

## **Heart Murmurs in Dogs and Cats**

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*(From Veterinary Partner website)*

### **My Pet Has a Heart Murmur – What Does This Mean?**

A heart murmur is one of several types of abnormal sounds your veterinarian can hear when listening to your pet's heart with a stethoscope. Normally, two distinct sounds are heard when listening to the heart of a normal dog or cat. These are often described as "lub" and "dub." When listening with a stethoscope one hears: Lub-dub...Lub-dub....Lub-dub.

A murmur is an abnormal extra sound, which can sometimes drown out the normal sounds. Murmurs most commonly occur between the "lub" and the "dub" and have a "shooshing" or "whooshing" quality.

### **What Causes a Heart Murmur?**

The short answer to this question is turbulent blood flow. Like the water in a calm river or stream, normally blood flows through the heart in a quiet, smooth manner – what is called laminar flow. However, narrowing, rocks, or other obstacles create rapids in rivers or streams that disrupt this smooth flow, creating turbulence. The same happens with blood flow through the heart. In a river, the turbulent rapids emit sounds much louder and less tranquil than the calmer sections of river. In the heart, we hear this turbulence as a murmur.

Lots of things can cause turbulent flow. The most common murmurs in dogs are associated with leaky valves, which are designed to allow blood to flow between chambers on either side of the heart. In other cases, the turbulence develops because there is a hole in the heart between two chambers or two arteries that are not normally connected. Another cause is a narrowing (stenosis) within a chamber or vessel through which the blood has to squeeze, like water through a pinched hose. Finally, turbulence can be heard when the blood is too thin (anemia) or even when a patient is very excited, causing the heart to pump faster and harder than normal.

### **Are Different Types of Murmurs Associated With Specific Diseases or Conditions?**

Sometimes. Murmurs are caused by different structures inside and outside the heart. Your veterinarian can use various clues about the murmur to try to determine what the likely origin is. Specifically, veterinarians will use the timing of the murmur (when in relation to the "lub" and "dub" of each heartbeat the murmur is heard), the location on the patient's chest where the murmur can be heard, and, sometimes, the "quality" of the murmur. However, in many cases, these clues are insufficient for the veterinarian to make a diagnosis. This is especially the case in cats, where most murmurs are heard near the sternum.

### **What is a Benign or "Innocent" Murmur?**

Some heart murmurs are called benign (or innocent or physiological), meaning there is no apparent heart disease that explains the murmur. These murmurs are often seen in puppies and can occur in cats of any age. They are uncommon in adult dogs. Benign murmurs are usually soft (rather than loud) and can be intermittent. Benign puppy murmurs will generally disappear by 12 to 15 weeks of age. Murmurs associated with anemia or excitement are also considered benign murmurs.

### **What is a Congenital Murmur vs. an Acquired Murmur?**

A congenital murmur is a murmur in a pet that is present from birth or near it. Congenital murmurs are associated with heart defects that the pet was born with. However, sometimes puppies aren't examined by a veterinarian, or a congenital murmur is overlooked in a puppy and the murmur and defect are first detected later in life.

An acquired murmur is a murmur that a pet acquires during their life. These can be benign, but more often (especially in dogs) are associated with developing heart disease.

### **My Pet's Murmur Has a Grade. What Does This Mean?**

Murmur grading is simply your veterinarian's way of describing the loudness of a murmur. Most veterinarians grade murmurs on a scale from 1 to 6. The lower the grade, the quieter the murmur. There are other terms that a veterinarian will use to describe the character of a murmur – this helps communicate to other veterinarians the characteristics of the murmur as certain types of murmurs are more commonly associated with specific heart or valve diseases. The grade or loudness of the murmur is only sometimes related to the severity of the heart abnormality causing it.

Bear in mind that grading is subjective because it is based on how it sounds to the listener. Also, it's hard to tell if an animal has a heart murmur if the pet is excited or anxious because rapid breathing sounds can mimic a murmur.

### **What Should I Do if My Pet Has a Murmur?**

#### ***Dogs***

In many cases, a veterinarian will be confident diagnosing the origin of a murmur in a dog based on the age, breed, medical history, and physical exam findings, including how the murmur sounds and where it is heard loudest on the chest. In some cases, based on these findings and the desires of the patient's owner, no additional testing will be deemed necessary at this time. However, to be certain, it is often best to work with your veterinarian to confirm the origin of the murmur as well as the severity of the condition causing the murmur. This will give you the best idea of what to expect in the future -- the prognosis for your pet. This might include a referral to a veterinary cardiologist or another imaging specialist.

In cases where a pet may be used for breeding, a murmur may indicate the presence of a hereditary defect that could be passed on to progeny. These pets should be thoroughly worked up to rule out congenital heart disease or neutered.

### ***Cats***

The cause of a cat's murmur cannot usually be determined by listening alone. In many cats, benign murmurs can sound exactly like murmurs in a cat with serious heart disease.

In both dogs and cats, your veterinarian may elect to perform chest radiographs (x-rays), an echocardiogram (ultrasound of the heart), or other imaging studies, or to refer your pet to a specialist for these procedures. The tests that are performed depend on the individual case.

In cats, there is a test available called NT-proBNP-it measures an enzyme that is released with damage to the heart muscle. This blood test can be performed at your veterinary clinic, with results obtained in a matter of minutes. If the test is negative (normal), it most likely means that the heart muscle is healthy. If it is positive, it means that there is damage to the heart muscle, and your veterinarian will likely recommend further diagnostics to define the type of murmur, and best treatment options for your cat.

### **How is a Murmur Treated?**

The murmur itself is not treated. Your veterinarian might advise treating the underlying cause of the murmur, depending on the cause, severity, and other circumstances (age, the well-being of the pet, cost of treatment, etc.). Your veterinarian is best suited to discuss specific treatment options with you.

In most cases your veterinarian will want you to monitor for any development of respiratory symptoms, such as coughing, labored breathing, and/or increased respiratory rate at rest. If these symptoms occur you will want to bring this to your vet's attention so a further workup can be initiated. This usually includes a chest x-ray, possibly followed by an echocardiogram performed by a board-certified cardiologist. It is a great idea to start keeping track of your pet's sleeping respiratory rate, as an increase in this is usually the earliest indicator that the heart is starting to have trouble pumping blood into circulation. Try to get in the habit of monitoring this at least weekly. If the sleeping respiratory rate goes above 35 breaths per minute, and/or suddenly seems to be consistently higher than baseline, please let your veterinarian know as soon as possible.

As always, do not hesitate to let your veterinarian know if you have any questions about your pet's heart murmur. It can be distressing to hear your pet has a new heart murmur, but bear in mind that in many cases these murmurs are benign, and even if not, many pets can live quite a long time before requiring any treatment whatsoever. The treatment options available for heart disease are also very effective, and can extend our pets' lifespans significantly.