

How Does CBD WORK? (Scientific Version)

CBD has such a wide-ranging effect on our body because of our Endocannabinoid system.

Our what?

The Endocannabinoid System (ECS) is a complex cell-signalling system in our bodies that was only discovered in 1990! And we all have one (regardless of whether we consume any cannabis or cannabinoids). Cannabinoids can be found in other foods as well, like chocolate, hemp seeds, chia seeds to name a few but CBD has the highest concentrations.

Our ECS helps regulate a wide range of functions throughout our entire body. This includes our Endocrine System (including Hormones), Immune System, Emotions, Nervous System (including pain management), Metabolism, Sleep, Inflammation, Brain Function, Nervous System, Homeostasis Function, Temperature Control, Learning and Memory. Basically, the ECS has a hand in the regulation and control of many of our most critical moment to moment bodily functions.

The ECS comprises of a vast network of chemical signals and cellular receptors that are densely packed throughout our brains and bodies. To stimulate these receptors, our bodies produce molecules called Endocannabinoids. These have a structure similar to molecules in the cannabis plant called Phytocannabinoids. They are present in various organs and tissues, such as the muscles, brain, and circulating cells. Endocannabinoids become active when they bind with a cannabinoid receptor, known as CB1 and CB2. Cannabinoids work by binding to specific receptors on cells in our body. This binding process either stimulates or inhibits certain cell functions or it transmits signals through a synapse between two neurons.

So simply put, when our body has stress, pain, inflammation, etc. our cannabinoid receptors are saying hey, I need help. That is when the body looks for endocannabinoids to help to put our body back into balance. When we have stress, pain and inflammation as well as other issues then the body just doesn't create enough to solve all of the problems. So, we need help, and this is where the Cannabis (Hemp) plant and CBD comes into play.

The cannabis plant, which humans have been using for about 5,000 years, essentially works its effect by hijacking this ancient cellular system to help.

The "cannabinoid" receptors in the brain — the CB1 receptors — outnumber many of the other receptor types on the brain. They act like "traffic cops" to control the levels and activity of most of the other neurotransmitters. And CB1 receptors manage this regulation by immediate feedback, turning up or down the activity of whichever system needs to be adjusted, whether that is hunger, temperature, or alertness.

CB1 receptors are mostly found in the brain, but can also be found in the lungs, liver, kidneys, and heart as well.

When we stimulate or inhibit the CB1 receptors it helps to:

- Relieve depression
- Slow the proliferation of breast cancer cells
- Lower intestinal inflammation
- Decrease the occurrence of Leaky Gut Syndrome
- Lower blood pressure
- Decrease anxiety, fear, and paranoia
- Benefit people with post-traumatic stress disorder (PTSD)

A second type of cannabinoid receptor - the CB2 receptor - are mostly found outside of the central nervous system and can be found on immune cells and are critical in helping control our immune system. CB2 receptors are also found in the gastrointestinal tract and white blood cells, so it also plays a role in modulating intestinal inflammation, contraction, and pain in inflammatory bowel conditions.

Put simply, the endocannabinoid system is the master system for all other systems in the body. It has a huge impact on the functioning of just about all body systems, as well as pain and inflammation.

Will CBD make me high?

In short - No - if you trust your source.

You may have heard of THC. THC is **Tetrahydrocannabinol** and is the principal psychoactive constituent of cannabis. It is only one of at least 113 total cannabinoids identified on the Cannabis plant. Yes, you guessed it - it is THC that gets people high. (THC has been explored as a therapeutic target for conditions like multiple sclerosis, migraines, fibromyalgia, chronic pain and inflammatory bowel disorder to name a few. In Australia, a Dr can prescribe THC and CBD in combination for these chronic conditions.)

CBD oil uses cannabinoids that are not psychoactive. To be legally sold as CBD, the preparation must have a concentration of less than 0.3% of THC. This is low enough to have no psychoactive effect and will not test positive to THC on a drug test. Outside of a medical prescription, THC remains illegal to sell in Australia, and CBD oil should contain less than 0.3% of THC.

Different companies/sellers have different methods of preparation. Some companies use the cannabis plant (that contains THC) and extract the cannabinoids that they wish to include, extracting and discarding the THC. Other companies - like Cornerstone Hemp - choose to use whole plant processing and source their CBD from Hemp. To be classified as Hemp (as opposed to cannabis) the plant must contain less than 0.3% of THC. The benefits of whole plant processing are too numerous to go into in this brief pamphlet but be assured that it gives the highest quality CBD with a guaranteed safe and legal level of THC. This means that Cornerstone Hemp CBD, unlike its

psychoactive sibling THC, doesn't possess the properties that get you "high." CBD is usable by anyone, even those who are in professions that require serious mental clarity and are subject to drug testing. To reiterate - **CBD does not - cannot - get you high.**

~SOME BENEFITS of CBD~

- **CBD has been shown to help Pain.**

It is estimated that around 30 percent of human adults suffer from chronic pain. This includes headaches, back pain, fibromyalgia, arthritis, migraines, and other common ailments. Researchers have found that the endocannabinoid system - specifically the stimulation or inhibition of CB2 receptors - is responsible for suppressing pain signals and providing relief from chronic pain.

<https://pubmed.ncbi.nlm.nih.gov/33004159/>

<https://pubmed.ncbi.nlm.nih.gov/31332738/>

- **CBD has been shown to help Anxiety.**

Activation of CB1 receptors can positively impact depression, reduce fear and paranoia, and lower intestinal inflammation and blood pressure. CB1 receptor activation can even give relief to one of the most prevalent mental disorders today – anxiety.

Anxiety is most commonly treated through the administration of medication, psychotherapy, or both. A 2018 survey in Cannabis and Cannabinoid Research states that over 60% of cannabidiol users reported they were taking CBD to help with a medical condition. The most prevalent conditions these users reported were pain, anxiety, and depression.

<https://pubmed.ncbi.nlm.nih.gov/26341731/>

- **CBD May help Type II Diabetes and Alzheimer's**

Some studies have found that activation of CB2 receptors can rid the brain of beta-amyloid protein – a plaque found in people with Alzheimer's disease. CBD also activates PPAR-gamma receptors (PPAR-gamma receptors play a role in lipid uptake, insulin sensitivity, dopamine release and the degradation of beta-amyloid plaque which can positively affect diseases such as diabetes, schizophrenia, and Alzheimer's).

<https://pubmed.ncbi.nlm.nih.gov/35083862/>

- **CBD can positively affect Clinical Endocannabinoid Deficiency (CECD)**

Remember that we all produce our own endocannabinoids naturally. Cannabinoids are found in every person, BUT - the level of neurotransmitter that is present in a person's body is variable. Some people don't have any or just a small amount in their bodies and some have a large concentration of it. People with CECD produce a lower number of natural cannabinoids. The negative effects of this decreased production could be:

- Fibromyalgia
- Irritable Bowel Syndrome (IBS)
- Migraines
- Multiple Sclerosis (MS)
- Post-Traumatic Stress Disorder (PTSD)
- Huntington's Disease
- Parkinson's Disease
- Autism

- **CBD can help Seizures and Epilepsy**

In the USA, **EPIDIOLEX** is the first FDA-approved prescription cannabidiol (CBD) to treat seizures associated with Lennox-Gastaut syndrome (LGS), Dravet syndrome. The safety profile of Epidiolex, was reclassified from a Schedule I drug (defined as drugs with no currently accepted medical use and a high potential for abuse - eg heroin), to a Schedule V drug (defined a drugs with lower potential for abuse than Schedule IV and consist of preparations containing limited quantities of certain narcotics. Schedule V drugs are generally used for antidiarrheal, antitussive, and analgesic purposes. Some examples of Schedule V drugs are cough preparations).

<https://pubmed.ncbi.nlm.nih.gov/32096470/>

<https://pubmed.ncbi.nlm.nih.gov/31332738/>

- ****CBD is safe and Legal**

CBD is a natural product that can be derived from industrial hemp plants. Though the legal use of cannabis is different depending on location, CBD is free from these regulations due to the minuscule THC content that industrial hemp plants contain (less than 0.3%).

Pharmaceuticals help to treat medical and health conditions all over the world, but often the side effects can diminish or even outweigh the benefits. This is where CBD can excel. CBD is considered non-toxic and has minimal side effects, especially when compared with most pharmaceuticals.

According to the World Health Organisation CBD is generally tolerated by most humans. It has a good safety profile, and the U.S. Food and Drug Administration has even approved an oral CBD product, Epidiolex.

Though it's most often well-tolerated, CBD can cause side effects, such as dry mouth, diarrhea, reduced appetite, drowsiness, and fatigue. CBD can also interact with other medications you're taking, such as blood thinners. Another cause for concern is the unreliability of the purity and dosage of CBD in products. **That is why it is so important to source your CBD from a trusted source.

What do the Medical Studies say?

Promising possible anti cancer therapy

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7693730/>

Anxiety

<https://pubmed.ncbi.nlm.nih.gov/26341731/>

Sleep

<https://academic.oup.com/sleep/article/44/11/zsab149/6296857?login=false>

Pain

<https://pubmed.ncbi.nlm.nih.gov/33004159/>

<https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD012182.pub2/full?highlightAbstract=cbd%7Cpain>

Inflammation

<https://pubmed.ncbi.nlm.nih.gov/25703248/>