

# Veterinary Fact Sheet

## Frequently Asked Questions: Heart Murmurs

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### What is a heart murmur?

A heart murmur is an abnormal heart sound heard when listening to the heart with a stethoscope (auscultation). The sound of the murmur is created by turbulence of the blood flow in the heart. This turbulence can be caused by:

- one or more of the four heart valves are leaking and not closing properly. These heart valves are essential to direct the blood through the heart, lungs and body in the correct direction. Unfortunately, abnormal valves permit blood to leak in the wrong direction (or backwards) when the heart contracts. This abnormal flow creates turbulence which is audible as a murmur.
- a hole in the heart between two of the four chambers, or between two vessels which should not be connected. The blood flow is then abnormal and causes turbulence, audible as a murmur.
- narrowing of vessels which flow to and from the heart (stenosis). This can create turbulence as the blood has to squeeze through a narrowed tube, resulting in an audible murmur.
- Cases of anaemia (low red blood cell numbers or thin blood) can precipitate turbulence and a murmur.
- The blood can flow past structures in the heart and cause them to vibrate. This is not necessarily pathological.

Heart murmurs are graded from 1 to 6 depending on the severity. The lower the number the less severe. A grade 1 murmur is soft and can be difficult to hear and heard intermittently. A grade 2 murmur is heard more consistently but is still quiet. A grade 6 murmur is loud, heard consistently and is easily audible from both sides of the chest.

Although a heart murmur may be caused by a structural abnormality in the heart, it doesn't necessarily mean that the heart is diseased or not working properly.

### What's special about Greyhounds?

Greyhounds are often found to have low grade heart murmurs. This can be a breed related idiosyncrasy which is not necessarily associated with a defect of the heart.

A study found that Greyhounds often have a soft, non-pathological murmur, possibly due to increased aortic velocity. This was not associated with any structural abnormality and did not appear to be of any clinical significance, with males and females equally affected.<sup>1</sup>

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<sup>1</sup> Fabrizio F, Baumwart R, Iazbik MC, Meurs KM, Couto CG. Left basilar systolic murmur in retired racing greyhounds. J Vet Intern Med. 2006 Jan-Feb;20(1):78-82. <https://pubmed.ncbi.nlm.nih.gov/16496926/>

### **When might a murmur be diagnosed?**

Most murmurs are diagnosed in puppyhood. They may be found as an incidental finding at vaccination or surgery. Another reason might be poor performance on the racetrack. Lastly it may be the onset of heart disease and only recently apparent.

### **What are the symptoms of heart murmurs?**

Most greyhounds with low grade heart murmurs live a normal healthy life without any symptoms.

Clinical signs that are associated with a heart murmur include:

- Increased breathing rate and effort
- Exercise intolerance (getting very tired with limited exercise)
- Coughing
- Weight loss
- Increased drinking
- Fainting / collapse

These clinical signs are usually related to congestive heart failure (CHF), which occurs due to reduced cardiac function due to the fault in the heart causing the turbulence and murmur.

A very reliable way to monitor your dog's heart murmur (and if its condition is worsening) is to monitor the resting or sleeping respiratory (breathing) rate (RRR). This involves counting your dog's breaths when they are resting or asleep.

The recording should be done when the animal is asleep in a thermo-neutral environment (i.e., not too cold, not too hot). This should be repeated daily for 2-3 days (to get a baseline value), and then a few times a week, up to daily, depending on the stage of the disease. One breath includes one in and out movement of air.

Normal is less than 30 breaths per minute (bpm). If your dog's RRR is 30 or more seek veterinary attention. Also monitor if your dog's RRR is increasing over time. For example, if in March the RRR was 12 bpm, in April it increased to 16 bpm, and in May it increased to 20 bpm, seek veterinary attention.

### **What tests are often undertaken to investigate a murmur?**

- A cardiac ultrasound
- Chest radiographs (X-ray images)
- ECG (electrocardiogram)

Your dog may be referred to a veterinary cardiologist or internal medicine specialist for specialist diagnosis and opinion on best treatment.

Your dog may not require any or all these tests in diagnosing the severity of the murmur. Low grade murmurs are often monitored if there are no other clinical signs like coughing or shortness of breath.

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

Some murmurs are innocent and do not require any treatment and affected Greyhounds may be able to race without any evidence of reduced cardiac function. However, these should be regularly monitored by your veterinarian to ensure any change in severity is identified, as treatment may be indicated if clinical signs develop.

If the murmur becomes clinical then medications will be used to reduce the pressure on the heart and lungs from the back flow of pressure and its sequelae. These medications allow the dog to live a longer life.

Various medications may be prescribed by your veterinarian including diuretics that shift excess fluid from the system (e.g. frusemide) and positive inotropes that increase the contraction strength of the heart and dilates blood vessels (e.g. pimobendan) to ease blood flow. These can be in the form of tablets or liquids.

These medications are not compatible with an actively racing greyhound due to strict rules surrounding the use of these prohibited substances. However, if medication is required, the greyhound is showing signs of congestive heart disease and has markedly reduced athletic ability and is not a suitable racing proposition anyway and should be retired from racing.

### **Should I breed from a Greyhound with a murmur?**

Unless it is diagnosed as a non-pathological murmur, you should not breed with a Greyhound diagnosed with a heart murmur, particularly if there are any signs of congestive heart failure. The murmur should be worked up and its cause clearly identified, as there is potential to pass the condition onto its puppies.

### **Summary – Take home points:**

- Heart murmurs are graded 1 to 6 (from lowest to highest/worst).
- Some heart murmurs are innocent but require ongoing veterinary monitoring.
- Greyhounds may race be able to race with low grade murmurs without any evidence of reduced cardiac function or athletic performance.
- If a Greyhound develops congestive heart disease, or poor athletic performance or delayed recovery occurs following exercise, they should be retired from racing.
- Sleeping or resting respiratory rate is an excellent way to monitor the changes in the heart's ability to compensate for the murmur and the progression of the disease.
- It is recommended to not breed from Greyhound's with heart murmurs.
- Monitor dogs for breathing issues, exercise intolerance or coughing.
- Work with your veterinarian for monitoring, investigation and medication options.