

## Stella's Story



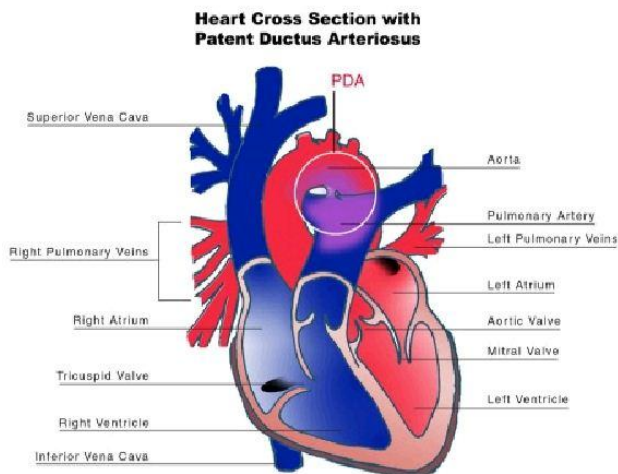
Stella, a 3+ year old Golden Retriever mix, came to me, in foster care for Golden Retriever Rescue of El Paso, in late October, 2010, with a history of leg weakness. She was a little shy at first but quickly warmed up to my Australian Shepherd, Cindy, and her new home.

I first observed the condition that causes her to intermittently collapse in her rear limbs after exercise or excitement on her first morning with me. When she collapsed, she gradually lost muscle function in her rear legs, which caused her tail to drop and resulted in her sitting down and being unable to move for a few minutes. She was always able to resume normal walking after a short rest. We videotaped her and we sought help to determine her diagnosis and explore treatment options.

Veterinary specialists in orthopedics and neurology consulted on her condition. The most obvious diagnosis was a neuromuscular condition affecting her rear leg muscles. However, in the months that we worked through all the possible diagnoses, all of her exams, radiographs, lab tests for metabolic and neuromuscular conditions and even a rear limb muscle biopsy were normal.

She then saw a veterinary cardiology specialist who was able to diagnose her condition with an echocardiogram. We now know that she has a congenital heart and lung condition. Her diagnosis includes: (1) a reverse [patent ductus arteriosus](#), ([PDA](#)) (relatively uncommon with blood flow from the right side of the heart to the left side of the heart) and (2) [pulmonary arterial hypertension](#) (PAH or PH).

This condition causes deoxygenated blood to skip the lungs and flow directly into her general circulation. Her echocardiogram shows right ventricular hypertrophy, or enlargement of the right side of her heart, which has resulted from her heart working very hard against the increased pressure in her lungs. In fact, the pressure in the right side of her heart has been so high that it pushes some blood backwards through the tricuspid valve with every heart beat. [\[OB\]](#)



[A quick anatomy and physiology review:](#) The right atrium receives deoxygenated blood from the venous circulation (superior vena cava) and normally sends the blood through the tricuspid valve to the right ventricle then out to the lungs through the pulmonary artery. The lungs send the oxygenated blood to the left side of the heart through the pulmonary veins and then out to the circulation through the aorta. In Stella's case, an insufficient volume of blood passes through the

lungs due to increased resistance. Instead, her deoxygenated blood returns to the aorta through the PDA, and fails to provide enough oxygen to meet her needs.



Her legs became weak due to insufficient oxygen reaching her rear limb muscles. The symptoms that we saw were when she was unable to pump sufficient volumes of oxygenated blood to meet the increased demands of exercise and excitement. This condition largely affects her rear legs because the blood vessels that go to the front legs and brain are able to deliver the small volume of oxygenated blood that is able to pass through her lungs.

Her rear legs are receiving deoxygenated blood that passes through the PDA, through a blood vessel that usually closes at birth, from the pulmonary artery to the aorta. Her type of PDA (with the shunting of blood from the pulmonary artery to the aorta) is not surgically correctible, as closing this vessel would create heart failure and certain death. Although we don't know too much about her early life, it is likely that she was born with increased resistance in the blood vessels in her lungs and has had this condition all of her life.

However, there has now been a remarkable change in her status. The week before we went to a cardiology specialist, Stella's rear legs collapsed as many as 4 or 5 times per day with associated shortness of breath while she rested for a few minutes before she could resume activity. I was very worried about her condition which seemed to be getting worse with more frequent collapses.

The good news is that there is a medication that can help dogs (and actually people as well) with this condition. She was prescribed the medication *Sildenafil* to decrease vascular resistance and increase blood flow through the lungs. This enables more oxygenated blood to enter her circulation. Since she started this medication, she has greater endurance and is no longer as weak or collapsing as she once did.

She has been a different girl since she started on this medication and her blood pressure readings show that she is now getting a larger volume of blood through the lungs and into her general circulation. For the first time since meeting Stella, I am encouraged that this will help this sweet girl. Here she is talking with my Australian Shepherd, Cindy.



Like many dogs with chronic diseases, it is likely that she will need to remain on this medication long-term, as there is no cure for this condition. A compounding pharmacy in Arizona provides a relatively low cost option to provide this medication to dogs. Her lifespan could be shorter than normal, but many dogs with this condition are doing very well on the same medication.



Even though her condition has improved on medication, she will need to live a comfortable lifestyle with no strenuous exercise and minimal stress. She needs to have a home where she can hang out and relax with people who have a similar activity level. She is extremely devoted to her human friends and takes very good care of them, with lots of love and attention and a steady presence close by. She loves to ride in the car and sit out in the sun. She delights in playing with plush toys, especially those with squeakers and talking toys. She is truly a sweetheart and I hope that someone who reads this will be touched to help her to find her perfect home.

*September, 2011*