



# Evexia | Hexia

## A pilot study: a new supplement with anti-inflammatory effect in dogs with osteoarthritis

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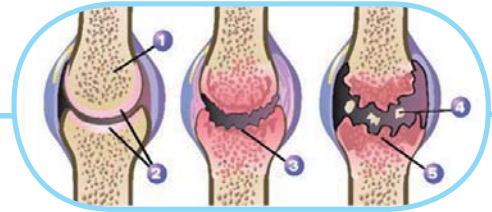
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# INTRODUCTION

**Osteoarthritis (OA)** is a degenerative and inflammatory condition. The progressive joint destruction leads to lameness, pain, mobility limitations and it compromises the overall quality of life. In the absence of a definitive cure for this condition, the main goals for clinicians are slowing down of disease progression, reduction of chronic pain and improvement of everyday activities<sup>1</sup>. A common approach in veterinary medicine is the use of non-inflammatory drugs, but complementary feeds are useful in treating cases of OA, reporting few or no side effects.<sup>3,4</sup>.

1. Bone - 2. Cartilage - 3. Cartilage thinning - 4. Cartilaginous fragments - 5. Destruction of cartilage



## AIM OF THE STUDY

*The synergistic effect of the ingredients with anti-inflammatory and antioxidant activity was evaluated in dogs with OA. In particular, was tested a new oral complementary feed containing:*



**hemp oil and derived products**



**Boswellia serrata Roxb. by Phytosome® technology**



**Cucumis melo L. extract**

## MATERIALS AND METHODS

Client-owned dogs suffering from OA with confirmed radiographic and clinical signs of OA were recruited in this pilot study. A written informed consent was obtained from the dogs' owners who were fully aware of the study design. Complementary feed orally administered in dogs with osteoarthritis once daily for a total of 30 days (Candioli Pharma S.p.A, Italy).



### Veterinary and owner evaluation

Period under observation: baseline (T0), day 15 (T1) and day 30 (T2). The veterinarian collected data on gender, age, breed, and body weight.

A clinical/orthopedic examination and an assessment of the owner regarding the dog's pain level using a validated questionnaire (Helsinki Chronic Pain Index - HCPI) were performed at T0, T1 and T2

A scale from 0 to 3 was used to score the ease of tablet administration, the palatability of the product, and its effectiveness.

### Statistical analysis

- ➔ Mean value of dog age (yr) and weight (Kg); mode of the scores was reported on: ease of administration, palatability and effectiveness..
- ➔ Generalized Linear Mixed Model (GLMM) (R software, 2018) to investigate the pain score reduction during the study period.
- ➔  $Score = Time + Case_{rnd}$

Score: score HCPI; Time: T0, T1, T2  
Case<sub>rnd</sub>: animal random effect

# RESULTS

- Eight dogs out of 10 completed the study. Age: 5-14 years (mean 10.4±3.1 SD), weight 20-50 kg (mean 31.2 ± 13.8 SD kg) and apart from one small size dog weighting 7.4 Kg; 20% being females, 80% being males; breeds: Mixed Breed (4), German Shepherds (1), Labrador Retriever (1), Pointer (1), Border Collie (1), Italian Mastiff (1), Belgian Shepherd dog (1).
- No episodes of vomiting or diarrhea that confirm the safety and tolerability.
- The tablets were found to be ease to administer by the owner. The palatability of the product was found

to be very good. A good agreement on the effectiveness of the complementary feed based on the owner and veterinary scores was highlighted (Table 3).

- The questionnaires on chronic pain in dogs were completed by all the owners at each visit and the HCPI scores are graphically represented in Figure 1.
- The GLMM performed on HCPI data highlights a reduction of score at both T1 and T2 compared to the baseline (T0). At T2 the index is significantly ( $p<0.01$ ) lower than the baseline (T0) (Table 4).

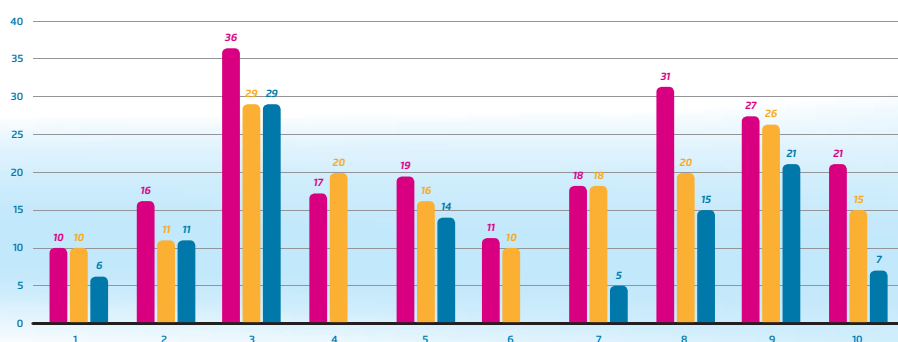


Fig. 1. The Helsinki chronic pain index (HCPI) at T0 (tot\_T0), T1 (tot\_T1) and T2 (tot\_T2) in 10 cases. On the top of each bar the HCPI is reported.

| Question asked                                                               | 0 Points        | 1 Point     | 2 Punti                        | 3 Points         | 4 Points                     |
|------------------------------------------------------------------------------|-----------------|-------------|--------------------------------|------------------|------------------------------|
| Q1. Rate your dog's mood                                                     | Very alert      | Alert       | Neither alert nor indifferent  | Indifferent      | Very indifferent             |
| Q2. Rate your dog's willingness to participate in play                       | Very willing    | Willing     | Reluctantly                    | Very reluctantly | Does not play at all         |
| Q3. Rate your dog's vocalization (audible complaining)                       | Never           | Hardly ever | Sometimes                      | Often            | Very often                   |
| Q4. Rate your dog's willingness to walk                                      | Very willing    | Willing     | Reluctantly                    | Very reluctantly | Does not walk at all         |
| Q5. Rate your dog's willingness to trot                                      | Very willing    | Willing     | Reluctantly                    | Very reluctantly | Does not trot at all         |
| Q6. Rate your dog's willingness to gallop                                    | Very willing    | Willing     | Reluctantly                    | Very reluctantly | Does not gallop at all       |
| Q7. Rate your dog's willingness to jump (e.g., into car, onto sofa)          | Very willing    | Willing     | Reluctantly                    | Very reluctantly | Does not jump at all         |
| Q8. Rate your dog's ease in lying down                                       | With great ease | Easily      | Neither easily nor difficultly | With difficulty  | With great difficulty        |
| Q9. Rate your dog's ease in rising from a lying position                     | With great ease | Easily      | Neither easily nor difficultly | With difficulty  | With great difficulty        |
| Q10. Rate your dog's ease of movement after long rest                        | With great ease | Easily      | Neither easily nor difficultly | With difficulty  | Very often/always difficulty |
| Q11. Rate your dog's ease of movement after major activity or heavy exercise | With great ease | Easily      | Neither easily nor difficultly | With difficulty  | Very often/always difficulty |

Table 1. Helsinki Chronic Pain Index (HCPI) for veterinary use, as translated from Finnish to English.

|                        | Owner |    | Veterinarian |    |
|------------------------|-------|----|--------------|----|
|                        | T1    | T2 | T1           | T2 |
| Ease of administration | 0     | 0  |              |    |
| Palatability           | 3     | 3  |              |    |
| Effectiveness          | 0     | 3  | 1            | 3  |

Tab. 3. The mode scores registered at T1 and T2 by owners on the ease of administration (0=easy, 1=quite easy, 3=difficult), palatability (0=low, 2=medium, 3=high), and effectiveness (0=low, 2=moderate, 3=high) and by the veterinarian on the effectiveness.

| Variable      | Effect (95% CI)         |
|---------------|-------------------------|
| Intercept     | 2.97 (2.67-3.27) **     |
| Time (Ref T0) |                         |
| Time T1       | -0.16 (-0.39-0.06)      |
| Time T2       | -0.47 (-0.74 / -0.21)** |

Tab. 4. Results of the GLMM applied to investigate the pain score reduction during the study period (T1, T2). T0 is the reference time.

\*\* $p<0.01$

## DISCUSSION AND CONCLUSION

- ➔ *The use of complementary feed to reduce pain and inflammation in veterinary settings is starting to be considered as a good alternative to traditional drugs [7].*
- ➔ *The significant beneficial effects of the new complementary feed were highlighted after 30 days, a longer treatment could lead to an even better result.*
- ➔ *Multicomponent formulations seem to be more effective than an ingredient used alone [5]. At our knowledge, no studies reported the synergic effects of Hemp oil and derived products, *Boswellia serrata* Roxb. and *Cucumis melo* L. extract in veterinary medicine.*
- ➔ *In addition to the tolerability and safety of our product, its good palatability and its ease of administration have to be considered relevant points for the success of a long lasting treatment in animals with a chronic pain like OA.*

### Acknowledgements

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