





- Previously, you learned the word perineuritis. In that example, the suffix -itis joined the root –neur- quite easily.
- Sometimes roots and suffixes do not go together as well.

For example, if the root hemat was combined with the suffix - logy, the word would be spelled hematlogy. Try pronouncing this word. You will find it difficult.

To make this word easier to pronounce, the letter "o" is added to the end of the root to make the word hematology. The "o" is called a combining vowel.

As you can see, with the combining vowel added, the word is much easier to pronounce. The combining vowel is usually "o."

It can be used to connect a root to a suffix (as in the above example) or to join two roots.

When connecting a root to a suffix, the combining vowel is used only when the suffix starts with a consonant, such as in the word "hematology" above.

If the suffix starts with a vowel (a, e, i, o, u) the combining vowel is not needed.

For example, in the word **arthritis**, we do not add the combining vowel to **arthr** because the suffix -**itis** starts with a vowel.

- As stated above, the combining vowel can also be used to joint two roots.
- For example, in the word "osteoarthritis," the combining vowel joins the roots oste and arthr.

oste	0	arthr	-itis
root	combining vowel	root	suffix
bone		joint	inflammation

### Word Roots

A word root is the fundamental portion of a word that contains the basic meaning.

For example, the word root cardi means "heart".

Most medical word roots come directly from Greek and Latin terms.

## Combining forms

Combining forms are the word root and a combining vowel that enable two parts to be connected.

For example, the word root cardi + the combining vowel -o- can form words relating to the basic meaning "heart," such as cardiology, the practice that studies, diagnoses, and treats disorders of the heart.

	List of roots and con	nbining forms	
aer(o)	air; gas	iatr(o)	physician, treatment
andro	masculine	idio	unknown
athero	plaque; fatty substance	karyo	nucleus
bio-	life	leuk(o)	white
carcin(o)	cancer	lip(o)	fat
chondro	cartilage	melan(o)	dark, black
chrono	time	orth(o)	straight, normal
cry(o)	cold	path(o)	disease
cyan(o)	blue	pharmaco	drug, medicine
dorsi	back	pseud(o)	false
erythr(o)	red	pyro	fever, heat
etio	cause	sidero	iron
home(o), homo	same, constant	somat(o)	body
hydr(o)	water	terato	monster

	COMBINING FORM	MEANING	EXAMPLE
	acanth(o)	spiny; thorny	acanthoid [ă-KĂN-thŏyd], spine-shaped
	actin(o)	light	actinotherapy [ĂK-tǐn-ō-THĀR-ă-pē], ultraviolet light therapy used in dermatology
$\Rightarrow$	aer(o)	air; gas	aerogen [ĀR-ō-jĕn], gas-producing microorganism
	alge, algesi, algio, algo	pain	algospasm [ĂL-gō-spăzm], pain caused by a spasm
	amyl(o)	starch	amylophagia [ĂM-i-lō-FĀ-jē-ă], abnormal craving for starch
	andro	masculine	androblastoma [ĂN-drō-blăs-TŌ-mă], testicular tumor
$\Rightarrow$	athero	plaque; fatty substance	atheroma [ăth-ĕr-Ō-mă], swelling on the surface of an artery from a fatty deposit
	bacill(i)	bacilli; bacteria	bacilliform [bă-SĬL-ĭ-fŏrm], rod-shaped like a bacterium
	bacteri(o)	bacteria	bacteriogenic [băk-TĒR-ē-ō-JĔN-ik], caused by bacteria
	bar(o)	weight; pressure	barostat [BĂR-ō-stăt], pressure-regulating device
	bas(o), basi(o)	base	basophilic [BĀ-sō-FĬL-ik], having an affinity for basic dyes (said of tissue)
$\Rightarrow$	bio-	life	biopsy [BĪ-ŏp-sē], sampling of tissue from living patients
$\Rightarrow$	blasto	immature cells	glioblastoma [GLĪ-ō-blăs-TŌ-mă], growth consisting of immature neural cells
	cac(o)	bad; ill	cacomelia [kăk-ō-MĒ-lē-ă], congenital limb deformity
	calc(o), calci(o)	calcium	calcipenia [kăl-sǐ-PĒ-nē-ă], calcium deficiency
	carcin(o)	cancer	carcinogen [kăr-SĬN-ō-jĕn], cancer-producing substance
	chem(o)	chemical	chemolysis [kĕm-ŎL-i-sis], chemical decomposition
	chlor(o)	chlorine, green	chloruresis [klō-yū-RĒ-sis], excretion of chloride in urine
	chondrio, chondro	cartilage, grainy, gritty	chondrocyte [KŎN-drō-sīt], cartilage cell
	chore(o)	dance	choreoathetosis [KŌR-ē-ō-ăth-ĕ-TŌ-sis], abnormal body movements
	chrom, chromat, chromo	color	chromatogenous [krō-mă-TŎJ-ĕ-nŭs], producing color
$\Rightarrow$	chrono	time	chronometry [krō-NŎM-ĕ-trē], measurement of time intervals

	COMBINING FORM	MEANING	EXAMPLE
	chyl(o)	chyle, a digestive juice	chylopoiesis [KĬ-lō-pŏy-Ē-sis], production of chyle in the intestine
	chym(o)	chyme, semifluid production of chyme in the stomach	chymopoiesis [KĪ-mō-pŏy-Ē-sis], present during digestion
	cine(o)	movement	cineradiography [SĬN-ĕ-rā-dē-ŎG-ră-fē], imaging of an organ in motion
	coni(o)	dust	coniometer [kō-nē-ŎM-ĕ-tĕr], device for measuring dust
$\Rightarrow$	crin(o)	secrete	crinogenic [krin-ō-JEN-ik], causing secretion; endocrine [EN-do-krin], a gland that secretes internally into systemic circulation
	cry(o)	cold	cryocautery [KRĬ-ō-KĂW-tĕr-ē], destruction of tissue by freezing
	crypt(o)	hidden; obscure	cryptogenic [krip-tō-]ĔN-ik], of obscure origin
	cyan(o)	blue	cyanopsia [si-ă-NŎP-sē-ă], condition following a cataract operation in which all objects appear blue
	cycl(o)	circle; cycle; ciliary body	cyclectomy [si-KLĔK-tō-mē], removal of a part of a ciliary body
	cyst(o), cysti	bladder, cyst, cystic duct	cystoid [SĬS-tŏyd], bladder-shaped
$\Rightarrow$	cyt(o)	cell	cytoarchitecture [SĪ-tō-ĂR-ki-těk-chūr], arrangement of cells in tissue
$\Rightarrow$	dextr(o)	right, toward the right	dextrocardia [DEKS-trō-KĂR-dē-ă], displacement of the heart to the right
	dips(o)	thirst	dipsomania [dip-sō-MĀ-nē-ă], alcoholism
	dors(o), dorsi	back	dorsalgia [dor-SĂL-jē-ă], upper back pain
	dynamo	force; energy	dynamometer [di-nă-MŎM-ĕ-tĕr], instrument for measuring muscular power
	echo	reflected sound	echocardiogram [ĕk-ō-KĂR-dē-ō-grăm], ultrasound recording of the heart
	electr(o)	electricity; electric	electrocardiogram [ē-lěk-trō-KĂR-dē-ō-grăm], graphic record of heart's electrical currents
$\Rightarrow$	eosin(o)	red; rosy	eosinophilic [ē-ō-sin-ō-FĬL-ik], staining readily with certain dyes
	ergo	work	ergograph [ER-gō-grăf], instrument for measuring work of muscular contractions
$\Rightarrow$	erythr(o)	red, redness	erythroclasis [ĕr-ĭ-THRŎK-lă-sis], fragmentation of red blood cells

Сомв	INING FORM	MEANING	EXAMPLE
esthesio		sensation, perception	esthesiometry [ĕs-thē-zē-ŎM-ĕ-trē], measurement of tactile sensibility
ethmo		ethmoid bone	ethmonasal [ĕth-mō-NĀ-săl], relating to the ethmoid and nasal bones
etio		cause	etiopathology [Ê-tē-ō-pă-THŎL-ō-jē], study of the cause of an abnormality or disease
fibr(o)		fiber	fibroplastic [fi-brō-PLĂS-tik], producing fibrous tissue
fluor(o)		light; luminous; fluorine	fluorochrome [FLÜR-ō-krōm], fluorescent contrast medium
fungi		fungus	fungicide [FŬN-jĭ-sīd], substance that destroys fungi
galact(o)		milk	galactophoritis [gă-LĂK-tō-fō-RĬ-tis], inflammation of the milk ducts
gen(o)		producing; being born	genoblast [JĚN-ō-blãst], nucleus of a fertilized ovum
gero, ger	ront(o)	old age	gerontology [jār-ŏn-TŎL-ō-jē], study of the problems of aging
gluco		glucose	glucogenic [glū-kō-JĚN-ik], producing glucose
glyco		sugars	glycopenia [glī-kō-PĒ-nē-ă], sugar deficiency
gonio		angle	goniometer [gō-nē-ŎM-ĕ-tĕr], instrument for measuring angles
granulo		granular	granuloma [grăn-yū-LŌ-mă], small, granular lesion
gyn(o),	gyne, gyneco	women	gynopathy [gī-NŎP-ä-thē], disease peculiar to women
home(o)	, homo	same; constant	homeoplasia [HŌ-mē-ō-PLĀ-zhē-ă], formation of new, similar tissue
hydr(o)		hydrogen, water	hydrocephaly [hī-drō-SĚF-ā-lē], condition characterized by excessive fluid accumulation in the head
hypn(o)		sleep	hypnogenesis [hǐp-nō-JĚN-ĕ-sǐs], induction of sleep
iatr(o)		physician; treatment	iatrogenic [i-ăt-rō-JĚN-ik], produced or caused by treatment or diagnostic procedure
ichthy(o	)	dry; scaly; fish	ichthyotoxism [ĬK-thē-ō-TŎK-sizm], poisoning by fish
idio		distinct; unknown	idiopathic [ĬD-ē-ō-PĂTH-ĭk], of unknown origin (said of a disease)

	COMBINING FORM	MEANING	EXAMPLE
$\Rightarrow$	immun(o)	safe; immune	immunodeficient [ĬM-yū-nō-dē-FĬSH-ĕnt], lacking in some essential immune function
	kal(i)	potassium	kalemia [kă-LĒ-mē-ă], presence of potassium in the blood
	karyo	nucleus	karyolysis [kăr-ē-ŎL-i-sis], destruction of a cell nucleus
	ket(o), keton(o)	ketone; acetone	ketogenesis [kē-tō-JĚN-ĕ-sis], metabolic production of ketones
	kin(o), kine	movement	kinesthesia [KĬN-ĕs-THĒ-zhē-ă], perception of movement
	kinesi(o), kineso	motion	kinesiology [ki-nē-sē-ŎL-ō-jē], study of movement
	kyph(o)	humpback	kyphoscoliosis [KĪ-fō-skō-lē-Ō-sis], kyphosis combined with scoliosis
	lact(o), lacti	milk	lactogen [LĂK-tō-jĕn], agent that stimulates milk production
	latero	lateral, to one side	lateroduction [LĂT-ĕr-ō-DŬK-shǔn], movement to one side
	lepto	light, frail, thin	leptomeninges [lĕp-tō-mĕ-NĬN-jē2], two delicate layers of meninges
$\Rightarrow$	leuk(o)	white	leukoblast [LŪ-kō-blăst], immature white blood cell
	lip(o)	fat	lipoblast [LĬ-pō-blăst], embryonic fat cell
	lith(o)	stone	lithotomy [li-THŎT-ō-mē], operation for removal of stones
	log(o)	speech, words, thought	logopathy [lŏg-ŎP-ă-thē], speech disorder
	lys(o)	dissolution	lysemia [lī-SĒ-mē-ă], dissolution of red blood cells
$\Rightarrow$	macr(o)	large; long	macromelia [măk-rō-MĒ-lē-ă], abnormally sized limb
$\Rightarrow$	medi(o)	middle; medial plane	mediolateral [MĒ-dē-ō-LĂT-ĕr-ăl], relating to the medial plane and one side of the body
	meg(a), megal(o)	large; million	megaloencephaly [MĚG-ă-lyō-ĕn-SĚF-ă-lē], abnormally large brain
$\Rightarrow$	melan(o)	black; dark	melanoderma [MĔL-ă-nō-DĔR-mă], abnormal skin darkening
	mes(o)	middle; median	mesocephalic [MĚZ-ō-sĕ-FĂL-ǐk], having a medium-sized head
$\Rightarrow$	micr(o)	small; one-millionth; tiny	microorganism [MĪ-krō-ŌR-găn-izm], tiny organism

	COMBINING FORM	MEANING	EXAMPLE
	mio	smaller; less	miopragia [mī-ō-PRĀ-jē-ă], lessened functional activity
	morph(o)	structure; shape	morphology [mor-FOL-o-je], study of the structure of animals and plants
	narco	sleep; numbness	narcolepsy [NĂR-kō-lĕp-sē], sleep disorder
	necr(o)	death; dying	necrology [nĕ-KRŎL-ō-jē], study of the cause of death
	noct(i)	night	nocturia [nŏk-TŪ-rē-ā], urination at night
	normo	normal	normocyte [NÕR-mō-sīt], normal red blood cell
$\Rightarrow$	nucle(o)	nucleus	nucleotoxin [NŪ-klē-ō-TŎK-sin], poison that acts upon a cell nucleus
	nyct(o)	night	nyctalopia [nik-tă-LŌ-pē-ă], reduced ability to see at night
	oncho, onco	tumor	oncolysis [ŏng-KŎL-i-sis], destruction of a tumor
	orth(o)	straight; normal	orthodontics [ōr-thō-DŎN-tiks], dental specialty concerned with correction of tooth placement
	oxy	sharp; acute; oxygen	oxyphonia [ŏk-sē-FŌN-nē-ă], shrillness of voice
	pachy	thick	pachyonychia [PĂK-ē-ō-NĬK-ē-ă], abnormal thickening of the nails
$\Rightarrow$	path(o)	disease	pathogen [PĂTH-ō-jĕn], disease-causing substance
$\Rightarrow$	phago	eating; devouring; swallowing	phagocyte [FĂG-ō-sīt], cell that ingests bacteria and other particles
	pharmaco	drugs; medicine	pharmacology [FĂR-mă-KŎL-ō-jē], the science of drugs, including their sources, uses, and interactions
	phon(o)	sound; voice; speech	phonometer [fō-NŎM-ĕ-tĕr], instrument for measuring sound
	phot(o)	light	photometer [fō-TŎM-ĕ-tĕr], instrument for measuring light
$\Rightarrow$	physi, physio	physical; natural	physiotherapy [FĬZ-ē-ō-THĀR-ă-pē], physical therapy
	physo	air; gas; growing	physocele [FI-sō-sēl], swelling due to gas
	phyt(o)	plant	phytoxin [fi-tō-TŎK-sin], substance from plants that is similar to a bacterial toxin
$\Rightarrow$	plasma, plasmo	formative; plasma	plasmapheresis [PLĂZ-mă-fĕ-RĒ-sis], separation of blood into parts

	COMBINING FORM	MEANING	EXAMPLE
	poikilo	varied; irregular	poikilocyte [PŎY-kǐ-lō-sīt], irregularly shaped red blood cell
$\Rightarrow$	pseud(o)	false	pseudodiabetes [SŪ-dō-dī-ă-BĒ-tēz], false positive test for sugar in the urine
	pyo	pus	pyocyst [PĪ-ō-sist], cyst filled with pus
	pyreto	fever	pyretogenous [pi-rĕ-TŎJ-ĕ-nŭs], causing fever
	pyro	fever; fire; heat	pyrogenic [pi-rō-JEN-ik], causing fever
$\Rightarrow$	radio	radiation; x-ray; radius	radiography [RĀ-dē-ŎG-ră-fē], x-ray examination
$\Rightarrow$	salping(o)	tube	salpingectomy [săl-pǐn-JĚK-tō-mē], removal of the fallopian tube
	schisto	split	schistocytosis [SKĬS-tō-sī-TŌ-sĭs], bladder fissure
	schiz(o)	split; division	schizophrenia [skiz-ō-FRĔ-nē-ă, skits-ō-FRĔ- nē-ă], a spectrum of mental disorders often with a disorder in perception
	scler(o)	hardness; hardening	scleroderma [sklēr-ō-DĚR-mă], thickening and hardness of the skin
	scolio	crooked; bent	scoliometer [skō-lē-ŎM-ĕ-tĕr], instrument for measuring curves
	scoto	darkness	scotograph [SKŌ-tō-grăf], appliance for helping the blind to write
$\Rightarrow$	sidero	iron	sideropenia [SĬD-ĕr-ō-PĒ-nē-ă] abnormally low level of iron in the blood
	sito	food; grain	sitotoxin [sī-tō-TŎK-sǐn], any food poison
	somat(o)	body	somatogenic [SŌ-mă-tō-JĔN-ĭk], originating in the body
	somn(o), somni	sleep	somnambulism [sŏm-NĂM-byū-lizm], sleepwalking
	sono	sound	sonomotor [sŏn-ō-MŌ-tĕr], relating to movements caused by sound
	spasmo	spasm	spasmolytic [SPĂZ-mō-LĬT-ĭk], agent that relieves spasms
$\Rightarrow$	spher(o)	round; spherical	spherocyte [SFĒR-ō-sīt], spherical red blood cell
$\Rightarrow$	spir(o)	breath; breathe	spiroscope [SPĪ-rō-skōp], device for measuring lung capacity
<b>=</b>	squamo	scale; squamous	squamofrontal [SKWĀ-mō-FRŎN-tăl], relating to the squamous part of the frontal bone

	COMBINING FORM	MEANING	EXAMPLE
	staphyl(o)	grapelike clusters	staphylococcus [STĂF-i-lō-KŎK-ŭs], a common species that is the cause of a variety of infections
	steno	narrowness	stenocephaly [stěn-ō-SĔF-ă-lē], narrowness of the head
$\Rightarrow$	stere(o)	three-dimensional	stereology [STĚR-ē-ŎL-ō-jē], study of three- dimensional aspects of a cell
	strepto	twisted chains; streptococci	streptococcus [strep-tō-KŎK-ŭs], a common organism that can cause various infections
$\Rightarrow$	styl(o)	peg-shaped	styloid [STĪ-lŏyd], peg-shaped; said of a bony growth
$\Rightarrow$	syring(o)	tube	syringitis [sǐ-rǐn-JĪ-tǐs], inflammation of the eustachian tube
$\Rightarrow$	tel(o), tele(o)	distant; end; complete	telophase [TĔL-ō-fāz], final stages of mitosis or meiosis
$\Rightarrow$	terato	monster (as a malformed fetus)	teratogen [TĔR-ă-tō-jĕn], agent that causes a malformed fetus
	therm(o)	heat	thermometer [ther-MOM-e-ter], an instrument for measuring temperature
	tono	tension; pressure	tonometer [tō-NŎM-ĕ-tĕr], instrument for measuring pressure
	top(o)	place; topical	topography [tō-PŎG-ră-fĕ], description of a body part in terms of a specific surface area
	tox(i), toxico, toxo	poison; toxin	toxipathy [tŏk-SĬP-ă-thē], disease due to poisoning
$\Rightarrow$	tropho	food; nutrition	trophocyte [TRŎF-ō-sīt], cell that provides nutrition
	vivi	life	viviparous [vi-VĬP-ă-rŭs], giving birth to living young
	xanth(o)	yellow	xanthoderma [zăn-thō-DĔR-mă], yellowish skin
	xeno	stranger	xenophobia [zĕn-ō-FŌ-bē-ă], extreme fear of strangers or foreigners
	xer(o)	dry	xerasia [zĕ-RĀ-zhē-ă], dry and brittle hair condition
	xiph(o)	sword; xiphoid	xiphocostal [ZĬF-ō-KŎS-tăl], relating to the xiphoid process and the ribs
	zo(o)	life	zooblast [ZŌ-ō-blăst], animal cell
	zym(o)	fermentation; enzyme	zymogram [ZĪ-mō-grăm], strips of paper for testing for location of enzymes



- Prefixes are word parts that modify the meaning of the word or word root. They attach to the beginning of words.
- Prefixes tend to indicate size, quantity, position, presence of, and location.
- When trying to understand a word with a prefix, you can take apart the word, find the meaning of each part, and then determine the meaning of the entire word.

	List of pr	efixes	
dys-	abnormal; difficult	micro-	small
ect(o)-	outside	peri-	around
end(o)-	within	pre-	before
epi-	over	post-	after
hyper-	above normal	sub-	less than, under,
			inferior
hypo-	below normal	super-	more than, above,
			superior
inter-	between	supra-	above, over
intra-	within	tachy-	fast
mal-	bad; inadequate	ultra-	beyond, excessive
meg(a)-	large	un-	not

Prefixes	MEANING	Example
a-	without	asepsis [ā-SĔP-sis], without living organisms
ab-, abs-	away from	abduct [ăb-DŬKT], to draw away from a position
ad-	toward, to	adduct [ă-DŬKT], to draw toward the body, as a limb
ambi-	both, around	ambidextrous [ăm-bē-DĚKS-trŭs], having ability on both the right and left sides (said of the hands)
an-	without	anencephalic [ăn-ĕn-sĕ-FĂL-ĭk], without a brain
ana-	up, toward	anaphylactic [ĂN-ă-fi-LĂK-tǐk], exaggerated reaction to an antigen or toxin
ante-	before	antemortem [ĂN-tē-mŏr-těm], before death
anti-	against	antibacterial [ĂN-tē-băk-TĒR-ē-ăl], preventing the growth of bacteria
аро-	derived, separate	apobiosis [ăp-ō-bī-Ō-sis], death of a part of a living organism
aut(o)-	self	autoimmune [ăw-tō-ĭ-MYŪN], against an individual's own tissue
bi-	twice, double	biparous [BĬP-ă-rŭs], bearing two young
brachy-	short	brachyesophagus [BRĂK-ē-ĕ-sŏf-ă-gŭs], abnormally short esophagus
brady-	slow	bradycardia [brăd-ē-KĂR-dē-ă], abnormally slow heartbeat
cata-	down	cataplexy [KĂT-ă-plĕk-sē], sudden extreme muscle weakness
circum-	around	circumoral [sĕr-kŭm-ŌR-ăl], around the mouth
co-, col-, com-, con-, cor-	together	codominant [kō-DŎM-i-nănt], having an equal degree of dominance (said of two genes)
contra-	against	contraindicated [kŏn-tră-ĭn-dĭ-KĀ-tĕd], not recommended
de-	away from	demyelination [dē-MĬ-ĕ-lĭ-NĀ-shŭn], loss of myelin
di-, dif-, dir-, dis-,	not, separated	disarticulation [dis-ăr-tik-yū-LĀ-shŭn], amputation of a joint
dia-	through	diaplacental [dī-ă-plă-SĔN-tăl], passing through the placenta

PREFIXES	MEANING	EXAMPLE
dys-	abnormal; difficult	dysfunctional [dis-FUNK-shun-ăl], functioning abnormally
ect(o)-	outside	ectopic [ĕk-TŎP-ĭk], occurring outside the normal place, as a pregnancy occurring outside of the uterus
end(o)-	within	endoabdominal [ĔN-dō-ăb-DŎM-ĭ-năl], within the abdomen
epi-	over	epicondyle [ĕp-ĭ-KŎN-dīl], projection over or near the condyle
eu-	well, good, normal	eupepsia [yū-PĔP-sē-ă], normal digestion
ex-	out of, away from	exhale [ĔKS-hāl], breathe out
exo-	external, on the outside	exogenous [ĕks-ŎJ-ĕ-nŭs], produced outside of the organism
extra-	without, outside of	extracorporeal [ĕks-tră-kōr-PŎ-rē-ăl], outside of the body
hemi-	half	hemiplegia [hĕm-ĭ-PLĒ-jē-ă], paralysis on one side of the body
hyper-	above normal; overly	hyperactive [hi-per-ĂK-tiv], abnormally restless and inattentive
hypo-	below normal	hypoglycemia [hī-pō-glī-SĒ-mē-ă], low blood sugar
infra-	positioned beneath	infrasternal [in-fră-STER-năl], below the sternum
inter-	between	interdental [in-ter-DEN-tal], between the teeth
intra-	within	intramuscular [ĬN-tră-MŬS-kyū-lăr], within the substance of the muscles
iso-	equal, same	isometric [i-sō-MĔT-rik], of the same dimensions
mal-	bad; inadequate	malabsorption [măl-ăb-SŎRP-shŭn], inadequate absorption
meg(a)-, megal(o)-	large	megacephaly [meg-a-SEF-a-le], abnormal enlargement of the head
mes(o)-	middle, median	mesoderm [MĚZ-ō-děrm], the middle layer of skin
meta-	after	metacarpus [MĔT-ă-KĂR-pŭs], bones attached to the carpus

PREFIXES	Meaning	EXAMPLE		
micr(o)-	small, microscopic	microplasia [mī-krō-PLĀ-zhē-ă], stunted growth, as in dwarfism		
mon(o)-	single	monomania [mŏn-ō-MĀ-nē-ă], obsession with a single thought or idea		
multi-	many	multiarticular [MŬL-tē-ăr-TĬK-yū-lăr], involving many joints		
olig(o)-	few; little; scanty	oligospermia [ŏl-i-gō-SPĔR-mē-ă], low sperm count		
pan-, pant(o)-	all, entire	panarthritis [păn-ăr-THRĪ-tis], arthritis involving all joints		
par(a)-	beside; abnormal; involving two parts	parakinesia [păr-ă-ki-NĒ-zhē-ă], motor abnormality		
per-	through, intensely	peraxillary [pĕr-ĂK-sĭ-lār-ē], through the axilla		
peri-	around, about, near	periappendicitis [PĚR-ē-ă-pĕn-dǐ-SĪ-tǐs], inflammation of the tissue surrounding the appendix		
pluri-	several, more	pluriglandular [plū-ri-GLĂN-dū-lăr], of several glands		
poly-	many	polyarteritis [pŏl-ē-ăr-tĕr-Ī-tĬs], inflammation o a number of arteries		
post-	after, following	postmortem [post-MOR-tem], after death		
pre-	before	prenatal [prē-NĀ-tăl], before birth		
pro-	before, forward	prodrome [PRŌ-drōm], a symptom or group of symptoms that occurs before a disease shows up		
quadra-, quadri-	four	quadriplegia [kwăh-dri-PLĒ-jē-ă], paralysis of all four limbs		
re-	again, backward	reflux [RĒ-flŭks], backward flow		
retro-	behind, backward	retroversion [rĕ-trō-VĔR-shŭn], a turning backward, as of the uterus		
semi-	half	semicomatose [sem-e-KŌ-mă-tōs], drowsy and inactive, but not in a full coma		
sub-	less than, under, inferior	subcutaneous [sŭb-kyū-TĀ-nē-ŭs], beneath the skin		
super-	more than, above, superior	superacute [sū-pĕr-ă-KYŪT], more acute		
supra-	above, over	supramaxillary [sū-pră-MĂK-sǐ-lār-ē], above the maxilla		

PREFIXES	MEANING	EXAMPLE		
syl-, sym-, syn-, sys-	together	symbiosis [sĭm-bē-Ō-sĭs], mutual interdependence		
tachy-	fast	tachycardia [TĂK-i-KAR-de-a], rapid heartbeat		
trans-	across, through	transocular [trăns-ŎK-yū-lăr], across the eye		
ultra-	beyond, excessive	ultrasonic [ŭl-tră-SŎN-ĭk], relating to energy waves of higher frequency than sound waves		
un-	not	unconscious [ŭn-KŎN-shŭs], not conscious		
uni-	one	uniglandular [yū-nǐ-GLĂN-dū-lăr], involving only one gland		



- Suffixes can also be combining forms at the end of terms.
- Many suffixes have several variations that can make the compound word a noun, verb, adjective, or adverb.
- Some suffixes form both verbs and nouns so it may be important to look at the sentence in which it appears to determine the exact meaning.

#### Suffixes

- For example, hemorrhage can mean both "to bleed profusely" (verb) or "profuse bleeding" (noun).
- In the sentence, "It is possible to hemorrhage profusely from certain injuries," hemorrhage is a verb.
- In the sentence, "The **hemorrhage** was caused by an injury to his leg," hemorrhage is a noun.

List of suffixes					
-algia	pain	-ism	condition, disease		
-asthenia	weakness	-itis	inflammation		
-blast	immature, forming	-kinesia	movement		
-cide	destroying, killing	-logy	study of, practice		
-crine	secreting	-lysis	destruction of		
-cyte	cell	-megaly	enlargement		
-derma	skin	-oid	like, resembling		
-dynia	pain	-oma	tumour		
-edema	swelling	-pathy	disease		
-ema	condition	-penia	deficiency		
-emia	blood	-plegia	paralysis		
-esthesia	sensation	-rrhea	flowing		
-form	in the shape of	-spasm	contraction		
-gen	producing	-stenosis	narrowing		
-ic	pertaining to	-uria	urine		

SUFFIXES	MEANING	EXAMPLE		
-ad	toward	cephalad [SĔF-ă-lăd], toward the head		
-algia	pain	neuralgia [nū-RĂL-jē-ă], nerve pain		
-asthenia	weakness	neurasthenia [nūr-ăs-THĒ-nē-ă], condition with vague symptoms, such as weakness		
-blast	immature, forming	astroblast [ĂS-trō-blăst], immature cell		
-cele	hernia	cystocele [SĬS-tō-sēl], hernia of the urinary bla		
-cidal	destroying, killing	suicidal [sū-ĭ-SĪD-ăl], likely to kill oneself		
-cide	destroying, killing	suicide [SŪ-i-sīd], killing of oneself; bacteriocide [băk-TĒR-ē-ō-sīd], agent that destroys bacteria		

SUFFIXES	MEANING	EXAMPLE		
-clasis	breaking	osteoclasis [ŎS-tē-ŎK-lă-sĭs], intentional breaking of a bone		
-clast	breaking instrument	osteoclast [ŎS-tē-ō-klăst], instrument used in osteoclasis		
-crine	secreting	endocrine [ĔN-dō-kriň], gland that secretes hormones into the bloodstream		
-crit	separate	hematocrit [HĒ-mă-tō-krit, HĚM-ă-to-krit], percentage of volume of a blood sample that is composed of cells		
-cyte	cell	thrombocyte [THRŎM-bō-sīt], blood platelet		
-cytosis	condition of cells	erythrocytosis [ĕ-RĬTH-rō-sī-tō-sĭs], condition with an abnormal number of red blood cells in the blood		
-derma	skin	scleroderma [sklēr-ō-DĚR-mă], hardening of the skin		
-desis	binding	arthrodesis [ăr-THRŎD-ĕ-sis, ăr-thrō-DĒ-sis], stiffening of a joint		
-dynia	pain	neurodynia [nūr-ō-DĬN-ē-ă], nerve pain		
-ectasia	expansion; dilation	neurectasia [nūr-ĕk-TĀ-zhē-ă], operation with dilation of a nerve		
-ectasis	expanding; dilating	bronchiectasis [brŏng-kē-ĔK-tă-sis], condition wi chronic dilation of the bronchi		
-ectomy	removal of	appendectomy [ăp-ĕn-DĔK-tō-mē], removal of the appendix		
-edema	swelling	lymphedema [limf-ĕ-DĒ-mă], swelling as a result of obstructed lymph nodes		
-ema	condition	empyema [ĕm-pī-Ē-mă], pus in a body cavity		
-emesis	vomiting	hematemesis [hē-mă-TĔM-ĕ-sis], vomiting of blood		
-emia	blood	anemia [an-N-mē-ă], deficiency of red blood cells or hemoglobin		
-emic	relating to blood	uremic [yū-RĒ-mik], having excess urea in the blood		
-esthesia	sensation	paresthesia [păr-ĕs-THĒ-zhē-ă], abnormal sensation, such as tingling		
-form	in the shape of	uniform [YŪ-nǐ-fŏrm], having the same shape throughout		
-gen	producing, coming to be	carcinogen [kăr-SĬN-ō-jĕn], cancer-causing agent		
-genesis	production of	pathogenesis [păth-ō-JĔN-ĕ-sis], production of disease		
-genic	producing	iatrogenic [ī-ăt-rō-JĔN-ĭk], induced		

by treatment

SUFFIXES	MEANING	EXAMPLE	
-globin	protein	hemoglobin [hē-mō-GLŌ-bǐn], protein of red blood cells	
-globulin	protein	immunoglobulin [im-yū-nō-GLŎB-yū-lin], one of certain structurally related proteins	
-gram	a recording	electrocardigram [e-LEK-tro-kar-de-grăm], brain scar	
-graph	recording instrument	encephalograph [ĕn-SĔF-ă-lō-grăf], instrument for measuring brain activity	
-graphy	process of recording	echocardiography [ĚK-ō-kăr-dē-ŎG-ră-fě], graphic record of the electric activity of the heart	
-iasis	pathological condition or state	psoriasis [sō-RĪ-ă-sis], chronic skin disease	
-ic	pertaining to	gastric [GĂS-trik], relating to the stomach	
-ics	treatment, practice, body of knowledge	orthopedics [ōr-thō-PĒ-dǐks], medical-practice concerned with treatment of skeletal disorders	
-ism	condition, disease, doctrine	dwarfism [DWŌRF-izm], condition characterized by abnormally small size	
-itis (pl., -itides)	inflammation	nephritis [nĕ-FRĪ-tis], kidney inflammation; neuritides [nū-RĬT-ĭ-dēz], inflammations of nerves	
-kinesia	movement	bradykinesia [brăd-i-kin-Ē-zhē-ă], decrease in movement	
-kinesis	movement	hyperkinesis [hī-pĕr-kī-NĒ-sīs], excessive muscular movement	
-lepsy	condition of	catalepsy [KĂT-ă-lĕp-sē], condition characterized by seizures of extreme rigidity	
-leptic	having seizures	cataleptic [kăt-ă-LĔP-tik], person with catalepsy	
-logist	one who practices	dermatologist [dĕr-mă-TŎL-ō-jĭst], one who practices dermatology	
-logy	study, practice	dermatology [děr-mă-TŎL-ō-jě], study and treatment of skin disorders	
-lysis	destruction of	electrolysis [ē-lĕk-TRŎL-ĭ-sĭs], permanent removal of unwanted hair	
-lytic	destroying	thrombolytic [thrŏm-bō-LĬT-ĭk], dissolving a thrombus	
-malacia	softening	osteomalacia [ŎS-tē-ō-mă-LĀ-shē-ă], gradual softening of bone	
-mania	obsession	monomania [mŏn-ō-MĀ-nē-ă], obsession with one idea	
-megaly	enlargement	cephalomegaly [SĔF-ă-lō-MĔG-ă-lē], abnormal enlargement of the head	
-meter	measuring device	ophthalmometer [ŏf-thăl-MŎM-ĕ-tĕr], device for measuring cornea curvature	

SUFFIXES	MEANING	EXAMPLE	
-metry	measurement	optometry [ŏp-TŎM-ĕ-trē], specialty concerned with measurement of eye function	
-oid	like, resembling	cardioid [KĂR-dē-ŏyd], resembling a heart	
-oma (pl., -omata)	tumor, neoplasm	myoma (pl., myomata) [mī-Ō-mă (mī-ō-MĂ-tă)], neoplasm of muscle tissue	
-opia	vision	diplopia [dĭ-PLŌ-pē-ă], double vision	
-opsia	vision	chloropsia [klō-RŎP-sē-ă], condition of seeing objects as green	
-opsy	view of	biopsy [BĪ-ŏp-sē], cutting from living tissue to be viewed	
-osis (pl., -oses)	condition, state, process	halitosis [hăl-i-TÕ-sis], chronic bad breath	
-ostomy	opening	colostomy [kō-LŎS-tō-mē], surgical opening in the colon	
-oxia	oxygen	anoxia [ăn-ŎK-sē-ă], lack of oxygen	
-para	bearing	primipara [pri-MĬP-ăr-ă], woman who has given birth once	
-paresis	slight paralysis	monoparesis [mŏn-ō-pă-RĒ-sis], paralysis of or one extremity	
-parous	producing; bearing	viviparous [vi-VĬP-ă-rŭs], bearing living young	
-pathy	disease	osteopathy [ŏs-tē-ŎP-ă-thē], bone disease	
-penia	deficiency	leukopenia [lū-kō-PĒ-nē-ă], condition with fe than normal white blood cells	
-pepsia	digestion	dyspepsia [dis-PEP-sē-ă], impaired digestion	
-реху	fixation, usually done surgically	nephropexy [NĔF-rō-pĕk-sē], surgical fixation of a floating kidney	
-phage, -phagia, -phagy	eating, devouring	polyphagia [pŏl-ē-FĀ-jē-ă], excessive eating	
-phasia	speaking	aphasia [ă-FĀ-zhē-ă], loss of or reduction in speaking ability	
-pheresis	removal	leukapheresis [lū-kă-fĕ-RĒ-sis], removal of leukocytes from drawn blood	
-phil	attraction; affinity for	cyanophil [SI-ăn-nō-fil], element that turns blue after staining	
-philia	attraction; affinity for	hemophilia [hē-mō-FĬL-ē-ă], blood disorder with tendency to hemorrhage	
-phobia	fear	acrophobia [ăk-rō-FŌ-bē-ă], fear of heights	
-phonia	sound	neuraphonia [nūr-ă-FŌ-nē-ă], loss of sounds	
-phoresis	carrying	electrophoresis [ē-lěk-trō-FŌR-ē-sis], movement of particles in an electric field	

SUFFIXES	MEANING	EXAMPLE	
-phoria	feeling; carrying	euphoria [yū-FŌR-ē-ă], feeling of well-being	
-phrenia	of the mind	schizophrenia [skiz-ō-FRĔ-nē-ă, skit-sō-FRĔ-nē-ă], term for a common psychosis	
-phthisis	wasting away	hemophthisis [hē-MŎF-thǐ-sis], anemia	
-phylaxis	protection	prophylaxis [prō-fi-LĂK-sis], prevention of disease	
-physis	growing	epiphysis [ĕ-PĬF-ĭ-sĭs], part of a long bone distinct from and growing out of the shaft	
-plakia	plaque	leukoplakia [lū-kō-PLĀ-kē-ă], white patch on the mucous membrane	
-plasia	formation	dysplasia [dĭs-PLĀ-zhē-ă], abnormal tissue formation	
-plasm	formation	protoplasm [PRŌ-tō-plăzm], living matter	
-plastic	forming	hemoplastic [hē-mō-PLĂS-tǐk], forming new blood cells	
-plasty	surgical repair	rhinoplasty [RĪ-nō-plăs-tē], plastic surgery of the nose	
-plegia	paralysis	quadriplegia [KWĂH-drǐ-PLĒ-jē-ă], paralysis of all four limbs	
-plegic	one who is paralyzed	quadriplegic [kwăh-drĭ-PLĒ-jĭk], person who has quadriplegia	
-pnea	breath	eupnea [yūp-NĒ-ă], easy, normal respiration	
-poiesis	formation	erythropoiesis [ĕ-RĬTH-rō-pŏy-Ē-sis], formation of red blood cells	
-poietic	forming	erythropoietic [ĕ-RĬTH-rō-pŏy-ĕt-ĭk], of the formation of red blood cells	
-poietin	one that forms	erythropoietin [ĕ-RĬTH-rō-pŏy-ĕ-tin], an acid that aids in the formation of red blood cells	
-porosis	lessening in density	osteoporosis [ŎS-tē-ō-pō-RŌ-sis], lessening of bone density	
-ptosis	falling down; drooping	blepharoptosis [blĕf-ă-RŎP-tō-sis], drooping eyelid	
-rrhage	discharging heavily	hemorrhage [HĔM-ō-răj], to bleed profusely	
-rrhagia	heavy discharge	tracheorrhagia [trā-kē-ō-RĀ-jē-ă], hemorrhage from the trachea	
-rrhaphy	surgical suturing	herniorrhaphy [HĔR-nē-ŌR-ă-fē], surgical repair of a hernia	
-rrhea	a flowing, a flux	dysmenorrhea [dis-mĕn-ŌR-ē-ă], difficult menstrual flow	

SUFFIXES	MEANING	EXAMPLE
-rrhexis	rupture	cardiorrhexis [kăr-dē-ō-RĔK-sis], rupture of the heart wall
-schisis	splitting	spondyloschisis [spŏn-di-LŎS-ki-sis], failure of fusion of the vertebral arch in an embryo
-scope	instrument (especially one used for observing or measuring)	microscope [MĪ-krō-skōp], instrument for viewing small objects
-scopy	use of an instrument for observing	microscopy [mī-KRŎS-kō-pē̄], use of microscopes
-somnia	sleep	insomnia [in-SŎM-nē-ă], inability to sleep
-spasm	contraction	esophagospasm [ĕ-SŎF-ă-gō-spăzm], spasm of the walls of the esophagus
-stalsis	contraction	peristalsis [pĕr-ĭ-STĂL-sĭs], movement of the intestines by contraction and relaxation of its tube
-stasis	stopping; constant	homeostasis [HŌ-mē-ō-STĀ-sis], state of equilibrium in the body
-stat	agent to maintain a state	bacteriostat [băk-TĒR-ē-ō-stăt], agent that inhibits bacterial growth
-static	maintaining a state	hemostatic [hē-mō-STĂT-ĭk], stopping blood flow within a vessel
-stenosis	narrowing	stenostenosis [STĚN-ō-stě-NŌ-sis], narrowing of the parotid duct
-stomy	opening	colostomy [kō-LŎS-tō-mē], surgical opening in the colon
-tome	cutting instrument, segment	osteotome [ŎS-tē-ō-tōm], instrument for cutting bone
-tomy	cutting operation	laparotomy [LĂP-ă-RŎT-ō-mē], incision in the abdomen
-trophic	nutritional	atrophic [ā-TRŌF-ĭk], of a wasting state, often due to malnutrition
-trophy	nutrition	dystrophy [DĬS-trō-fē], changes that result from inadequate nutrition
-tropia	turning	esotropia [ĕs-ō-TRŌ-pē-ă], crossed eyes
-tropic	turning toward	neurotropic [nūr-ō-TRŎP-ĭk], localizing in nerve tissue
-tropy	condition of turning toward	neurotropy [nū-RŎT-rō-pē], affinity of certain contrast mediums for nervous tissue
-uria	urine	pyuria [pi-YŪ-rē-ă], pus in the urine
-version	turning	retroversion [rĕ-trō-VĔR-zhŭn], a turning backward (said of the uterus)

### Test yourself

1.	osteo	_ myel	itis	8.	Hypno	_ therapy	
	(bone)	(inflammation)			(sleep)		
2.	Endo	_ cardio	graphy	9.	Syno	ost	sis
	(within)	(vis	ual examining)		(together)	(cc	ondition)
3.	Synd	_ dactyly		10.	Supra	_tonsillar	
	(together)	- , ,			(above)		
4.	Ultra	_ violet		11.	Hemi	_cranio _	tomy
	(beyond)				(half)		(cutting)
5.	Hyper	_ sensitive		12.	Geronto	phok	oia
	(overly)				(old people)		
6.	entero <b>path</b>	10	genic	13	Intra	glandula	r
			(causing)		(within)		
7.	Нуро	dermic		14.	Leuko	_blast	
	(beneath)	_			(white)		

#### Plurals:

The rules commonly used to form plurals of medical terms are as follows:

For words ending in **a**, retain the a and add **e**. Examples: bursa: bursae; vertebra vertebrae

For words ending in **is**, drop the is and add **es**. Examples: anastomosis: anastomoses; epiphysis: epiphyses; metastasis: metastases.

For words ending in ex and ix, drop the ex or ix and add ices. Example: apex: apices.

#### Plurals:

The rules commonly used to form plurals of medical terms are as follows:

For words ending in **on**, drop the on and add **a**. Examples: ganglion: ganglia;

spermatozoon: spermatozoa.

For words ending in **um**, drop the um and add **a**. Examples: bacterium bacteria; diverticulum diverticula; ovum ova

#### Plurals:

The rules commonly used to form plurals of medical terms are as follows:

For words ending in **us**, drop the us and add **i**. Examples: bronchus bronchi; nucleus nuclei. Two exceptions to this rule are viruses and sinuses.

Additional rules are used to form plurals in other word families. Examples: anomaly anomalies; biopsy biopsies; femur femora; foramen foramina; iris irides; phalanx phalanges; thorax thoraces.

### Thank You

