Basic Word Structure

Combining Vowel

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	**o**	**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 combining 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

Prefixes

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 prefixes			
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

Suffixes

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. 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

List of suffixes			
-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

Plurals

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

1. For words ending in a, retain the a and add e. Examples: bursa: bursae; vertebra vertebrae
2. For words ending in is, drop the is and add es. Examples: anastomosis: anastomoses; epiphysis: epiphyses; metastasis: metastases.
3. For words ending in ex and ix, drop the ex or ix and add ices. Example: apex: apices.
4. For words ending in on, drop the on and add a. Examples: ganglion: ganglia; spermatozoon: spermatozoa.
5. For words ending in um, drop the um and add a. Examples: bacterium bacteria; diverticulum diverticula; ovum ova
6. 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*.
7. 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.