

Name Glynnis Powell
 Lab Time/Date Feb-2021

The Language of Anatomy

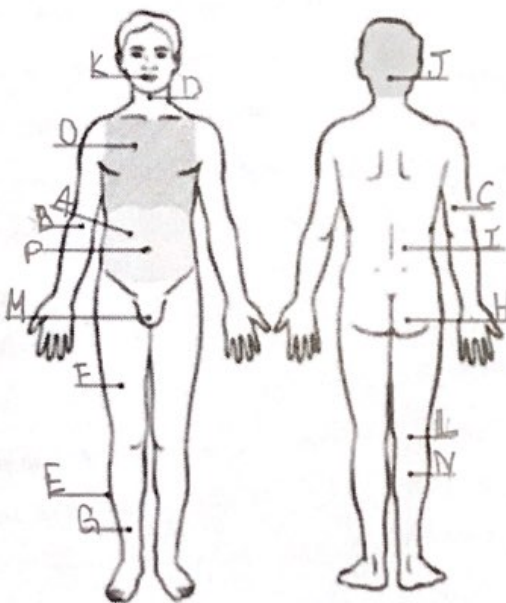
Surface Anatomy

1. Match each of the numbered descriptions with the related term in the key, and record the key letter or term in front of the description.

- | | | |
|----------------|-------------|-------------|
| Key: a. buccal | e. cephalic | g. patellar |
| b. calcaneal | d. digital | f. scapular |
- Buccal 1. cheek Patellar 4. anterior aspect of knee
Digital 2. fingers Calcaneal 5. heel of foot
Scapular 3. shoulder blade region Cephalic 6. head

2. Indicate the following body areas on the accompanying diagram by placing the correct key letter at the end of each line.

- Key:
- a. abdominal
 - b. antecubital
 - c. brachial
 - d. cervical
 - e. crural
 - f. femoral
 - g. fibular
 - h. gluteal
 - i. lumbar
 - j. occipital
 - k. oral
 - l. popliteal
 - m. pubic
 - n. sural
 - o. thoracic
 - p. umbilical



3. Classify each of the terms in the key of question 2 above into one of the large body regions indicated below. Insert the appropriate key letters on the answer blanks.

- B, E, N, F, G, L 1. appendicular K, D, O, J, P, I, A 2. axial

Body Orientation, Direction, Planes, and Sections

4. Describe completely the standard human anatomical position. In the standard human anatomical position the human body is standing up with the feet apart a little with the head and toes facing forward, and arms hanging with palms facing forward.

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EXERCISE

2

Organ Systems Overview

REVIEW SHEET

1. Use the key below to indicate the body systems that perform the following functions for the body; note that some body systems are used more than once. Then, circle the organ systems (in the key) that are present in all subdivisions of the ventral body cavity.

Key: a. cardiovascular d. integumentary g. nervous j. skeletal
b. digestive e. lymphatic/immunity h. reproductive k. urinary
c. endocrine f. muscular i. respiratory

- Urinary _____ 1. rids the body of nitrogen-containing wastes
Endocrine _____ 2. is affected by removal of the thyroid gland
Skeletal _____ 3. provides support and levers on which the muscular system acts
cardiovascular _____ 4. includes the heart
Reproductive, Endocrine _____ 5. has a menstrual cycle in females
Integumentary _____ 6. protects underlying organs from drying out and from mechanical damage
lymphatic/immunity _____ 7. protects the body; destroys bacteria and tumor cells
Digestive _____ 8. breaks down ingested food into its building blocks
Respiratory _____ 9. removes carbon dioxide from the blood
cardiovascular _____ 10. delivers oxygen and nutrients to the tissues
Muscular _____ 11. moves the limbs; facilitates facial expression
Urinary _____ 12. ~~conserves~~ conserves body water or eliminates excesses
endocrine _____ and Reproductive _____ 13. facilitate conception and childbearing
Endocrine _____ 14. controls the body by means of chemical molecules called hormones
Integumentary _____ 15. is damaged when you cut your finger or get a severe sunburn

2. Using the above key, choose the *organ system* to which each of the following sets of organs or body structures belongs.

- E _____ 1. thymus, spleen, lymphatic vessels D _____ 5. epidermis, dermis, and cutaneous sense organs
J _____ 2. bones, cartilages, tendons H _____ 6. testis, ductus deferens, urethra
C _____ 3. pancreas, pituitary, adrenals B _____ 7. esophagus, large intestine, rectum
i _____ 4. trachea, bronchi, lungs f _____ 8. muscles of the thigh, postural muscles

3. Using the key below, place the following organs in their proper body cavity.

Key: a. abdominopelvic b. cranial c. spinal d. thoracic

a 1. stomach a 4. liver d 7. heart
d 2. esophagus c 5. spinal cord d 8. trachea
a 3. large intestine a 6. urinary bladder a 9. rectum

4. Using the organs listed in question 3 above, record, by number, which would be found in the abdominal regions listed below.

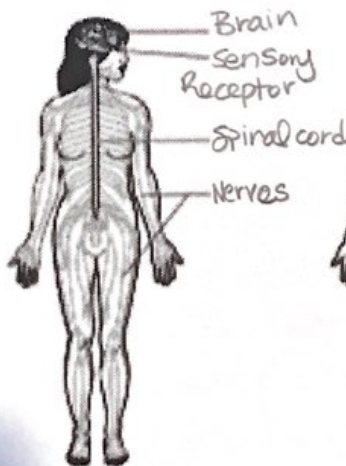
3, 6, 9 1. hypogastric region 1, 3, 4 4. epigastric region
3 2. right lumbar region 3 5. left iliac region
3 3. umbilical region 4, 1, 3 6. left hypochondriac region

5. The levels of organization of a living body are chemical, organ, Tissue, cell, organ system, and organism.

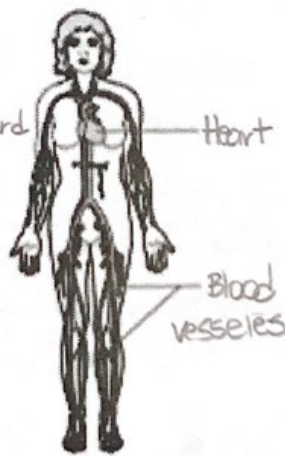
6. Define organ. a structure that is made up of alot of different tissues and shows a specific body function

7. Using the terms provided, correctly identify all of the body organs provided with leader lines in the drawings shown below. Then name the organ systems by entering the name of each on the answer blank below each drawing.

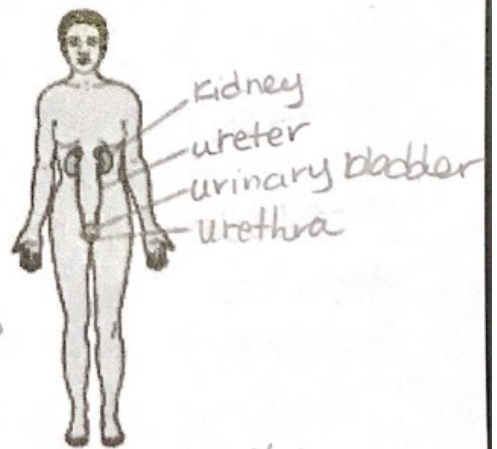
Key: blood vessels heart nerves spinal cord urethra
 brain kidney sensory receptor ureter urinary bladder



a. Nervous System



b. Cardiovascular System



c. Urinary System

8. Why is it helpful to study the external and internal structures of the rat? The Internal and External structures are most similar to those in an human being.

12 Review Sheet 1

5. Define *section*. A part or cut made along a body plane

6. Several incomplete statements are listed below. Correctly complete each statement by choosing the appropriate anatomical term from the key. Record the key letters and/or terms on the correspondingly numbered blanks below. Some terms are used more than once.

Key: ~~a~~ anterior ~~d~~ inferior ~~g~~ posterior ~~f~~ superior
~~b~~ distal ~~e~~ lateral ~~h~~ proximal ~~k~~ transverse
~~c~~ frontal ~~i~~ medial ~~j~~ sagittal

In the anatomical position, the face and palms are on the 1 body surface; the buttocks and shoulder blades are on the 2 body surface; and the top of the head is the most 3 part of the body. The ears are 4 and 5 to the shoulders and 6 to the nose. The heart is 7 to the vertebral column (spine) and 8 to the lungs. The elbow is 9 to the fingers but 10 to the shoulder. The abdominopelvic cavity is 11 to the thoracic cavity and 12 to the spinal cavity. In humans, the dorsal surface can also be called the 13 surface; however, in quadruped animals, the dorsal surface is the 14 surface.

If an incision cuts the heart into right and left parts, the section is a 15 section; but if the heart is cut so that superior and inferior portions result, the section is a 16 section. You are told to cut a dissection animal along two planes so that both kidneys are observable in each section. The two sections that will always meet this requirement are the 17 and 18 sections. A section that demonstrates the continuity between the spinal and cranial cavities is a 19 section.

- | | | |
|---------------------|----------------------|-----------------------|
| 1. <u>Anterior</u> | 8. <u>medial</u> | 14. <u>Superior</u> |
| 2. <u>Posterior</u> | 9. <u>Proximal</u> | 15. <u>Sagittal</u> |
| 3. <u>Superior</u> | 10. <u>Distal</u> | 16. <u>Transverse</u> |
| 4. <u>medial</u> | 11. <u>Inferior</u> | 17. <u>Frontal</u> |
| 5. <u>Superior</u> | 12. <u>anterior</u> | 18. <u>Transverse</u> |
| 6. <u>lateral</u> | 13. <u>Posterior</u> | 19. <u>Sagittal</u> |
| 7. <u>Anterior</u> | | |

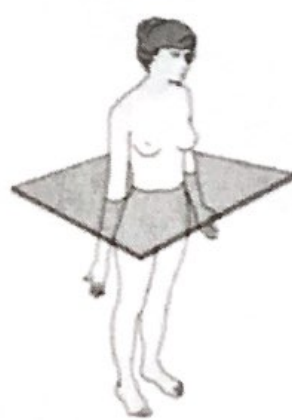
7. Correctly identify each of the body planes by inserting the appropriate term for each on the answer line below the drawing.



(a) Mid Sagittal

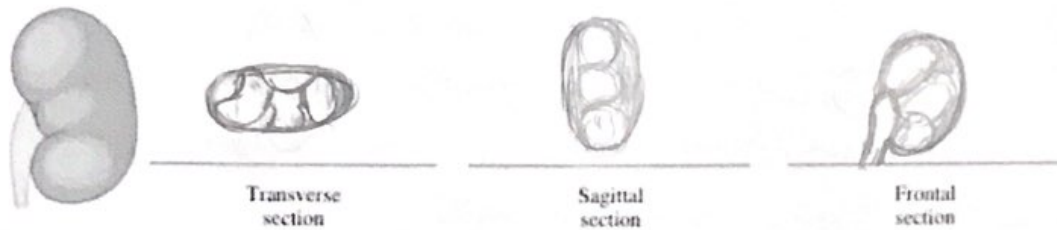


(b) Frontal Plane



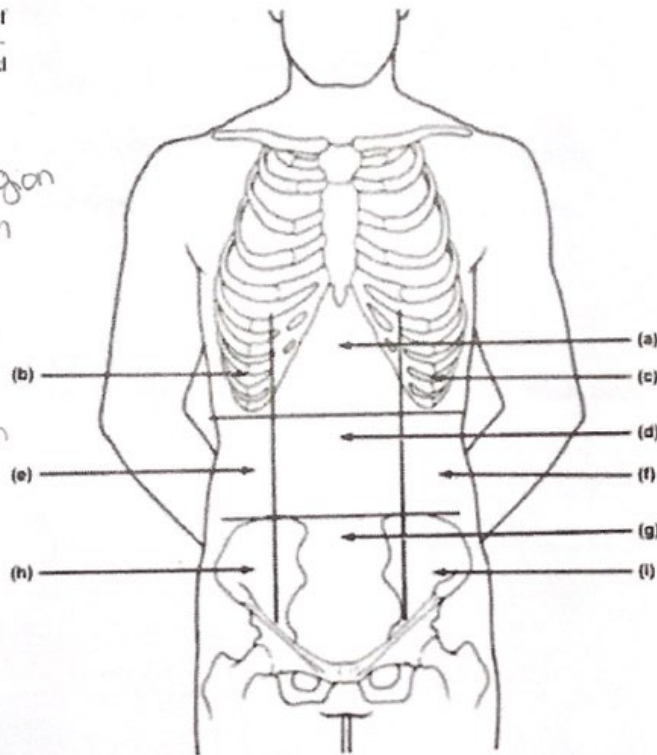
(c) Transverse Plane

8. Draw a kidney as it appears when sectioned in each of the three different planes.



9. Correctly identify each of the nine regions of the abdominopelvic cavity by inserting the appropriate term for each of the letters indicated in the drawing.

- a. Epigastric Region
- b. Right hypochondriac Region
- c. Left hypochondriac region
- d. Umbilical Region
- e. Right lumbar Region
- f. Left lumbar region
- g. hypogastric (pubic) Region
- h. Right iliac region
- i. Left iliac Region



Body Cavities

10. Which body cavity would have to be opened for the following types of surgery or procedures? (Insert letter of key choice in same-numbered blank. More than one choice may apply.)

- Key: abdominopelvic dorsal thoracic
 cranial spinal ventral

- e 1. surgery to remove a cancerous lung lobe a 4. appendectomy
- a 2. removal of the uterus, or womb a 5. stomach ulcer operation
- b 3. removal of a brain tumor d 6. delivery of pre-operative "saddle" anesthesia

11. Name the muscle that subdivides the ventral body cavity. diaphragm
12. What are the bony landmarks of the abdominopelvic cavity? The pelvis, Dorsally, The vertebral column, anteriorly and laterally
13. Which body cavity affords the least protection to its internal structures? The abdominal
14. What is the function of the serous membranes of the body? The function of the serous membrane is that it produces fluid that reduces friction as organs slide across one another/against cavity walls during it's functioning.
15. Using the key choices, identify the small body cavities described below.

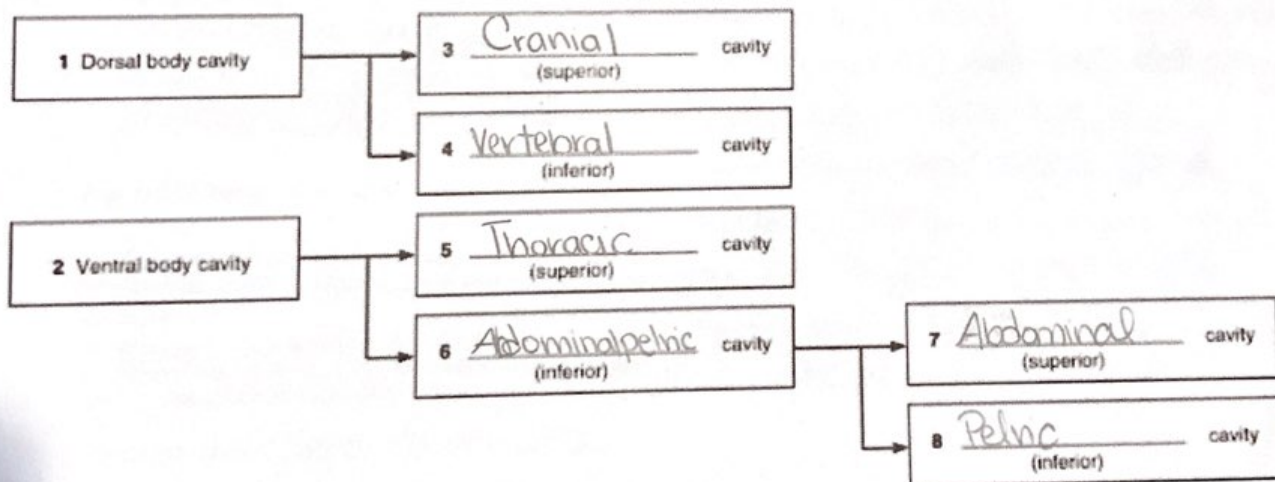
Key: middle ear cavity oral cavity synovial cavity
 nasal cavity orbital cavity

- D 1. holds the eyes in an anterior-facing position C 4. contains the tongue
A 2. houses three tiny bones involved in hearing E 5. surrounds a joint
B 3. contained within the nose

16. On the incomplete flowchart provided below:

- Fill in the cavity names as appropriate to boxes 3-8.
- Then, using either the name of the cavity or the box numbers, identify the descriptions in the list that follows.

Body cavities



- 1 a. contained within the skull and vertebral column 5 e. contains the heart
8 b. houses female reproductive organs 6,7 f. contains the small intestine
4 or 1 c. the most protective body cavity 5 g. bounded by the ribs
2 or 7 d. its name means belly 6,7 h. its walls are muscular

Organ Systems Overview

MATERIALS

- Freshly killed or preserved rat [predissected by instructor as a demonstration or for student dissection (one rat for every two to four students)] or predissected human cadaver
- Dissection trays
- Twine or large dissecting pins
- Scissors
- Probes
- Forceps
- Disposable gloves
- Human torso model (dissectible)

OBJECTIVES

1. Name the human organ systems and indicate the major functions of each.
2. List several major organs of each system and identify them in a dissected rat, human cadaver or cadaver image, or in a dissectible human torso model.
3. Name the correct organ system for each organ when presented with a list of organs studied in the laboratory.

PRE-LAB QUIZ

1. Name the structural and functional unit of all living things. The cell
2. The small intestine is an example of a(n) organ, because it is composed of two or more tissue types that perform a particular function for the body.
 - a. epithelial tissue
 - b. muscular tissue
 - c. organ
 - d. organ system
3. The Nervous system is responsible for maintaining homeostasis of the body via rapid transmission of electrical signals.
4. The kidneys are part of the Urinary system.
5. The thin muscle that separates the thoracic and abdominal cavities is the diaphragm.

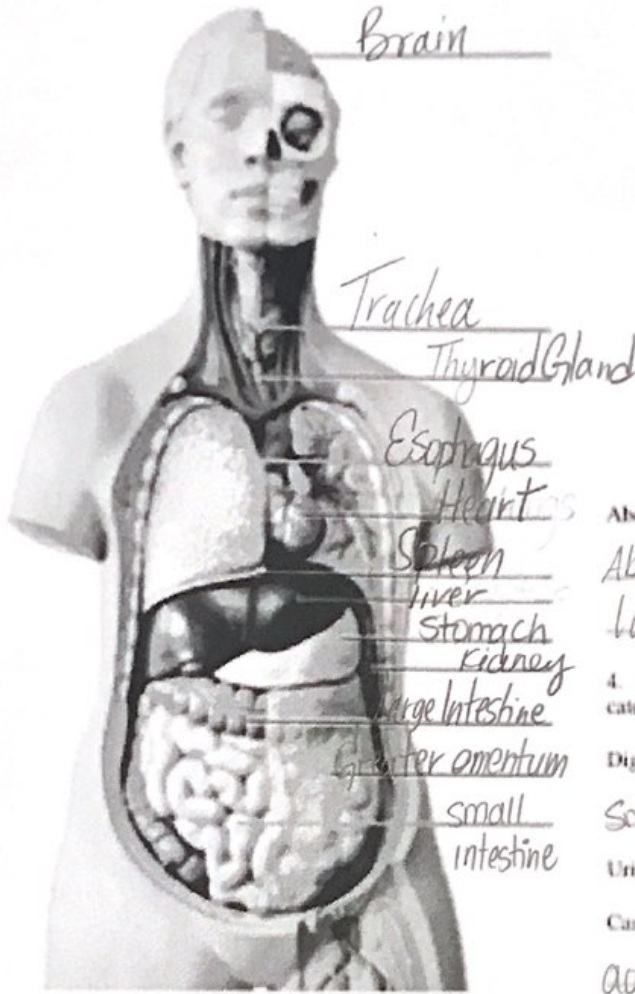
The basic unit or building block of all living things is the **cell**. Cells fall into four different categories according to their structures and functions. Each of these corresponds to one of the four tissue types: epithelial, muscular, nervous, and connective. A **tissue** is a group of cells that are similar in structure and function. An **organ** is a structure composed of two or more tissue types that performs a specific function for the body. For example, the small intestine, which digests and absorbs nutrients, is made up of all four tissue types.

An **organ system** is a group of organs that act together to perform a particular body function. For example, the organs of the digestive system work together to break down foods and absorb the end products into the bloodstream to provide nutrients and fuel for all the body's cells. In all, there are 11 organ systems (described in Table 2.1). The lymphatic system also encompasses a *functional system* called the immune system, which is composed of an army of mobile *cells* that act to protect the body from foreign substances.

Read through this summary of the body's organ systems before beginning your rat dissection or examination of the predissected human cadaver. If a human cadaver is not available, the figures provided in this exercise (Figures 2.3–2.6) will serve as a partial replacement.

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Adrenal gland	Lungs
Aortic arch	Mesentery
Brain	Pancreas
Bronchi	Rectum
Descending aorta	Small intestine
Diaphragm	Spinal cord
Esophagus	Spleen
Greater omentum	Stomach
Heart	Thyroid gland
Inferior vena cava	Trachea
Kidneys	Ureters
Large intestine	Urinary bladder
Liver	

Abdominopelvic cavity: Adrenal gland, Spleen, Abdominal Region, Stomach, Kidneys, Large Intestine, Liver, Urinary Bladder, etc.

4. Now, assign each of the organs to one of the organ system categories listed below.

Digestive: Esophagus, Liver, Stomach, Pancreas

Small Intestine, large intestine

Urinary: Kidneys, Ureters, Urinary bladder

Cardiovascular: aortic arch, heart, descending aorta, inferior vena cava

Endocrine: Pancreas, adrenal gland

Reproductive: None

Respiratory: lungs, bronchi, trachea

Lymphatic/Immunity: Spleen

Nervous: Brain, Spinal cord

Figure 2.7 Human torso model.

2. Using the terms at the right of the torso model photo (Figure 2.7), label each organ supplied with a leader line in the photo.

3. Place each of the listed organs in the correct body cavity or cavities. For organs found in the abdominopelvic cavity, also indicate which quadrant they occupy.

Dorsal body cavity: Brain, Spinal cord

Thoracic cavity: Aortic arch, bronchi, heart, Esophagus, Inferior vena cava, lungs, Descending aorta, (thoracic region) and trachea

GROUP CHALLENGE

Odd Organ Out

Each of the following sets contains four organs. One of the listed organs in each case does not share a characteristic that the other three do. Circle the organ that doesn't belong with the others and explain why it is singled out. What characteristic is it missing? Sometimes there may

be multiple reasons why the organ doesn't belong with the others. Include as many as you can think of but make sure it does not have the key characteristic. Use the overview of organ systems (Table 2.1) and the pictures in your lab manual to help you select and justify your answer.

1. Which is the "odd organ"?	Why is it the odd one out?
Stomach Teeth Small intestine Oral cavity	The teeth structure is part of digestive system
2. Which is the "odd organ"?	Why is it the odd one out?
Thyroid gland Thymus Spleen Lymph nodes	The thyroid gland is not part of the lymphatic system
3. Which is the "odd organ"?	Why is it the odd one out?
Ovaries Prostate gland Uterus Uterine tubes	The prostate gland is not a part of the female reproductive system.
4. Which is the "odd organ"?	Why is it the odd one out?
Stomach Small intestine Esophagus Large intestine	Esophagus is in the thorax instead of the rest that is in the abdominopelvic cavity.