



CBD vs. THC: What Are the Differences?

By CBD American Shaman | June 08, 2020

Cannabis contains over 100 cannabinoids, but the two most commonly known cannabinoids are THC and CBD. Cannabinoids interact with the body's endocannabinoid system (ECS) but every cannabinoid interacts with the body in a different way. One of the main differences between THC and CBD is different natural effects on the body. Other differences include their molecular structure and legal landscape in the United States. Since CBD and THC are both derived from cannabis plants, many people confuse the differences between the two and sometimes even think they are the same. Let's eliminate this confusion by discussing the differences between THC and CBD.

What are Cannabinoids?

Cannabinoids are chemical compounds that naturally occur in cannabis plants and interact with the cannabinoid receptors in the endocannabinoid system. The most extensively studied cannabinoids are cannabidiol (CBD) and tetrahydrocannabinol (THC). Cannabis plants encompass both marijuana and hemp, which are categorized due to the different levels of THC in these plants. Marijuana contains high levels of THC, while hemp contains less than 0.3% THC.

What is CBD?

CBD, short for cannabidiol, is most commonly extracted from hemp and is then made into various CBD health products. CBD and hemp-derived CBD oil are non-intoxicating, meaning they will not alter the user's perception in a major way or create a "high" effect. The ways CBD interacts with the body's ECS can affect people differently. Some people use CBD for an increase in energy, a sense of overall wellness, decreased discomfort, or an improved mental state. CBD has the ability to provide a wide range of health benefits without a "high" or mind-altering effect.

What is THC?

THC, which is short for tetrahydrocannabinol, is known for being the psychoactive cannabinoid in cannabis plants. Even though THC is naturally occurring in both hemp and marijuana plants, THC is most commonly known for its effects and prominence in marijuana. THC is the cannabinoid that has intoxicating properties and creates a euphoric or high feeling in users. Marijuana is commonly used for medicinal purposes due to its ability to interact with the cannabis receptors in the ECS. When these receptors are activated by THC, they send chemical signals that affect the brain's functions and nervous system. Marijuana is also commonly used for recreational use due to the psychoactive effects the THC causes. Hemp, which is used to make CBD products, only contains extremely small trace amounts of THC. In order to be legally considered hemp rather than marijuana, the plants must contain less than 0.3% THC. This is not nearly enough THC to have any sort of effect on the user.

What are the Molecular Differences Between CBD and THC?

The molecular composition of both THC and CBD are the same, which includes 30 hydrogen atoms, 21 carbon atoms, and 2 oxygen atoms. The difference between the two is the arrangement of these atoms. It's all in the way the atoms are connected that creates such dramatically different effects on the endocannabinoid system.

THC and CBD are cyclic compounds, meaning one or more series of atoms in the composition connect to form a ring. The molecules in CBD are arranged in an open ring while THC is arranged in a closed ring. This simple open versus closed ring arrangement changes the way these cannabinoids interact with the cannabinoid receptors.

What are the Differences in the Effects of CBD vs THC?

Both THC and CBD interact with the endocannabinoid system (ECS), which is responsible for creating a state of homeostasis, or balance, in the body by regulating various functions. The ECS

has cannabinoid receptors called CB1 and CB2 receptors. When these receptors are activated by cannabinoids, they trigger a cellular response. The way THC and CBD interact with these receptors are different and create different responses in the body.

The Effects of THC

When THC enters the ECS, it binds directly to both the CB1 and CB2 receptors. THC tends to bind more often with CB1 receptors, which are mostly located in the brain and central nervous system. When these receptors are activated by THC, it can cause a feeling of intoxication due to euphoric and psychoactive effects the THC has on the brain. In addition to a “high” feeling in the user, there have been other health benefits linked to using THC. The health benefits THC has to offer has caused some states to legalize medical marijuana. Some states have even decided to legalize recreational marijuana, despite THC being illegal at the federal level.

The Effects of CBD

Unlike THC, CBD doesn't bind with the CB1 and CB2 receptors. Instead, CBD acts as a shield for the receptors to keep THC and other cannabinoids from binding to them, which has an effect on the body. CBD binds with other non-cannabinoid receptors and cannabinoid receptors that have yet to be studied and named. CBD can also stimulate the ECS by extending the lifespan of the body's natural cannabinoids, called endocannabinoids. CBD has been shown to mimic the effects of endocannabinoids to help regulate the ECS. Since the ECS regulates many of the body's functions, like sleep, mood, discomfort, and nerve function, CBD can act as a stimulus and can support the ECS in regulating the body.

What are the Legal Differences Between CBD and THC?

Even though CBD and THC are both naturally found in hemp and marijuana, the legal landscape of these cannabinoids in the United States varies from one another. The federal definition of hemp is any cannabis plant containing no more than 0.3 percent THC, while marijuana is any cannabis plant containing more than 0.3 percent THC.

The Legal Status of THC and Marijuana

THC and marijuana are deemed illegal on a federal level in the United States by the Drug Enforcement Administration and are on the DEAs list of **controlled substances**. However, there are some states that have legalized **marijuana for medical use** and other states that have legalized marijuana for recreational use. Some states continue to observe federal regulations and view all forms of marijuana as illegal.

The Legal Status of CBD and Hemp

CBD is **legal** in all 50 states, but it must be derived from hemp containing low THC and high CBD levels. Since some states continue to prohibit any amount of THC, THC-free CBD can be sold in those states. CBD was legalized on the federal level in the **2018 Farm Bill**, which removed hemp from the Controlled Substances list and decriminalized CBD products. CBD manufacturers must abide by the Food and Drug Administration regulations in order to produce and sell legal CBD

products. If the CBD is derived from marijuana or contains more than 0.3 percent THC, it's only legal in states that have legalized medicinal or recreational marijuana use.

Since there are no strict, universal regulations around the manufacturing and distribution of CBD products, not all CBD oils are made the same and may contain more THC than the legal limit. To avoid purchasing untested and dangerous CBD products, make sure to purchase from reliable CBD brands that test their products before distributing them.

CBD American Shaman tests all of our CBD products to make sure they meet our strict purity and potency standards. We also publish all of our **CBD lab reports** so that our customers can view the lab results for the exact batch of products that they purchased.

THC vs CBD Takeaways

There are many differences between CBD and THC, including their effects on the body, legality, and molecular structure. One of the main differences is that THC is known to cause an intoxicating effect while CBD doesn't at all. Both THC and CBD are extracted from cannabis plants, but THC is typically derived from marijuana and CBD is extracted from hemp. Knowing these differences will help you make well-informed decisions when purchasing CBD products and when talking to others about CBD and THC.

This content is not intended to be a substitute for professional medical advice, diagnosis or treatment. While research has shown that CBD has the potential to help provide beneficial outcomes for several complaints, it is advisable to seek the advice of a physician or other qualified healthcare provider when you have questions regarding any medical condition and when starting, augmenting or discontinuing any existing health routine.

Learn more at <https://cbdamericanshaman.com/blog>