

Osteoarthritis / Degenerative Joint Disease – Feline

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Definition

Arthritis is usually defined as inflammation of a joint usually characterized by swelling, pain, and restriction of motion. *Degenerative joint disease* (DJD) is a progressive destruction of the components of joints—cartilage, subchondral bone, ligaments, and joint capsule. DJD can affect both synovial joints and amphiarthrodial joints. We know little about joint disease in the cat, and so the term DJD will be used as arthritis invariably results in degrees of DJD.

Key Diagnostic Tools and Measures

History of Impaired Mobility & Activity. Very little work on the assessment of osteoarthritic pain has been performed in cats.^{1,2} From early work, however, it appears that an approach similar to that in dogs is likely to be most successful—that is, owners need to be centrally involved in the process. The difficult part of assessment of osteoarthritic pain in cats is that the activities that are altered by osteoarthritis are less fully understood than in dogs. A recent study of 28 cats with osteoarthritis showed that overt lameness was not the most common clinical feature.¹ Instead, features like jumping up, jumping down, height of the jump, general movement, “grumpiness” on handling, and seeking seclusion are likely to be activities and behaviors that should be followed. These findings were confirmed in a recently published randomized, blinded study using activity monitors as an objective measure of mobility.² In this study, the activities that owners picked out for the assessment were jumping up/down, playing (toys, cats), running (to food; from dog), lying down, moving up stairs, walking, sharpening claws, grooming, using litter tray, and hunting. More recent work by the same authors has shed more light on activities that may be appropriate to ask owners about when assessing DJD pain in cats.³

Performance Tests in Clinic. These tests can be difficult to do with cats, but some simple tests include 1) placing the cat down and watching it to move across the room, 2) encouraging the cat to jump off a table or chair, and 3) encouraging the cat to jump up to get to the carrier. Evaluating how the cat performs such tasks can, in some cases, provide valuable information, helping the clinician to locate the problem and assess the degree of the impairment.

Orthopedic Examination. Guidelines on how to perform a productive orthopedic examination in the dog are scarce, and virtually nonexistent for the cat. The following are a few pointers:

- Be prepared to put the required time in
- Have a calm approach
- Use a room that is quiet, away from barking dogs, and does not have “hiding places” where a cat can get lodged in
- Use a surface that is soft and will not slip around
- Minimize restraint
- Perform the examination in the position the cat is comfortable in (for example, standing, lying, or in the owners arms)
- Examination is often facilitated by having the owner present, but some cats may be more relaxed if the owner is not present.
- The examination should include every joint and the axial skeleton
- Be prepared to do the examination in parts and repeat it later if necessary.

Cats appear to resent extension of joints more than dogs, and will often react adversely to extension of the elbow and stifle. This reaction should not be over interpreted.

Goniometry. Goniometry appears to be a valid tool in the cat,⁴ but only one study has used goniometry in this species, probably because of the difficulty in defining pain reactions in cats.⁵ No studies have yet evaluated goniometry as a tool in assessing joint pain-free range of motion (ROM). The normal ranges of joint motion in the cat have been defined.⁴ Unpublished data from the author (BDXL) indicates that decreased ROM is significantly associated with radiographic evidence of DJD.

Radiographic Assessment. Orthogonal views of painful joints should be obtained. If radiographic signs consistent with degenerative joint disease are not seen, however, joint disease should not be ruled out. The author has found that there is only moderate overlap between the joints that appear painful clinically, and those that have radiographic signs of degenerative joint disease.

Pathophysiology

Although Allan outlines common causes of osteoarthritis in cats,⁶ there is very little documented evidence of the cause of feline DJD. Two primary forms of osteoarthritis are fairly well recognized in cats: Scottish Fold osteochondrodysplasia⁷⁻⁹ and mucopolysaccharidosis. Currently, the documented secondary causes of DJD in cats are nutritional (secondary to excess vitamin A), hip dysplasia, and the noninfectious polyarthropathies and infectious arthropathies.

Signalment

It appears that the incidence of DJD in the cat increases with increasing age,¹⁰⁻¹² and this was confirmed in a recent prospective cross-sectional study.¹³ No other signalment associations are known to exist, but there have been suggestions that hip dysplasia leading to DJD is more common in purebred cats.¹⁴

Key Nutrient Modifications

Diets containing high levels of the omega-3 fish oil, especially docosahexaenoic acid (DHA) and eicosapentaenoic acid (EPA), are likely to be beneficial. One study in cats has suggested a beneficial effect of a diet high in EPA and DHA on some postulated serum markers of joint disease in arthritic cats.¹⁵ There is one blinded, prospective, placebo-controlled published study investigating the pain relieving effects of a ‘DJD diet’ in cats.¹⁶ The study evaluated a DJD diet containing high levels of DHA and EPA and also chondroitin sulfate, glucosamine hydrochloride, and green-lipped mussel extract. Activity significantly decreased in the group fed the control diet and significantly increased in the group fed the DJD diet. Much work is still to be done in this area, but dietary modulation may be an effective means of treating DJD-associated pain in cats.

Recommended Ranges of Key Nutrients

Nutrient	% DM	mg/100 kcal	Recommended dietary level	
			% DM	mg/100 kcal
			Minimum dietary requirement*	
Total n3 (from fish oil)	1.0–2.0	240–300	n/a	n/a
EPA	0.5–1.0	100–200	n/a	n/a

If omega-3 fatty acids are used, preformed EPA from fish oil should be provided. All other essential nutrients should meet normal requirements adjusted for life stage, lifestyle, and energy intake.

*Nutrient requirement for adult animals as determined by the Association of American Feed Control Officials

Therapeutic Feeding Principles

As indicated, the science of joint protection or preservation in cats is not advanced enough to be able to recommend any therapeutic feeding principles. Anecdotal suggestions include the feeding of supplements such as glucosamine-chondroitin sulfate and avocado/soybean unsaponifiables (ASU).

Client Education Points

- Weight has been associated with clinically apparent lameness in cats,¹⁷ with overweight cats being 4.9 more times likely to develop lameness requiring veterinary care. No cause and effect relationship has been established between obesity as a cause of joint disease in cats. However, as in other species, it makes sense to keep arthritic cats as light as possible.
- Traditionally, owners have been counseled to avoid table foods and snacks for their obese cats. However, one study suggested little or no advantage to restricting table foods and snacks as a part of weight-control or weight-loss programs.¹⁸ Indeed, the authors of that study suggested

that permitting owners to offer snacks and treats may improve compliance with weight management programs while maintaining the owner-pet bond.¹⁸

- It is important to strive to alleviate the pain associated with DJD in cats to improve their comfort and quality of life.

Common Comorbidities

No associations have been demonstrated for common comorbidities with feline DJD. However, given that it appears feline DJD increases in incidence with age, as discussed recently,¹³ all the diseases seen more frequently in older cats (for example, renal compromise, cardiac disease, diabetes, inflammatory bowel disease) should be considered as possible comorbidities, and diets should be formulated to take into account coexisting diseases in the individual cat.

Monitoring

Monitoring of feline DJD and the pain associated with it should be as outlined under *Key Diagnostic Tools and Measures*.

Algorithm – Nutritional Management of Suspected Feline Arthritis / Degenerative Joint Disease

