Fact sheet

BVA/Kennel Club hip dysplasia scoring scheme

Hip dysplasia is a common and often debilitating joint disease affecting many larger breed (usually pedigree) dogs. Affected dogs have a genetic tendency to develop the disease but the severity of the disease can be influenced by other factors. The Kennel Club (KC) introduced the hip dysplasia scoring scheme to identify affected dogs at an early stage so that they could be prevented from breeding and passing the condition to their puppies. The scheme has been widely adopted by several breed societies.

What are the signs of hip dysplasia?

Most affected dogs appear normal when young but develop clinical signs in middle and older age as arthritis develops. Severely affected young dogs may show hind leg weakness and lameness. Dogs may be obviously lame if one hip is more severely affected than the other but many dogs have similar changes in both hips. This means they do not 'favour' one leg over the other and just appear generally stiff. Sometimes owners do not recognise the problem, even though their pet may be in continuous discomfort.

What causes hip dysplasia?

The normal hip joint is a smoothly fitting ball-and-socket joint. The top of the thigh bone is smooth and round and fits tightly into a cup-shaped depression in the pelvis. The underlying cause is a laxity of the soft tissues supporting the hip joint so that the joint surfaces rub together instead of gliding smoothly over one another. Hip dysplasia is present from a very young age when the bones are still not fully developed and therefore soft. The hip joint fails to develop properly and abnormal stress on the joint causes the formation of arthritic new bone. The process becomes a vicious circle, exacerbated by obesity and over-exercise.

Hip dysplasia is not caused by a single factor. Some dogs are more likely to develop hip dysplasia because of their genetic make-up. It is thought that some factors in the way the dog is brought up (such as feeding and exercise) can also influence the development of the disease.

How can hip dysplasia be prevented?

The only way to eliminate this condition is to avoid breeding from affected animals. However in many breeds most individuals are affected and so selective breeding, ie breeding from those individuals with less severe disease is required. The British Veterinary Association (BVA) and the Kennel Club (KC) have developed a joint hip dysplasia scoring scheme that classifies the severity of disease in individuals. Identification of affected individuals allows for selective breeding.

What is the hip scoring scheme?

The BVA/KC hip scoring scheme was instituted in 1984 to replace the earlier Pass/Breeder's Letter/Fail Scheme. Under the scoring scheme, nine features of each hip are assessed on the x-ray with points being given for undesirable features (and zero being the score for a perfect example of that feature). The individual scores are added to give a total score for each hip and then a total score for the dog. For each hip the scores may range from 0-53 and for a given dog from 0-106.

Scoring x-rays is similar to judging at dog shows - standard criteria are laid down but the same dog may not win under different judges nor even under the same judge on different occasions. It is well recognised that the scoring scheme has limitations and is not foolproof:

- It cannot detect dogs with reasonable hips but which are carrying hip dysplasia genes.
- It cannot take into account environmental factors such as bodyweight.
- It takes no account of the dog's age (except that all dogs x-rayed must be at least 1 year of age).

The assessment of the x-rays is largely subjective and prone to differences in opinion between the scrutineers.

How are hip x-rays taken?

In the UK, a single x-ray is used to assess a dog's hips under the KC scoring scheme. The dog is positioned on its back with its back legs fully extended. This position is best achieved in the relaxed dog using sedation or general anaesthesia and artificial restraint, ie sandbags or ties to maintain the legs in the correct position. It is a common misconception that correct positioning requires the dog's legs to be held during the x-ray - this is very dangerous for the handler and is not necessary. The film should be identified

before processing with the dog's KC registration number, the date and a left or right marker.

What happens to the x-rays?

When a diagnostic x-ray has been obtained, it is submitted to the BVA together with the scoring fee and a part-completed certificate of scoring. The owner fills in the top of the certificate, with the dog's details and pedigree information. The veterinary surgeon submitting the radiograph certifies that the radiograph was taken on the date indicated, and may check and add the dog's microchip or tattoo number where appropriate.

The x-ray is examined by 2 specialists (from a panel of scrutineers) who assess the hips and decide whether any changes are present. Points are awarded for each change seen in the hips and these points are added together to produce the score. When they have agreed on a score the scrutineers complete and sign the scoring table at the bottom of the form, which is returned to the veterinary surgeon together with the x-ray.

Why weren't my dog's x-rays scored?

A small percentage of x-rays submitted to the Scheme are rejected because they cannot be scored accurately. Accurate positioning is essential to give a correct score. Although a score may be given even when the x-ray is not ideally positioned, ie if the hips are clearly arthritic and will be high scoring anyway, or if the total scores are still markedly less than the average score for that breed. However, if the pelvis is rotated and the hips are very good then the overall score may appear to be higher (worse) than it really is, and this unfairly penalises the dog, especially if the breed is generally low scoring. Thus, if a radiograph is rejected for tilting it is because the scrutineers feel that the hips are probably quite good and that a significantly better score would be achieved from a straighter image.

Occasionally factors relating to the quality of the x-ray result in rejection. X-rays that are improperly exposed or processed will be too pale or too dark, resulting in loss of contrast and definition. If the features cannot be assessed then a score cannot be given. Incorrect identification of the patient will also result in return of the radiograph as the certificate that assigns a particular score to a specific individual cannot be signed if the scrutineer cannot guarantee that the x-ray they are looking at belongs to a particular dog.

Does the scoring scheme work?

Only dogs with hip scores considerably less than the breed mean score (BMS) should be used for breeding (the BMS list is available from the BVA). This should reduce the risk of hip dysplasia developing in their puppies. However it is still possible for 2 parents with very low hip scores to produce puppies with hip dysplasia, which is discouraging for the breeder.

The most helpful way of using the scoring information is in progeny testing. This means selecting parents which are known to have previously produced puppies with good hips as well as having low hip scores themselves. It is important to investigate the hip scores of as many offspring of individual dogs as possible before selecting them for further breeding. It is also helpful to breed dogs whose grandparent's scores were low. If it were possible to prevent any dogs that carry the gene for hip dysplasia from producing puppies then the disease could be eradicated.

Conclusion

If you are thinking of buying a pedigree puppy find out if hip dysplasia is likely in your chosen breed and enquire about the hip score status of the parents before considering purchase. This can reduce the risk of hip dysplasia developing in your puppy although it still possible for 2 parents with very low hip scores to produce puppies with hip dysplasia.

If you want any other information on health issues concerning your dog please contact Unicorn Vets on 023 8034 3434 and we will be happy to advise you.