

Your Pet

INHERITED DISEASES AND GENETIC SCREENING



Registered charity no. 209642



parentage tests in all breeds. It is likely that, over the next few years, several more tests will be developed and made available.

What do I do if I want my dogs tested?

You should ask the Trust for a DNA testing form that details the procedure. It will often involve a visit to your vet who will send us a small blood sample. We will isolate DNA and carry out the genetic test. The results will usually be sent to your vet within 4 weeks. The PRA test, which can only be applied to Irish Setters at present, costs £60 and the copper toxicosis test in Bedlington Terriers costs £50.

The Animal *Health* Trust is an internationally recognised centre of excellence in the field of veterinary medicine.

It has pioneered many breakthroughs in relation to improving the prevention, diagnosis and treatment of animal disease and injury and is entirely dedicated to improving the health and welfare of cats, dogs and horses.

As a registered charity we receive no government funding and rely on charitable support in the form of legacies and donations to enable us to continue our valuable work. You can help us in the following ways:

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the science behind animal welfare



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Do dogs have inherited diseases?

Currently, over 350 inherited diseases have been recognised in dogs. Many are restricted to particular breeds but others, such as hip dysplasia, occur in a wide range of breeds. The different diseases affect almost every part of the dog's body including eyes, heart, skeleton, liver and skin.

Are these diseases common?

Most inherited diseases are rare and only seen in restricted pedigrees within particular breeds. However, several diseases are common such as deafness in Dalmatians, where about 5% of dogs are deaf in both ears and 13% are deaf in one ear.

Why do dogs have these problems?

Inherited diseases are the result of changes, or mutations, in particular genes that are passed from the dam and the sire. Many of the diseases in dogs are inherited in a 'recessive' manner (ie a faulty copy of the gene is inherited from both the dam and the sire). Populations that show high levels of recessive disorders are usually inbred; many pedigree breeds were founded with very few individuals, closely inbred. This has led to the prevalence of 'faulty', mutant genes in some breeds and the appearance of inherited diseases.

Is there a cure for these diseases?

There is no cure for most of the diseases although in several cases it is possible to treat the symptoms of the disease.

Are there clinical tests for inherited diseases?

Yes, there are schemes run jointly by the Kennel Club and the British Veterinary Association to evaluate dogs for inherited eye diseases, hip dysplasia and elbow dysplasia. These schemes have played a valuable role in reducing the incidence of these genetic problems in dogs.

How do genetic screening tests help?

These screening schemes can identify individual dogs that are clinically affected with the disease. However, the clinically unaffected group comprises dogs that are either clear of the disease (do not carry the mutated gene) or carriers (those that carry one copy of the mutated gene). If a carrier is mated to another carrier, approximately 25% of their offspring will be affected with the disease. Thus carriers act as a reservoir for the disease, making it impossible to eradicate it by clinical screening alone. In contrast, genetic screening can identify the mutated gene allowing the identification of carriers, making it possible to eradicate the disease entirely. Another advantage is that genetic screening can also detect puppies that are affected with a late onset disease. Without such screening affected dogs could well have produced litters and passed their mutated genes to their offspring

before their disease becomes clinically evident. Early identification with genetic screening tests can prevent this.

How can these diseases be eradicated?

The development of genetic tests for individual disease genes offers a real challenge to dog breeders. For the very first time, there is the spectre of completely eradicating a disease gene from a breed. Progress is rapid and there is every possibility that genetic tests will be available for the majority of the inherited conditions within the next 5 years. Being able to ascertain the genetic status of individual dogs with respect to a particular disease gene will allow breeding programmes which will lead to the eradication of the disease gene with minimal impact on breed type and quality. Breeders will be able to select for temperament, breed type and quality as well as the presence or absence of a disease gene and use their skill as breeders to eradicate the disease.

Which diseases can currently be tested for?

At present, the Trust offers screening tests for several diseases including progressive retinal atrophy (PRA) in Irish Setters, copper toxicosis in Bedlington Terriers, fucosidosis in English Springer Spaniels, von Willebrand disease in Doberman Pinschers, Manchester Terriers, Poodles and Cardigan Welsh Corgis, canine leukocyte adhesion deficiency in Irish Setters and Irish Red and White Setters, congenital stationary night blindness in Briards and

