PETCANN®

Medicinal cannabis for pets

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CBD for pain management in pets

Chronic pain, particularly arthritic pain is one of the most common reasons vets prescribe medicinal cannabis for their patients. Take a deep dive into how CBD interacts with the endocannabinoid system and learn how it can provide relief from osteoarthritis.

Many veterinary studies are focused on using exogenous plant cannabinoids from the cannabis plant to treat chronic pain, specifically osteoarthritis. To understand how cannabis may help treat chronic pain in pets, it is useful to first have a solid grasp on what the endocannabinoid system (ECS) is and how it works.

The ECS could be compared to a thermostat that regulates the temperature of a room. It plays a critical role in the pathophysiological processes of pain, making it a key player in the body's pain management team.

The ECS is made up of cannabinoid receptors, endocannabinoids and endocannabinoid enzymes. Dysfunction of any one of these components can lead to pain.

CB1 receptors are found presynaptically throughout the nervous system. When cannabinoids bind to these receptors, they act like a key in a lock, effecting the release of neurotransmitters across the synapses that inhibit synaptic transmission. The CB1 receptors can block the neurotransmitters that signal pain between neurons, effectively stopping pain signals from being sent.

CB2 receptors act slightly differently to CB1 receptors in the way they contribute to the expression of pain and inflammation. CB2 receptors are responsive and can be increased after injury or inflammation. Studies have shown that CB2 receptor activation inhibits the production of cytokines, particularly TNF alpha and IL6, and suppresses inflammatory antibody B-cell production. CB2 receptor activation inhibits mast cell degranulation and also releases endorphins from keratinocytes peripherally.

The effect of endocannabinoids (anandamide and 2-AG) on the mechanisms of pain are diverse – decreasing both sensitization of pain if binding occurs with the CB1 receptor, and dampening the inflammatory cascade process, if binding occurs with CB2 receptors.

Anandamide, our 'bliss' molecule, is a partial agonist and binds with high affinity to CB1 receptors – inhibiting neurotransmitter release. Anandamide also interacts with TRPV1 (transient receptor potential vanilloid 1) receptors, 5-HT3A serotonin receptors, PPARs (peroxisome proliferator-activated receptor) and glycine receptors, adding to its ability to reduce pain and hypersensitization.

2-AG (2-arachidonoylglerol) acts as a full agonist on both CB1 and CB2 receptors, with a higher affinity for CB2 receptors. Both endocannabinoids are degraded by enzymes, (fatty acid amide hydrolase (FAAH) and monoacylglycerol lipase (MAGL)). Keeping active endocannabinoids around for longer to interact with the different receptor types may increase their ability to provide analgesia. Medicating with CBD achieves just this. CBD inhibits FAAH allowing CB1 receptors to be occupied for longer periods of time. CBD also stimulates the release of endocannabinoids. CBD causes the body's endocannabinoids to stick around for longer.

Patient response to pain and analgesics is variable. This is connected to the individual's ECS base tone known as "endocannabinoid system tone". With more emerging data around the use of medicinal cannabis for veterinary patients, pet parents around Australia and the world are turning to CBD treatment for pain and inflammation. Recent surveys

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