

Prefixes, Suffixes, and Abbreviations

2

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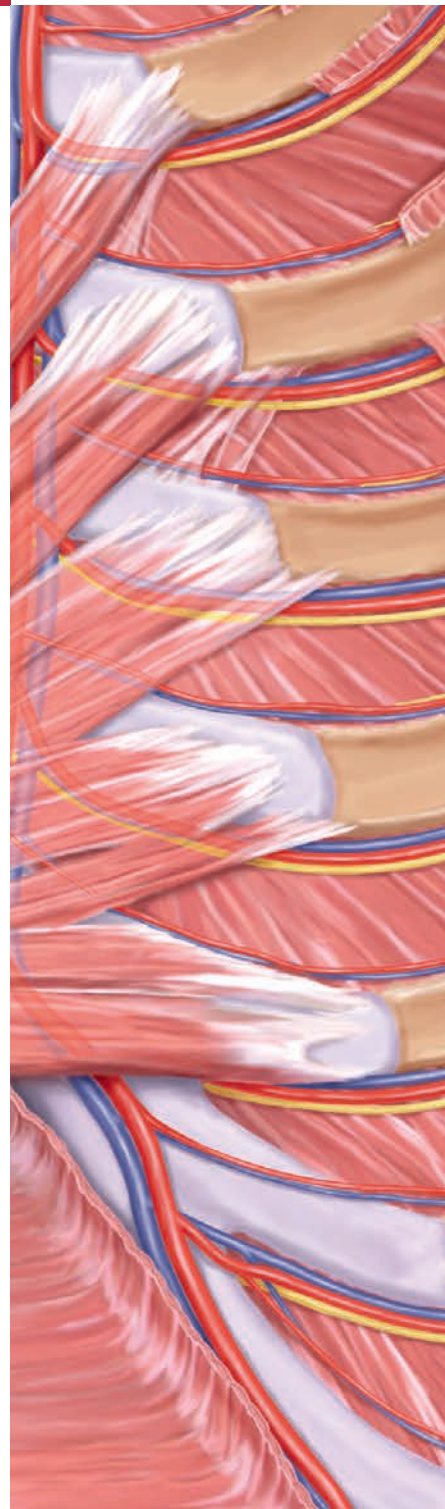
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Learning Outcomes

After completing this chapter, you should be able to:

1. Define common prefixes used in medical terms.
2. Define common suffixes used in medical terms.
3. Understand medical terms by analyzing their prefixes and suffixes.
4. Correctly spell and pronounce medical terms built with common prefixes and suffixes.
5. Understand common abbreviations used in health care.
6. Successfully complete all chapter exercises.



INTRODUCTION

As you learned in Chapter 1, prefixes and suffixes are basic word parts used in many medical terms (Figure 2-1). This chapter includes the most common prefixes and suffixes. Learning these now will pave the way for learning medical terms related to the body systems in later chapters.

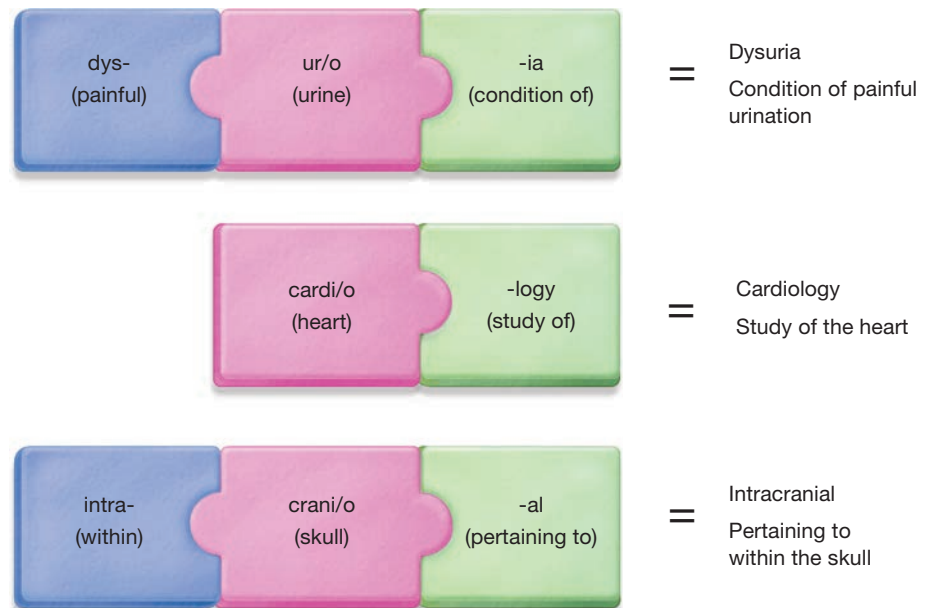


Figure 2-1 Word parts fit together like jigsaw puzzle pieces to form medical terms.

COMMON PREFIXES

A prefix modifies the meaning of the word root or combining form to which it is joined. Prefixes can be learned in groups based on number or based on similar or opposite meanings, as seen in the following tables.

Prefixes Involving Number

Prefix	Meaning	Example
uni-	one	unilateral (relating to one side of the body)
mono-	one	mononeural (supplied by one nerve)
bi-	two	bilateral (relating to two sides)
di-	two	diarthric (relating to two joints)
tri-	three	trimester (three months; one-third the length of pregnancy)
quad-, quadri-	four	quadruplets (four infants born together)
hemi-	half	hemiplegia (paralysis of one side of the body)
semi-	half, partly	semirecumbent (position of half sitting up in bed)
multi-	many	multicellular (composed of many cells)
poly-	many, much	polyarteritis (inflammation of several arteries)



Prefixes with the Same Meaning: Several prefixes have the same basic meaning; however, they are not interchangeably used with a given word root. For instance, *bi-* and *di-* both mean two, but it would be incorrect to use the prefix *di-* with the word *lateral* to indicate both sides. The correct term is *bilateral*. Unfortunately, there are no rules on the usage of prefixes with the same meaning; however, you will learn which prefix goes with each word root as you encounter the actual medical terms in later chapters.

Exercises: Prefixes Involving Number

SIMPLE
RECALL

Exercise 1

Write the correct prefix for the meaning given.

1. one: _____ or _____
2. two: _____ or _____
3. three: _____
4. four: _____ or _____
5. many: _____ or _____

SIMPLE
RECALL

Exercise 2

Write the meaning of the prefix given.

1. semi- _____
2. hemi- _____
3. poly- _____
4. uni- _____
5. quadr- _____

Prefixes Involving Negation

Prefix	Meaning	Example
a-, an-	without, not	afebrile (without fever), anaerobic (without oxygen)
anti-, contra-	against	antibacterial (active against bacteria) contraception (prevention of conception or pregnancy)
de-	away from, cessation, without	deaminase (enzyme that takes away an amino group from a compound)
dis-	separate	disarticulate (separate bones at the joint)
im-, in-, non-	not	impotent (not able to perform sexual intercourse), incompetent (not capable) noninfectious (not able to spread disease)

■ Exercise: Prefixes Involving Negation

SIMPLE
RECALL

Exercise 3

Write the meaning of the prefix given.

1. contra- _____
2. im- _____
3. de- _____
4. an- _____
5. dis- _____

Prefixes Involving Position, Time, or Direction

Prefix	Meaning	Example
ab-	away from	abduct (move a limb away from the body's midline)
ad-	to, toward	adduct (move a limb toward the body's midline)
ect-, ecto-	outer, outside	ectoderm (outer layer of cells in the embryo)
en-, end-, endo-	in, within	endemic (present within a region or group) endocardium (innermost layer of the heart)
ex-, exo-	out of, away from	exhale (to breathe out) exoenzyme (enzyme that functions outside the cell)
infra-	below, beneath	infraplenic (below the spleen)
inter-	between	intercostal (between the ribs)
intra-	within	intra-articular (within the cavity of a joint)
per-	through	percutaneous (passage of a substance through unbroken skin)
peri-	around, surrounding	pericarditis (inflammation of the membrane around the heart)
post-	after, behind	postmortem (occurring after death)
pre-	before (in time or space)	precancerous (lesion that has not yet become cancerous)
sub-	below, beneath	subcutaneous (beneath the skin)
super-, supra-	above	superinfection (a new infection beyond the one that is already present) suprarenal (above the kidney)
sym-, syn-	together, with	symphysis (type of joint where bones come together) synapse (where one nerve cell meets another)
trans-	across, through	transection (cutting across)

■ Exercises: Prefixes Involving Position, Time, or Direction

SIMPLE
RECALL

Exercise 4

Write the correct prefix for the meaning given.

1. between _____
2. after, behind _____

3. through _____ or _____
4. above _____ or _____
5. within _____ or _____

SIMPLE
RECALL

Exercise 5

Write the meaning of the prefix given.

1. ecto- _____
2. ab- _____
3. pre- _____
4. sub- _____
5. syn- _____

Prefixes Involving Relative Characteristics

Many prefixes express a characteristic that is relative to something else. *Relative* means there is a relationship to something else or something can be compared to something else. You have already seen some relative prefixes in the preceding categories, including prefixes involving time (this happened *before* that) or space (this is located *beneath* that).

Often, these prefixes describe a quality or characteristic of something compared to a normal situation (**Figure 2-2**).

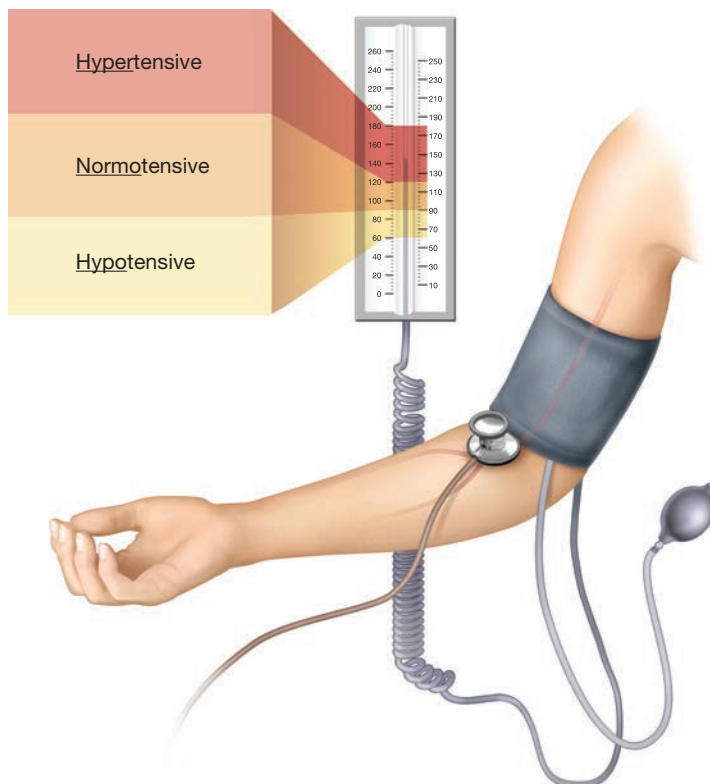


Figure 2-2 Different prefixes used with the same word root and suffix can change the word meaning, and the patient's care, dramatically.

Prefixes Involving Relative Characteristics

Prefix	Meaning	Example
dys-	painful, difficult, abnormal	dyspepsia (having impaired gastric function)
eu-	good, normal	eupeptic (having good digestion)
hetero-	other, different	heterogeneous (made up of elements with different properties)
homo-, homeo-	same, alike	homogeneous (of uniform structure throughout) homeometric (the same size)
hyper-	above normal, excessive	hypertension (high blood pressure)
hypo-	below normal, deficient	hypoglycemia (below normal blood sugar)
iso-	equal, alike	isomorphous (having the same form or shape)
macro-	large, long	macrosomia (abnormally large body)
mega-, megal-	large, oversize	megadose (larger-than-normal dose) megalosplenia (enlarged spleen)
micro-	small	microcardia (abnormally small heart)
normo-	normal, usual	normotensive (normal blood pressure)
pan-	all, entire	panlobar (pertaining to the entire lung lobe)
ultra-	excess, beyond	ultrasonograph (diagnostic instrument that uses very high sound frequencies)

Exercises: Prefixes Involving Relative Characteristics

SIMPLE
RECALL

Exercise 6

Write the correct prefix for the meaning given.

- other, different _____
- normal _____
- large _____, _____, or _____
- good, normal _____
- alike _____ or _____
- small _____ or _____

ADVANCED
RECALL

Exercise 7

Match each prefix with its meaning.

hypo-
dys-iso-
hyper-eu-
pan-

- painful, difficult, abnormal _____
- good, normal _____
- above normal, excessive _____

4. all, entire _____
5. equal, alike _____
6. below normal, deficient _____

Other Prefixes

Prefix	Meaning	Example
brady-	slow	bradycardia (a slow heartbeat)
neo-	new	neonate (a newborn infant)
pseudo-	false	pseudomalignancy (benign, noncancerous tumor that appears to be malignant cancer)
re-	again, backward	reactivate (to activate again)
tachy-	rapid, fast	tachycardia (a rapid heartbeat)

Exercise: Other Prefixes



Exercise 8

Write the meaning of the prefix given.

1. tachy- _____
2. neo- _____
3. brady- _____
4. re- _____
5. pseudo- _____

COMMON SUFFIXES

Like a prefix, a suffix modifies the meaning of the word root to which it is joined. Suffixes can be learned in groups based on similar or opposite meanings, as seen in the following tables. Many medical terms have a suffix. A suffix and a combining form together usually form a noun or adjective.

Suffixes Related to Conditions or Diseases

Suffix	Meaning	Example
-algia	pain	myalgia (pain in one or more muscles)
-emia	blood (condition of)	hypoxemia (condition of abnormally low oxygen in arterial blood)
-ia	state or condition	pneumonia (condition involving inflammation in the lung)
-ism	condition, disease, or disorder	albinism (disorder resulting in a lack of skin pigment)
-itis	inflammation	gastritis (inflammation of the stomach)

(continued)

Suffixes Related to Conditions or Diseases *(continued)*

Suffix	Meaning	Example
-megaly	large, enlargement	cardiomegaly (enlargement of the heart)
-oma	tumor	osteoma (bone tumor)
-osis	abnormal condition	osteoporosis (brittle bone condition)
-pathy	disease	craniopathy (disease involving the cranial bones)
-rrhea	flow, discharge	diarrhea (frequent discharge of semisolid or fluid feces)

Exercises: Suffixes Related to Conditions or Diseases

SIMPLE
RECALL

Exercise 9

Write the meaning of the prefix given.

- megaly _____
- osis _____
- ism _____
- ia _____
- rrhea _____

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RECALL

Exercise 10

Match each suffix with its meaning.

- | | | |
|--------|-------|--------|
| -itis | -emia | -pathy |
| -algia | -oma | -rrhea |

- pain _____
- inflammation _____
- flow, discharge _____
- blood (condition of) _____
- tumor _____
- disease _____

Suffixes Related to Surgery

Suffix	Meaning	Example
-centesis	puncture to remove fluid	amniocentesis (needle puncture of amniotic sac in a pregnant woman to remove fluid for diagnosis)
-ectomy	surgical removal	appendectomy (surgical removal of the appendix)

Suffixes Related to Surgery

Suffix	Meaning	Example
-plasty	surgical repair, reconstruction	abdominoplasty (surgical repair of the abdominal wall)
-rrhaphy	suturing	cystorrhaphy (suture of a wound in the urinary bladder)
-stomy	surgical opening	colostomy (surgical creation of an outside opening into the colon)
-tomy	incision, cutting	gastrotomy (incision into the stomach)

Exercises: Suffixes Related to Surgery

SIMPLE
RECALL

Exercise 11

Write the meaning of the suffix given.

1. -centesis _____
2. -ectomy _____
3. -stomy _____
4. -plasty _____

SIMPLE
RECALL

Exercise 12

Write the correct suffix for the meaning given.

1. incision, cutting _____
2. suturing _____
3. surgical opening _____
4. surgical removal _____

Other Suffixes

Suffix	Meaning	Example
-al	pertaining to	cranial (pertaining to the skull)
-ar	pertaining to	articular (pertaining to a joint)
-ary	pertaining to	pulmonary (pertaining to the lungs)
-ic, -ac	pertaining to	cardiac (pertaining to the heart)
-ous	pertaining to, characterized by	edematous (characterized by edema, which is a type of swelling)
-genic, -genesis	produced by, formed by	carcinogenic (causing cancer) osteogenesis (the formation of bone)

(continued)

Other Suffixes (*continued*)

Suffix	Meaning	Example
-gram	record, recording	cystogram (x-ray of the bladder)
-graphy	process of recording	radiography (x-ray studies)
-ium	tissue, structure	myocardium (heart muscle tissue)
-logist, -ist	one who specializes in	dermatologist (physician who treats skin conditions) dentist (doctor who treats conditions of the teeth)
-logy	study of	dermatology (study of skin conditions)
-meter	instrument for measuring	thermometer (instrument to measure heat)
-oid	resembling	lymphoid (resembling lymph)
-scope	instrument for examination	microscope (instrument for examining very small things)
-scopy	process of examining, examination	endoscopy (examination of the interior of a structure using a special instrument)

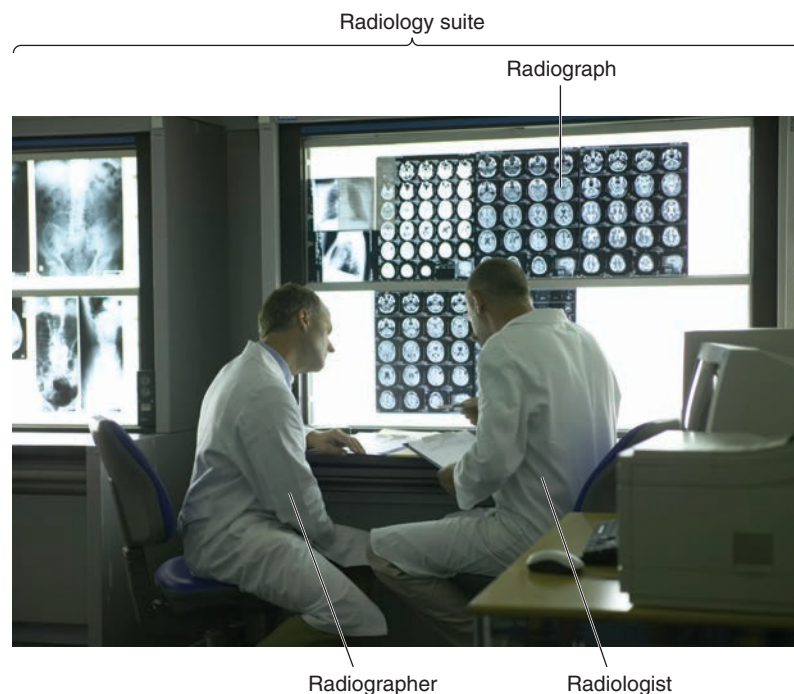


Figure 2-3 Different suffixes combined with the same word root help distinguish terms within the same specialty.

Once you understand a single root word, you can begin adding prefixes or suffixes to further clarify the root word (**Figure 2-3**). Even though the terms are related to the same specialty, because they share the same root word, they have very different meanings based on the prefixes and suffixes that are added.



-scope and -scopy: Some suffixes are very closely related and easily confused. For example, *-scope* means an instrument for examination, whereas *-scopy* means the process of examination. A gastroscope is an instrument used for examining the stomach, while *gastroscopy* refers to the actual examination using the gastroscope. There are many medical terms with these suffixes, so a good understanding of them now will lead to less confusion and easier memorization later.

Exercises: Other Suffixes

SIMPLE
RECALL

Exercise 13

Write the meaning of the suffix given.

1. -meter _____
2. -graphy _____
3. -al _____
4. -scopy _____
5. -gram _____
6. -ary _____
7. -logy _____
8. -ic _____

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Exercise 14

Match each suffix with its meaning.

-genic
-ary

-scope
-logist

-oid
-ium

1. specialist _____
2. resembling _____
3. tissue _____
4. pertaining to _____
5. produced by, formed by _____
6. instrument for examination _____

COMMON ABBREVIATIONS

Abbreviations are commonly used in health care, particularly in handwritten notes, where they save time by allowing busy practitioners to skip writing out a full term or expression. You will learn commonly used abbreviations throughout this text. Following are a few examples of common abbreviations. Appendix D contains a fuller listing of medical abbreviations.

Although using abbreviations is convenient, keep in mind that some abbreviations are prone to misinterpretation, which can lead to dangerous medical errors.

To avoid this problem, the Joint Commission has developed an official “Do Not Use” list of abbreviations that health care workers must never use. These are given in Appendix D. Of course, your health care facility may have its own list of abbreviations that should be avoided or that are acceptable to use; review this information carefully, and follow the guidelines in your daily practice.

Abbreviation	Meaning
Diagnosis and Treatment	
Dx	diagnosis
H&P	history and physical (examination)
Hx	history
pt	patient
Px	prognosis
Rx	prescription
Sx	symptom
Tx, Tr	treatment
Practice Areas and Specialists	
CAM	complementary and alternative medicine
DC	doctor of chiropractic medicine
DDS	doctor of dental surgery
ENT	ears, nose, throat
ER, ED	emergency room, emergency department
ICU	intensive care unit
MD	doctor of medicine
OB/GYN	obstetrics/gynecology
OD	doctor of optometry
PA	physician's assistant
Peds	pediatrics
PT	physical therapy, physical therapist
Units of Measurement	
C	Celsius, centigrade (temperature)
cc	cubic centimeter
F	Fahrenheit (temperature)
g or gm, mg, kg	gram, milligram, kilogram
L, mL	liter, milliliter
m, cm, mm	meter, centimeter, millimeter
oz	ounce
Prescriptions	
b.i.d.	twice a day (Latin, <i>bis in die</i>)
noct.	night (Latin, <i>nocte</i>)
p.c.	after meals (Latin, <i>post cibum</i>)
p.r.n.	as needed (Latin, <i>pro re nata</i>)
q.i.d.	four times a day (Latin, <i>quater in die</i>)

Abbreviation	Meaning
Other Abbreviations	
ADL	activities of daily living
AP	anteroposterior (from front to back)
BP	blood pressure
CT	computed tomography (type of x-ray)
Ht	height
lab	laboratory
MRI	magnetic resonance imaging
NPO, npo	nothing by mouth (don't eat or drink) (Latin, <i>non per os</i>)
P	pulse rate
postop, post-op	postoperative (after surgery)
preop, pre-op	preoperative (before surgery)
R	respiratory rate
RBC	red blood cell
STAT, stat	immediately
T	temperature
VS	vital signs
WBC	white blood cell
Wt	weight

Exercises: Common Abbreviations



Exercise 15

Write the meaning of each abbreviation.

1. ICU _____
2. RBC _____
3. P _____
4. H&P _____
5. ADL _____
6. ED _____
7. L _____
8. Tx _____
9. ENT _____
10. lab _____



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Exercise 16

Match each abbreviation with its meaning.

Rx	R	STAT	VS
PT	Sx	Hx	BP
p.r.n.	noct.	Ht	Dx

1. symptom _____
2. vital signs _____
3. diagnosis _____
4. height _____
5. immediately _____
6. as needed _____
7. respiratory rate _____
8. blood pressure _____
9. prescription _____
10. night _____
11. physical therapy _____
12. history _____

WRAPPING UP

- Medical terminology uses common prefixes, suffixes, and abbreviations.
- Prefixes describe: numbers, negation, position, time, direction, or relative characteristics.
- Suffixes describe: conditions, diseases, surgery.
- These word parts will help you understand nearly every medical term you encounter.
- Abbreviations are commonly used in health care notes for convenience, and learning these will help you understand shorthand.

Chapter Review



In the following exercises, you will encounter a few medical terms you have not seen in this chapter. Nonetheless, you should be able to answer these questions based on the word parts used in these terms. Review the earlier tables of prefix and suffix meanings if needed.

Review of Prefixes and Suffixes



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Exercise 17

Match each prefix with its meaning.

hypo-	hetero-	dys-	im-	intra-
hemi-	ad-	exo-	per-	poly-

- not _____
- toward _____
- many _____
- through _____
- within _____
- outside _____
- half _____
- different _____
- below normal _____
- painful _____



ADVANCED
RECALL

Exercise 18

Match each suffix with its meaning.

-plasty	-pathy	-ium	-emia	-gram
-graphy	-ar	-osis	-tomy	-rrhaphy

- abnormal condition _____
- suturing _____
- record, recording _____

4. incision _____
5. blood (condition of) _____
6. disease _____
7. pertaining to _____
8. surgical repair _____
9. recording process _____
10. tissue _____

Meaning Recognition



TERM
CONSTRUCTION

Exercise 19

Match each word with its meaning. Because you have not yet learned some of the combining forms used in some of these terms, you may have to guess the meanings based on the meanings of the prefixes or suffixes in the terms.

bisect	polyarthritis	semiconscious	submandibular	panarthritis
cardiotomy	endoscope	cavitory	psychology	thrombosis

1. cut in two parts _____
2. beneath the mandible (lower jaw) _____
3. pertaining to a cavity _____
4. incision of heart wall _____
5. study of mental processes _____
6. instrument for examining inside an organ _____
7. inflammation of several joints _____
8. condition of having a blood clot _____
9. inflammation of all the joints in body _____
10. drowsy, partially conscious _____

Term Building



Exercise 20

Using the given combining form and a prefix or suffix (and sometimes both) from this chapter, build a medical term for the meaning given.

Use Combining Form	Meaning of Medical Term	Medical Term
myos/o + suffix	inflammation of muscle	1. _____
lob/o + suffix	surgical removal of lobe	2. _____
cardi/o + suffix	disease of the heart	3. _____
prefix + cost/o (rib) + suffix	pertaining to between the rib	4. _____
prefix + nas/o (nose) + suffix	pertaining to behind the nose	5. _____
prefix + bi/o + suffix	one who specializes in the study of very small life forms	6. _____
lymph/o + suffix	tumor of lymph tissue	7. _____
dermat/o + suffix	resembling skin	8. _____
crani/o + suffix	surgical repair of the skull	9. _____
ten/o (tendon) + suffix	suture of a tendon	10. _____

Spelling and Pronunciation



Exercise 21

Circle the correctly spelled term.

1. mononeural	monaneura	mononueral
2. hemopleiga	hemaplegia	hemiplegia
3. ectiderm	ectoderm	ectaderm
4. infrisonic	infrosonic	infrasonic
5. pericarditis	perocarditis	perecarditis
6. megalaspenia	megalesplenia	megalosplenia
7. hetrogeneous	heterogeneous	hetarogeneous
8. bradycardia	bradcardia	braydcardia

9. diarrhea	diarrhea	diareah
10. hetrogenic	hetarogenic	heterogenic
11. mylgia	myolgia	myalgia
12. cystorhraphy	cystorrhaphy	cystorhaphry
13. osteogenesis	osteogenesis	osteoginesis
14. edematuos	edematous	edematus
15. gastrotomy	gastrotomomy	gastrotommy



AUDITORY

Exercise 22

Listen to the pronunciations of the following terms in the Audio Glossary on the Student Resources, and practice pronouncing each, referring to the pronunciation guide as needed.

1. quadruplets	kwahd-rŭp'letz
2. abacterial	ă'bak-tēr'ē-ăl
3. suprarenal	sŭ'pră-rē'năl
4. hypoglycemia	hĭ'pō-gli-sē'mē-ă
5. diarthric	dĭ-ahr'thrik
6. dyspeptic	dis-pep'tik
7. neonate	nē'ō-năt
8. osteoma	os-tē-ō'mă
9. cardiomegaly	kahr'dē-ō-meg'ă-lē
10. articular	ahr-tik'yŭ-lăr
11. edematous	e-dēm'ă-tŭs
12. antiseptis	an'ti-sep'sis
13. bradycardia	brad'ē-kahr'dē-ă
14. myocardium	mĭ'ō-kahr'dē-ŭm
15. amniocentesis	am'nē-ō-sen-tē'sis
16. tachycardia	tak'i-kahr'dē-ă
17. polyarteritis	pol'ē-ahr-tēr-ĭ'tis
18. symphysis	sim'fi-sis
19. gastrotomy	gas-trot'ō-mē
20. subcutaneous	sŭb'kyŭ-tă'nē-ŭs

Media Connection

STUDENT
RESOURCES

Exercise 23

Complete each of the following activities available with the Student Resources. Check off each activity as you complete it, and record your score for the Chapter Quiz in the space provided.


Chapter Exercises

___  Flash Cards

___  Break It Down

___  Concentration

___  True/False Body Building

___  Abbreviation Match-Up

___  Quiz Show

___  Roboterms

___  Complete the Case

___  Word Anatomy

___  Spelling Bee

___  Fill the Gap

___ Chapter Quiz

Score: _____%

Additional Resources

___  Audio Glossary

