

Sponsored by
Zoetis

A Team Approach to Managing Osteoarthritis Pain

“OA involves the progressive loss of cartilage within ≥ 1 joint.

Osteoarthritis (OA), also known as degenerative joint disease, is a chronic joint disease associated with cartilage degeneration, subchondral sclerosis, osteophyte formation, and enthesophyte formation that causes chronic pain, leading to behavioral and gait changes that are the hallmark signs of OA pain.¹ OA can have a variety of underlying etiologies, with many cases occurring secondary to developmental orthopedic disease (eg, hip dysplasia, patellar luxation) or trauma (eg, cranial cruciate ligament tear).¹ However, other risk factors, including genetics/breed, conformation, body weight, spay/neuter status, and age, have also been identified.²

Regardless of its inciting cause, OA involves the progressive loss of cartilage within ≥ 1 joint. This cartilage degeneration reduces the shock-absorbing capabilities of the joint, leading to a vicious cycle of pain, inflammation, and joint destruction. Without treatment, patients will experience worsening pain, declining joint function, and eventual joint failure.

Prevalence of Osteoarthritis in Dogs

OA is a common condition in dogs. A 2024 retrospective study evaluated the radiographs of 1,873 dogs >8 years of age.³ The dogs in this study were treated at a veterinary teaching hospital for a variety of problems, including orthopedic (eg, lameness; 71.7%) and non-orthopedic (eg, soft tissue swelling; 28.3%) conditions, and each dog in the study had radiographs that provided a diagnostic view of ≥ 1 joint. Based on radiographic findings, 57.4% of the study patients showed evidence of elbow OA, 39.2% showed evidence of shoulder OA, 35.9% showed evidence of hip OA, and 36.4% showed evidence of stifle OA.³

Pet owners may tend to think of OA as an age-related disease; however, OA is not solely confined to older dogs. In a study of 123 dogs between 8 months and 4 years of age, 39.8% of study dogs had radiographically apparent OA in ≥ 1 joint.⁴ Furthermore, 23.6% of the dogs in this study had mild or greater clinically apparent joint pain, and 16.3% had moderate or greater OA pain. These statistics emphasize the potential impacts of OA in younger dogs.



The Impacts of Osteoarthritis Pain

Osteoarthritis is a painful condition that can negatively impact patient quality of life in multiple ways.⁵ Affected dogs not only experience discomfort, but they may also become less active, exhibit gait abnormalities, experience changes in personality and/or appetite, and show other indications of decreased physical and emotional health.⁵

However, OA pain does not only affect the patient. This condition can also significantly impact the lives of owners of affected dogs. Owners of dogs with OA pain often experience stress associated with their dog's diagnosis and concerns over how to manage treatment and daily living. According to a 2022 study of 277 owners caring for dogs with diagnosed OA pain, 50.9% of owners exhibited clinically significant caregiver burden.⁶ This statistic underscores the impact of OA pain not only on affected dogs but also on their owners.

The negative impacts of OA pain can also lead owners to consider euthanasia. In the caregiver burden study,

41.5% of pet owners said they had considered euthanasia due to their pet's arthritis.⁶

How Is Osteoarthritis Diagnosed?

Patient history plays a key role in diagnosing OA, with owners typically being asked about behavior changes, gait abnormalities, and other changes.⁷ Asking a dog owner to complete a screening tool, such as the canine OA checklist, can increase or decrease the index of suspicion that a dog has OA pain. In one study, proactively using a checklist to screen for OA was shown to nearly double the number of dogs diagnosed with OA pain.⁸ If signs of OA are identified on a screening checklist, an orthopedic component to the physical examination can be easily added.

Many veterinarians envision a 'typical' appearance associated with canine OA, picturing a dog that is older in age and often obese, with mild to moderate lameness and stiffness when rising.⁷ However, as demonstrated by the above studies, many dogs with OA may be younger than what is perceived as the typical OA patient.

If history and presentation are consistent with OA, observing the dog's gait and performing an orthopedic examination can help localize the source of a patient's pain. A veterinary technician or other well-trained member of the veterinary team can watch the dog walk, trot, sit, and rise to help to identify the affected limb(s). Next, a veterinarian can palpate the patient, assess range of motion, and look for evidence of muscle atrophy, pain, crepitus, warmth, and swelling to localize the affected joint(s). Additional diagnostics such as radiography and/or blood work can help confirm if the pain is due to OA and rule out other conditions. Advanced imaging may be required in some cases for a definitive diagnosis.

During patient evaluation, it is important to remember that early OA pain may be associated with minimal clinical signs. In young dogs, these signs may be very subtle, with dogs adapting or making minor modifications in their movement without impairing function.⁴ As dogs get older, signs of OA may be mistaken by owners as normal aging changes or "slowing down"; therefore, clients may not report these changes to the veterinary team. In addition, stiffness, slowness to rise, and lameness may be



masked by excitement in the veterinary environment, meaning that affected dogs may not always appear to have OA during the initial evaluation. These factors can prevent the veterinary team from noticing early or subtle clinical signs.

Without a systematic approach to screening for OA pain in every patient, many cases may be missed, leading to negative impacts on the patient and pet owner.

Approaches to Osteoarthritis Pain Treatment

Once OA has been diagnosed, veterinarians can work with clients to determine the best management option(s) for a given patient. Controlling OA pain is critical to any pain management plan. By controlling the pain, other aspects of the plan such as weight loss and appropriate exercise, including physical therapy, can be implemented. Changes to the environment, including strategically placing rugs on slippery surfaces and using ramps to manage stairs and assist with getting into cars, may also be helpful.

Consensus guidelines for managing OA pain indicate that either NSAIDs or anti-nerve growth factor (NGF) monoclonal antibodies are first-line options.⁹ NSAIDs have been the cornerstone of canine OA pain management for several decades. Although effective, they also carry a risk for adverse effects. Although these risks in dogs are generally low, serious effects, including GI ulceration/perforation, liver toxicity, and renal failure, have been reported.¹⁰ Therefore, NSAIDs may not be tolerated in some patients and maybe contraindicated in others. Daily administration may also be a barrier to long-term treatment, as, on average, dogs with OA only receive 60.5 days of treatment per year.¹¹

Librela™ (bedinvetmab injection) is a novel treatment option for the control of OA pain in dogs. It is a monthly injectable anti-NGF monoclonal antibody therapy. NGF plays a significant role in OA pain and inflammation; binding of NGF by monoclonal antibodies has been shown to reduce chronic pain associated with OA and interfere with the NGF cycle.^{12,13} Librela is approved by the FDA as a safe and effective treatment for the control of OA pain in most dogs when used according to its labeling,¹⁴⁻¹⁸ leading to

improved mobility and quality of life.^{5,15,17} In clinical field studies, the most commonly reported adverse effect was increased blood urea nitrogen.¹⁶ Additional adverse events included UTIs, bacterial skin infections, and dermatitis, which were reported at rates similar to those observed in patients receiving placebo treatment.¹⁶ Adverse events reported postapproval include ataxia, anorexia, lethargy, emesis, and polydipsia.

Surgical treatment approaches (eg, cruciate repair, joint replacement, joint fusion) can be an option in some cases. Nutraceuticals have also long been recommended as a potential treatment for canine OA. Some ingredients in such nutraceuticals (eg, omega-3 fatty acids) have evidence to support their use in the management of arthritis, although many nutraceutical products on the market lack evidence of efficacy.¹⁹

Canine Osteoarthritis Pain Checklist

A checklist for pet owners to help determine if their dog has OA can be found by scanning the QR code or at [DogOAChecklist.com](https://www.librela.com/dogoachecklist)



LIBRELA IMPORTANT SAFETY INFORMATION

Librela is for use in dogs only. Women who are pregnant, trying to conceive or breastfeeding should take extreme care to avoid self-injection. Hypersensitivity reactions, including anaphylaxis, could potentially occur with self-injection. Librela should not be used in breeding, pregnant, or lactating dogs. Librela should not be administered to dogs with known hypersensitivity to bedinvetmab. Adverse events reported post-approval include ataxia (lack of balance/coordination), anorexia (loss of appetite), lethargy (tiredness), emesis (vomiting), and polydipsia (increased drinking). The most common adverse events reported in a clinical study were urinary tract infections, bacterial skin infections and dermatitis (skin irritation/inflammation). For complete safety information, refer to the full prescribing information at [LibrelaPI.com](https://www.librela.com)

Team Roles in the Diagnosis & Treatment of Osteoarthritis

Improving the practice's approach to canine osteoarthritis requires a team approach to screening and client education.

Client Service Representative (CSR)

- When scheduling wellness appointments, ask the client whether their pet is showing any signs of concern at home. Emailing a canine OA checklist can allow owners to start observing their pet's movement prior to their appointment. Encourage owners to take short videos of their pet moving in their natural environment.
- Listen for statements that owners make that can be an indication of OA pain, such as “she is slowing down” or “I will need help getting him in and out of the car.”
- Provide pet owner questionnaires to be filled out while clients are waiting for the appointment to begin. OA questionnaires such as the OA Checklist, Canine Brief Pain Inventory (CBPI), Canine OsteoArthritis Staging Tool (COAST), and/or Liverpool Osteoarthritis in Dogs (LOAD) should be considered.²⁰⁻²²
- Ensure that patients with a history of

OA have this diagnosis noted in their record to improve conversations in the examination room.

- In patients receiving monthly Librela injections, CSRs should be proactive in scheduling out future appointments rather than waiting for pet owners to call and schedule.

Veterinary Technician/Assistant

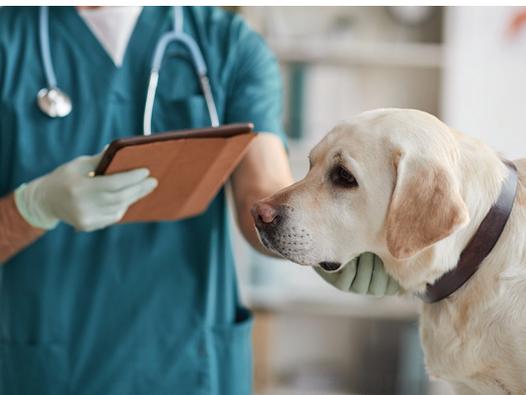
- Obtain a thorough patient history in the examination room. Ask targeted questions, recognizing that clients may not always recognize the following signs of OA:
 - Changes in activity, such as slowing down or reluctance to go on walks
 - Changes in ability to climb stairs and/or jump on/off furniture
 - Changes in behavior, such as being less interactive with family or other pets
 - Changes in the ability to jump
- Note trends in patient weight. Weight gain can be a risk factor for OA.² Weight loss can also suggest OA (due to muscle atrophy from disuse) or other medical conditions.
- Observe the patient's ambulation on the way to the examination room, observing for signs of stiffness, lameness, discomfort, and/or changes in gait.
- Educate clients on the clinical signs of OA and encourage them to seek veterinary care if they suspect this

condition in their pet.

- After treatment has been initiated, review any at-home instructions with the owner.
- In addition, patient follow-up discussions may be the responsibility of the technicians.
 - Short-term management should include communication with the pet owner within the first 7 to 10 days of initiating treatment to ensure that the treatment plan is working as expected and is tolerated and the owner is able to successfully follow at-home instructions.
 - Long-term communication is also essential to monitor the dog's response and support the client by answering any questions.

Veterinarian

- With the client present, review the patient history and clarify any questions that may aid in the diagnosis of OA.
- Observe the way the dog moves around the room. Pay particularly close attention to how the patient rises from a seated position or sits from standing.
- Perform an orthopedic examination at every wellness visit, keeping in mind that OA pain can affect both older and younger pets (IsItOA.com).
- Recommend radiography (and other diagnostics as indicated) for any patient demonstrating clinical



signs of OA pain.

- When a patient is diagnosed with OA pain, discuss available treatment options with the client. Discuss the potential advantages and disadvantages of available therapeutic approaches, including weight loss, physical therapy, omega-3 fatty acids,¹⁹ NSAIDs,¹⁰ and monoclonal antibody treatment with Librela.¹⁴⁻¹⁸
- For dogs without evidence of OA pain, educate clients on the signs of this disease and help them understand that treatment options are available. Client education can aid in early recognition of this condition.
- For pets receiving Librela injections,

explain that patients may experience a reduction in pain as early as 7 days after the first dose, whereas full effectiveness may not be seen in other dogs until after the second dose.¹⁵

- Instruct CSRs to schedule recheck examinations to ensure the monitoring of treatment response, progression of disease, and treatment compliance.

Conclusion

Osteoarthritis is a common chronic, painful, and progressive condition in dogs, affecting patients of all ages. Although OA pain has long been regarded as an inevitable component of aging, clients do not have to accept the

pain and other negative impacts associated with this condition.

Early diagnosis and treatment are critical to management of this disease. Novel options such as anti-NGF monoclonal antibodies are available as first-line treatments to manage the pain and discomfort associated with OA, minimizing the impacts this condition has on the well-being of affected dogs and their owners. Using a comprehensive team-based approach, veterinary teams can improve their ability to detect and manage cases of arthritis in patients, thereby improving the well-being of both dogs and their owners.

References

1. Allan G, Davies S. Radiographic signs of joint disease in dogs and cats. *Textbook of Veterinary Diagnostic Radiology*. 2018:403-33.
2. Anderson KL, Zulch H, O'Neill DG, Meeson RL, Collins LM. Risk factors for canine osteoarthritis and its predisposing arthropathies: a systematic review. *Front Vet Sci*. 2020;7:220.
3. Roitner M, Klever J, Reese S, Meyer-Lindenberg A. Prevalence of osteoarthritis in the shoulder, elbow, hip and stifle joints of dogs older than 8 years. *Vet J*. 2024;305:106132.
4. Enomoto M, de Castro N, Hash J, et al. Prevalence of radiographic appendicular osteoarthritis and associated clinical signs in young dogs. *Sci Rep*. 2024;14(1):2827
5. Gildea E, Scales-Theobald E, Thompson J, Cook A, Forde K, Skingley G, Lawrie S, Williamson N, Panter C. Development and validation of a quality of life and treatment satisfaction measure in canine osteoarthritis. *Front Vet Sci*. 2024;11:1377019.
6. Spitznagel MB, Patrick K, Gober MW, et al. Relationships among owner consideration of euthanasia, caregiver burden, and treatment satisfaction in canine osteoarthritis. *Vet J*. 2022;286:105868.
7. Belshaw Z, Dean R, Asher L. Could it be osteoarthritis? How dog owners and veterinary surgeons describe identifying canine osteoarthritis in a general practice setting. *Prev Vet Med*. 2020;185:105198.
8. Wright A, Amodie DM, Cernicchiaro N, et al. Identification of canine osteoarthritis using an owner-reported questionnaire and treatment monitoring using functional mobility tests. *J Small Anim Pract*. 2022;63(8):609-618.
9. Gruen ME, Lascelles BD, Collieran E, et al. 2022 AAHA Pain Management Guidelines for Dogs and Cats. *J Am Anim Hosp Assoc*. 2022;58(2):55-76.
10. Monteiro-Steagall BP, Steagall PV, Lascelles BD. Systematic review of nonsteroidal anti-inflammatory drug-induced adverse effects in dogs. *J Vet Intern Med*. 2013;27(5):1011-9.
11. Kynotec PetTrak Data. GAH-539, Jul 2022.
12. Isola M, Ferrari V, Miolo A, et al. Nerve growth factor concentrations in the synovial fluid from healthy dogs and dogs with secondary osteoarthritis. *Vet Comp Orthop Traumatol*. 2011;24(4):279-84.
13. Enomoto M, Mantyh PW, Murrell J, Innes JF, Lascelles BD. Anti-nerve growth factor monoclonal antibodies for the control of pain in dogs and cats. *Vet Rec*. 2019;184(1):23.
14. Krautmann M, Walters R, Cole P, et al. Laboratory safety evaluation of bedinvetmab, a canine anti-nerve growth factor monoclonal antibody, in dogs. *Vet J*. 2021;276:105733.
15. Corral MJ, Moyaert H, Fernandes T, et al. A prospective, randomized, blinded, placebo-controlled multisite clinical study of bedinvetmab, a canine monoclonal antibody targeting nerve growth factor, in dogs with osteoarthritis. *Vet Anaesth Analg*. 2021;48(6):943-955.
16. Zoetis. Librela® (bedinvetmab injection) [package insert].
17. Michels GM, Honsberger NA, Walters RR, Kira S Tena J, Cleaver DM. A prospective, randomized, double-blind, placebo-controlled multisite, parallel-group field study in dogs with osteoarthritis conducted in the United States of America evaluating bedinvetmab, a canine anti-nerve growth factor monoclonal antibody. *Vet Anaesth Analg*. 2023;50(5):446-458.
18. Reid J, Gildea E, Davies V, Thompson J, Scott M. Measuring the effect of the anti-nerve growth factor antibodies bedinvetmab and frunvetmab on quality of life in dogs and cats with osteoarthritis using a validated health-related quality of life outcome measure: an observational real-world study. *Front Vet Sci*. 2024;11:1395360.
19. Barbeau-Grégoire M, Otis C, Cournoyer A, Moreau M, Lussier B, Troncy E. A 2022 systematic review and meta-analysis of enriched therapeutic diets and nutraceuticals in canine and feline osteoarthritis. *Int J Mol Sci*. 2022;23(18):10384.
20. Cachon T, Frykman O, Innes JF, et al. COAST Development Group's international consensus guidelines for the treatment of canine osteoarthritis. *Front Vet Sci*. 2023;10:1137888.
21. Walton MB, Cowderoy E, Lascelles D, Innes JF. Evaluation of construct and criterion validity for the 'Liverpool Osteoarthritis in Dogs' (LOAD) clinical metrology instrument and comparison to two other instruments. *PLoS One*. 2013;8(3):e58125.
22. Brown DC, Boston RC, Coyne JC, Farrar JT. Ability of the canine brief pain inventory to detect response to treatment in dogs with osteoarthritis. *J Am Vet Med Assoc*. 2008;233(8):1278-83.