



Heart disease is increasingly common in dogs - probably because their average life expectancy is increasing due to improved veterinary care. Some heart defects, eg hole in the heart, are present from birth (congenital heart defects) but only cause signs as the dog gets older. Other diseases develop later in life as a result of the effects of ageing or damage to the heart. The most common heart diseases in the dog develop as the dog ages and its heart starts to wear out.

### How does the heart work?

The dog's heart, like that of humans, is a muscular pump with four separate chambers. The right side of the heart sends blood to the lungs where it picks up oxygen. The left side of the heart pumps the blood around the body. The four areas of the heart are separated by valves which ensure that blood always flows in the correct direction through the heart.

### What causes heart disease?

Heart disease may affect any area of the heart:

#### *Heart valves*

The valves within the heart may fail to develop properly, eg mitral dysplasia, or may degenerate as a result of ageing (endocardiosis). Specific infections can affect the heart valves (endocarditis). Abnormal valves allow leakage of blood between heart chambers even when they are closed. When valves leak abnormal blood flow can be detected when listening to the heart (a murmur) and on ultrasound.

#### *Heart muscle*

In general terms the heart muscle may be either too thick or too thin. If the muscle is too thin the heart is unable to contract properly and if the muscle is thick the heart cannot relax and therefore does not fill with blood between contractions. In either case the heart is unable to pump sufficient blood out.

#### *Electrical conduction*

Abnormal electrical conduction affects the rate and rhythm of the heart. Electrical abnormalities can be caused by disease outside the heart. If the heart beats too quickly there is not enough time for it to fill properly between beats and so it pumps less blood with each beat. If the heart beats too slowly there are not enough pulses to supply enough blood to the body. Chaotic rhythms occur where contractions of different parts of the heart are not synchronised and so pulse volume is reduced.

#### *Pericardium*

The pericardium is a strong sac that surrounds and supports the heart. Changes to the pericardium usually result in constriction of the heart, preventing it from filling properly between contractions. The right side of the heart (because it has thinner walls) is usually more easily compressed than the left.

Heart disease in older dogs is usually caused by damage to the heart valves or stretching of the heart muscle. Particular breeds of dog are more prone to certain types of heart disease.

### What heart diseases are common?

The two most common types of heart disease in the adult dog are:

#### **Valvular heart disease**

Valvular heart disease is particularly common in Cavalier King Charles Spaniels (CKCS) but can occur in almost any breed. As a dog ages its heart valves may become worn and degenerate and therefore get more and more leaky. Instead of closing properly each time the heart pumps, the valves flop open allowing blood to move backwards as well as forwards through the heart chambers. This results in a reduced blood supply to the body.

#### **Dilated cardiomyopathy**

Dilated cardiomyopathy (DCM) is a form of heart disease most commonly seen in large and giant breeds, particularly Dobermann pinschers, Great Danes and Irish Wolfhounds. Some spaniels are also affected



and it could rarely affect dogs of any breed. The disease causes a stretching of the heart muscle walls so that the heart swells (like a balloon filled with water). The contractions of the heart muscle become very weak so blood is not pumped around the body effectively.

For more information on these forms of heart disease read the specific factsheet on each. In humans, heart disease is the result of damage to the heart muscle caused by blood clots (myocardial infarction) - this causes the signs of a heart attack. However, dogs do not get this kind of heart disease.

### What are the signs of heart disease?

The signs of heart disease are often very similar whatever the cause. Many of the signs of heart disease can be confused with natural ageing changes. Reduced energy and less desire to exercise are common. Dogs with severe heart disease often have poor appetites and may lose weight. If water retention occurs as a result of the heart failure you might not notice that your dog is losing weight. Other common signs of heart failure are panting and coughing due to fluid build up in the lungs - but remember these signs may be seen with many other diseases too. Less commonly, dogs with heart disease may faint or collapse.

### How do vets diagnose heart disease?

When your vet examines your dog he will use a stethoscope to listen to your dog's heart. If heart disease is present, your vet may hear a change in the heart sounds. The heartbeat may be fast (or occasionally slow), irregular or there may be an unusual noise (a murmur).

X-rays and ultrasound scans may also be used. X-rays may show that the heart is enlarged and ultrasound can be used to see whether the heart muscle and valves are working normally. An electrocardiogram (ECG), records the electrical activity that causes the heart muscle to beat and can be used to see if the beat is irregular.

Ask your vet to check a new puppy as soon as you get it and they will listen to its heart to detect any possible congenital heart problems. You may want to return the puppy to the breeder (if you are not already too attached to it) or, if possible, consider early correction of defects before signs of disease develop.

### Can heart disease be treated?

Heart disease does not necessarily mean heart failure. Many dogs with heart disease have no outward signs of illness and are able to lead relatively normal lives without any medication. However, most heart diseases will get worse and once symptoms start, treatment will probably be required for the remainder of your dog's life.

### How is heart disease treated?

In early stages of heart disease there may be no signs and your dog may just need to be checked regularly by your vet. If signs develop these can be treated. However, in most cases heart disease does get worse and treatment will only slow down the rate of disease progression. Such treatment includes:

- Changes to your dog's lifestyle, ie more controlled exercise.
- Drugs to improve the strength of the heart beat or change the heart rate (digoxin, pimobendan or antiarrhythmics).
- Drugs to remove excess fluid retention (ACE inhibitors and diuretics).
- Dietary changes may be recommended by your vet depending on the type of heart disease present.

Some congenital heart defects can be corrected by surgery. If your vet recommends surgery it is well worth considering. If the problem is corrected at an early stage (before any signs develop) it may be that your dog could be cured and never require any further treatment.

### How long will my dog live?

This is an impossible question for your vet to answer. Some animals with heart disease may live normal lives with no symptoms at all. Other dogs do not respond to any treatment and may die quickly. It all depends on the type and severity of the heart disease. Your vet may be able to give you an idea of the likely lifespan of your pet on an individual basis. The most important thing when managing any disease is the quality of life that your dog has. If you are concerned that your dog is feeling unwell, or consider that



the treatment is not helping him, you must contact your vet for further advice.

**If you want any other information on health issues concerning your dog please contact your local Veterinary Surgeon.**