

Prefixes

CHAPTER

3

Chapter Outline

Objectives

Prefix Linking

Prefix Types

Prefixes of Position, Number, Measurement,
and Direction

Other Common Prefixes

Learning Activities

Objectives

Upon completion of this chapter, you will be able to:

- Explain the use of prefixes in medical terminology.
- Explain how a prefix changes the meaning of a medical word.
- Identify prefixes of position, number and measurement, and direction.
- Demonstrate your knowledge of this chapter by completing the learning activities.

Prefix Linking

Most medical words contain a root or combining form with a suffix. Some of them also contain prefixes. A prefix is a word element located at the beginning of a word. Substituting one prefix for another alters the meaning of the word. For example, in the term *macrocyte*, *macro-* is a prefix meaning *large*; *-cyte* is a suffix meaning *cell*. A *macrocyte* is a large cell. By changing the prefix *macro-* to *micro-* (small), the meaning of the word changes. A *microcyte** is a small cell. See Table 3-1 for three other examples of how a prefix changes the meaning of a word.

Prefix Types

Learning the major types of prefixes, such as prefixes of position, number and measurement, and direction, as well as some others, will help you master medical terminology.

Prefixes of Position, Number, Measurement, and Direction

Prefixes are used in medical terms to denote position, number and measurement, and direction. Prefixes of position describe a place or location. (See Table 3-2.) Prefixes of number and measurement describe an amount, size, or degree of involvement. (See Table 3-3.) Prefixes of direction indicate a pathway or route. (See Table 3-4.)

Other Common Prefixes

Many other common prefixes may also be used to change the meaning of a word. See Table 3-5 for a list of some other common prefixes.

Table 3-1 Changing Prefixes and Meanings

In this table, each word has the same root, nat (birth) and suffix, -al (pertaining to). By substituting different prefixes, new words with different meanings are formed.

Prefix	+	Word Root	+	Suffix	=	Medical Word	Meaning
pre- (before)	+				=	prenatal prē-NĀ-tāl	pertaining to (the period) before birth
peri (around)	+	nat (birth)	+	-al (pertaining to)	=	perinatal pēr-ĭ-NĀ-tāl	pertaining to (the period) around birth
post (after)	+				=	postnatal pōst-NĀ-tāl	pertaining to (the period) after birth

Table 3-2 Prefixes of Position

This table lists commonly used prefixes of position along with their meanings and word analyses.

Prefix	Meaning	Word Analysis
epi-	above, upon	epi/gastr/ic (ĕp-ĭ-GĀS-trĭk): pertaining to above the stomach <i>gastr</i> : stomach <i>-ic</i> : pertaining to
hypo-	under, below, deficient	hypo/derm/ic (hĭ-pō-DĒR-mĭk): pertaining to under the skin <i>derm</i> : skin <i>-ic</i> : pertaining to <i>Hypodermic injections are given under the skin.</i>
infra-	under, below	infra/cost/al (ĭn-frĕ-KŌS-tāl): below the ribs <i>cost</i> : ribs <i>-al</i> : pertaining to

*The suffix *-cyte* can also be broken down as a root *cyt* which a noun ending *e* (*cyte*).

Table 3-2 Prefixes of Position—cont'd

Prefix	Meaning	Word Analysis
sub-		sub/nas/al (süb-NĀ-säl): under the nose <i>nas</i> : nose <i>-al</i> : pertaining to,
inter-	between	inter/cost/al (in-tēr-KÖS-täl): between the ribs <i>cost</i> : ribs <i>-al</i> : pertaining to
post-	after, behind	post/nat/al (pöst-NĀ-täl): pertaining to (the period) after birth <i>nat</i> : birth <i>-al</i> : pertaining to
pre-	before, in front of	pre/nat/al (prē-NĀ-täl): pertaining to (the period) before birth <i>nat</i> : birth <i>-al</i> : pertaining to
pro-		pro/gnosis (prög-NŌ-sīs): knowing before <i>-gnosis</i> : knowing <i>Prognosis is the prediction of the course and end of a disease and the estimated chance of recovery.</i>
retro-	backward, behind	retro/version (rēt-rō-VĚR-shŭn): turning backwards <i>-version</i> : turning <i>Retroversion refers to tipping backward of an organ (such as the uterus) from its normal position.</i>

Table 3-3 Prefixes of Number and Measurement

This table lists commonly used prefixes of number and measurement along with their meanings and word analyses.

Prefix	Meaning	Word Analysis
bi-	two	bi/later/al (bī-LĀT-ēr-äl): pertaining to two sides <i>later</i> : side <i>-al</i> : pertaining to
dipl-	double	dipl/opia (dĭp-LŌ-pē-ă): double vision <i>-opia</i> : vision
diplo-		diplo/bacteri/al (dĭp-lō-bāk-TĒR-ē-äl): bacteria linked together in pairs <i>bacteri</i> : bacteria <i>-al</i> : pertaining to <i>Diplobacteria reproduce in such a manner that they are joined together in pairs.</i>
hemi-	one half	hemi/plegia (hēm-ē-PLĒ-jē-ă): paralysis of one half of the body <i>-plegia</i> : paralysis
hyper-	excessive, above normal	hyper/calc/emia (hī-pēr-kāl-SĒ-mē-ă): excessive calcium in the blood <i>calc</i> : calcium <i>-emia</i> : blood condition

(continued)

Table 3-3 Prefixes of Number and Measurement—cont'd		
Prefix	Meaning	Word Analysis
macro-	large	macro/cyte (MĀK-rō-sīt): large cell -cyte: cell
micro-	small	micro/scope (MĪ-krō-skōp): instrument for examining small (objects) -scope: instrument for examining <i>The microscope is an optical instrument that greatly magnifies minute objects.</i>
mono-	one	mono/therapy (MÖN-ō-thēr-a-pē): one treatment -therapy: treatment <i>An example of monotherapy is treatment using only a single drug or a single treatment modality.</i>
uni-		uni/nucle/ar (ū-nī-NŪ-klē-ār): pertaining to one nucleus nucle: nucleus -ar: pertaining to
multi-	many, much	multi/gravida (mül-tī-GRĀV-ī-dā): woman who has been pregnant more than once -gravida: pregnant woman
poly-		poly/phobia (pöl-ē-FŌ-bē-ā): fear of many things -phobia: fear
primi-	first	primi/gravida (prī-mī-GRĀV-ī-dā): woman during her first pregnancy -gravida: pregnant woman
quadri-	four	quadri/plegia (kwöd-rī-PLĒ-jē-ā): paralysis of four limbs -plegia: paralysis
tri-	three	tri/ceps (TRĪ-cēps): three heads -ceps: head <i>Triceps describes a muscle arising by three heads with a single insertion, as the triceps brachii of the posterior arm shown in Figure 10-1.</i>

Table 3-4 Prefixes of Direction		
<i>This table lists commonly used prefixes of direction as well as their meanings and word analyses.</i>		
Prefix	Meaning	Word Analysis
ab-	from, away from	ab/duction (āb-DŪK-shŭn): movement of a limb away from (an axis of) the body -duction: act of leading, bringing, conducting
ad-	toward	ad/duction (ā-DŪK-shŭn): movement of a limb toward (an axis of) the body -duction: act of leading, bringing, conducting
circum-	around	circum/ren/al (sēr-kŭm-RĒ-nāl): pertaining to around the kidney ren: kidney -al: pertaining to

Table 3-4 Prefixes of Directions—cont'd

Prefix	Meaning	Word Analysis
peri-		peri/odont/al (pĕr-ĕ-ō-DŌN-tāl): pertaining to around a tooth <i>odont</i> : teeth <i>-al</i> : pertaining to
dia-	through, across	dia/rrhea (dī-ă-RĒ-ă): flow through <i>-rrhea</i> : discharge, flow <i>Diarrhea is a condition of abnormally frequent discharge or flow of fluid fecal matter from the bowel.</i>
trans-		trans/vagin/al (trăns-VĂJ-ĭn-ăl): pertaining to across or through the vagina <i>vagin</i> : vagina <i>-al</i> : pertaining to
ecto-	outside, outward	ecto/gen/ous (ĕk-TŌJ-ĕ-nūs): forming outside the body or structure <i>gen</i> : forming, producing, origin <i>-ous</i> : pertaining to, <i>An ectogenous infection is one that originates outside of the body.</i>
exo-		exo/tropia (ĕks-ō-TRŌ-pĕ-ă): turning outward (of one or both eyes) <i>-tropia</i> : turning
extra-		extra/crani/al (ĕks-tră-KRĀ-nĕ-ăl): outside the skull <i>crani</i> : cranium (skull) <i>-al</i> : pertaining to
endo-	in, within	endo/crine (ĒN-dō-krĭn): secrete within <i>-crine</i> : secrete <i>Endocrine describes a gland that secretes directly into the bloodstream.</i>
intra-		intra/muscul/ar (ĭn-tră-MŪS-kŭ-lăr): within the muscle <i>muscul</i> : muscle <i>-ar</i> : pertaining to
para-*	near, beside; beyond	para/nas/al (păr-ă-NĀ-săl): beside the nose <i>nas</i> : nose <i>-al</i> : pertaining to
super-	upper, above	super/ior (soo-PĒ-rĕ-or): pertaining to the upper part of a structure <i>-ior</i> : pertaining to
supra-	above; excessive; superior	supra/ren/al (soo-pră-RĒ-năl): pertaining to above the kidney <i>ren</i> : kidney <i>-al</i> : pertaining to
ultra-	excess, beyond	ultra/son/ic (ŭl-tră-SŌN-ĭk): pertaining to sound beyond (that which can be heard by the human ear) <i>son</i> : sound <i>-ic</i> : pertaining to

*Para- may also be used as a suffix meaning to bear (offspring).

Table 3-5 Other Common Prefixes

This table lists other commonly used prefixes along with their meanings and word analyses.

Prefix	Meaning	Word Analysis
a-*	without, not	a/mast/ia (ă-MĀS-tē-ă): without a breast <i>mast</i> : breast <i>-ia</i> : condition <i>Amastia</i> may be the result of a congenital defect, an endocrine disorder, or mastectomy.
an-**		an/esthesia (ăn-ēs-THĒ-zē-ă): without feeling <i>-esthesia</i> : feeling <i>Anesthesia</i> may be a partial or complete loss of sensation with or without loss of consciousness.
anti-	against	anti/bacteri/al (ăn-tī-băk-TĒR-ē-ăl): against bacteria <i>bacteri</i> : bacteria <i>-al</i> : pertaining to <i>Antibacterials</i> are substances that kill bacteria or inhibit their growth or replication.
contra-		contra/ception (kōn-tră-SĒP-shŭn): against conception or impregnation <i>-ception</i> : conceiving <i>Contraceptive techniques</i> prevent pregnancy by means of medication, a device, or a method that blocks or alters one or more of the processes of reproduction.
brady-	slow	brady/cardia (brăd-ē-KĀR-dē-ă): slow heart rate <i>-cardia</i> : heart
dys-	bad; painful; difficult	dys/tocia (dīs-TŌ-sē-ă): difficult childbirth <i>-tocia</i> : childbirth, labor
eu-	good, normal	eu/pnea (ūp-NĒ-ă): normal breathing <i>-pnea</i> : breathing
hetero-	different	hetero/graft (HĒT-ē-rō-grăft): different transplant <i>-graft</i> : transplantation <i>A heterograft</i> , also called a <i>xenograft</i> , is a transplant of tissue from another species that is used as a temporary graft in certain cases, as in treating a severely burned patient when tissue from the patient or from a tissue bank is not available.

*The prefix *a-* is usually used before a consonant.

** The prefix *an-* is usually used before a vowel.

Table 3-5 Other Common Prefixes—cont'd

Prefix	Meaning	Word Analysis
homo-	same	homo/graft (HŌ-mō-grāft): same transplant - <i>graft</i> : transplantation <i>A homograft, also called an allograft, is a transplant of tissue obtained from a member of the patient's own species. Commonly transplanted organs include bone, kidney, lung, and heart. Recipients take immunosuppressive drugs to prevent tissue rejection.</i>
homeo-		homeo/plasia (hō-mē-ō-PLĀ-zē-ă): formation of new tissue similar to that already existing in a part - <i>plasia</i> : formation, growth
mal-	bad	mal/nutrition (māl-nŭ-TRĪ-shŭn): bad nutrition <i>Malnutrition refers to any disorder resulting from an inadequate or excessive intake of food.</i>
pan-	all	pan/arthr/itis (pān-ār-THRĪ-tīs): inflammation of all (or many) joints <i>arthr</i> : joint - <i>itis</i> : inflammation
pseudo-	false	pseudo/cycesis (soo-dō-sī-Ē-sīs): false pregnancy - <i>cycesis</i> : pregnancy <i>Pseudocyesis is a condition in which a woman believes she is pregnant when she is not and begins to develop all the physical characteristics associated with pregnancy.</i>
syn-***	union, together, joined	syn/dactyl/ism (sĭn-DĀK-tĭl-ĭzm): condition of joined fingers or toes <i>dactyl</i> : fingers; toes - <i>ism</i> : condition <i>Syndactylism varies in degree of severity from incomplete webbing of the skin of two digits to complete union of digits and fusion of the bones and nails.</i>
tachy-	rapid	tachy/pnea (tāk-ĭp-NĒ-ă): rapid breathing - <i>pnea</i> : breathing

*** The prefix *syn-* appears as *sym-* before *b*, *p*, *ph*, or *m*.



It is time to review prefixes by completing Learning Activities 3-1, 3-2, and 3-3.

LEARNING ACTIVITIES

The following activities provide review of the prefixes introduced in this chapter. Complete each activity and review your answers to evaluate your understanding of the chapter. You can also enhance your learning of prefixes with the power of *DavisPlus*. Visit www.davisplus.fadavis.com/gyls/systems for this chapter's flash-card activity. We recommend you do so before completing the learning activities that follow.

Learning Activity 3-1

Identifying and Defining Prefixes

Place a slash after each of the following prefixes and then define the prefix. The first one is completed for you.

Word	Definition of Prefix
1. inter/dental	<u>between</u>
2. hypodermic	_____
3. epidermis	_____
4. retroversion	_____
5. sublingual	_____
6. transvaginal	_____
7. infracostal	_____
8. postnatal	_____
9. quadriplegia	_____
10. hypercalcemia	_____
11. primigravida	_____
12. microscope	_____
13. triceps	_____
14. polydipsia	_____
15. abduction	_____
16. anesthesia	_____
17. macrocyte	_____
18. intramuscular	_____
19. suprapelvic	_____
20. diarrhea	_____
21. circumduction	_____
22. adduction	_____
23. periodontal	_____
24. bradycardia	_____
25. tachypnea	_____
26. dystocia	_____

27. eupnea _____
 28. heterograft _____
 29. malnutrition _____
 30. pseudocyesis _____



Check your answers in Appendix A. Review any material that you did not answer correctly.

Correct Answers _____ $\times 3.34 =$ _____ % Score

Learning Activity 3-2

Matching Prefixes of Position, Number and Measurement, and Direction

Match the following terms with the definitions in the numbered list.

diarrhea	macrocyte	pseudocyesis
ectogenous	periodontal	quadriplegia
hemiplegia	polyphobia	retroversion
hypodermic	postoperative	subnasal
intercostal	prenatal	suprarenal

- _____ tipping back of an organ
- _____ pertaining to under the skin
- _____ before birth
- _____ pertaining to under the nose
- _____ after surgery
- _____ pertaining to between the ribs
- _____ false pregnancy
- _____ pertaining to around the teeth
- _____ flow through (watery bowel movement)
- _____ pertaining to an origin outside (the body or structure)
- _____ above the kidney
- _____ paralysis of one half (of the body)
- _____ paralysis of four (limbs)
- _____ (abnormally) large blood cell
- _____ many fears



Check your answers in Appendix A. Review any material that you did not answer correctly.

Correct Answers _____ $\times 6.67 =$ _____ % Score

Learning Activity 3-3

Matching Other Prefixes

Match the following terms with the definitions in the numbered list.

<i>amastia</i>	<i>dyspepsia</i>	<i>homograft</i>
<i>anesthesia</i>	<i>dystocia</i>	<i>malnutrition</i>
<i>antibacterial</i>	<i>eupnea</i>	<i>panarthritis</i>
<i>bradycardia</i>	<i>heterograft</i>	<i>syndactylism</i>
<i>contraception</i>	<i>homeoplasia</i>	<i>tachycardia</i>

1. _____ difficult digestion
2. _____ tissue transplant from a different species
3. _____ inflammation of many joints
4. _____ against bacteria
5. _____ slow heartbeat
6. _____ poor or bad nutrition
7. _____ without a breast
8. _____ without sensation
9. _____ good or normal breathing
10. _____ condition of fused fingers and toes
11. _____ rapid heartbeat
12. _____ against conception
13. _____ tissue transplant from the same species
14. _____ difficult childbirth
15. _____ formation of the same tissue



Check your answers in Appendix A. Review any material that you did not answer correctly.

Correct Answers _____ × 6.67 = _____ % Score



Enhance your study and reinforcement of prefixes with the power of DavisPlus. Visit www.davisplus.fadavis.com/gylys/systems for the flash-card activity related to prefixes. We recommend you complete the flash-card activity before moving on to Chapter 4.