Hip scores- What does it all mean?

Hip dysplasia, characterised by instability of the hip joint, is a common and often debilitating orthopaedic condition affecting many of the larger breed dogs. It is generally considered that puppies are born with normal conformation of the hip joint i.e. a smoothly fitting ball-and-socket joint comprising of the femoral head (ball) and the acetabulum (the socket). See Figure 1.

Figure 1: Hip joint showing tight ball & socket structure.

The mechanism by which dysplastic hips become lax and unstable is due to many factors, both genetic and environmental. In severe cases, this laxity of the soft tissues (muscles and ligaments supporting the hip joint) can be detected by your vet at first vaccination. Because it occurs in young dogs when the bones are still partly cartilaginous, these "soft" joints, instead of ossifying into a normal hard bony, well fitting, ball-and-socket conformation, develop to form a shallow, less congruous joint. Arthritic new bone then forms due to stresses on the soft tissue components of the joint and further remodelling changes occur. See Figure 2.

The degenerative process then becomes a vicious cycle, exacerbated by obesity and over-exercise.

In 1984 The British Veterinary Association (BVA) in association with the Kennel Club instituted the BVA/KC hip dysplasia scoring scheme to replace the earlier Pass/Breeder's Letter/Fail Scheme. Many countries have their own scoring scheme but in the UK, a single radiographic ventro-dorsal pelvic view is used. Best X-rays are achieved with a relaxed dog using either sedation or general anaesthesia. The skeletally mature dog, over 12 months old, is usually laid in a trough on his/her back and the hind limbs are extended with the stifles parallel to each other, this is achieved by the strategic use of sellotape and ties! It is essential to have a marker to mark left or right together with the date and the dog's kennel club registration number, which will show on the film. This can be the fiddly bit as there are strict rules governing the suitability of an X-ray. There must be no rotation of the pelvis, and this can be difficult sometimes in very thin, bony dogs.

Figure 2: End stage hip joint with severe arthritis due to hip dysplasia

A diagnostic X-ray (See Figure 3) can then be submitted to the BVA together with the scoring fee and a part-completed certificate. The vet then signs to certify the radiograph was taken on the date indicated and may check and add the dog's microchip or tattoo number. Until the latter becomes mandatory the substitution of dogs with known good hips could occur by unscrupulous breeders. One could consider this may be a case for DNA profiling to become more the norm.

Figure3: Radiograph suitable for hip scoring (these scored 4/3; Total 7)

The radiograph is then examined by two scrutineers, randomly paired, from a panel of (currently) thirteen, all who have been trained in hip dysplasia assessment. Annually these scrutineers have to undergo a quality control exercise to check their scoring is comparable and as standardised as possible. Under the scoring scheme, nine radiographic features for each hip are assessed with a numerical score given to each (0-6). Points are given to each undesirable feature with zero being a perfect example of that feature. The individual scores are then added together to give a total for each hip and hence a total score for the dog. Each feature is scored from 0-6, with the exception of one, the caudal acetabular edge, which is scored between 0-5. Thus the total parameters for each hip can range from 0-53 and for a given dog, giving a possible total score of between 0 and 106. See Table 1. This means that meaningful comparisons between dogs may be achieved.

Hip Joint Radiographic features	Score Range	Right	Left
Norberg Angle	0-6	0	0
Subluxation	0-6	2	1
Cranial acetabular edge	0-6	2	2
Dorsal acetabular edge	0-6	0	0
Cranial effective acetabular ridge	0-6	0	0
Acetabular fossa	0-6	0	0
Caudal acetabular edge	0-5	0	0
Femoral head/neck exostosis	0-6	0	0
Femoral head recontouring	0-6	0	0
TOTALS 4/3 =7 hip score		4(0-53)	3(0-53)

Table 1: Nine different parameters are measured; the scores are then summated to get a total hip score for the particular dog. In the case of the Labrador in fig.3 the results are shown in red.

As with most things, this system has its limitations and is by no means foolproof.

1. It can only detect if a dog has reasonable hips not whether the dog carries hip dysplasia genes.

2. It cannot take into account environmental factors such as diet and body weight.
3. The score does not take into account the age of the dog except that it has to be over 12 months old.
4. This a subjective scoring scheme and scrutineers do differ in opinion hence, the need for annual quality control to limit personal variations and ensure as far as possible scores do not have a large variance.
5. Due to the complexities of genetics, relying on a just a sire and dam with a low score may produce offspring with varying degrees of hip dysplasia, which can obviously be very disappointing.
6. Unfortunately, there are some veterinary surgeons in practice that do little to support the scheme. They bias the results by discouraging owners from submitting radiographs which they think may score highly.

As a summary of the scoring system the lower the score the better. Hips scores of 0,0 (Total=0) being perfect and 53,53 (Total = maximum 106) devastatingly dreadful. For each breed there is an average score obtained, which is continually being updated, this is known as the breed mean score (BMS). The BMS for Hungarian Vizslas is at present a total of 12.

As breeders and as potential puppy purchasers how is the scheme best used?

- Only breed from dogs with considerably less than the breed mean score (BMS). Currently for Hungarian Vizslas the BMS=12 (Up to 10/01/2005 after 930 hip scores submitted). I personally would suggest choose parents with scores of 10 or less. For example a dog with 0,0 is excellent, 3,3 very good, 6,6 not so good but still within the breed average whilst anything above this is not good so try to avoid.
- Even mating two low scored dogs, offspring may still have varying degrees of hip dysplasia.
- The most helpful way of using the scoring information is in progeny testing, for example, selecting parents who are known to have previously produced offspring with good hips as well as have good scores themselves.
- It has been proven that some dogs with good hips will consistently produce progeny with hip dysplasia whilst others do not.
- Ideally it is important to research the hip scores of as many offspring of individual dogs before considering a match for breeding. Obviously, this can be more easily applied to sires as they are likely to produce more offspring in their lifetime.
- It's all in the genes! It is useful to check the grandparents too as their scores will have a bearing on the offspring.
- So by checking back through the line you can minimise the chances of throwing a pup with bad hips. But, if in doubt as to the suitability of your dog to breed it is best to seek advice from a vet who will have been sent the current breed mean scores when the certificate was returned to him/her. Or ideally a vet who has an interest in orthopaedics.

Temperament and ability obviously all count in choosing the right match but remember, it is theoretically possible for people who purchase a pup which develops hip dysplasia to sue a breeder who bred from affected parents.

In practice, the number of clients who continue to breed from their dogs either without hip scoring or who worse, ignore the score indication staggers me. Likewise there are the new puppy owners who look blankly at me when I ask what the parents' hip scores were. Or they answer, "Oh yes the parents were hips scored" but haven't a clue what it means and when investigated the parents were indeed scored but had high scores not suitable for breeding. Too often have I had to euthanase an otherwise healthy puppy which can't bear its own weight or suffers pain from severe hip dysplasia. See Figure 4. I would prefer never to be put in this situation again so I strongly urge responsible breeding in any breed let alone my own, the Hungarian Vizsla.

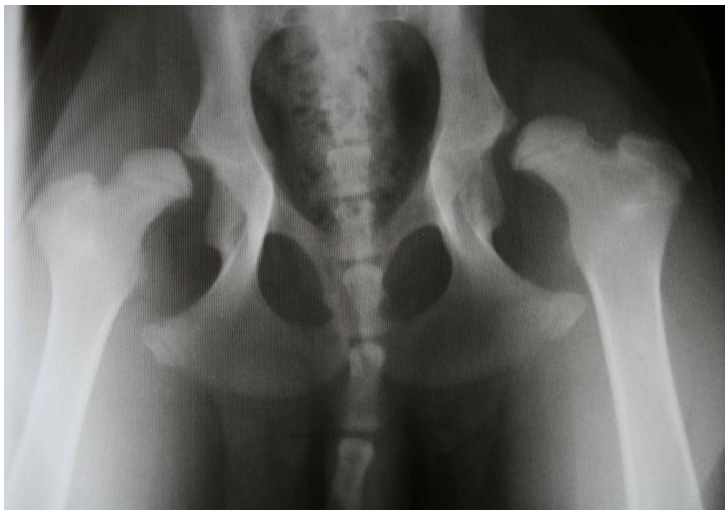

Figure 4: This pup was bred from hip scored parents for the purpose of working. He was euthanased at 7 months old.

I strongly recommend breeders advise prospective owners to insure their animals because should the problem arise, we vets can do so much more when there are no financial constraints. In addition, I recommend the use of nutriceuticals e.g. glucosamine and chondroitin sulphate, during the skeletal development stage. This can be administered either in feed or ideally one of the veterinary prescribed extremely pure formulations presently available through your veterinary surgery. There are others on the market but I tend to subscribe to the thought that quality and purity comes at a cost.

Where do I get my dog hip-scored?

Your vet is the first port of call. Specialist orthopaedic vets would be contactable by referral from your own vet but often a practice has a vet with a keen interest in orthopaedics, with further training in the subject and wil e happy to assist.

What does it cost?

British Veterinary Association rates for hip scoring as of 1st January 2008:

Number of dogs scoring/grading per dog	VAT inclusive charge for
1-4	£35.40
5 or more for same owner	£28.20
Rescoring under appeals procedure	£70.60
Joint hip and elbow dysplasia submission	£63.30

In addition, there is a charge made by your vet to include sedation/general anaesthetic and X-ray. This cost varies from practice to practice. The author's practice for example currently charges an inclusive fee of £100 (incl VAT).

Anaesthetics.

The anaesthetic issue is a hangover from the "good old days/James Herriot era". Modern anaesthetics are extremely safe, the gold standard used bymost practices being propofol induction and isoflourane (or cevoflourane) gaseous maintenance. These have come from the medical field where they are routinely used for 90 year olds having hip replacements! As long as a dog is fit and healthy there is minimal risk with any anaesthetic procedure.

The author's practice routinely uses a reversible sedation for hip scoring, which takes 7 minuted to standing after reversing. This combination is medetomidine and butorphanol to sedate and atipamizole to reverse the sedation. Again this anaesthesia is extremely safe in young fit animals i.e. the healthy breeding animal!

The risks of anaesthesia far outweigh the risks of producing crippled animals which will suffer and no doubt need long anaesthetics to improve their quality of life.

This should not be an excuse to avoid hip-scoring your dog.

By
Verity J. Griffiths B.Sc(Hons)., M.A., VetM.B., GPCert(SAS)., M.R.C.V.S.