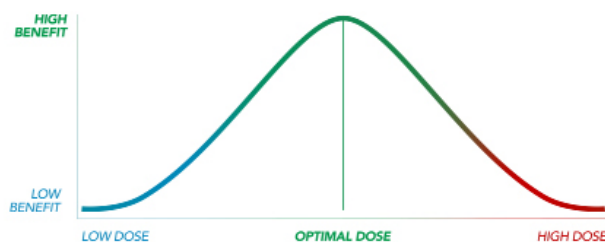


# CBD dosing: a targeted approach

**Determining the best CBD dosing for pets can be a bit of an art with no clear one-size-fits-all answer.**

At PetCann we base our dosing recommendations on data from recent and emerging clinical studies. With CBD medicine we advise a 'start low, go slow' approach, establishing a target dose towards which you can progress. In essence you want to begin with the lowest possible dose that yields maximum benefits with minimal or no side effects.

Because CBD has a biphasic dose curve that is unique for each patient, it makes sense to start with a low dose and increase it by increments, to achieve the desired outcome. This method is applicable in human and veterinary medicine alike, allowing you to find the sweet spot safely and gradually for each patient.



## Key points for new prescribers

CBD interacts with the endocannabinoid system (ECS), which consists of naturally occurring endocannabinoids, CB1 and CB2 receptors and enzymes that facilitate the synthesis and degradation of endocannabinoids. The ECS plays a critical role in maintaining homeostasis across body systems. The base tone of an individual's ECS can also vary and is impacted by factors like injury, inflammation, disease and genetics. CBD also interacts with serotonin, opioid and dopamine receptors throughout the body.

## Considerations for dosage

A growing number of recent studies look at the use of cannabis in companion animals. These studies indicate that CBD can deliver benefits including pain relief, improved sleep, decreased anxiety and reduced inflammation when administered correctly. While condition-specific dosing guidelines exist, it is also acknowledged that each patient's needs, and the quality of CBD oil must be considered.

In general, many conditions respond well to CBD doses between 0.5 – 2mg/kg BID with minimal to no side effects.

Microdoses for CBD are <0.5mg/kg BID; macrodoses for CBD are >2mg/kg BID. Side effects are rare but may include increased lethargy, sedation and mild diarrhoea. For patients on long-term CBD, regular liver enzyme monitoring is advised. Some studies have also shown an elevation of ALP in dogs with long-term, higher-dose CBD use.

It is important to bear in mind that CBD can interact with other medications as it inhibits some cytochrome P450 enzymes. Be mindful of potential adverse interactions with Benzodiazepines, Gabapentin, Acepromazine, Tramadol and Phenobarbital, as well as the possibility of serotonin syndrome with SSRIs (although this has not been well documented in human or veterinary literature). Phytocannabinoids should be carefully considered in the case of young, pregnant, lactating, or breeding animals, assessing potential impact on their developing endocannabinoid systems.

Many clinicians start patients on a quarter to half the target dose once daily in the evening, then gradually increase towards the goal, twice-daily dosage.

## Condition-specific dosing

### Osteoarthritis

Studies indicate that osteoarthritis in dogs responds favourably to CBD, with dosages ranging from 0.25mg/kg to 2mg/kg PO BID. Many patients taking CBD have been able to reduce or even stop other medications, such as NSAIDs or gabapentin.

In one study looking at CBD for arthritic dogs, of the 23 dogs taking gabapentin at the time of enrollment, 10 were able to discontinue gabapentin after the addition of CBD oil to their pain management plan. Of the remaining 13 that were unable to discontinue gabapentin by the end of the study, 11 were able to have their daily dose reduced to 20–60% of the original dose after the addition of CBD oil.

### Seizures

Seizure disorders may require higher, more frequent doses of CBD. One study found a 33% reduction in seizure activity in dogs given 2.5mg/kg BID CBD in conjunction with other epilepsy drugs compared to the control group. Other studies have demonstrated the need for higher doses and TID dosing. THC-containing formulations are generally best avoided.

## Anxiety

In the case of anxiety, CBD appears to be most effective at moderate levels, indicating a bell-shaped curve of efficacy. Broad-spectrum oils containing anxiolytic terpenes often yield better results than purified CBD alone.

A very recent study, 'A single dose of cannabidiol (CBD) positively influences measures of stress in dogs during separation and car travel', demonstrated that a 4mg/kg single dose of CBD 2 hours prior to a stressful travel event, resulted in a significant reduction in canine stress compared to the placebo group. Other studies show significantly lower doses of CBD are required for anxiolytic effect.

## Cancer

While more research is required, CBD is a promising anti-cancer drug, inducing cancer cell apoptosis and reducing tumour cell proliferation. Both In vivo and in vitro oncology studies in pets have shown several cancer cell types to be responsive to CBD which can be enhanced with certain chemotherapeutic agents.

Currently, CBD plays an important role in alleviating symptoms associated with cancer and its treatment. It can provide symptomatic relief and palliative support by helping with pain, anxiety and side effects of other medications, including nausea and altered cognition.

## Atopic skin disease

Common canine atopic skin diseases can potentially be managed with CBD, administered both orally and topically. CB1 and CB2 receptors are expressed in canine skin, whether they have healthy skin or atopic dermatitis.

In one study, a mixture of polyphenols and cannabinoids showed an ability to revert the overexpression of canine atopic dermatitis key inflammatory genes, recording an approximate 50% reduction in canine atopy lesions and itch scoring with CBD use. This study showed great promise for future drug therapy and relapse prevention.

## Comorbidities

CBD can be beneficial for patients with comorbidities, especially older ones who commonly suffer from multiple ailments, including osteoarthritis, anxiety and cognitive dysfunction. As a potent antioxidant, CBD aids in managing signs of cognitive dysfunction and can be a great support in enhancing overall quality of life.

## Condition-specific dosing guidelines

General condition category	Dose
Pain/arthritis	0.5-2mg/kg BID
Atopy	0.5-1mg/kg BID
Seizures (epileptic form)	2-10mg/kg BID - TID
Cancer symptoms (appetite, comfort, nausea)	1-5mg/kg BID
Anti-cancer	2-10mg/kg BID
Chronic anxiety	0.25-1 mg/kg BID
Acute anxiety	1-3mg/kg BID
Cognitive decline	0.5-2mg/kg BID

Table from Stephen Cital Medicinal Cannabinoids: A Review, Part II – Advances in Small Animal Medicine and Surgery Volume 33, Issue 11 November 2020

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