

## Could Your Dog Be at Risk for This Heart Issue?

Learn about dogs' common yet silent heart murmurs and the importance of regular vet visits.

Analysis by Dr. Karen Shaw Becker

### STORY AT-A-GLANCE

- Heart murmurs are fairly common in dogs, can be congenital or acquired, and often aren't noticed until a veterinarian diagnoses the problem during a wellness exam
- A 2015 study of young dogs suggests that physiological heart murmurs may extend beyond specific predisposed breeds and growing dogs, to a larger population of young, healthy adult dogs
- Symptoms of a heart murmur include coughing, a bluish tint to the tongue, loss of appetite, exercise intolerance, and increased respiratory effort
- It's important to partner with both a board-certified veterinary cardiologist and an integrative veterinarian to proactively manage the health of a dog with a heart condition

Heart murmurs are relatively common in dogs, and often there are no signs of a problem until a veterinarian detects the murmur during a wellness checkup.

Heart murmurs can be caused by abnormal blood flow within the heart, usually involving the heart valves. They can also be caused by problems in communication between the left and right sides of the heart.

Murmurs can be congenital (present at birth). They can also be acquired, triggered by disease or the aging process. While puppies can have "innocent" murmurs (temporary murmurs that occur as the body grows), virtually all murmurs in adult dogs indicate structural heart disease.

### What Is a Heart Murmur, Exactly?

Simply put, a heart murmur is the sound of blood flowing the wrong way back into the heart.

A 2015 study by French veterinary researchers looked at how common it is for young dogs to have physiological heart murmurs, which are murmurs not associated with a structural abnormality of the heart. Their findings were published in the *Journal of Small Animal Practice*.<sup>1</sup>

The researchers evaluated 95 healthy dogs between the ages of 1 and 5 years and across 30 different breeds. Of the 95 dogs, 48 were male and 47 were female, and the median age was 32 months.

Each dog's heart was auscultated (listened to with a stethoscope) by at least three different examiners, including a board-certified veterinary internist, a veterinary cardiology resident, and a veterinary internal medicine resident. The examiners did not compare findings.

In a normal, healthy heart, there are only two sounds, a lub and a dub, which should be clearly audible, not muffled or difficult to pick up. The two sounds should have uniform loudness (the 'lub' isn't louder than the 'dub' or vice versa), and a regular rhythm. Each heartbeat has an associated pulse in the blood vessels, which is felt easily in the femoral vein in the back leg.

The 'lub-dub' sound is made by the heart valves closing as blood exits the heart chamber. If a valve doesn't close completely (a leaky valve), it allows blood to flow backwards into the heart. A murmur is the sound of blood flowing in the wrong direction back into the heart due to the valve(s) not forming a super-tight seal. Heart murmurs are graded based on their loudness:

- **Grade I** — A very soft murmur detected only with effort
- **Grade II** — A soft murmur heard clearly by an experienced examiner
- **Grade III** — A moderately loud murmur that is easily detected
- **Grade IV** — A moderately loud murmur without a thrill (vibration)
- **Grade V** — A loud murmur with thrill that is inaudible when the stethoscope is removed from the chest wall
- **Grade VI** — A very loud murmur with thrill that is still audible after the stethoscope is removed from the chest wall

These grades or levels of murmurs don't always distinguish a non-serious murmur from a dangerous one. For example, loud murmurs are heard in both mild and significant heart disease. And soft murmurs are typical in myocardial (heart muscle) failure, also called dilated cardiomyopathy (DCM).

## Heart Murmurs in Dogs May Be More Prevalent Than We Thought

Heart murmurs were picked up in 22 of the 95 dogs, or 23%. All the murmurs were systolic, were primarily over the left heart base, and ranged from Grade I to Grade III. Additional findings:

- Of the 22 murmurs, 10 were detected only by the board-certified veterinary internist
- In 69% of the dogs, all three investigators reported the same findings
- There were no significant differences in sex, age, body weight, or breed between dogs with murmurs and dogs without murmurs
- 11 of the 22 dogs with murmurs had EKG abnormalities, including mild mitral valve regurgitation (leakage of blood backward through the mitral valve each time the left ventricle contracts), subaortic stenosis, and pulmonary valve stenosis (obstruction of blood flow from the right ventricle to the pulmonary artery)

These results indicate a prevalence of physiological heart murmurs in between 6% and 12% (depending on the EKG criteria used) of the 95 dogs in the study, with 27% to 50% of the 22 murmurs considered physiological.

The researchers concluded the presence of physiological heart murmurs may extend beyond specific predisposed breeds and growing dogs to a larger population of young, healthy adult dogs.

## Causes of Heart Murmurs

Murmurs on the right side of the heart can be caused by tricuspid regurgitation or ventricular septal defect (VSD). Tricuspid regurgitation means the heart's tricuspid valve isn't closing correctly, allowing blood to flow backward into the heart.

A ventricular septal defect (VSD) is a hole or holes in the wall separating the left and right ventricles of the heart. Murmurs on the left side of the heart are most often caused by mitral valve prolapse, stenoses of aortic or pulmonary valves, or patent ductus arteriosus (PDA).

Mitral valve prolapse is a problem with the improper closure of the mitral valve separating the upper and lower chambers of the left side of the heart, and is the most common cause of acquired murmurs in adult dogs.

Stenosis of the aortic or pulmonary valves means the valves have narrowed, causing the heart to work harder to pump blood through the smaller openings. Patent ductus arteriosus (PDA) is a condition in which the ductus arteriosus blood vessel fails to close normally, interrupting the normal blood flow between the aorta and pulmonary arteries that carry blood from the heart.

Heart valve lesions cause murmurs. Congenital (from birth) lesions are much more common in young dogs, while acquired lesions are more often seen in adult dogs.

## Symptoms and Diagnosis

Five important signs to watch for if you suspect or know your dog has a heart problem include:

1. Coughing
2. Bluish appearing tongue
3. Loss of appetite
4. Fatigue, weakness, loss of stamina, and decreased exercise endurance
5. Too fast or too slow heart beat; increased respiratory effort, including increased respiratory rate

When your veterinarian discovers evidence of a heart murmur in your dog, he or she will discuss which of the following diagnostic tests are most appropriate.

- **Blood tests** — A CBC (complete blood count) and serum chemistries can aid in detecting problems with major organs like the kidneys and liver, which need to be healthy if heart medications are prescribed. There is also a blood test that measures the amount of stretching the heart muscle is undergoing, called a proBNP blood test.
- **Chest x-rays** — X-rays of your dog's chest can give important information about her heart and lungs. The heart's size, shape and position can be visualized, as can blood vessels and lung patterns.
- **ECG** — An ECG (electrocardiogram) can aid in detection of heart rate and rhythm abnormalities, heart chamber size, and electrical activity in the heart.
- **Cardiac ultrasound** — An ultrasound (also called an echocardiogram) of the heart shows strength of contractions, the size of the chambers of the heart, thickness of heart muscle walls, and heart valve function. It

can also detect heartworms and tumors.

## Treatment Options

We don't actually treat heart murmurs in dogs; however, the underlying cause can sometimes be addressed, depending on a variety of factors including the severity of the murmur, the age and health of the patient, the cost of treatment, and other concerns.

If possible, I recommend having your dog seen by a board-certified veterinary cardiologist who can provide you with more information about the severity of your pet's heart condition.

There are some beneficial drugs that can reduce the workload of the heart and be quite helpful in decreasing myocardial (heart muscle) wear and tear. The downside of these drugs is they don't support the exhausted cardiovascular organ system, which is critical for successful long-term support, in my opinion.

They also don't address the nutritional deficiencies that can contribute to murmurs. I encourage you to contact an integrative veterinarian who can partner with you to manage your dog's overall health, in terms of how the cardiopulmonary system affects other organ systems.

It's important your pet consumes a diet with abundant sources of trace minerals and whole food nutrients including organic selenium, vitamin E, folate, lycopene, zinc and magnesium, which are often missing or deficient in homemade diets and highly processed diets with extended shelf lives.

I recommend that any pet with a heart issue dramatically increase intake of **ubiquinol** (the reduced form of CoQ10) and omega-3 essential fatty acids, especially krill oil. I've seen this protocol do an exceptional job slowing down the progression of murmurs, and minimizing the presence of transient murmurs in many patients. Additional beneficial supplements for heart health can include:

- Amino acids such as taurine, arginine, and acetyl-L-carnitine
- Chinese herbs
- Homeopathic remedies if there are additional symptoms present (shortness of breath, coughing, fluid retention, fatigue with exertion, etc.)
- D-ribose
- Herbs such as Hawthorne berry and cayenne
- Heart glandulars

## Tips to Proactively Protect Your Dog's Heart Health

Ask your veterinarian for the proBNP blood test. This test can give you peace of mind that your dog has no early signs of heart disease. It's a simple blood test with a fast turn-around time that can provide the information you need to proactively manage your dog's heart health.

If you have one of the dog breeds genetically predisposed to heart issues, consider a screening test that identifies the issue early, so you can do something about it. Help your dog maintain a good body weight through regular aerobic exercise.

Feed a high quality, nutritionally balanced, species-specific diet that meets your dog's nutritional requirements for optimal protein (and amino acid) levels, healthy fat, EFA's, and coenzyme Q10, as well as critical micronutrients such as vitamins D and E, calcium, zinc and magnesium, which are often deficient in homemade, unbalanced diets.

Take excellent care of your pet's dental health (bacteria from dirty mouths have been linked to heart valve infections in dogs).

## **Sources and References**

[The Wildest, September 1, 2019](#)

[<sup>1</sup>Journal of Small Animal Practice. 2015 Feb;56\(2\):112-8](#)

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