



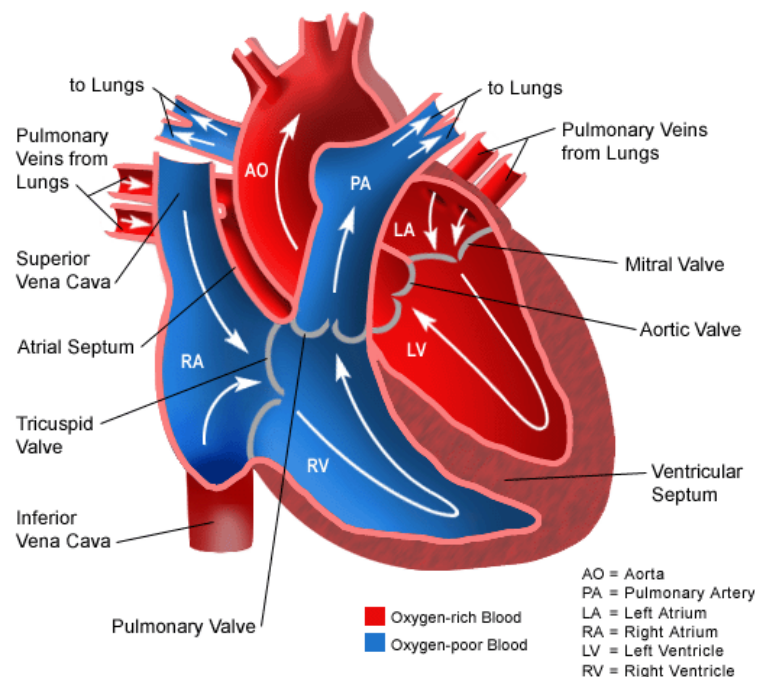
## Degenerative Valve Disease (DVD)

### BRIEFLY, HOW DOES THE HEART WORK?

The heart has four chambers. The upper chambers are called atria. One chamber is called an atrium, and the lower chambers are called ventricles. In addition to the upper and lower chambers, the heart is also considered to have a right and left side.

Blood flows from the body into the right atrium. It is stored there briefly, then pumped into the right ventricle. The right ventricle pumps blood into the lungs, where it receives oxygen. It flows from the lungs into the left atrium; it is held here briefly before going into the left ventricle. The left ventricle contains the largest muscle of the heart so the blood can be pumped out to all parts of the body.

Movement of blood results from electrical impulses that are transmitted from the brain to the heart. The impulses not only direct the heart to beat but also to maintain a steady, regular rhythm.

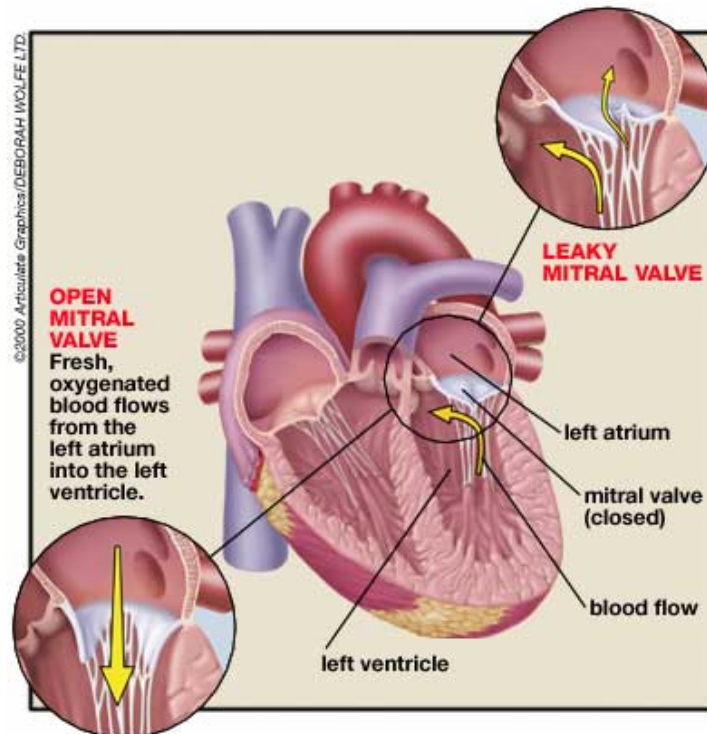




## WHAT IS DEGENERATIVE VALVE DISEASE?

Degenerative valve disease (DVD) refers to the thickening of the cardiac valves.

Each side of the heart has a valve to keep the blood from going backward from the ventricles to the atria. The valve between the left atrium and the left ventricle is called the mitral valve. The valve between the right atrium and the right ventricle is called the tricuspid valve. Because of the very large pressure created when the left ventricle contracts, the mitral valve wears out in many dogs. This wearing out process begins with a small leak that gradually becomes more severe. These valves can also develop a nodular appearance, which can impede the ability to form a tight seal between the atrium and ventricle during the contraction of the heart. As a result a leak occurs and causes the heart's chambers to enlarge.





**CARDIORESPIRATORY  
PET REFERRALS  
VICTORIA**

## **HOW COMMON IS DEGENERATIVE VALVE DISEASE?**

This is the most common cause of heart failure in small dogs. Large breeds have a lower incidence.

## **WHAT ARE THE CONSEQUENCES OF A LEAKING VALVE?**

The earliest sign of a leaking valve is a heart murmur. This is produced by the turbulence created when some of the blood goes backward through the leaking valve and into the atrium. Many dogs develop a murmur from the mitral valve as early as 6 years of age. This problem is especially common in small breeds of dogs; most of them will have a murmur by 10 years of age.

However a murmur doesn't mean that heart failure is imminent. As time goes on, the leak becomes more severe and more and more blood goes backward into the atrium. This results in reduced pumping and efficiency and, eventually, congestive heart failure. From the time a murmur develops, it may be a few months to several years before heart failure occurs.

## **WHAT ARE THE SIGNS OF DEGENERATIVE VALVE DISEASE?**

When the heart is not properly pumping blood, the blood may back up into the lungs. This results in small amounts of fluid leaking out of the capillaries into the air passageways. This fluid collection produces the earliest signs of heart failure. The animal may have an increased breathing rate (especially noticeable after exercise or when sleeping). This may also result in a lack of stamina when exercising.

Signs to look out for may include;

- Increased or laboured respiration at rest or when sleeping (normal respiratory rate when sleeping is normally under 30 breaths per minute – one breath is one rise and fall of the chest)
- Change in heart rate or rhythm (heart murmur)
- Decreased appetite
- Lethargy/weakness or fainting spells
- Distended/bloated abdomen
- Increased coughing





**CARDIORESPIRATORY**  
**PET REFERRALS**  
VICTORIA

### **WHEN WILL HEART FAILURE OCCUR?**

Congestive heart failure begins when the heart is not able to pump blood with adequate oxygen to the tissues. Without adequate oxygen, the body's cells become desperate and trigger a series of responses. Various hormones are released by several organs in an attempt to correct the problem. These hormones conserve fluid in an effort to increase blood volume and the output of oxygenated blood by the heart.

For a variable period, these compensatory responses help the situation. However, increased fluid retention eventually becomes harmful. More and more fluid leaks out of the capillaries, causing difficulty breathing, coughing in severe cases and reduced stamina. Fluid may collect in the abdominal cavity and body tissues. Fluid in the lungs is called pulmonary oedema, fluid below the skin is called peripheral or limb oedema, and fluid in the abdomen is called ascites (dropsy). Congestive heart failure is common cause of these signs.

### **HOW IS DEGENERATIVE VALVE DISEASE DIAGNOSED?**

The best way to diagnose degenerative valve disease is to perform an echocardiogram (heart ultrasound). This gives the most accurate determination of the size of each heart chamber, the thickness of heart walls, a visual on valves and a look at the direction and velocity of blood flow through the chambers.

Occasionally a chest xray and ECG (electrocardiogram) may be recommended. These give us the best look at the lungs and an assessment of the electrical activity of the heart.

The combination of all of these tests gives us our best evaluation of the animal's heart function, however if cost considerations prohibit us performing all of them, two or three will provide much valuable information.





**CARDIORESPIRATORY**  
**PET REFERRALS**  
VICTORIA

## **IS THERE TREATMENT FOR A LEAKY VALVE AND HEART FAILURE?**

If your pet has a sudden onset of heart failure, rapid administration of the proper medications is essential to survival.

There are several drugs that can help to relieve clinical signs of degenerative valve disease. The cardiologist may prescribe diuretics (frusemide) to help reabsorb fluid from the lungs. Other medications that increase survival time once congestive heart failure is present such as pimobendin (Vetmedin) and an ACE-inhibitor may also be recommended. Some patients will need to have fluid physically removed from the abdomen or chest cavity.

It is helpful to keep a record of your pet's sleeping respiratory rate (see sleeping respiratory rate chart) so that your veterinarian can identify any changes in your pet's normal breathing pattern.

## **HOW MUCH LONGER WILL MY PET LIVE?**

There are many factors that must be considered before this question can be answered. The results of the tests are important, and the response that occurs within the first few days is another indicator.

If response does not occur within a few hours to days, the prognosis is not good. However, most animals that stabilize quickly will live for a period of a few months to many months, but the long-term prognosis is not good. It can be difficult to generate an accurate estimate for life-expectancy when an animal has heart disease because many variables impact on survival.

CardioRespiratory Pet Referrals Pty Ltd      ABN: 44 377 192 069  
Richard Woolley BVetMed DipECVIM-CA (Cardiology) MRCVS  
Registered Specialist in Veterinary Cardiology

Web: [www.cprvictoria.com.au](http://www.cprvictoria.com.au)

Email: [vetcardiology@gmail.com](mailto:vetcardiology@gmail.com)

Mobile: 0410 363 620

