The British Veterinary Association and The Kennel Club — working together for excellence in canine health

Hip dysplasia in dogs
Hip dysplasia (HD) is a common inherited orthopaedic problem of dogs and a wide number of other mammals. Abnormal development of the structures that make up the hip joint leads to subsequent joint deformity. ‘Dysplasia’ means abnormal growth. The developmental changes appear first and because they are related to growth, they are termed primary changes. Subsequently these changes may lead to excessive wear and tear. The secondary changes may be referred to as (osteo)arthrosis (OA), (osteo)arthrosis or degenerative joint disease (DJD).

Later one or both hip joints may become mechanically defective. At this stage the joint(s) may be painful and cause lameness. In extreme cases the dog may find movement very difficult and may suffer considerably.

Developmental demands
It is argued that dogs are not born with hip joints already affected by dysplasia (unlike humans) but that any faults in development will tend to escalate with time, particularly during the rapid growth phase from about 14 to 26 weeks of age. However, changes begin as the very young puppy starts to become active and continue until the puppy is skeletally mature. Wear and tear of the deformed joint results in varying amounts of inflammation and degeneration which lead to more deformity. This progressive deformation is sometimes referred to as remodelling. Some dogs may treble their size and body weight in just three months of adolescence so it is not surprising that there are many critical factors for the puppy at this stage. All the essential nutritional requirements for skeletal growth must be available in the right proportions and at the right time. The environment within which the dog is raised, including the type and intensity of exercise, growth rate and body weight are significant influences. However inheritance is a major factor and this is something which we are able to influence by the selection of breeding animals.

Signs
As HD can include joint looseness (laxity), inflammation, pain, new bone formation and bone erosion, it may cause a range of observable signs from normal to minor changes in gait (in the mildly affected...
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Hip dysplasia (HD) is a hereditary joint disease that affects the hip joint in dogs, causing pain and disability. The condition is characterized by the subluxation or dislocation of the femoral head from the acetabulum. In severe cases, the acetabulum is shallow and remodelled, leading to osteoarthritis.

Clinical Signs
HD can range from mild to severe and may present with various signs, including lameness, stiffness after rest and exercise, muscle wasting, and pain. Some individuals and breeds may be more stoical than others, making it difficult to estimate the severity of HD by observation alone. A thorough physical examination by a veterinary surgeon is essential for a reliable assessment, revealing limitations of joint movement, muscle wasting, and pain.

Radiography
Radiographic examination is the only means to confirm the presence of HD. It involves the use of X-rays to evaluate the shape and position of the femoral head and acetabulum, as well as identifying secondary changes.

Causes
HD is influenced by both hereditary and environmental factors. Hereditary factors include the genetic code passed down by both parents, while environmental factors encompass all external influences that affect growth and development of the bones, cartilage, ligaments, tendons, and muscles.

Treatment
Treatment options can help alleviate pain and improve mobility. This includes sophisticated medications, various surgical procedures, and non-pharmacological measures such as heat application, massage, good bedding, exercise, weight management, nutrition, and physiotherapy. Professional advice is crucial to develop the best strategy.

Some common breeds at risk:
- Labrador Retriever
- German Shepherd Dog
- Golden Retriever
- Rottweiler
- Bernese Mountain Dog
- Newfoundland

The BVA/KC HD Scheme
All radiographs submitted to the BVA/KC Hip Dysplasia Scheme are ‘scored.’ The hip score is the sum of the points accrued for each of nine radiographic features in each hip joint. The lower the score, the less the degree of HD present. The minimum (best) score for each hip is zero, while the maximum (worst) score is 53, giving a range for the total score of 0 to 106.

Sires (fathers) to be bred from should ideally be those whose progeny (offspring) have achieved consistently low scores. The same selection procedure should be used for bitches, as using animals with greater than ideal scores will increase the risk of producing offspring with higher scores.

Failure to use the scoring system may give disappointing results and can also be potentially costly in terms of compromised breeding plans. It may lead to litigation and raise important animal welfare issues. For the hip scoring scheme to be meaningful and successful, it is important that all potential breeding dogs are radiographed and that all radiographs taken under the scheme are submitted for scoring, whatever the apparent state of the hips. Scoring of progeny, even if not intended for breeding, will provide useful data for genetic analysis. This will ensure that the information gathered is as relevant as possible. It is only by this means that proper conclusions may be drawn by the scheme’s statisticians, geneticists, and veterinary advisers.

For further information please visit www.bva.co.uk/chs

Severe hip dysplasia (score for this hip 44). The hip poorly fits the socket (the acetabulum). The acetabulum is very shallow and has been remodelled. There is considerable new bone around the acetabulum and the femoral head (osteoarthritis), which is nature’s way of attempting to stabilise an unstable joint.
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Breed Specific Statistics and breeding advice

Hip scoring should be considered along with other criteria as part of a responsible breeding programme, and breeders should choose breeding stock with hip scores around and ideally below the breed median score. The median score is calculated from all the scores recorded for that breed over the previous five years and is the middle score of the population, i.e. 50% of dogs have a lower score and 50% have a higher score. It therefore represents the hip score of the ‘average dog’ in that breed and dogs with scores which are lower than the median have better than average hips for that breed. It is strongly recommended that hip scores of parents, grandparents, siblings and any previous progeny are considered as this gives the most accurate assessment of an individual dog’s hip status.

The Breed Specific Statistics and a more detailed explanation can be viewed at www.bva.co.uk/chs

Getting a dog’s hips scored

Owners should contact their veterinary surgeon and arrange an appointment for their dog to be radiographed (X-rayed). The radiographs must be taken under anaesthesia or heavy sedation which means that the dog may have to be left for a short time at the veterinary practice. Hip radiographs can be taken at the same time as those for the BVA/KC Elbow Dysplasia Scheme. When taking the dog for its radiographs owners should remember the following.

- The dog must be at least one year old, but there is no upper age limit.
- The dog must be permanently and uniquely identified by way of a microchip or tattoo.
- The dog’s KC registration certificate and any related transfer certificates must be available so that the appropriate details can be printed on the radiographs.
- Microchip/tattoo numbers must also be printed on the radiographs.
- The owner should sign the declaration (first part) of the certificate, to verify the details are correct and grant permission for publication of the results.

Once the radiographs have been taken, the veterinary surgeon must fill out the appropriate section of the certificate and submit both the radiographs and the certificate and the current fee to the BVA.

The results and the radiograph are normally returned to the veterinary surgeon within three weeks with the completed certificate for the owner and a copy for the veterinary surgeon. Once a score has been given for a dog, the radiograph cannot be resubmitted; however, owners have the right to an appeal which takes the form of a re-appraisal of the original radiograph. A letter of appeal must be made within 45 days of the date of the original certificate. The whole process from initial appointment to receiving the scores is handled through the submitting veterinary surgeon.

The Kennel Club have developed Estimated Breeding Values, or EBVs, a resource that allows breeders to estimate a dog’s genetic risk of developing either hip or elbow dysplasia. For more information, please visit www.mateselect.org.uk.

There is a reduced fee when radiographs of the same dog are submitted simultaneously to the CHS for the Hip and Elbow Dysplasia Schemes.

For current fees and further information please contact:

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