Osteoarthritis

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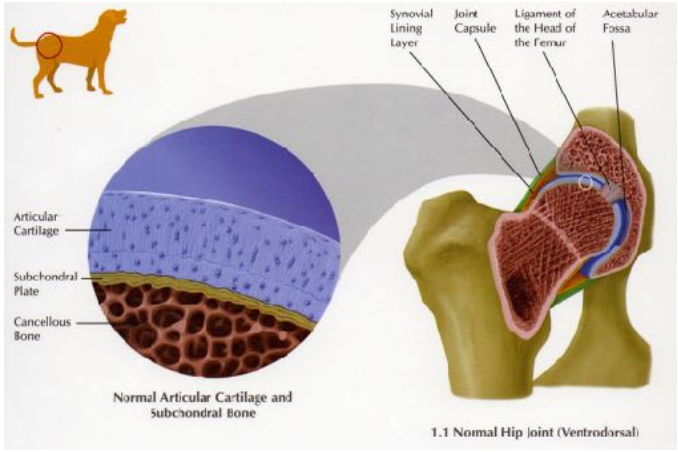

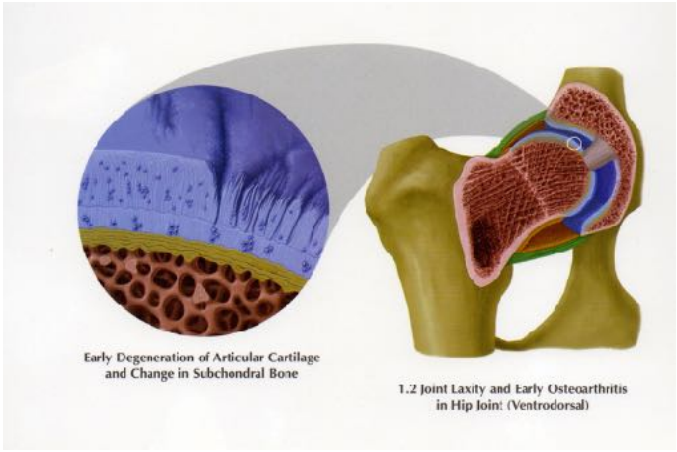

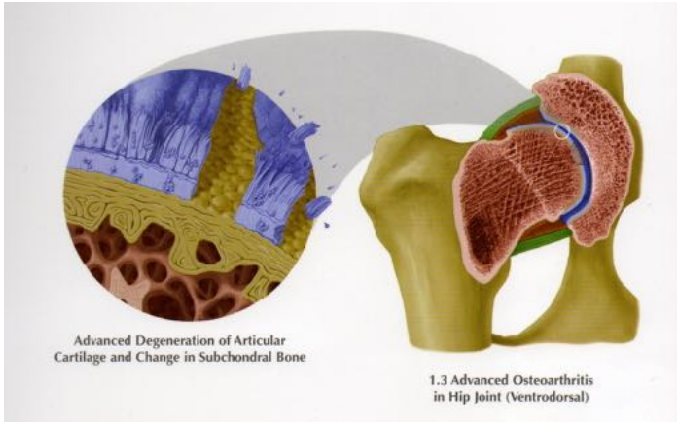

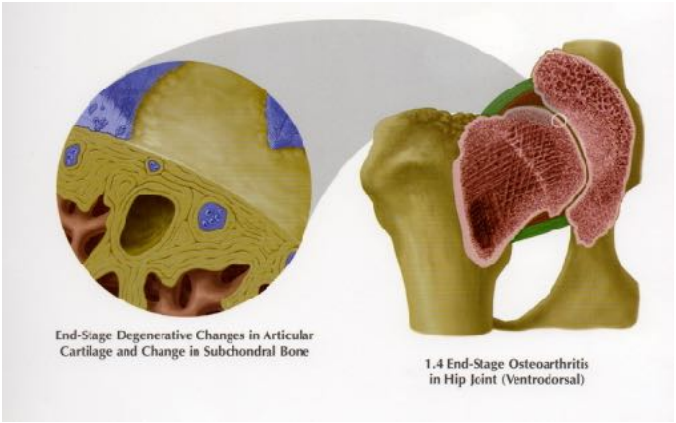

INTRODUCTION

FACT*: Nearly 43 million Americans -- almost one in every six people, including nearly 300,000 children -- have some form of arthritis.

FACT*: Arthritis costs the U.S. economy $64.8 billion per year in medical care and lost wages.
(*Source: Arthritis Foundation 1999)

The number of dogs suffering with arthritis is unknown, but is estimated to be quite high. By one estimate (Pfizer Animal Health Survey 1996), as many as 10 million dogs in the U.S. (about 20 percent of dogs over 1 year of age) are affected by osteoarthritis.

Osteoarthritis (OA), also called degenerative joint disease (DJD), is the most common form of arthritis diagnosed in small animals. It is the result of damage and erosion to the articular (joint) cartilage from excessive wear and tear. This can be due to a life of hard joint use or very often secondary to a hereditary/congenital joint problem such as hip dysplasia or elbow dysplasia that results in premature cartilage damage. Pain is associated with inflammation of the joint and direct "bone on bone" contact within the joint. Normally the joint surfaces are kept apart with a film of joint fluid. In addition to creating the lubrication and majority of the shock absorbing in the joint, joint fluid is the sole source of nutrients for the articular cartilage.

TREATMENT

Although there is no specific treatment or cure for OA, a combination of steps can be taken to improve the quality of life of patients living with OA.

Weight Control

The single most important step in treating osteoarthritis is weight control. Studies in both humans and dogs have shown that just being 10% overweight can have a significant impact on the severity of the signs associated with OA in certain joints. For a 50 pound dog that's only 5 extra pounds of body weight! It is imperative that overweight patients lose weight and normal dogs do not gain excessive weight. In addition to the calories burned during low impact walks, a decrease in the amount of dietary calories consumed is also required. Weight reduction formula diets are available from your veterinarian and may represent the safest way to restrict calories during weight loss.

Activity

Daily, regular, low impact activity strengthens muscles which are important secondary stabilizers of joints. In addition, joint fluid is produced during joint movement. Patients should be encouraged to begin each day with a slow leash controlled walk. Although a 15-20 minute walk is usual, we normally let patients dictate how long the walk can be. Avoid high impact activities like rough housing, ball chasing, running, jumping and stairs. Application of a warm compress to the affected joint before activity and icing the affected joint after exercise may be comforting.

Joint Fluid Precursors/ Chondroprotectants

Hyaluronic acid, or hyaluronate, and polysulfated glycosaminoglycan or PSGAG (Adequan®) injections may improve the quality of the joint fluid by providing a source of the joint fluid building blocks. These drugs are called chondroprotectants (cartilage protectants). It is presumed that healthy joint fluid means better lubrication and nutrition to the articular cartilage. Although the hyaluronate and PSGAG molecules may only be present for a few days to a week, the effects may be more long lasting. A "loading" schedule of weekly and twice weekly injections may be indicated, initially.

Nutritional Joint Supplements

A large number of nutritional supplements are available over the counter advertised to help promote the production of healthy joint fluid and thus healthier joint cartilage. Glucosamine (Cosequin®, Dasuquin®) is one such supplement. Although this molecule has been around for over 20 years, it has only recently gained widespread popularity. Nutritional supplements are not considered to be drugs, thus there is no FDA scrutiny or regulation of these products. As such, consumers should be aware that there may be no guarantee of product purity or consistency between manufacturers or batches. Some essential fatty acid supplements (particularly Omega 3 Fatty Acids) and diets that contain them may be helpful in managing osteoarthritis, as well. Cold water marine sources of Omega 3 Fatty Acid (Antinol®, Welactin®) may be more beneficial than plant based sources. Likewise, pet owners must be aware that other so called "natural, naturopathic or homeopathic" products have not been adequately tested for safety or effectiveness.

Anti-inflammatory Medications

Non-steroidal anti-inflammatory drugs (NSAIDs) are the most common class of drugs used to treat the pain and inflammation of OA. Carprofen (Rimadyl®), deracoxib (Deramaxx®), meloxicam (Meticam®), firocoxib (Previcox®) and grapriprant (Galliprant®) are some NSAIDs that have been tested and approved for use in dogs. Meloxicam (Meticam®) and robenacoxib (Onsior®) NSAIDs are approved for use in cats after surgery. However, no NSAIDS are approved for cats to treat OA. NSAIDs marketed for human use may not be safe for any other species. The most common side effect of NSAIDs is gastrointestinal irritation (stomach upset) and ulcers. In addition, kidney and liver damage has been reported on a rare occasion. If your pet is taking NSAIDs, any sign of nausea, vomiting, diarrhea or inappetence (loss of appetite) should be reported to your veterinarian and the medication discontinued. NSAIDs can have unexpected side effects in certain individuals. Patients receiving NSAIDs on a regular basis should have regular blood and urine tests to monitor for toxicity.

Corticosteroid (steroid) injections directly into the joint can provide immediate relief, but the effects are not long lasting and the steroids cause quicker degradation of remaining cartilage, thus hastening the progression of degenerative changes.

Some natural anti-inflammatory medications might be helpful in some patients. Microlactin (whey protein from hyperimmunized milk), boswellia and tumeric may help.

Analgesic (Pain Reliever) Medications

In cases of severe pain associated with osteoarthritis, analgesic medications (Pain relievers) may be dispensed. The safety or effectiveness of long term use of these medications has not been thoroughly evaluated in animals. These medications include: amantadine (an anti-viral drug used to treat Parkinson's disease in people) and gabapentin (a non-opioid analgesic). Narcotics/opioids (including tramadol) are generally felt to be ineffective in treating pain associated with OA. Canniboid (CBD) Oils have begun to be requested by pet owners. Efficacy and dosing information is lacking.

Physical Therapy

As mentioned already, activity is very important. A certified canine rehabilitation therapist can improve joint comfort and improve range of motion with manual manipulations, massage, water exercises in addition the use of external stimulation therapy using therapeutic lasers, therapeutic ultrasound or shockwave.

Regenerative Medicine

Regenerative medicine is that area of medicine that includes stem cell therapy and platelet rich plasma (PRP) therapy. PRP is that portion of the patient's own blood that contains natural ant-inflammatories and the proteins that stimulate stem cell recruitment. These treatments are made directly into the affected

joint. One treatment is typically ineffective, but repeated treatments over a few weeks may have benefit that lasts a few months. We would not expect longterm improvement unless the underlying cause of the OA was also corrected surgically.

Surgery

Despite all available treatments, there is no known way to reverse OA. In the end, when non-surgical management is no longer effective in controlling the clinical signs, surgeries such as off-loading osteotomies (the bones around the joint can be cut and re-angled to minimize pain), joint replacement, joint removal/excision ("Excision Arthroplasty") or joint fusion ("Arthrodesis"), may offer return of pain free use of the affected limb. In some cases, arthroscopic evaluation and debridement ("clean up") can provide relief for a variable time period. Your pet's surgeon can discuss appropriate surgical options and timing with you in more detail.

Radiation Therapy

External beam radiation (such as is used for cancer treatment) at lower doses can improve joint pain due to both anti-inflammatory actions as well as denervation actions for patients that might not respond to conventional medications or not be good surgical candidates. Newer treatments that utilize injectable radioisotopes are becoming available and show some promise.

ABOUT THE AUTHOR

Dr. Kenneth Bruecker, DVM, MS, DACVS, DACVSMR
Board Certified Veterinary Surgery
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A San Fernando Valley native, Dr. Bruecker attended Pierce College then received his bachelors degree in Animal Science from the University of California at Davis.

He graduated from the University of California at Davis, School of Veterinary Medicine in 1983. After one year of general small animal practice in San Fernando, Dr. Bruecker completed an additional year of clinical internship at the West Los Angeles Veterinary Medical Group. He received his master of science degree at the completion of a three year surgical residency at Colorado State University and moved back to Ventura County in 1988 to establish specialty veterinary care. Dr. Bruecker is Founder, Medical Director and Chief of Surgery at the Veterinary Medical and Surgical Group in Ventura, California. He also provides consulting and training services throughout the world.

Dr. Bruecker provided regular surgical support for practices in the state of Hawaii from 1996 through 2011.

In 2015, Dr. Bruecker founded Continuing Orthopedic Veterinary Education (COVE), a company whose mission is to provide high quality post-graduate veterinary orthopedic education, training, mentoring and surgical coaching around the world.

Board Certified in Surgery since 1990, Dr. Bruecker's primary clinical interests are spinal surgery, sports medicine/orthopedics (including arthroscopy, TPLO, TTA, and limb deformity correction), minimally invasive surgery (such as laparoscopy) and peri-operative pain management. He is well respected for his expertise in arthroscopy, limb deformity, disorders of the knee, fracture management and disorders of the spine. He has authored numerous articles and book chapters on Wobbler syndrome, treatment of

intervertebral disk degeneration and spinal fracture management. He is an active participate in working groups on elbow dysplasia, shoulder injuries, advanced techniques in small animal arthroscopy and cranial cruciate ligament repair. Dr. Bruecker was the first to offer TPLO surgery, TTA surgery, cementless hip replacement, arthroscopy and laparoscopy to owners of pets in Ventura, Santa Barbara and San Luis Obispo Counties, as well as to the State of Hawaii. He holds a patent for the first locking Triple Pelvic Osteotomy plate used to treat hip dysplasia. He has been an innovator in the development of many new surgical techniques and orthopedic implants.

Dr. Bruecker became a Diplomate of the American College of Veterinary Sports Medicine and Rehabilitation in 2015 and thus is now Board Certified in this field, as well as surgery.

Dr. Bruecker is a past program chair of Neurosurgery for the American College of Veterinary Surgeons and a past program chair for the veterinary technician program for the American College of Veterinary Surgeons. He served as the orthopedics program director for 2004 and 2005 for the American College of Veterinary Surgeons. He was also program director for orthopedics, pain management and anesthesia for the 2006 American Veterinary Medical Association annual symposium. He has served as the program chair for the Association for Veterinary Orthopedic Research and Education (AVORE). He currently is the course chairman for small animal orthopedics for the Western Veterinary Conference. He is a past Executive Board Member (2004-2007) and is Past-President (2014-2015) of the Veterinary Orthopedic Society.

Due largely to his commitment to education and training, Dr. Bruecker was chosen as the Veterinarian of the Year by the California Veterinary Medical Association in 2004. He is an invited speaker and educator throughout the United States, Latin America, South America, Europe, Asia and the South Pacific on a variety of topics in orthopedics (fracture management and arthroscopy), neurosurgery and pain management. He splits his time between global veterinary education and clinical practice.

Dr. Bruecker and his family farm avocados and citrus in Ventura County. He is an enthusiast of classic cars.