



Heart Disease in Cats



Heart disease is a serious medical condition in dogs, cats, and humans. In general terms, heart disease in cats can be divided into two categories: congenital and adult onset.

In congenital disease, the heart defect is present at birth. Signs of congenital disease are often seen at a young age, but in some cases, congenital heart disease can go undetected for many years. Congenital heart disease may be caused by a developmental problem that causes malformation of the heart as the embryo develops. This type of congenital heart disease may affect only a single kitten in the litter. Congenital heart disease may also involve a genetic or hereditary disorder, in which case the problem may develop in more than one kitten in the litter.

The two most common types of congenital heart disease are 1) malformations of a valve or 2) a septal defect in the wall that divides the right and left sides of the heart (a “hole in the heart”). In both circumstances, blood flows abnormally through the defect, causing turbulence. This turbulence causes a heart murmur that is often detected during a routine physical examination of the kitten. The loudness of the murmur reflects the amount of turbulence but is not indicative of the severity of the disease. Not all heart murmurs are associated with heart disease. Some may reflect another disease process such as anemia. Normal cats can have intermittent heart murmurs, often when their heart rate is increased due to stress, and these physiologic murmurs have no impact on their health.

When a young kitten is diagnosed with heart disease, diagnostic testing will help determine the prognosis and whether medical treatment is necessary. This can include X-rays, electrical recording of the heart (ECG), and an ultrasound examination (echocardiography). At this time, few congenital heart abnormalities in the cat can be surgically corrected. If a heart murmur is detected on a routine examination but the cat is not showing signs of problems, careful monitoring is often the best option. The presence of a heart murmur does not necessarily mean that your cat's quality of life or life expectancy will be affected.

There are a few breeds of cats that are predisposed to some types of heart disease, including Maine coons, American and British shorthair, Siamese, and Persian cats.

The most common heart disease that adult cats develop is cardiomyopathy, which is a broad term used to describe disorders of the heart. In cats, the following classes of cardiomyopathy have been described:

- A. *Hypertrophic cardiomyopathy (HCM)*: The heart muscle in the left ventricle (the part of the heart that pumps blood out to the body) becomes thick (hypertrophied), reducing the amount of blood that can enter the ventricle. This decreases the heart's ability to supply blood and oxygen to the body and causes another part of the heart (left atrium) to dilate with the blood that can't flow normally into the stiffened, thickened ventricle.
- B. *Restrictive cardiomyopathy (RCM)*: Scar tissue causes the heart muscles to stiffen, but unlike HCM, there is little or no muscle thickening. The heart's ability to pump blood and oxygen to the body is impaired similarly to HCM.
- C. *Nonspecific or unclassified cardiomyopathy (NCM)*: The heart muscle has changes that cause a decrease in heart function but don't fit into the above categories. This condition could represent a combination of cardiomyopathies or a transition from one type to another.
- D. *Arrhythmogenic right ventricular cardiomyopathy (ARVC)*: The right ventricle (all or part of it) becomes very thin and is often replaced by scar tissue or fatty scar tissue. This results in a reduction of blood moving from the right ventricle into the lungs, backing up blood into the vessels of the abdomen.
- E. *Dilated cardiomyopathy (DCM)*: The heart muscle weakens and thins, losing the ability to pump blood to the body.

Most cats display no clinical signs until the disease is advanced. Unlike humans and dogs, cats rarely cough if they have heart disease. Exercise intolerance occurs but can be difficult to recognize, since cats rarely go for walks or engage in sustained physical activity with their owners. With advancing disease and declining exercise tolerance, cats tend to become more withdrawn, hide under furniture, and sleep more.

The most common signs of heart disease in cats are:

- poor appetite
- weight loss
- lethargy
- increased respiratory rate and effort
- sudden collapse
- sudden hind-leg paralysis accompanied by pain due to thromboembolism (blood clots), which may be referred to as a "saddle thrombus"
- stunted growth (kittens)

*In the long term, cats with any type of cardiomyopathy are at an increased risk of developing congestive heart failure.

Heart disease is often treated with medications to support heart function and treat abnormal heart rhythms. It is essential that the instructions for your cat's heart medication are followed closely. For drugs given more than once daily, doses should be spread out over the day as evenly as possible. Some heart medications can have serious adverse effects if stopped suddenly, so it is important that your cat receives the medication regularly and that prescription refills are requested ahead of time.

Your veterinarian may also recommend regular recheck examinations, laboratory testing, and imaging such as X-rays or echocardiograms. It is important to follow these recommendations to ensure the best management of your cat's heart disease.



Feline Cardiac Medications

Some commonly used medications for cats include: pimobendan (Vetmedin®); A very low dose of aspirin or a medication called clopidogrel (brand name Plavix® in the US) may be used if blood clotting is a problem.

Enalapril (brand names: Enacard®, Vasotec®, Glioten®, Lotrial®, Pres®, Renitec®, Reniten®, Xanef®, Epaned®) is used to treat heart failure, high blood pressure, or proteinuria (protein in the urine). It is also used in the treatment of chronic kidney disease.

- ❖ Works by blocking a substance in the body that causes the blood vessels to tighten. As a result, enalapril relaxes the blood vessels, lowering the blood pressure and increasing the supply of blood and oxygen to the heart.
- ❖ The most common side effects are decreased appetite, stomach upset, lethargy, and incoordination. Hypotension (low blood pressure) can also occur. Signs of low blood pressure include weakness/collapse, other kidney problems, increased drinking/urination, slowed heart rate, and a weak pulse.

Atenolol (brand name: Tenormin®) is a beta-blocker heart medication used to treat certain types of heart disease, high blood pressure, and abnormal heart rhythms in dogs.

- ❖ Beta blocker used to treat hypertension and arrhythmias; slows the heart rate to help it work more efficiently.
- ❖ Lowering the blood pressure lowers the risk of fatal and non-fatal cardiac events, such as strokes and myocardial infarctions.
- ❖ Side effects include: tiredness, diarrhea; low blood pressure, which can cause faintness, weakness, or dizziness.

Furosemide (brand names: Lasix®, Salix®, Frusemide®, Disal®, Uritol®) is a loop diuretic used to treat conditions such as congestive heart failure, lung fluid retention, and certain kidney diseases.

- ❖ It's a proven diuretic—a medication that helps remove excess fluid from the body—and saluretic—a medication excess sodium from the kidneys.
- ❖ By relieving the body of excess fluid and sodium, it helps to relieve inflammation and its unpleasant symptoms.
- ❖ Common side effects can include: dehydration + excessive thirst, with increased urine production; electrolyte imbalances with rapid heart rate, weakness, depression, vomiting, and restlessness.

❖ Most commonly available in tablets, but can be found in liquid forms as well.
****Vetmedin** Currently, it is only approved by the FDA for use in dogs, but it has been shown to be beneficial in cats, and is frequently used 'off label', meaning it's used for something it wasn't originally approved for. In these instances, follow your veterinarian's directions and cautions very carefully as their directions may be significantly different from those on the label.

- ❖ Veterinary inodilator that aids in dilating veins and arteries.
- ❖ It also works to increase cardiac output, which lightens the workload of the heart.
- ❖ Given every 12 hours, the unique dual action of Vetmedin dilates the blood vessels carrying blood to and from the heart—reducing the preload and afterload on the heart—while simultaneously improving contractility of the heart muscle.
- ❖ Pimobendan, Vetmedin's active ingredient, reduces stress on the heart while increasing cardiac output, without raising oxygen or energy consumption.
- ❖ Vetmedin helps dogs engage in the daily activities they enjoy.
- ❖ These chewable tablets are available in four convenient dosing sizes (1.25 mg, 2.5 mg, 5 mg, and 10 mg).