



Health testing for breeding

As a Dogs Victoria breeder, your goal is to produce healthy, happy puppies that are excellent examples of their breed, both in looks and temperament. To do this, you are aiming to not only produce puppies that are true to their breed standard but who are as free as possible from inherited diseases or conditions that could impact the welfare of the animal during its lifetime.

All dogs, whether purebred or mixed, can suffer from health problems. Some of these health problems are hereditary, meaning they are passed on to puppies from their parents. Defective genes that cause disease are present in **all** animals – even humans - but often, the only time that the disease is seen when both the mother and the father carry the same defect.

Breeders of purebred dogs are usually very aware of potential health problems that are seen in their breeds (and certain lines within the breed) and make sure they reduce the risks of passing on these diseases by health testing any potential breeding animals before they go on to produce puppies. This means that the risk of the disease occurring is minimised through good breeding practices.

Important!

It is your role as a breeder to carefully select the parents of your litters so that you are working to both preserve the breed and improve it – with each generation healthier than the last.

To achieve this, you need to be aware of any potential health issues that are common to your breed and make sure you undertake every step to prevent perpetuating problems for future generations.

Responsible breeding involves testing any potential breeding animals and making informed and considered breeding decisions with the health and welfare of both the parents and the pups as a priority.

How will I know the health issues that may affect my breed?

Having an awareness of the potential health issues that affect your breed is vital if you plan on breeding. Nobody wants to produce puppies with health issues that may have been prevented, and, as a breeder, you are responsible (both morally and legally) for every puppy you breed.

Before you begin breeding, you need to spend some time doing health-based research. You want to have an understanding of the potential health conditions that may affect your breeding program and your breeding choices.

You will want to understand how these diseases are inherited or passed on, their signs and symptoms, and the consequences for the affected individuals - both short and long term.

Where there are testing or screening options available, you want to understand when this should occur, the type of test, and how to use the results to direct and inform your breeding choices. That way, you can select healthy breeding animals and make sure that your proposed combinations compliment each other to minimise the risks of disease.

Dogs Victoria Regulations 20.3.2 states:

- *Members will take responsible action to reduce the incidence of hereditary diseases in their breeds.*
- *Where there is a control program, approved by Dogs Victoria, covering a breed for a disease known or considered to be inherited, then breeders within the breed should participate and comply with the requirements of the program.*



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Breed Club websites

A great place to start your health research is to visit your Breed's Club websites – both Australian and International.

These breed club websites draw together years of information from breeders and breed guardians and present it in a format that is usually easy to read and understand. Many clubs have whole sections of the website dedicated to health and welfare, as well as advice to people looking to add a member of that breed to their family.

Breed Clubs will often set minimum testing standards for their members, and some provide open access databases of health testing results that you can study. Some of the larger breed clubs also offer 'testing days' where they will arrange for a Specialist Veterinarian to conduct testing for members, often at a reduced rate, or arrange for DNA sample collection with an approved collector.

Canine health databases

There are several online canine health databases that aim to collate and list known health issues by breed.

These are excellent resources and are generally overseen by university researchers, veterinarians or the larger kennel clubs.

If you are looking at an internationally based database, it is important to remember that not all diseases are seen in all populations of a breed - for example; an issue seen in a few individuals of a breed in Europe and reported on a health database may not exist in individuals in Australia, the UK or the USA.

Some useful Databases to look at include:

[Orthopaedic Foundation For Animals](#)

This is an extensive American based database that hosts a variety of test results and information about health testing. You can search by breed and view detailed pedigrees for animals whose owners have submitted health testing results.

Although initially set up to record hip dysplasia screening results, the OFA website now lists results over a considerable number of testing protocols and diseases.

[The Kennel Club Website](#)

The UK Kennel Club website has a whole section of its website dedicated to health. There is also a searchable breed index linking to detailed information about the breed and its care. Each breed page has a 'Health' section that lists all of the recognised health issues for the breed along with suggested testing requirements.

[Canine Inherited Disorders Database](#)

This is a university based database hosted in Canada and supported by the Canadian Veterinary Medical Association. Information is accessed through a breed search and lists important, common and less common conditions that may affect each breed.

Be aware that this database's last major update appears to be in 2011, so the information may be a little dated.



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Your mentors

Another excellent source of information about breed health concerns is your mentors and other established breeders. A lot of health information relating to individual families within your breed may not be publically available through health testing results.

Breeders and exhibitors who have been involved in your breed for a long time will have information about dogs they have known or have used in their breeding programs over the years.

Sometimes asking some discreet questions may result in you learning specific information about dogs within the pedigrees or families you are planning on breeding.

Your mentors may also be able to assist with information about how you should go about having samples for health testing collected and where to send them.

Your veterinarian

Your veterinarian is another excellent source of information. Your veterinarian will be able to answer specific questions relating to your animals' health and discuss their suitability for breeding.

They will have access to scientific publications and information about specific diseases and will be able to explain the health and welfare consequences of the various diseases as they deal with these on a daily basis.

What types of tests do you need to consider?

Not every health issue or disease has a specific test or screening program. Where there is a test available, you need to understand when and how the test is conducted and what the results will mean for your breeding program.

There are collection and identification protocols that Dogs Australia has outlined to ensure that test results are 'accurate and credible'.

DNA collection

- » *DNA collection is by approved, independent, trained collectors, including veterinarians.*
- » *Owners/breeders cannot collect from their own dogs.*
- » *Approved collectors would be those accepted by State Controlling Bodies or nominated by breed clubs.*

Positive identification

- » *Identification of the dog by microchip or unique (as part of a recognised Australia wide based tattoo system) tattoo is required, it must be verified by the collector at the time of DNA collection and recorded on the form.*

Positive identification at the time of testing is important to prevent mistakes or the deliberate falsification of results. Every health test result should clearly show the individual's microchip number as part of the identifying information, and prior to any sample being collected or test being conducted, the individual's microchip should be scanned.

General veterinary examination and testing

All breeding animals should undergo a thorough veterinary health examination as part of their breeding suitability and health assessment. In fact, it is part of the Dogs Victoria's Code of Practice requirements for breeding animal health management that your breeding animals undergo a veterinary health check at least once each year.

A veterinary health check will involve a full physical examination, along with any other testing that might be indicated. This may include blood, urine or faecal testing to check for disease or changes within the body that might indicate that a health issue exists.



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If you are planning your bitch's first litter, she will need a 'Clearance to Commence Breeding' certificate from your veterinarian to certify that she has reached adequate maturity for breeding and that she has no apparent defects or pathology that would preclude her from breeding.

Dogs Victoria has a template '[Clearance to Commence Breeding](#)' certificate that you can use, or your veterinarian may choose to use their own format.

If she has had litters previously, you may want to discuss her medical history to ensure that any previous conditions will not impact her suitability for future breeding.

Remember:

Although some diseases are caused by external factors such as bacteria, viruses or parasites, many conditions have an underlying genetic, conformation or behavioural component that you might have to consider. Examples of this may be chronic ear disease, skin allergies, food allergies and 'bloat'.

Where your bitch has had an accident or injury, you should consider if there might be a genetic or conformation component that contributed to the injury or whether the damage caused could lead to problems with carrying a litter or whelping a litter of pups even though it has healed.

DNA testing

DNA testing is considered the 'gold standard' in regards to determining an individual's genetic disease status as it does not require any subjective assessment.

DNA testing is now one of the most common testing techniques used. Tests have been developed for many of the significant health issues affecting the various breeds.

Tests are developed by identifying sequences or markers in the DNA code that are linked to a specific trait or disease.

A sample of DNA is taken from the individual being tested and examined for the presence or absence of these sequences or markers. The most common sampling techniques involve taking a cheek swab (collecting cells from the lining of the mouth) or extracting DNA from a sample of blood.

Because an individual's DNA is constant throughout life, DNA tests can be used at a very young age to determine the status of an individual in regards to a trait or disease, and the result will not change over time.

Depending on the disease's mode of inheritance, DNA testing can indicate animals that are 'clear' of the genes for that particular disease or trait, those which may 'carry' the disease or trait (but not show any signs) and those that are 'affected'.

It is important to remember that for many diseases and health issues, the expression of the underlying genetic 'potential' may be linked to other factors, so you need to make sure you understand what the DNA test results mean before making any decisions in relation to an individual's suitability to breed.

Just because an animal is a 'carrier' for a disease, does not mean that they cannot be bred from, especially if they have other attributes that are highly desirable in the breed, or are clear of other health issues.

Being a breeder often involves weighing up a whole host of factors - disease status, temperament, working ability etc.- before selecting which animals should be bred together. If all carriers of a disease are suddenly removed from the population, it is highly likely that other problems will emerge, or the genes for some highly desirable traits will be permanently lost from the gene pool as a consequence.

Breeding of animals that are carriers for a disease but who are exceptional in other ways can be done, but care must be taken to ensure that they are only bred to a partner who is genetically 'clear' of that same disease.

Knowledge of disease status is an important tool in the breeder's decision making process.



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Important!

If you plan to breed a dog or bitch who is 'clear by parentage' for a disease, you should still consider having them tested prior to breeding to confirm this result. Alternatively, you can have the animal's parentage confirmed by DNA profile.

Many breeders over the years have been caught out when they have based entire breeding programs on individuals who later turned out to be carriers of a disease due to test result/sample errors or incorrect parentage.

Screening programs

There are, of course, many traits or diseases that are the result of the interaction of many genes (polygenic) and those where the expression of the disease is directly influenced by other non genetic factors (such as diet or exercise). In this case DNA testing is not helpful.

For traits or diseases with more complex inheritance and expression, health testing may involve 'screening programs' that look for the existence of *actual disease symptoms* in the affected organ or tissue.

The results of these type of tests may change over time and often require reassessment at regular intervals during the animal's life for them to continue to be certified 'clear' of the disease. Others may require the animal to reach a certain age or developmental milestone to be correctly assessed.

Examples of screening programs include the examination of the eye (and surrounding structures) for disease or degenerative changes over time, assessing individuals for the presence of signs or symptoms of heart disease, or the grading of changes to the anatomical structure of the joints and bone of the hips, elbows or spine. It also includes tests such as the respiratory function grading in brachycephalic breeds which looks at actual respiratory function rather than just anatomy.

Important!

*If you are planning to make breeding choices based on the results of screening tests, they should be undertaken by a **specialist veterinarian** using the correct equipment rather than a general practitioner.*

In the case of screening techniques using radiographs (x ray), such as hip, elbow or spinal scoring, your regular veterinarian will be the one to take the radiograph, but a specialist should be the one to read or score it.

Code of Practice requirements

State government requirements

All breeders of dogs and cats in Victoria must abide by the [Code of Practice for the Breeding of Animals with Heritable Defects that Cause Disease](#), which is a mandatory (legally enforceable) Code that forms part of the **Prevention of Cruelty to Animals Act 1986**.

'This Code aims to educate animal breeders how to best minimise or avoid the development of heritable disease in progeny caused by inappropriate selection and mating of animals with heritable (genetic) defects. It also outlines breeding practices that will assist the reduction of the prevalence of the heritable defect in the animal population.'

This Code of Practice gives advice to ALL breeders on preventing heritable defects but is considered **MANDATORY** for those breeders who have breeds affected by the following diseases:

- » Von Willebrand's Disease (VWD)
- » Progressive Retinal Atrophy (PRA)
- » Neuronal Ceroid Lipofuscinosis (NCL)
- » Collie Eye Anomaly (CEA/CH)
- » Hereditary Cataract (HC)



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You can access a copy of the Code via the [Animal Welfare Victoria](#) website, and regardless of your breed, this document provides some excellent information about genetics and selection of breeding animals to prevent disease.

Dogs Australia and Dogs Victoria Codes of Practice

Dogs Australia has a national 'Code of Practice for Hereditary Diseases', which applies to all Dogs Australia members. This Code can be accessed at dogsaustralia.org.au/about-dogs-australia/codes-of-practice

The Dogs Australia Code has been incorporated into the Dogs Victoria Code of Practice for Hereditary Diseases (Regulations 20.3). The most up to date version of the Dogs Victoria Regulations can be accessed at via the [Dogs Victoria](#) website

Mandatory testing for registration of litters of certain breeds

Some breeds have mandatory health testing requirements – called *litter registration limitations* – under the Dogs Australia rules.

Dogs Australia defines a Litter Registration Limitation as:

“..... mandatory requirements that are applied to the sire and dam of a litter of puppies prior to being able to register that litter. The “limitation” is some form of disease screening process that has been voted on and agreed to by the particular breed community, through the input of registered owners and/or breeders, State Breed Clubs and National Breed Councils.”

A list of breeds with litter registration limitations can be found in the [Dogs Australia Regulations Part 6-Section 8](#) and currently affect the following breeds:

Bedlington Terrier	Australian Shepherd
Flat Coated Retriever	German Shepherd Dog
Golden Retriever	Bullmastiff
Labrador Retriever	Rottweiler
Afghan Hound	

Responsibility to the breed

For your chosen breed to remain healthy and viable into the future, all breeders need to be open and honest about health issues they encounter. Breeders need to share information about the health of their animals and report any conditions or diseases they see emerging. This may be hard to do at times, as the identification of a hereditary disease may completely decimate your breeding program. Still, it needs to happen for the betterment and health of the breed as a whole.

The more litters you have, and the longer you are a breeder, the more likely problems will crop up. Sometimes, despite selecting very carefully, doing every test available at the time, and making considered breeding choices, health issues will still occur. It is essential to learn from these events and go back and reconsider the parents and immediate family's breeding suitability.

As a breeder, you should actively seek information about the ongoing health of all of the puppies you produce. Most breeders have a clause in their contracts that insists that any health issues be reported to them by the new owners, even into the animal's senior years. With information, breeders can make informed decisions; without it, breeding is just guesswork.

Breeding is both a science and an art, but you should always have health and welfare at the top of your selection criteria. Considered breeding choices that are informed by proper health testing will ensure that you can capture the very best traits of an individual whilst stepping closer to disease eradication with every generation.