

# PIG HEART DISSECTION

**Introduction:** Pig hearts are similar in size and structure to the human heart.

This dissection will allow you to become more familiar with the structures of the heart, while giving you experience in dissection. Please follow instructions very carefully.

## Materials:

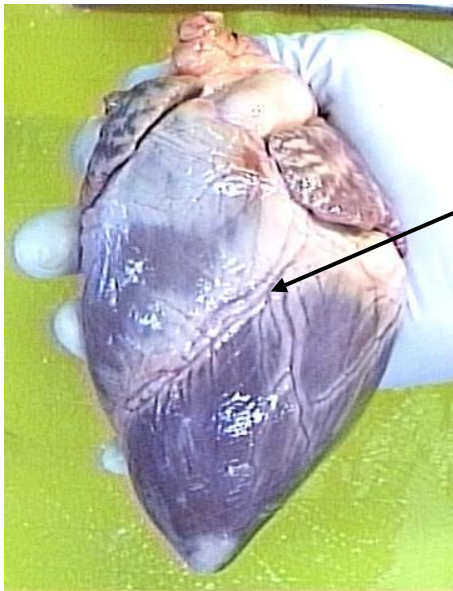
Goggles

1 pig heart

1 dissection tray

tools (dull probe, forceps, scissors) for second half of dissection

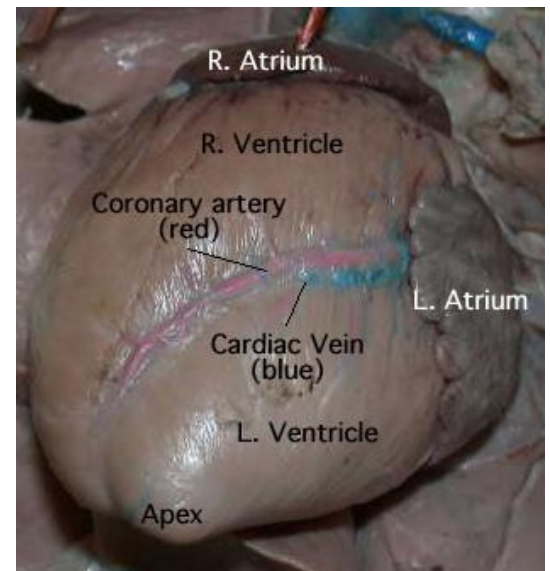
## Procedure:



1. **Determining Anterior from Posterior:** Examine the external surface of the heart. Identify the **base** (top flat location of major blood vessels) and **apex** (bottom point) of the heart. Now determine **anterior** from **posterior** sides of the heart by locating the **groove** where the **coronary arteries** run. **Adipose tissue(fat)** accumulates around the **coronary arteries** marking the separations of the right and left ventricles of the anterior of the heart

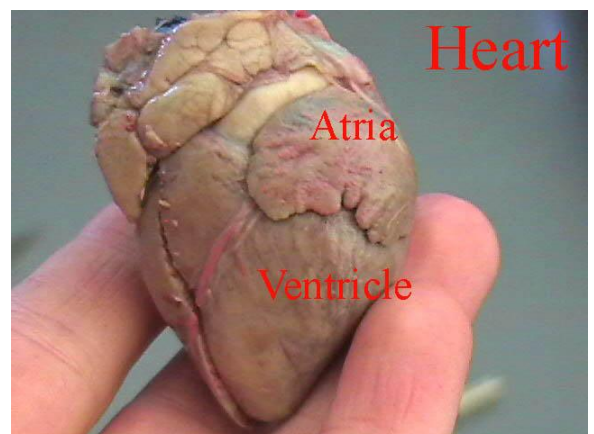
2. **External Anatomy: Left or Right Ventricle** Hold the heart in its anatomical position, with the anterior surface facing you. Locate the **groove** which runs

diagonally from the **left atrium** to the **right ventricle**. The right ventricle of the heart will appear shorter and smaller and the left ventricle (which includes the entire apex of the heart) will appear larger. Feel for any difference in the wall thickness of the right and left ventricles. Which ventricle has a thicker wall? Why?



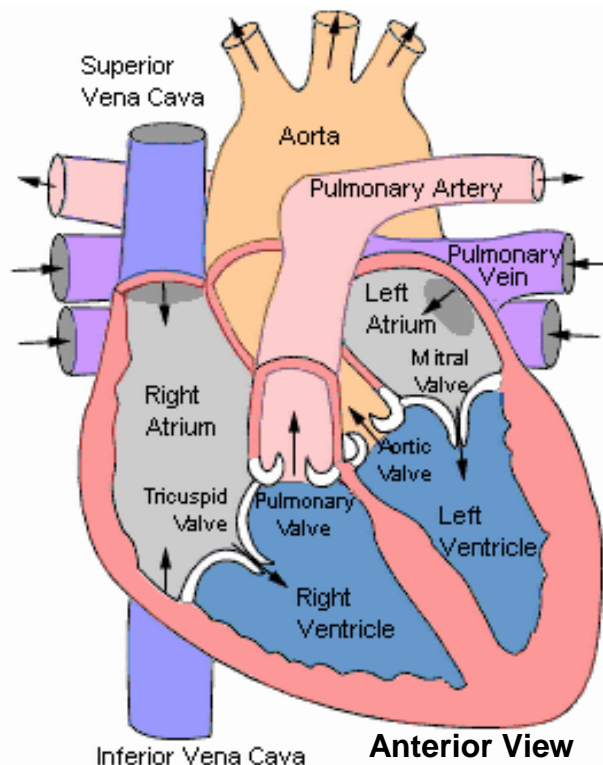
3. At the base of the heart (flat top) try to identify the **pulmonary trunk**, **aorta**, and **vena cava**. These vessels will run from anterior to posterior in the order listed. The pulmonary trunk may have been cut very close to the heart, therefore the **left** and **right pulmonary arteries** may not be visible. Which vessels are visible in your specimen? Describe any difference between them.

4. Turn the heart to its posterior side. The right and left ventricles will appear equal in size. Attempt to identify the **superior and inferior vena cava** entering the **right atrium**.



Point out ON this diagram exactly where your heart was cut out by the butcher

5. **A Feel for the Heart:** Use your fingers /dull probe to explore each blood vessel leading in or out of the heart.



Point out on your specimen where the following originate and lead to:  
 a. the aorta- this vessel is very thick, leading from the muscular left ventricle

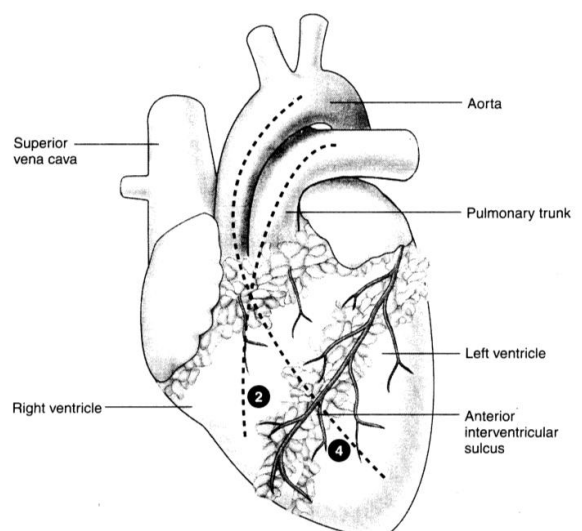
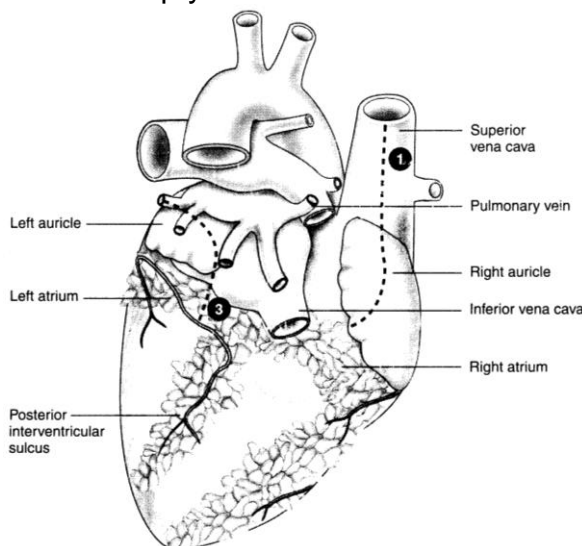
b. the superior and inferior vena cava- these vessels lead to the right atrium and next into the right ventricle. Deoxygenated blood enters the body through these vessels into the right receiving chamber. Use your probe to feel down into the right atrium. These vessels do not contain valves to control blood flow.

c. the pulmonary arteries – these vessels lead from the thin walled right ventricle.

d. the pulmonary veins – these vessels lead to the left atrium and next into the left ventricle.  
 \*You may attempt to move the dull probe through a vein/artery leading into an atrium/ventricle.

6. **Observation of Heart Valve:** If your heart is in its entirety and the *superior vena cava* is long enough, use scissors to cut through its *posterior* wall to view the interior of the *right atrium*. (See cut #1 on diagram) DO NOT CUT ENTIRELY THROUGH THE RIGHT ATRIUM!!! Be careful to preserve the *AV valve* between the *right atrium* and *right ventricle*. Look for the right AV valve.

7. Pour some water into the right atrium and allow it to flow into the right ventricle. Slowly and gently squeeze the right ventricle to watch the closing action of the right AV valve (tricuspid valve). DO NOT SQUEEZE TOO HARD OR YOU'LL GET A FACE FULL OF WATER!!! ☺ Tip the heart to empty water.



8. If present, locate the **pulmonary trunk** and cut (only the very the top portion of cut #2) through its *anterior* wall until you can look down the vessel to see the **pulmonary semilunar valve** (do not cut the semilunar valve, just expose it for viewing). Pour some water into the base of the pulmonary trunk (on top of the semilunar valve) to observe the closing action of this valve. How is this different from the AV valve you observed?
9. Continue cutting following the **pulmonary trunk** to the **right ventricle**, exposing the right ventricle. You will see the wall / **septum** separating the right and left ventricles. (**See cut #2 on diagram**)
10. Examine and identify the following internal structures: **thickness of right ventricle walls, semilunar valves, fibers that hold AV valve in ventricle.**
11. On the *anterior* of the heart, make a longitudinal incision through the **aorta** and continue it into the **left ventricle**. (**See cut #4 on diagram**) Make observations to compare **right** and **left ventricular chambers**.
12. Viewing the *posterior* portion of the heart, make an arching incision through the **pulmonary vein** to expose the **left atrium**. (**See cut #3 on diagram**).

13. When dissection and observations are complete,

- use soap to wash the scissors. Dry the scissors and metal any metal tools completely.
- Place dissected heart in trash bin designated by the teacher.
- Thoroughly wash the dissection tray with soap and water set on a piece of paper towel to air dry.
- Use disinfectant spray and sponge to clean off lab table.

Wash your hands.



