

Canine developmental joint disease

Julie Cory, PGDipABW DipAVN(Med) MBIPDT RVN, reviews the conditions and the nursing steps needed to manage them

JOINT DISEASE, either developmental or degenerative, is a common occurrence in dogs. It is commonly associated with the larger breeds of dog, although conditions such as patella luxation are frequently seen in smaller breeds, such as West Highland white terriers and the Jack Russell types.

The conditions are generally multifactorial, involving genetic factors that can be difficult to address once mating has occurred. However, other factors such as nutrition, exercise and management can be manipulated to slow the rate of degeneration, or improve the quality of the dog's life once the problem has developed.

Begins with breeding

It is important for veterinary staff to advise breeders or potential buyers of the importance of good parentage. Breeders should ensure both the sire and the dam are of the best quality, with no structural disorders.

There are two main schemes run by The Kennel Club and British Veterinary Association (BVA) to identify potential developmental problems, by grading the quality of the hip and elbow joints. Veterinary nurses should be familiar with the hip dysplasia and elbow dysplasia schemes, and it is helpful to have access to the average scores for the most commonly affected breeds.

Hip dysplasia

This is numerically the most common developmental disorder seen, and can affect a range of breeds from the Border collie to the Newfoundland; but most frequently appears in Labrador retrievers, golden retrievers, German shepherd dogs and Rottweilers.

The KC/BVA scheme offers a grading on the quality of several points within the hip joint, giving a final score of up to 53 for each hip (total of 106). The BVA publishes a guide to the average score for each of the breeds, so that an opinion of appropriate parentage can be made.

The nursing component of managing hip dysplasia often revolves around relieving pain through medication, nutritional supplementation, or therapeutic exercises to maintain muscular support. Surgery to perform total hip replacement may be necessary in some cases.

Elbow dysplasia

The elbow is one of the most complicated joints, with several bones requiring union during maturation for it to function properly. Poor development can lead to a number of these structures failing to adhere, leading to instability of the joint.



Developmental joint disease is commonly associated with puppies of the larger breeds of dog, although conditions such as patella luxation are frequently seen in smaller breeds, such as West Highland white terriers.

Conditions such as un-united anconeal process, fragmented coronoid process, and osteochondrosis dissecans are indicative of the condition.

As with hip dysplasia, there is a scheme to identify the condition in breeding animals, and to discourage the mating of affected individuals.

Joints are often swollen and painful, developing a fixed extended action to enable weight bearing, whilst the flexion of the joint can be markedly reduced. Management should be instigated before this stage to maintain a reasonable range of function, although elbow replacement surgery is being offered in specialist centres.

Osteochondrosis dissecans

OCD is less common than hip and elbow dysplasia; however, affected individuals can be equally disabled because of pain and reactionary changes. The condition can develop spontaneously as the result of genetic or metabolic factors. It may be secondary to other developmental conditions, such as elbow dysplasia, or may be because of abnormal loading on joints as a result of conformation or injury.

OCD occurs most commonly in large breeds and the joints most likely to be affected are the shoulder, elbow, stifle and hock.

A monitoring scheme is not available for OCD, perhaps because of the many factors involved with its development. However, clinical signs are usually apparent prior to breeding age, so individuals should be removed from the genetic pool before passing their genetic material on to future generations.

Patella luxation

Patella luxation is a condition that involves the dislocation of the kneecap. If it occurs in larger breeds, the luxation is often displaced laterally; however, it is more frequent in smaller breeds where the luxation is generally medial.

A slack patella ligament may develop and exacerbate the condition, although the initial cause is commonly a shallow trochlear groove, in which the patella sits and glides during movement. The condition is characterised by a 'skipping' gait frequently seen in the Jack Russell types.

Surgery usually involves deepening of the trochlear groove and tightening the patella ligament; whilst management involves strengthening the muscles and soft tissues of the joint to provide support and stability.

Managing developmental joint disease

Veterinary nurses can be valuable in providing information to owners about the causes of developmental joint disease, and how to manage their pet. Owners are often concerned about living with a potentially disabled dog, and the advice given by the nurse can give them a sense of control over the condition, and a way of dealing with a life-long condition.

Analgesia through non-steroidal anti-inflammatory drugs is often prescribed. Owners, however, can be concerned about the potential side effects of these drugs, particularly as the dog will be on them for a long time.

Below are some measures that can be employed alongside conventional medication, and which may enable a reduction in dosage.

Nutrition and nutraceuticals

There have been many advances in the past few years in the therapeutic benefits of targeted nutrition and nutrients.

The main pet food companies often offer general sale diets for specific breeds, which manage the rate of growth in susceptible breeds, to control the weight/forces passing through developing joints. Prescription diets are offered with targeted nutrition aimed at improving cartilage integrity and reducing degradation and the pain associated with it.

Nutritional supplements, or nutraceuticals, possess general or specific anti-inflammatory or cartilage protecting properties. Veterinary products such as glucosamine, chondroitin or MSM

are specific nutrients that have been claimed to benefit cartilage protection, and therefore reduce the pain associated with arthritic changes and the grating of irregular bone.

More general supplements, such as cod liver oil and green-lipped mussel, contain these nutrients in varying concentrations and may be less effective than the specific agents found in veterinary nutraceuticals, or omega-3 fatty acids, such as eicosapentanoic acid (EPA) found in diets.

Exercise

There are a variety of therapeutic exercises that owners can instigate in order to maintain mobility and functional ability in their dogs. The exercises should be practical for the owner's lifestyle, as well as being beneficial for the dog. The aim of all the exercises is to maintain range of movement within the joint, maintain or improve muscle tone to support the joint, and reduce pain and discomfort by stabilising the joint and reducing muscle tension in the supporting or compensating muscles.

All exercises should remain within the animal's comfort zone. Increasing range of movement within joints and releasing muscle spasms are the responsibility of professional physiotherapists and veterinary surgeons, and therefore beyond the scope of this article.

Massage is a simple procedure that can be effective in releasing tension within the muscles supporting the joint, and those of the contra-lateral limbs that will carry the dog's weight. Rhythmic stroking and friction exercises can be easily demonstrated to owners, and should be performed by the owners in front of the nurse to confirm they are confident with the techniques.

Therapeutic exercises can range from structured lead exercise, sit-to-stand exercises, walking up/down steps and hills, or

walking over small hurdles. The programme should be tailored to the individual, gradually increasing in difficulty as the dog's ability increases.

The aim is to maintain range of movement within the joints, as well as maintaining or increasing muscle tone around the joint. This is especially important in young dogs with developmental disease, to ensure appropriate range of movement while the joints are developing.

Owners of large breeds are often advised not to exercise their growing puppies, however they have bundles of energy and will inappropriately exercise if denied an opportunity to release that energy. Advising owners of controlled therapeutic exercises can offer an outlet for their enthusiasm, but in a manner safe for the joints, yet sufficient to maintain muscle tone.

Hydrotherapy is an excellent method of exercising joints and maintaining muscles, in a non-concussive medium that is protective of the joints. Swimming and walking on an underwater treadmill offer both buoyancy to cushion the

pressure on the joints, as well as resistance to strengthen the muscles. The warm temperature and the massaging action of the water work to relax the muscles, facilitating an increasing range of movement within the joint.

Further reading

- Bockstahler, B., Levine, D. and Millis, D. (2004). Essential Facts of Physiotherapy in dogs and cats – rehabilitation and pain management. *VetVerlag*, Babenhausen, Germany
- McGowen, C., Goff, L. and Stubbs, N. (2007). Animal Physiotherapy – assessment, treatment and rehabilitation of animals. *Blackwell Publishing*, Oxford
- www.bva.co.uk/public/chs/
- www.thekennelclub.org.uk/item/477
- Prescription diet company's websites and educational literature.

Review questions *(Answers on page 53)*

1. What four large breed dogs are more commonly presented with joint disease?
2. Which joint condition is more commonly associated with smaller breeds of dog?
3. What are the two schemes available to monitor joint disease in breeding animals?
4. What nutritional advice could you offer an owner with a pet with joint disease?
5. What management advice could you offer?

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