

## Heart murmurs in puppies

Heart murmurs occur when there is turbulent flow of blood through the heart. This can occur when valves do not close correctly, and there is backflow of blood as the heart contracts (tricuspid valve dysplasia, mitral valve dysplasia, etc). It can also occur when there are extra holes between chambers of the heart (such as a PDA, PFO, or VSD). Sometimes an abnormal opening to the aorta or pulmonary artery can cause turbulent flow (subaortic stenosis, pulmonary stenosis). Sometimes a “large” hole will cause less turbulence (and maybe no heart murmur), and a “small” hole will cause more turbulence (and a louder heart murmur). Sometimes a puppy may not have a murmur, but with age it becomes apparent (which can explain why a murmur is “missed” on one checkup and found on another checkup).

In many cases, we can guess at the cause of a murmur based on the age and breed of the dog, the location that a murmur is loudest, the type of murmur, and the shape of the heart on radiographs, but the only way to have a definitive diagnosis is through an echocardiogram (ultrasound) of the heart.

Heart murmurs are graded on a 1-6 scale, with 1 being the mildest and 6 being the most severe. The grading system is more or less on how loud the murmur is and where it can be heard (e.g. one side, both sides, without a stethoscope).

Puppies DO occasionally have physiologic murmurs. Puppies tend to be slightly anemic (normal for puppies), and that “thin” blood can be more likely to have turbulence for benign reasons. Physiologic murmurs are going to be grade 1 or 2 out of 6. A grade 4 or 5 murmur is not benign. Physiologic murmurs may be present at 8 weeks and go away in a month or two or three.

Somewhere around 15-20% of puppies will have a physiologic murmur when a cardiologist listens to them. On the general practice side, when there’s a room of yipping puppies, multiple owners talking, techs vaccinating puppies, etc – we aren’t going to hear those grade 1 and 2 heart murmurs. We’re still going to hear a significant 4 or 5 or 6 murmur, if it happens to be present that day.

Now that the basics have been covered...

All puppies should have a veterinary exam before they go to their new homes. If your breeder doesn’t do that, find a new breeder or request the puppy go in for an exam (at the breeder’s expense). Veterinary exams are a normal cost of breeding dogs. If you are getting a puppy from a rescue, it should still have a veterinary exam before going to the new home. If you pick a puppy out of a free box outside Walmart, that’s all on you. I don’t recommend it.

If you are looking at a puppy and the breeder says it has a heart murmur – Full Stop. It needs an echo before you take the puppy. If a general practice vet found the heart murmur in that room of barking puppies and chaos, it's loud. Even if they call it grade 2, it's probably higher than that. The puppy needs to go to a cardiologist and it needs an echocardiogram to make sure it's a physiologic murmur. AND, the breeder needs to schedule that echo and pay for it.

To minimize the risk of a puppy with a heart condition, if you buy from a breeder, make sure parents have all OFA clearances, including cardiac auscultation or echo if required for the breed.

If you are a breeder and one of your puppies has a heart murmur – see above, it needs an echo. Echocardiograms aren't cheap. I breed too. We have to take responsibility for what we produce. It's also a LOT easier to place a puppy on full disclosure with a specific known problem, than to refund the buyer and take the puppy back after the buyer figures out exactly what is wrong with it.

If you bought a puppy and your veterinarian says it has a grade 1-2 murmur that was not found when it had that puppy exam, you might wait 4 weeks, recheck, and if still present – schedule that echo so you can plan for the future.

If you bought a puppy and it has a grade 3-6 murmur that was not found when it had that puppy exam, it probably isn't a benign murmur. Schedule an echo so you can plan what to do for the puppy's future.

If you bought a puppy knowing it had a murmur and there is no echocardiogram report..... 10/10 do not recommend that decision, that's totally on you.

Some problems are surgical, some are medical. It isn't possible to know which a puppy needs based on the grade of murmur. You need an echocardiogram with a cardiologist to determine that.

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