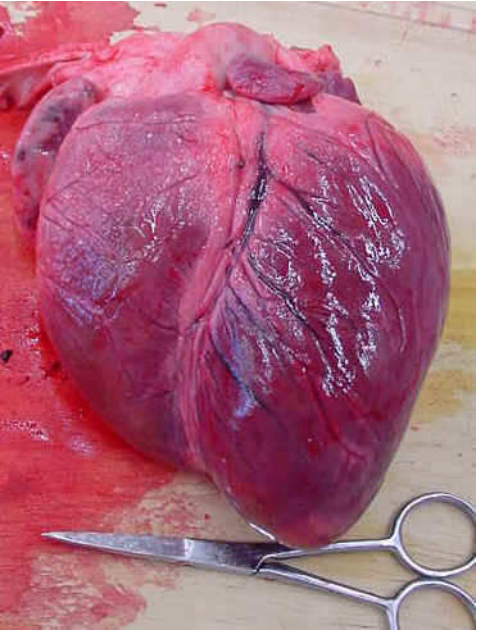



Objective: To study the anatomy of the heart and to relate the structures to their functions.

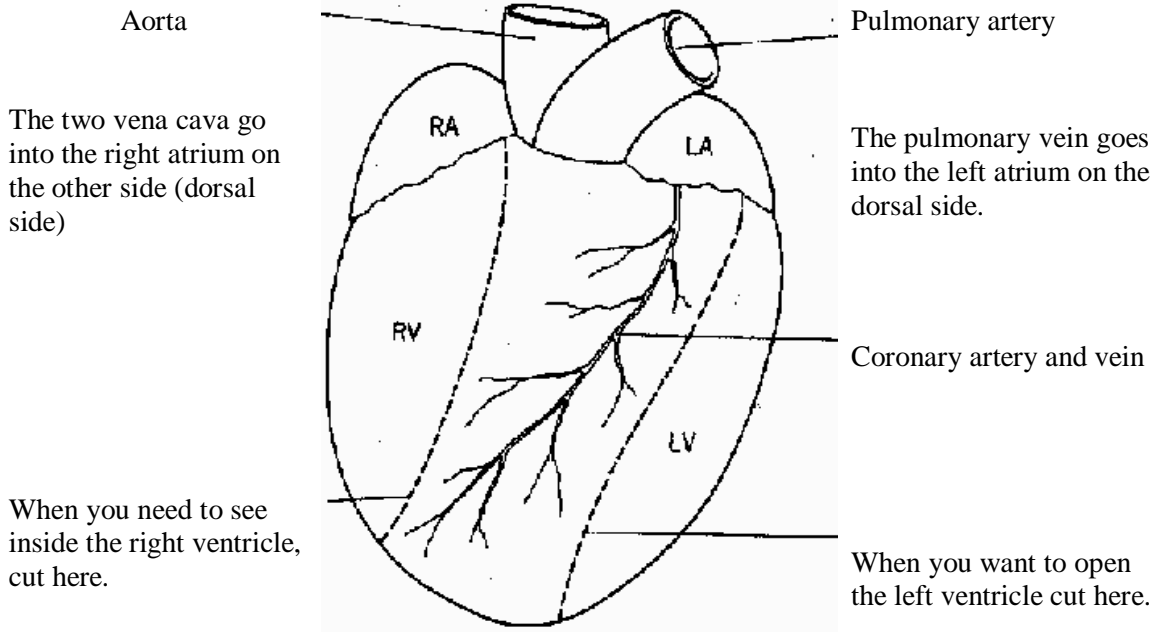
 <p>Ventral side of sheep's heart</p>	<p><u>Preliminary Discussion Questions</u></p> <ol style="list-style-type: none">1) What is the heart's surface like? How does it stop the heart from becoming sore as it beats?2) How does the heart muscle itself receive oxygen for respiration?3) Where is the muscle of the heart strongest, how can you tell?4) Which of the blood vessels needs to be the strongest and largest?5) How does the heart prevent blood flowing in the wrong direction?
--	---

Procedure: You will be given a pig's heart, a dissection tray, and dissecting tools. First, work out which is the dorsal (back) and ventral (front) side of the heart. The ventral side is the most convex (rounded). The thick walled arteries come from this side too.

Look for the trachea and the esophagus. Using the scalpel and scissors, remove the esophagus and trachea from the heart.

<p><u>Esophagus.</u></p> <p>Notice the thick layer of muscle used for peristalsis.</p>		<p><u>Trachea.</u></p> <p>Notice the cartilage thickening to stop the trachea from collapsing like a whoopy cushion.</p>
---	---	---

Identify the parts of the heart shown in the diagram below: The side shown in this diagram is the ventral side (rounded side). Don't cut it yet.



Identify the arteries and veins, which come out of the heart. Measure the diameter of the arteries and the thickness of the walls. Describe what the arteries look like? (color, texture, etc)

Look carefully at the surface of the heart. Describe the pericardium membrane? Why is it shiny and slippery?

Find any coronary arteries or veins. Where are they found? What is their function? _____

Cut open the **left ventricle** following the lines on the diagram. Can you see the flaps of the bicuspid valve? Draw a sketch of one valve with the chordae tendineae.

Cut the aorta leaving about 3cm above the heart. Stick your probe into the Aorta from the top of the heart. Find the structures that might stop the blood from flowing backwards. Why are they called "semi-lunar valves"?

Cut open the right ventricle by following the lines on the diagram. Describe how this is different from the left ventricle in terms of volume and muscle thickness. Measure the thickness of the muscle in each ventricle.

Cut into the atria and measure the muscle thickness. Is the muscle wall thicker or thinner than the ventricles? Explain why this is the case.

What can you say about the size (volume) of each of the chambers? Are they different sizes, which is the largest?

Checklist: Check off all structures you identify and label those that can be seen in the pictures below.

- | | | |
|---|---|--|
| <input type="checkbox"/> left side of heart | <input type="checkbox"/> right atrium/auricle | <input type="checkbox"/> bicuspid valve |
| <input type="checkbox"/> right side | <input type="checkbox"/> left atrium/auricle | <input type="checkbox"/> chordae tendinae |
| <input type="checkbox"/> dorsal side | <input type="checkbox"/> aorta | <input type="checkbox"/> aortic semilunar valve |
| <input type="checkbox"/> ventral side | <input type="checkbox"/> pulmonary trunk (arteries) | <input type="checkbox"/> pulmonary semilunar valve |
| <input type="checkbox"/> superior side | <input type="checkbox"/> pulmonary veins | <input type="checkbox"/> Interventricular septum |
| <input type="checkbox"/> inferior side | <input type="checkbox"/> anterior/superior vena cava | |
| <input type="checkbox"/> apex | <input type="checkbox"/> posterior/inferior vena cava | |
| <input type="checkbox"/> right ventricle | <input type="checkbox"/> coronary vessels | |
| <input type="checkbox"/> left ventricle | <input type="checkbox"/> tricuspid valve | |

