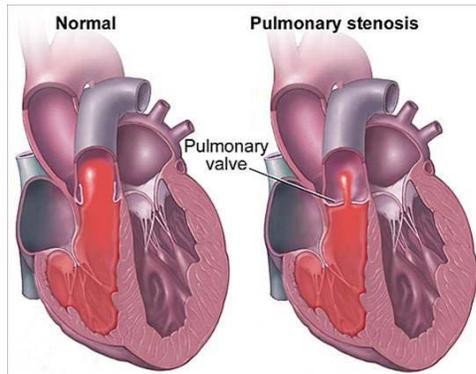




Pulmonic Stenosis in Dogs



Understanding pulmonic stenosis (PS)

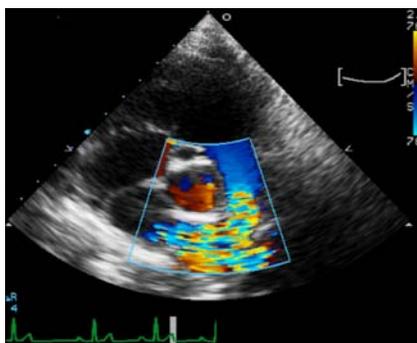
Pulmonic stenosis in dogs is a congenital disease in which the leaflets of the pulmonic valve (between the right ventricle and pulmonary artery) are either fused together or dysplastic (abnormally thick). This creates an obstruction to blood flow, which increases the workload of the right ventricle and reduces blood flow to the lungs. Pulmonic stenosis is more common in certain breeds of dogs, in particular:

- *Airedale Terrier*
- *Beagle*
- *Boykin Spaniel*
- *Boxer*
- *Chihuahua*
- *Cocker Spaniel*
- *English Bulldog*
- *Bull Mastiff*
- *Samoyed*
- *Schnauzer*
- *West Highland White Terrier*



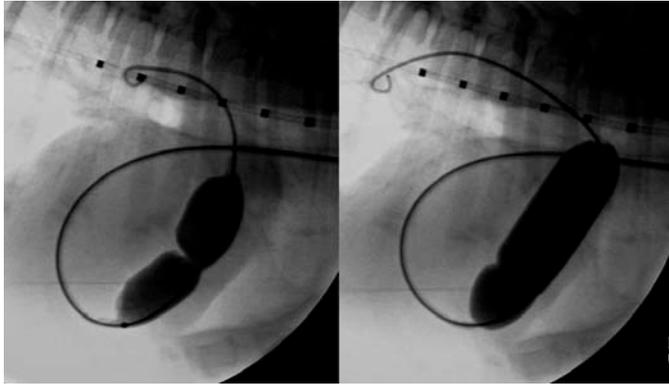
Consequences of pulmonic stenosis

Decreased blood flow to the lungs may manifest as exercise intolerance or difficulty breathing. Thickening of the right ventricle, results in decreased ability of the right ventricle to relax and fill. These processes make the heart muscle stiff and prone to significant arrhythmias (*abnormal heart rhythms*). Ventricular arrhythmias can lead to exercise intolerance, syncope (fainting), or sudden death. Later in life, the stiff ventricle may lead to circulatory congestion and leakage of fluid into the abdomen (*ascites*), a syndrome known as *congestive heart failure (CHF)*. For more information see our educational brochure *Heart disease and congestive heart failure*.



Diagnosis

Detection of pulmonic stenosis most commonly occurs following auscultation of a loud heart murmur at the left heart base on physical examination in a puppy or young dog. Echocardiography (cardiac ultrasound) by a veterinary cardiologist is required to confirm the diagnosis and characterize the severity of the disease.



Treatment

Dogs with milder forms of pulmonic stenosis often remain asymptomatic or have only mild exercise intolerance, thus treatment is generally only considered for dogs with severe PS. The primary method of treatment for severe pulmonic stenosis is *balloon valvuloplasty*. Balloon valvuloplasty is a

minimally invasive surgical procedure whereby a long, balloon-tipped catheter is advanced into the heart via a peripheral vein and inflated at the level of the pulmonic valve to stretch or break open the stenotic leaflets. The success of the procedure is variable but in most cases a significant reduction in the degree of stenosis and/or alleviation of clinical signs can be achieved.

Medical management of severe pulmonic stenosis is focused on improving the heart's ability to relax and fill, as well as reducing the risk of arrhythmias. This is achieved with medications such as beta-blockers (eg. atenolol).

Should I restrict my dog's activity or exercise if he/she has severe pulmonic stenosis?

Some degree of restriction is likely to benefit your dog by preventing overexertion and reducing the risk of collapse episodes. At the same time, your dog should enjoy life with you and your family. We recommend avoiding intense, lengthy activity/play periods and activity on hot days, while monitoring your dog's tolerance of such activity and adjusting accordingly if he/she does not seem to tolerate them.

Prognosis

Dogs with milder forms of pulmonic stenosis often have minimal clinical signs. Dogs with severe PS carry a more guarded prognosis if left untreated. Many will suffer from exercise intolerance or fainting episodes, and a significant number will have fatal collapse episodes or right-sided congestive heart failure. Treatment with balloon valvuloplasty is often successful at reducing clinical signs and improving quality of life and survival, particularly if performed when the dog is young.