

Introduction to the Human Body

Key Terms

abdominopelvic cavity (p. 10)

anatomical position (p. 6)

anatomy (p. 1)

cranial cavity (p. 9)

dorsal cavity (p. 9)

frontal plane (p. 7)

homeostasis (p. 6)

mediastinum (p. 10)

organs (p. 2)

pericardial cavity (p. 10)

physiology (p. 1)

pleural cavities (p. 10)

sagittal plane (p. 7)

spinal (vertebral) cavity (p. 9)

thoracic cavity (p. 10)

transverse plane (p. 7)

ventral cavity (p. 9)

viscera (p. 9)

Objectives

1. Define the terms *anatomy* and *physiology*.
2. List the levels of organization of the human body.
3. Describe the 12 major organ systems.
4. Define homeostasis.
5. Describe the anatomical position.
6. List common terms used for relative positions of the body.
7. Describe the three major planes of the body.
8. List anatomical terms for quadrants and regions of the body.
9. Describe the major cavities of the body.

The human body is a wonderful creation. Millions of microscopic parts work together in a coordinated fashion to keep you going for about 75 years. Most of us are curious about our bodies—how they work, why they do not work, what makes us tick, and what makes us sick. As you learn more about the body, you will sometimes feel like this cartoon character: “What is this? Why do I need it? How does it work? Why don’t I have one?” As you study anatomy and physiology, you will learn the answers to these questions.



ANATOMY AND PHYSIOLOGY: WHAT THEY ARE

WHAT'S IT MEAN?

Anatomy (ah-NAT-o-mee) is the branch of science that studies the structure of the body. For example, anatomy

describes what the heart looks like, how big it is, what it is made of, how it is organized, and where it is located. The word *anatomy* comes from the Greek word meaning to dissect. The science of anatomy arose from observations made by scientists centuries ago as they dissected bodies that were usually stolen from the local graveyard.

Physiology (fiz-ee-OL-o-jee) is the branch of science that describes how the body functions. For example, physiology describes how the heart pumps blood and why the pumping of blood is essential for life. Pathophysiology (path-o-fiz-ee-OL-o-jee) is the branch of science that describes the consequences of the improper functioning of the body—that is, how a body part functions when a person has a disease. Pathophysiology describes what happens during a heart attack, when the heart functions poorly, or not at all.

WHY DO I NEED TO KNOW THIS?

Why study anatomy and physiology as part of your professional curriculum? Unless you gain a good understanding of normal anatomy and physiology, you cannot understand the diseases and disorders experienced by your patients, nor can you understand the basis for the various forms of treatment such as drug therapy and surgical procedures. You want to give your patients the best possible care, so you must have a sound understanding of the human body.

Anatomy and physiology are closely related. Structure and function go together. When you examine the

anatomy of a body part, ask yourself how its structure relates to its function. For example, the structure of the hand is related to its function: its ability to grasp an object (Figure 1-1). The heart pumps blood, and the long, strong, flexible tail of the monkey allows it to hang from the tree. Structure and function go together.

? Re-Think

Using any household item, explain what is meant by “structure and function are related.”

Do You Know...

Why This Grave Is Being Robbed, and Why the Grave Robber Is in Big, Big Trouble?

Dissection of the human body during medieval times was not allowed. Thus, the only way that the early anatomists had for obtaining human bodies for dissection was to rob graves. Medieval scientists hired people to rob graves. Punishment for robbing graves was swift and severe. This lad will be in big, big trouble if he is caught, and it looks as if he will be. Surprisingly, grave robbing was common early in this century and in this country. Many a medical student who enrolled in the most prestigious medical schools had to “get” his own cadaver.



THE BODY'S LEVELS OF ORGANIZATION

The body is organized from the very simple to the complex, from the microscopic atom to the complex human organism. Note the progression from simple to complex in Figure 1-2. Tiny atoms form molecules. These in turn form larger molecules. The larger molecules are eventually organized into *cells*, the basic unit of life. Specialized groups of cells form *tissues*. Tissues are then arranged into **organs** such as the heart, stomach, and kidney. Groups of organs, in turn, create *organ systems*. Each organ system has a function, such as digestion, excretion, or reproduction. All the organ systems together form the human organism. From simple to complex, the body is built from the tiny atom to the human being.

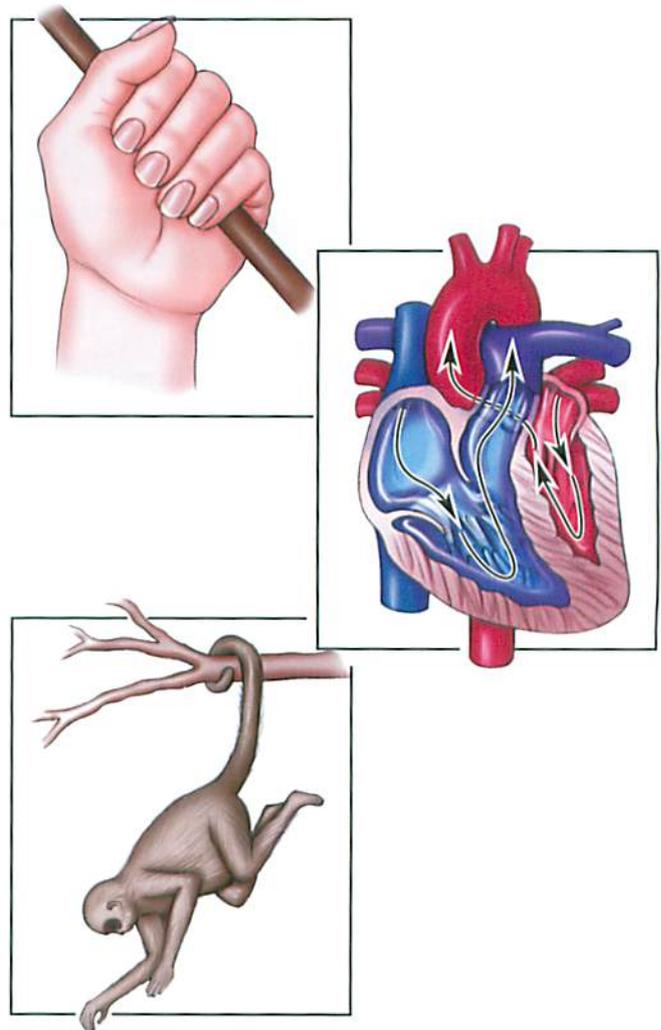


FIGURE 1-1 Structure and function are closely related.

MAJOR ORGAN SYSTEMS

Twelve major organ systems make up the human body. Each performs specific functions that enable the human body to operate as a coordinated whole. Refer to Figure 1-3 and identify the location and distribution of the organs of each system.

- The integumentary (in-teg-yoo-MEN-tar-ee) system consists of the skin and related structures such as hair and nails. The integumentary system forms a covering for the body, helps regulate body temperature, and contains some of the structures necessary for sensation.
- The skeletal system forms the basic framework of the body. It consists primarily of bones, joints, and cartilage. The skeleton protects and supports body organs and enables us to move around.
- The muscular system has three types of muscles. *Skeletal muscles* attach to the bones and are responsible for movement of the skeleton and the maintenance of body posture. *Smooth* and *cardiac muscles* are found in various organs and tubes; contraction

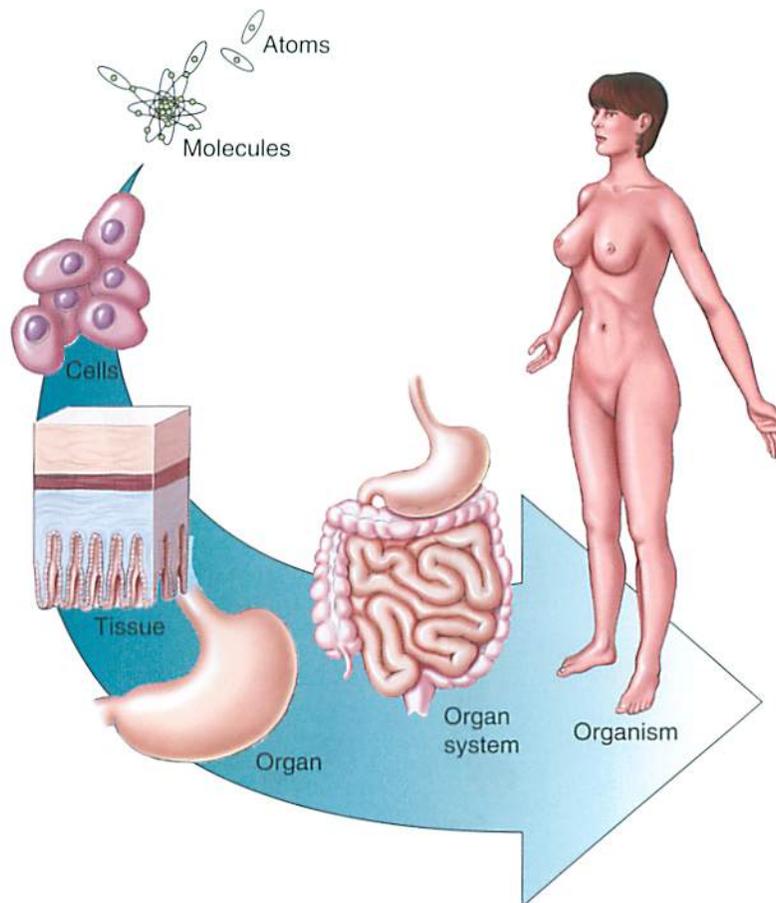


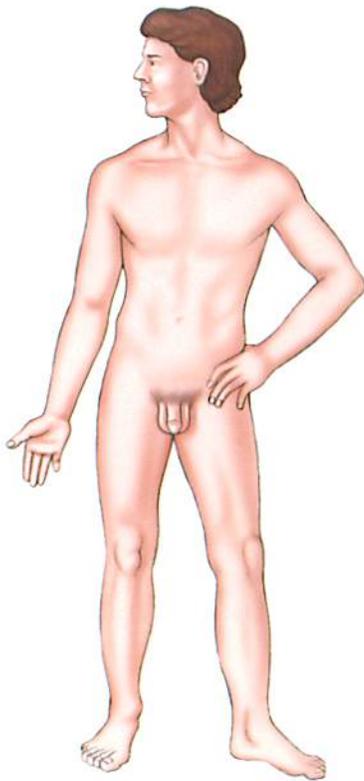
FIGURE 1-2 Levels of organization, from atoms to human organism.

and relaxation of these muscles help the organ systems carry out their functions.

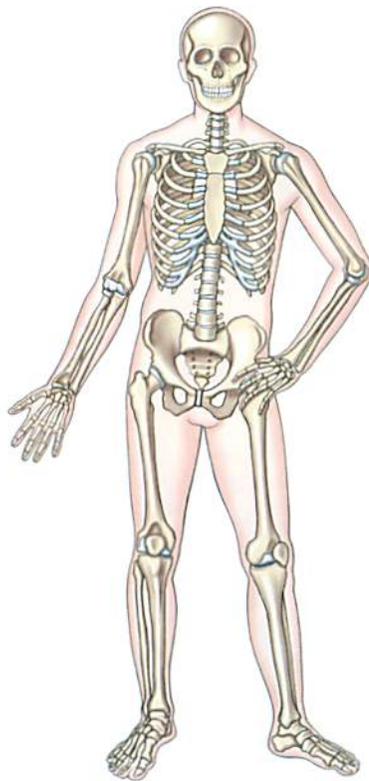
- The nervous system is made up of the brain, spinal cord, nerves, and sense organs. Sensory nerves receive information from the environment and bring it to the spinal cord and brain, where it is interpreted. Decisions made by the brain and spinal cord are transmitted along motor nerves to various body structures.
- The endocrine (EN-doh-krin) system contains numerous glands that secrete hormones and chemical substances that regulate body activities such as growth, reproduction, metabolism, and water balance.
- The circulatory (SER-kyoo-lah-tor-ee) system consists of the blood, heart, and blood vessels. This system pumps (heart) and transports (blood vessels) blood throughout the body. Blood carries nutrients and oxygen to all the body's cells and also carries the waste away from the cells to the organs of excretion.
- The lymphatic (lim-FAT-ik) system is made up of the lymph nodes, lymphatic vessels, lymph, and other lymphoid organs. Lymph and lymphoid structures play an important role in fluid balance

and in the defense of the body against pathogens and other foreign material.

- The immune system is an elaborate defense system that protects the body not only from pathogens, but also from allergens, such as pollens, bee venom, and some of our own cells that have gone awry (cancer cells). The immune system is widely distributed throughout the body (it is not shown in Figure 1-3).
- The respiratory system contains the lungs and other structures that conduct air to and from the lungs. Oxygen-rich air moves into the lungs; the oxygen is picked up by the blood and distributed throughout the body. Carbon dioxide-rich air moves out of the lungs, thereby ridding the body of waste.
- The digestive system is comprised of organs designed to ingest food and break it down into substances that can be absorbed by the body. Food that is not absorbed is eliminated as waste.
- The urinary system contains the kidneys and other structures that help excrete waste products from the body through the urine. More importantly, the urinary system helps control water, electrolyte, and acid-base balance in the body.
- The reproductive system is made up of organs and structures that enable humans to reproduce.



Integumentary system



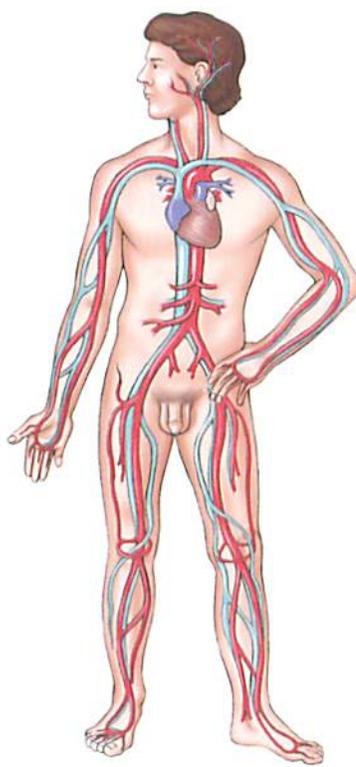
Skeletal system



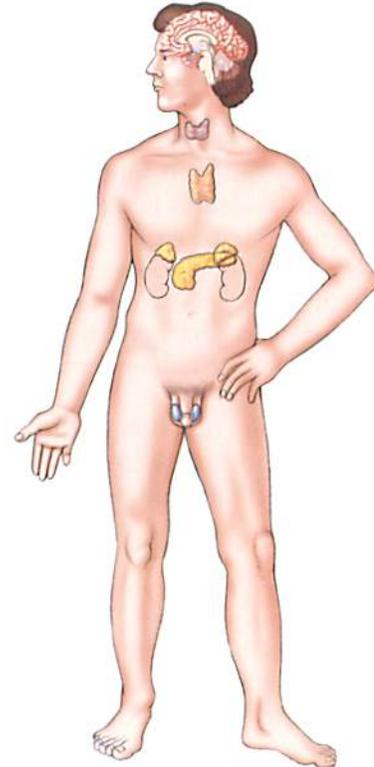
Muscular system



Nervous system

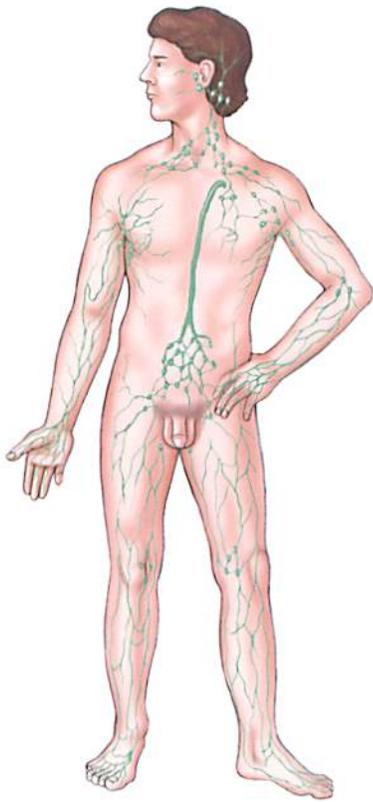


Circulatory system

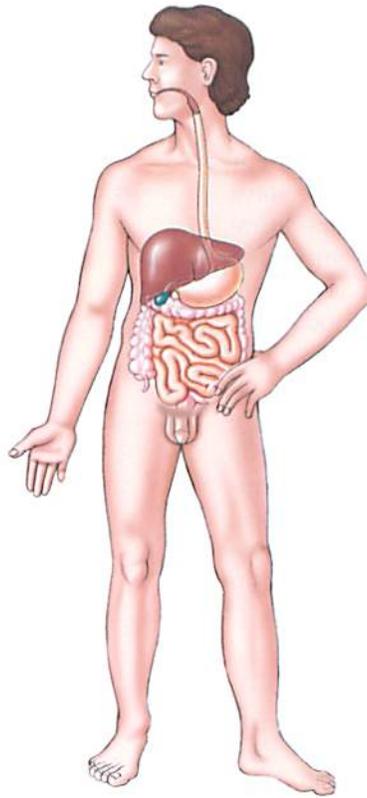


Endocrine system

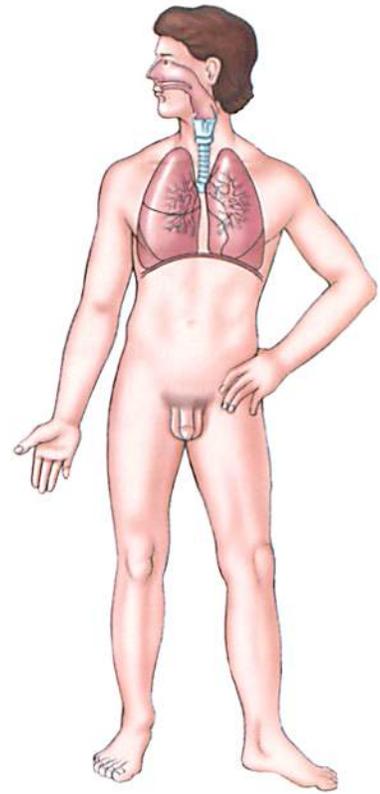
FIGURE 1-3 Major organ systems of the body.



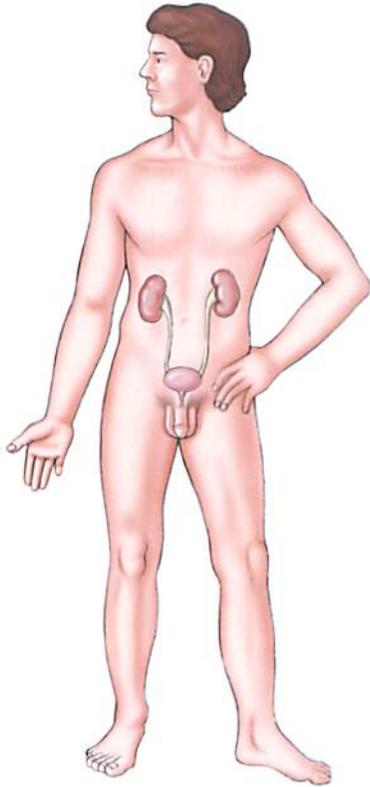
Lymphatic system



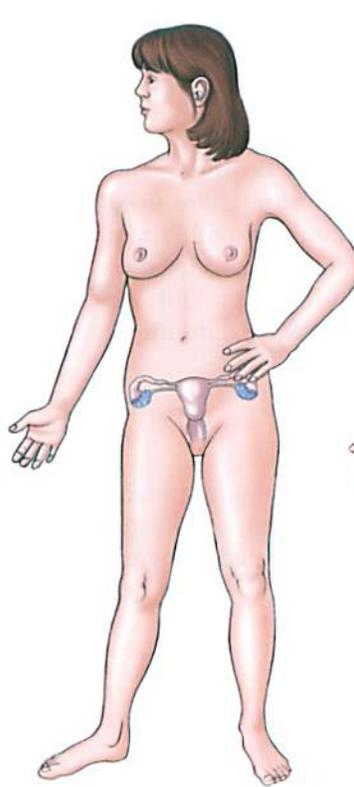
Digestive system



Respiratory system



Urinary system



Reproductive system

FIGURE 1-3, cont'd

HOMEOSTASIS: STAYING THE SAME

Homeostasis (ho-me-o-STAY-sis) literally means staying (*stasis*) the same (*homeo*). The term refers to the body's ability to maintain a stable internal environment in response to a changing environment. For example, in a healthy person, body temperature stays around 98.6°F (37°C), even when room temperature increases to 100°F or decreases to 60°F. The amount of water in your cells stays the same whether you drink 2, 3, or 4 liters (L) of water per day. Your blood sugar remains within normal limits whether you have just eaten a turkey dinner or have fasted for 6 hours.

Mechanisms that help maintain homeostasis are called *homeostatic mechanisms*. The body has hundreds of homeostatic mechanisms, including those for temperature control, blood sugar control, water balance, blood pressure regulation, and regulation of plasma sodium levels. Homeostatic imbalance results in disease or dysfunction.

2+2 Sum It Up!

Anatomy and physiology describes the structure and function of the body. The body is constructed from simple to complex (atoms to molecules to cells to tissues to organs to organ systems to the human organism). The 12 major organ systems are shown in Figure 1-3. Homeostatic mechanisms enable the body to "stay the same" despite changing internal and external environments.

ANATOMICAL TERMS: TALKING ABOUT THE BODY

Special terms describe the location, position, and regions of body parts. Because these terms are used frequently, you should become familiar with them now. People in the medical field are often accused of speaking their own language. Indeed, we do! We always use these terms as if the body were standing in its anatomical position.

ANATOMICAL POSITION

In its **anatomical position**, the body is standing erect, with the face forward, the arms at the sides, and the toes and palms of the hands directed forward (Figure 1-4).

RELATIVE POSITIONS

Specific terms describe the position of one body part in relation to another body part. These are directional terms. They are like the more familiar directions of north, south, east, and west; however, whereas describing Canada as being located north of the United States would be correct, describing the head as "north of the chest" would sound strange. Therefore, in locating body parts, we use other terminology. The terms come

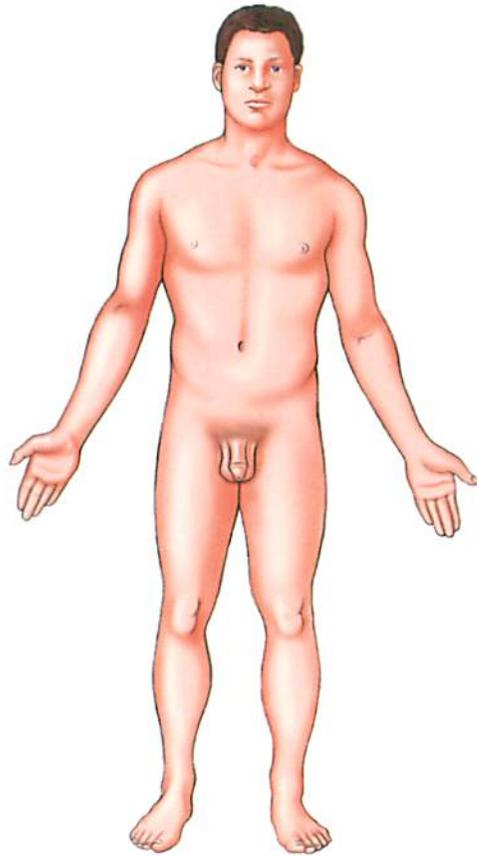


FIGURE 1-4 Anatomical position.

in pairs. Note that the two terms in each pair are generally opposites. Remember, the references are valid only for the body in its anatomical position.

- **Superior and inferior.** *Superior* means that a part is above another part or is closer to the head. For example, the head is superior to the chest. *Inferior* means that a part is located below another part or is closer to the feet. The chest, for example, is inferior to the head.
- **Anterior and posterior.** *Anterior* means toward the front surface (the belly surface). *Posterior* means toward the back surface. For example, the heart is anterior to the spinal cord, but the heart is posterior to the breastbone. Another word for anterior is *ventral*, and another word for posterior is *dorsal*. Consider the dorsal fin of a fish. It is the dorsal part of the shark that can be seen moving effortlessly and very quickly toward your surfboard!
- **Medial and lateral.** Imagine a line drawn through the middle of your body, dividing it into right and left halves. This is the midline. *Medial* means toward the midline of the body. The nose, for example is medial to the ears. *Lateral* means away from the midline of the body. For example, the ears are lateral to the nose. In the anatomical position, the hand is closer to the lateral thigh than to the medial thigh.
- **Proximal and distal.** *Proximal* means that the structure is nearer the point of attachment, often the

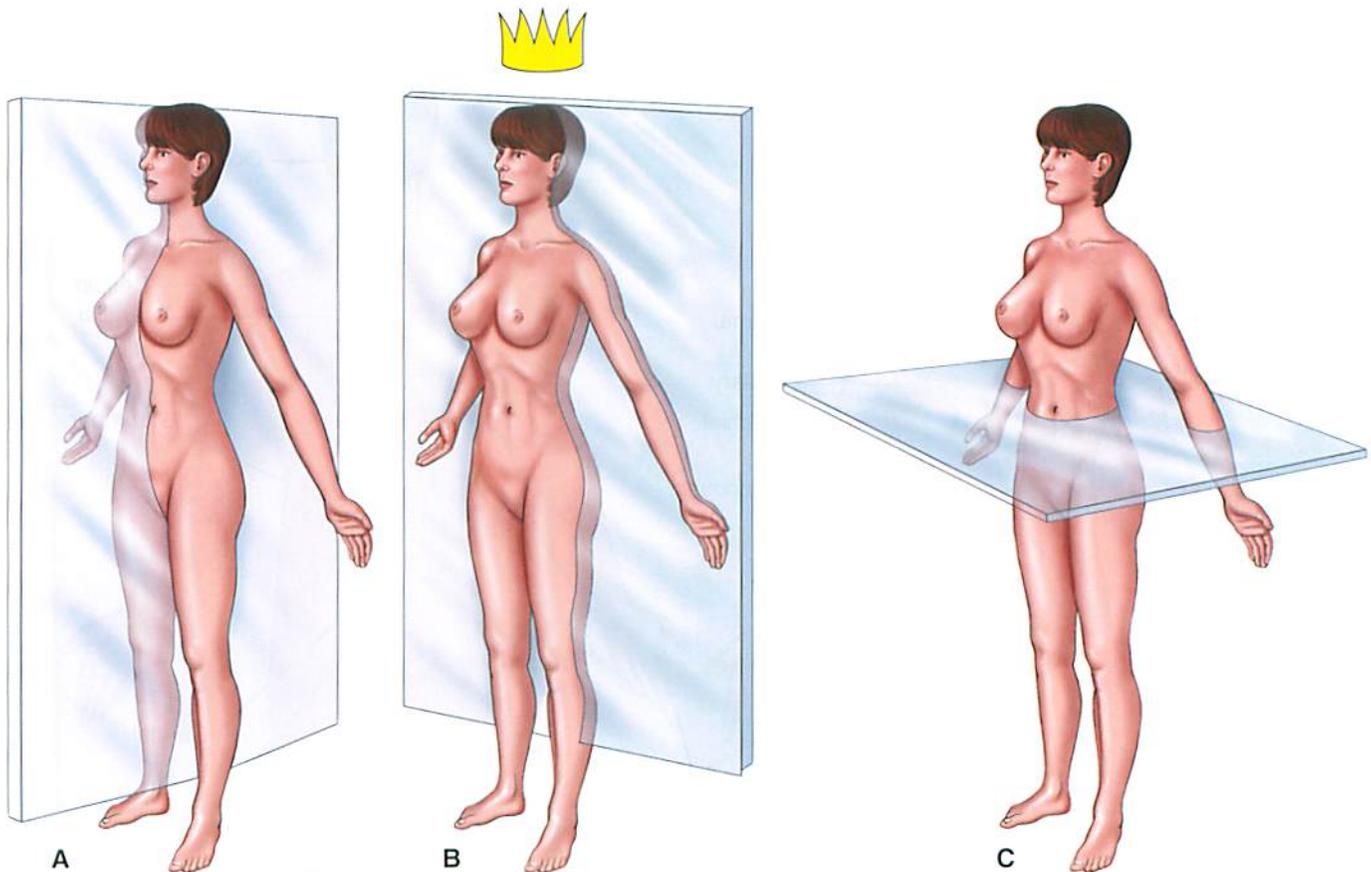


FIGURE 1-5 Planes of the body. A, Sagittal. B, Frontal (coronal). C, Transverse.

trunk of the body. Because the elbow is closer to the point of attachment than is the wrist, the elbow is described as proximal to the wrist. The wrist is proximal to the fingers, meaning that the wrist is closer to the trunk than are the fingers. *Distal* means that a part is farther away from the point of attachment than another part. For example, the wrist is distal to the elbow and the fingers are distal to the wrist.

- *Superficial and deep.* *Superficial* means that a part is located on or near the surface of the body. The skin is superficial to the muscles. *Deep* means that the body part is away from the surface of the body. The bones, for example, are deep to the skin.
- *Central and peripheral.* *Central* means that the part is located in the center. *Peripheral* means away from the center. The heart, for example, is located centrally, whereas the blood vessels are located peripherally (away from the center and extending toward the limbs). The brain and spinal cord are called the central nervous system and the nerves are called the peripheral nervous system.

? Re-Think

Use the terms *medial* and *lateral* in describing the parts of the thigh. Do the same with the eye.

PLANES OF THE BODY

When we refer to the left side of the body, the top half of the body, or the front of the body, we are referring to the planes of the body. Each plane divides the body with an imaginary line in one direction. Figure 1-5 shows the following three important planes:

1. Sagittal plane (see Figure 1-5, A). The **sagittal plane** divides the body lengthwise into right and left portions. If the cut is made exactly down the midline of the body, the right and left halves of the body are equal. This division is a midsagittal section.
2. Frontal plane (see Figure 1-5, B). The **frontal plane** divides the body into anterior (ventral) and posterior (dorsal) portions. This plane creates the front part of the body and the back part of the body. The frontal plane is also called the *coronal plane*. Coronal means “crown,” so the imaginary line for the coronal plane is made across the part of the head where a crown would sit and then downward through the body.
3. Transverse plane (see Figure 1-5, C). The **transverse plane** divides the body horizontally, creating an upper (superior) and a lower (inferior) body. When the body or an organ is cut horizontally or transversely, it is called a cross section.

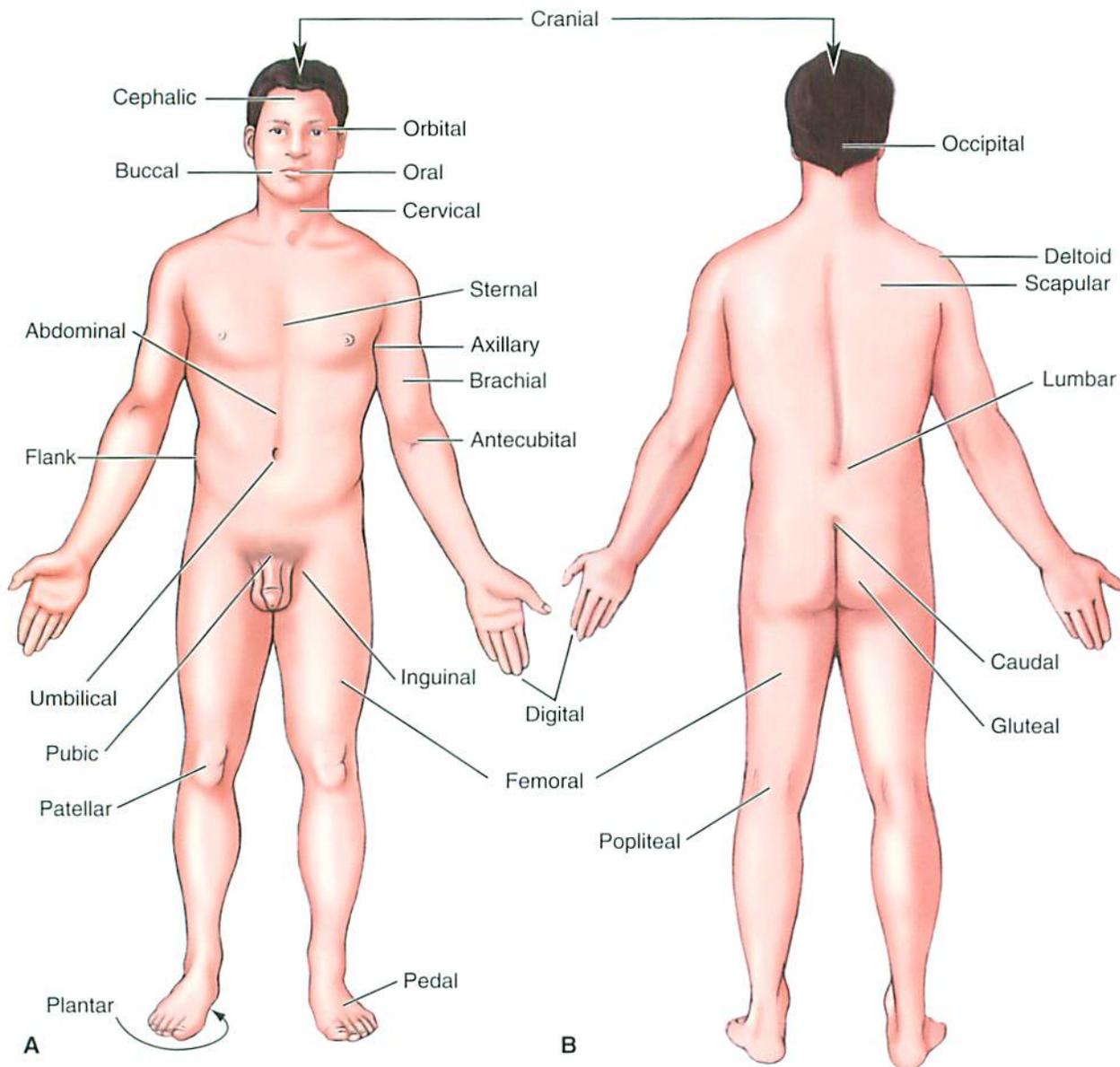


FIGURE 1-6 Regional terms. **A**, Anterior view. **B**, Posterior view.

REGIONAL TERMS

Specific terms describe the different regions or areas of the body. Figure 1-6 illustrates the terms used to identify the regions on the anterior and posterior surfaces of the body.

On the anterior surface, identify the following regions:

Abdominal: anterior trunk just below the ribs

Antecubital: area in front of the elbow

Axillary: armpit

Brachial: arm

Buccal: cheek area; cavity between the gum and cheek

Cephalic: head

Cervical: neck region

Cranial: nearer to the head

Digital: fingers, toes

Femoral: thigh area

Flank: fleshy area along each side between the lower ribs and the top of the hip bones

Inguinal: area where the thigh meets the trunk of the body; often called the groin

Oral: mouth

Orbital: area around the eye

Patellar: front of the knee over the kneecap

Pedal: foot

Plantar: sole of the foot

Pubic: genital area

Sternal: middle of the chest (over the breastbone area)

Umbilical: navel

On the posterior surface, identify the following regions:

Caudal: near to the lower region of the spinal column (near the tailbone)

Deltoid: rounded area of the shoulder closest to the upper arm

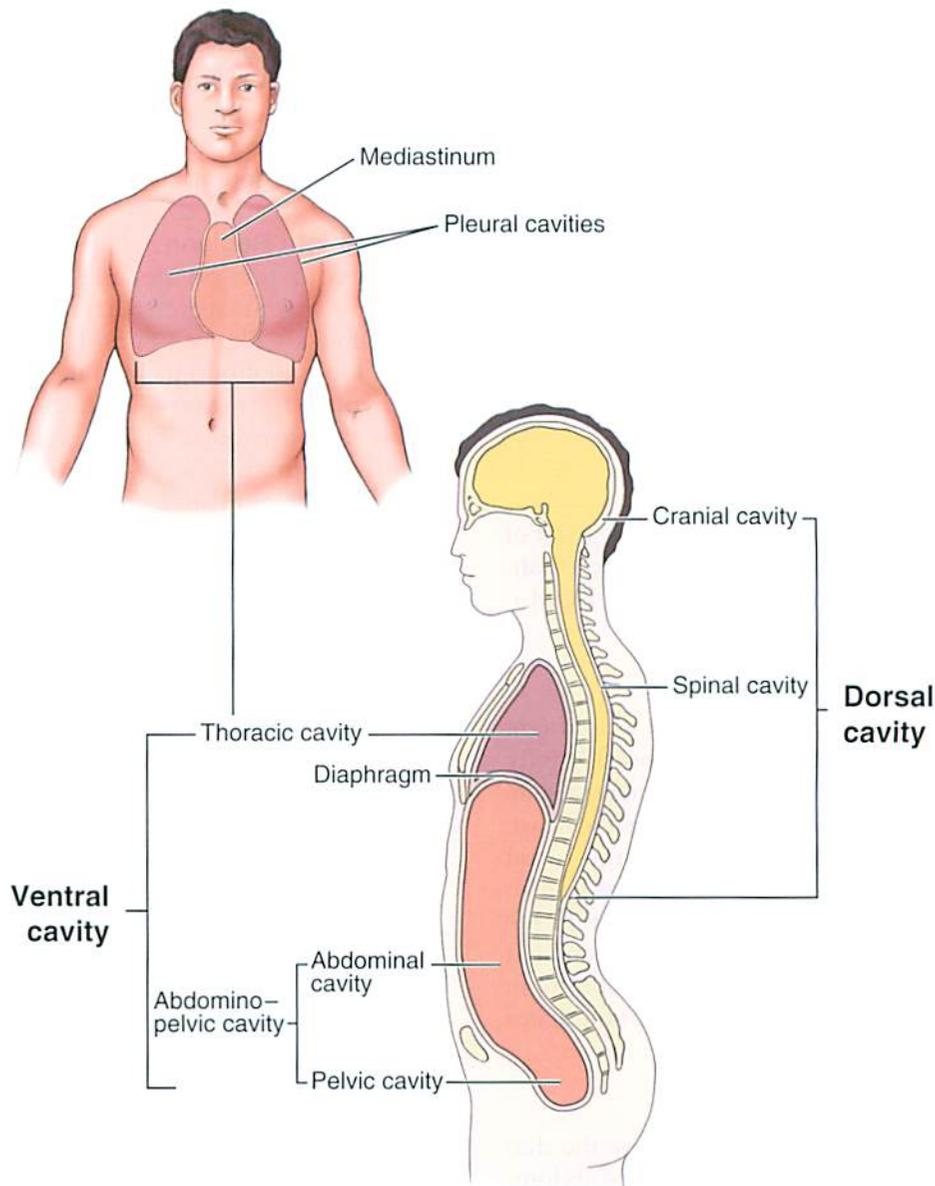


FIGURE 1-7 Major body cavities.

Gluteal: buttocks

Lumbar: area of the back between the ribs and the hips

Occipital: back of the head

Popliteal: behind, or back of, the knee area

Scapular: shoulder blade area

2+2 Sum It Up!

Specific terms describe the relative positions of one body part to the other. The terms are paired as opposites and include superior and inferior, anterior (ventral) and posterior (dorsal), medial and lateral, proximal and distal, superficial and deep, and central and peripheral. The body can be cut into three planes: sagittal (right and left), frontal or coronal (front and back), and transverse (top and bottom) planes. Common terms are used to identify specific areas of the anterior and posterior surface areas.

? Re-Think

Of the following terms, which can be seen only on the posterior view of the body: umbilical, antecubital, gluteal, lumbar, sternal, patellar, and popliteal?

CAVITIES OF THE BODY

DORSAL CAVITY

The organs, called **viscera** (VISS-er-ah), are located within the cavities of the body. Cavities are large internal spaces. The body contains two major cavities: the **dorsal cavity** and the **ventral cavity** (Figure 1-7). The dorsal cavity is located toward the back of the body and has two divisions, the **cranial cavity** and the **spinal (vertebral) cavity**.



Do You Know...

What Your Postsurgical Patient Has Done If He Eviscerated?

His internal organs have protruded through his surgical incision. This word comes from the word *viscera* (organs). The organs must be kept moist and sterile until they can be returned to their home cavity.

The cranial cavity is located within the skull and contains the brain. The spinal, or vertebral, cavity extends downward from the cranial cavity and is surrounded by bony vertebrae; it contains the spinal cord. The cranial and spinal cavities form one continuous space.

VENTRAL CAVITY

The larger ventral cavity is located toward the front of the body and has two divisions, the **thoracic** (thoh-RASS-ik) **cavity** and the **abdominopelvic** (ab-DOM-i-no-PEL-vik) **cavity**.

THORACIC CAVITY

The thoracic cavity is located above the diaphragm and is surrounded by the rib cage. The thoracic cavity is divided into two compartments by the **mediastinum** (MEE-dee-ass-TI-num), a space that contains the heart, esophagus, trachea, thymus gland, and large blood vessels attached to the heart. The **pericardial** (pair-i-KAR-dee-al) **cavity** (not shown) is located within the mediastinum and contains the heart. The right and left lungs are located on either side of the mediastinum in the **pleural cavities**. The lungs occupy most of the space within the thoracic cavity.

ABDOMINOPELVIC CAVITY

The abdominopelvic cavity is located below the diaphragm. The upper portion of this cavity is the abdominal cavity. It contains the stomach, most of the intestine, liver, gallbladder, pancreas, spleen, and kidneys. The lower portion of the abdominopelvic cavity is called the **pelvic cavity**. It extends downward from the level of the hips and includes the remainder of the intestines, the rectum, urinary bladder, and internal parts of the reproductive system.

Because the abdominopelvic cavity is so large, it is subdivided into smaller areas for study. Quadrants and regions divide the abdominopelvic cavity. Note the organs located in each quadrant or region, as shown in Figure 1-8.

Division into Quadrants

The abdominopelvic cavity can be divided into four quadrants (see Figure 1-8, A). The quadrants are named for their positions: right upper quadrant (RUQ), left upper quadrant (LUQ), right lower quadrant (RLQ), and left lower quadrant (LLQ).

Quadrant terms are used frequently in the clinical setting. For example, a patient in the emergency room

who has acute pain in the RLQ may be diagnosed with appendicitis. Note that the RLQ appears to be on your left. This is similar to looking in a mirror. Keep this in mind when you are studying the diagrams in the text. Here's an easy way to remember this: Lower your right arm. It will be lateral to the RUQ and RLQ.

Division into Regions

A second system divides the abdominopelvic cavity into nine separate regions that resemble the squares for tic-tac-toe (see Figure 1-8, B). The three central regions (from top to bottom) include the epigastric, umbilical, and hypogastric regions. The epigastric region is located below the breastbone. Epigastric literally means upon (*epi*) the stomach (*gastric*). The umbilical region is the centermost region and surrounds the umbilicus, or navel (belly button). The hypogastric region is located just below the umbilical region. Hypogastric literally means below (*hypo*) the stomach (*gastric*).

Six regions are located on either side of the central regions. They include the hypochondriac, lumbar, and iliac regions. The right and left hypochondriac regions are located on either side of the epigastric region and overlie the lower ribs. The word *hypochondriac* literally means below (*hypo*) the cartilage (*chondro*) and refers to the composition of the ribs (cartilage). The right and left lumbar regions are located on either side of the umbilical region and are inferior to the hypochondriac regions. The right and left iliac regions, also called the right and left inguinal regions, are located on either side of the hypogastric region. Knowledge of these regions helps you understand terms such as epigastric pain and umbilical hernia. Remember that quadrants and regions refer only to the abdominopelvic cavity and not to the thoracic cavity.

Other Cavities

Four smaller cavities are located in the head. They include the oral cavity, nasal cavities, orbital cavities, and middle ear cavities. (These cavities are described in later chapters.)



Re-Think

Of the following terms, determine which pertain to the ventral cavity: thoracic cavity, brain, vertebral cavity, abdominopelvic cavity, pleural cavity, dorsal cavity, mediastinum, stomach, heart, and spinal cord.



Sum It Up!

The organs are located within body cavities. The two major cavities are the dorsal cavity, located toward the back of the body, and the larger ventral cavity, located in the front of the body. The dorsal cavity is subdivided into the cranial cavity and the spinal cavity. The ventral cavity is divided by the diaphragm into the thoracic cavity (including the mediastinum, pericardial cavity, and pleural cavities) and the abdominopelvic cavity. The abdominopelvic cavity is divided into quadrants and regions.

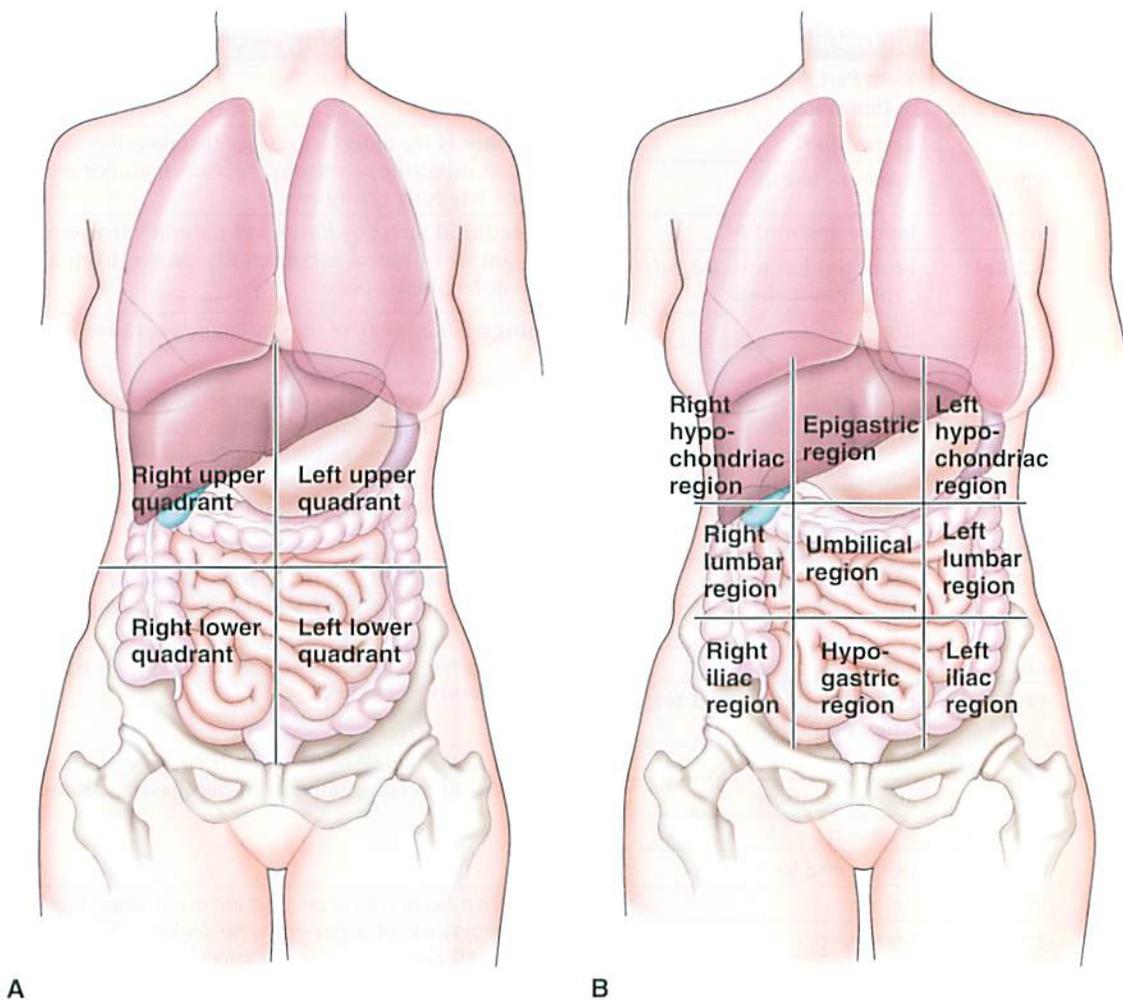


FIGURE 1-8 The abdominopelvic cavity. A, Four quadrants. B, Nine regions.



MEDICAL TERMINOLOGY AND DISORDERS

Introduction to Medical Terminology

The medical profession has its own language, called **medical terminology**. In general, there are four main types or kinds of word parts. By learning these and how they can be put together, you can often “translate” many long and challenging medical words by breaking them up into their word parts.

A **word root** is the core of the word and provides the basic meaning or “subject” of the word. The other word parts, such as suffixes and prefixes, modify the word root so that it takes on a new meaning. For example, in the word **hepatitis**, the word root is **hepat-**, meaning *liver*.

A **suffix** is a word part attached to the end of the word root; it modifies the word root. If we add **-itis**, which is a suffix that means *inflammation*, to the word root for liver, **hepat-**, we get **hepatitis**, which means *inflammation of the liver*.

A **prefix** is a word part attached to the beginning of the word root; it modifies the word root. For example, the word **nutrition** refers to a normal and healthy food intake. By adding the prefix **mal-** (French for *bad*), as in **malnutrition**, the word root has been modified to mean *poor or bad nutrition*.

Combining vowels are word parts used to ease the pronunciation, as in **angioplasty** (angi/o/plasty). **Angi-** means *blood vessel*, and **-plasty** means *repair of*. The **-o-** joining the word parts eases the pronunciation; it does not modify the meaning of the word. When you see **angi/o-**, you are seeing the word root and its combining vowel.

On the next page you will see many terms with which you are probably familiar, but what you may not be familiar with is what their individual word parts are and how they are put together to make up many of the words you use every day. For instance, take **-ectomy**, which means *excision or removal of*. Think of all the terms that have **-ectomy** at the end—such as **lobectomy**, **vasectomy**, **hysterectomy**, **appendectomy**, **tonsillectomy**—and you will see how valuable knowing what this one word part is.

Continued


MEDICAL TERMINOLOGY AND DISORDERS Introduction to Medical Terminology—cont'd

Medical Term	Word Parts	Word Part Meaning or Derivation	Description
anatomy	ana- -tomy	up or apart incision; to cut	Anatomy is the branch of science that describes the structure of a body, especially as revealed by dissection. For example, the heart has four chambers.
antecubital	ante- -cubital	before; in front of From the Latin word <i>cubitum</i> , meaning "elbow"	Antecubital space is the area of the arm anterior to the elbow. A sample of blood is commonly drawn from a vein in the antecubital space.
biology	bio- -logy	life study of	Biology is the study of life and living organisms.
diagnosis	dia- -gnos/o- -osis	apart knowing condition or increase	Diagnosis is the process of identifying the nature and cause of a disease or injury through an analysis of data such as the patient's symptoms and laboratory and x-ray studies.
pathologist	path/o- -logist	pertaining to disease one who specializes in	A pathologist examines tissue for evidence of disease.
homeostasis	home/o- -stasis	sameness stand still	Homeostasis refers to the relative constancy of the internal environment of the body despite many challenges to upset the balance.
transverse	trans- -verse	across From the Latin word <i>vertere</i> , meaning "to turn"	A transverse plane cuts across the body; an upper and lower body is created.
midepigastic	mid- -epi- -gastr/o- -ic	middle above or upon stomach pertaining to	Related to the middle of the epigastric region of the abdomen. A person often complains of midepigastic discomfort.
prognosis	pro- -gnos/o- -osis	before knowing process	Refers to a likely course or outcome of a disease. For example, the prognosis of a person who seeks early treatment of a basal cell carcinoma (skin cancer) is excellent; the prognosis of a person with metastatic cancer is less favorable.
quadrant	quadr/i- -ant	four performing/promoting	The abdominopelvic cavity is divided into four equal areas called quadrants .

Get Ready for Exams!

Summary Outline

Anatomy is the study of structure; physiology is the study of function. Structure (anatomy) and function (physiology) are related.

I. The Body's Levels of Organization

- A. From simple to complex: Atoms to molecules to cells to tissues to organs to organ systems to human organism
- B. Major organ systems (12)
 1. Integumentary system
 2. Skeletal system
 3. Muscular system
 4. Nervous system
 5. Endocrine system
 6. Heart and circulatory system
 7. Lymphatic system
 8. Immune system
 9. Respiratory system
 10. Digestive system
 11. Urinary system
 12. Reproductive system

- C. Homeostasis: the body's ability to maintain a stable internal environment in response to various internal and external challenges

II. Anatomical Terms: Talking About the Body

- A. Anatomical position: the body standing erect, arms by the side, with palms and toes facing forward
- B. Relative positions: superior-inferior, anterior-posterior, medial-lateral, proximal-distal, superficial-deep, central-peripheral
- C. Planes (three): sagittal, frontal (coronal), and transverse planes
- D. Regional terms: listed in Figure 1-6
- E. Cavities of the body
 1. Dorsal cavity
 - a. Cranial cavity: contains the brain
 - b. Spinal (vertebral) cavity: contains the spinal cord
 2. Ventral cavity
 - a. Thoracic cavity: superior to the diaphragm; contains the pleural cavities (lungs) and mediastinum (pericardial cavity)

- b. Abdominopelvic cavity: located inferior to the diaphragm
- c. Abdominal cavity: upper part that contains the stomach, most of the intestines, liver, spleen, and kidneys
- d. Pelvic cavity: lower part that contains the reproductive organs, urinary bladder, and lower part of the intestines
- e. For reference: the abdominopelvic cavity is divided into four quadrants and nine regions

Review Your Knowledge

Matching: Directions of the Body

Directions: Match the following words with their descriptions below. Some words may be used more than once or not at all.

- a. posterior
- b. distal
- c. medial
- d. anterior
- e. proximal
- f. superior
- g. deep

1. ___ Toward the midline of the body; opposite of lateral
2. ___ Structure that is nearer to the trunk than another part; opposite of distal
3. ___ Part of the radius (forearm bone) that is closer to the wrist than to the elbow
4. ___ The lungs are located above the diaphragm; their position relative to the diaphragm is described as being above.
5. ___ Toward the front (the belly surface); another word is ventral

Matching: Regional Terms

Directions: Match the following words with their descriptions below.

- | | |
|----------------|---|
| a. inguinal | 1. ___ Armpit |
| b. oral | 2. ___ Kneecap area |
| c. lumbar | 3. ___ Breastbone area |
| d. axillary | 4. ___ Front part of the elbow area |
| e. buccal | 5. ___ Fleshy area along the side between the ribs and hip bone |
| f. patellar | 6. ___ Pertaining to the mouth |
| g. flank | 7. ___ Lower back area extending from the chest to the hips |
| h. antecubital | 8. ___ Pertains to the space between the cheek and gum |
| i. sternal | 9. ___ Groin region |
| j. scapular | 10. ___ Shoulder blade area |

Multiple Choice

1. This part of the humerus (arm bone) is closer to the elbow than to the axillary region.
 - a. Anterior
 - b. Superior
 - c. Distal
 - d. Proximal
2. Describe the relationship of the mediastinum to the diaphragm.
 - a. Distal
 - b. Deep
 - c. Anterior
 - d. Superior
3. The umbilical area is located
 - a. inferior to the inguinal region.
 - b. superior to the RUQ.
 - c. inferior to the diaphragm.
 - d. within the midepigastic region.
4. The sternal area is
 - a. superior to the diaphragm.
 - b. referred to as the breastbone area.
 - c. superficial to the mediastinum.
 - d. All of the above are true.
5. Which of the following is not descriptive of the mediastinum?
 - a. Thoracic cavity
 - b. Dorsal cavity
 - c. Ventral cavity
 - d. Superior to the diaphragm
6. The frontal plane
 - a. splits the body into right- and left-half sections.
 - b. is also the coronal plane.
 - c. splits the body into a top and a bottom section.
 - d. creates a transverse cross section.
7. Which of the following terms best describes when the blood vessels dilate and the person sweats in order to decrease body temperature?
 - a. Pathophysiology
 - b. Evisceration
 - c. Homeostasis
 - d. Midsagittal
8. Which of the following is true of these terms: sternal, umbilical, patellar, and antecubital?
 - a. All are superior to the inguinal area.
 - b. All lie within the ventral cavity.
 - c. All can be viewed on the anterior body.
 - d. All lie within the dorsal cavity.

Go Figure

1. According to Figure 1-6
 - a. The brachial, lumbar, and antecubital areas can only be identified on the posterior view of the body.
 - b. The inguinal and flank areas are the same.
 - c. The gluteal, lumbar, and scapular areas are inferior to the umbilicus.
 - d. The popliteal and patellar areas are located in the lower extremities.
2. Refer to Figures 1-5 and 1-6. A midsagittal section yields half of a body. Which body regions are preserved in this half-body section?
 - a. The patellar (right and left), flank (right and left), and brachial (right and left) are preserved.
 - b. Neither the right nor left patellar areas and neither the right nor left antecubital areas are preserved.
 - c. All areas displayed in Figure 1-6, B, are preserved.
 - d. A left or right inguinal, pedal, and axillary area is preserved.

3. According to Figure 1-7

- a. The thoracic cavity is a ventral cavity that includes the mediastinum and pleural cavities.
- b. The diaphragm separates the two pleural cavities.
- c. The dorsal cavity includes the pleural cavities and the mediastinum.
- d. All of the above are true.

4. According to Figure 1-8

- a. The ventral cavity is divided into quadrants.
- b. The dorsal cavity is divided into regions.
- c. RUQ, LUQ, RLQ, and LLQ describe only the abdominal cavity.
- d. RUQ, LUQ, RLQ, and LLQ are quadrants that define the abdominopelvic cavity.

5. According to Figure 1-8

- a. The left iliac region is located within the LUQ.
- b. The hypogastric region is located within the RUQ.
- c. The umbilical region surrounds the navel or belly button.
- d. The right lung is located within the RUQ.