

UNIT 8 - BLOOD / LYMPHATIC / CARDIOVASCULAR SYSTEMS

ACTIVITY - Heart Dissection

Objectives:

At the completion of this laboratory procedure, the student will be able to do the following:

- a. Describe the external appearance of the heart and identify the vessels that emerge from the heart or enter its chambers.
- b. List and give specific location of the atrioventricular and semilunar valves of the heart.
- c. Discuss the mechanism by which an action potential (nerve impulse) passes through the heart.
- d. Correctly identify all the structures associated with the heart.
- e. Trace the flow of blood through the heart.

Equipment:

- a. Fresh hearts
- b. Dissecting trays
- c. Dissecting instruments

Procedure:

- a. Study an illustration showing a frontal section of the heart in your textbook or notes.
- b. Note the large vessels emerging from the upper surface of the heart. Observe the shape of the heart with its apex directed downward. Note the color and texture of the cardiac muscle.
- c. Press the wall of the lower part of the heart between your thumb and forefinger. The part that feels noticeably

thicker is the left ventricle. Compare the thickness of the wall of the upper atria with the thickness of the walls of the ventricles.

- d. Find the collapsed, thin-walled vessels entering the right atrium. Cut through these into the atrium, making the opening wide enough so that you can look down the atrioventricular orifice. Pour water through the orifice and into the ventricle. Watch the valve close as the ventricle fills.
- e. Empty water out of the right ventricle and cut through the ventricular wall. Examine parts of the valve. Note the number of flaps or cusps as well as the chordae tendinae that anchor them to papillary muscles found within the ventricles. Note whether the atrioventricular valves would permit blood to flow down into or up out of the right ventricle.
- f. Feel the inside lining of the heart with your finger. Compare it to the exterior linings of the heart.
- g. Run your finger up along the septum of the right ventricle until it enters a blood vessel. Cut this blood vessel with scissors. Examine the valve that is now visible. Note in which direction it permits the flow of blood.

- h. Cut open the left atrium. Find the openings of the four pulmonary veins.
- i. Cut down through the left ventricular wall. Examine the valve just below the atrioventricular orifice. Note how many cusps the valve has and whether it permits blood to flow down into or up out of the left ventricle.
- j. Run a finger up along the septum of the left ventricle until it enters a blood vessel.
- k. Cut open this blood vessel.
- l. Find two small openings behind the flaps of this valve. Insert a blunt probe into the first one and then the other of these openings to see where they lead.
- m. Spend as much time as you wish observing the heart. Try to locate the SA node, the AV node, the AV bundle, bundle branches, and Purkinje fibers to the best of your ability.
1. The name of the sac that encloses the heart is the...

2. The structure and mode of attachment of the pericardium *do or do not* facilitate free movement of the heart.

3. *Mucous? Serous? Synovial? Cutaneous?* What type of membranes lines the fibrous pericardium and covers the outer surface of the heart?

4. The membranous covering adherent to the outer surface of the heart is known as...

5. The ventricles have *thinner or thicker* walls when compared to the atria?

6. The chamber of the heart that has the thickest myocardium of all is the ...

7. The thin-walled vessel, which brings blood from the head, neck, arms, and shoulders into the right atrium, is known as...

8. The thin-walled vessel, which brings blood from the abdomen and legs into the right atrium, is known as ...

9. The thin-walled vessel, which brings blood from the cardiac veins into the right atrium, is known as ...

10. The semilunar valves are found at the beginning of what two blood vessels?

11. The tricuspid valve allows blood to move from the _____ into the _____ but _____ prevents its moving back in the opposite direction.
12. The atrioventricular valve that only has two cusps is known as the bicuspid valve or the ...

13. The blood vessel emerging from the upper part of the heart of the right ventricle is known as the...

14. The name of the blood vessel draining blood from the left ventricle is the ...

15. The famous _____ arteries have their origin behind the flaps of the aortic semilunar valve.

16. The only veins to carry oxygenated blood are the...

17. The pacemaker of the heart is actually the...

18. The structure that acts as a back-up pacemaker in the cardiac conduction of the heart is the ...

19. Use the heart diagram to complete the following instructions:
- Label the heart diagram
 - Color the structures that contain deoxygenated blood *blue*.
 - Color the structures that contain oxygenated blood *red*.
 - Add the SA node, the AV node, AV bundle, bundle branches, and Purkinje fibers in *brown*.
Use arrows to show the flow of blood through the heart