



Heart murmurs are vibrations caused by turbulent blood flow in the heart. Heart murmurs are heard with a stethoscope and are graded by intensity or loudness. Louder heart murmurs are often a bigger concern, but even soft murmurs may be due to serious disease. Accordingly, we should evaluate every heart murmur because it may be associated with a significant illness.

### **Causes of Heart Murmurs in Cats:**

Heart murmurs are often a sign of heart disease or a systemic condition. Heart murmurs can be innocent and have benign causes. If we detect a heart murmur, do not assume your cat has heart disease or that something is seriously wrong. In cats, heart murmurs occur for these reasons:

- Primary heart disease
- Systemic conditions causing secondary heart murmurs
- As benign, physiologic heart murmurs (öphysiologic flow murmursö)

The most common *primary heart disease* of cats is cardiomyopathy. Cardiomyopathy is a disease of the heart muscle that develops (is öacquiredö) in cats after birth. Congenital heart defects, where heart murmurs are present at birth, are uncommon in cats. Acquired primary valve problems and heart infections are rare in cats.

*Systemic conditions* that cause secondary heart murmurs are anemia (decreased red blood cells), hyperthyroidism (excess production of thyroid hormone by the thyroid gland), and high blood pressure. In these cases treatments are directed at the systemic condition. Some cats with hyperthyroidism and secondary heart damage may require treatment with heart medications.

Heart murmurs are classified as *benign, physiologic flow murmurs* when there is no heart pathology or systemic cause present. Many kittens have physiologic flow murmurs that go away with maturity. Older cats and occasionally cats that are excited may have benign, physiologic flow murmurs. These heart murmurs are not a problem and do not require treatment.

### **Grading Heart Murmurs and Other Signs of Heart Disease:**

At The Cat Doctor, we grade the intensity or loudness of heart murmurs on a scale of one to six, six being the loudest. Some murmurs are so intense they produce a vibration that can be felt on the chest (a öpalpable thrillö). While loud heart murmurs are often a bigger concern, not all loud murmurs are due to serious heart pathology or systemic disease. Even soft heart murmurs may be associated with serious disease.

A heart murmur may be the only abnormality found at the time of your cat's examination. A lack of other signs of illness does not rule out a serious heart disease or systemic condition.

Cats with primary heart disease may also have irregular heart rhythms (öcardiac arrhythmiasö) or a more ominous heart sound called a gallop rhythm. A gallop rhythm is heard with the stethoscope as an extra heart sound and strongly suggests the presence of heart disease and impending heart failure. Cats that develop heart failure may exhibit lethargy, weakness, and labored breathing. In some cats blood clots break away from the heart and lodge in arteries where they obstruct blood flow. These clots usually lodge in vessels supplying the rear legs (a ösaddle thrombusö) and cause paralysis of the rear legs. Uncommonly cats die suddenly due to acute, catastrophic cardiac events.

## **The Diagnostic Work Up:**

If your cat has a heart murmur we may recommend a diagnostic work up. The purpose of a work up is to arrive at a diagnosis and prognosis, and to recommend treatment if it is indicated. Diagnostic tests are sometimes performed to screen cats with heart murmurs for anesthesia and surgical risk.

We will choose one or more of the following tests:

- Blood and urine tests
- Blood pressure measurement
- Electrocardiogram (ECG or EKG)
- Chest radiographs
- Cardiac ultrasound (echocardiogram) performed by a veterinary cardiologist

*Cardiac ultrasound is the single most valuable test* we use to rule in or rule out heart disease and to diagnose conditions accurately so we can choose the best treatment. Cardiac ultrasound is the best way to determine whether your cat's heart murmur poses an anesthetic or surgical risk. With cardiac ultrasound the veterinary cardiologist can visualize the heart three dimensionally and see muscle wall thickness, dynamic wall motion, heart chamber size, turbulent blood flow, and even blood clots.

## **Prognosis and Treatment:**

Conditions that result in heart murmurs are more likely to respond well if diagnosed and treated early. A thorough work up by your veterinarian, often including echocardiography, is essential to providing a prognosis and effective treatment.

Most cardiac and systemic diseases associated with heart murmurs are treatable, although the prognosis depends upon the disease and how advanced the disease might be. Cats with cardiomyopathy often respond to heart medications and have an extended quality of life. Many causes of anemia are treatable, as are hyperthyroidism and high blood pressure.