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## Heart Murmurs

### **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.

Hearing a heart murmur during a routine physical examination will often be the first hint to your veterinarian that your pet has heart disease. Hearing a murmur is only a hint that something may be wrong (a clinical sign), not a final diagnosis. Hearing a murmur is reason to consider more discussion and tests to determine the cause of the murmur (the diagnosis). Knowing the diagnosis and severity of the cause of the murmur allows your veterinarian (or a cardiologist they consult) to provide you with an educated guess (prognosis) regarding how this heart problem may affect your pet in the future.

Hearing a murmur is not a reason to panic. Many dogs and cats with murmurs live normal lives and never need any treatment for heart disease. But the only way to know for certain is to work with your veterinarian to determine the cause and severity of the cause of the murmur.

### **What causes a heart murmur?**

The short answer to this question is "turbulent blood flow." Like the water in a calm river or stream, blood flowing normally flows through the heart with laminar flow – that is, it is smooth and undisturbed. And like a river or stream, narrowing or other causes of more rapid flow will disrupt this smooth laminar flow. 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.

The purpose of each of the valves in the heart (tricuspid, pulmonic, mitral, aortic) is to keep the blood flowing forward, not backward, through the circuit described above (RA->RV-> lung > LA>LV>body). If a valve malfunctions (e.g., it doesn't open or close properly), it can disturb blood flowing through it enough to create turbulence and the result is that your veterinarian will hear a murmur. The most common murmurs in dogs are associated with leaky mitral valves.

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" through, 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.

### **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 versus an acquired murmur?**

A congenital murmur is a murmur in a pet that is present from birth (or near birth). Congenital murmurs are associated with heart defects that the pet was born with. However, some congenital murmurs may be missed in puppies or kittens and only detected later in life.



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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 or valve 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. There are six murmur grades. The lower the grade, the quieter the murmur. However, it is often easiest to simply describe them as "soft," "moderately," or "loud." There are other terms that a vet 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. Usually, only a trained cardiologist can identify a Grade 1 murmur. A Grade 5 or Grade 6 murmur is so strong that it can be felt through the chest wall (like water being sprayed against a sheet of cloth).

### **What should I do if my pet has a murmur?**

#### **Dogs**

In many cases, a veterinarian will be able to determine the likely cause of a murmur in a dog just by listening. In some cases, no additional testing will be deemed necessary. However, to be certain, it is often best to work with your veterinarian to confirm the cause of the murmur as well as the severity of the condition that is causing the murmur. This will give you the best idea of what to expect in the future -- the prognosis for your pet. In other 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.

#### **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.

### **How is a murmur treated?**

The murmur itself is not treated. The underlying cause of the murmur may or may not be treated – this depends on the cause, severity, and other circumstances (age, well-being of the pet, cost of treatment etc). Your veterinarian is best suited to discuss specific treatment options with you