



What is the Endocannabinoid System?

The endocannabinoid system is a crucial biological system in the human body that is involved in regulating many functions throughout the body. The primary function of the endocannabinoid system is to maintain the body's state of homeostasis, which is the balance and stability of the human body's internal processes that may be affected by the environment.

Although the endocannabinoid system evolved over 500 million years ago, scientists only recently discovered its existence in humans in the 1990s. It was first discovered when scientists were researching the effects of marijuana on the human brain and body. The ECS is present and in use in all vertebrates, including mammals, reptiles, birds, fish, and amphibians. The ECS is one of the most versatile and widespread signaling systems in the body.

Where are its Functions?

The ECS is involved in a wide range of processes throughout the body. These functions include:

- Appetite
- Bone growth
- Cardiovascular system function
- Discomfort
- Digestion
- Inflammation
- Immune system responses
- Learning and memory
- Liver function
- Mood
- Motor control
- Muscle formation
- Nerve function

- Reproductive system function
- Skin
- Stress

The body activates the ECS when these functions need to be regulated and return the body to homeostasis. If one or multiple of these functions are not working properly, the body cannot be in a state of equilibrium.

How does the Endocannabinoid System Work?

Endocannabinoids

Endocannabinoids, also known as endogenous cannabinoids, are molecules that are naturally created in the body. These molecules interact with the ECS by carrying signals to different parts of the body. The two known endocannabinoids the body creates are anandamide and 2-arachidonoylglycerol (2-AG). These endocannabinoids are made from fat-like molecules at the exact moment they are needed and are immediately used. This means the body does not need to store endocannabinoids for later use. The production of endocannabinoids may be affected by a person's diet, exercise, and sleep.

Cannabinoid Receptors

The cannabinoid receptors in the ECS are how the endocannabinoids send signals to the cell in different parts of the body. The endocannabinoids bind with the receptors which then transmit information to the cells in a specific area to signal a cellular response. The response varies depending on the kind of endocannabinoid and where the receptors are located.

The only two receptors scientists have yet discovered are called CB1 and CB2 receptors. These two receptors are found in different parts of the body. CB1 receptors are mostly found in the central nervous system, while CB2 receptors are typically found in the peripheral nervous system. The different receptors are activated when regulation is required and is triggered by the endocannabinoids.

Enzymes

The enzymes in the ECS break down the endocannabinoids after the function is carried out. The main enzymes that are involved in this process are fatty acid amide hydrolases (FAAH) and monoacylglycerol acid lipases (MAG lipase). These enzymes break down different kinds of endocannabinoids after it has completed its process. FAAH enzymes break down anandamides and MAG lipase enzymes break down 2-AGs. The enzymes make this process unique to other molecular signals in the body because the enzymes ensure the endocannabinoids are used and are broken down once no longer needed.

How do you Stimulate the Endocannabinoid System?

Sometimes the body doesn't naturally produce enough endocannabinoids for the endocannabinoid system to work properly. There are ways the ECS system can be stimulated to improve function and increase endocannabinoid production. Endocannabinoids that aren't produced in the body and are found outside of the body are called cannabinoids, or phytocannabinoids for those found in plants. These cannabinoids are found in plants, foods, and herbs and can help stimulate the ECS.

There are some foods and spices that contain natural cannabinoids that can act as an endocannabinoid when consumed. Cannabinoids were previously believed to only exist in the human body and in cannabis plants, but we now know that is not the case. Some vegetables contain cannabinoids, like broccoli, Brussels sprouts, cauliflower, and kale. Cinnamon, pepper, cloves, and oregano also contain cannabinoids. There are also foods that can help increase endocannabinoid production in the body.

These include foods containing essential fatty acids, like chia seeds, eggs, flax seeds, and walnuts. Chocolate and herbs can also help increase endocannabinoid production. Adding these foods to your diet may help increase endocannabinoid production and improve ECS function.

Cannabis plants contain over 100 natural cannabinoids. The main cannabinoids these plants are known for are tetrahydrocannabinol (THC) and cannabidiol (CBD). Cannabis products can be taken in various forms in order to stimulate the endocannabinoid system.

How does CBD Affect the Endocannabinoid System?

CBD, or cannabidiol, is a naturally-occurring compound found in cannabis plants. Experts have discovered that CBD can affect the ECS by boosting the system in three different ways. One way in which CBD does this is by stopping the FAAH enzyme in the ECS from breaking down certain endocannabinoids. This process can help extend the life of the anandamide endocannabinoids and can lead to a more impactful and effective result when it binds to the receptors. A second way in which CBD could potentially work with the ECS is by interacting with the other unidentified receptors within the system. Since research has only discovered two cannabinoid receptors, there are potentially other receptors being affected by CBD. The third way CBD affects the ECS is by mimicking endocannabinoids by binding to the receptors which sends signals to cells in the body to create a state of homeostasis. Since CBD often interacts with other receptors in the body, the effects may vary in each person and the exact functions CBD effects may vary from person to person.

Endocannabinoid System Takeaways

The endocannabinoid system is a biological signaling system in the body that uses endocannabinoids, receptors, and enzymes to create a state of homeostasis. Homeostasis is when the body is in a balanced state and the functions in the body are regulated properly. When the body doesn't produce enough endocannabinoids, there cannot be an equilibrium in the body, and health issues can occur. Some factors that may affect the production of endocannabinoids in the body are a person's diet, exercise, and sleep. The ECS may be stimulated by CBD oil due to its ability to interact with cannabinoid receptors and block enzymes to improve the effectiveness of endocannabinoids. The endocannabinoid system is an essential and impactful part of the human body.

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.

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