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OSTEOARTHRITIS

Slowing Down Painful Joint Disease

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OSTEOARTHRITIS IN DOGS

BENEFITS FROM EARLY DIAGNOSIS & TREATMENT

“The idea is to catch OA before it becomes severe and to try and stop its progression.”

Joseph J. Wakshlag, DVM, PhD, DACVN, DACVSMR, professor of clinical nutrition and veterinary sports medicine and rehabilitation, Cornell University

Millions of dogs develop painful osteoarthritis (OA) every year. Obese dogs, large- and giant-breed dogs, and middle-aged to senior dogs are oftentimes affected. The highest risk, however, occurs in dogs with congenital conditions affecting their hips, elbows and shoulders or orthopedic injuries as from ligament tears and repetitive stress.

“Bone-on-bone” aptly describes the worse-case scenario of the progressive joint disease. As the severity increases, OA causes a grinding, chronic pain that is seen when dogs struggle to get up, walk with an unmistakable stiffness, are reluctant to run and play, or wince when you pet them in a sensitive, inflamed area.

The goal in treating dogs with OA is to slow the deterioration of cartilage that normally serves to cushion the joint and protect the bones of the joint. Cartilage allows the joint to move smoothly through its full range of motion. Referred to as degenerative joint disease, OA can become debilitating to the point that euthanasia may be recommended for dogs in which their quality of life is severely compromised.

“The idea is to catch OA before it becomes severe and to try and stop its progression,” says Joseph J. Wakshlag, DVM, PhD, DACVN, DACVSMR, professor of clinical nutrition and veterinary sports medicine and rehabilitation at Cornell University. “For starters, when a dog is



overweight, we work on losing weight with a goal of attaining ideal body condition. Carrying excess weight on damaged joints is not only painful for the dog, but it can speed up the process of cartilage degeneration. We also encourage feeding at-risk dogs a diet enriched with long-chain fatty acids, such as omega-3 fatty acids from fish oils, to help slow the progression of OA."

Although there is no cure for OA, veterinarians typically prescribe a nonsteroidal anti-inflammatory drug (NSAID) to help reduce pain and inflammation, and they may add pain medications as needed. Joint supplements with glucosamine and chondroitin may be advised to maintain cartilage integrity, promote healing and increase water retention in the cartilage to provide more joint cushioning.

An investigator of a study to evaluate the effectiveness of cannabidiol (CBD) oil in treating dogs with OA, Dr. Wakshlag notes that the dogs in the clinical trial showed a significant decrease in pain and a significant increase in activity. The results indicated that hemp nutraceuticals like CBD oil may one day be used therapeutically in veterinary medicine to lessen the pain of OA. (See "CBD Oil Clinical Trials Net Positive Results in Dogs with Osteoarthritis" on page 6)

"There are few pain medications proven to have efficacy for treating OA," Dr. Wakshlag says. "Some are used routinely with varying success. There are really few options for dogs that don't include sedation and injections. This is why CBD oil may offer a viable and widely accepted alternative in the near future."

DOGS' STOICISM HIDES PAIN

Osteoarthritis may already be severe and disabling when it is recognized, as it is a challenging disorder to catch in the early stages. This is partly because dogs tend to be stoic and commonly hide their pain. Thus was the case when severe hip dysplasia was discovered in a beautiful Akita bitch named "Anna."

Her owner, Dr. Sterling Milton, an emergency physician in New Orleans, was just starting to breed Akitas when



TIPS ON PREVENTING OSTEOARTHRITIS (OA) IN DOGS

- Keep excess weight off your dog. An overweight dog has two times greater risk for developing orthopedic injuries that could lead to OA than healthy, fit dogs. Obesity increases the amount of force applied at each step, causing repetitive loading that overuses and fatigues the joints.
- Keep your dog active. An active lifestyle helps maintain muscle tone and joint health, as well as optimum weight, and may help reduce the risk of injury.
- Feed a dog at risk for developing OA a diet rich in omega-3 fatty acids to help slow the progression of disease. Consult your veterinarian about giving a joint supplement with glucosamine and chondroitin to help maintain cartilage integrity.
- Closely monitor dogs predisposed to OA for early signs of joint disease, particularly as they go into middle age and their senior years. Your veterinarian may take radiographs of the affected joints and conduct a physical examination to palpate the joints and assess range of motion.

he bought her. Anna became his first dog to earn a show champion title. "She was a phenomenal mover in the ring," he says. "Whenever a judge would ask the handlers to take the dogs around one more time, Anna always won."

Radiographs taken for Anna's health certification showed she was severely dysplastic, though otherwise there was no indication of the polygenic disease. Hip dysplasia is a developmental condition that occurs when the ball and socket of the hip joint fail to fit together

BODY CONDITION SYSTEM

TOO THIN



1 Ribs, lumbar vertebrae, pelvic bones and all bony prominences evident from a distance; no discernible body fat; obvious loss of muscle mass.

2 Ribs, lumbar vertebrae, pelvic bones easily visible; no palpable fat; some evidence of other bony prominence; minimal loss of muscle mass.

3 Ribs easily palpated and may be visible with no palpable fat; tops of lumbar vertebrae visible; pelvic bones becoming prominent; obvious waist and abdominal tuck.

IDEAL



4 Ribs easily palpable, with minimal fat covering; waist easily noted when viewed from above; abdominal tuck evident.

5 Ribs palpable without excess fat covering; waist observed behind ribs when viewed from above; abdomen tucked up when viewed from the side.

TOO HEAVY



6 Ribs palpable with slight excess fat covering; waist is discernible viewed from above, but is not prominent; abdominal tuck apparent.

7 Ribs palpable with difficulty; heavy fat cover; noticeable fat deposits over lumbar area and base of tail; waist absent or barely visible; abdominal tuck may be present.

8 Ribs not palpable under very heavy fat cover, or palpable only with significant pressure; heavy fat deposits over lumbar area and base of tail; waist absent; no abdominal tuck; obvious abdominal distention may be present.

9 Massive fat deposits over thorax, spine and base of tail; waist and abdominal tuck absent; fat deposits on neck and limbs; obvious abdominal distention.

THE BODY CONDITION SYSTEM was developed at the Nestlé Purina Pet Care Center and has been validated as documented in the following publications:
 Lafamme DP. Development and Validation of a Body Condition Score System for Dogs. *Canine Practice* July/August 1997; 22: 10-15.
 Mawby DI et al. Comparison of Various Methods for Estimating Body Fat in Dogs. *J Am Anim Hosp Assoc* 2004; 40: 109-114.
 German AJ et al. A Simple, Reliable Tool for Owners to Assess the Body Condition of Their Dog or Cat. *J Nutr.* 2006; 136: 203S-203S.
 German AJ et al. Comparison of a Bioimpedance Monitor with Dual-energy X-ray Absorptiometry for Noninvasive Estimation of Percentage Body Fat in Dogs. *AJVR April 2010; Vol 71, No. 4.*

Maintaining dogs in ideal body condition is important to help reduce the risk of osteoarthritis.

properly. Normal hips are rated excellent, good or fair, but those that receive borderline, mild, moderate or severe ratings do not pass.

"Anna was quite muscular, and her body just seemed to mask the dysplasia by holding everything in place," Dr. Milton says. "I was told that she would likely be crippled at age 4. She never went down, though at the end of her life she moved slower and did not run as much. She never acted like she was in pain, yet I am sure she had osteoarthritis. She died at age 13."

Anna's veterinarian, Treyton "Jai" Diggs, DVM, of All Star Animal Clinic in New Orleans, says, "We managed Anna's dysplasia with the hope of delaying the onset of severe, painful osteoarthritis. Anna did well on a joint supplement and a diet rich in omega-3 fatty acids, and her owner gave her salmon oil."

Feeding a diet rich in omega-3 fatty acids is standard for Dr. Milton's Akitas. Unlike Anna who failed her health test for hip dysplasia, "Etta" (GCHG Gold At Last) passed with a good rating. "Etta is from a litter of five females that I bred, and they all finished their show champion titles," Dr. Milton says. "Etta, who is now 10, always moved powerfully in the ring when she showed. Just like Anna, she never appears to have pain related to osteoarthritis."

Dr. Diggs recommends that owners of breeds predisposed to developing OA or who suspect their dog has OA have radiographs of the joints taken as soon as possible. "Radiographs of the affected joints allow your veterinarian to rule out other conditions with similar signs. It also provides information about the degree of damage to the joint. A full physical examination that includes palpating the dog's joints



CBD OIL CLINICAL TRIALS NET POSITIVE RESULTS IN DOGS WITH OSTEOARTHRITIS

Clinical trials to test the efficacy of treating canine osteoarthritis (OA) with hemp extracts rich in cannabidiol (CBD) oil are showing therapeutic benefits in helping to reduce the pain and inflammation caused by the chronic joint disease.

Although CBD oil and similar cannabis-derived products made from hemp are not yet approved by the Food and Drug Administration for use in veterinary medicine, their potential benefits deem the importance of clinical trials to assess their safety and efficacy and validate dosage information. An [investigation at Colorado State University](#) is evaluating the use of CBD in treating dogs with epilepsy that do not respond to standard therapy. Other potential uses for CBD in dogs include as an appetite stimulant, an anti-nausea medication, to reduce anxiety, and to provide cardiac benefits.

"Hemp nutraceuticals are federally legal, but they are not yet approved by the FDA for use as a veterinary nutraceutical," says Dr. Joseph J. Wakshlag of Cornell University, who is board-certified in veterinary nutrition and in veterinary sports medicine and rehabilitation.

"With three randomized, controlled clinical trials using hemp extracts with CBD oil showing positive effects in dogs with chronic OA, we would be remiss as veterinarians not to discuss CBD oil with dog owners as we guide them toward products to help their dogs," he says. "These investigations have been well-studied with proper quality control and pharmacokinetic and safety evaluations."

Dr. Wakshlag is an author of a report published in July 2018 in [Frontiers of Veterinary Science](#) documenting the results of a 10-week clinical trial of 22 dogs diagnosed with OA that compared a group receiving treatment with CBD oil to a control group that did not receive CBD oil. All the dogs had OA in one or more joints, and two-thirds had OA in two or more joints with most being due to congenital conditions such as hip or elbow dysplasia.

"Our hypothesis was that appropriate doses of CBD-rich oil would safely diminish perceived pain and increase activity in dogs with OA," Dr. Wakshlag says.

The study aimed to assess the short-term safety and pain relief efficacy of CBD oil and to establish the correct dosage. Dogs already receiving nonsteroidal anti-inflammatory drugs (NSAIDs), fish oil and/or joint supplements for OA continued taking these medications during the clinical trial.

The CBD treatment group received doses of 2 and 8 milligrams of CBD oil per kilogram of body weight every 12 hours over four weeks, with a two-week washout period between the dosages. The double-blinded study in which neither veterinarians nor owners were aware of which group dogs were assigned included evaluations of



dogs' attitude, behavior, proprioception, and gait while running or walking and navigating around traffic cones.

"We found a significant decrease in pain and a significant increase in activity in dogs given CBD oil, especially in comparison to dogs that only received NSAIDs," Dr. Wakshlag says. "Importantly, there were no side effects. Studies with larger populations are needed to identify long-term effects, however we found that short-term effects appear to be positive."

Meanwhile, a study published in the August 2020 issue of [Animals](#) reported on a 12-week clinical trial of 21 dogs conducted by investigators at the University of Milan in Italy. The goal was to assess pain management by adding CBD oil to a multimodal pharmacological protocol of NSAIDs combined with pain medications. Dogs that received 2 milligrams of oral CBD oil per kilogram of body weight every 12 hours combined with NSAID and pain medication treatments showed meaningful improvement in pain scores compared to dogs that did not receive CBD oil.

Pain scores were significantly lower in the CBD oil group based on owners' assessments of their dogs' pain and quality of life management in their home environment. Importantly, the article cited that dogs tolerated well the CBD oil treatment, and there were rare side effects indicating a potential long-term therapy benefit.

In contrast, a four-week clinical trial of 20 dogs treated for lameness due to OA discontinued all medications to evaluate the effects of CBD oil. Published in the September 2020

issue of the journal [Pain](#), the study was led by investigators at Baylor University. The dogs, patients at a Houston veterinary clinic, were randomly assigned to one of four groups. Dogs were selected to receive a placebo, 20 milligrams of naked CBD per day, 50 milligrams of naked CBD per day, or 20 milligrams of liposomal CBD per day. The liposomal CBD is a form with better absorption by the body.

The results indicated that CBD exerts robust and quantifiable anti-inflammatory properties and is associated with significant improvements in quality of life for the dogs in the study. Dogs given the 50 milligrams of naked CBD or the liposomal CBD scored significant improvements in quality of life according to owner and veterinary assessments.

Although not yet part of the standard of care protocol for dogs with OA, CBD oil is showing promise in clinical trials for its therapeutic advantage in helping to alleviate chronic pain and inflammation. Particularly when used with traditional treatments, weight management and proper diet, CBD oil may become an essential part of the toolbox for treating this common joint disease.



and assessing range of motion is important as well," he says.

At his veterinary practice, Dr. Diggs frequently examines working dogs, hunting dogs, and large and giant breeds with OA due to wear and tear of their joints. Not all patients are older dogs. "I recently performed shoulder surgery for osteochondritis dissecans in a 10-month-old Labrador Retriever puppy," he says. "This is typically a breed-predisposed inflammatory condition where diseased cartilage separates from the underlying bone, thus leaving a denuded region of bone that is painful."

The puppy is likely to be a future OA patient. "Over the dog's lifetime, we will manage the condition with a

joint supplement, a nonsteroidal anti-inflammatory drug and pain medications as needed," Dr. Diggs says.

"The first sign owners usually notice in affected dogs is irritability due to the pain and inflammation in the joint," adds Dr. Diggs. "Dogs that sustain injuries from sports typically bounce back faster if they are fed a nutritious, high-quality dog food containing omega-3 fatty acids that nourish the joints."

Keeping dogs active and managing ideal body condition are essential. "The effects of obesity have much to do with the severity of disease," Dr. Diggs says. "Lifestyle decisions related to nutrition and activity can be game-changers for at-risk dogs and dogs diagnosed with OA." ■

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