

Sheep Pluck Dissection

What is a sheep pluck?

A pluck is the lungs, heart, and liver of an animal.

Objectives

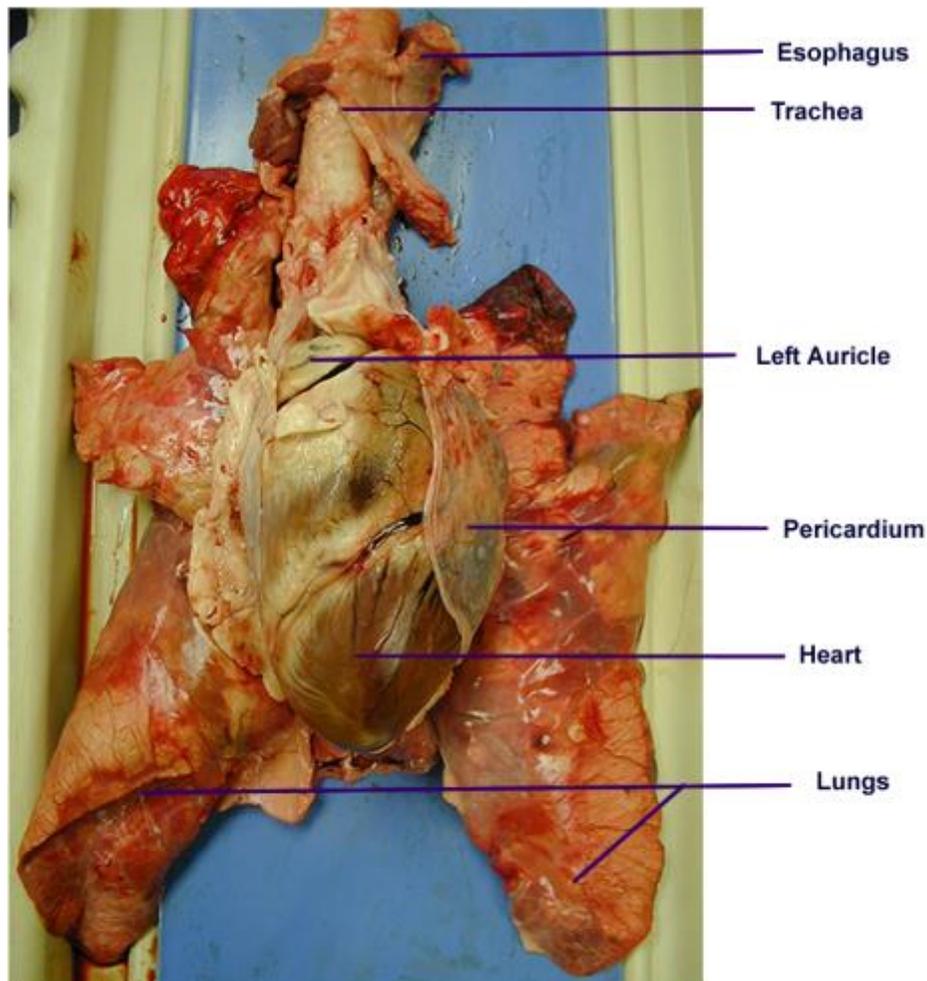
1. Explore the heart anatomy and relate the function to structure
2. Trace the course of blood flow within the heart
3. Explore the respiratory system

Materials

1. Sheep Pluck
2. Dissecting kits/tools
3. Dissecting trays
4. Plastic/latex gloves

Explore – Part I: The sheep pluck dissection

Before you begin, you must take good care when operating with sharp dissecting tools. There should be no fooling around with any of the dissection tools and specimen.



Procedure:

These are guided procedures – you may stray away from some of the steps to explore further.

1. Note the general shape and size, color and texture of the heart, lungs, and liver.
2. **Illustrate: Draw an overview diagram** in the ventral position (lungs back with heart up at the front)
3. Locate the following and identify the following in your drawing
 - **Esophagus** – this is the “food tube”. *Where is it located compared to the trachea?*
 - **Trachea** – the main tube bringing air into and out of the lungs.
 - Cartilaginous hoops (“**C**” rings) in the trachea – these are horseshoe-shaped and keep the trachea open for the passage of air, but allow the tube to bend and flex easily.
 - **Pleural membrane** – this is a thin layer of connective tissue covering the whole of the lungs.
 - **Lobes of the lung** - *How does the surface of the lung feel? How many lobes are on each side? What are the names of each lobe?*
 - **Primary bronchi** – the right bronchus leads from the trachea to the right lung and the left bronchus to the other lung.
 - **First bronchioles** – these are the finer tubes dividing off the bronchi.
 - **blood vessels.**
 - **Pericardium** – this is a layer of tissue surrounding the heart.
 - **Thymus gland** – lies above the heart.
 - **Liver**

Explore – Part II: The sheep pluck dissection - Heart

Procedure

1. **Illustrate: Draw an overview diagram of the heart** (do not cut into the heart yet) in its correct orientation
2. Before starting the dissection of the heart, identify, or tentatively identify the following structures.

Blood vessels

- A. Aorta
- B. Superior vena cava
- C. Inferior vena cava
- D. Pulmonary artery
- E. Coronary arteries
- F. Coronary veins
- G. Pulmonary vein

Chambers

- A. Right atrium
- B. Left atrium
- C. Right ventricle
- D. Left ventricle

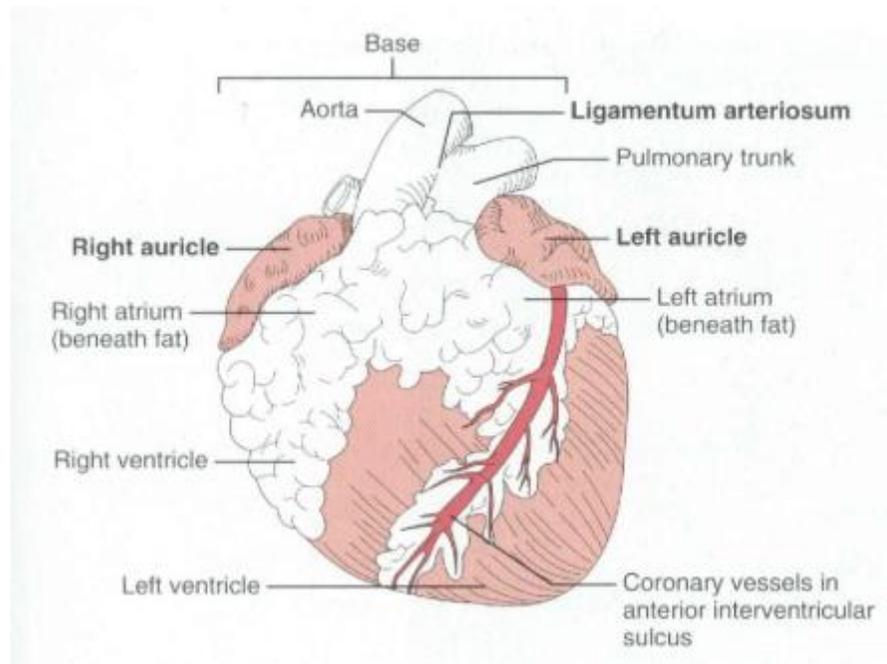
Structures

- A. Base of heart
- B. Apex of heart
- C. Pericardium

3. Right Heart - Use the scalpel for making incisions. Make an incision with the scalpel from the superior vena cava to the apex of the heart. This incision exposes the interior of the superior vena cava, the right atrium, the tricuspid valves, and the right atrium.

4. Observations -

Notice the difference in the color, structure, and thickness of the walls of the right atrium and the right ventricle. Identify the three cusp (pointed part) and the **chordae tendinae** and **papillary muscles**. Identify the three layers of the ventricular wall: the thin outer **epicardium**, the very thick middle **myocardium**, and the thin inner **endocardium**.



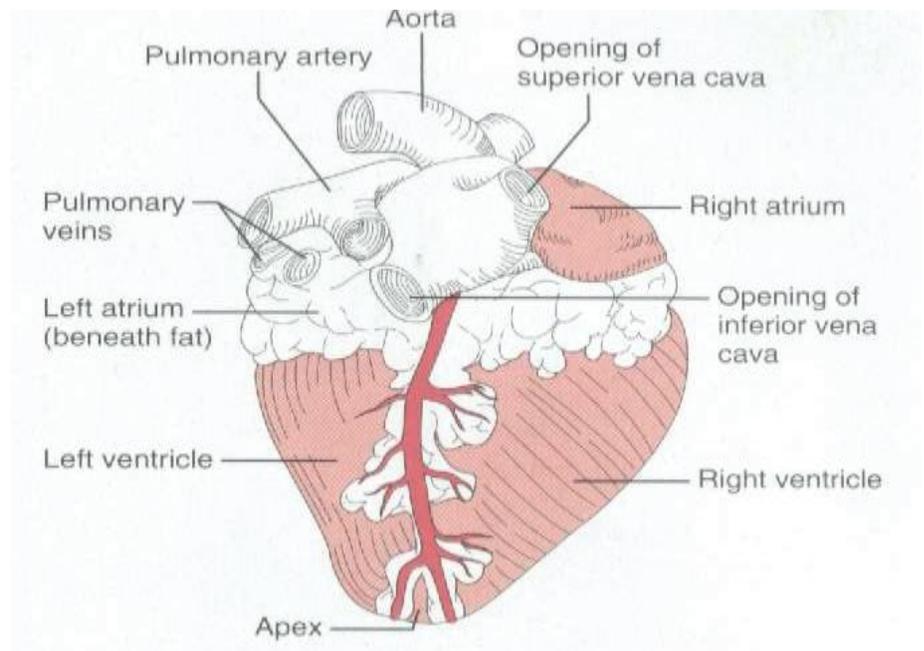
Anterior Heart (Front side)

5. Pulmonary artery/veins -
Locate the opening of the pulmonary artery at the junction of the right atrium and the right ventricle
Cut along the artery with the Scalpel and observe.

6. Left heart - Cut along The **Pulmonary Vein** to the apex.

Posterior Heart (Back side)

7. Observations - Notice the difference in the size, location, thickness of the wall of the left ventricle with reference to the **right ventricle**.



Locate the **bicuspid valve**. The left ventricle is much larger in size, centrally located, and the wall is much thicker (about twice) than that of the right ventricle. Why? Identify the **interventricular septum** that separates the two ventricles. Locate the opening of the aorta at the junction of the atrium and the ventricle. Notice of cusps of the **aortic semilunar valve** of the aorta. Notice just above the valve cusps the exits for the left and right coronary arteries.

Heart diagram - Label and sketch the internal and external heart and all mentioned parts

Clean up

Put the dissected heart, and **all associated organic matter**, in the plastic bag of the appropriately labeled container. Place organically contaminated materials, gloves and towels, in the appropriate marked container. Wash the dissecting instruments and tray with soap, wipe them with the paper towels, and put them out to dry. Clean, disinfect, and wipe down your table for the next class. Return instruments to the kits when dry. Thank you for your cooperation.

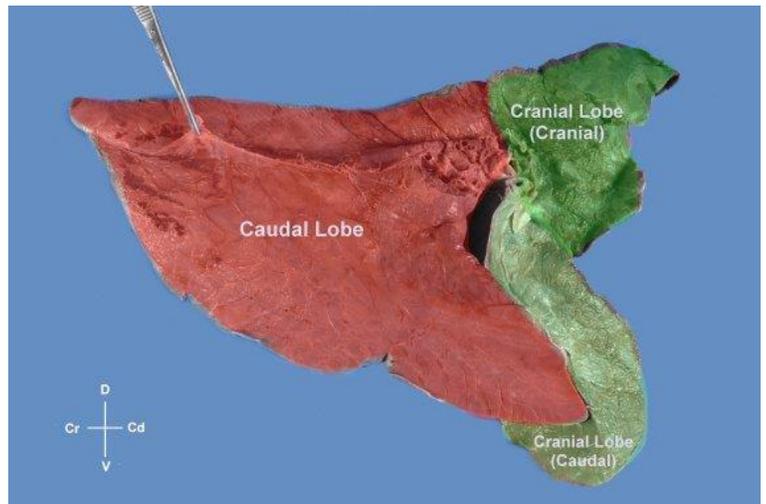
Explore – Part III: The sheep pluck dissection - Lungs

Part 1: External Anatomy

1. **Illustrate: Draw an overview diagram of the lungs with all the connected air tubes**
2. The lungs of a sheep are somewhat different than the lungs of a human. In humans, the right lung has three lobes and the left is comprised of two lobes (the cardiac notch in left lung makes room for the human heart). In sheep, the right lung is comprised of four lobes; while the left has three. Both lungs contain cranial, middle and caudal lobes; while the fourth lobe on the right lung is called the accessory lobe.
3. The respiratory system is not just made up of the lungs. In order for air to reach the lungs it needs to travel through a series of tubes. On your specimen one can easily see the trachea and primary bronchus. Touch the lungs, trachea, and bronchus; notice the texture of the tissue. Pull on the trachea and note how elastic it is.

Illustrate (1): Draw a picture of the right lung of the sheep. Take care to clearly illustrate and label the four lobes. Include a depiction of the trachea and primary bronchus. *Remember to draw your illustrations to scale.*

Illustrate (2): Draw a picture of the left lung of the sheep. Take care to clearly illustrate and label the three lobes. Include a depiction of the trachea and primary bronchus. *Remember to draw your illustrations to scale.*

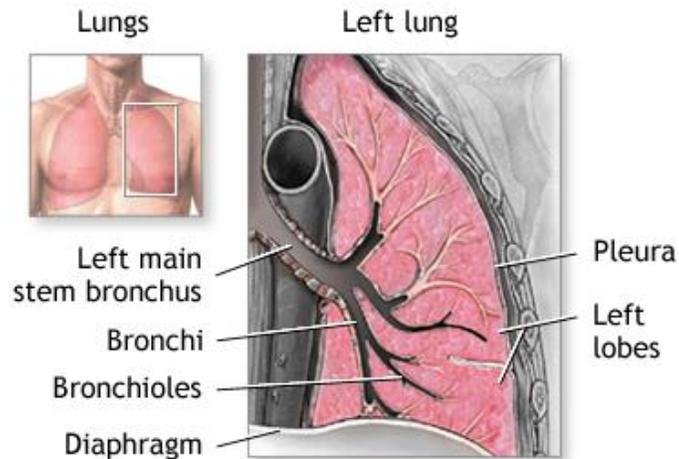


Part 2: Internal Anatomy

4. Make a midsagittal (straight down along the length) cut down the trachea, separating the two lungs.
5. Choose one of the lungs and make a mid-coronal cut to separate the anterior (Front) portion of the lung from the posterior (back) portion.
6. On the anterior portion of the lung, using scissors, cut along one primary bronchus, and continue a centimeter or more until you can see the opening of a *secondary bronchus*.
7. Cut along a secondary bronchus until you see the openings of *tertiary bronchi*?
8. Cut a tertiary bronchus open.
9. Cut out a piece of lung tissue.

With the posterior portion of your dissected lung, make a midsagittal cut. Using the portion that has the trachea attached to it, illustrate what you see.

Illustrate (3): Draw a picture of the posterior portion of the lung. Take care to clearly illustrate and label the bronchus and bronchi that you see.



ADAM.

Post Lab Assignment

Sketches (labeled):

- Overview diagram of pluck
- Overview diagram of the heart
- Diagram of the heart (internal)
- Overview of the lungs
- Diagram of Right lungs
- Diagram of Left lungs
- Posterior portion of lungs

Make sure all of your sketches are labeled, stapled together, and contains all the names of the group.

Hand in 1 per group.