

# The Endocannabinoid System - Everything You Need To Know

How much do you know about the **endocannabinoid system (ECS)**? The vast majority of CBD consumers have simply never heard of this system. To make informed decisions in the CBD marketplace, it is essential to understand the power of the endocannabinoid system and its tremendous ability to influence overall wellbeing.

Whilst there is a lot of literature on the endocannabinoid system, we feel that much of this isn't communicated in a way that feels accessible to everyday consumers. We are committed to delivering **educational resources** that dive into the science behind cannabinoids and the endocannabinoid system.

If you understand the **fundamental science** behind the endocannabinoid system, you will begin to realize the importance of introducing cannabinoids, such as CBD, into your [daily wellness routine](#). In this article, we are going to be exploring everything you need to know about the endocannabinoid system. Our aim is to make this guide as accessible as possible.

We will be looking specifically at these commonly asked questions on the ECS:

- **What is the endocannabinoid system?**
- **How does the endocannabinoid system work?**
- **Who discovered the endocannabinoid system?**
- **Why does the endocannabinoid system matter?**
- **How can you stimulate the endocannabinoid system?**
- **How does CBD affect the endocannabinoid system?**
- **Does your body produce cannabinoids?**
- **What foods contain cannabinoids?**
- **What are the side effects of cannabinoids?**

After reading this article, we are confident that you will have a solid understanding of the science behind the endocannabinoid system. You will then be able to use this to inform future buying decisions and teach others about the benefits of consuming cannabinoid-based products, such as CBD oil and tinctures. Let's dive straight into the science!

## **What is the endocannabinoid system?**

The endocannabinoid system, also known as the ECS, is a complex signaling network in the body that is designed to promote homeostasis, helping to create a balance, or equilibrium, throughout the body. Regardless of the external challenges that we may be faced with, this system strives to [regulate internal processes](#) and keep everything working optimally. All vertebrate animals have an ECS.

Does that sound a bit vague? Don't panic - to begin with, we just want to give you a brief overview of this system, before getting into the complexities of exactly how this system works

and manages to successfully do its job. Essentially, the endocannabinoid system plays a crucial role in regulating and controlling various areas of **human physiology**. You can think of it as being like an orchestra conductor.

We have found there can sometimes be some confusion over the term “endocannabinoid.” Let’s break it down for you. The word “cannabinoid” comes from “cannabis” and “endo” is simply an abbreviation of “**endogenous**,” which means that the compound is produced inside your body. In other words, these are cannabis-like substances produced by our bodies.

It’s incredible to think that there are dozens of **natural endocannabinoids** inside of us, playing a vital role in supporting homeostasis. This cell-signaling system exists in each and every one of us, no matter whether you have consumed cannabis or not. In 2016, a study found that some people can have [ECS dysfunction](#), which can lead to the development of several conditions.

This study links to a theory known in scientific communities as [clinical endocannabinoid deficiency \(CECD\)](#). It argues that having low levels of endocannabinoids can negatively affect many different areas of the body, causing several chronic health issues. These research findings reinforce the vital role that this system plays to regulate areas of human physiology.

## **How does the endocannabinoid system work?**

The ECS consists of neurotransmitters (signaling molecules), receptors, and enzymes (FAHH, MAGL). The two different types of receptors in this system are called **CB1** and **CB2 receptors**. When threats to your biological balance emerge, signaling molecules called cannabinoids, or eCBs, bind to these receptors to trigger cascades of [homeostasis](#) throughout the body.

You can think of the ECS as being the system in your body that keeps you ‘in-the-zone’. There are certain things you can proactively be doing to strengthen your endocannabinoid system and we will talk about these later. The stronger your ECS is, the greater ability your body will have to modulate the various processes that impact your **overall wellbeing**.

CB1 and CB2 receptors both play very different roles in the body. CB1 receptors can be found primarily in the brain and throughout the central nervous system. CB2 receptors are primarily present in the [immune system, organs, and tissues](#). CB2 receptors do have a small presence in the brain, but they are far outweighed by the presence of CB1 receptors.

The regulation of unnecessary or [chronic inflammation](#) is a good example of how the ECS can be a force for positive change in the human body. People often make the false assumption that all inflammation is bad, but this isn’t the case. The human body needs inflammation to protect itself from infection. It’s a natural immune response.

Sometimes, the immune system can have a tendency to overreact, causing inflammation that is completely unnecessary. When the ECS senses an imbalance in the human physiology, it can help to regulate inflammation and bring things back down to a natural level. This is all part of homeostasis and your body’s efforts to keep everything balanced.

## Who discovered the endocannabinoid system?

[Dr. Raphael Mechoulam](#) was the chemist responsible for isolating and synthesizing tetrahydrocannabinol (THC), the main psychoactive component of cannabis. Dr. Mechoulam's research managed to kickstart the idea of being able to isolate specific compounds found in the cannabis plant. The Israeli chemist was later able to isolate cannabidiol and cannabigerol.

In 1988, at the St. Louis University School of Medicine, **Allyn Howlett** and **William Devane** discovered the presence of cannabinoid receptors in the human brain. Upon conducting the research, the two scientists found that endogenous cannabinoids were the most abundant type of [neurotransmitters](#) in the brain. These findings formed the basis for further research.

Howlett and Devane discovered one specific fatty-acid neurotransmitter and they decided to call this "anandamide". The name was taken from the Sanskrit word "ananda," which is used to describe the state of blissful joy. Several years later, the same team of researchers discovered a second endocannabinoid, which is now known as [2-arachidonoylglycerol](#), or **2-AG**.

2-AG has the unique ability to lock onto CB1 and CB2 receptors. Some scientists like to use the analogy of a ["lock and key"](#) to describe the special relationship between the receptors in the endocannabinoid system and cannabinoids. To understand this metaphor, you need to imagine that CB1 and CB2 receptors are locks and cannabinoids are keys.

As the keys, endogenous (produced internally) and exogenous (found in the cannabis plant) cannabinoids can unlock certain receptors, sending [chemical messages along neurons](#). A cannabinoid unlocking a receptor is regarded as neurotransmission. This is the essential science that you need to understand about the ECS.

## Why does the endocannabinoid system matter?

As we discussed earlier, the endocannabinoid system works to **support and maintain homeostasis** by combining cannabinoids with cannabinoid receptors which are located throughout our bodies. Without this vital system, your body would very quickly lose its ability to balance immune response, which could result in a wide variety of different complications.

Alongside this, there would be **poor levels of communication** between cells, abruptly disrupting many different essential functions of your body. The endocannabinoid system is known to influence a range of processes, including appetite, digestion, stress, metabolism, and immune function. Positive improvement in any one of these areas can lead to a drastically better life.

The effectiveness of your ECS has the ability to contribute to your overall quality of life. The stronger the system is, the better it will be able to support you in regulating and monitoring your physiology. This is why many people choose to **consume exogenous cannabinoids** (plant-based cannabinoids that are produced externally), in an effort to improve the system's ability to promote homeostasis in the body.

Research into the ECS is far from over. In fact, many would say that it's only just beginning. More people are consuming exogenous cannabinoids than ever before. CBD, widely seen as

the most popular non-intoxicating cannabinoid, has attracted the interest of the wellness industry. Fascinated by its therapeutic potential, many pharmaceutical companies are delivering [CBD products](#), such as oils and tinctures, to consumers of all ages.

## How can you stimulate the endocannabinoid system?

Proactively taking steps to stimulate this system will equip your body with the tools it needs to [promote homeostasis](#) and keep you 'in the zone', regardless of any external challenges that you could potentially be faced with. You can boost the ECS through specific changes to your diet, regular exercise, and the consumption of cannabinoids. The consumption of exogenous cannabinoids, such as CBD, is a step that you can take to stimulate the endocannabinoid system.

[Omega-3 fatty acids](#) can help to encourage the formation of CB1 receptors. You can find these fatty acids in many different foods, including fish, nuts, and seeds. Hemp seeds are actually a great source of omega-3 fatty acids. Fish oil supplements can be purchased in your local supermarket and can be easily incorporated into your daily wellness routine.

In the hecticness of modern life, it can be challenging to avoid **feelings of stress** or unease. However, for your overall wellbeing, it is important to try and limit potential stress factors as much as you can. Reducing stress can make it easier for your body to build and repair new endocannabinoid receptors, resulting in stronger and more effective immune responses.

If you want to support the growth and development of your endocannabinoid system, you should try to limit alcohol consumption. [Chronic exposure to alcohol](#) can increase the concentration of endogenous cannabinoids in the brain. However, it also leads to a significant decrease in the density of CB1 receptors. This suggests that alcohol consumption inhibits the ECS from creating those lock and key relationships and supporting neurotransmission.

Physical exercise has shown the potential to boost the production of endocannabinoids in the body. A recent study asked participants, male college students, to cycle on a stationary bike or run on a treadmill for 50 minutes at 70-80% heart rate. The researchers found that physical exercise of reasonable intensity can [accelerate the production of endocannabinoids](#).

## How does CBD affect the endocannabinoid system?

CBD can have a profound effect on the endocannabinoid system. The [phytocannabinoid](#) has gained a large amount of attention in the wellness industry due to its potential therapeutic properties. CBD can interact with both CB1 and CB2 receptors in the body to stimulate the ECS. Unlike other cannabinoids, CBD does not bind to CB1 or CB2 receptors directly but it is still able to have a significant amount of influence over their stimulation.

People simply cannot seem to get enough of this cannabis-derived chemical compound. CBD is classed as an [exogenous cannabinoid](#) because it can only be consumed, rather than produced by the body. If you go to your local pharmacy, you're likely to see a full array of different CBD products on display. From oil and tinctures to topicals and capsules, there are CBD products available for all types of administration.

Despite its association with the cannabis plant, CBD cannot get you “high” because it contains only trace amounts of THC, the main [psychoactive component](#) of cannabis. The idea that CBD can get you “high” is one of the biggest myths and misconceptions about the compound. Taking CBD products, as part of your daily wellness routine, can be a therapeutic experience.

We offer a range of **premium CBD solutions** to help you embark on your wellness journey. Our premium product range includes CBD capsules and tinctures. We place transparency at the forefront of everything that we do, rigorously testing all of our CBD products to ensure you are receiving the highest quality CBD products on the market.

You can access a [full lab profile](#) of every CBD product that we manufacture. We believe that providing educational resources, like this article, on the world of CBD will enable cannabinoid consumers to have a greater understanding of exactly what they are buying. With this knowledge at your fingertips, you will be able to make informed buying decisions.

## Does your body produce cannabinoids?

As we briefly discussed earlier, our bodies have the ability to produce endogenous cannabinoids, otherwise known as endocannabinoids. These are cannabinoids that haven’t been introduced into the body through the **consumption of the cannabis plant** or compounds related to the plant. Cannabinoids produced by the body have a tendency to present different effects to those that come from external sources.

Several years ago, at the University of Bonn recently, dermatologists **Dr. Evelyn Gaffal** and **Professor Thomas Tüting** conducted experiments on mice to explore the effects of endocannabinoids on a rat’s physiology. The results of the team’s experiments found that endocannabinoids have the potential to play a vital role in regulating and controlling levels of [inflammation](#) in the body.

Sometimes, immune responses can get out of control. A reasonable amount of inflammation is accepted and can be tolerated. However, when inflammation becomes excessive, it can start to intrude on a person’s daily life. In [chronic cases](#), inflammation can be debilitating. Endocannabinoids have shown the potential to be able to control and regulate inflammation.

## What foods contain cannabinoids?

If you’re not quite ready to introduce CBD into your daily wellness routine to strengthen your ECS, you should consider enriching your diet with foods that can promote the production of endogenous cannabinoids in your body. Fish, nuts, and seeds are all typically rich with omega-3 fatty acids. As we said earlier, omega-3 fatty acids can help to [encourage the formation of CB1 receptors](#).

It is worth noting that CBD can come in many [different shapes and sizes](#). From oils and tinctures to marshmallows and gummy bears, there really is something for everyone on the CBD product market. We would absolutely recommend that you thoroughly explore a range of different CBD products if you are looking to improve the state of your ECS.

## What are the side effects of cannabinoids?

When you are consuming “**non-intoxicating**” cannabinoids like CBD, it is extremely rare to experience any profound, negative side effects. We always recommend that beginners take a steady journey into the world of CBD, gradually increasing the dosage of any products they are taking to help them find the right dosage.

Generally, the standard minimum dosage is 10 milligrams. Although, everybody has their own level of tolerance. This compound can come in many different strengths and people have [varying tolerance levels](#), so you should be cautious about taking a “blanket approach” to your dosages if you are taking a range of CBD products from different brands.

If you are ever unsure of exactly how much CBD you can take, our customer support team is more than happy to clarify our **dosage instructions** as well as answer any other questions that you may have. With new CBD products entering the market on almost a monthly basis, we believe that our commitment and dedication to exceptional customer service will help us to stand out from the crowd, alongside our rigorous testing process.

On the other hand, with a cannabinoid like THC, you are going to almost certainly experience some profound side effects. Consuming large quantities of this compound can increase your heart rate, dry mouth, red eyes, sleepiness, and paranoia. Fortunately, all of our CBD products are **THC-free**, giving you complete assurance in exactly what you will be consuming.

## Final Thoughts

We hope you have enjoyed learning about why the endocannabinoid system is crucial to your overall wellbeing. As interest in CBD continues to grow, we believe that more and more scientists are turning their attention to the endocannabinoid system, pushing our understanding of this fascinating signaling system forward through intensified research.