

Vancouver Community College

Biology 1200

Instructor Maria Morlin

March 2021 – hybrid course

Lab instructions for:

- **Pig dissection**
- **Eye dissection**
- **Brain dissection**

Outline

Objectives, methods and resources for:

- Pig dissection
- Eye dissection
- Brain dissection

Pig dissection (in lab)

Objectives

1. Locate and identify important external anatomical landmarks on the intact pig.
2. Locate and identify important internal anatomical structures on the dissected pig.
3. Use dissecting tools and follow safety protocol.
4. Relate structures to their function.

Methods

1. The lab demonstrator will describe the dissection method and point out structures using the overhead camera. Previously-dissected specimens may be provided.
2. Use safety protocols and goggles.
3. Use the dissection guide to find structures on the following page.

Review structures & function of the following: (a pig dissection guide will be provided)

External

Head
Neck
Trunk
Tail
Thorax
Abdomen
External nostrils
Auricle
Nictitating membrane
Umbilical cord

Genital papilla
Anus
Elbow
Knee
Mammary papilla
Scrotal sac (male)

Internal

Esophagus
Stomach
Small intestine
Large intestine
Liver
Gallbladder
Spleen
Lungs
Heart ventricles
Heart atria
Trachea
Diaphragm
kidneys

Male:

Testes
Epididymus
Ductus deferens
Penis

Female:

Ovaries
Uterus horns
Vagina

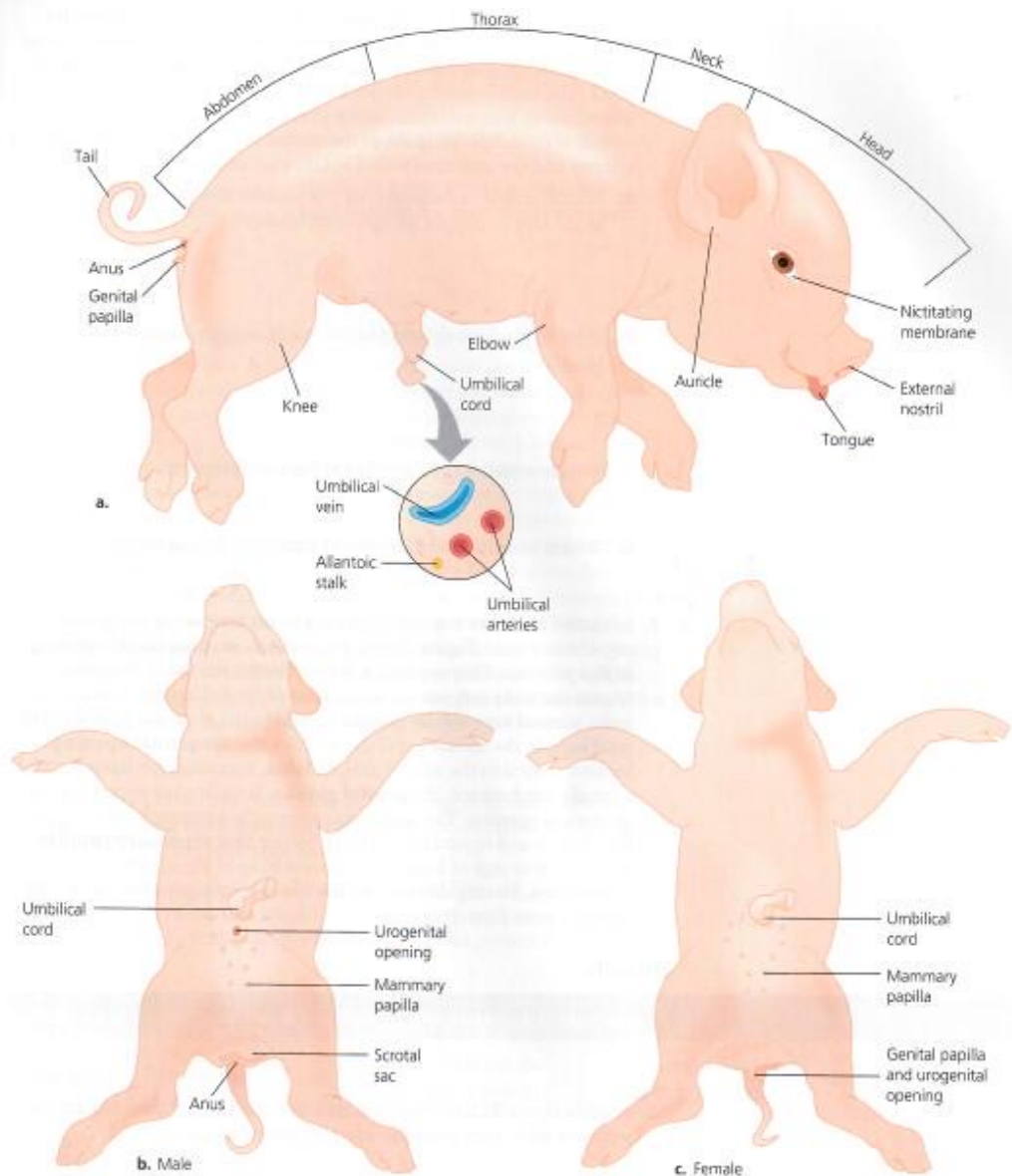


FIGURE 22.6
Fetal pig. (a) Body regions and external structures of the fetal pig with an enlarged cross section of the umbilical cord. (b) Posterior region of male pig. (c) Posterior region of female pig.

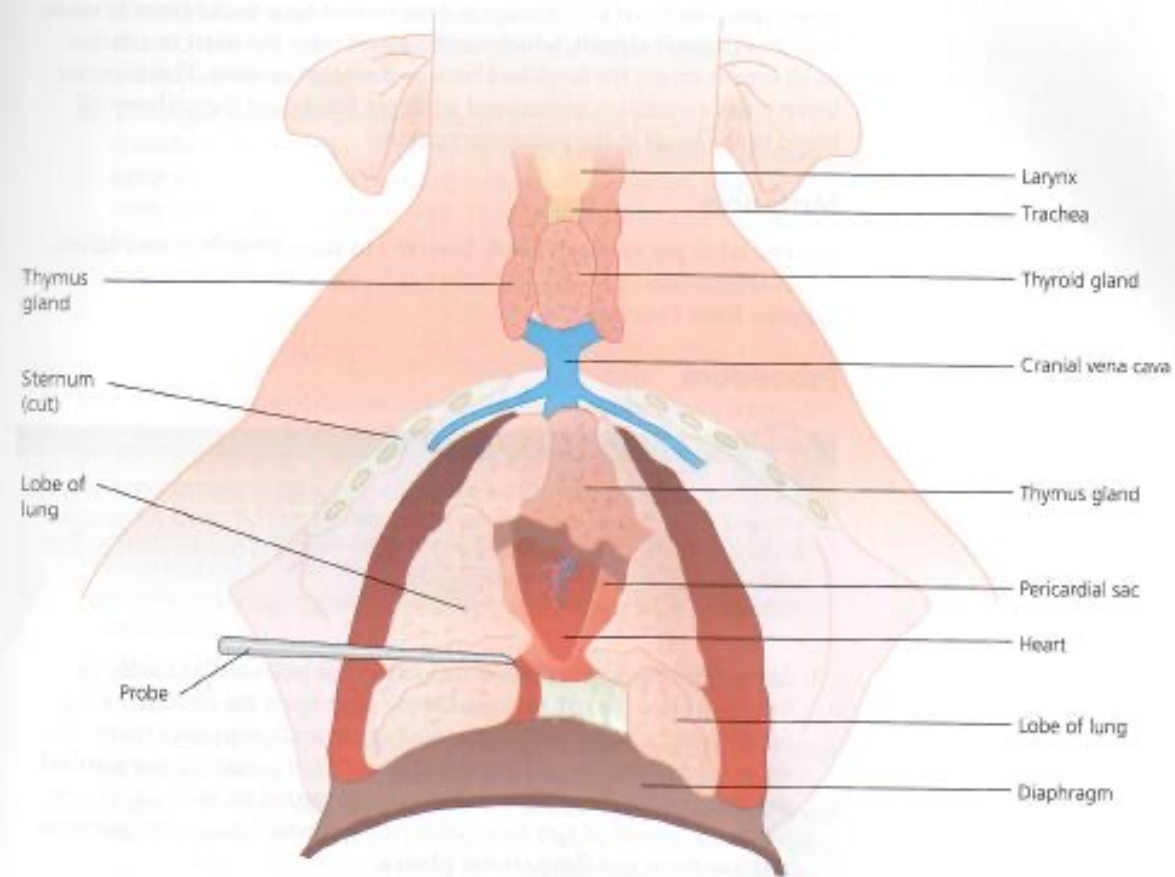


FIGURE 23.1
Ventral view of the anterior region of the pig, showing structures in the neck region and the thoracic cavity. The pericardial sac encloses the heart.

1. In the fetal pig, expose the heart lying in the **pericardial cavity** between the two pleural cavities. Gently push open the rib cage, using scissors and a probe to cut through muscle and connective tissue. Another lobe of the thymus gland will be seen lying over the **pericardial sac** housing the heart. The wall of the pericardial sac is a tough membrane composed of two fused coelomic epithelial linings, the **parietal pericardium** and the **parietal pleura**.
2. Cut into and push aside the pericardial sac. Carefully dissect away membranes adhering to the heart until you can identify the four chambers of the heart (Figure 23.2). The walls of heart chambers consist of cardiac muscle (Figure 22.3b, p. 587).

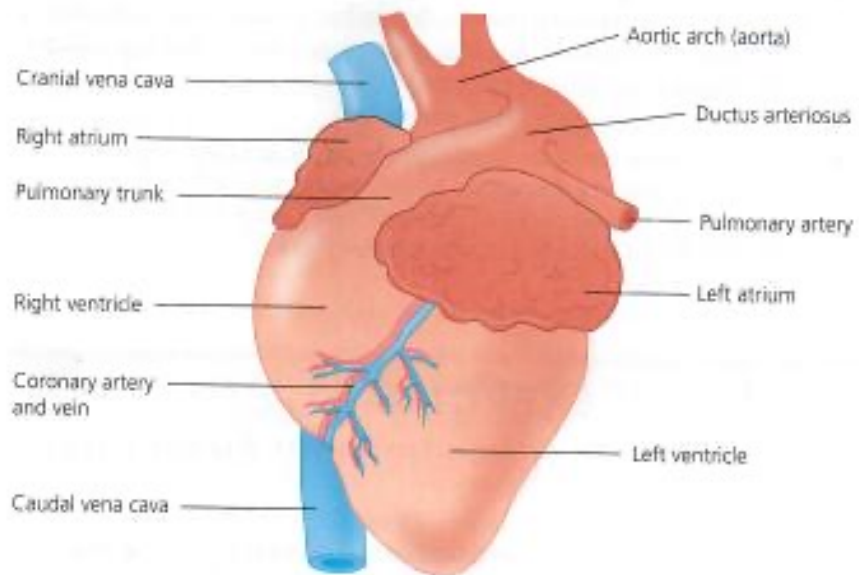


FIGURE 23.2
Enlarged ventral view of a fetal heart, showing the four chambers and the major associated blood vessels. Compare this anatomy with that of an adult heart.

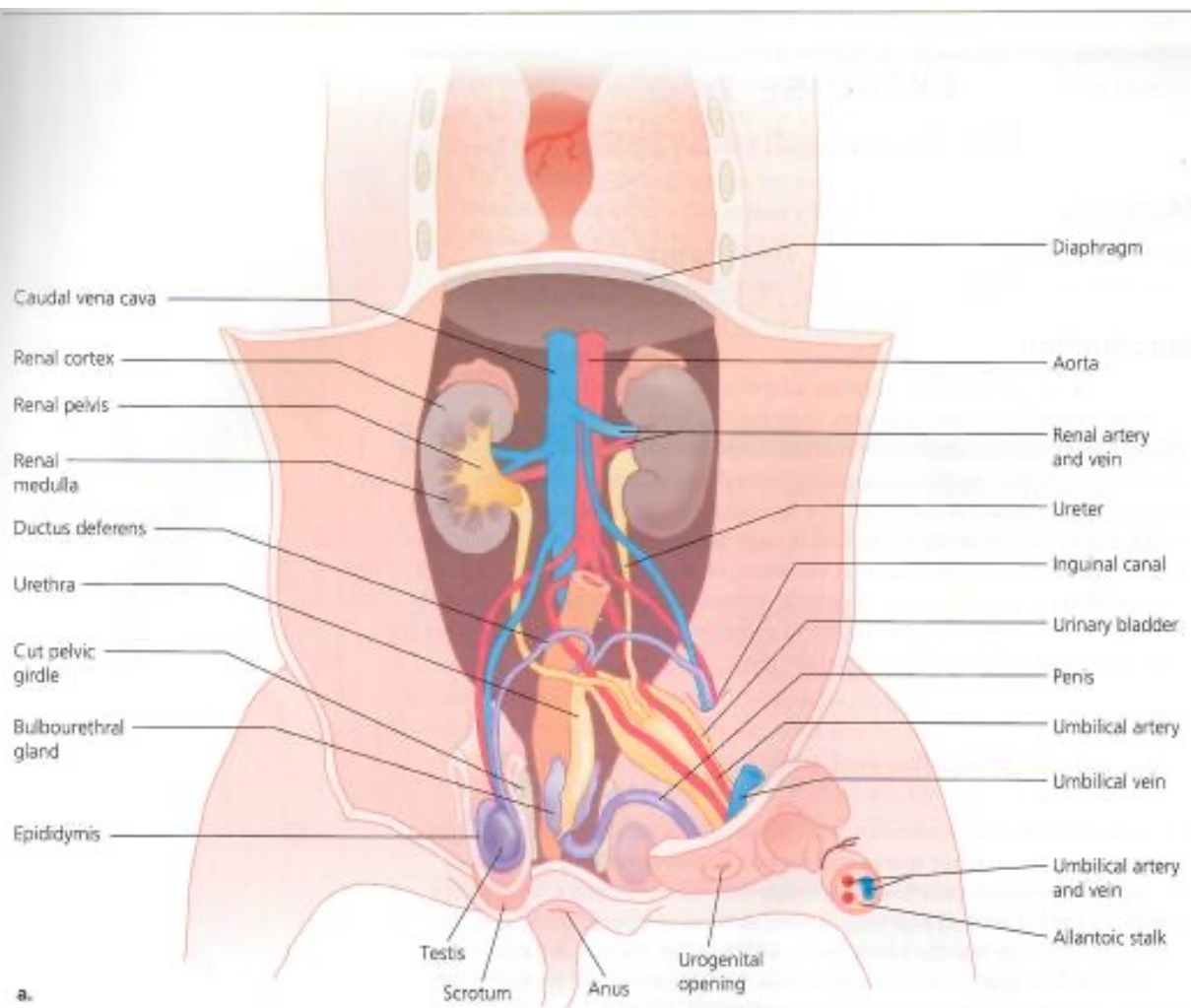


FIGURE 24.2a
Organs of the excretory and reproductive systems in the male fetal pig. The ureters enter the urinary bladder between the umbilical arteries. The urethra exits the urinary bladder and leads to the penis. The penis leads to the urogenital opening to the outside of the body. The testes lie in pouches in the scrotum. Sperm are produced in the testes, stored in the epididymis on the testis surface, and pass to the ductus deferens, which leads to the urethra.

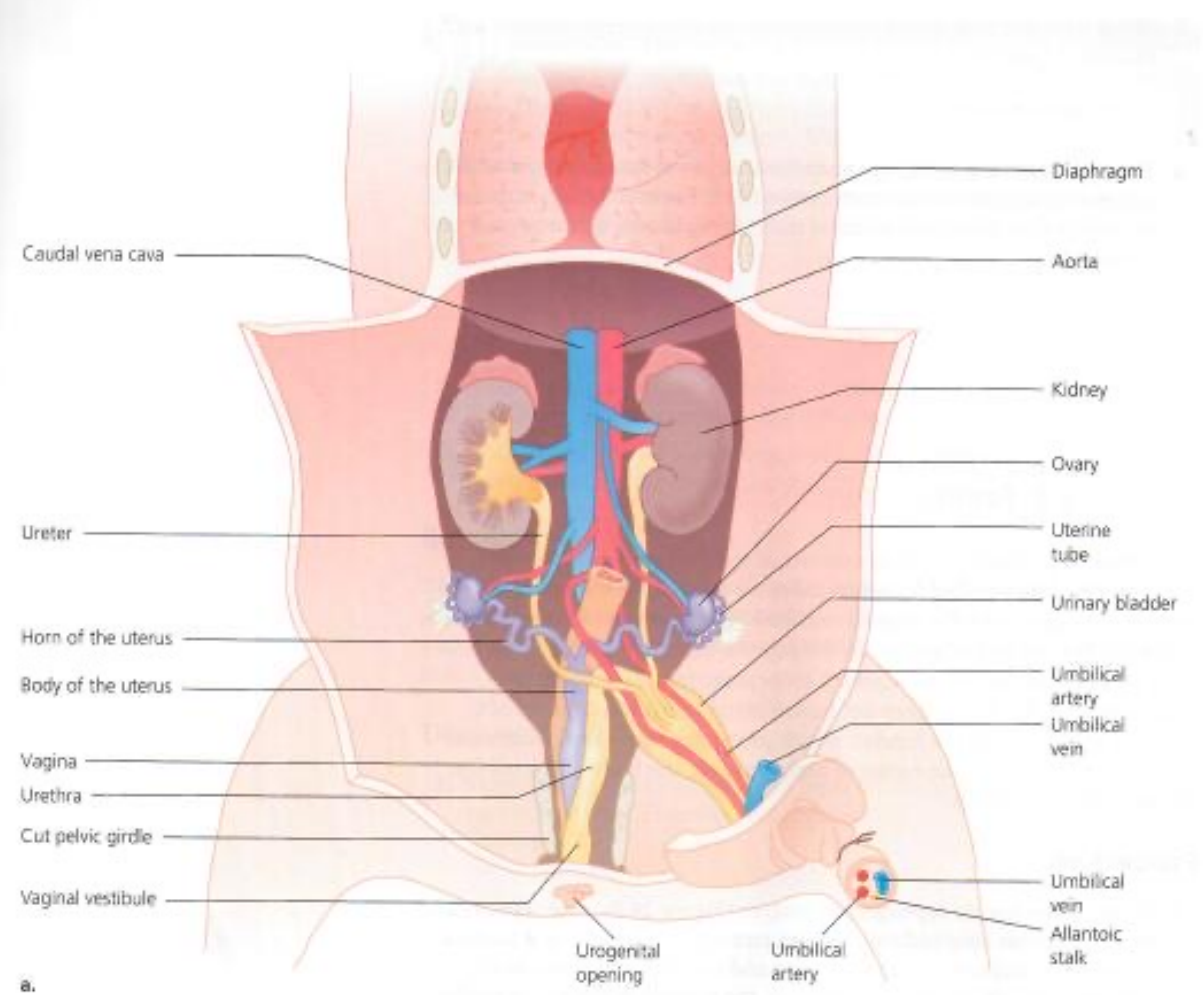


FIGURE 24.3a
Organs of the excretory and reproductive systems in the female fetal pig. The ureters enter the urinary bladder. The urethra exits the urinary bladder and joins the vagina, forming the vaginal vestibule.

Brain dissection (in lab)

Objectives

1. Locate and identify important external anatomical landmarks on the intact sheep brain.
2. Locate and identify important internal anatomical structures on the bisected sheep brain.
3. Use dissecting tools and follow safety protocol.
4. Relate structures to their function.

Methods

1. Methods of bisecting the brain will be demonstrated in the lab.
2. A guide to brain structures will be provided.
3. Students will examine a whole sheep brain for external features, and a bisected one for internal features.

Review the following structures & function of the following (use site on next page)

External

Cerebrum

Left and right cerebral hemispheres

Skull and dura mater

Pia mater

Cerebellum

Pons

Medulla oblongata

Spinal cord

Longitudinal fissure

Frontal lobe

Sulcus

Gyrus

Temporal lobe

Parietal lobe

Occipital lobe

Olfactory bulbs

Pituitary gland

Cerebral peduncle

Pyramidal tract

Internal

Corpus callosum

Cerebrum

Spinal cord

Medulla oblongata

Pons

Cerebellum

Hypothalamus

Pituitary gland

Optic chiasm

Thalamus

Pineal body

Midbrain

Third ventricle

Cerebral aqueduct

Fourth ventricle

Septum pellucidum

Fourth ventricle

Trochlear nerve

Inferior colliculus

Hippocampus

Use these resources for review

- Review a brain dissection with labelled photos here:

https://www.biologycorner.com/anatomy/sheepbrain/sheep_dissection.html

- This is a good site for functions,

<https://people.wou.edu/~lemastm/Teaching/BI335/Laboratory%2001%20-%20Brain%20Anatomy.pdf>

Eye dissection

Objectives

1. Locate and identify important external anatomical landmarks on the cow or sheep eye.
2. Locate and identify important internal anatomical structures of the cow or sheep eye.
3. Relate structures to their function.

Methods

- The eye dissection will be demonstrated in the lab
- Use safety protocols and goggles.
- Identify features on the following page.

Review structures & functions of the following eye structures (use resources on following page and the lab manual for functions)

External

Eyelids

Eyelashes

Iris

Pupil

Sclera

Cornea

Muscles:

Superior and inferior oblique

Superior, inferior, lateral and medial rectus muscles

Internal

Anterior and posterior chambers

Aqueous humor

Vitreous humor

Lens

Suspensory ligaments

Ciliary body

Choroid

Retina

Optic nerve

Fovea centralis

Use these resources for review

- Eye dissection review:
- <https://science.jburroughs.org/resources/skeleton/eye/eyedissection.html>
- This is the Merck Manual consumer version showing eye structure functions and disorders. Functions can also be found in the lab manual.

<https://www.merckmanuals.com/en-ca/home/eye-disorders/biology-of-the-eyes/structure-and-function-of-the-eyes>