



Endocannabinoid System in Dogs & Cats Explained

The Endocannabinoid System (ECS) functions the same way in people as it does in dogs, cats and other animals. In reality ALL mammals have an Endocannabinoid System. This includes horses, rabbits, monkeys, dolphins and elephants to name a few. A huge amount of research is currently being undertaken around the world to find out how exactly the ECS might be utilized in the treatment of different chronic diseases.

The Endocannabinoid system in dogs is part of what maintains the natural balance in the body and it is usually stimulated by endocannabinoids which are produced internally. However, the endocannabinoid system can also be stimulated by external cannabinoids, including Cannabidiol (CBD) – the non-psychoactive compound found in cannabis sativa. The external stimulation from CBD is causing some big excitement in the medical world today.

You may have read about how people are already using medicinal cannabis and other cannabinoids such as CBD to treat various illnesses. Some well educated pet owners are also using CBD to treat their pets as well.

If you have ever wondered how CBD can be used to treat so many different types of illnesses, here is an explanation of how CBD can have a positive effect on the Endocannabinoid system in Dogs & Cats and how this can have a beneficial effect on so many other parts of the body.

endocannabinoid-system-in-dogs-happy-dog-cbd

What Is the Endocannabinoid System?

The Endocannabinoid system was first discovered by scientists who were carrying out research into why cannabis has the effect on people that it does, hence the name Endocannabinoid System. “Endo” is an abbreviation of endogenous, which refers to something that originates inside of the body. Cannabinoid is the term used to describe the compounds that are responsible for activating the endocannabinoid system.

The Endocannabinoid system is the biological system that is responsible for the effects that cannabis has, both the psychosocial and physical. It has also been discovered that the endocannabinoid system plays a major role in regulating many important functions within our pet’s body.

The Endocannabinoid system in dogs has recently become the subject of much scientific research, because of the many effects that it has on the body and the potential for using the stimulation of the system to treat disease. Scientists understand the basic functioning of the endocannabinoid system, but researchers are uncovering more new exciting therapeutic uses of the system everyday.

What Are Cannabinoid Receptors?

Cannabinoid receptors are located on the surface of cells and they monitor the conditions outside of the cell. They transmit what they detect to the inside of the cell and that triggers the appropriate cellular response.

There are several types of cannabinoid receptors in the endocannabinoid system in dogs and other animals, but the two major ones are known as CB1 and CB2.

cannabinoid-receptors-in-dogs-explained

CB1 Cannabinoid Receptors

CB1 receptors are found throughout the body, but are more concentrated in the spinal cord and the

brain than anywhere else. CB1 receptors in the brain are found in the regions of the brain that control certain behaviors. For example, CB1 receptors have been found in the hypothalamus, which is the part of the brain that is responsible for regulating appetite. There are also CB1 receptors in the region of the brain that is related to emotions and memory, which is called the amygdala. CB1 receptors that are believed to be able to control pain have also been identified in the nerve endings.

CB2 Cannabinoid Receptors

CB2 receptors are found mainly in the nervous system and in the immune system. The activation of CB2 receptors has been shown to regulate inflammation, a property that is believed to be responsible for many of the known therapeutic effects of CBD.

How Do Cannabinoids Work with My Pets Endocannabinoid System?

Cannabinoids are compounds that occur naturally in the cannabis plant. There have been 113 cannabinoids identified in the cannabis plant to date. The two most abundant cannabinoids are THC and CBD. THC is the Cannabinoid that is psychoactive and is responsible for the “high” feeling that marijuana users experience. Cannabidiol (CBD) is a non-psychoactive compound that can relieve pain and reduce inflammation without the psychoactive effects of THC.

Endocannabinoids are molecules that are produced naturally within the body. It is these molecules that bind with the cannabinoid receptors and activate them. The body only creates endocannabinoids and when they are needed.

When introduced into the body, plant cannabinoids such as THC and CBD stimulate the cannabinoid receptors in the same way as the body’s own endocannabinoids do. This in turn triggers some of the same reactions such as reducing inflammation, blocking pain, slowing cell growth and relieving muscle spasms.

The Endocannabinoid System in dogs and all other animals operate in the same way. Introducing external cannabinoids into the system triggers the same therapeutic benefits that the internally produced endocannabinoids would.

areas-of-brain-affected-by-cannabinoids-in-dogs-explained

Different Functions of the Endocannabinoid System

The full extent of how the Endocannabinoid System works in regulating certain functions of the body is still not fully understood. The system has been recognized for playing an important role in modulating the brain, the immune system and the endocrine system.

It's now believed that the Endocannabinoid system in dogs influences activity in the gastrointestinal tract and affects the areas of the central nervous system that are responsible for appetite. The ECS also appears to play an important role in the regulating hormones that are related to the body's response to stress and to the reproductive system.

The Endocannabinoid System regulates inflammation. Inflammation is the body's natural response to damage to tissue or infection but when this response is not controlled properly it can lead to chronic inflammation. This inflammation is believed to be responsible for many chronic diseases. When the endocannabinoid system is stimulated by external cannabinoids it leads to a moderation in the body's immune response and so reduces inflammation.

Scientists now theorize that the primary function of the endocannabinoid system is to control a vital function of the body that is known as homeostasis, which is the maintenance of the stable internal conditions that all living things need to survive. If that is true then the Endocannabinoid System plays a huge role in regulating many bodily functions.

cbd-chemical-compoundThe Effects of CBD and the Endocannabinoid System

The endocannabinoid system is there to respond to stimulation by the body's own endocannabinoids, but the cannabinoid receptors can also be stimulated by cannabinoids from external sources, including cannabidiol (CBD).

Initial research of the benefits of medicinal cannabis was focused on the psychoactive cannabinoid THC which binds to the CB1 receptors triggering activity. Subsequent research has shown that the non-psychoactive CBD stimulates activity in both CB1 and CB2 receptors by triggering the release of the body's natural endocannabinoids. This increases the effect throughout the entire body. Research by the National Institutes of Health has shown that CBD can slow the natural breakdown of endocannabinoids which acts to prolong the therapeutic effect.

CBD can also have beneficial effects outside of the endocannabinoid system that would indicate that it could be used to treat a wide range of medical conditions. According to recent studies CBD can inhibit a gene that is known to be responsible for certain types of cancers. It has also been discovered that CBD can bind to the receptor that is responsible for controlling pain and inflammation.

Medical research into the effects of CBD is still ongoing, but the list of diseases that it could provide a treatment for is continually growing. As well as being used to treat inflammation, reduce pain and treat gastrointestinal disorders, research is being carried out into the possible use of CBD to treat heart disease, mood disorders, diabetes, asthma, glaucoma, stroke and much more. Some scientists are now even predicting that the use of CBD to simulate the endocannabinoid system in dogs and in humans could revolutionize modern medicine.

REFERENCES:

https://en.wikipedia.org/wiki/Endocannabinoid_system
<https://www.projectcbd.org/science/endocannabinoid-system/endocannabinoid-system>
<https://www.leafscience.com/2017/03/17/the-endocannabinoid-system-a-beginners-guide/>
<https://www.medicalmarijuanainc.com/the-endocannabinoid-system-an-overview/>
<https://www.leafly.com/news/science-tech/what-is-the-endocannabinoid-system>
<http://www.healingwithoutthehigh.com/ecs/>
<https://www.ncbi.nlm.nih.gov/pubmed/17369778>
<https://cbdoilreview.org/cbd-cannabidiol/cbd-endocannabinoid-syste>