



Always consult with a veterinarian that you feel comfortable with before diagnosing or treating any disease on your own. This information is for reference only.

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## Aortic Stenosis

### Issue Description

*Aortic valve stenosis (AS) is a valvular heart disease caused by the incomplete opening of the aortic valve.*

*The aortic valve controls the direction of blood flow from the left ventricle to the aorta. When in good working order, the aortic valve does not impede the flow of blood between these two spaces. Under some circumstances, the aortic valve becomes narrower than normal, impeding the flow of blood. This is known as aortic valve stenosis, or aortic stenosis, often abbreviated as AS.*

### Other Names

AS

### Causes

In the mildest form, the condition is undetectable and will not cause any problems for the dog. However the defect may still be passed on to offspring. The challenge for breeders and veterinarians is to identify affected dogs with very mild or no clinical signs of the disorder.

### Symptoms

Dogs with mild stenosis will generally show no clinical effects and have a normal life expectancy. With moderate to severe stenosis, signs will be variable. Because of the narrowing in the aorta as the blood leaves the left ventricle, your dog's heart must work harder to pump an adequate volume of blood to the rest of the body. Depending on the degree of obstruction, your dog's heart may be able to compensate at rest but not keep up with the body's demands during exercise. Thus you may see reduced exercise tolerance - your dog just seems to run out of steam - or fainting due to inadequate blood supply to the brain.

In response to the obstruction to blood flow, the heart muscle becomes thicker over time (left ventricular hypertrophy). As the condition progresses, your dog's heart becomes less able to compensate and you and your veterinarian may see signs associated with left-sided heart failure such as tiring on exercise, difficulty in breathing, coughing, and/or poor growth. Changes in the heart muscle can also lead to abnormal heart rhythms (cardiac arrhythmias) and sudden death.

### Diagnosis

In young animals (less than 6 months of age) there may be no clinical signs. Thus the first indication that your dog may have a problem may come when your veterinarian hears a heart murmur during physical examination. Some low-grade murmurs are "innocent" and disappear by 6 months of age, but if the murmur is significant, your veterinarian will suggest a diagnostic workup to determine the cause. He or she will listen very carefully to your dog's heart to determine the point of maximal intensity of the murmur and when the murmur occurs during the cardiac cycle. Other diagnostic aids include chest x-rays, an electrocardiogram (ECG) and/or ultrasonography if available. To determine the extent of the narrowing, the pressure gradient across the aortic valve (between the left ventricle and the aorta) can be measured using special procedures for which your veterinarian can refer your dog to a specialist.

### Treatment

In dogs with mild aortic stenosis, there is no special treatment required. The dog should not be used for breeding and littermates should be carefully screened. Your veterinarian may suggest antibiotics in certain circumstances as a precaution against infection of the abnormal valve tissue.

With moderate to severe stenosis, the dog's exercise should be restricted. Beta-blocking drugs may be prescribed by your veterinarian to try to minimize the effects of left ventricular hypertrophy. Your veterinarian will recommend other therapy if required to manage congestive heart failure. Medical management for congestive heart failure is similar no matter what the cause, and consists of medications to support the heart muscle and decrease the work load of the heart, together with dietary recommendations.

Various surgeries have been attempted to alleviate the obstruction with limited success. The surgery itself carries a high risk, and there is little, if any, increase in survival rates compared with dogs whose condition is managed medically.

## **Prognosis**

Understand your dog's physical restraints. A dog with aortic stenosis may need to reduce activity to protect from heart failure. Ask your doctor what a safe level of exercise is for your dog. Make sure that anyone caring for the dog knows of the condition and reduced activity requirement.

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