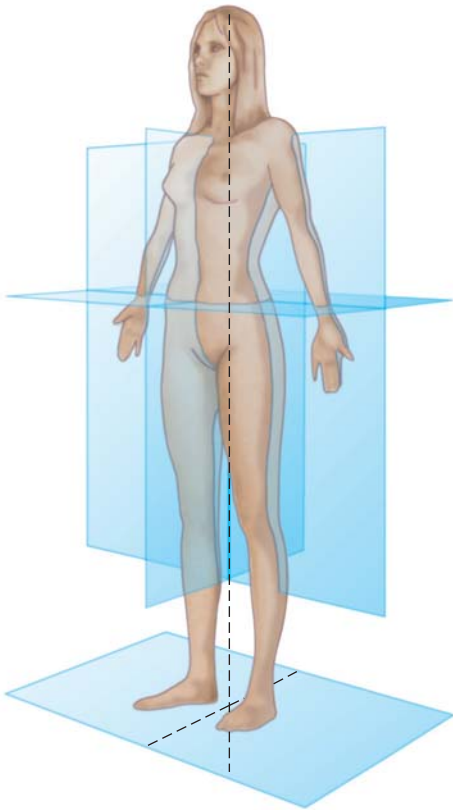


CHAPTER

3

Body Structure



After studying this chapter, you will be able to:

- 3.1 Define the elements of human body structure
- 3.2 Describe the planes of the body
- 3.3 Locate the body cavities and list organs that are contained within each cavity
- 3.4 Recognize combining forms that relate to elements and systems of the body

Body Structure and Organization

The body is organized from its smallest element, the **cell**, to the collection of systems, with all its interrelated parts. The entire body is made of cells that vary in size, shape, and function, but all cells have one thing in common: they need food, water, and oxygen to live and function.

Cells

The basic structure of a cell (Figure 3-1) includes three parts:

1. The *cell membrane* is the outer covering of the cell. It holds substances inside the cell while helping the cell maintain its shape. It also regulates substances that are allowed to pass in and out of the cell.
2. The *nucleus* is the central portion of each cell. It directs the cell's activities and contains the *chromosomes*. The chromosomes are the bearers of *genes*—those elements that control inherited traits such as eye color, height, inherited diseases, gender, and so on. The chromosomes are made of deoxyribonucleic acid or DNA, which contains all the genetic information for the cell.
3. Surrounding the nucleus is the *cytoplasm*, a substance that contains the material to instruct cells to perform different essential tasks, such as reproduction and movement. This material, called *organelles*, comes in many different types. Some common examples are *mitochondria* (sing. *mitochondrion*), organelles that provide energy needed for the body's tasks; *ribosomes*, which manufacture proteins; and *lysosomes*, which can break down substances, such as bacteria.

Cell growth can be either normal or abnormal. Later in this book you will learn how normal cell growth takes place so that the body can grow and function. You will also learn about abnormal cell growth, which is a major factor in some diseases.

To see some videos about living cells, go to www.cellsalive.com and click on animal cells.

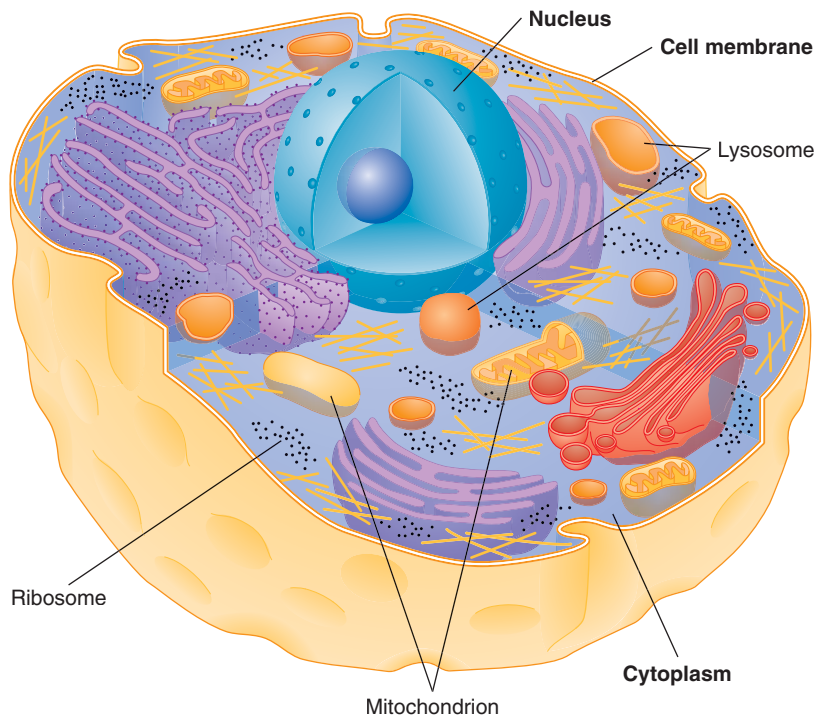


FIGURE 3-1 The human body is made up of cells. Cells have three basic parts—a cell membrane, a nucleus, and cytoplasm.

Tissues

Groups of cells that work together to perform the same task are called **tissue**. The body has four types of tissue:

- **Connective tissue** holds and connects body parts together. Examples are bones, ligaments, and tendons.
- **Epithelial tissue** covers the internal and external body surfaces. Skin and linings of internal organs (such as the intestines) are epithelial tissue.
- **Muscle tissue** expands and contracts, allowing the body to move.
- **Nervous tissue** carries messages to and from the brain and spinal cord from all parts of the body.

MORE ABOUT . . .

Cell Types

Cells all have specialized functions. Their shape influences their function. Nerve cells usually have long, thin extensions that can transmit nerve impulses over a distance. Epithelial cells that line the mouth are thin, flat, and tightly packed so that they form a protective layer over underlying cells. Muscle cells are slender rods that attach at the ends of the structures they move. As these types of cells specialize further, their shape and function change to fit a specific need.

Parts of a cell are also important to its function. For example, a cell membrane either allows or prevents passage of nutrients and waste products through it, providing control over what materials move in and out of a cell.

Suggested Websites

<http://www.innerbody.com/>

www.getbodysmart.com

<http://www.merck.com/mmpe/index.html>

Organs

Groups of tissue that work together to perform a specific function are called **organs**. Examples are the *kidneys*, which maintain water and salt balance in the blood, and the *stomach*, which breaks down food into substances that the circulatory system can transport throughout the body as nourishment for its cells.

Systems

Groups of organs that work together to perform one of the body's major functions form a **system**. The terminology for each body system is provided in a separate chapter.

- The **integumentary system** consists of the skin and the accessory structures derived from it—hair, nails, sweat glands, and oil glands. (See Chapter 4.)
- The **musculoskeletal system** supports the body, protects organs, and provides body movement. It includes muscles, bones, and cartilage. (See Chapter 5.)
- The **cardiovascular system** includes the heart and blood vessels, which pump and transport blood throughout the body. Blood carries nutrients to and removes waste from the tissues. (See Chapter 6.)
- The **respiratory system** includes the lungs and the airways. This system performs respiration. (See Chapter 7.)
- The **nervous system** consists of the brain, spinal cord, and peripheral nerves. The nervous system regulates most body activities and sends and receives messages from the sensory organs. (See Chapter 8.) The two major sensory organs are covered in the sensory system. (See Chapter 16.)
- The **urinary system** includes the kidneys, ureters, bladder, and urethra. It eliminates metabolic waste, helps to maintain acid-base and water-salt balance, and helps regulate blood pressure. (See Chapter 9.)
- The **reproductive system** controls reproduction and heredity. The female reproductive system includes the ovaries, vagina, uterine (fallopian) tubes, uterus, and mammary glands. (See Chapter 10.) The male reproductive system includes the testes, penis, prostate gland, vas deferens, and the seminal vesicles. (See Chapter 11.)
- The **blood system** includes the blood and all its components. (See Chapter 12.)
- The **lymphatic and immune systems** includes the lymph, the glands of the lymphatic system, lymphatic vessels, and the nonspecific and specific defenses of the immune system. (See Chapter 13.)
- The **digestive system** includes all the organs of digestion and excretion of waste. (See Chapter 14.)
- The **endocrine system** includes the glands that secrete hormones for regulation of many of the body's activities. (See Chapter 15.)
- The **sensory system** covers the eyes and ears and those parts of other systems that are involved in the reactions of the five senses. (See Chapter 16.)

Cavities

The body has two main cavities (spaces)—the dorsal and the ventral. The **dorsal cavity**, on the back side of the body, is divided into the **cranial cavity**,

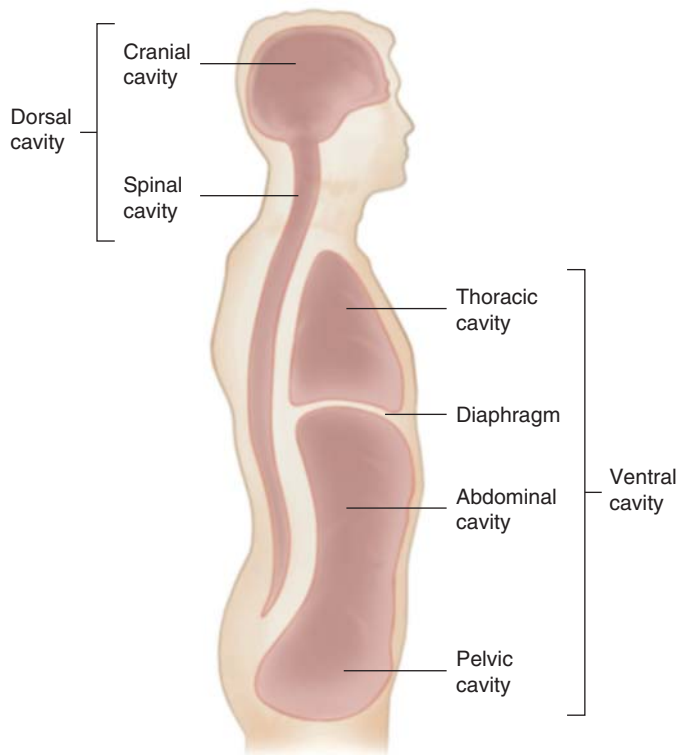


FIGURE 3-2 The body has two main cavities—the dorsal and the ventral cavities. Each of these is further divided into smaller cavities as shown here.

which holds the brain, and the **spinal cavity**, which holds the spinal cord. The **ventral cavity**, on the front side of the body, is divided (and separated by a muscle called the **diaphragm**) into the **thoracic cavity**, which holds the heart, lungs, and major blood vessels, and the **abdominal cavity**, which holds the organs of the digestive and urinary systems. The bottom portion of the abdominal cavity is called the **pelvic cavity**. It contains the reproductive system. Figure 3-2 shows the body cavities.

VOCABULARY REVIEW

In the previous section, you learned terms relating to body structure and organization. Before going on to the exercises, review the terms below and refer to the previous section if you have any questions. Pronunciations are provided for certain terms. Sometimes information about where the word came from is included after the term. These etymologies (word histories) are for your information only. You do not need to memorize them.

Term	Definition
abdominal [ăb-DŎM-ĭ-năĭ] cavity	Body space between the abdominal walls, above the pelvis, and below the diaphragm.
blood [blūd] system Old English <i>blud</i> .	Body system that includes blood and all its component parts.
cardiovascular [KĂR-dē-ō-VĂS-kyū-lăr] system	Body system that includes the heart and blood vessels; circulatory system.
cell [sĕl] Latin <i>cella</i> , storeroom	Smallest unit of a living structure.

Term	Definition
connective [kōn-NĚK-tív] tissue	Fibrous substance that forms the body's supportive framework.
cranial [KRĀ-nē-ăl] cavity	Space in the head that contains the brain.
diaphragm [DĪ-ă-frām]	Muscle that divides the abdominal and thoracic cavities.
digestive [dī-JĚS-tív] system	Body system that includes all organs of digestion and waste excretion, from the mouth to the anus.
dorsal [DŌR-săl] cavity	Main cavity on the back side of the body containing the cranial and spinal cavities.
endocrine [ĚN-dō-krin] system	Body system that includes glands which secrete hormones to regulate certain body functions.
epithelial [ěp-ĭ-THĚ-lē-ăl] tissue	Tissue that covers or lines the body or its parts.
integumentary [ĭn-tĕg-yū-MĚN-tă-rĕ] system	Body system that includes skin, hair, and nails.
lymphatic [ĭm-FĀT-ĭk] and immune [ĭ-MYŪN] system	Body system that includes the lymph, glands of the lymphatic system, lymphatic vessels, and the specific and nonspecific defenses of the immune system.
muscle [MŪS-ĕl] tissue Latin <i>musculus</i> , muscle, mouse	Tissue that is able to contract and relax.
musculoskeletal [MŪS-kyū-lō-SKĚL-ĕ-tăl] system	Body system that includes muscles, bones, and cartilage.
nervous [NĚR-vŭs] system	Body system that includes the brain, spinal cord, and nerves and controls most body functions by sending and receiving messages.
nervous tissue	Specialized tissue that forms nerve cells and is capable of transmitting messages.
organ [ŌR-găn]	Group of specialized tissue that performs a specific function.
pelvic [PĚL-vĭk] cavity	Body space below the abdominal cavity that includes the reproductive organs.
reproductive [RĚ-prō-DŪK-tív] system	Either the male or female body system that controls reproduction.
respiratory [RĚS-pĭ-ră-tōr-ĕ, rĕ-SPĪR-ă-tōr-ĕ] system	Body system that includes the lungs and airways and performs breathing.
sensory [SĚN-sō-rĕ] system	Body system that includes the eyes and ears and those parts of other systems involved in the reactions of the five senses.
spinal [SPĪ-năl] cavity	Body space that contains the spinal cord.
system [SĪS-tĕm]	Any group of organs and ancillary parts that work together to perform a major body function.
thoracic [thō-RĀS-ĭk] cavity	Body space above the abdominal cavity that contains the heart, lungs, and major blood vessels.

Term	Definition
tissue [TĪSH-ū]	Any group of cells that work together to perform a single function.
urinary [YŪR-ĭ-nār-ē] system	Body system that includes the kidneys, ureters, bladder, and urethra and helps maintain homeostasis by removing fluid and dissolved waste.
ventral [VĔN-trăĭ] cavity	Major cavity in the front of the body containing the thoracic, abdominal, and pelvic cavities.

BODY STRUCTURE AND ORGANIZATION EXERCISES

Find the Match

Match the system to its function.

- | | |
|------------------------------------|--|
| 1. ___ cardiovascular system | a. performs breathing |
| 2. ___ digestive system | b. removes fluid and dissolved waste |
| 3. ___ endocrine system | c. sends and receives messages |
| 4. ___ blood system | d. pumps and circulates blood to tissues |
| 5. ___ integumentary system | e. consists of blood and its elements |
| 6. ___ lymphatic and immune system | f. covers the body and its internal structures |
| 7. ___ musculoskeletal system | g. provides defenses for the body |
| 8. ___ nervous system | h. breaks down food |
| 9. ___ reproductive system | i. regulates through production of hormones |
| 10. ___ respiratory system | j. controls reproduction |
| 11. ___ urinary system | k. supports organs and provides movement |

Complete the Sentence

- The basic element of the human body is a(n) _____.
- Groups of these basic elements form _____.
- Tissue that covers the body or its parts is called _____ tissue.
- The brain is contained within the _____ cavity.
- The muscle separating the two main parts of the ventral cavity is called the _____.
- The spinal and cranial cavities make up the _____ cavity.
- The space below the abdominal cavity is called the _____ cavity.
- The system that helps eliminate fluids is the _____ system.
- The system that breaks down food is called the _____ system.

Directional Terms, Planes, and Regions

In making diagnoses or prescribing treatments, health care providers use standard terms to refer to different areas of the body. These terms describe

each anatomical position as a point of reference. The anatomical position always means the body is standing erect, facing forward, with upper limbs at the sides and with the palms facing forward. For example, if a pain is described as in the *right lower quadrant* (RLQ), medical personnel immediately understand that to mean the lower right portion of the patient's body. Certain terms refer to a direction going to or from the body or in which the body is placed. Others divide the body into imaginary planes as a way of mapping the body when the person is in the anatomical position. Still others refer to specific regions of the body.

Directional Terms

Directional terms locate a portion of the body or describe a position of the body. The front side (**anterior** or **ventral**) and the back side (**posterior** or **dorsal**) are the largest divisions of the body. Figure 3-3 shows the body regions of the anterior and posterior sections. Each of these regions contain

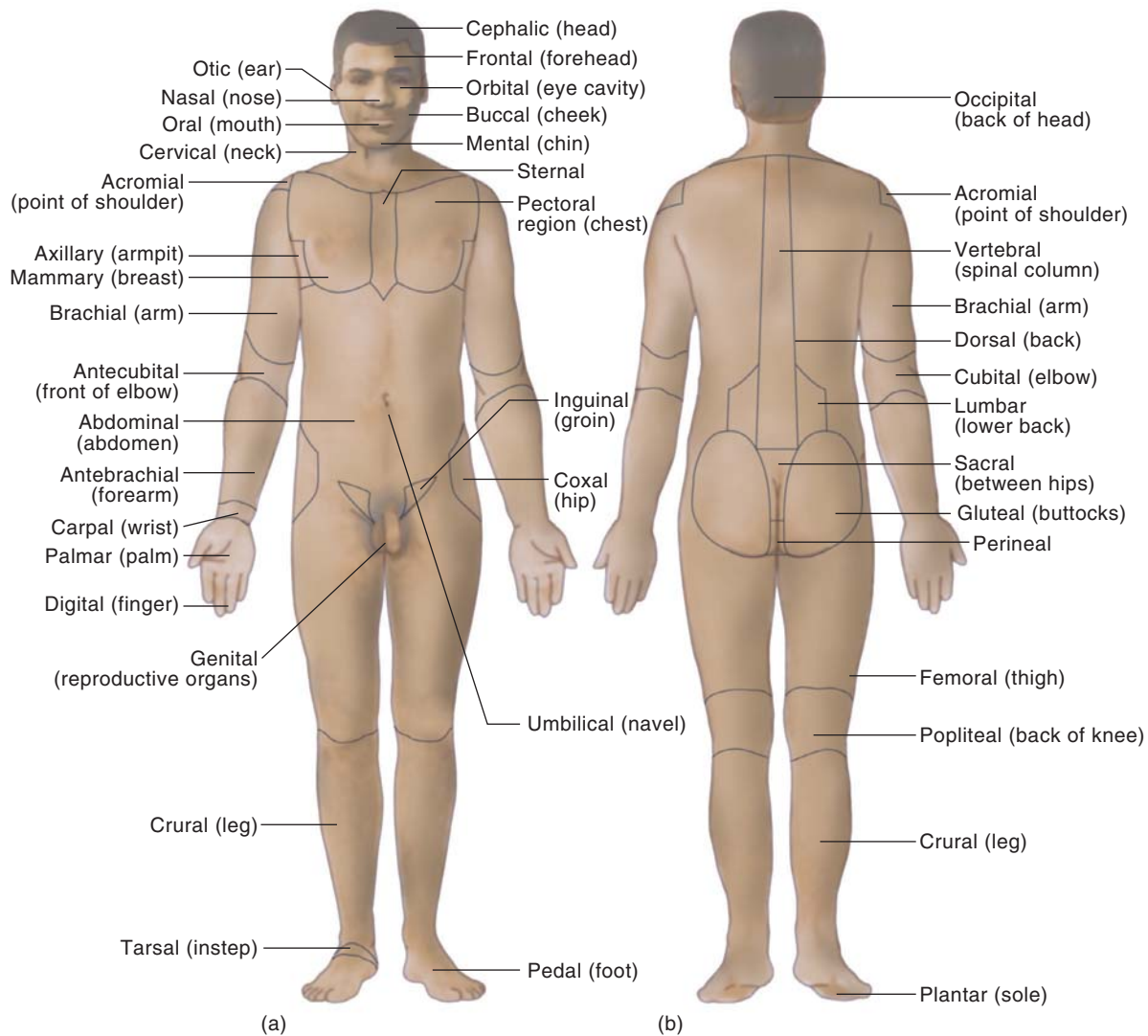


FIGURE 3-3 Anterior (a) and Posterior (b) regions. The parts shown in each of the regions are discussed in the body systems chapters throughout the book.

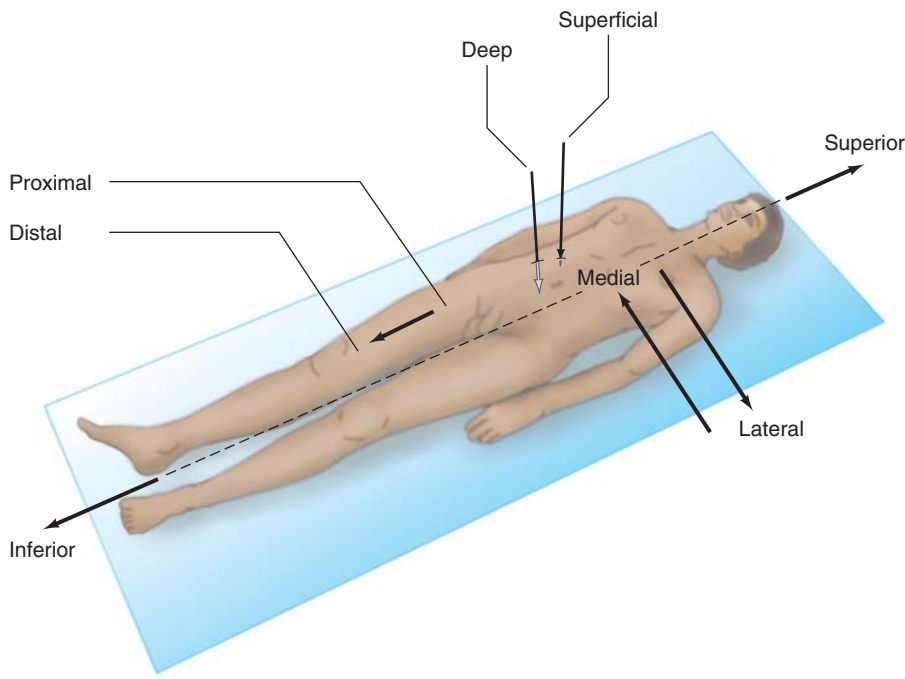


FIGURE 3-4 Directional terms used when referring to locations on the body.

many parts of the body that will be discussed as part of the body systems of which they are a part.

Some terms indicate a position relative to something else. **Inferior** means below another structure; for example, the vagina is inferior to (or below) the uterus. **Superior** means above another structure; for example, the stomach is superior to the large intestine. **Lateral** means to the side; for example, the eyes are lateral to the nose. **Medial** means middle or near the medial plane of the body; for example, the nose is medial to the eyes. **Deep** means through the surface (as in a deep cut), while **superficial** means on or near the surface (as a scratch on the skin). **Proximal** means near the point of attachment to the trunk; for example, the proximal end of the thighbone joins the hip bone. **Distal** means away from the point of attachment to the trunk; for example, the distal end of the thighbone forms the knee. Figure 3-4 shows the directional terms.

For examination purposes, patients are either **supine** (lying on their spine face upward) or **prone** (lying on the abdomen with their face down). Figure 3-5 shows a patient lying in supine position and Figure 3-6 shows one in prone position.

Planes of the Body

For anatomical and diagnostic discussions, some standard terms are used for the planes and positions of the body. The imaginary planes of the body when it is vertical and facing front are: **frontal (coronal) plane**, which divides the body into anterior and posterior positions; **sagittal (lateral) plane**, which is the plane parallel to the medial and divides the body into left and right sections; **medial or midsagittal plane**, which divides the body into equal left and right halves; and **transverse (cross-sectional) plane**, which intersects the body horizontally and divides the body into upper and lower sections. Figure 3-7 on page 46 shows the planes of the body.

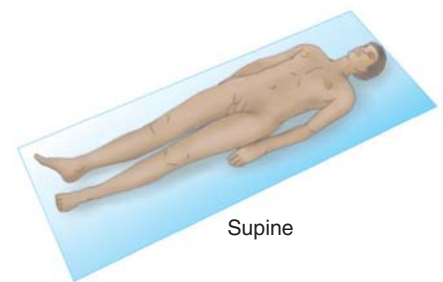


FIGURE 3-5 A patient lying in a supine position with the spinal cord facing down.

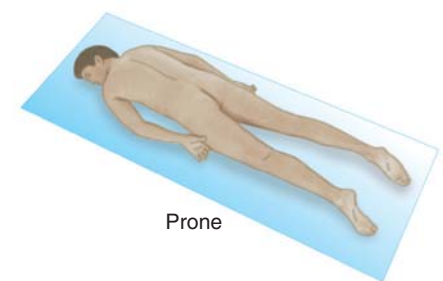
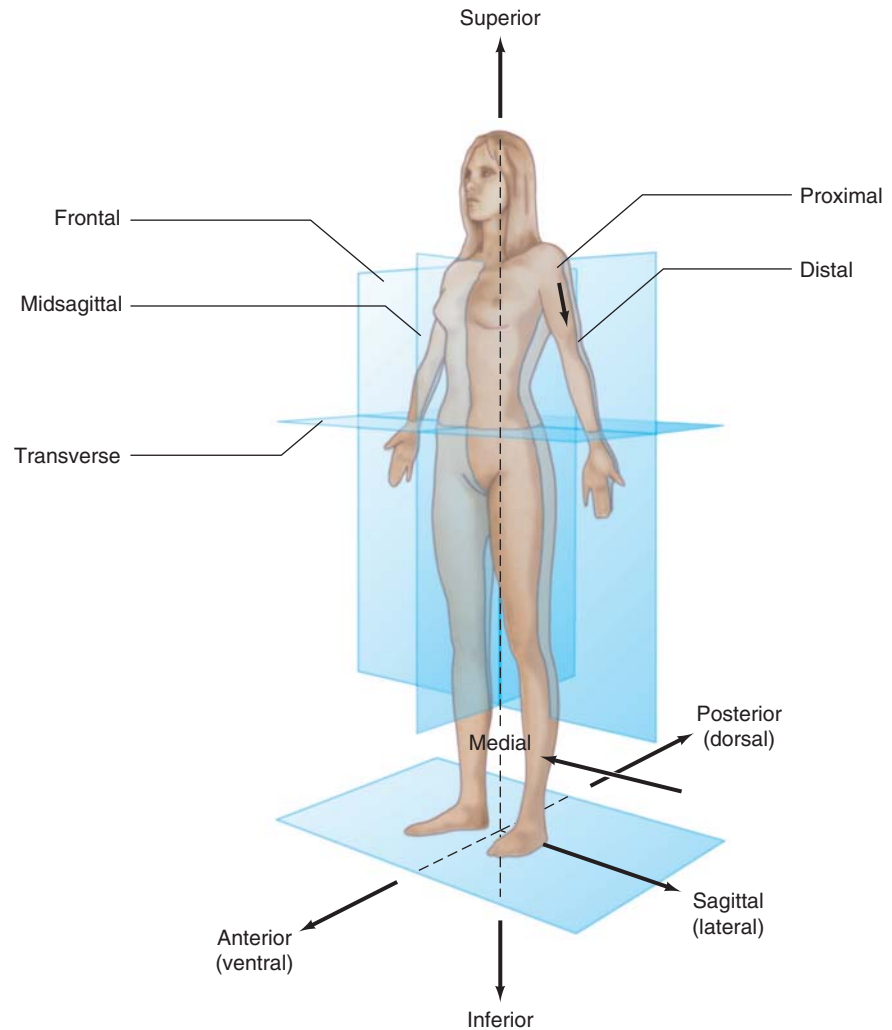


FIGURE 3-6 A patient lying in a prone position with the spinal cord facing up.

FIGURE 3-7 The planes of and directions from the body.



MORE ABOUT . . .

Areas of the Body

Pain is sometimes felt in only one region of the body (as a muscle pull in the RUQ or right upper quadrant). Other times, internal pain is felt in an area that is not the actual source of the pain. This is known as “referred pain” or *synalgia*. Such pain usually emanates from nerves or other deep structures within the body.

Regions of the Body

Health care practitioners usually refer to a specific organ, area, or bone when speaking of the upper body. In the back, the spinal column is divided into specific regions (cervical, thoracic, lumbar, sacral, and coccygeal). Chapter 5 describes the spinal column in detail. The middle portion of the body (abdominal and pelvic cavities) is often the site of pain. Doctors use two standard sections to describe this area of the body. The larger section is divided into four quarters with the navel being the center point (Figure 3-8).

- **Right upper quadrant (RUQ):** On the right anterior side; contains part of the liver, the gallbladder, and parts of the pancreas and intestinal tract.

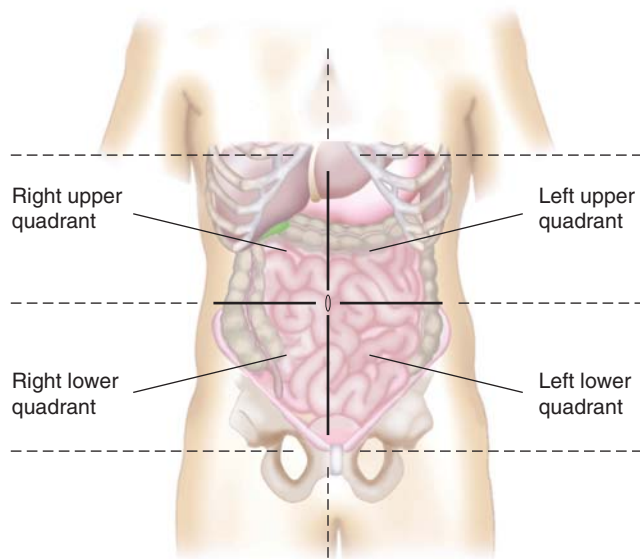


FIGURE 3-8 The four quadrants of the abdominopelvic area.

- **Right lower quadrant (RLQ):** On the right anterior side; contains the appendix, parts of the intestines, and parts of the reproductive organs in the female.
- **Left upper quadrant (LUQ):** On the left anterior side; contains the stomach, spleen, and parts of the liver, pancreas, and intestines.
- **Left lower quadrant (LLQ):** On the left anterior side; contains parts of the intestines and parts of reproductive organs in the female.

The smaller divisions of the abdominal and pelvic areas are the nine regions, each of which correspond to a region near a specific point in the body (Figure 3-9).

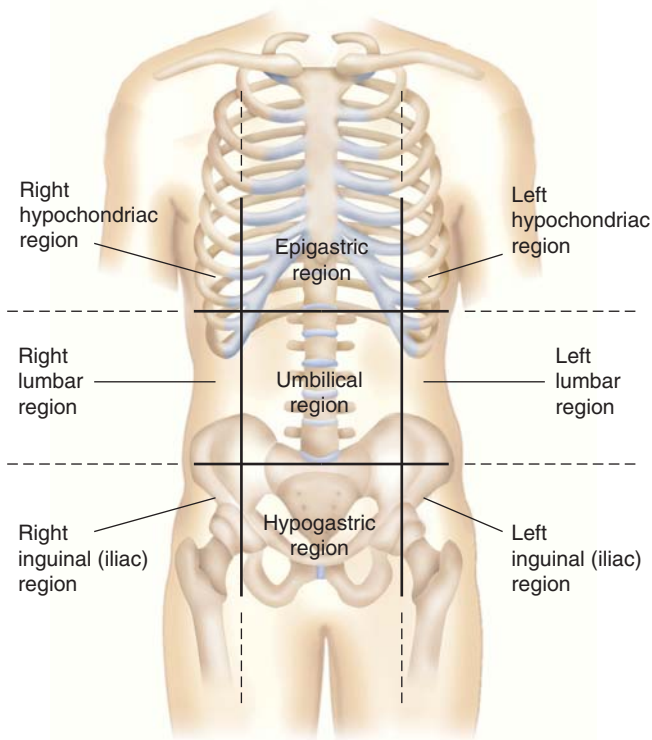


FIGURE 3-9 The regions of the abdominopelvic area.

- **Epigastric region:** the area above the stomach.
- **Hypochondriac regions** (left and right): the two regions just below the cartilage of the ribs, immediately over the abdomen.
- **Umbilical region:** the region surrounding the umbilicus (navel).
- **Lumbar regions** (left and right): the two regions near the waist.
- **Hypogastric region:** the area just below the umbilical region.
- **Iliac (inguinal) regions** (left and right): the two regions near the upper portion of the hip bone.

VOCABULARY REVIEW

In the previous section, you learned terms relating to directional terms, planes, and regions of the body. Before going on to the exercises, review the terms below and refer to the previous section if you have any questions. Pronunciations are provided for certain terms. Sometimes information about where the word came from is included after the term.

Term	Definition
anterior [än-TĒR-ē-ör]	At or toward the front (of the body).
coronal [KÖR-ö-näl] plane	Imaginary line that divides the body into anterior and posterior positions.
cross-sectional plane	Imaginary line that intersects the body horizontally.
deep	Away from the surface (of the body).
distal [DĪS-täl]	Away from the point of attachment to the trunk.
dorsal [DÖR-säl]	At or toward the back of the body.
epigastric [ëp-ĭ-GÄS-trĭk] region	Area of the body immediately above the stomach.
frontal [FRŪN-täl] plane	Imaginary line that divides the body into anterior and posterior positions.
hypochondriac [hĭ-pō-KÖN-drē-äk] regions	Left and right regions of the body just below the cartilage of the ribs and immediately above the abdomen.
hypogastric [hĭ-pō-GÄS-trĭk] region	Area of the body just below the umbilical region.
iliac [ĪL-ē-äk] regions	Left and right regions of the body near the upper portion of the hip bone.
inferior [ĭn-FĒR-ē-ōr]	Below another body structure.
inguinal [ĪN-gwĭ-näl] regions	Left and right regions of the body near the upper portion of the hip bone.
lateral [LÄT-ër-äl]	To the side.
lateral plane	Imaginary line that divides the body perpendicularly to the medial plane.

Term	Definition
left lower quadrant (LLQ)	Quadrant on the lower left anterior side of the patient's body.
left upper quadrant (LUQ)	Quadrant on the upper left anterior side of the patient's body.
lumbar [LŪM-bär] regions	Left and right regions of the body near the abdomen.
medial [MĒ-dē-äl]	At or near the middle (of the body).
medial plane	Imaginary line that divides the body into equal left and right halves.
midsagittal [mĭd-SÄ]-i-täl] plane	See medial plane.
posterior	At or toward the back side (of the body).
prone	Lying on the stomach with the face down.
proximal [PRÖK-sĭ-mäl]	At or near the point of attachment to the trunk.
right lower quadrant (RLQ)	Quadrant on the lower right anterior side of the patient's body.
right upper quadrant (RUQ)	Quadrant on the upper right anterior side of the patient's body.
sagittal [SÄ]-i-täl] plane	Imaginary line that divides the body into right and left portions.
superficial [sū-pĕr-FĪSH-äl]	At or near the surface (of the body).
superior [sū-PĒR-ē-ōr]	Above another body structure.
supine [sū-PĪN]	Lying on the spine facing upward.
transverse plane	Imaginary line that intersects the body horizontally.
umbilical [üm-BĪL-i-käl] region	Area of the body surrounding the umbilicus.
ventral [VĒN-träl]	At or toward the front (of the body).

CASE STUDY

Locating a Problem

Dr. Lena Woodrow checked the chart of the next patient, Darlene Gordon. Darlene had called yesterday with a vague pain in her LUQ. She also experienced some nausea and general discomfort. Dr. Woodrow had suggested she make a morning appointment.

Critical Thinking

21. What organs might be causing pain in the LUQ?
22. Is it possible for the source of the pain to be located elsewhere in the body?

DIRECTIONAL TERMS, PLANES, AND REGIONS EXERCISES

Check Your Knowledge

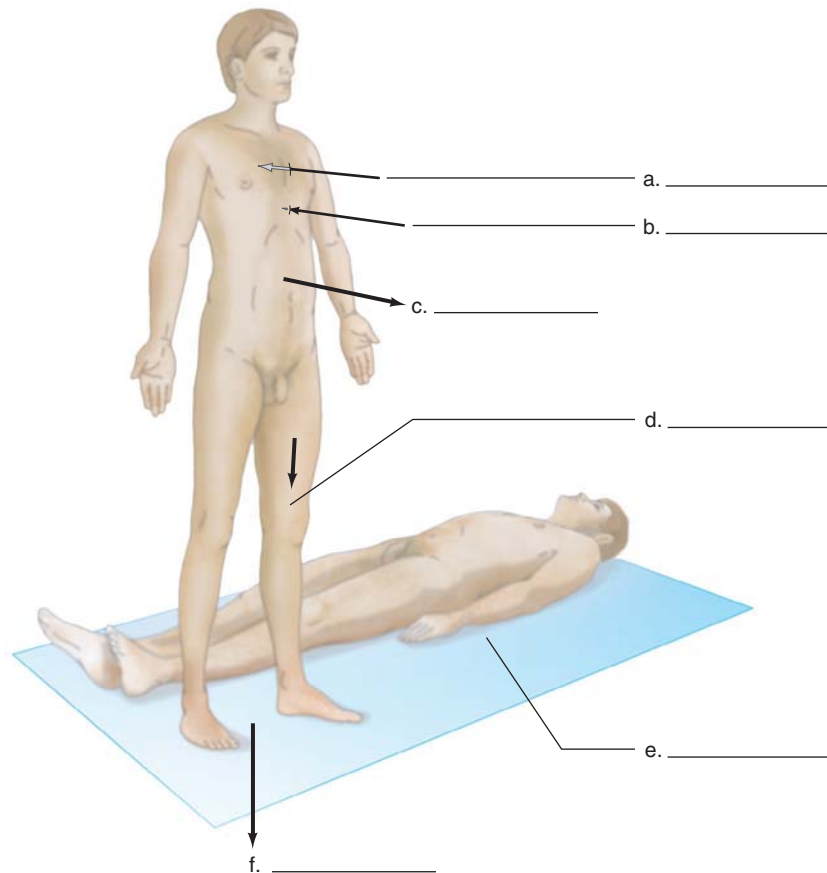
Circle T for true or F for false.

23. The epigastric region is below the hypogastric region. T F
24. The heart is deeper than the ribs. T F
25. The leg is inferior to the foot. T F
26. The nose is superior to the eyes. T F
27. The right lower quadrant contains the appendix. T F
28. The coronal plane divides the body horizontally. T F
29. The lateral plane is another name for the sagittal plane. T F
30. The wrist is proximal to the shoulder. T F
31. The spleen is in the left upper quadrant. T F

Complete the Diagram

32. Using any of the terms below, fill in the blanks on the following diagram.

Distal
Supine
Inferior
Deep
Superficial
Anterior



Combining Forms

Chapters 1 and 2 introduced many word roots, combining forms, prefixes, and suffixes used in medical terminology. The combining forms in this chapter relate to elements and systems of the body described here. Once you familiarize yourself with the word parts in Chapters 1, 2, and 3, you will understand many medical terms.

COMBINING FORM	MEANING	EXAMPLE
abdomin(o)	abdomen	<i>abdominoplasty</i> [ăb-DŎM-ĭ-nŏ-plăs-tě], surgical repair of the abdomen
acetabul(o)	cup-shaped hip socket	<i>acetabulectomy</i> [ĂS-ě-tăb-yŭ-LĚK-tŏ-mē], excision of the acetabulum
aden(o)	gland	<i>adenitis</i> [ăd-ě-NĪ-tĭs], inflammation of a gland
adip(o)	fat	<i>adiposis</i> [ĂD-ĭ-pŏs], condition of excessive accumulation of fat
adren(o)	adrenal glands	<i>adrenotoxin</i> [ă-drē-nŏ-TŎK-sĭn], a substance toxic to the adrenal glands
alveol(o)	air sac, alveolus	<i>alveolitis</i> [ĂL-vē-ŏ-LĪ-tĭs], inflammation of alveoli
angi(o)	vessel	<i>angiomegaly</i> [ĂN-jē-ŏ-MĚG-ă-lē], enlargement of blood vessels
aort(o)	aorta	<i>aortitis</i> [ă-ŏr-TĪ-tĭs], inflammation of the aorta
appendic(o)	appendix	<i>appendicitis</i> [ă-pĕn-dĭ-SĪ-tĭs], inflammation of the appendix
arteri(o)	artery	<i>arteriosclerosis</i> [ăr-TĒR-ē-ŏ-sklĕr-Ŏ-sĭs], hardening of the arteries
arteriol(o)	arteriole	<i>arteriolosclerosis</i> [ăr-tĕr-ē-Ŏ-lŏ-sklĕr-Ŏ-sĭs], hardening of the arterioles, often seen in conjunction with chronic high blood pressure
arthr(o)	joint; articulation	<i>arthralgia</i> [ăr-THRĂL-jē-ă], severe joint pain
aur(i), auricul(o)	ear	<i>auriform</i> [ĂW-rĭ-fŏrm], ear-shaped; <i>auriculocranial</i> [ăw-RĪK-yŭ-lŏ-KRĂ-nē-ăl], of the ear and cranium
blephar(o)	eyelid	<i>blepharitis</i> [BLĚF-ă-RĪ-tĭs], inflammation of the eyelid
brachi(o)	arm	<i>brachialgia</i> [bră-kē-ĂL-jē-ă], pain in the arm

Using Resources

Have each student or student group choose a health related Web site on the Internet. Ask them to find at least five terms that are based on a combining form found in this chapter.

COMBINING FORM	MEANING	EXAMPLE
bronch(o), bronchi	bronchus	<i>bronchomycosis</i> [BRŌNG-kō-mī-KŌ-sīs], fungal disease of the bronchi
bucc(o)	cheek	<i>buccolabial</i> [bük-ō-LĀ-bē-āl], relating to both the cheeks and lips
burs(o)	bursa	<i>bursitis</i> [bēr-SĪ-tīs], inflammation of a bursa
calcane(o)	heel bone	<i>calcaneodynia</i> [kāl-KĀ-nē-ō-DĪN-ē-ā], heel pain
cardi(o)	heart; esophageal opening of the stomach	<i>cardiomegaly</i> [kār-dē-ō-MĚG-ā-lē], enlargement of the heart; <i>cardiotomy</i> [kār-dē-ĚK-tō-mē], excision of the cardiac portion of the stomach
carp(o)	wrist bones	<i>carpopedal</i> [KĀR-pō-PĚD-āl], relating to the wrist and the foot
celi(o)	abdomen	<i>celiorrhaphy</i> [sē-lē-ŌR-ā-fē], suture of an abdominal wound
cephal(o)	head	<i>cephalomegaly</i> [SĚF-ā-lō-MĚG-ā-lē], enlargement of the head
cerebell(o)	cerebellum	<i>cerebellitis</i> [sēr-ē-běl-Ī-tīs], inflammation of the cerebellum
cerebr(o)	cerebrum	<i>cerebrotomy</i> [sēr-ē-BRŌT-ō-mē], incision into the brain
cervic(o)	neck; cervix	<i>cervicodynia</i> [SĚR-vī-kō-DĪN-ē-ā], neck pain
cheil(o), chil(o)	lip	<i>cheiloplasty</i> , <i>chiloplasty</i> [KĪ-lō-plās-tē], plastic surgery of the lips
chir(o)	hand	<i>chiropractic</i> [kī-rō-PRĀK-tīk], theory that uses manipulation of the spine to restore and maintain health
chol(e), cholo	bile	<i>cholelith</i> [KŌ-lē-līth], gallstone
chondri(o), chondr(o)	cartilage	<i>chondromalacia</i> [KŌN-drō-mā-LĀ-shē-ā], softening of cartilage
col(o), colon(o)	colon	<i>colonoscopy</i> [kō-lōn-ŌS-kō-pē], visual examination of the colon
colp(o)	vagina	<i>colporrhagia</i> [kōl-pō-RĀ-jē-ā], vaginal hemorrhage
core(o)	pupil	<i>coreoplasty</i> [KŌR-ē-ō-plās-tē], surgical correction of a pupil
cortic(o)	cortex	<i>corticectomy</i> [kōr-tī-SĚK-tō-mē], removal of a part of the cortex
costi, costo	rib	<i>costogenic</i> [kōs-tō-JĚN-īk], arising from a rib

COMBINING FORM	MEANING	EXAMPLE
crani(o)	cranium	<i>craniotomy</i> [krā-nē-ŎT-ō-mě], opening into the skull
cyst(i), cysto	bladder; cyst	<i>cystoscopy</i> [sīs-TŎS-kō-pē], examination of the interior of the bladder
cyt(o)	cell	<i>cytology</i> [sī-TŎL-ō-jē], study of cells
dactyl(o)	fingers, toes	<i>dactylitis</i> [dāk-tī-LĪ-tīs], finger inflammation
dent(i), dento	tooth	<i>dentiform</i> [DĚN-tī-fŏrm], tooth-shaped
derm(o), derma, dermat(o)	skin	<i>dermatitis</i> [dēr-mă-TĪ-tīs], inflammation of the skin
duoden(o)	duodenum	<i>duodenoscopy</i> [dū-ō-dě-NŎS-kō-pē], examination of the interior of the duodenum
encephal(o)	brain	<i>encephalomyeloneuropathy</i> [ěn-SĚF-ă-lŏ-MĪ-ě-lŏ-nū-RŎP-ă-thē], disease involving the brain, spinal cord, and nerves
enter(o)	intestines	<i>enteritis</i> [ěn-tĕr-Ī-tīs], inflammation of the intestine
episi(o)	vulva	<i>episiotomy</i> [ě-pĭz-ē-ŎT-ō-mē], surgical incision into the vulva at the time of birth to avoid tearing of the perineum
gastr(o)	stomach	<i>gastritis</i> [găs-TRĪ-tīs], inflammation of the stomach
gingiv(o)	gum	<i>gingivitis</i> [jĭn-jĭ-VĪ-tīs], inflammation of the gums
gloss(o)	tongue	<i>glossodynia</i> [GLŎS-ŏ-DĪN-ē-ă], pain in the tongue
gnath(o)	jaw	<i>gnathoplasty</i> [NĂTH-ŏ-plăs-tē], plastic surgery on the jaw
gonad(o)	sex glands	<i>gonadopathy</i> [gŏn-ă-DŎP-ă-thē], disease of the gonads
hem(a), hemat(o), hemo	blood	<i>hematoma</i> [hĕ-mă-TŎ-mă], mass of clotted blood
hepat(o), hepatic(o)	liver	<i>hepatoma</i> [hĕp-ă-TŎ-mă], malignant cancer of liver cells
hidr(o)	sweat	<i>hidropoeisis</i> [HĪ-drŏ-pŏy-Ē-sīs], production of sweat
histi(o), histo	tissue	<i>histolysis</i> [hĭs-TŎL-ĭ-sīs], breakdown of tissue
hyster(o)	uterus, hysteria	<i>hysterectomy</i> [hĭs-tĕr-ĚK-tŏ-mē], removal of the uterus

COMBINING FORM	MEANING	EXAMPLE
ile(o)	ileum	<i>ileocolitis</i> [ĪL-ē-ō-kō-LĪ-tīs], inflammation of the colon and the ileum
ili(o)	ilium	<i>iliospinal</i> [ĪL-ē-ō-SPĪ-nāl], relating to the ilium and the spine
inguin(o)	groin	<i>inguinoperitoneal</i> [ĪNG-gwĭ-nō-PĔR-ĭ-tō-NĒ-āl], relating to the groin and peritoneum
irid(o)	iris	<i>iridodilator</i> [ĪR-ĭ-dō-dĭ-LĀ-tēr], agent that causes dilation of the pupil
ischi(o)	ischium	<i>ischialgia</i> [ĭs-kē-ĀL-jē-ă], hip pain
kary(o)	nucleus	<i>karyotype</i> [KĀR-ē-ō-tĭp], chromosomal characteristics of a cell
kerat(o)	cornea	<i>keratitis</i> [kēr-ă-TĪ-tīs], inflammation of the cornea
labi(o)	lip	<i>labioplasty</i> [LĀ-bē-ō-plās-tē], plastic surgery of a lip
lamin(o)	lamina	<i>laminectomy</i> [LĀM-ĭ-NĔK-tō-mē], removal of a bony portion that forms the arch that surrounds the vertebra
lapar(o)	abdominal wall	<i>laparomyositis</i> [LĀP-ă-rō-mĭ-ō-SĪ-tīs], inflammation of the abdominal muscles
laryng(o)	larynx	<i>laryngitis</i> [lăr-ĭn-JĪ-tīs], inflammation of the larynx
linguo	tongue	<i>linguocclusion</i> [lĭng-gwō-KLŪ-zhŭn], displacement of a tooth toward the tongue
lip(o)	fat	<i>liposuctioning</i> [LĪP-ō-SŪK-shŭn-ĭng], removal of body fat by vacuum pressure
lymph(o)	lymph	<i>lymphuria</i> [lĭm-FŪ-rē-ă], discharge of lymph into the urine
mast(o)	breast	<i>mastitis</i> [măs-TĪ-tīs], inflammation of the breast
maxill(o)	maxilla	<i>maxillitis</i> [MĀK-sĭ-LĪ-tīs], inflammation of the jawbone
medull(o)	medulla	<i>medulloblastoma</i> [MĔD-ŭ-lō-blăs-TŌ-mă], tumor having cells similar to those in medullary substances
mening(o)	meninges	<i>meningitis</i> [mĕn-ĭn-JĪ-tīs], inflammation of the membranes of the brain or spinal cord
muco	mucus	<i>mucolytic</i> [myū-kō-LĪT-ĭk], agent capable of dissolving mucus

COMBINING FORM	MEANING	EXAMPLE
my(o)	muscle	<i>myocarditis</i> [MĪ-ō-kār-DĪ-tĭs], inflammation of the muscle tissue of the heart
myel(o)	spinal cord; bone marrow	<i>myelopathy</i> [mĭ-ĕ-LŎP-ă-thĕ], disease of the spinal cord
nephr(o)	kidney	<i>nephritis</i> [nĕ-FRĪ-tĭs], inflammation of the kidneys
neur, neuro	nerve	<i>neuritis</i> [nū-RĪ-tĭs], inflammation of a nerve
oculo	eye	<i>oculodynia</i> [ŎK-yū-lō-DĪN-ĕ-ă], eye pain
odont(o)	tooth	<i>odontalgia</i> [ō-dŏn-TĀL-jĕ-ă], toothache
onych(o)	nail	<i>onychoid</i> [ŎN-ĭ-kŏyd], resembling a fingernail
oo	egg	<i>oocyte</i> [Ŏ-ō-sĭt], immature ovum
oophor(o)	ovary	<i>oophorectomy</i> [ō-ŏf-ŏr-ĔK-tŏ-mĕ], removal of an ovary
ophthalm(o)	eye	<i>ophthalmoscope</i> [ŏf-THĀL-mŏ-skŏp], device for examining interior of the eyeball
opto, optico	eye; sight	<i>optometer</i> [ŏp-TŎM-ĕ-tĕr], instrument for measuring eye refraction
or(o)	mouth	<i>orofacial</i> [ŏr-ŏ-FĀ-shĕl], relating to the mouth and face
orchi(o), orchid(o)	testis	<i>orchialgia</i> [ŏr-kĕ-ĀL-jĕ-ă], pain in the testis
osseo, ossi	bone	<i>ossiferous</i> [ŏ-SĪF-ĕr-ŭs], containing or generating bone
ost(e), osteo	bone	<i>osteochondritis</i> [ŎS-tĕ-ŏ-kŏn-DRĪ-tĭs], inflammation of a bone and its cartilage
ot(o)	ear	<i>otitis</i> [ŏ-TĪ-tĭs], inflammation of the ear
ovari(o)	ovary	<i>ovariopathy</i> [ŏ-vār-ĕ-ŎP-ă-thĕ], disease of the ovary
ovi, ovo	egg; ova	<i>oviduct</i> [Ŏ-vĭ-dŭkt], uterine (fallopian) tube through which ova pass
ped(o), pedi	foot; child	<i>pedicure</i> [PĔD-ĭ-kyūr], treatment of the feet; <i>pedophilia</i> [pĕ-dŏ-FĪL-ĕ-ă], abnormal sexual attraction to children
pelvi(o), pelvo	pelvic bone; hip	<i>pelviscope</i> [PĔL-vĭ-skŏp], instrument for examining the interior of the pelvis
pharyng(o)	pharynx	<i>pharyngitis</i> [fār-ĭn-JĪ-tĭs], inflammation of the pharynx

COMBINING FORM	MEANING	EXAMPLE
phleb(o)	vein	<i>phlebitis</i> [flě-BĪ-tĭs], inflammation of a vein
phren(o), phreni, phrenico	diaphragm; mind	<i>phrenicocolic</i> [FRĚN-ĭ-kō-KŎL-ĭk], relating to the diaphragm and colon; <i>phrenotropic</i> [FRĚN-ō-TRŎ-pĭk], exerting its principal effect on the mind
pil(o)	hair	<i>pilonidal</i> [pĭ-lō-NĪ-dāl], having hair, as in a cyst
plasma, plasmo, plasmato	plasma	<i>plasmacyte</i> [PLĂZ-mă-sĭt], plasma cell
pleur(o), pleura	rib; side; pleura	<i>pleurography</i> [plūr-ŎG-ră-fě], imaging of the pleural cavity
pneum(a), pneumat(o), pneum(o), pneumon(o)	lungs; air; breathing	<i>pneumonitis</i> [nū-mō-NĪ-tĭs], inflammation of the lungs
pod(o)	foot	<i>podiatrist</i> [pō-DĪ-ă-trĭst], specialist in diseases of the foot
proct(o)	anus	<i>proctalgia</i> [prŏk-TĂL-jě-ă], pain in the anus or rectum
psych(o), psyche	mind	<i>psychomotor</i> [sĭ-kō-MŎ-těr], relating to psychological influence on body movement
pulmon(o)	lung	<i>pulmonitis</i> [pŭl-mō-NĪ-tĭs], inflammation of the lungs
pyel(o)	renal pelvis	<i>pyelitis</i> [pĭ-ě-LĪ-tĭs], inflammation of the cavity below the kidneys
rachi(o)	spine	<i>rachimeter</i> [ră-kě-ŎM-ě-těr], instrument for measuring curvature of the spine
rect(o)	rectum	<i>rectitis</i> [rĕk-TĪ-tĭs], inflammation of the rectum
reni, reno	kidney	<i>reniform</i> [RĚN-ĭ-fŏrm], kidney-shaped
rhin(o)	nose	<i>rhinitis</i> [rĭ-NĪ-tĭs], inflammation of the nasal membranes
sacr(o)	sacrum	<i>sacralgia</i> [să-KRĂL-jě-ă], pain in the sacral area
sarco	fleshy tissue; muscle	<i>sarcopoietic</i> [SĂR-kō-pŏy-ĚT-ĭk], forming muscle
scler(o)	sclera	<i>sclerodermatitis</i> [SKLĚR-ō-děr-mă-TĪ-tĭs], inflammation and thickening of the skin
sial(o)	salivary glands; saliva	<i>sialism</i> [SĪ-ă-lĭzm], excessive production of saliva
sigmoid(o)	sigmoid colon	<i>sigmoidectomy</i> [sĭg-mŏy-DĚK-tŏ-mě], excision of the sigmoid colon
somat(o)	body	<i>somatophrenia</i> [SŎ-mă-tŏ-FRĚ-ně-ă], tendency to imagine bodily illnesses

COMBINING FORM	MEANING	EXAMPLE
sperma, spermato, spermo	semen; spermatozoa	<i>spermatocide</i> [spēr-MĀT-ō-sīd, SPĚR-mă-tō-sīd], agent that destroys sperm
splanchn(o), splanchni	viscera	<i>splanchnolith</i> [SPLĀNGK-nō-līth], stone in the intestinal tract
splen(o)	spleen	<i>splenectomy</i> [splē-NĚK-tō-mē], removal of the spleen
spondyl(o)	vertebra	<i>spondylitis</i> [spōn-dī-LĪ-tīs], inflammation of a vertebra
stern(o)	sternum	<i>sternalgia</i> [stēr-NĀL-jē-ă], sternum pain
steth(o)	chest	<i>stethoscope</i> [STĚTH-ō-skōp], device for listening to chest sounds
stom(a), stomat(o)	mouth	<i>stomatopathy</i> [stō-mă-TŎP-ă-thē], disease of the mouth
ten(o), tendin(o), tendo, tenon(o)	tendon	<i>tenectomy</i> [tē-NĚK-tō-mē], <i>tenonectomy</i> [tēn-ō-NĚK-tō-mē], removal of part of a tendon
test(o)	testis	<i>testitis</i> [tēs-TĪ-tīs], inflammation of the testis
thorac(o), thoracico	thorax, chest	<i>thoracalgia</i> [thōr-ă-KĀL-jē-ă], chest pain
thym(o)	thymus gland	<i>thymokinetic</i> [THĪ-mō-kī-NĚT-īk], agent that activates the thymus gland
thyr(o)	thyroid gland	<i>thyrotomy</i> [thī-RŎT-ō-mē], operation that cuts the thyroid gland
trache(o)	trachea	<i>tracheotomy</i> [trā-kē-ŎT-ō-mē], operation to create an opening into the trachea
trachel(o)	neck	<i>trachelophyma</i> [TRĀK-ě-lō-FĪ-mă], swelling of the neck
trich(o), trichi	hair	<i>trichoid</i> [TRĪK-ōyd], hairlike
varico	varicosity	<i>varicophlebitis</i> [VĀR-ī-kō-flē-BĪ-tīs], inflammation of varicose veins
vas(o)	blood vessel, duct	<i>vasoconstrictor</i> [VĀ-sō-kōn-STRĪK-tōr], agent that narrows blood vessels
vasculo	blood vessel	<i>vasculopathy</i> [vās-kyū-LŎP-ă-thē], disease of the blood vessels
veni, veno	vein	<i>venipuncture</i> [VĚN-ī-pūngk-shūr, VĚ-nī-pūngk-shūr], puncture of a vein, as with a needle
ventricul(o)	ventricle	<i>ventriculitis</i> [vĚn-trīk-yū-LĪ-tīs], inflammation of the ventricles in the brain

COMBINING FORM	MEANING	EXAMPLE
vertebro	vertebra	<i>vertebrosacral</i> [vĕr-tĕ-brō-SĀ-krăl], relating to the vertebra and the sacrum
vesic(o)	bladder	<i>vesicoprostatic</i> [VĔS-ĭ-kō-prōs-TĀT-ĭk], relating to the bladder and the prostate

COMBINING FORMS AND ABBREVIATIONS EXERCISES

Build Your Medical Vocabulary

Match each compound term with its meaning.

- | | |
|--------------------------|---------------------------------------|
| 33. ___ adrenomegaly | a. agent that stops the flow of blood |
| 34. ___ splanchnopathy | b. spasm of an artery |
| 35. ___ angiography | c. study of the hair and its diseases |
| 36. ___ osteosclerosis | d. inflammation of the liver |
| 37. ___ arteriospasm | e. destruction of sperm |
| 38. ___ trichology | f. relating to the abdomen and thorax |
| 39. ___ hepatitis | g. abnormal hardening of bone |
| 40. ___ spermatolysis | h. radiography of blood vessels |
| 41. ___ abdominothoracic | i. enlargement of the adrenal glands |
| 42. ___ hemostat | j. disease of the viscera |

Add a Suffix


Add the suffix needed to complete the statement.

43. An inflammation of an artery is called arter _____.
44. Suturing of a tendon is called teno _____.
45. Death of muscle is called myo _____.
46. A name for any disorder of the spinal cord is myelo _____.
47. Cephal _____ means head pain.
48. Angio _____ means repair of a blood vessel.
49. Softening of the walls of the heart is called cardio _____.
50. Incision into the ileum is called an ileo _____.
51. Enlargement of the kidney is called nephro _____.
52. Any disease of the hair is called tricho _____.

USING THE INTERNET

Go to the National Institutes of Health's Web site (<http://www.health.nih.gov/>) and click on one of the body systems you have learned about in this chapter. Find the name of at least two diseases of that body system.

CHAPTER REVIEW

The material that follows is to help you review all the material in this chapter as well as to challenge you to think critically about the material you have studied. In addition, this would be a good time to review the chapter on the student CD-ROM  and to examine any further related material on the book's Web site (www.mhhe.com/medterm3e).

Word Building

Build the Right Term

Using the word lists and vocabulary reviews in Chapters 1, 2, and 3, construct a medical term that fits each of the following definitions. The number following each definition tells you the number of word parts—combining forms, suffixes, or prefixes—you will need to use.

53. Disease of the heart muscle (3)
54. Reconstruction of an artery wall (2)
55. Muscle pain (2)
56. Incision into the intestines (2)
57. Study of poisons (2)
58. Relating to the bladder, uterus, and vagina (3)
59. Inflammation of the tissue surrounding a blood vessel (3)
60. Producing saliva (2)
61. Morbid fear of blood (2)
62. Paralysis of the heart (2)
63. Plastic surgery of the skin (2)
64. Causing death of an ovum (2)

Define the Terms

Using the information you have learned in Chapters 1, 2, and 3, and without consulting a dictionary, give the closest definition you can for each of the following terms.

65. otorhinolaryngology
66. tracheomegaly
67. cystopyelitis
68. onychorrhaxis
69. fibroma
70. oophorrhagia
71. antiparasitic
72. neopathy
73. retropharynx
74. lipocardiac

Find a Match

Match the combining form with its definition.

- | | |
|--------------------|-------------|
| 75. ___ adip(o) | a. rib |
| 76. ___ blephar(o) | b. mouth |
| 77. ___ carp(o) | c. eyelid |
| 78. ___ celi(o) | d. fat |
| 79. ___ core(o) | e. bone |
| 80. ___ costo | f. wrist |
| 81. ___ mening(o) | g. abdomen |
| 82. ___ or(o) | h. meninges |
| 83. ___ osseo | i. pupil |

Find What's Wrong

In each of the following terms, one or more word parts are misspelled.

Replace the misspelled word part(s) and write the correct term in the space provided.

84. meningiitus _____
85. polmonary _____
86. abdominal _____
87. cardiomagaley _____
88. ensephaloscope _____
89. mielopathy _____
90. larynjectomy _____
91. ooocyte _____
92. optimetrlist _____
93. hemoglobine _____
94. athrodesis _____
95. yatrogenic _____
96. carcinsoma _____
97. paraplejic _____
98. mezomorph _____
99. simbiosis _____
100. schizofrenia _____

Find the Specialty

For each of the following diagnoses, name the appropriate specialist who would generally treat the condition. If you do not know the meaning of any of these conditions, look them up in the glossary/index at the back of the book.

101. myocarditis _____
102. dermatitis _____
103. bronchitis _____

104. ovarian cysts _____
105. prostatitis _____
106. cancer _____
107. glaucoma _____
108. colitis _____
109. neuritis _____
110. allergy to bee sting _____

Build Your Medical Vocabulary

Match the directional term with its meaning

- | | |
|-----------------------|--|
| 111. ____ anterior | a. at or near the surface (of the body) |
| 112. ____ distal | b. to the side |
| 113. ____ lateral | c. away from the point of attachment to the trunk |
| 114. ____ medial | d. at or toward the front (of the body) |
| 115. ____ posterior | e. lying on the spine facing upward |
| 116. ____ superficial | f. at or toward the backside (of the body) |
| 117. ____ proximal | g. below another body structure |
| 118. ____ prone | h. at or near the middle (of the body) |
| 119. ____ inferior | i. away from the surface (of the body) |
| 120. ____ supine | j. at or near the point of attachment to the trunk |
| 121. ____ superior | k. lying on the stomach with the face down |
| 122. ____ deep | l. above another body structure |

DEFINITIONS

On a separate sheet of paper, define the following terms and combining forms. Review the chapter before starting. Make sure you know how to pronounce each term as you define it. Check your answers in this chapter or in the glossary/index at the end of the book.

TERM

- | | | |
|--------------------------------------|--------------------------|---|
| 123. abdominal [ăb-DOM-i-năł] cavity | 133. appendic(o) | 146. calcane(o) |
| 124. abdomin(o) | 134. arteri(o) | 147. cardi(o) |
| 125. acetabul(o) | 135. arteriol(o) | 148. cardiovascular [KĂR-dē-ō-VĂS-kyū-lăr] system |
| 126. aden(o) | 136. arthr(o) | 149. carp(o) |
| 127. adip(o) | 137. aur(i), auricul(o) | 150. celi(o) |
| 128. adren(o) | 138. blephar(o) | 151. cell [sěł] |
| 129. alveol(o) | 139. brachi(o) | 152. cephal(o) |
| 130. angi(o) | 140. blood [blūd] system | 153. cerebell(o) |
| 131. anterior [ăn-TĒR-ē-őr] | 141. bronch(o), bronchi | 154. cerebr(o) |
| 132. aort(o) | 142. bucc(o) | 155. cervic(o) |
| | 145. burs(o) | |

TERM

- | | | |
|---|---|--|
| 156. cheil(o), chil(o) | 188. frontal plane | 221. lip(o) |
| 157. chir(o) | 189. gastr(o) | 222. lumbar [LŮM-bär] regions |
| 158. chol(e), cholo | 190. gingiv(o) | 223. lymph(o) |
| 159. chondri(o), chondro | 191. gloss(o) | 224. lymphatic [lĭm-FĀT-ĭk] and immune [ĭ-MYŪN] system |
| 160. col(o), colon(o) | 192. gnath(o) | 225. mast(o) |
| 161. colp(o) | 193. gonad(o) | 226. maxill(o) |
| 162. connective [kŏn-NĚK-tĭv] tissue | 194. hem(a), hemat(o), hemo | 227. medial [MĚ-dē-ăl] |
| 163. core(o) | 195. hepat(o), hepatic(o) | 228. medial plane |
| 164. coronal [KŌR-ŏ-nāl] plane | 196. hidr(o) | 229. medull(o) |
| 165. cranial [KRĀ-nē-ăl] cavity | 197. histi(o), histo | 230. mening(o) |
| 166. cortic(o) | 198. hypochondriac [hĭ-pŏ-KŌN-drē-äk] regions | 231. midsagittal [mĭd-SĀJ-ĭ-tāl] plane |
| 167. costi, costo | 199. hypogastric [hĭ-pŏ-GĀS-trĭk] region | 232. muco |
| 168. crani(o) | 200. hyster(o) | 234. muscle [MŮS-ěl] tissue |
| 169. cross-sectional plane | 201. ile(o) | 235. musculoskeletal [mŭs-kyŭ-lŏ-SKĚL-ě-tāl] system |
| 170. cyst(i), cysto | 202. ili(o) | 236. my(o) |
| 171. cyt(o) | 203. iliac [ĭL-ē-äk] regions | 237. myel(o) |
| 172. dactyl(o) | 204. inferior [ĭn-FĚR-ē-ŏr] | 238. nephr(o) |
| 173. deep | 205. inguin(o) | 239. nervous [NĚR-vŭs] system |
| 174. dent(i), dento | 206. inguinal [ĭN-gwi-nāl] regions | 240. nervous tissue |
| 175. derm(o), derma, dermat(o) | 207. integumentary [ĭn-tĕg-yŭ-MĚN-tă-rĕ] system | 241. neur, neuro |
| 176. diaphragm [DĪ-ă-frām] | 208. irid(o) | 242. oculo |
| 177. digestive [dĭ-JĚS-tĭv] system | 209. ischi(o) | 243. odont(o) |
| 178. distal [DĪS-tāl] | 210. kary(o) | 244. onych(o) |
| 179. dorsal [DŌR-sāl] | 211. kerat(o) | 245. oo |
| 180. dorsal cavity | 212. labi(o) | 246. oophor(o) |
| 181. duoden(o) | 213. lamin(o) | 247. ophthalm(o) |
| 182. encephal(o) | 214. lapar(o) | 248. opto, optico |
| 183. endocrine [ĔN-dŏ-krĭn] system | 215. laryng(o) | 249. or(o) |
| 184. enter(o) | 216. lateral [cf. “inferior” above] | 250. orchid(o), orchid(o) |
| 185. epigastric [ĕp-ĭ-GĀS-trĭk] region | 217. lateral plane | 251. organ [ŌR-găn] |
| 186. episi(o) | 218. left lower quadrant | 252. osseo, ossi |
| 187. epithelial [ĕp-ĭ-THĚ-lē-ăl] tissue | 219. left upper quadrant | 253. ost(e), osteo |
| | 220. linguo | 254. ot(o) |

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| 255. ovari(o) | 278. respiratory [RĚS-pĭ-ră-tōr-ē, rĕ-SPĪR-ă-tōr-ē] system | 302. ten(o), tendin(o), tendo, tenon(o) |
| 256. ovi, ovo | 279. rhin(o) | 303. test(o) |
| 257. ped(o), pedi | 280. right lower quadrant | 304. thorac(o), thoracico |
| 258. pelvi(o), pelvo | 281. right upper quadrant | 305. thoracic [thō-RĂS-ĭk] cavity |
| 259. pelvic [PĚL-vĭk] cavity | 282. sacr(o) | 306. thym(o) |
| 260. pharyng(o) | 283. sagittal [SĂJ-ĭ-tăl] plane | 307. thyr(o) |
| 261. phleb(o) | 284. sarco | 308. tissue [TĪSH-ū] |
| 262. phren(o), phreni, phrenico | 285. scler(o) | 309. trache(o) |
| 263. pil(o) | 286. sensory system | 310. trachel(o) |
| 264. plasma, plasmō, plasmat(o) | 287. sial(o) | 311. transverse plane |
| 265. pleur(o), pleura | 288. sigmoid(o) | 312. trich(o), trichi |
| 266. pneum(a), pneumat(o), pneum(o), pneumon(o) | 289. somat(o) | 313. umbilical [ŭm-BĪL-ĭ-kăl] region |
| 267. pod(o) | 290. sperma, spermato, spermo | 314. urinary [YŪR-ĭ-nār-ē] system |
| 268. posterior | 291. spinal [SPĪ-năl] cavity | 315. varico |
| 269. proct(o) | 292. splanchn(o), splanchni | 316. vas(o) |
| 270. prone | 293. splen(o) | 317. vasculo |
| 271. proximal [PRŎK-sĭ-măl] | 294. spondyl(o) | 318. veni, veno |
| 272. psych(o), psyche | 295. stern(o) | 319. ventral [VĚN-trăl] |
| 272. pulmon(o) | 296. steth(o) | 320. ventral cavity |
| 273. pyel(o) | 297. stom(a), stomat(o) | 321. ventricul(o) |
| 274. rachi(o) | 298. superficial | 322. vertebro |
| 275. rect(o) | 299. superior | 323. vesic(o) |
| 276. reni, reno | 300. supine [sŭ-PĪN] | |
| 277. reproductive [rĕ-prō-DŮK-tĭv] system | 301. system [SĪS-tĕm] | |

Name _____ Date _____

Chapter 3: Word-Building (20 questions—1 pts. each)

Using the following combining forms, complete the word that best fits the definition of each word relating to body structure listed below. Combining forms may be used more than once.

angi(o)	enter(o)	lip(o)	or(o)
aort(o)	gastr(o)	medull(o)	phleb(o)
arthr(o)	hidr(o)	my(o)	pneum(o)
cerebr(o)	kerat(o)	ophthalm(o)	somat(o)
crani(o)	laryng(o)	osteo	trache(o)

1. Stomach inflammation: _____ itis
2. Swelling in subcutaneous fat: _____ edema
3. Intestinal suture: _____ rrhaphy
4. Body pain: _____ algia
5. Joint disease: _____ pathy
6. Vein incision: _____ tomy
7. Sweat production: _____ osis
8. Instrument for eye examination: _____ scope
9. Blood vessel repair: _____ plasty
10. Of the brain and spinal cord: _____ spinal
11. Intentional bone fracture: _____ clasis
12. Corneal disease: _____ pathy
13. Of the mouth and face: _____ facial
14. Removal of part of the lung: _____ resection
15. Muscle tumor: _____ oma
16. Inflammation of the main artery: _____ itis
17. Incision into the larynx: _____ tomy
18. Removal of marrow: _____ ectomy
19. Softening of the skull: _____ malacia
20. Surgical fixing of the intestine: _____ pexy