

Policy Position: Health Testing

Introduction

Increasingly since the broadcast of the BBC documentary, *'Pedigree Dogs Exposed'* in 2008, and before that in many scientific circles and journals, concern has been expressed about the harmful effects of breeding within closed gene pools in pedigree/purebred dogs. One result of such breeding practices is that some breeds of dogs have an unacceptably large incidence of breed related disorders. At the simplest level, only genetically healthy dogs should be selected for breeding. However, genetics and heritability is complex and there are no easy answers.

Approaches that can be useful in reducing the prevalence of individual disorders within dog breeds include: the use of DNA testing particularly for single-gene disorders; health screening for more complex diseases involving more than one gene; and the use of Estimated Breeding Values (EBVs) to predict the capacity to pass on relevant genes. Each of these approaches is discussed below.

It should be noted that any amount of testing cannot take into account welfare problems caused by the intrinsic shape of the dog. Careful appraisal of the consequences of extreme conformation, such as brachycephaly (flat face) or wrinkled skin should also be taken into account.

BVA/KC Canine Health Schemes (CHS)

www.bva.co.uk/Canine-Health-Schemes/

BVA/KC health schemes exist for eye disease, hip dysplasia (HD), elbow dysplasia (ED), and chiari-like malformation/syringomyelia (CMSM). These are referred to as phenotypic tests.

Where such a scheme has been made compulsory by a kennel club, dramatic improvements can be made in a relatively short time. For example, the Danish

Kennel Club Scheme for mitral valve disease in Cavalier King Charles Spaniels reduced the risk of early onset disease by 73% during a nine year period. Carried out on a voluntary basis, there can be improvement over time.

Breed club schemes

Some breed clubs have developed their own voluntary health testing schemes, such as the Cavalier King Charles Spaniel Clubs' Heart Scheme for mitral valve disease. These would normally only be used by breed club members. However many breeders do not belong to their national breed club and even those who do will not necessarily follow the scheme guidelines.

Estimated Breed Values (EBV)

www.thekennelclub.org.uk/services/public/mateselect/ebv/Default.aspx

A future (and more accurate) way of assessing the risk of passing on complex diseases is the use of estimated breeding values (EBVs). This assesses the degree to which an animal may have inherited and be able to pass on genes associated with a particular health condition. It is a measure of a dog's genetic risk for that disorder.

For dogs, EBVs are only currently available for hip dysplasia and elbow dysplasia in a limited range of breeds. Currently 28 breeds have EBVs for hip dysplasia and 15 breeds have EBVs for elbow dysplasia. Efforts to provide EBVs for chiari-like malformation /syringomyelia are constrained by the current limited uptake of formal testing by breeders.

Where available, EBVs should be used to assist breeding decisions and breeders who use them should adhere to Kennel Club guidance on its Mate Select online facility.

Results from the relevant canine health schemes should be used in conjunction with EBVs. The accuracy of EBVs will continue to improve as more data from the canine health schemes is provided. Used in this way dogs, breeders, owners and breeds as a whole will benefit.

DNA tests

DNA tests enable the detection of individual genes or gene markers for a specific disease within a dog's genome.

An increasing number of DNA tests are being provided by the Animal Health Trust, Optigen and Laboklin laboratories for single gene disorders (other laboratories also).

www.aht.org.uk/cms-display/genetics_canine.html

<http://www.optigen.com/index.html>

www.laboklin.co.uk/laboklin/GeneticDiseases.jsp?catID=DogsGD

Many of the available health tests and EBVs are shown on the specific Breed Pages of the DogBreedHealth website: www.dogbreedhealth.com

Issues

There are some breeds of dogs for which the welfare impact of genetic diseases is so great that it may be considered unethical to continue to breed them in their current state. It should be remembered that dog breeds are man-made and many have only existed for the last 150 years or so. New breeds continue to be created often with very minor distinctions from an ancestor breed, such as coat colour or texture.

Working within the existing breed gene pools of pedigree (registered with the Kennel Club) and purebred dogs (bred within the breed closed gene pool but not necessarily KC registered) requires great care. Attempts to eliminate one disease may inadvertently increase the incidence of others.

Carrying out all the relevant breed-related health testing before mating may be costly for a breeder, especially where multiple tests are indicated. However, it can be even more costly for an owner to have to pay for veterinary treatment for preventable inherited diseases. Also there can be very significant welfare costs for the dog. It should be noted that the breeder has the option of reflecting these costs in the price of puppies from tested puppies. A word of caution here is to say that a high price for a puppy may not be due to the cost of health testing. It may be because a certain breed (or crossbreed) is currently popular or that a particular litter of puppies comes from 'champion stock.'

Some breeds have several serious inherited health conditions where health testing may not be available or could not be expected to make the breed population healthier within a reasonable period of time. Outcrossing to another breed might be the best way to solve some breeds' health issues although kennel clubs and breed clubs are often reluctant to follow this route due to concerns over breed 'purity.'

It is understood that the British Veterinary Association (BVA) has set up a working group to explore the possibility of new Canine Health Schemes (CHS) beyond the existing four schemes. This is a very welcome development.

The introduction of official health testing schemes requires high levels of co-operation between breeders, the Kennel Club and BVA to reach agreement on their format and implementation. The lack of such co-operation seems to have occurred in the case of a proposal to have an official scheme for heart disease.

In the UK, dogs are legally classed as 'goods.' It follows from this that a breeder is the producer of these goods and should do everything within reason to ensure their 'product' is 'fit for purpose,' which is, in the majority of cases, as a family pet. There is some protection for dog owners under UK consumer law. An owner has every right to expect that the puppy they purchase is genetically sound. Health testing dogs used for breeding can play a key role in the process of producing healthier dogs.

DBRG Position

People who set themselves up as dog breeders, whether on a small or large scale, have a moral duty to take sufficient measures to produce healthy puppies which will grow into healthy adult dogs.

DBRG believes that where health tests are available to dog breeders and are reliable and accurate, they should be used. This means carrying out breed specific tests on both parents before any proposed mating to reduce the likelihood of the offspring developing these genetic diseases.

There will be cases where DNA testing is unnecessary. For example, in a five generation pedigree, if absence of the disease is proved by certification, it should not be necessary to DNA test for that condition as frequently.

In the case of complex diseases, that is, those involving several genes, all dogs considered for breeding should be tested even if the parents of those dogs have scored well. It is in the nature of complex diseases involving several genes that re-combinations of gene alleles can still produce affected dogs.

For hip dysplasia and elbow dysplasia specifically, the aim must be to reduce the breed average hip or elbow score. This is done by breeding only from dogs whose combined score (ie the score of the resultant offspring) is lower than the breed average. Estimated breeding values, where available, should be used in conjunction with phenotypic testing so that breeders have a more accurate tool with which to plan future breeding.

Health testing should also be carried out when crossing between breeds, such as for Labradoodles or Cockapoos. In this case, both parents need to be tested for their respective breed related issues. This should apply to the first and subsequent generations since deleterious genes may become apparent in later generations.

With the advance of scientific knowledge, it is important that the Canine Health Schemes are periodically re-evaluated, as was the case with the British Veterinary Association/Kennel Club/International Sheep Dog Society (BVA/KC/ISDS) Eye Scheme in 2016.

Some dog breeds have, through selection, physical characteristics which are detrimental to health and welfare. For example, excessively wrinkled skin, extremely short heads, screw tails, long necks, and many more such traits. These traits, although favoured by some breeders and owners, are detrimental to a dogs health and quality of life.

Recommendations

- The interests and health and welfare of the dogs themselves should be the overriding consideration in any breeding decision.
- Breed governing bodies should prioritise health and welfare over conformation (physical characteristics).
- It is advisable that puppy buyers thoroughly research the breed they are considering in order to be able to ask a breeder the relevant questions relating to genetic health.

- Health testing of dogs used for breeding should be the norm for all breeders, including screening for conformation-related health and welfare issues.
- Relevant health test certificates should be provided to prospective puppy buyers to demonstrate that a breeder is committed to producing healthy puppies and adult dogs. A verbal assurance is not sufficient.
- For single gene mutations carriers may be used for breeding as long as a carrier is mated with a clear partner. This avoids the rapid depletion of the gene pool.
- Where applicable, breed clubs should seek guidance from a canine geneticist to advise on health testing and maintaining genetic diversity within that breed.
- On an individual breed basis, the Kennel Club should make certain health tests compulsory for KC registration.
- There should be more encouragement to breeders from canine governing bodies to undertake relevant testing and reporting of data.
- Welfare scientists should advise breed clubs on prioritising breed specific health issues, depending on the welfare impact on an individual dog as well as the prevalence within a breed. The Universities Federation for Animal Welfare (UFAW) website, *Genetic Welfare Problems of Companion Animals* attempts to do that:
<http://www.ufaw.org.uk/dogs/dogs>
- Breed clubs should take effective measures to educate their members about breed specific health and welfare issues.
- Breed clubs should make efforts to recruit owners, as well as breeders and show exhibitors, so that an owner's perspective is reflected in decisions about breed health.

Written February 2017