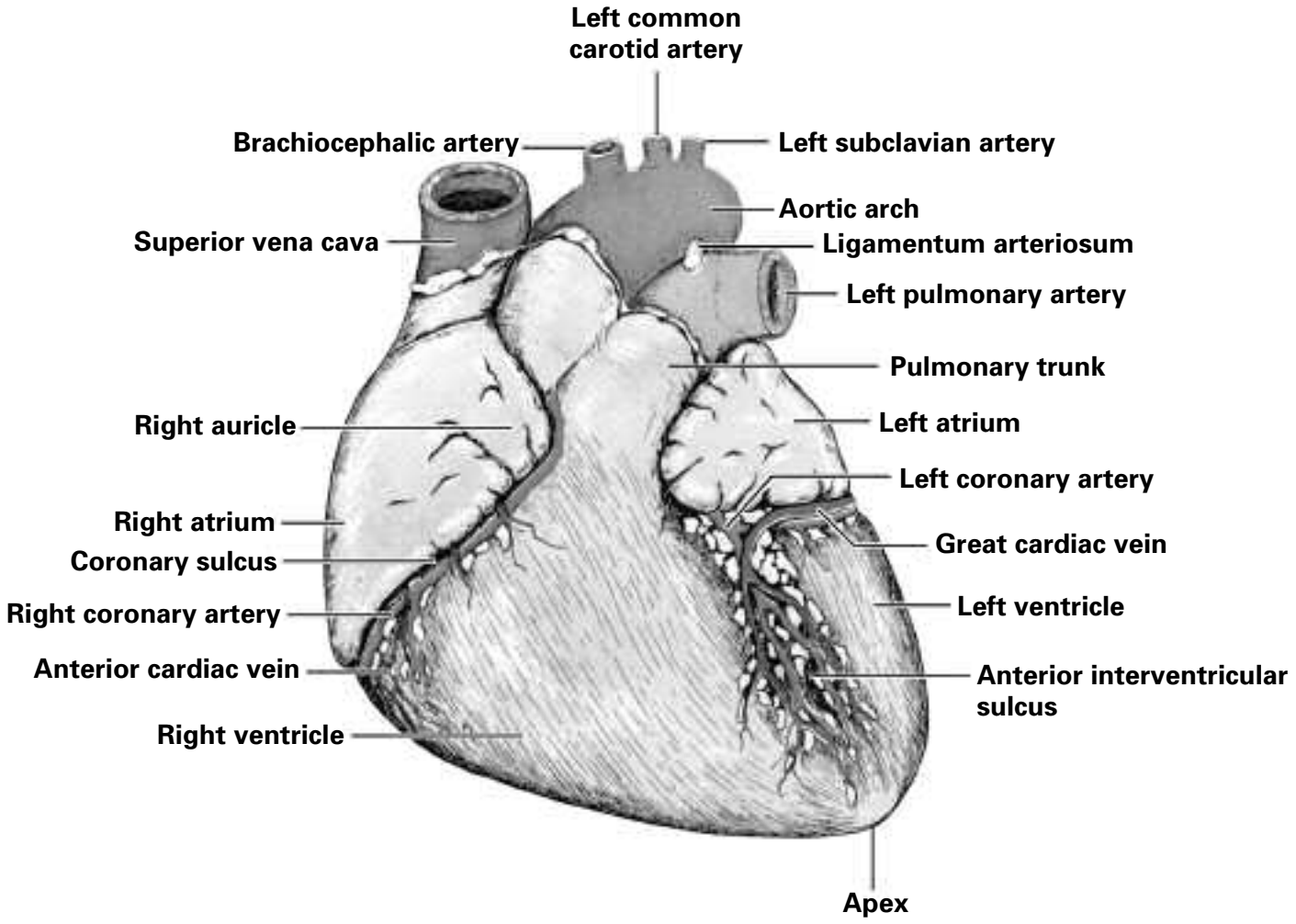
Carolina™ Mammal Heart Dissection Guide



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Carolina™ Mammal Heart Dissection Guide

Overview

The Carolina Mammal Heart Dissection Guide is a general set of instructions for dissecting mammal hearts. With each type of heart, there will be differences in the size of the structures and heart regions, but the general structures and their relative location will be the same or very similar.

Safety

Follow safe laboratory practices when performing any dissection. Wear safety glasses or goggles, gloves, and lab aprons when dissecting. Perform dissections on a dissecting tray or pan to contain specimens and fluids. Be careful when using sharp instruments, such as scalpels, forceps, teasing needles, and scissors.

Procedure

1. Review the glossary provided at the end of this dissection procedure. Refer to the diagram of the heart (on the front cover of this guide) as a general reference as you observe and identify external and internal structures.
2. Identify the base and apex of the heart. At the base are two ear-like auricles. These are the two atria. The rest of the heart is composed of the two ventricles. To identify the right ventricle from the left, gently squeeze the chambers on each side of the heart. The right ventricle has thinner walls and will compress more easily. The left ventricle has thick muscular walls due to its function of pumping blood to the systemic circuit.
3. Cut through the wall of the right atrium and remove a portion of the wall. Be careful not to cut the right ventricle. Observe the tricuspid valve.
4. Use a probe to push through the opening of the valve into the right ventricle. Observe the number of flaps, or cusps, that make up this valve.
5. Refer to the dissected mammal heart image to the right. Make an incision through the right ventricle and remove the front portion of the wall.
6. Locate the aorta. This vessel has a larger diameter than the pulmonary trunk and will branch immediately after leaving the left ventricle. Cut through the wall of the aorta until you see the aortic semilunar valve, which prevents blood from entering the left ventricle.
7. Locate the pulmonary trunk, which is located anterior to the aorta. Cut through the wall of this vessel until you see the pulmonic semilunar valve, which prevents blood from entering the right ventricle.
8. Observe the difference in the diameter of these two blood vessels.
9. Cut through the wall of the left atrium to view the bicuspid valve. Observe the number of cusps that make up this valve.

10. Refer to the dissected mammal heart image again. Make an incision through the left ventricle inferior to the interventricular groove. Remove the lower front portion of the wall. Observe the size of the left ventricle in relation to the right ventricle. Observe the muscular interventricular septum that divides the two chambers.
11. Observe the bicuspid valve supported by chordae tendinae and papillary muscles.
12. Using a probe, trace the pathway of blood from the left ventricle through the semilunar valve to the aorta. Repeat this action for the right ventricle, tracing the pathway from the ventricle through the pulmonic semilunar valve to the pulmonary trunk.
13. Once you have observed all the structures of the heart, dispose of the specimen in accordance with local guidelines and your teacher's instructions.

Glossary

Aorta - large artery that emerges from the left ventricle; carries blood to the systemic circuit.

Apex - pointed end of the heart consisting of muscle from the left ventricle.

Artery - blood vessel that carries blood away from the heart.

Atrium - one of the two upper chambers of the heart which receive blood.

Auricle - ear-like flap made up of muscle from the atria.

Base - point of attachment for blood vessels entering and exiting the heart.

Bicuspid valve - atrioventricular valve between the left atrium and ventricle; also called the mitral valve.

Brachiocephalic trunk - branch of the aorta which splits apart to form the right subclavian artery and right common carotid artery.

Chordae tendinae - fibrous cords that connect bicuspid and tricuspid valves with papillary muscles; also referred to as the "heart strings."

Coronary artery - artery leading from the aorta that supplies blood to the heart muscle.

Inferior vena cava - large vein that returns blood from the lower body regions to the right atrium.

Interventricular septum - muscular wall between the right and left ventricles.

Papillary muscles - muscles anchoring the chordae tendinae to the valves.

Semilunar valve - valve between the aorta and left ventricle, and between the pulmonary trunk and right ventricle.

Superior vena cava - large vein that returns blood from the upper regions of the body to the right atrium.

Trabeculae carneae - ridges and folds on the walls of the ventricles.

Tricuspid valve - atrioventricular valve between the right atrium and right ventricle.

Vein - blood vessel that returns blood to the heart.

Ventricle - one of the two lower chambers of the heart which force blood into either the aorta or the pulmonary arteries.

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Disposal

Because local regulations may vary from federal and state regulations, we recommend that you discuss disposal of preserved specimens with your institution's or system's environmental representative.

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