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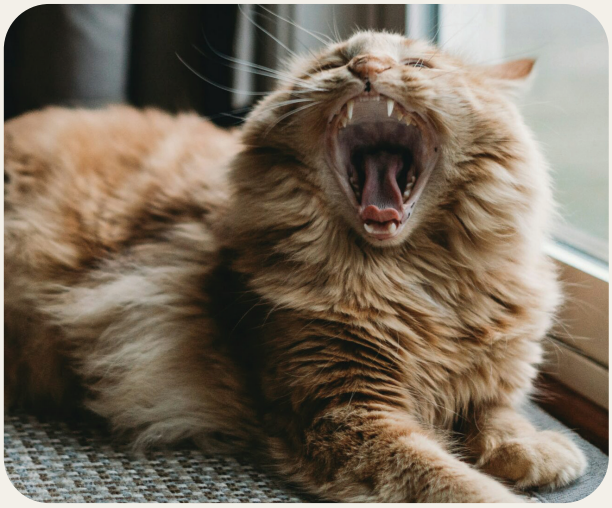
# Targeting the endocannabinoid system to help manage Feline Chronic Gingivostomatitis

Feline chronic gingivostomatitis (FCGS) is a debilitating inflammatory oral condition characterised by intense oral pain. Common clinical signs include hypersalivation, halitosis, weight loss, reduced activity, and increased agitation. FCGS is a multifactorial disease involving an underlying dysregulated immune response affecting cats of any age and lacking specific curative treatment. Traditional management approaches, including dental extractions and long-term therapy with anti-inflammatories, analgesics, and antimicrobials, often fail to provide adequate relief for affected cats. Given these challenges, alternative therapies such as cannabidiol (CBD) are being explored for treatment.

The endocannabinoid system (ECS) plays a crucial role in maintaining homeostasis across various physiological processes. Although research in cats is limited, cannabinoid and cannabinoid-related receptors have been identified in healthy feline tissues. Studies have demonstrated, for example, cats with hypersensitivity dermatitis exhibit an overexpression of CB1 and CB2 receptors. The "c(ut)annibinoid system," is a specific term, reflecting the ECS's involvement in skin homeostasis and extends to the oral mucosa. A dysregulated ECS is associated with several pathological processes and as such can be a useful target for many conditions.

Recent studies have evaluated the expression of CB1, CB2, TRPA1, GPR55, and 5-HT1A receptors in the oral mucosa of both healthy cats and those with FCGS. Findings indicate that cannabinoid receptors and related receptors are widely expressed in the oral mucosa of healthy cats and are upregulated in FCGS. With growing understanding of cannabinoid properties and their mechanisms of action, and potential to reduce inflammation, alleviate pain, and control dental plaque bacteria gives great promise in managing FCGS. Cannabinoids also offer the potential to combat dental plaque-associated bacteria, providing a safer alternative to antibiotics and reducing the risk of developing drug resistance.

The study "Expression of Cannabinoid and Cannabinoid-Related Receptors in the Oral Mucosa of Healthy Cats and Cats with Chronic Gingivostomatitis" highlights that, similar to human oral mucosa, CB1 receptors are present in the healthy oral mucosa epithelium of cats. In FCGS cases, there is a notable upregulation of CB1 receptors in both the mucosal epithelium and inflammatory cells. Conversely, CB2 receptors, which are generally not expressed in healthy oral mucosa, show significantly increased expression and distribution in FCGS.



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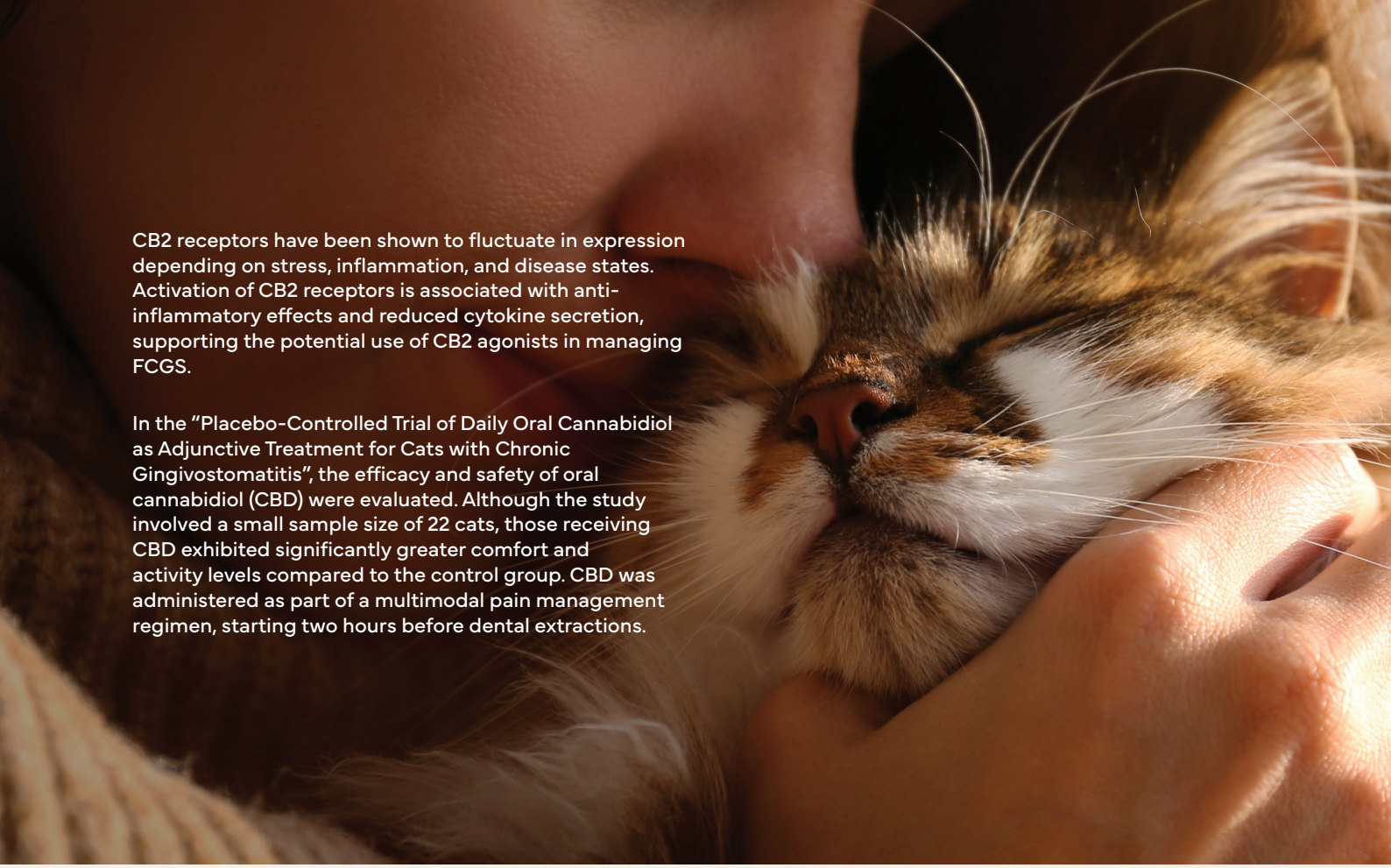

CB2 receptors have been shown to fluctuate in expression depending on stress, inflammation, and disease states. Activation of CB2 receptors is associated with anti-inflammatory effects and reduced cytokine secretion, supporting the potential use of CB2 agonists in managing FCGS.

In the "Placebo-Controlled Trial of Daily Oral Cannabidiol as Adjunctive Treatment for Cats with Chronic Gingivostomatitis", the efficacy and safety of oral cannabidiol (CBD) were evaluated. Although the study involved a small sample size of 22 cats, those receiving CBD exhibited significantly greater comfort and activity levels compared to the control group. CBD was administered as part of a multimodal pain management regimen, starting two hours before dental extractions.

The fixed dosage was 4mg per cat every 12 hours for 15 days, with an average dose rate of 1 mg/kg BID. Pain and disease severity was assessed using the Composite Oral Pain Scale (COPS-C/F) and the Stomatitis Disease Activity Index Score (SDAI). Cats receiving CBD showed significant improvements in SDAI scores without notable adverse effects or biochemical changes. Minor side effects included hypersalivation in some cats and diarrhea in one; however, no sedation or drug interactions were observed.

In addition to the positive results from the SDAI score, which includes caregiver and clinician assessments of appetite, activity, grooming, comfort, and inflammatory lesion severity, it was observed that CBD-treated cats had lower heart rates and blood pressure compared to the placebo group. These differences may indicate reduced pain and stress levels attributable to CBD's anxiolytic effects, while placebo group cats experienced more abrupt weight loss and increased discomfort.

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The evidence emerging from recent studies suggests that cannabinoids, particularly cannabidiol (CBD), hold significant promise as adjunctive treatments for FCGS in cats. CBD's ability to reduce pain, alleviate inflammation, and potentially manage dental plaque-associated bacteria highlights its potential as a valuable therapeutic tool. Continued research with larger sample sizes and long-term studies will be crucial to fully understand the benefits and safety of cannabinoid-based therapies in veterinary medicine. Given the complexity of FCGS and the limitations of existing treatments, cannabinoids offer a novel approach that could potentially improve clinical outcomes and quality of life for affected cats.

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