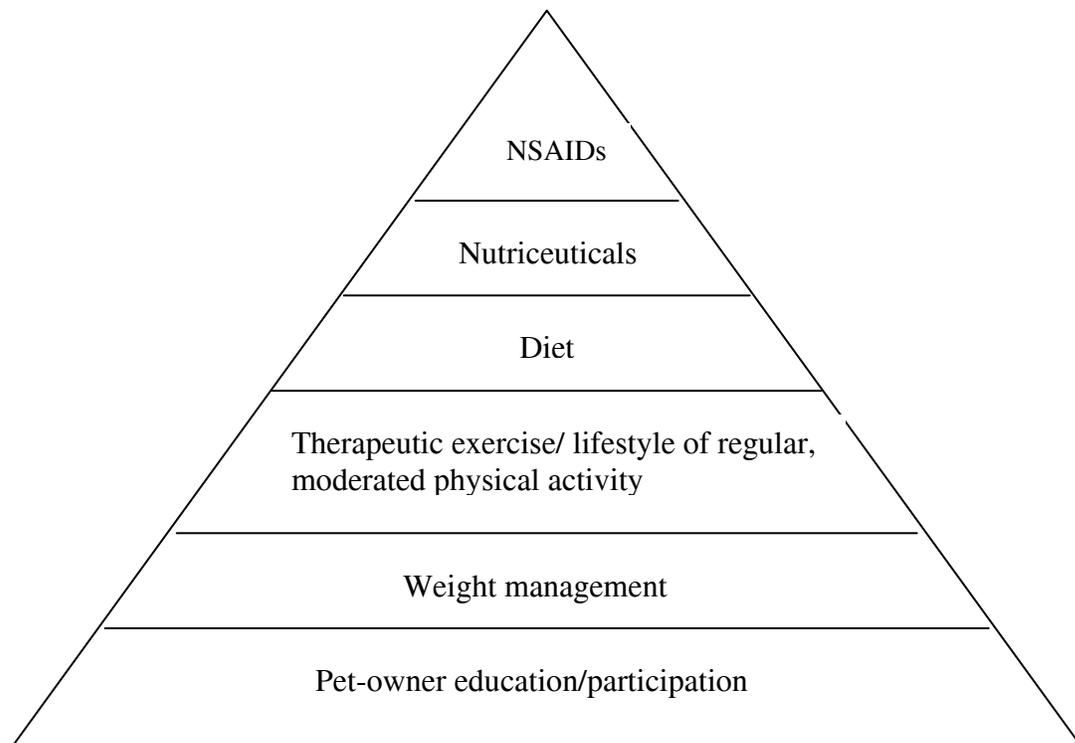


Osteoarthritis (OA) affects millions of dogs and dogs of all ages. OA is often oversimplified as “inflammation of joints”. Such oversimplification causes us to seek “simple solutions” in the form of a single drug that is expected to be immediately and completely effective. There is no cure for OA – it is a disorder that can often be “effectively managed” if addressed comprehensively for the life of the pet. OA starts relatively innocuously, but soon there is a vicious cycle that gains momentum. As OA progresses, it affects the patient as a whole. The painful patient is less active and less interested in play and begins to lose muscle mass and cardiovascular fitness while gaining weight.

There are a few points that are foundational in the effective management of OA in dogs.

- (1) OA affects the patient as a whole – so the whole patient needs treatment.
- (2) OA is all about balance. The healthy joint is delicately balanced between the production of normal joint constituents and the removal of metabolic wastes. In OA, this balance is upset and accumulated wastes and destructive enzymes exceed the rebuilding process. Likewise, when the dog is viewed holistically, effective OA management hinges upon a careful balance of activity and nutrition as OA tends to shift the balance toward loss of strength, joint range of motion, comfort and physical fitness. When there is loss of this delicate balance, weight gain is almost inevitable and really aggravates the OA. It takes a very comprehensive plan to shift this balance back toward joint health, muscle development, improved range of motion, weight loss, physical fitness and enthusiasm for activity. We should not seek simple or overnight solutions. The management must be comprehensive and sustained.
- (3) We like to look at comprehensive management as a pyramid with the foundational components at the bottom and progressing upward to the more easily instituted therapies.



**Pet-owner education** is the foundation of effective management of OA because comprehensive management requires your ACTIVE involvement and understanding of treatment goals. It is essential that you understand that OA is not “cured”, it is “managed” and this management is ongoing, lifelong process that is updated and modified based upon response to therapies, development of new therapies, etc.

**Attaining & maintaining a lean body conformation** through proper nutrition and feeding practices is the cornerstone of effective OA management in dogs. Unfortunately, over-feeding is probably the single hardest habit to change. A recent study confirmed the effectiveness of weight reduction on decreasing the lameness associated with OA<sup>1</sup>. Another study showed that a 25% restriction of food intake increased median lifespan, delayed the onset of OA and other degenerative diseases<sup>2</sup>! Other studies have shown that restricted food intake delayed both radiographic and symptomatic OA<sup>3,4</sup>! All of this excellent research is wasted if we do not effectively communicate it to the pet owners who control food intake. Many pet owners tell us that they would gladly pay for a medication that was PROVEN to delay the onset of OA, ease the pain of OA and extend this lifespan of their pets, yet are reluctant when they hear that they can improve the health of their pet by simply reducing the amount of food that they feed their pet! It sounds too easy and in many ways it is. Why? Because, many pet owners respond, “but my dog isn’t overweight”. Most pet owners have a skewed mental image of what is “ideal” body conformation. In fact, in a study 201 dogs, veterinary experts determined that 79% of the dogs were overweight. Yet when looking at these same 201 dogs, only 28% of the pets’ owners thought that their dog was overweight!<sup>5</sup> This shows the importance of utilizing the expertise of your veterinarian in the comprehensive management of your pet’s OA. The Body Condition Scoring (BCS) is a 1-9 grading system with the “ideal” grades of 4 to 5 being described as “ribs palpable with out excess fat covering, waist easily noted behind rib cage when viewed from above, abdominal tuck seen when viewed from the side”. Maintaining such a body conformation through restricted feeding may not prevent OA, but it goes a long ways toward delaying it and minimizing the symptoms associated with it.

**A lifestyle of regular activity** that is moderated away from intermittent “extremes” of exercise (weekend warrior) and activities to which the pet is not conditioned (Spring fling hiking) is essential. This is VERY difficult for many pet-owners because it by necessity impacts their daily schedule as well. Interestingly, a shift to this desirable lifestyle often benefits the pet owner simultaneously...everyone wins! We believe in and have seen the benefits of **therapeutic exercise** and **physical rehabilitation** on dogs with OA. Therapeutic exercise with a certified small animal physical rehabilitation practitioner is a key step in converting the osteoarthritic, overweight and sedentary dog to a lean, physically fit dog who is enthusiastic about activity again. We have seen osteoarthritic dogs who were overweight and out of shape, quickly begin to lose weight and gain cardiovascular fitness when enrolled in a therapeutic exercise and physical rehabilitation program. Within weeks, these pets begin to show signs of enthusiasm toward leash walks and improved energy levels that is noted by the pet owners. Often these programs involve a patient assessment upon entry into the program. This may include body weight, body condition score, joint range of motion measurements, limb circumference, etc. Often this is a good time to establish some therapeutic goals. Some objective therapy goals may include desired body weight, body condition, desired length of comfortable daily walk, ability climb stairs again, etc. Some subjective therapy goals may include increased enthusiasm for exercise, more energy, etc. I tend to advocate supervised programs at the beginning because it is very easy for a pet owner to “over do it”, choose the wrong activities, or to become discouraged if they don’t detect immediate improvement. Once the pet becomes enthusiastic about activity again and is losing weight, the supervised therapeutic exercise program can usually be tapered back as the pet owner gradually assumes more responsibility for regular activity – this usually involves a lifestyle change.

**Diets specifically formulated for the dog with OA** have a practical place in the comprehensive management of OA. Omega-3 fatty acids appear to decrease joint inflammation. These fatty acids are a component of several new diets – including but not limited to Hill’s Prescription diet J/D (available from veterinarians) and Eukanuba Adult Plus and Eukanuba Senior Plus. Additionally, these diets contain L-carnitine which fosters burning of fat but preservation of muscle mass. Of course, as previously discussed, it is not only what you feed, it is also how (much) you feed.

**Nutriceuticals** are dietary supplements that are not strictly supervised by the FDA like pharmaceuticals. Of this therapeutic class, we feel that chondroitin, glucosamine and manganese ascorbate have a role in managing OA. Combined, they function as building blocks to some of the normal constituents of joint cartilage and they decrease the effect of some of the destructive enzymes present within an osteoarthritic joint. They also enhance the lubricating effect of the joint fluid. They should be used early in the course of OA rather than a “last ditch” effort to treat advanced OA. It is unclear whether they have any role in prevention. One should not expect to see a quick or dramatic response to nutraceuticals. Rather, it takes several weeks to obtain therapeutic levels in joint cartilage and joint fluid and this is reflected in the delayed onset of their beneficial effects. It is important to emphasize that effective management of OA in dogs requires multiple treatment strategies and is a lifelong commitment. Thus, a quick response from a single component of the treatment should not necessarily be a goal or an expectation. Chondroitin sulfate can be purified from bovine, whale, and shark cartilage sources. These sources should not necessarily be seen as equally effective. Pragmatically, it is important to realize that these nutraceuticals are classified as dietary supplements by the FDA and, as such, are not subject to the same stringent regulatory guidelines as pharmaceuticals. In fact, several studies have shown that as many as 84% of the human over-the-counter nutraceutical products vary widely in their composition and fail to meet their label claims. Further, the source of the chondroitin sulfate raw materials varies widely. Further, this study showed that products of lesser expense tended to deviate more widely from label claims. This leaves the consumer in a difficult place regarding determining product value. We have advocated Cosequin DS® (veterinary label product by Nutramax Labs available in capsules or liver-flavored chewable tablets) or Cosamin DS® (same product by Nutramax Labs labeled for human use, available only in capsule form). Most recently we are recommending Dasuquin DS®, a Nutrimax Labs product that combines the glucosamine & chondroitin sulfate ingredients with avocado-soya unsaponifiables (ASU). ASU decreases inflammation and, in human osteoarthritis trials, decreases pain scores and reliance upon anti-inflammatory drugs.

**Non-steroidal anti-inflammatory drugs (NSAIDs)** include carprofen (Rimadyl), etodolac (Etogesic), deracoxib (Deramaxx), meloxicam (Metacam), tepoxalin (Zubrin). These medications decrease inflammation and should thereby improve patient comfort and limb use. They do not appear to significantly alter the progression of OA. As with any medication, adverse reactions can occur. Specifically gastrointestinal, liver and kidney side-effects can occur. We recommend patients be observed for diarrhea, vomiting, melena (dark, tarry stool), lethargy, lack of appetite, etc. If any of these are noted, the medication should be discontinued and your veterinarian should be notified immediately. Often, we will advise blood tests be performed prior to NSAID therapy and periodically throughout treatment.

Finally, sometimes, effective management of OA involves surgery. Surgery may involve joint stabilization in the event of pathologic instability (example – Tibial Plateau Leveling Osteotomy for treatment of ruptured cranial cruciate ligament), or removal of cartilage/bony chips or cartilage resurfacing (arthroscopic surgery), or joint replacement with a prosthetic joint (Total Hip Replacement). The relative importance and timing of surgery is variable depending upon the injury or condition underlying the osteoarthritis.

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