

Canine Heart Disease

What does the heart normally do?

The heart functions as a pump to keep blood moving in a forward direction and deliver oxygen to the body. Blood enters the right side of the heart from the veins in the body. The heart pumps the blood to the lungs where oxygen enters the blood to be transported to the body. The blood then returns to the left side of the heart which pumps it through arteries to the body. This cycle repeats, with the blood always maintaining a *forward flow*.

What types of heart disease do dogs get?

Dogs can be afflicted with various forms of heart disease. Birth defects, while rare, can cause heart disease from a young age. The most common acquired form of heart disease in dogs is a degeneration and thickening of the valves in the heart called mitral or tricuspid valve endocardiosis. *Dilated cardiomyopathy* is a condition noted in certain breeds in which the heart muscle becomes weakened and thin causing severe heart enlargement. Various rhythm disturbances can also be seen. All of these diseases result in decreased heart function and ultimately changes in the forward flow of blood.

What causes heart disease?

Heart disease can be caused by many factors. Congenital and acquired heart disease has been shown to be genetic in many breeds. Dilated cardiomyopathy has been linked to taurine deficiency in the Cocker Spaniel and some other breeds. As stated above, congenital (from birth) heart disease can result from developmental abnormalities. Many dogs, however, develop heart disease for unknown reasons.

What is heart failure?

Heart failure occurs when the heart can no longer maintain adequate forward flow of blood. This can occur on either or both the left (common) and right (uncommon) side of the heart. This causes increases in back-pressure and fluid accumulation in or around the lungs (common) or in the abdomen (uncommon). These changes cause most of the clinical signs we associate with heart disease.

- *Pulmonary edema* is fluid accumulation in the lungs
- *Pleural effusion* is fluid accumulation around the lungs (in the chest)
- *Ascites* is fluid accumulation in the abdomen

What clinical signs does heart disease cause?

Canine Heart Disease

There are often no clinical signs in early heart disease. In most cases, a heart murmur is the first sign of heart disease. Every dog with a heart murmur should have a cardiac evaluation to check for heart disease. As heart disease progresses, other signs may be seen.

Common signs include:

- Labored Breathing
- Cyanosis
- Open-Mouthed Breathing
- Syncope
- Lethargy
- *Cyanosis* is the blue-purple discoloration of the gums and tongue that occurs when an animal in heart failure cannot get adequate oxygen
- *Syncope* or collapse results from decreases in blood pressure due to poor heart function

What laboratory changes does heart disease cause?

Heart disease rarely causes specific lab abnormalities. Despite this, it is still very important to perform labwork to rule out other diseases that may be present.

What testing is recommended for heart disease patients?

In evaluating patients with heart disease, there are many things that need to be considered. Urinalysis, CBC and chemistry are performed to evaluate kidney function and test for other underlying diseases that may be present. A blood test called BNP or NTproBNP can give additional information on heart function, and in some cases offer additional prognostic information. The heart is evaluated with a combination of chest radiographs, echocardiogram, and electrocardiogram (ECG).

Most patients evaluated for heart disease will need the following tests:

- ❖ Chemistry profile
- ❖ Urinalysis
- ❖ Complete Blood Count (CBC)
- ❖ Chest Radiographs
- ❖ ECG
- ❖ Echocardiogram
- *Chest Radiographs* or x-rays are used to evaluate overall heart size and for fluid in or around the lungs.
- *Electrocardiogram or ECG* is a non-invasive way to evaluate the electrical activity of the heart. This allows us to check for arrhythmias and proper electrical conduction through the heart.
- *Echocardiogram* or cardiac ultrasound is a non-invasive test that uses sound waves to create images of the heart. This allows us to check the heart muscle thickness, the heart chamber size, the valves in the heart, and overall heart function.

Canine Heart Disease

- By evaluating all these tests *together*, we can confirm the diagnosis, provide an indication of severity of disease and prognosis, and help develop a treatment and monitoring plan

What treatment options are available for heart disease patients?

There are many medications that can be used in the treatment of heart disease and the individual treatment plan is dependent on the clinical signs, and type and severity of heart disease present.

- *A combination of medications is typically prescribed:*
- *ACE inhibitors* may be used to reduce the risk of heart failure and slow progression of heart disease
- *Diuretics* are used in cases of heart failure to eliminate fluid accumulation in the body
- *Digoxin* and *Pimobendan* may be used to improve heart function and longevity Several anti-arrhythmic medications are available to control unstable heart rhythms
- Other supplements may also be used in certain cases of canine heart disease

What sort of long-term monitoring is recommended for heart disease patients?

General recommendations for dogs with heart disease are highly variable and dependent on the type and severity of disease. Periodic rechecks for bloodwork, x-rays, and ultrasound are often recommended, but the frequency is case specific.

What is the prognosis with canine heart disease?

The prognosis with canine heart disease patients is highly dependent on the type and stage of heart disease present. With appropriate medical therapy many patients will live for years with these diseases, while others may only live for days or weeks after the time of diagnosis. Some congenital defects and unstable heart rhythms may be treated with non-invasive cardiac catheterization techniques that can greatly improve duration and quality of life. Of course, we will strive to maintain the maximum quality of life and longevity of your pet.