD may be helpful for reducing symptoms of ADHD without the side effects of a stimulant medication.

ADHD: A Snapshot

ADHD is a disorder that impacts:

Memory

Concentration

Learning

Self-control

Organization



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Symptoms typically begin to appear between the ages of 3 and 6. Because many kids have high energy and don't always want to sit still, ADHD may be overlooked or misdiagnosed. Milder forms of the condition might not be diagnosed until children are at least 8 years old. The average age of diagnosis for severe ADHD is 5 years old.

Many people have trouble concentrating at times. For people with ADHD, the struggle may be constant. Children with ADHD often exhibit hyperactivity along with impulsivity and inattention. However, symptoms of the condition aren't always obvious. Some children with ADHD don't move around constantly or do poorly in school. If they have ADHD, kids may develop "hyper focus," concentrating very well on activities that they find extremely interesting.

This can make it hard to accurately diagnose the disorder. Teachers may tell parents that their child simply has more energy than others. Parents may believe that their talkative children are simply fun loving and don't have the willpower to focus on schoolwork.

What Causes ADHD?

ADHD can be genetic. Scientists have pinpointed a cannabinoid receptor gene that affects levels of stress hormones and dopamine as well as learning and memory functions.

Environmental factors can also contribute to ADHD. Some researchers have found links between ADHD and pesticides. Children who are exposed to alcohol or tobacco in the womb are more likely to develop ADHD. Certain food additives have also been associated with the condition.



There is no proof that eating too much sugar, watching TV or playing video games causes ADHD. Parenting styles or lack of discipline won't cause the disorder. However, children with ADHD may need parents to set certain guidelines and support their learning in different ways than kids without the disorder. Stress at home can make symptoms worse.

As we discuss later in this article, ADHD can cause other problems that further disrupt learning and behavior. Those issues can affect stress and sleep habits, which make it even harder for people to function. This causes a cycle that can be addressed by CBD, a cannabinoid that is found in the cannabis plant.

Does ADHD Affect Adults?

Many children experience a reduction in ADHD symptoms, as they get older. However, some enter adulthood with ADHD symptoms. Up to 5 percent of American adults struggle with ADHD. Although ADHD affects more male than female children, it affects men and women relatively equivalently as adults.

Adults with ADHD may have similar symptoms as kids with the disorder, including:

- Difficulty following directions
- Trouble remembering information
- Concentration problems
- Poor organizational skills
- Difficulty finishing work in a reasonable time frame

ADHD in adults may be confused with other mental or physical disorders. It can be associated with some surprising symptoms, such as:

- Anxiety
- Depression
- Chronic boredom
- Tardiness
- Forgetfulness
- Anger issues
- Low self-esteem
- Substance abuse
- Mood swings

How Does CBD Compare To Traditional ADHD Medication?

Approximately 6 percent of American children take medication for ADHD. Most of these medications are stimulants.

Stimulants work quickly and reduce symptoms in up to 80 percent of children with ADHD. Non-stimulant medications are also available. They can take longer to work, though. Some doctors



prescribe antidepressants alone or with other ADHD medications. These can increase the risk of suicidal thoughts in kids and adolescents.

The American Academy of Pediatrics recommends a combination of therapy and medication for children who are at least 6 years of age. But many parents don't want to give pharmaceuticals to their children. They may be concerned with the side effects or the long-term consequences.

Many ADHD medications have side effects. There have not been many long-term studies on the adverse effects of ADHD drugs on young children.

What researchers do know is that ADHD medications may work by increasing the levels of certain chemicals in the brain. Stimulants make dopamine and norepinephrine more abundant. These neurotransmitters contribute to cognitive functions that have to do with alertness, focus, motivation and sustained thought.

It's especially interesting that people with ADHD respond differently to stimulants than people who don't have the condition. Brain imaging shows less blood flow to certain areas of the brain in individuals with ADHD. Stimulants can increase activity in those regions, improving attention and memory. If you don't have ADHD, you might just feel awake, alert and high when you take stimulants.

Side Effects

ADHD drugs can impair certain cognitive functions in people who don't need them. They are also associated with many side effects, including:

- Sleeping problems
- Dry mouth
- High blood pressure
- Stomach pains
- Inflammation
- Increased appetite
- Numbness in the extremities
- Weight loss

Children who take certain stimulants may experience delayed growth. For this reason, many parents don't want to give their children medication for ADHD.

Most researchers have found that CBD is associated with no significant side effects. It doesn't appear to influence heart rate, body temperature or blood pressure. Doses of up to 1,500 milligrams per day are well-tolerated in humans. When side effects from CBD have been noted, they have primarily included:

- Fatigue
- Diarrhea
- Changes in appetite or weight



However, experts agree that CBD's side effect profile is preferable to that of many other medications. It could interfere with certain drugs, though. If you're already taking medication for ADHD, you should check with your doctor before discontinuing its use or introducing CBD as a form of treatment.

Can You Take Medication for Attention Problems Without an ADHD Diagnosis?

Millions of Americans suffer from attention problems from time to time. Stress, fatigue and mental illness can affect your ability to concentrate and make your thinking cloudy. However, if they don't have ADHD, stimulants may not bring them the relief that they desire.

For people who aren't candidates for ADHD medication, CBD can provide an effective solution for mental fog and concentration issues.

Does Research Show That CBD Helps With ADHD?

Few formal studies or clinical trials have targeted CBD as a treatment for ADHD. However, that doesn't mean that the product won't work for attention problems.

How CBD Can Help You Focus

Because it's difficult to draw a specific correlation between CBD use and ADHD, it's helpful to look at other ways that CBD can help with attention issues. CBD has been shown to help with stress, sleep, and other factors that can reduce your focus.

Reducing Stress Levels Improves Concentration

The American Psychological Association, or APA, reports that most Americans experience significant amounts of stress. About 44 percent of adults in the U.S. say that their stress levels have increased in the past five years. Approximately 33 percent of children suffer from physical symptoms of stress, such as headaches, trouble sleeping or digestive issues. Plus, parents' stress can affect children's ability to relax.

With so many people struggling to find peace and balance in their lives, it's no wonder that they have trouble paying attention to what's important. Studies show that high levels of the stress hormone cortisol are associated with deficiencies in cognitive performance. Stress may not impair verbal memory or the ability to multi-task, but it has been shown to diminish the ability to concentrate.



This has huge implications for the way that CBD can be used to help people with ADHD. Children are more stressed out than you may think. When researching stress, the APA discovered that kids between the ages of 8 and 17 are apprehensive about doing well in school, finances and getting into college. Additionally, parents don't always notice that their kids are anxious. If they do, they aren't always clear on what's causing the worry.

The endocannabinoid system has been found to play a major role in controlling stress. When humans are exposed to stressful stimuli, the hypothalamus-pituitary-adrenal, or HPA, axis is activated.

Corticotrophin-releasing hormone, or CRH, neurons are abundant in a region of the brain that serves as the hub of the HPA axis. When a stimulus is interpreted as threatening in any way, a chain reaction occurs that starts with the CRH hormones and ends up with high levels of stress hormones circulating in the bloodstream.

On a short-term basis, this allows people to think and act clearly in response to stress, helping them manage it appropriately. If stress hormones are chronically released, however, some people don't adjust well. Their systems become overtaxed, and the stress hormones wreak havoc on their brain and body.

The endocannabinoid system is partly responsible for managing stress levels. When the HPA axis is activated, neurotransmitters that work within the endocannabinoid system are released. They provide signals to let the body know whether it should increase or diminish the stress response. When certain endocannabinoid receptors are activated, they reduce cortisol secretion. Activating the endocannabinoid system may also help people adapt to repeated stress.

If this is the case, then CBD, which works on the endocannabinoid system, may help with chronic and acute stress. There is ample evidence that CBD does, in fact, reduce the negative symptoms of many anxiety disorders.

If you're experiencing stress from general anxiety, social anxiety, obsessive-compulsive disorder or post-traumatic stress disorder, you might feel more balanced when you use CBD. In turn, you may notice that the reduced stress improves your focus.

For children, this may be especially promising. Young minds are especially sensitive to trauma, which doesn't have to be violent to cause stress. Bullying, divorce and fighting at home can increase children's stress levels and produce symptoms that are similar to ADHD.

Environmental and behavioral changes can help children deal with these types of trauma. Because CBD oil lowers stress hormone levels, adding it to the therapeutic profile can boost children's coping skills. It works in a similar manner for adults.



Improving Sleep Quality Enhances Attention

Getting enough high-quality sleep is important for everyone, especially children. It is especially interesting that symptoms of insomnia can mimic signs of ADHD. For example, kids who can't sleep well may:

- Have behavioral problems at school
- Be hyperactive
- Have a short attention span
- Have trouble remembering things
- Be irritable or have mood swings

At the same time, the same issues that produce trouble with focus, such as stress and anxiety, can cause difficulty sleeping. ADHD medications can keep kids awake, interfering with their sleep and perpetuating the problem.

CBD can address this on multiple levels. We've already discussed the way that it can reduce stress to help with concentration. Using it could reduce dependence on ADHD medications, making a huge difference if those drugs are affecting sleep quality.

Using CBD oil can also help regulate your sleep-wake cycle. It can help you stay awake during the day so that you're ready to rest at night. It also reduces the insomnia that stems from anxiety.



Does ADHD Affect Adults?

People with ADHD often have trouble slowing down their bodies and brains. When your thoughts are moving a mile a minute, it's tough to concentrate on a task, especially when it involves sitting still. Hyperactivity can occur on its own, but it is a significant problem for some individuals who have ADHD.

Signs of hyperactivity include:

- Constant talking and interrupting
- Clumsiness
- The need to move consistently
- Fidgeting

Some people with hyperactivity use extra movements to get things done. Therefore, they might even have trouble tying their shoes or writing.

In a study that was conducted on lab rats, CBD was found to reduce hyperactivity. More research must be done to prove that it works consistently, but these initial findings are promising.

Plus, anecdotal reports indicate that CBD is physically relaxing. It has been shown to offset the negative psychological effects of THC, such as paranoia and anxiety. In other words, some people who use cannabis products that contain THC get jittery or stimulated from the drug, and CBD can calm them down.

If ADHD is influenced by dysfunction in the endocannabinoid system, a theory that is supported by some scientific research, manipulating that system with CBD oil could help produce calming effects.

CBD May Help Symptoms of Co-Occurring Psychiatric Disorders

People with ADHD are more likely to have another psychiatric disorder, such as major depression, anxiety and mood disorders. Even though CBD has not been widely studied for its effects on ADHD, it has been investigated for its ability to help with these other conditions.

A 2012 review looked at human and animal studies on CBD and anxiety disorders. There is evidence to suggest that CBD has anti-anxiety effects on people with generalized social anxiety disorder. Other studies have found that the substance reduces anxiety in animals and humans with panic disorders and obsessive-compulsive disorder.

ADHD also has similar symptoms as traumatic stress disorder. People who are exposed to traumatic stress may have lower circulating levels of endocannabinoids in their bodies. Introducing CBD may help regulate their emotions and reactions to triggers.

Certain endocannabinoid receptors are involved in the way that your brain processes and stores memories. The ability to eliminate traumatic associations with memories as they're reconsolidated allows most people to heal from trauma over time. A malfunction in this process can cause the problematic memories to stick around and affect your thoughts, emotions and behaviors. This is what happens in people with PTSD.

If CBD is administered while a distressing memory is activated, it can block the process of reactivation and help the recollections dissipate. CBD can also be used during or shortly after a disturbing event to prevent maladaptive memory processes from occurring.



CBD Can Improve This Surprising Side Effect of ADHD

Unfortunately, about 52 percent of people who continue to feel symptoms of ADHD into adulthood are at a greater risk of developing a substance abuse disorder. In addition to helping people reduce stress, get better sleep and stay calm when their thoughts are whirling around in their heads, CBD may reduce the likelihood of addiction.

The dopaminergic system plays a role in addiction as well as ADHD. Also, the endocannabinoid system has been implicated for its ability to change the way that your brain processes reward. Stimulating the system with CBD may also re-wire the brain, helping people relinquish addictive behaviors.

Although this process is not well understood, CBD has been shown to change the brain mechanisms that are associated with drug use and relapse. CBD's effects on the serotonin receptors may induce mood enhancement and stress reduction, helping people manage intense emotions and making them less vulnerable to stress.

If you've been using alcohol or other drugs to self-medicate, calm yourself down and relax your mind, you might be able to achieve the same effects with CBD. Additionally, you may be able to reduce withdrawal symptoms by using CBD as you wean off of some other drugs.

Can You Really Give Cannabis to Children and Adults With ADHD?

Although CBD comes from the cannabis plant, it doesn't have the same effects as marijuana. Marijuana products contain THC, which is the mind-altering compound that's found in the plant.

Most CBD oils are extracted from industrial hemp, which contains less than 0.3 percent THC. Even if CBD is extracted from marijuana, the pure form does not contain THC. THC must be added to the final product.

Even if they're not using CBD for ADHD in children, many people worry that CBD will make them feel confused or foggy because THC is often associated with those effects.

However, CBD doesn't bind to the same receptors as THC. It doesn't make you feel high. Its effects are quite subtle. In fact, it might be helpful to keep a log while you're using CBD for attention issues because you may not notice the difference right away.



CBD AND AUTISM



According to the Centers for Disease Control and Prevention, about 1 in 59 kids suffer from autism spectrum disorder, or ASD. This disorder can negatively affect a family's quality of life. There is no cure, and some people don't respond to treatment. Many parents, teachers and caregivers become frustrated when working with autistic children because they don't know how to improve problematic behavior or help children with ASD. Cannabidiol, or CBD, is a promising candidate for effective autism treatment.

How Is Autism Treated?

ASD is usually treated with a multilateral approach that involves education, behavioral interventions and medication. Most professionals agree that early intervention delivers the best results. Every person with autism has different symptoms. Therefore, the treatment must be individualized for the patient.



Behavioral treatments for autism include:

- **Applied behavior analysis** – increase helpful behaviors and diminish disruptive actions
- **Floortime** – relationship-based therapy in which caregivers get down on the child's level and follow the youngster's lead
- **Play therapy** – enhances cognitive, social and language skills through fun interaction
- **Occupational therapy** – improves motor, cognitive, physical and social skills
- **Speech therapy** – addresses language and communication issues

People with ASD also have the option of using medication. Medication usually delivers the best results when it's used in combination with behavioral treatments. Drugs are usually used to treat secondary symptoms of ASD, such as anxiety, gastrointestinal problems or hyperactivity.

Some of the most common medications for autism include:

- **Risperidone** – helps with irritability
- **Selective serotonin reuptake inhibitors, or SSRIs** – help with depression
- **Anti-anxiety medications** – reduce nervousness
- **Stimulants** – help with attention problems
- **Antipsychotics** – help with aggression and psychosis
- **Anticonvulsants** – reduce seizures in patients with epilepsy

Up to 64 percent of autistic children take medication for the disorder. Thirty-five percent take more than one drug. Adults with the disorder might take a cocktail of pharmaceuticals to help with their symptoms.

There are many problems associated with giving so much medication to children. It can be hard to get someone with ASD to remember or agree to take his or her pills. No drugs are approved to treat the core symptoms of ASD. Many of the drug combinations that are given to people with this disorder are untested.

Plus, almost every medication that's used for ASD has significant side effects, including:

- Diarrhea
- Tremors
- Dry mouth
- Weight gain
- Nervousness
- Tantrums
- Dizziness

It's important for people with autism to experiment with the right combination of drugs to enhance the medications' benefits and reduce the risks. If they're amenable to taking pharmaceuticals, they might want to consider using CBD oil to treat autism.

CBD: A Refresher

Before we get into the research behind CBD and autism, we want to provide some basic information about CBD. There are many myths and misinformation about the product, and some people believe that using it on children is controversial.

The compound is one component of the cannabis plant. While it's true that marijuana is part of the cannabis family, CBD is not the same as recreational pot. Marijuana and hemp, which are both cannabis plants, contain up to 140 cannabinoids. These are chemicals that interact with the human endocannabinoid system to provide a number of effects.

THC is the one cannabinoid with which many people are familiar. This is the chemical in marijuana that interacts with CB1 receptors in the body and makes people feel high. Most of the other known cannabinoids do not have any psychoactive effect. However, they do regulate the endocannabinoid system to balance central nervous system functions and improve people's health.

CBD is the most abundant non-psychoactive cannabinoid in cannabis plants. Because it doesn't produce euphoric effects but does influence wellness in a variety of ways, researchers have been focusing on it as an alternative to traditional medication for many health conditions.

CBD can be found in a number of products. It is most readily available as CBD oil that can be administered under the tongue, but it comes in extract, tincture, capsule, edible, topical and inhalable forms.

Benefits of Using CBD for Autism

CBD has been shown to improve symptoms of ASD. Some studies have examined CBD's ability to treat the core symptoms of autism. Others have found that it is useful for mediating the secondary symptoms, such as gastrointestinal issues, anxiety and sleep disturbances. There is a long list of studies that shows that CBD is effective for treating epileptic seizures. We discuss the research in more detail below.

Whereas conventional pharmaceuticals that are given to people with autism are associated with adverse effects, CBD has an extremely mild side effect profile. CBD has been well tolerated by most participants in published studies. Anecdotal evidence also suggests that the majority of individuals who use CBD don't have negative reactions.



If users do experience side effects, they might experience:

- Diarrhea
- Sleepiness
- Appetite changes

CBD can interact adversely with some medications. Because someone with autism is likely taking pharmaceuticals, they should consult with their doctor before using CBD.

CBD and Autism: The Research



Many parents are hesitant to give their children a product that's associated with recreational drug use. However, as we mentioned earlier in the article, CBD has many therapeutic effects and is not addictive or mind-altering. Much of the research into cannabinoids is changing the stigma that the marijuana plant holds. Several studies have investigated CBD's use for children with a variety of medical conditions, including autism.

CBD's Effects on Epilepsy Has Been Heavily Studied

Cannabis began its public journey into medicine when it was investigated for its ability to treat epilepsy in Charlotte Figi. The young girl had multiple seizures a day. Some of them would last for hours. By the time she was 2, Charlotte exhibited symptoms of autism and had severe cognitive dysfunction.

She wouldn't make eye contact with people. She was aggressive to the point of self-harm. By age 3, Charlotte couldn't walk, talk or eat.

Charlotte had a rare type of epilepsy called Dravet's syndrome. She was put on several medications, but her condition worsened. Doctors weren't sure that anything could improve it.

After hearing about another child with Dravet's who experienced improvements after using medical marijuana, Charlotte's parents looked into cannabis as a treatment for epilepsy. The child went from having 300 seizures a week to having none. The results were almost immediate.

The Figi's worked with marijuana growers to develop a strain that was high in CBD and low in THC. It was named Charlotte's Web, and it has helped other patients with epilepsy since it was introduced. After that, several studies were performed to look into CBD's effectiveness for treating epilepsy in children. In a 2013 study, parents who had given their children CBD-enriched cannabis were surveyed. Each child in the study had been taking an average of 12 medications per day. Eighty-four percent of parents said that CBD reduced the frequency of their kids' seizures. The children also experienced increased alertness, better moods and improved sleep after using CBD.

An older study found similar effects of CBD on treatment-resistant epileptic patients. CBD doesn't reduce seizures in every individual with epilepsy. However, 30 percent of people with epilepsy don't respond to anticonvulsant medications, either.

What do the epilepsy studies have to do with CBD for autism? It is estimated that about one-third of individuals with autism also have epilepsy. Scientists don't fully comprehend the connection. The variance in brain circuitry in people with autism may make them more prone to seizures than individuals who don't have autism.

Autism Has Been Linked to Dysfunction in the Endocannabinoid System

There have not been many studies into CBD's effects on core autism symptoms. But research does point to the fact that the endocannabinoid system may play a role in ASD. If that's the case, then CBD could be a hopeful treatment.

A 2011 study found that the behaviors were connected to the expression of certain endocannabinoid receptor genes. The researchers investigated whether THC enhanced or decreased autism-like behaviors in mice. They found that behaviors associated with loco motor activity were suppressed when the cannabinoid was administered. These scientists came to the conclusion that cannabinoids could be useful in reducing repetitive, self-injurious and impulsive behavior in people with ASD.

In a human study that was conducted in 2013, researchers found that children with ASD experienced an up regulation of CB2 cells. CB2 receptors are part of the endocannabinoid system. If the body is producing more of those cells in children with autism, logic suggests that administering a cannabinoid that acts on those receptors, such as CBD, may help bring them back to homeostasis.

Another study looked at the correlation between post-natal inflammation and social behavior problems in teenagers. Researchers found that endocannabinoid chemicals played a significant role in neuronal signaling that affected social behavior. They reported that modifying those chemicals could be a target for treating disorders such as social anxiety and autism.



Recent Research Into CBD For Autism

In July 2018, the results of an Israeli study that looked into CBD's effects on the behavior of children with autism were revealed publicly. Researchers administered cannabis with high concentrations of CBD to autistic children whose behavior had not improved while taking conventional drugs. Eighty percent of the participants in the study experienced a reduction in problematic behaviors after taking CBD oil.

The volunteers were children on the autism spectrum. The average age of the kids in the study group was 12. They were given cannabis oil that was composed of 20 percent CBD and 1 percent THC for a minimum of seven months.

At the end of the study period, the parents were asked to report on their children's:

Behavior

Anxiety

Communication

While 80 percent of the parents noticed a decrease in detrimental behavior, 62 percent said that their children's conduct noticeably improved. Fifty percent said that the kids' communication was enhanced, and forty percent reported that anxiety symptoms diminished.

This study shows that CBD may be a promising treatment for children with autism. It's especially favorable because it can improve functioning and quality of life for children who don't get relief from conventional autism medications.

In 2018, UC San Diego Health reported that researchers at the University of California are coordinating a study to examine the mechanisms behind CBD's therapeutic benefits for children with severe ASD. The researchers will look into the way that CBD influences brain activity and whether it can reduce autism symptoms such as self-harm, aggression, hyperactivity, social problems and communication deficits.

The History of Research Into CBD and Autism

This wasn't the first study that showed that CBD has benefits for autistic children. Dr. Adi Aran, the medical professional who treated the children in the 2018 study, is a forerunner in CBD research for autism. In 2017, he ran a novel trial to investigate the effects of cannabis extracts on 120 children on the spectrum.

Aran began studying CBD for autism after seeing the results of CBD treatment for epilepsy. Some participants in those studies were also on the spectrum and experienced improvements in their autism symptoms while using cannabis. He says that parents often ask their children's doctors for recommendations for using CBD for autism, but there weren't enough studies to show that it could help. That's when Aran decided to look into it himself.



When he publicized the trial, his waiting list filled up quickly. People were excited to try something new because the current available treatments aren't always effective.

Participants with moderate to severe autism who were between the ages of 5 and 29 joined the study. Approximately 40 percent did not experience improvements from traditional medications.

Are There Any Gaps in the Research?

Parents, adult patients with autism and professionals in the medical community are interested in CBD for autism. However, there are still not enough studies to prove that the compound works for treating ASD.

Also, the negative associations that people have with cannabis have made it difficult for some scientists to do their work. The Israeli government has a progressive perspective on cannabis research. The government has funded some organizations that study the compound, making it easier for Aran to perform his studies.

Some consumers are afraid to purchase CBD products even though they're completely legal in all 50 states as long as their concentration of THC is lower than 0.3 percent. But people are talking about CBD as a wonder treatment for a variety of diseases and disorders. There's a great deal of anecdotal information online that shared success stories from people who have used CBD for autism.

What About Using CBD For The Secondary Symptoms Of Autism?

As we mentioned before, autism can produce a number of sub-symptoms that can detract from an individual's quality of life. CBD has been shown to improve a number of these.

CBD for Gastrointestinal Symptoms and Appetite Issues

Up to 70 percent of people with autism complain about gastrointestinal problems, including diarrhea, constipation and reflux. Children with autism are more likely to have symptoms of irritable bowel syndrome than children without ASD.

CBD is well known to have anti-inflammatory effects on the intestines of people with inflammatory bowel disease. It also interacts with endocannabinoid receptors in the gut, improving symptoms of digestive distress.

CBD has also been shown to reduce nausea. If stomach upset from medications or other factors makes someone with autism want to avoid eating, CBD may restore their appetite.



CBD for Depression and Anxiety

If people with autism also suffer from depression or anxiety, CBD may reduce the symptoms associated with those co-occurring disorders. A 2012 review found that CBD has proven anti-anxiety effects. It may be a useful treatment for a number of anxiety disorders, including social anxiety. Social interactions are often difficult for people with autism. If they experience anxiety when engaging with other people, CBD may bring them relief.

Endocannabinoid signaling also plays a role in the development of depression. CBD has such potent effects on mood that it works as well as some antidepressant medications.

CBD for Sleep

If an individual with autism has trouble sleeping, CBD can help with that too. Studies on CBD and sleep haven't produced conclusive data. Some research shows that CBD can help you fall asleep, and others demonstrate that the cannabinoid enhances alertness.

It seems as though low doses of CBD contribute to better sleep. Most people don't feel drowsy during the day after using CBD at night. The product might be worth experimenting with for sleep issues because it is much less likely to cause side effects than sleeping pills.

CBD for Hyperactivity

Symptoms of attention-deficit hyper activity disorder, or ADHD, are sometimes found in autistic children. Many users say that CBD has a calming effect. Studies also show that cannabinoids may be useful in treating ADHD.

If you or a loved one has autism, you may be able to find relief from certain symptoms by using CBD oil. Researchers are actively investigating it for its ability to treat core autism symptoms, which most medications don't affect. The compound has also been shown to reduce other problematic symptoms of autism. Moreover, it has been safely used in children and has a better side effect profile than many pharmaceuticals.





CBD AND MIGRAINES

Approximately one out of every seven adults will experience at least one migraine each year. Many of those sufferers end up in the emergency room or their doctor's offices begging for relief. Those suffering from chronic migraines may experience reduced quality of life, especially when over-the-counter pain medications don't provide fast and sustainable relief. That's why many people are now turning to CBD for migraine headaches.

What are Migraine Headaches?

Migraines are more intense than the everyday headaches that you may experience in response to minor stress or allergies. They present with pulsing or throbbing pain that may feel more intense on one side of the head. While a standard headache may pass quickly with or without over-the-counter medication, a migraine can last for days and may require prescription medication. Many sufferers must rest in a dark room while trying not to move for hours or days, which interferes with their ability to meet the demands of their daily life.



The most common symptoms of migraine headaches include:

- Severe pain in the head
- Blurred vision
- Sensitivity to light, sound, smell and/or touch
- Lightheadedness
- Nausea
- Vomiting

Those symptoms apply to an active migraine attack. Chronic sufferers may also experience signs of an oncoming headache hours or days in advance. The warning signs often involve mood swings or changes in food preferences or bowel habits. Some people also recognize an aura that comes on before a migraine hits. An aura may involve changes in any of the senses, including difficulty hearing, seeing or speaking.

People suffering from chronic migraine headaches often live in constant fear. They're always waiting for the next one to hit. They're always wondering if the next one will interrupt their life for just an afternoon, a few days or a week. Others may experience infrequent migraines, but they can come on suddenly and are often debilitating.

How are Migraine Headaches Treated?

Migraines are treated through medication. Most people start out with over-the-counter options, but someone with chronic or severe migraines will require prescription medication. In some cases, doctors or neurologists may prescribe narcotics that are highly addictive. Some medications have side effects that limit the sufferer's ability to drive, operate heavy equipment or even think and speak clearly. The side effects can cause another layer of disruption to daily life.

A doctor may prescribe preventative migraine medication for patients experiencing debilitating headaches that last 12 hours or longer. This level of treatment often applies to patients who don't experience relief from prescription medications taken after the onset of a migraine.

In an effort to eliminate the need for constant medication, many migraine sufferers are turning to natural remedies. That often starts with an effort to avoid stress or known headache triggers. Now that CBD products are readily available, many people are finding that they can prevent or treat their migraines with greater ease.



What Is CBD?

CBD or Cannabidiol. It's a substance found naturally in the cannabis family of plants, including marijuana and hemp. When the CBD is isolated from the plant, it takes the form of oil that is heavily used in products for humans, dogs, cats and other animals today. You can now buy CBD extract in the form of oil, edibles, concentrates, creams and various tinctures. There are even CBD waters hitting the market, so look for new inventions as Cannabidiol becomes more readily available.

THC is another extract taken from the marijuana plant. It has the psychoactive impact that allows marijuana users to feel high. CBD doesn't have the same impact, so it produces no high. Most of the CBD products that you purchase online is extracted from the hemp plant and contain no THC.

Products extracted from the marijuana plant will have some THC, but the amounts can vary. You're most likely to find these products through dispensaries in states that have legalized marijuana at least for medical use. It's still illegal to distribute marijuana products openly over the Internet, so most of the products shipping around the world are derived from hemp.

How Can CBD Help Migraine Headaches?

Researchers are actively studying the benefits of CBD for a variety of medical conditions. Marijuana was considered an illegal and dangerous drug for many years, so there wasn't much research into potential medical applications until recently. That means there aren't many scientific studies into the use of CBD as a treatment for migraines.

That doesn't mean that you can't relieve your migraines or even prevent future attacks by taking a pure CBD extract. There are some studies that give some insight into how effective CBD is as a migraine treatment. You can also find many first-person stories online that prove real people are finding relief by taking CBD regularly. Now that we know CBD is a safe extract that doesn't produce the high of marijuana, you can expect more research to surface in years to come.



An Overview of the Research

A 2017 issue of *Cannabis and Cannabinoid Research* featured an overview of scientific studies designed to test the effectiveness of CBD for headache disorders. The researchers state that headaches are a major public health concern that costs about \$14 billion annually due to the debilitating impact that interferes with work and quality of life.

The overview noted a lack of scientific studies with control groups and other markers of trustworthy research. That doesn't mean that they found no evidence. Their list of applicable studies included a 1997 case report that found cannabis was more effective at relieving headaches than opiates and beta blockers. All participants in that study were women.

Another 1997 case report documented the successful treatment of a single patient's migraines with cannabis that "did not produce inebriation." In a case series featuring five patients, three migraine patients experienced complete relief of symptoms after taking cannabis. In one of the cases, cannabis was found more effective than dronabinol for the relief of migraines.

A retrospective study with 121 migraine sufferers found that cannabis reduced headaches from around 10 per month to fewer than five per month. Migraine pain was completely relieved in about 11 percent of participants. About 20 percent of participants reported decreased frequency in migraines. Approximately 40 percent of participants reported some level of positive results from taking cannabis. It's worth noting that all of these studies focused on cannabis rather than the CBD extract. Some of the studies allowed patients to smoke cannabis, so THC and other natural compounds found in the marijuana plant may have contributed to the results.

Research on CBD for Pain Relief

More research into the treatment of migraines with CBD is likely to surface in the future. Perhaps some of those studies will focus on CBD without the full impact of cannabis with THC. In the meantime, we can also consider research into the use of CBD for pain relief in general. Migraines are an intense form of pain; so much of the pain research is of interest to headache sufferers.

Research published in a 2006 issue of *Current Neuropharmacology* found that CBD is effective at suppressing pain receptors, especially for neuropathic pain suffered by Multiple Sclerosis patients. The researchers noted that further studies are needed, but they also revealed great promise for the use of CBD for chronic pain relief.



One overview of research into CBD and pain relief was published in the journal *Therapeutics and Clinical Risk Management* in 2008. Most of the studies included in the overview focused on a full-plant marijuana mouth spray known as Sativex. The treatment was found highly effective for a variety of pain conditions, including neuropathic pain for Multiple Sclerosis patients and intractable chronic pain. While THC may have impacted the results, it's safe to assume that CBD was also helpful in the pain relief.

Research into the use of CBD for pain relief is ongoing. Research reported in the journal *PAIN* in January 2019 points to new discoveries related to how CBD interacts with the human body to produce pain and anxiety relief. The research was conducted on animals, but researchers will likely try to reproduce the results in human clinical trials. Not only could it deliver proof that CBD is effective for pain relief, but it could show us how that pain relief is produced.

How to Take CBD for Maximum Migraine Relief

CBD oil is the most accessible form of Cannabidiol today. You can buy hemp-derived CBD oils online, but make sure that you research the provider. Look for pure CBD oil without unnecessary added ingredients. Buying from a trustworthy brand name that is supported by positive customer reviews from real people will ensure that you get maximum results with minimal side effects.

You can take CBD in a variety of ways. Most people start with a pure CBD oil or tincture that is dropped under the tongue. You can add CBD oil to foods, drinks and smoothies without substantially altering the taste. There are some CBD edibles out there, but it's difficult to determine the dose included in pre-prepared edibles. You can make your own edibles by adding drops of the oil to your favorite homemade goodies. There are many recipes online for CBD-infused gummy bears, candy cups and other treats.

Vaping and dabbing are becoming more popular with CBD users, but those methods aren't suitable for everyone. You need to buy CBD vaping cartridges and a vape pen if you want to go that route. Dabbing requires a special concentration of CBD, a dab rig and other supplies. Dabbing is attractive to many migraine sufferers because it delivers faster pain relief, but not everyone enjoys the process of heating a cannabis extract. Research the process thoroughly before buying concentrates and giving it a try.

Dosing Guidelines

Researchers have found that a low dose of CBD taken for seven consecutive days can effectively relieve pain and anxiety. That explains why many people take CBD oil daily to help control many sources of chronic pain, including migraines and headaches. When taken daily as a preventative measure, you don't need a lot of CBD. A low dose taken consistently may produce the results that you need.



If you have an active migraine and you're desperate for immediate relief, you may try vaping or dabbing CBD. These methods of administration are more intense than simply dropping oil under your tongue, but they deliver the fastest results. You will also receive a more concentrated dose of CBD when you dab. There is a learning curve to these methods, so you might want to try it before your next big migraine. That will ensure that you know how to quickly deliver the CBD you need when a migraine hits.

Since most of the research into CBD and migraine headaches currently focuses on cannabis with THC, you might consider a prescription for medical cannabis. The combination of THC, CBD and other compounds naturally found in the marijuana plant may have the most impact for severe migraine headaches. This is only an option if you live in a state that has legalized medical marijuana and you have a medical professional willing to give you the diagnosis and prescription.

Possible CBD Side Effects

While more research into the potential side effects of CBD is needed, it is deemed safe for most people. That includes children, teenagers and young adults. Pure CBD without THC doesn't produce a high, but it's important to purchase from a reliable brand offering a consistent product. There was a study that analyzed over 80 CBD products available online. The results revealed that many of the products contained less CBD than advertised. Some of the products even contained THC. With a little research, you will find a CBD product that delivers a reliable and effective product.

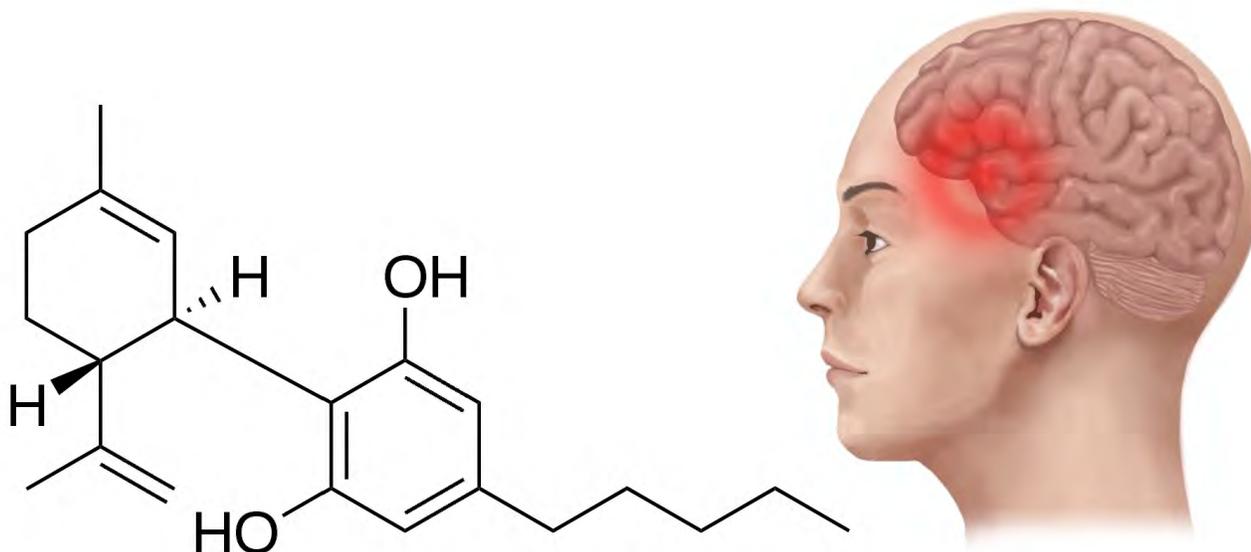
While most people experience no negative reaction to CBD, there are some potential side effects to keep in mind:

- Dry mouth
- Nausea
- Dizziness
- Diarrhea
- Appetite changes
- Nausea
- Mood swings

Some people do report feeling drowsy after taking CBD, so you should take your first dose on a day that you don't need to drive. CBD may also interact with some prescription medications. It's important to talk to your doctor to identify potential interactions before taking your first dose. Even if your doctor won't recommend or prescribe CBD, they can tell you if there are any dangers with your current medication list.



Will CBD Cure Your Migraines?



CBD can dramatically decrease the number of migraine headaches that some people experience each year. It may also reduce the intensity of a migraine when taken at onset. It's not guaranteed to cure all migraine headaches, so treat it as you would any other treatment option. Try it for preventative measures first, and then decide if you want to explore dabbing or vaping for fast delivery in the midst of an active migraine.

There are many potential causes for migraine headaches. Your cause may determine the effectiveness of CBD and other treatment options. CBD is just one more resource that may help you create a well-balanced prevention and treatment plan.



CBD AND CHILDREN

CBD is creating a lot of buzz within medical and parental circles. It started with parents looking for a more effective, natural way to treat epilepsy, but children are now receiving CBD for ADHD and many other medical conditions. If you've heard about potential benefits that you would like to achieve for your child, this guide will answer all of your questions regarding the safe application of CBD for children.

CBD vs. THC vs. Marijuana vs. Hemp – What's the Difference?

Some people will react with shock when you mention treating children with CBD oil. This is typically due to a lack of CBD knowledge and the many myths and misconceptions about CBD. They equate CBD with marijuana and assume that these products will get kids high. They may also believe that consuming CBD will lead to a severe drug addiction that ruins the child's life. In reality, the opposite is true as many adults use CBD to help with addiction recovery. There is some scientific proof that it can reduce the risk of relapse.

Understanding the following CBD terms will make it clear why carefully selected CBD products are an appropriate treatment for children with a variety of medical and behavioral issues:

Cannabis is a family of plants that includes marijuana and hemp. Plants within the family are classified as either Sativa or Indica, depending on their natural growing patterns and cannabinoid concentration. Cannabinoids are natural components of the plant that are associated with health benefits. THC and CBD are the most popular cannabinoids.

Marijuana is a plant within the cannabis family. It's classified as a Sativa plant and is illegal in many states due to its widespread use as a recreational drug. Marijuana plants are up to 40 percent THC. Hemp is a Sativa cannabis plant with a low concentration of THC. This plant is rich in CBD and won't get you high.

CBD stands for Cannabidiol and is a cannabinoid found naturally within the cannabis plant. It won't cause a psychoactive response and will not get you high. Pure forms of CBD oil are most commonly used in scientific research.

THC stands for tetrahydrocannabinol and is a cannabinoid found naturally within the cannabis plant. It causes the psychoactive response that humans associate with getting high and is what satisfies recreational marijuana users. It also has medicinal benefits.

An understanding of these terms makes it clear why CBD oil without THC is commonly administered to children. The oil is often derived from the hemp plant and will not produce a high or is extracted from the marijuana plant with low THC concentration. It still has tremendous medicinal power.

How Can CBD Help Children?

Many parents turn to CBD oil when prescription medication and other standard treatments fail to work for their children. Most kids receiving CBD suffer from serious medical conditions that interfere with their quality of life. Some kids can't focus in school while others are medically prohibited from attending school at all. CBD can make the difference between a life of suffering and an enjoyable childhood.

Epilepsy

The movement of treating children with cannabis started with desperate parents trying to control seizures in kids. While many epilepsy patients can control their symptoms with medication, the ketogenic diet and lifestyle changes, those with intractable epilepsy may suffer for a lifetime. They live with the worry that their next seizure can come at any moment, and they often fall, hit their heads and suffer injuries during seizures.

For some children with epilepsy, CBD oil is a life-changing and potentially life-saving treatment. It's often last hope when surgery isn't an option.



In 2018, the U.S. Drug Enforcement Agency and the Federal Drug Administration approved one CBD-based medication for patients aged two and older suffering from Lennox-Gastaut Syndrome or Dravet Syndrome. This came after the release of a scientific study that showed CBD can reduce incidents of convulsive and drop seizures in patients with these rare seizure disorders.

There have also been some scientific studies that prove CBD is effective for the treatment of epilepsy. One review of the research published in the journal *Developmental Medicine & Child Neurology* found that CBD could reduce seizure activity by a median of approximately 40 percent. The studies also revealed a responder rate close to 50 percent, which means that close to half of study participants reduced their seizure rate by 50 percent or more.

ADHD

There isn't much research into the use of CBD for ADHD, but there is a growing body of anecdotal evidence. People around the world are trying CBD oil to control hyperactivity and improve focus in children as well as adults. It's estimated that about half of all people trying this method of treatment will notice improvements in ADHD symptoms. The other half won't notice improvements, but they also won't suffer serious side effects or negative outcomes.

When considering anecdotal evidence, it's important to consider the quality of CBD products used. Some products are purer, and the concentration of CBD can vary. The amount of CBD taken varies between anecdotal accounts as well. Those experiencing no effect from CBD may not have access to a high-quality, pure CBD oil or tincture with an adequate dose of cannabinoids.

One study published in a 2017 issue of the journal *European Neuropsychopharmacology* provides some evidence that CBD does work for many ADHD patients. 15 adults with ADHD were treated with Sativex Oromucosal Spray, which contains cannabinoids. The study compared the results against a placebo group of 15 adults also diagnosed with ADHD. The results showed greater improvements in hyperactivity/impulsivity and inattention for the group receiving the cannabinoid spray.

Like many studies related to CBD use in children, there are concerns with this study. Researchers involved in the study have noted that participants may not have discontinued use of other medications or alcohol, which could impact the results recorded.

There are no significant studies that show clear benefits for ADHD patients; so more research is needed before medical professionals start prescribing CBD for children with ADHD. In the meantime, many parents are trying CBD oil with mixed results.



Nausea and Vomiting

The treatment of nausea and vomiting is one of the traditional uses of the cannabis plant before it became widely known as an illegal drug. This use is backed up by at least four modern scientific studies that found it effective for children suffering from nausea and vomiting in response to chemotherapy. Researchers found that cannabinoids were more effective than several prescription medications for many children.

Pain

Seniors are investing heavily in CBD as a natural way to treat chronic pain from arthritis and other medical conditions. Since some children also suffer debilitating pain, it makes sense that parents may consider using CBD for the same purpose. Many over-the-counter and prescription pain medications can cause liver and kidney damage, and there's always the risk of addiction for children prescribed some of the more effective pain medications.

CBD doesn't come with those harsh side effects, and there is a growing body of scientific research that shows promise for its effectiveness in pain management. One study published in a 2016 issue of the *European Journal of Pain* found that the topical application of CBD gel effectively reduced pain and inflammation in rats suffering from arthritis.

Anxiety

According to the Anxiety and Depression Association of America, approximately 25 percent of children between ages 13 and 18 suffer from anxiety disorders. About 80 percent of kids with diagnosable anxiety receive no treatment for their symptoms. Those that do seek treatment often end up on addictive prescription medications that come with serious side effects. They may also invest in psychotherapy, which often takes years to produce results.

Many parents are turning to CBD for children struggling to attend school, make friends and enjoy other activities that are natural to kids without anxiety. While more research is needed to prove that CBD relieves anxiety in children, there are some studies that give validity to that claim.

One study published in the January 2019 issue of the journal *Pain* found that CBD treatment reduced anxiety by activating the 5-HT1A receptor. That study was focused on the anxiety associated with neuropathic pain, so it also provides evidence for the use of CBD for pain management. Another study published in a 2016 issue of the *Permanente Journal* found that 12-25 mg of CBD administered once daily to children with PTSD suffer is an effective treatment for anxiety and insomnia. It's likely that the results will translate to children suffering from generalized anxiety and other anxiety disorders.



Insomnia

The *Permanente Journal* study mentioned above in regards to anxiety also provides evidence that a daily dose of CBD oil can help children suffering from insomnia. More research is needed to understand how CBD may help with various forms of insomnia, but preliminary studies do show some therapeutic benefits for people of all ages who feel tired during the day or struggle to sleep through the night.

Research has proven that CBD treatment has no harmful impact on healthy sleep-wake cycles.

Depression

According to the CDC, approximately two million children between the ages of three and 17 have been diagnosed with depression. This represents a noticeable increase since 2003. If you take into consideration that many depressed children never seek medical treatment, the statistics are probably much higher.

Treatment for depression often involves prescription medications that come with harsh side effects. Many of these medications are addictive, and it takes time to slowly wean off these medications to avoid severe nausea and other symptoms. Psychotherapy is helpful for many but doesn't offer immediate benefits. That is why CBD oil is attractive for many children and teenagers suffering from depression.

While more research is needed to prove that CBD oil relieves depression, there are some studies that show promise. For instance, one study published in a 2014 issue of the journal *CNS and Neurological Disorders* showed that CBD produced antidepressant-like effects in animals.

Oppositional Defiant Disorder

Children with oppositional defiant disorder, also known as ODD, are excessively aggressive, defiant and argumentative with adults and authoritative figures. They are often angry, resentful and spiteful. Many children diagnosed with this disorder will end up in serious trouble that threatens their future as adults. That is why some parents are turning to CBD as a potential treatment.

While there is some anecdotal evidence that some children with ODD find CBD beneficial, more scientific research is needed to determine the most effective dose. It's important to note that many children with ODD are also diagnosed with anxiety and/or autism, and there is some evidence that CBD can help with those conditions as well.



Autism

According to the CDC, approximately one out of every 59 children in the U.S. have some form of autism. This represents a shocking increase from about one in 150 in 2000. Treatments for children with Autism Spectrum Disorder are aimed at improving symptoms because there is no known cure. Treatments typically focus on behavioral correction and dietary adjustment, but many autistic children continue to suffer uncomfortable symptoms daily. That is why many caregivers are putting a lot of hope in CBD.

Studies designed to prove the benefits of CBD for children with autism are still in the early stages. Many parents and medical professionals are excited about the FDA's approval of a CBD medication for epilepsy because it paves the way for similar medications that may help with autism.

Some parents are already treating their autistic children with CBD, and a body of interesting anecdotal evidence of its effectiveness has surfaced as a result. Others are holding out for the results of upcoming clinical trials that will provide more evidence regarding the benefits and most effective dosage.

Is CBD Safe for Children?

Pure CBD oil is generally considered safe for most children. There is no scientific research to prove this for all children, but research is ongoing. One of the biggest concerns with CBD is potential interaction with some prescription medications.

Most evidence regarding the benefits of CBD for children rests on anecdotal stories without valid medical proof. While there have been some scientific studies completed with the intention of determining benefits, safety and side effects, most are considered unreliable for one or more of these problems:

- Lack of control groups
- Small sample size
- Improper design
- Lack of follow-up for long-term observation

Treating Children with CBD

It's difficult to find specific pediatric dosage and administration guidelines. A medical doctor from the Pediatric Neurology department of Children's Hospital Colorado states that additional research is needed to determine the proper dose of CBD for children. She recommends that parents consult with a medical doctor before administering any CBD product to a child.



While this doctor was speaking to parents of epileptic children, it applies to anyone considering the use of CBD for children. The amount of a CBD product that a child needs for therapeutic benefits will vary, depending on the type of product used and the reason for treatment. For instance, a pure CBD isolate that contains no THC may require a higher dosage than a full-plant oil that contains some THC.

Dosing Guidelines

Some doctors won't discuss CBD dosing for a child, stating that additional research is needed to determine dosage guidelines. The general recommendation is to start with the lowest dose possible and increase gradually until you achieve the desired therapeutic results. This is still best completed under supervision of a doctor familiar with the child's medical history.

Methods of Administration

Children should never smoke a CBD product regardless of the THC content. Dropping CBD oil or tinctures under the tongue or on the tip of the tongue delivers fast absorption into the body. You can also mix CBD oil with foods or drinks, which is best if your child doesn't like taking medication of any kind. There are many recipes for THC edibles online, or you can add the oil to any treat that your child loves. Some tinctures also come as mouth sprays.

You can buy edibles like CBD gummies, but this can get expensive for daily use. You can even buy water that contains CBD. Make sure that you know the purity of the CBD used, and verify that no THC is included. You should also know the amount of CBD in the product to ensure that it's safe for your child.

Whether you make your own CBD foods or buy edibles, make sure that these treats are kept out of reach of all children and pets. A child may not understand that there is a medicinal ingredient, so they will find the treats tempting.

The Cost of CBD for Children

After going through the research and learning about the benefits of CBD for children, you likely have two questions on your mind. How much does CBD cost? Will my insurance pay for CBD?

Health insurance companies won't cover CBD products, but that may change in the future as the Drug Enforcement Agency and Federal Drug Administration continue to approve CBD-based medication for specific medical conditions. For now, most insurance policies won't even cover medicinal marijuana prescribed by a doctor.

It's common for parents to spend hundreds of dollars a month on CBD for their children. For some, the cost can hit \$1,000 per month. Pure CBD tinctures derived from the hemp plant are most commonly used for pediatric application, and the purest products are often the most expensive. The total cost for a child depends on the type of product used and the amount consumed each month.





CBD AND EPILEPSY

Although many people are familiar with CBD's benefits for managing pain, anxiety and stress, CBD is perhaps best known for its ability to treat epilepsy. In 1980, Dr. Raphael Mechoulam performed a breakthrough study that demonstrated CBD's promise as an epilepsy remedy. Although its use was controversial at first, CBD has been losing its stigma as more people become familiar with its benefits.



What Is Epilepsy?

Epilepsy is a seizure disorder that affects people of all ages. The term describes a wide range of disorders that involve seizures. Symptoms can vary from person to person.

Epilepsy is characterized by recurrent seizures that aren't always caused by a particular trigger. Infections, brain malformations, low oxygen levels, tumors, fever and genes can cause epilepsy. In most cases, the reason for the seizures is unidentified. About 50 percent of people with this disorder have not identified the cause.

People with epilepsy can have different types of seizures. They may also exhibit other neurological problems. The convulsions begin because of electrical activity the brain but can affect different parts of the body.

Some researchers have focused on treatment options for people with epilepsy. Other scientists are still trying to pinpoint what causes the disorder.

The Story Behind CBD for Epilepsy

Charlotte Figi, who was born in 2006, has such a severe form of epilepsy that doctor's didn't expect her to survive. She experienced her first seizure, which lasted for 30 minutes, when she was 3 months old. Within a few months, she was having several seizures a day.

Blood tests and brain scans didn't reveal any abnormalities. Doctors were perplexed.

Charlotte was put on seven medications, which affected her energy levels and cognition. Her seizures also slowed her down. By the time she was 2 years old, Charlotte's brain function was declining. She wasn't hitting the same milestones as her brother.

When she was 2 and a half, Charlotte was diagnosed with Dravet syndrome. This form of epilepsy is resistant to medication. Doctors put Charlotte on a ketogenic diet, which encourages the body to produce an abundance of ketones, natural chemicals that keep seizures in check.

The diet helped for a while, but the seizures came back. Eventually, Charlotte wasn't able to walk, talk or eat. Her heart had stopped several times. The Figis were told that there were no other options to help their daughter.

The Figis heard that cannabis treatments had improved the symptoms of another child's Dravet syndrome. They applied for a medical marijuana card for Charlotte, and she became the youngest candidate for a marijuana prescription in Colorado.

The family had a friend extract the oil from a high-CBD strain of cannabis so that they could administer it to their daughter without requiring her to smoke marijuana. In the first hour after she used CBD, Charlotte didn't have any seizures.



It was the first time in months that she was seizure-free. The seizures stopped for a week, and the Figis were desperate to replenish their supply. They got in touch with the Stanley brothers, who were having trouble selling a CBD-rich strain of marijuana that they had developed using crossbreeding. They couldn't sell it to recreational marijuana users because it was so low in THC that it didn't make anyone high. For this reason, it was referred to as "Hippie's disappointment." It was perfect for Charlotte Figi, however. It didn't make her high, and the high CBD levels helped reduce the frequency of her seizures.

There are many other anecdotes online about children with epilepsy who have benefited from using CBD oil. Trystan Pearson developed epilepsy when he was 12 years old. Even though he had a device implanted in his chest to control his seizures, he experienced detrimental symptoms that affected his quality of life.

CBD oil was used as a last resort. It worked.

The Biological Actions of CBD

CBD works by influencing two related endocannabinoid receptors, CB1 and CB2. These receptors are distributed throughout the central nervous and immune systems.

Endogenous substances, chemicals that are found in our bodies, interact with these receptors to help regulate communication between neurons. Many studies have revealed that abnormalities in the endo-cannabinoid signaling pathways are involved in the development and progression of epilepsy. Modifying these systems using exogenous cannabinoids, chemicals that act on endocannabinoid receptors, has been shown to reduce or eliminate seizure activity.

CBD is one of the exogenous cannabinoids that has been studied for this purpose. CBD interacts mainly with CB2 receptors, but it doesn't appear to exert anti-seizure activity by communicating with the endocannabinoid receptors directly. Instead, it may activate certain neurotransmitters that influence the endocannabinoid receptors.

One way that CBD does this is by enhancing anandamide signaling. Anandamide is an endogenous cannabinoid that works as a natural antidepressant.

Anandamide is also implicated in certain diseases, such as epilepsy. Researchers have found that epileptic patients have lower anandamide concentrations in their spinal fluid.

The mechanisms by which CBD controls seizures are not fully understood. Scientists believe that the cannabinoid's influence on certain neurotransmitters may play a role. They theorize that CBD dampens neuronal activity and excitation by acting on certain receptors and channels that make up the endocannabinoid system.



CBD also reduces inflammation, which is a factor in the development of epilepsy. Scientists think that targeting inflammation with epilepsy treatments may be a novel way to create better drugs to treat the disease. Because we know that CBD has anti-inflammatory properties and few side effects, it may be worth introducing it into a comprehensive treatment plan.

Research on CBD for other medical conditions has found that the compound has neuroprotective qualities.

One of the problems with traditional epilepsy medications is that they don't always work. If a patient doesn't respond positively to the first two types of medications that are used, he or she is not likely to experience improvements with a third medication. However, research indicates that the same people who are resistant to pharmaceutical medication may respond well to CBD oil.

Scientific Evidence Supporting CBD for Epilepsy

CBD is the only non-THC exogenous cannabinoid to have been studied in clinical and preclinical trials for its ability to reduce seizures. There are many other cannabinoids found in cannabis, but most exist in much smaller concentrations than CBD does. Small studies on these other compounds have found that some other cannabinoids also have anti-seizure effects.

The study that launched a new decade of research into CBD for epilepsy took place in 1980. This small study was promising.

In the first phase of the study, eight healthy volunteers were given CBD, and eight took a placebo. Physical and neurological examinations were conducted weekly to check for adverse reactions to the CBD.

In the second phase, 15 patients with epilepsy received either 200 to 300 milligrams of CBD or a placebo each day for as long as 4.5 months. These patients continued to take their epilepsy medication even though it had stopped being effective. CBD reduced the frequency of seizures in all but one patient.

Even though this research was groundbreaking, the progress of CBD research was slow.

A study that was published in May 2017 in the New England Journal of Medicine concentrated on CBD's ability to treat children with Dravet syndrome. The researchers gave 120 young people with the medical condition 20 milligrams of CBD oil or a placebo every day for 14 weeks.



The volunteers who took CBD saw a reduction of more than 50 percent in their seizure frequency. The average number of seizures per month diminished inconsequentially for those who consumed the placebo. None of the controls became seizure free. However, 5 percent of the subjects who used CBD oil experienced a complete cessation in their seizures.

The data shows an objective improvement in the symptoms of the children who used CBD. Subjective impressions of CBD's effectiveness were also measured. More than 60 percent of the parents whose children took CBD said that they noticed improvements in their kids' conditions. Only 34 percent of people in the control group parents had the same reaction. Although several other studies have revealed that CBD can reduce seizure activity, more research needs to be done on CBD's long-term effects. The science behind CBD and epilepsy is still relatively new.

Much of the research is being conducted in Israel, where government standards are more lenient and using a cannabis-based compound isn't so controversial. In 2018, Israeli researchers found that approximately 33 percent of epileptic patients that use CBD for their disorder develop a tolerance to it.

In these individuals, CBD became less effective over time. The dose had to be increased by at least 30 percent to produce the same results as it did when the participants started taking the compound. It took about 7 months for these users to develop a tolerance.

Some of the patients who increased their dosage continued to experience a reduction in seizure frequency. The compound stopped working for other participants. These individuals had treatment-resistant epilepsy and age ranges of 1 to 37. Those who had epilepsy for a shorter period of time were more likely to develop a tolerance.

A CBD-Based Medication Is Approved for Epilepsy

So much research surrounding CBD and epilepsy has found the compound to be effective that the FDA has approved a CBD-based pharmaceutical for epilepsy. Epidiolex was approved in June 2018 to treat seizures in individuals with Dravet or Lennox-Gaustaut syndrome. It is derived from CBD and is available with a prescription.

Epidiolex is the first medication sourced from the cannabis plant to be approved for use in the U.S. Some other cannabinoid pharmaceuticals that have been approved for pain are derived from synthetic chemicals. However, Epidiolex is extracted from the natural plant.

The prescription medication isn't cheap, though. CNN reports that the drug can cost more than \$30,000 per year. The price tag parallels the cost of other conventional epilepsy medications. However, Epidiolex is often covered by insurance. Other CBD oils are not.



Because Epidiolex is so expensive, some people wonder how it differs from CBD oil that can be purchased at a cannabis pharmacy or online. Epidiolex delivers a dependable dose of pure CBD from a known, constant source. It contains sesame oil, ethanol, sweetener and a flavoring compound. The substance and the dosage have been studied in clinical trials, and consumers can count on receiving a consistent product every time they refill their prescriptions.

The problem with CBD oils that you buy online is that they're unregulated. There is no strict oversight or enforcement of the CBD manufacturing process. Manufacturers don't always make their products using the same strains or ingredients.

A 2017 study found that approximately 70 percent of CBD products sold online were not labeled accurately. If you use Epidiolex, there is no question about the ingredients that the product contains. Some CBD makers are more reputable than others. It's possible to get pure CBD that contains consistent ingredients every time you buy it. Look for high-quality sellers with reviews and professional websites. A reputable vendor should make third-party lab results available.

At any rate, the approval of Epidiolex may be a turning point for medical cannabis. Scientists, doctors and lawmakers are beginning to see more evidence that CBD can be effective for treating epilepsy. The fact that the FDA approved Epidiolex gives some people hope that cannabis will lose some of its stigma and become more widely available.

Epidiolex has only been studied in people with Lennox-Gastaut and Dravet syndrome. It may not be effective for every type of epileptic seizure. More high-quality CBD clinical trials are underway. Some scientists are looking into Epidiolex's effectiveness in treating other seizure disorders, including Sturge Weber Syndrome and Tuberous Sclerosis Complex.

Is Using CBD for Children Controversial?

As people heard Charlotte's story, many came out of the woodwork expressing their opposition to using medical marijuana for children. Some don't understand that marijuana can be bred with different levels of cannabinoids. Many assume that all cannabis makes people high.

Marijuana and hemp plants contain up to 140 different cannabinoids, the compounds that interact with the endocannabinoid system in humans to deliver health benefits and other effects. THC is one of those cannabinoids. This is the only known major cannabinoid that produces a high.

CBD is another abundant cannabinoid in the plant. It has been shown to relieve pain, diminish inflammation, ease anxiety and suppress seizures. It has no psychoactive properties and is not intoxicating.

While much of the literature touts CBD oil as a substance that produces no side effects, adverse reactions can happen. In the 2017 New England Journal of Medicine study referenced above, side effects were definitely more pronounced in the group that took the CBD compared to the placebo group. More people from this category withdrew from the trial.



The most common side effects were:

- Diarrhea
- Vomiting
- Lethargy
- Raised body temperature
- Drowsiness
- Irregular results on liver function tests

Some of these side effects, such as digestive distress, might be caused by the fact that the CBD extract is combined with oil. In some studies, participants taking an oil-based placebo experienced similar stomach ailments.

On the other hand, many medications that are FDA approved for certain medical conditions and prescribed to children on a regular basis have serious side effects, including the risk of addiction and overdose. It would seem that many pharmaceuticals that are used to treat epilepsy, including barbiturates, are riskier than CBD.

When a patient has debilitating symptoms like the ones that Charlotte Figi experienced, the side effects associated with CBD would likely be the least of their worries.

Is CBD Better Than THC for Epilepsy?

Because so many marijuana dispensaries are popping up where marijuana is legal, some people might wonder if the ratio of THC to CBD really matters. Although THC has been shown to have beneficial effects for treating cancer and pain, CBD is more effective for epilepsy.

Evidence from animal studies demonstrates that CBD has a better anticonvulsant profile than THC. Plus, CBD is better suited for children than plants that contain high levels of THC because of its lack of abuse liability and psychoactive effects.

Some literature suggests that high doses of THC can cause seizures. In one case study, a man was admitted to the hospital because he was having epileptic seizures. He was 44 years old and had been smoking marijuana regularly for 26 years. He had high levels of THC in his urine.

Other small studies that have looked at the link between THC and seizures have produced mixed results. Some demonstrate that THC can reduce the frequency and severity of seizures. Others found that THC had no effects on convulsions. In one study, the offspring of rats that were given THC were more likely to develop seizures.

On the other hand, CBD is associated with more consistent anticonvulsive effects. It doesn't work for everyone. However, traditional epilepsy medication is not 100-percent effective either.



Some CBD oils also contain THC. If you live in a state in which marijuana is legal, you might want to check the THC content of your product before purchasing it to use for epilepsy. If marijuana is illegal in your state, CBD oil that you purchase from a reputable vendor should have a THC concentration of less than 0.3 percent.

What is The Best CBD Dosage for Epilepsy?

Most experts recommend starting out with low dosages of CBD. Taking 5 to 10 milligrams once or twice a day is usually a good guideline for people who have never used the substance.

With time and awareness, the dosage can be modified.

Some evidence shows that low doses of CBD are effective for treating epilepsy. Other research demonstrates that high doses have anticonvulsant effects as well.

But higher doses might produce more side effects. In 2018, WebMD reported on a clinical trial that showed that patients taking 10 milligrams per day of pharmaceutical-grade CBD experienced a similar reduction in seizures as those who took 20 milligrams per day. The group that took the lower dose experienced fewer adverse effects.

Most of the studies on CBD for epilepsy looked at groups of people who were taking other seizure medications at the same time. It's not a good idea to stop taking your medication without consulting with a doctor. Some doctors aren't very knowledgeable about using CBD for seizures. However, because many laws are making it easier to access CBD, many medical professionals are learning more about it so that they can offer it to their patients.





CBD AND CANCER

According to the National Cancer Institute, approximately 1.7 million new cancer diagnoses are expected to have been made in 2018. About 38 percent of adults will develop cancer during their lives.

Cancer research is some of the most highly funded disease investigation in the world. Scientists are continually finding new ways to treat different forms of cancer and manage symptoms.

The costs associated with cancer care are high, and they are expected to increase as the population ages. New cancer treatments may be revolutionary, but they're often more expensive than their predecessors.

CBD oil has been studied as an alternative to traditional cancer medications. There is plenty of anecdotal evidence about CBD's effectiveness as a cancer treatment. You might wonder if there is scientific proof behind these stories. Although the research has been limited because of the classification of marijuana as a schedule I drug, scientists continue to look at compounds in the cannabis plant for their potential in reducing the devastating effects of cancer.



A Brief Introduction to CBD and the Endocannabinoid System

Cannabidiol, or CBD, is one of more than 100 cannabinoids that can be isolated from the cannabis plant. It's one of the most abundant compounds in the plant.

Some people are more familiar with tetrahydrocannabinol, the most plentiful cannabinoid in the marijuana plant. THC is responsible for producing the intoxicating high that many marijuana users experience. But not all cannabis plants are high in THC. Some are bred to have higher levels of CBD. Why would someone want to use marijuana that doesn't get him or her high? The other cannabinoids in the plant have therapeutic benefits.

THC has been studied for its potential to treat cancer. In this article, you'll learn more about medical marijuana and its role in the treatment of the disease.

Scientists have been turning their sights on CBD because it may have more health benefits than THC. Plus, it's more widely available because it doesn't have psychoactive properties.

When someone uses marijuana, the compounds in the plant interact with that individual's endocannabinoid system, which is composed of receptors throughout the nervous system. THC binds to different receptors than CBD does. Therefore, it produces distinct results.

Researchers who were investigating the effects of marijuana on the brain discovered the endocannabinoid system. As they learned more about the way that the endocannabinoid system works, scientists realized that communication between neurons is not a one-way street.

They had once thought that signals are only sent through synapses in one direction. In 2001, researchers found that the endocannabinoid system operates via retrograde signaling. Instead of manufacturing neurotransmitters in a presynaptic neuron and sending them to postsynaptic neurons, endocannabinoids tell the postsynaptic neurons to produce the chemicals. The presynaptic neurons contain the targets for those neurotransmitters.

By acting in this manner, the endocannabinoid system allows the body to produce a communication feedback loop. This discovery led to the idea that the body can heal itself. It also revealed that introducing exogenous cannabinoids, which mimic the function of the endocannabinoids that are produced in the body, can remedy certain health problems.

The endocannabinoid system also works to balance the other systems in the body. It encourages homeostasis. When the body's internal environment is unstable, diseases can develop.

Although the body produces its own endocannabinoids in an effort to restore equilibrium, sometimes it needs some help. That's where CBD comes in.



CBD and other cannabinoids have been found to help with processes associated with the following:

- Immunity
- Pain
- Appetite
- Energy levels
- Mood
- Learning

The signaling pathways that the endocannabinoid system uses are directly involved in cellular survival, growth and death. This has important implications for cancer cells.

Compounds derived from cannabis are currently used to manage cancer symptoms as well as health problems that are caused by cancer medications. But cannabinoids have also been shown to exhibit antitumor activity. Remarkable advances have been made in CBD and cancer research. We will address them in this guide.

Cannabinoids Are Commonly Used to Treat Cancer Symptoms

CBD is most often used in palliative cancer care. In other words, patients to ease the suffering that's associated with cancer pain and medication side effects use it. Some pharmaceuticals have been approved to improve the quality of life of people with cancer. However, many people use unapproved sources of cannabis for self-treatment of uncomfortable symptoms.

CBD Can Relieve Cancer Pain

Because CBD has anti-inflammatory and analgesic properties, it has been found to reduce pain caused by chemotherapy drugs.

In 2011, experts reported that CBD reduced the tingling in the extremities that can result from chemotherapy. Sometimes, this type of nerve damage prevents cancer patients from continuing with their treatment. Paclitaxel, a medication that's often used to treat advanced reproductive cancers, can produce neuropathy.

In the study, CBD permanently prevented nerve damage from occurring when it was administered before participants were dosed with paclitaxel. This study was conducted on mice, however. More studies need to be performed to determine whether CBD has similar effects on humans.



CBD Can Stimulate the Appetite

One of the primary side effects of cancer medication is nausea. If patients can't eat, they lose a significant amount of weight while undergoing cancer treatment. Their health may suffer if they don't get adequate nutrition.

CBD and other forms of cannabis are often used to boost the appetite. A few studies have looked at individuals who used medical marijuana for this purpose. A general well being improved most of the patients who took marijuana to reduce cancer symptoms. In the majority of participants, nausea was reduced and they were able to eat more.

CBD Reduces Trauma

Patients who are put through the ringer of cancer care may experience psychological trauma. CBD oil can be used to minimize this distress.

When people go through intense or disturbing ordeals, they develop a memory of the experience. As their brains continue to reconsolidate those memories, the disturbing associations are usually extinguished. However, this doesn't happen for all people.

CBD has been found to help disassociate upsetting triggers from certain memories. Taking it shortly before or after a disturbing event may prevent the brain from processing and storing that memory as traumatic. Therefore, it may be useful for patients who get anxious about chemotherapy or become nervous when entering a hospital.

What Other Cannabinoids are used by Cancer Patients?

Cannabinoids are so effective in reducing certain health complaints that they're included in the following medications.

Marinol

This drug's active ingredient is dronabinol, a synthetic form of THC. The U.S. Food and Drug Administration approved it in 1985 to treat the vomiting and nausea that can befall individuals that have AIDS or are undergoing chemotherapy. Some people also use it to treat pain, migraines, sleep apnea and muscle spasms that occur with other medical conditions.

Marinol can stimulate the appetite, reduce digestive distress, improve mood and encourage weight gain. It is usually prescribed to cancer patients if other anti-nausea medications don't work. As a schedule III drug, Marinol is usually covered by health insurance. If it's not, CBD oil might be more cost-effective.



Unlike CBD, Marinol only contains one cannabinoid, which is synthetic THC. Many whole-plant CBD oils contain a variety of compounds from the cannabis plant, which work synergistically to produce better results than a single cannabinoid.

Moreover, CBD is derived from different strains of cannabis. If one strain doesn't deliver results, patients can try a different one.

One of the reasons why some people don't want to use Marinol is because it can make them feel high. The dosage may also be more difficult to control. The lowest available oral dosage of Marinol is 5 milligrams. However, you can administer CBD oil in smaller doses if necessary.

Nabilone

Nabilone is another synthetic drug that mimics the effects of cannabinoids. Like Marinol, nabilone is used to treat nausea and vomiting in patients who are going through chemotherapy. It interferes with the central nervous system communication that leads to digestive distress.

Nabilone is similar to THC, but it may be more potent. In studies, participants who took nabilone experienced more drowsiness than those who were given a placebo.

Nabilone produces more side effects than CBD. Signs of nabilone overdose include trouble breathing, hallucinations, severe anxiety and psychological changes. Researchers have found that low doses of nabilone can be fatal in dogs. That may be because canines appear to metabolize the drug differently than humans.

Some synthetic forms of CBD have been linked with overdose deaths. However, natural CBD has never caused an overdose in humans.

Sativex

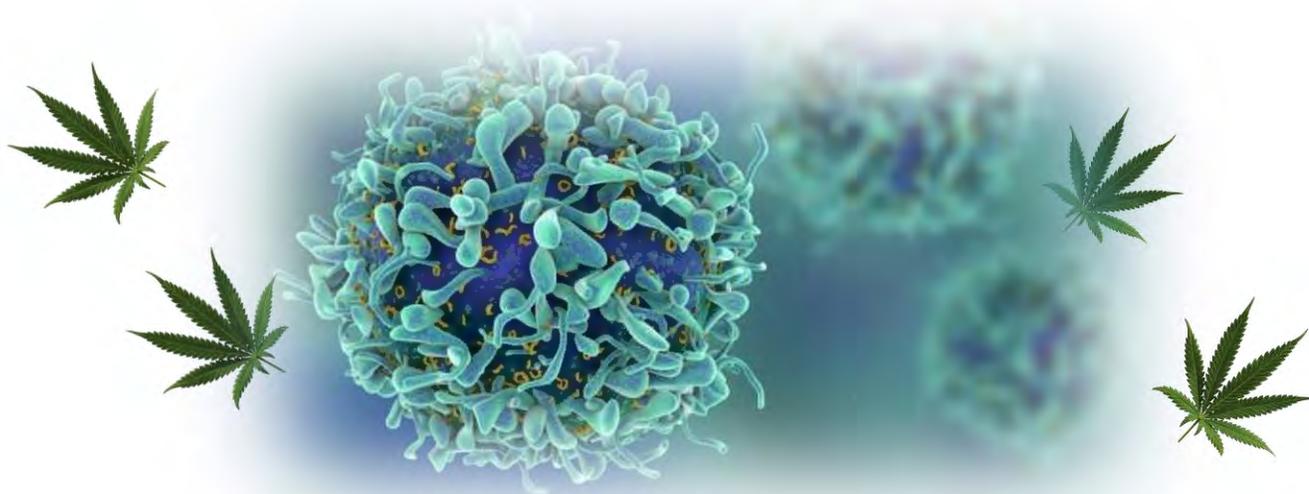
Sativex is a mouth spray that consists of equal amounts of THC and CBD. It also contains ethanol, propylene glycol and peppermint oil. This medication is different than nabilone and Marinol in that its cannabinoids are extracted from the cannabis plant.

Because Sativex contains low levels of THC, it is unlikely to make you feel high. However, if you want to avoid THC altogether, you might want to try using CBD oil that does not contain THC.

In one study, Sativex was given to patients with cancer pain that didn't improve after they took opioids. Sativex worked better than THC alone.



How Cannabinoids Fight Cancer



THC and CBD are the primary cannabinoids that have been studied for their ability to combat cancer. These compounds work against cancer in a variety of ways.

CBD is Anti-Proliferative

CBD can prevent cancer cells from reproducing. The first study to reveal that cannabinoids might slow tumor growth was conducted in 1975. Interestingly, THC retarded tumor growth in a dose-dependent manner. CBD did not. After the discovery of the endocannabinoid system, though, researchers ramped up research on THC. When they discovered that CBD doesn't have the same psychotropic effects as THC, however, many turned their attention to that cannabinoid.

Many studies contradict the evidence presented in the 1975 investigation. A 2013 review that was published in the *British Journal of Clinical Pharmacology* references several of them.

CBD is Anti-Angiogenic

Tumors need plenty of oxygen and other nutrients to survive. After malignant growths develop, new blood vessels and capillaries form to support their progression. This process is called angiogenesis. Some experts believe that tumors can't grow past a certain point or metastasize without angiogenesis. Starving the tumor by inhibiting its blood supply is one way to treat cancer. Cannabinoids have been shown to reduce the development of new blood vessels surrounding tumors.

CBD hasn't been investigated for this purpose until recently. A 2018 study that was published in the *British Journal of Pharmacology* found that that CBD impedes angiogenesis by different mechanisms. This supports the premise that CBD may be effective in combating cancer.

CBD is Anti-Metastatic

When cancer spreads to a different part of the body than where it originated, it is said to have metastasized. Metastasis occurs when malignant cells break off of the primary tumor and make their way to the lymphatic system or bloodstream. These systems allow the cancer cells to travel to new locations.

As they inhabit different areas of the body, the malignant cells generate new tumors. All types of cancer can metastasize. Some cancers are more prone to spreading to certain parts of the body. For example, lung cancer may metastasize to the brain, liver, bones and adrenal glands, while colon cancer usually spreads to the lungs or liver.

Cannabinoids prevent cells from proliferating and spreading. They diminish the development of distant tumors. Most of the research into cannabinoids' ability to inhibit metastasis has focused on cannabinoids other than CBD, such as THC and anandamide. A 2005 study found that CBD inhibited the migration of glioma cells. It also enhances the anti-tumor effects of THC.

In 2011, researchers looked at CBD's effects on metastatic breast cancer. They found that CBD not only shrunk the tumors but also reduced the number of metastases.

CBD is Apoptotic

Whereas healthy cells will experience apoptosis, or programmed cell death, if they become dysfunctional or are exposed to toxic agents, cancer cells are particularly hardy. They can thrive even in the most pathological conditions. Encouraging apoptosis is one target for cancer treatment.

Researchers have demonstrated that CBD can promote apoptosis. In a 2011 study, CBD was found to encourage apoptosis in breast cancer cells.

CBD May Enhance the Effectiveness of Traditional Anti-Cancer Medications

Some types of cancer, such as glioblastoma, are resistant to standard chemotherapy. The activation of the TRPV2 receptor has been shown to deter the metastasis of glioblastoma and improve the cancer cells' response to certain medications. Because CBD induces activation of the TRPV2 receptor, it increases the body's absorption of some cancer drugs and encourages glioma cell death.



CBD Works Differently on Various Types of Cancer

Cancer is a complex disease that has a variety of causes and treatments. The effectiveness of a particular form of therapy depends on the type of cancer, the individual's health and other factors, such as genetics.

CBD has been studied for its effects on the following types of cancer:

- Bladder
- Brain (glioblastoma)
- Breast
- Colon
- Endocrine
- Kaposi sarcoma
- Leukemia
- Lung
- Prostate
- Melanoma

What Cancer Patients Have to Say About Using CBD

The studies on CBD and cancer are promising. So are many of the personal stories that many CBD users have shared with the media.

Rhonda Gossett was diagnosed with stage four breast cancer, which spread to her brain and bones. Gossett didn't think that she would survive longer than a year. When her cancer returned after two brain surgeries, she was discouraged. She was told that doctors didn't have any other options for her. Gossett began using high-THC oil, which she believed killed her cancer. Then, she switched to CBD oil to stay in remission and promote healing.

In 2017, The Guardian reported that a growing number of parents were administering marijuana to children with brain tumors. A professor at Nottingham University began to study it after realizing that people were already using it without medical supervision.

The researchers explained that children's cells are more flexible than those of adults. CBD has been studied for adult brain cancer, but research on CBD and this type of cancer in children is minimal. The parents of William Frost support this study. When they were told that nothing could help their young son's brain tumor, they put him on a ketogenic diet and began giving him CBD oil. The boy's condition is now stable.



Gary Hill, a U.K. resident, was diagnosed with lung cancer in 2016. He says that CBD oil shrank his tumor by 50 percent. He took a few drops of CBD sublingually three times a day for less than a month. Hill avoided traditional cancer treatment. His cancer was in remission as of June 2018.

Some other stories don't have such happy endings. After 16-year-old Braden Stevenson was diagnosed with bone cancer, he underwent an amputation and initiated chemotherapy. After learning that the cancer had spread to the boy's lungs, doctors gave him a grim prognosis.

The boy began using high doses of CBD combined with THC and THCa, another cannabinoid. Stevenson's tumors decreased in size and number. It appeared as though his cancer was improving. Unfortunately, however, Stevenson passed away in November 2018.

Many people are hopeful that CBD is an effective treatment that's less toxic than many other cancer medications. Studies and personal experiences have demonstrated that CBD can improve symptoms of the disease and kill malignant cells. However, like all treatments, it doesn't work the same for everyone or all types of cancer.

How to Use CBD for Cancer

Working with a physician that is knowledgeable about CBD and willing to try this form of treatment may give you the best results. Everyone responds to CBD and other cancer medications differently. You shouldn't stop taking your current medication or introduce new forms of treatment without consulting with your doctor.

Standard cancer-fighting strategies usually involve using a combination of drugs. Doctors aim to target tumor growth and proliferation at different stages. Cannabinoids have been found to enhance the effects of some anticancer agents. For example, gemcitabine, the standard agent that's used to treat pancreatic cancer, works with cannabinoids to inhibit cancer cells' ability to survive. Smoking cannabis is probably the least effective way to use CBD therapeutically. CBD oil is more concentrated than the buds of the cannabis plant. Plus, when you purchase CBD oil from a reputable supplier, you know exactly what you're getting. The label should list the cannabinoids that are included in the product.

Most experts suggest that you start low and go slow. Introduce CBD into your system slowly. Starting with 5 or 10 milligrams per day is a common recommendation. You can gradually adjust your dosage as you begin to notice the effects.

Adding CBD to a cancer therapy protocol may enhance the quality of life for people with the disease. In the best cases, it may cure cancer. At minimum, it may help them live without some of the pain and distress that cancer can cause.



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