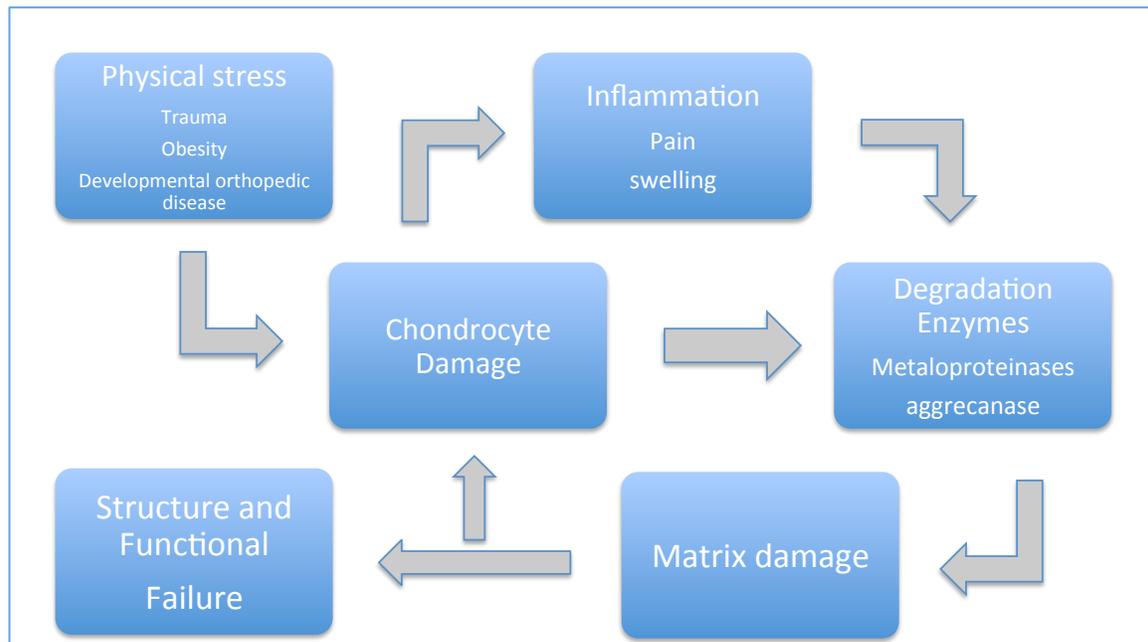


## Nonsurgical Management of Osteoarthritis – Evidence for Current Treatments

**Thomas Gibson BSc, BEd, DVM, DVSC, Diplomate ACVS, Diplomate ACVSMR, Associate Professor Small Animal Surgery, Ontario Veterinary College, University of Guelph**

### Introduction

Osteoarthritis (OA) can be described simply as a deterioration of a joint associated with pain and dysfunction. In reality OA is a much more complex condition with biochemical, physical and pathological alterations. All of these factors require consideration when approaching treatment. Traditionally the treatment approach has been to palliate painful symptoms. In fact the pathologic changes including bone and soft tissue alterations that result in lameness and clinical signs may not coincide with the degree of pathologic or radiographic change. This makes utilization of multimodal techniques essential for the essential treatment of OA.



### Multimodal Therapy

Multimodal treatment is the practice of combining multiple analgesic drug classes or **techniques** to target different points along the pain pathway. It takes advantage of additive or synergistic analgesic effects that optimize analgesia and improve patient comfort while lowering the dose of individual analgesic agents reducing the potential for undesirable side effects. When choosing and combining therapies it is a good practice to know where each drug or modality is expected to have its effect avoiding duplication or omission of a potential target.

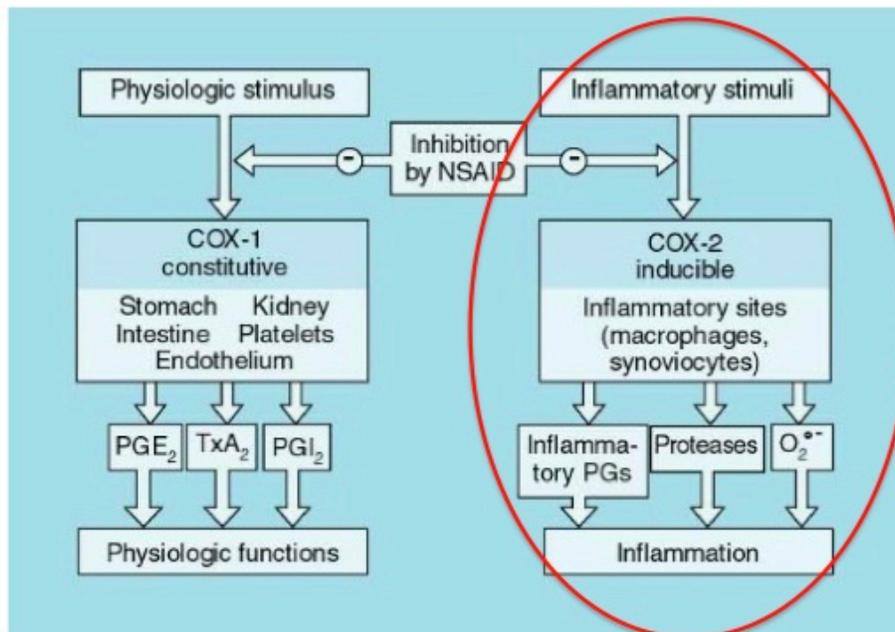
## Osteoarthritis Treatment

Treatment decisions are affected by both owner factors and clinician factors. Owner factors include willingness and ability of the owner to implement the plan. Treatment plans must consider finances, schedule, physical environment, geographical location and owner's physical abilities to name a few. Clinician factors include expertise, personal successes and failures and availability of treatment. As clinicians we should strive to attain **research based practice** where our treatment decisions and recommendations are based on data related to effectiveness and safety.

Current treatments for OA include:

- Nonsteroidal anti-inflammatory drugs (NSAIDs)
- Analgesics
- Additional Therapeutic Agents – PSGAGS, PPS
- Nutritional Supplements/Diet
- Rehabilitation

The use of non-steroidal anti-inflammatory drugs (NSAIDs) for the treatment of OA in dogs and cats is widespread in veterinary medicine. The efficacy of NSAIDs in treating OA is unquestioned. This class of drugs is found to decrease pain and improve function with minimal side effects while providing high client satisfaction.



Other drugs such as tramadol, amantadine, gabapentin, amitriptyline and acetaminophen are all used to varying degrees for the treatment of osteoarthritis in our veterinary patients but the reality is that there is very little in the literature that

supports the use of these drugs in relation to both efficacy and safety. Other therapeutic agents with potential for treatment of osteoarthritis include a polysulfated glycosaminoglycan (PSGAG) (Adequan®) and a pentosan polysulfate (PPS) (Cartrophen®). The evidence supporting effectiveness of these products in the veterinary literature is also minimal at this time. Finally veterinary diets that make claims regarding effective OA treatment in dogs and cats have been available for decades. The reality is that the strength of evidence for many of these diets and other nutraceuticals is still weak. This is supported by a recent systematic review that looked at the evidence to support use of these products for treatment of osteoarthritis in veterinary patients. (*Systematic Review of Efficacy of Nutraceuticals to Alleviate Clinical Signs of Osteoarthritis*"; Vandeweerd et al, JVIM 2012;26:448-456). The overwhelming message was that: "The evidence of efficacy of nutraceuticals is poor, with the exception of diets supplemented with omega-3 fatty acids in dogs" and that "...four randomized controlled trials in dogs concerning diets supplemented with omega three fatty acids, which were of high quality and demonstrated a significant effect on clinical signs of OA". Another such review stated that:

- Weight management should be part of the first-line approach in patients with osteoarthritis
- High levels of the omega-3 fatty acids EPA and DHA may help to modulate inflammation and improve clinical signs
- Diets fortified with glucosamine and chondroitin may provide benefit but supplementation may be needed to reach therapeutic dosages
- Supplements such as antioxidants and green-lipped mussel may provide additional benefits, but more research is needed

(*Nutritional Management of Osteoarthritis*, Perea, S, Compend Contin Educ Vet, 2012)

These statements should also not be over interpreted. These reviews both state that there is a shortage of quality research that supports the use of many of these diets or products. It is possible that these nutraceuticals could be effectively used to treat OA. The current state of affairs would be that more quality investigation of the effectiveness is required.

Of major importance is the role that weight management plays in the prevention and treatment of osteoarthritis in our veterinary patients. Proper nutritional counseling for our patients and maintaining healthy body condition and activity level may have the most profound impact on preventing and managing OA of all treatment options that are currently available.

### *Suggested Reading*

- 1- Fox SM: Multimodal Management of Canine Osteoarthritis. Boca Raton, FL, CRC, 2017
- 2- Vandeweerd JM, Coisson C, Clegg P et al. Systematic Review of Efficacy of Nutraceuticals to Alleviate Clinical Signs of Osteoarthritis ; JVIM 2012;26:448-456

- 3- Perea S. Nutritional Management of Osteoarthritis, *Compend Contin Educ Vet*, 2012)
- 4- Budsburg, SC, Torres BT, Kleine SA et al. Lack of effectiveness of tramadol hydrochloride for the treatment of pain and joint dysfunction in dogs with chronic osteoarthritis. *JAVMA*, 252:4:427-432, 2018
- 5- Lascelles BD, Gaynor JS, Smith ES et al. Amantadine in a multimodal analgesic regimen for alleviation of refractory osteoarthritis pain in dogs. *JVIM*, 22(1):53-59, 2008
- 6- Johnston SA, McLaughlin RM, and Budsburg SC. Nonsurgical management of osteoarthritis in dogs. *Vet Clin Small Anim* 38 (2008) 1449–1470