



## CBD: Everything You Need To Know About Cannabidiol

Do you know how CBD works? The medicinal potential of this cannabinoid might surprise you. Here's everything you've ever wanted to know about CBD.

Cannabidiol (CBD) came out to the world in a big way after this simple plant chemical stopped an epileptic seizure in its tracks on U.S. national television. In the time since, many enthusiasts have realized that this miracle compound can stop spasms, calm anxiety, and soothe those in chronic pain. But, what is CBD and how does it work? How is it different from THC? To help you become more familiar with the cannabinoid here is everything you need to know about CBD.



### What is cannabidiol (CBD)?

Cannabidiol (CBD) is one of the most prevalent chemical compounds in the cannabis plant. Unlike the more famous molecule, tetrahydrocannabinol (THC), CBD is completely nonpsychoactive.

Don't expect to get "high" off of this organic chemical, however. CBD is all relaxation without intoxication.

While CBD still has an effect on your body, consuming CBD by itself isn't going to send you on the cerebral adventure associated with THC. For decades, medical professionals and the general public overlooked CBD because psychoactive cannabis took center stage.

How does CBD work?

Most predominant inside the resin glands ([trichomes](#)) of the female cannabis plant, CBD is one of over 80 chemical compounds known as [cannabinoids](#). Cannabinoids are agonists that bind to special receptors on your cells, called [cannabinoid receptors](#).



Certain receptors are heavily concentrated in the central nervous system while others are found in almost every organ of the body. Cannabinoid receptors are even found in the skin, digestive tract, and even in the reproductive organs.



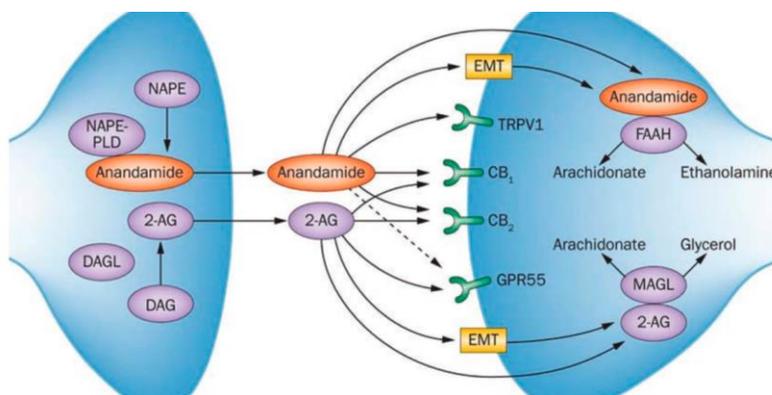


You can think of agonists as keys and cannabinoid receptors as locks. By consuming cannabis, you are taking in agonists that interact with different locks on cells in the body. Together, these cell receptors make up a larger [endocannabinoid system](#) (ECS).

The ECS is a vast network of cell receptor proteins with many functions. Some describe the ECS as the greatest neurotransmitter system in the body. It lends a hand in seemingly just about everything, including: mood, memory, motor control, immune function, reproduction, pain perception, appetite, sleep, bone development

Four primary purposes of the ECS include neuroprotection, stress recovery, immune balance, and homeostatic regulation. The last one is a fancy way of referring to a system that creates optimum energy balance in the body.

Somehow, CBD seems to tap into this balancing system to produce its therapeutic effects. CBD is able to interact with cells in our bodies because the molecule has a similar composition to similar chemicals that the human body produces naturally, called *endocannabinoids*.



*Endo* means inside and *cannabinoid* refers to action on cannabinoid receptors. In contrast, the cannabinoids in the cannabis plant are technically called *phytocannabinoids*.

It's not often that a plant compound can make headlines over and over again. However, CBD is a phytocannabinoid with some serious life-saving potential.

In fact, CBD has only gained mainstream attention quite recently, after the family of one brave little girl decided to throw caution to the wind and speak out about medical cannabis.

### The beginning of the CBD movement

Before she was five years old, [Charlotte Figi stopped laughing](#). While the average child laughs around [300 times](#) a day, Charlotte temporarily lost her ability to communicate due to a rare and severe form of epilepsy called [Dravet syndrome](#).

Dravet syndrome affects roughly 1 in 30,000 infants around the globe. Though most Dravet patients begin their lives as healthy children, development quickly begins to regress after the first few months.





Intense seizures overtake children as young as three months old. These seizures cause them to lose consciousness and convulse for up to a few hours at a time.

After years of rushed trips to the emergency room, the Figi's were desperate. Between unexpected complications, experimental medications, being told that they've reached "the end of the line", they had experienced it all. When there were seemingly out of options, the family finally made a life-changing decision.

What they didn't know was that their choice would ultimately spur a social movement and, more importantly, bring their daughter back to life. The Figi's decided to treat their daughter with [cannabidiol \(CBD\)](#), one of the primary compounds found in the marijuana plant.

### How else does CBD work?

There is still much to learn about CBD. However, scientists have discovered that the compound does a lot more than engage cannabinoid receptors. The effects of CBD in the body are broad and far-reaching. Thus far, the cannabinoid is known to also directly or indirectly affect the following:

[Vanilloid receptors](#) (important for pain modulation)

[Adenosine receptors](#) (important for the sleep-wake cycle)

[Serotonin receptors](#) (important for mood and stress management)

Some rodent studies suggest that CBD may also work by blocking a particular fatty acid known as fatty-acid amide hydrolase (FAAH). The enzyme that's responsible for breaking down the naturally occurring endocannabinoid [anandamide](#) in your body.

Anandamide is also known as the "bliss molecule" or the human THC. It helps regulate basic functions like pleasure and reward, appetite, ovulation, memory, sleep, and pain.

The oversimplified [theory](#) was that with nothing to break anandamide into smaller parts, [CBD boosts the amount](#) of this chemical in your system. In some cases, this could theoretically improve endocannabinoid tone.

However, a 2015 [study](#) published in the *Journal of Biological Chemistry* suggests that CBD does not inhibit FAAH in humans. Rather, they suggest that the compound engages proteins that bind anandamide to FAAH, not to FAAH itself. Regardless, the cannabinoid is still linked to a spike in the bliss molecule. However, how it achieves this is unknown.





## Whole plant medicine

While CBD is a powerful medicine on its own, it's important to note that the compound's effects are amplified when combined with other cannabinoids. One of the biggest debates surrounding the molecule deals with the recent push toward "whole plant medicine." The idea behind whole plant medicine has to do with something known as [the entourage effect](#).

The entourage effect is the idea that combinations of cannabinoids, like CBD and THC, work together in synergy to produce certain therapeutic effects in the body. This may explain why some patients respond well to CBD, while others respond better to THC. The entourage effect has already been used in pharmaceutical medicines.

GW Pharmaceuticals' Multiple Sclerosis (MS) drug [Sativex](#), for example, contains a balanced ratio of THC to CBD. The two cannabinoids together seem to work better at managing MS symptoms than either compound by itself.

## If CBD is non-psychoactive, is it still illegal?

Unfortunately, the answer to this question is complicated. Every country has its own cannabis laws, and cannabidiol is more readily available in some regions than others. In the United Kingdom, for example, the cannabinoid was recently [declared as medicine](#) by the National Health Service (NHS).

**Under federal law, "hemp" is defined as cannabis Sativa plants with less than 0.3 percent THC. Anything with more is "marijuana."**

In the United States, however, the legality of the molecule may depend on where it was sourced. There are two types of CBD products available: products derived from "hemp" and products derived from "marijuana". While both of these plants are more or less the same, their legal definition that is not.

Under the United States Controlled Substances Act, all cannabis products are considered a schedule 1 drug. That means that they have no accepted medical value and possession of such a substance can result in criminal penalties. Recently, the DEA published a new rule that lumps the cannabinoid products into the category of "cannabis extracts".

According to the DEA's new statement, the molecule is illegal. The agency clarifies,





For practical purposes, all extracts that contain CBD will also contain at least small amounts of other cannabinoids.<sup>[1]</sup> However, if it were possible to produce from the cannabis plant an extract that contained only CBD and no other cannabinoids, such an extract would fall within the new drug code 7350.

However, prospective lawsuits and hemp industry experts question whether or not the DEA has the legal right to include CBD under the definition of “marijuana”.

Back in 2004, the US Ninth Circuit Court of Appeals [voted in favor of hemp](#) in a different case. This time, it was in response to an “Interpretive Rule” posted by the DEA. The rule included language explaining that “any product that contains any amount of THC” would fall under the category of a Schedule 1 Controlled Substance.

The DEA’s new ruling also contradicts an amendment made to the [Agricultural Act of 2014 \(Farm Bill\)](#). Farm Bill federally legalized the production of industrial hemp in state-managed pilot programs. These pilot programs allow a small number of growers to cultivate, process, and market hemp products.

Under Farm Bill, hemp plants are cannabis plants that contain less than 0.3% THC. However, how the DEA’s new definition interacts with Farm Bill of 2014 is not clear at this time.

Until this plant is either reclassified or legalized, the harsh federal restrictions on cannabis prevent adequate research on the impacts and health benefits of this compound and the cannabis plant. If there’s one point to bring home in this article, it’s this: CBD has tremendous therapeutic potential. But, scientists need more hard-hitting research. Already, the [discovery of THC and the endocannabinoid system](#) has opened major doors in biochemical and psychiatric medicine.

Until we address the legal and political barriers that prevent us from exploring cannabis as medicine, our opened doors will remain unexplored.

**By declaring CBD banned while also allowing hemp cultivation under the farm bill, two branches of the federal government are giving conflicting advice.**





| Health Effects of Marijuana              | THC | THCA | THC-V | CBN | CBD | CBD-A | CBC | CBC-A | CBG | CBG-A | Benefits                  |
|--|-----|------|-------|-----|-----|-------|-----|-------|-----|-------|---------------------------|
| Pain relief                              |     |      |       |     |     |       |     |       |     |       | Analgesis                 |
| Reduces inflammation                     |     |      |       |     |     |       |     |       |     |       | Anti-inflammatory         |
| Suppresses appetite                      |     |      |       |     |     |       |     |       |     |       | Anorectic                 |
| Stimulates appetite                      |     |      |       |     |     |       |     |       |     |       | Appetite stimulant        |
| Reduces vomiting and nausea              |     |      |       |     |     |       |     |       |     |       | Antiemetic                |
| Reduces contractions of small intestine  |     |      |       |     |     |       |     |       |     |       | Intestinal antiprokinetic |
| Relieves anxiety                         |     |      |       |     |     |       |     |       |     |       | Anxiolytic                |
| Tranquilizing / psychosis management     |     |      |       |     |     |       |     |       |     |       | Antipsychotic             |
| Reduces seizures and convulsions         |     |      |       |     |     |       |     |       |     |       | Antiepileptic             |
| Suppresses muscle spasms                 |     |      |       |     |     |       |     |       |     |       | Antispasmodic             |
| Aides sleep                              |     |      |       |     |     |       |     |       |     |       | Anti-insomnia             |
| Reduces efficacy of immune system        |     |      |       |     |     |       |     |       |     |       | Immunosuppressive         |
| Reduces blood sugar levels               |     |      |       |     |     |       |     |       |     |       | Anti-diabetic             |
| Prevents nervous system degeneration     |     |      |       |     |     |       |     |       |     |       | Neuroprotective           |
| Treats psoriasis                         |     |      |       |     |     |       |     |       |     |       | Antipsoriasis             |
| Reduces risk of artery blockage          |     |      |       |     |     |       |     |       |     |       | Anti-ischemic             |
| Kills or slows bacteria growth           |     |      |       |     |     |       |     |       |     |       | Anti-bacterial            |
| Treats fungal infection                  |     |      |       |     |     |       |     |       |     |       | Anti-fungal               |
| Inhibits cell growth in tumours / cancer |     |      |       |     |     |       |     |       |     |       | Anti-proliferative        |
| Promotes bone growth                     |     |      |       |     |     |       |     |       |     |       | Bone-stimulant            |

***The hemp trinity:*** Essentials, Nutritionals and Therapeutics



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