



Equine Heart Murmurs

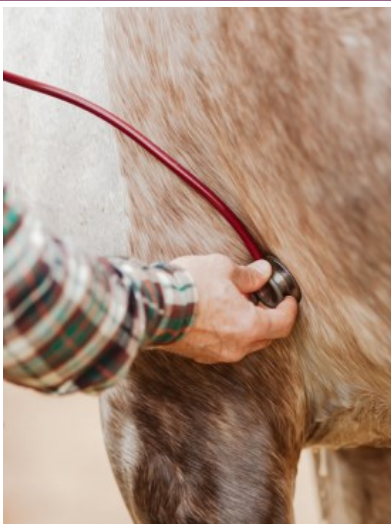
What is a murmur?

Heart murmurs are heart sounds that are detected when listening to the horse's chest with a stethoscope. A normal heart beat will sound like lub__dub__lub__dub. The lub is the first heart sound and corresponds to the top part of the heart (atria) contracting and dub is the second heart sound that corresponds to the bottom part of the heart (ventricles) contracting. If a heart murmur is present then a 'shhh' sound may be heard before or after the first or second heart sound, depending on the type of murmur e.g. lub_shhh_dub__lub_shhh_dub__.



Functional vs Structural murmurs

A functional/physiologic murmur is a heart murmur that is primarily due to physiologic conditions outside the heart e.g. if the horse is dehydrated. The other type of murmur is due to structural defects either from holes in the heart that allows blood to flow between heart chambers or from leaky valves that allow blood to flow backwards in the wrong direction.



Diagnosis

Your vet will characterise the heart murmur based on a number of factors.

Firstly, where the murmur occurs in the cardiac cycle i.e. whether it is systolic (occurs when the heart is contracting between the lub and the dub) or diastolic (occurs when the heart is relaxing after the dub). Secondly, they are then graded 1-6 based on how loud they are:

- Grade 1 - barely audible/just detectable
- Grade 2 - murmur is quieter than the normal heart sounds
- Grade 3 - murmur is as loud/same intensity as the heart sounds
- Grade 4 – murmur is louder than the normal heart sounds
- Grade 5 - as grade 4 and a precordial thrill is present (when can feel vibration of the murmur by placing a hand on the chest wall behind the shoulder)
- Grade 6 - murmur sufficiently loud that it can be heard with the stethoscope raised just off the chest surface

Once these factors have been established the murmurs can be further characterised based on how they sound e.g. musical, how long they last (i.e. are they just heard between the heart sounds as in a holosystolic murmur or is the murmur also heard over the heart sounds as in a pansystolic murmur) and the area at which the murmur is heard the loudest which is known as the point of maximal intensity (PMI).



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What next?

Once a murmur has been identified a diagnosis can often be made based on the above characteristics, alongside the age and any other factors. Occasionally further investigations, including stress testing and an ultrasound of the heart, may be warranted. These would be recommended to help confirm the diagnosis and also to determine if the murmur has caused any secondary enlargement of the heart chambers which could potentially lead to other problems. In general murmurs are common. Low grade murmurs are generally not a concern and most murmurs will progress slowly. Horses can remain active despite a murmur (depending on the grade) as many cardiac problems are not significant. Any significant cardiac problem will generally result in poor performance but the significance of any problem will be increased in the horses that are working the hardest e.g. racehorses/eventers.

Examples of common murmurs

- Low grade murmurs (grade 1-3) are relatively common in older horses but they rarely represent a significant health issue
- Aortic insufficiency (leakage of blood from the aorta back into the heart) is the most common acquired murmur (i.e. murmur that has developed with age)
- Mitral or Tricuspid regurgitation is when there is leakage of the valves allowing blood to flow from the ventricles back into the atria. This can lead to widening of the top part of the heart which can predispose the heart to an arrhythmia known as atrial fibrillation
- Endocarditis (infection of the heart valves) can develop in very sick horses
- Ventricular septal defects are an example of a congenital defect where there is a defect/hole in the septum between the bottom chambers of the heart

Can a horse still be ridden with a heart murmur?

One of the major concerns once a murmur is detected is that of rider safety. In general, if the murmur is localised, lower than grade 3 and there are no signs of exercise intolerance or raised resting heart rate, then continued use can be justified provided the intensity of exercise is not increased.

If there is a raised resting heart rate or the murmur is a grade 4-6 then it is advisable not to ride until further investigations and an ultrasound have been performed. If there are signs of congestive heart failure, then horses should not be ridden.

