



Pulmonary Hypertension

What is Pulmonary Hypertension?

- Pulmonary Hypertension (PH) means that there is an abnormally increased pressure in the blood vessels of the lungs. PH should not be confused with systemic hypertension.
- Commonly, the development of PH is a result of another underlying disease such as heartworm disease, chronic inflammatory airway/lung disease, blood clots, left-sided heart failure or congenital abnormalities of the blood vessels of the lungs. However, PH can also occur for no identifiable reason.
- Pulmonary hypertension can lead to right heart strain, enlargement of the right heart and possible right sided heart failure (fluid build-up in the abdominal)

How is Pulmonary Hypertension diagnosed?

- Diagnosis is reached through a combination of history, physical examination, and heart imaging, including a chest x-ray and an ultrasound of the heart, also known as an echocardiogram.
- Common symptoms of PH include difficulty breathing, coughing, exercise intolerance, lethargy, fluid build-up in the abdomen, and fainting.

Is Pulmonary Hypertension treatable?

- Yes, pulmonary hypertension is treatable in most dogs and cats.
- The treatment for PH includes medications that lower the blood pressure in the lungs, as well as treatment for possible underlying conditions such as heartworm disease, inflammatory lung disease or blood clots.
- Sildenafil is the most commonly used medication to treat PH. Additional medications may also be used to manage congestive heart failure, thromboembolic, heartworm or respiratory disease.

How can I tell how my pet is doing at home?

- Please monitor your pet for signs of heart and respiratory disease, including difficulty breathing or rapid breathing while resting, coughing, swelling of the abdomen and fainting.
- We recommend monitoring the respiratory rate by counting the number of breaths taken in 15 seconds (in and out = 1 breath), and multiply that number by 4 to get a "breaths per minute". A normal respiratory rate is less than 30 breaths per minute when sleeping soundly or less than 40 breaths per minute when awake and resting. There is a free iPhone app called "Cardalis" that can help you track trends in respiratory rates over time.

- If the sleeping respiratory rate is elevated (particularly if this is persistent or if there has been a rising trend in the prior few days) or other previously mentioned symptoms are seen, please call NCSU, your regular veterinarian, or a local emergency clinic for further advice.

What is the prognosis for Pulmonary Hypertension?

- Prognosis for PH is dependent on the underlying cause. In some cases, such as heartworm disease or congenital cardiovascular shunts, treatment for the underlying cause can resolve the pulmonary hypertension completely.
- Your pet's cardiologist will discuss a full prognosis based upon your pet's conditions.
- Close monitoring and communication with your veterinary team will allow your pet to have the fullest life possible.



Chest radiograph for a dog with severe pulmonary hypertension secondary to heartworm disease.