Causes and Management of Arthritis & Other Joint Diseases in Dogs

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Many pets develop some form of joint disease during their lives. It can be mild, even unnoticeable to the pet owner, or it can be debilitating, severely affecting the pet's quality of life, or even causing complete lameness. The majority of cases fall somewhere in between.

While some pets may develop joint disease in the first half of their lives, signs usually do not appear until the latter half of life, which varies depending on your pet's breed. Dogs are more susceptible to arthritis than cats, and the larger dog breeds are more vulnerable than smaller breeds.

The most common signs of joint disease include stiffness, limping, or favoring a limb - particularly after sleep or resting, inability to rise, reluctance to jump or even climb stairs, and noticeable pain.

Causes of arthritis

There are many diseases that affect the joints of dogs, so many, in fact, that there are 10 major classifications.

Joint diseases occur as a result of:

- Ligament, tendon, or muscle disease, e.g., ruptured anterior cruciate ligament
- Fractures involving the joint
- Developmental disorders, e.g., hip dysplasia, elbow dysplasia, osteochondritis dissecans, Legg-Perthes disease
- Congenital disorders, e.g., Wobbler's syndrome (cervical spondylomyelopathy), luxated patella
- Dietary and hormonal disease, e.g., hyperparathyroidism, obesity
- Metabolic disorders, e.g., von Willebrand's disease (hemophilia) in dogs
- Cancer
- Degenerative joint disease (osteoarthritis)
- Inflammatory joint disease, e.g., Lyme disease, rheumatoid arthritis
- Degenerative spinal joint disease, e.g., intervertebral disc disease, cauda equina syndrome

Management of arthritis

Medical treatment of hip dysplasia and osteoarthritis has greatly improved in the last several years thanks to the introduction and approval of several new supplements and drugs. Because hip dysplasia (and other types of dysplasias) are primarily inherited conditions, there are no products on the market that prevent their development. Through proper diet, exercise, supplements, anti-inflammatories, and pain relief, you may be able to decrease the progression of degenerative joint disease, but the looseness in the joint or bony changes will not change significantly.

Medical management is indicated for both young dogs with clinical signs and for older dogs with chronic osteoarthritis. Because of the high cost involved with many surgeries, medical management is many times the only realistic option for many pet owners. Medical management is multifaceted. For the best results, several of the following modalities should be instituted. For most animals, veterinarians begin with the first recommendations and work their way down this list as needed to control the pain and inflammation associated with degenerative joint disease.

Weight Management

Weight management is the first thing that must be addressed. All surgical and medical procedures will be more beneficial if the animal is not overweight. Considering that up to half of the pets in the U.S. are overweight, there is a fair chance that many of the dogs with hip dysplasia/osteoarthritis are also overweight. Helping a dog lose pounds until he reaches his recommended weight, and keeping it there, may be the most important thing an owner can do for a pet. However, this may be the hardest part of the treatment, but it is worth it. You, as the owner, have control over what your dog eats. If you feed an appropriate food at an appropriate level and keep treats to a minimum, your dog will lose weight.

Exercise

Exercise is the next important step. Exercise that provides for good range of motion and muscle building and limits wear and tear on the joints is the best. Leash walking, swimming, walking on treadmills, slow jogging, and going up and down stairs are excellent low-impact exercises. An exercise program should be individualized for each dog based on the severity of the osteoarthritis, weight, and condition of the dog. In general, too little exercise can be more detrimental than too much, however the wrong type of exercise can cause harm. While watching a dog play Frisbee is very enjoyable and fun for the dog, it is very hard on a dog's joints. Remember, it is important to exercise daily; only exercising on weekends, for instance, may cause more harm than good if the animal is sore for the rest of the week and reluctant to move at all. Warming the muscles

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prior to exercise and following exercise with a "warm-down" period are beneficial. Consult with your veterinarian regarding an exercise program appropriate for your dog.

Warmth and good sleeping areas

Most people with arthritis find that the signs tend to worsen in cold, damp weather. Keeping your pet warm, may help him be more comfortable. A pet sweater will help keep joints warmer. You may want to consider keeping the temperature in your home a little warmer, too.

Providing a firm, orthopedic foam bed helps many dogs with arthritis. Beds with dome-shaped, orthopedic foam distribute weight evenly and reduce pressure on joints. They are also much easier for the pet to get out of. Place the bed in a warm spot away from drafts.

Massage and physical therapy

Your veterinarian or the veterinary staff can show you how to perform physical therapy and massage on your dog to help relax stiff muscles and promote a good range of motion in the joints. Remember, your dog is in pain, so start slowly and build trust. Start by petting the area and work up to gently kneading the muscles around the joint with your fingertips using a small, circular motion. Gradually work your way out to the surrounding muscles. Moist heat is also beneficial.

Making daily activities less painful

Going up and down stairs is often difficult for arthritic pets, and for dogs, it can make going outside to urinate and defecate very difficult. Many people build or buy ramps, especially on stairs leading to the outside, to make it easier for the dogs to go outside.

Larger breed dogs can especially benefit from elevating their food and water bowls. Elevated feeders make eating and drinking more comfortable for arthritic pets, particularly if there is stiffness in the neck or back.

Oral Disease-Modifying Osteoarthritis Agents

Glucosamine and Chondroitin: Glucosamine and chondroitin are two ingredients of supplements that have become widely used in treating both animals and humans for osteoarthritis. Due to the overwhelming success in treating patients with osteoarthritis, these products have come to the forefront of therapy and are becoming the most popular products for managing arthritis today.

Glucosamine is the major sugar found in glycosaminoglycans and hyaluronate, which are important building blocks in the synthesis and maintenance of cartilage in the joint. Chondroitin enhances the synthesis of glycosaminoglycans and inhibits damaging enzymes in the joint.

When a dog has hip dysplasia or other osteoarthritis, the joint wears abnormally and the protective cartilage on the surface of the joint gets worn away and the resultant bone-to-bone contact creates pain. Glucosamine and chondroitin give the cartilage-forming cells (chondrocytes) the building blocks they need to synthesize new cartilage and to repair the existing damaged cartilage. These products are not painkillers; they work by actually healing the damage that has been done. These products generally take at least six weeks to begin to heal the cartilage and most animals need to be maintained on these products the rest of their lives to prevent further cartilage breakdown. These products are very safe and show very few side effects. There are many different glucosamine/chondroitin products on the market, but they are not all created equal. We recommend products such as Drs. Foster and Smith Joint Care and Cosequin.

S-Adenosyl-L-methionine (SAMe, Denosyl SD4): A recent product, Denosyl SD4, has been advocated for the management of osteoarthritis in people. The efficacy of this product for the management of osteoarthritis in animals has not been fully determined, however it is being used as a treatment for liver disease in dogs and cats. It has both anti-inflammatory and pain relieving properties.

Perna Mussels: *Perna canaliculus*, or green-lipped mussel, is an edible shellfish found off the shores of New Zealand. The soft tissue is separated from the shell, washed several times, frozen, and freeze-dried. It is then processed into a fine powder and added to products. It is made up of 61% protein, 13% carbohydrates, 12% glycosaminoglycans (GAGs), 5% lipids (including eicosatetraenoic acids, or ETAs), 5% minerals, and 4% water. It also contains glucosamine, a GAG precursor and one of the building blocks of cartilage. Glucosamine, GAGs (unbranched chains of complex sugars) and ETAs (a type of Omega-3 fatty acids) are the compounds in the mussel believed to contribute to its beneficial effects. ETAs are the key ingredients that help in the anti-inflammatory activity and thereby the reduction of joint pain. GAGs are the main components of cartilage and the synovial fluid found in joints.

Injectable Disease-Modifying Osteoarthritis Agents

Polysulfated Glycosaminoglycan (Adequan): Adequan is a product that is administered as an injection. A series of shots are given over weeks and very often have favorable results. The cost and the inconvenience of weekly injections are a deterrent to some owners, especially since the oral glucosamine products are so effective. This product helps prevent the breakdown of cartilage and may help with the synthesis of new cartilage. The complete mechanism of action of this product is not completely understood, but appears to work on several different areas in cartilage protection and synthesis.

Hyaluronic Acid (Legend): Hyaluronic acid is an important component of joint fluid. Including it in the managment of

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osteoarthritis may protect the joint by increasing the viscosity of the joint fluid, reducing inflammation and scavenging free radicals. Most of the research on hyaluronic acid has been done in people and horses, but it may also be effective in dogs. This is an injectable product which is administered directly into the joint.

Other Oral Supplements

Omega-3 Fatty Acids: Omega-3 fatty acids are often used for the management of the signs of atopy (allergies) in dogs. Because of their anti-inflammatory properties, many are advocating their use in dogs with osteoarthritis.

Methyl-sulfonyl-methane (MSM): MSM is a natural, sulfur-containing compound produced by kelp in the ocean. MSM is reported to enhance the structural integrity of connective tissue, and help reduce scar tissue by altering cross-linkages which contribute to scar formation. MSM has been promoted as having powerful anti-inflammatory and pain reducing properties.

Duralactin: Recently, a patented ingredient obtained from the milk of grass-fed cows has been studied and marketed for the management of musculoskeletal disorders in dogs. It is called Duralactin, has anti-inflammatory properties, and is a non-prescription product. It may be used as a primary supportive nutritional aid to help manage inflammation or in conjunction with non-steroidal anti-inflammatory drugs (NSAIDs) or corticosteroids.

Creatine: Creatine is an amino acid derivative formed in the liver, kidneys, and pancreas from the amino acids arginine, glycine, and methionine. It is found in red meat and fish. Creatine is not a muscle builder, but aids in the body production of adenosine triphosphate (ATP), a fuel, for short, intense bursts of energy. In humans, it builds lean body mass by helping the muscle work longer, allowing one to train harder, lift more weight, and have more repetitions. It is the increase in exercise which results in building muscle, not creatine alone. Creatine may be helpful in dogs with muscle atrophy associated with osteoarthritis.

Vitamin C: Vitamin C acts as an antioxidant and is an important nutrient in the synthesis of collagen and cartilage. Because dogs and cats can manufacture their own Vitamin C and do not require it in their diet like humans do, the efficacy of using Vitamin C in the management of osteoarthritis in dogs remains unclear. Supplementing with Vitamin C at a reasonable level will not result in a toxicity and may prove to have a beneficial effect.

Anti-inflammatory Drugs

Carprofen (Rimadyl), Etodolac (EtoGesic), Deracoxib (Deramaxx), Ketoprofen, Meloxicam: These are non-steroidal anti-inflammatory drugs (NSAIDs) developed for use in dogs with osteoarthritis. They are strong and effective painkillers and anti-inflammatory agents. They are prescription products and because of potential side effects, careful adherence to dosing quantity and frequency must be followed. The manufacturers recommend periodic bloodwork to be done on animals that are on this product to monitor any developing liver or other problems resulting from their use. These products are often used initially with glucosamine therapy and then as the glucosamine product begins to work, the NSAID dose may be reduced or even eliminated. Any NSAID should not be used with aspirin, corticosteroids, or other NSAIDs. Acetaminophen (Tylenol), and ibuprofen have many more potential side effects and are not recommended without veterinary guidance.

Buffered Aspirin: Buffered aspirin is used as an anti-inflammatory and painkiller in dogs (Do NOT give your cat aspirin unless prescribed by your veterinarian.). It is used similarly to NSAIDS, but should aspirin and NSAIDS should NOT be used together or with corticosteroids. It can be used along with glucosamine/chondroitin products. With all aspirin products used in dogs, there is a risk of intestinal upset or in rare cases, gastric ulceration. Because of these problems, it is recommended that if a dog develops signs of GI upset, the product be discontinued until a veterinary exam can be performed. (By giving aspirin with a meal, you may be able to reduce the possibility of side effects.) Using buffered aspirin formulated just for dogs makes dosage and administration much easier.

Corticosteroids: Corticosteroids have been used for many years to treat the pain and inflammation associated with osteoarthritis, however, their use is controversial. Corticosteroids act as a potent anti-inflammatory, but unfortunately, have many undesirable short- and long-term side effects. Because of these side effects and the advent of newer, more specific drugs, corticosteroids are generally only used in older animals with flare-ups where all other pain control products have failed. Corticosteroids are a prescription product and come in both a pill and injectable form.

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