Pulmonary Circulation

Anatomy

1. Describe the anatomy of the pulmonary circulation.
2. How does the pulmonary circulation differ from the systemic circulation?

Pressures

1. What are the pressures in the pulmonary circulation (see Figure 37.1)?
2. How do the pressures differ in the pulmonary and systemic circulations?
3. What are the effects of respiration on pressures in the pulmonary circulation?
4. How is pulmonary wedge pressure determined?

Pulmonary blood volume

1. What is the difference between central blood volume and pulmonary blood volume?
2. What are some of the causes of an increase in pulmonary blood volume?

Pulmonary blood flow

1. What are some of the characteristics of phasic pulmonary blood flow?
2. Describe the sheet flow concept in the lung.
3. What are the determinants of FVR and how does it changes from rest to exercise and across lung volumes?
4. What effect does hydrostatic pressure have on capillary flow?
5. What is the transit time for blood in the pulmonary capillaries?
6. What are the hydrostatic and osmotic pressures across the capillary membrane?

Pulmonary edema

1. How is pulmonary edema prevented?
2. What are some of the causes of pulmonary edema?

Regulation of vasomotor tone

1. What are the species differences in vasomotion in the pulmonary circulation?
2. Describe the causes of pulmonary arterial vasomotion.
3. Explain the concept of autoregulation.
4. What are some of the vasoactive substances that are synthesized, stored, or activated by cells in the lung?

Pulmonary hypertension

1. What are the factors involved in the setting and maintenance of pulmonary blood pressure?
2. How do the blood vessels in the lungs respond to high altitude and hypoxia?
3. Describe brisket disease. What species is primarily affected?
4. What is emphysema in horses?
5. Describe heartworm disease in dogs.