

What Every Dog Owner Needs to Know About Heart Disease

Veterinarians once thought only older dogs could develop heart murmurs (unless it was present at birth), but now researchers have discovered that they are far more common, even in younger dogs. Because a heart problem can emerge at any time, know the five signs that your pup may be in trouble.

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STORY AT-A-GLANCE

- Heart murmurs are fairly common in dogs, and can be either congenital (present at birth) or acquired
- A 2015 study of young dogs showed that physiological heart murmurs may extend beyond specific predisposed breeds and growing dogs to a larger population of young, healthy adult dogs
- Heart murmur symptoms in dogs include coughing, a bluish tint to the tongue, exercise intolerance, increased respiratory effort, and loss of appetite
- If you're a pet parent and your dog has been diagnosed with a heart condition, it's important to partner with both a board-certified veterinary cardiologist and an integrative veterinarian to proactively manage your canine family member's health

Unfortunately, canine heart murmurs are relatively common, and often dog parents don't realize there's a problem until their veterinarian discovers the murmur during a 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), and they can also be acquired due to 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?

In 2015, French veterinary researchers conducted a study to determine how common it is for young dogs to have physiological heart murmurs, which are murmurs not associated with a structural abnormality of the heart. They published their findings in the *Journal of Small Animal Practice*.¹

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 is leaky, meaning it doesn't close completely, 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 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).

What the Study Revealed

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 hypothesized that 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, Diagnosis and Staging

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.

- **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.
- **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.
- **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.

In 2009 a staging system for canine degenerative valve disease and heart failure was instituted by veterinary cardiologists:²

- Stage A are asymptomatic patients that appear healthy but due to genetic predispositions are at a greater risk of acquiring heart disease (i.e., Dobermans and cavalier King Charles spaniels).
- Stage B1 animals don't show any outward symptoms, but your vet identifies an abnormality on physical exam that prompts further heart diagnostics that yield no heart damage or changes, yet. B2 animals also have no outward symptoms but have structural abnormalities in their hearts.
- Stage C animals have outward symptoms, so therapy should be instituted, and Stage D animals are in overt heart failure, leading to a progressively deteriorating quality of life.³

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 considerations.

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 nutrition and overall health, in terms of how the cardiopulmonary system affects other organ systems.

It's important your pet eats a meat-based, nutritionally complete diet with abundant sources of trace minerals and whole food nutrients including organic selenium, vitamin E, folate, lycopene, zinc and magnesium, which are often deficient in unbalanced homemade diets (which is why you should follow a recipe that comes with a nutritional analysis so you know your pet won't be missing any nutrients).

I recommend that any pet with a heart issue or a genetic predisposition dramatically increase intake of ubiquinol (the reduced form of CoQ10) and omega-3 essential fatty acids (DHA and EPA), especially sustainably sourced 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.

The good news is these supplements are viewed as food for the body and integrative vets love using them in conjunction with cardiac drugs, if needed. 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 muscle stress. It's a simple blood test with a fast turnaround time that can provide some additional information you need to proactively manage your dog's heart health.

If you have a breed genetically predisposed to heart disease, begin nutritional and nutraceutical interventions immediately, and 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 human-grade, nutritionally optimal, and species-specific diet that meets your dog's nutritional requirements for protein (and amino acid) levels, healthy fat, DHA/EPA, and coenzyme Q10. Feeding pet foods with less than 20% carbs (starch) ensures your carnivore is getting enough biologically appropriate amino acids for healthy heart function from the best sources: lean, fresh meat.

If you must feed dry food, do the carb equation to calculate the amount of fillers (corn, wheat, rice, legumes, tapioca, oatmeal, millet, etc.) you are actually feeding.

The FDA has recently ruled there is no correlation between high carb grain free foods and nutritional dilated cardiomyopathy (DCM), but because carbs are used as pet food filler and fillers offset the amount of critical nutrients that can be consumed, minimizing carbs from all sources is still important for long term nutritional health.

And don't forget to take excellent care of your dog's dental health (bacteria from dirty mouths have been linked to heart valve infections in dogs).

Sources and References

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

² [Keene, B.W. et al. Journal of Veterinary Internal Medicine. Volume 33, Issue 3, May/June 2019, Pages 1127-1140](#)

³ [dvm360, November 4, 2021](#)
