

Key concepts of medical terminology



Just the facts

In this chapter, you'll learn:

- ◆ dissection of medical terms
- ◆ meaning and determination of medical terms using roots, prefixes, and suffixes.

Dissecting Medical Terms

Because many medical terms derive from Greek and Latin, learning medical terminology is like learning a new language. Understanding these terms can be easier if you know how to analyze key elements and identify word associations.

Take it apart

Most medical terms are a combination of two or more parts. If you can successfully interpret each part, you can usually grasp the essential meaning of the word. Thus, interpreting the meaning of a medical term require knowledge of common medical roots, prefixes, and suffixes.

Root it out

A root is the essential component of a word. Many medical roots signify a disease, procedure, or body part. Some roots appear at the beginning of a word, whereas others appear after a prefix. In addition, two or more roots may be combined to form a word, as in **cardi-o-pulmonary** and **cardi-o-vascular**. The letter **o** is the most using combining vowel.

Here are some examples of roots used in different positions:

Deciphering
medical
terminology
requires
deduction, my
dear Watson.



- a root at the beginning of a word-**angio**edema (**angi** is a root that means *vessel*)
- a root in the middle of a word-**encephal**ic (**cephal** is a root that means *head*)
- a root at the end of a word-sclero**derma** (**derm** is a root that means *skin*)
- a combination of roots-**photo**therapy (**photo** is a root that means light; therapy is a root that mean *treatment*).

In the beginning

A prefix consists of one or more letters attached to the beginning of a root. Many prefixes used for medical terms are also applied to standard English vocabulary. To determine the meaning of a prefix in a medical term, consider a familiar word that begins with the same prefix. For example, the prefix **anti-** has the same meaning-*against*-in both *antislavery* and *antihistamine*, literally *against slavery* and *against histamine* (the compound that produces allergic reactions).

At last

A suffix is one or more letters attached to the end of a root. When a suffix begins with a consonant, a combining vowel, such as **o**, is placed before the suffix. Common use of suffixes in medical terminology includes adding a **-y** to a word to denote a procedure, such as *gastroscopy*, which means *endoscopic examination of the stomach*. Similarly, adding **-ly** to word denotes an act or process; for example, *splenomegaly*, which means *the abnormal enlargement of the spleen*.

Break it down, build it up

With a bit of practice, you'll quickly discover how easy can be interpret the parts of a medical term and then combine them to identify the term's meaning. For example, in *acrocyanosis*, the root **acr** (*extremities*) and the vowel **o** are combined with the root **cyan** (*blue*) and the suffix **-osis** (*condition*) to form a term that means a *condition characterized by blue extremities*. (For another example of how to dissect a medical term to decipher its meaning, see '*Dem bones*.)

If you can understand the building blocks, then you'll have the foundation for learning even the most complicated medical terminology.





Beyond the dictionary

'Dem bones

A specialist in **osteopathology** studies bone disease. The root **oste** is the Greek word for bone. A second root, **patho**, is derived from **pathos**, meaning disease. The suffix **logy** is derived from the root **logia**, meaning *the study of*. Put these parts together and you have the definition for **osteopathology**-*the study of bone diseases*.

At the root of disease?

A branch of medicine called **osteopathy** contends that skeletal misalignment impinges on adjacent nerves and blood vessels, causing disease.

Forming plural words

Plural words in English are usually formed by adding *s* or *es* to the end of a noun. These rules for forming plurals of many medical terms are different because of their Greek and Latin roots. Generally, plural words derived from these two languages are formed by adding or substituting vowels or syllables at the end of the word.

Examples of plurals of medical terms are:

- *maculae* (singular: *macula*)
- *adenomata* (singular: *adenoma*)
- *glomeruli* (singular: *glomerulus*)
- *pelves* (singular: *pelvis*).

Pronouncing medical terms

Medical terms can be difficult to pronounce if you've never heard them spoken. In this book, we'll show you how to pronounce words by placing them in all capital letters, with the syllable receiving the greatest stress appearing in tall capitals and the remaining syllables in smaller capitals. For example, in the word **cancer**, the stress is on the first syllable, so it would appear as follows: CAN-cer.

Here are some additional tips for pronunciation:

- only the *s* sound in *ps* is pronounced, as in *Pseudomonas*
- only the *n* sound in *pn* is pronounced, as in *pneumococcal*
- *g* and *c* assume the soft sounds of *j* and *s*, respectively, when used before *e*, *I* and *y*; examples are *gene*, *gingivitis*, *cycle*, and *cytology*
- *ph* sound like *f*, as in *phlegm*
- *x* sounds like *z*, as in *xeroderma* (pronounced ZEE-ROH-DER-MAH)
- *g* and *c* have hard sounds in front of other letters, such as *gangrene*, *gastritis*, *cornea* and *cortex*
- *ae* and *oe* are pronounced *ee*, as in *fasciae*
- *i* at the end of a word usually denotes a plural and is pronounced *eye*, as in *fasciculi*
- *es* at the end of a word may be pronounced as a separate syllable, as in *nares*, pronounced NEH-REEZ.

Because phonetic spelling isn't used in medicine, it's important to consult a dictionary when in doubt about pronunciation. Also, some terms sound the same but are spelled differently and refer to different things. For example, *ileum* and *ilium* are pronounced alike, but the first term is part of the intestinal tract and the second one is a pelvic bone.

Be careful! Words like **ileum** and **ilium** sound the same but have different meanings.

Understanding eponyms

An eponym is a medical term that's derived from the name of a person, usually the scientist who discovered the corresponding body part or disease. Many procedures and tests are also named after the persons who invented or perfected them.



Name that condition

Examples of eponyms for medical conditions include:

- **Addison's disease**, a syndrome resulting from insufficient production of hormones from the cortex of the adrenal gland.
- **Alzheimer's disease**, a type of irreversible dementia
- **Cushing's syndrome**, a syndrome resulting from the production of excess cortisol from the adrenal cortex

- **Parkinson's disease**, a progressive degeneration of the nervous system that causes weakness, rigidity, and tremors
- **Stokes-Adams syndrome**, a heart condition characterized by sudden loss of consciousness.

Famous body parts

Parts of the body named for their discoverers include:

- **Bartholin's glands**, located in the female perineum
- **Cowper's glands**, located beneath a portion of the male urethra
- **Wernicke's center**, a speech center in the brain.

Featured procedures

Examples of eponyms for medical procedures include:

- **Allen's test**, a test for occlusion of radial or ulnar arteries
- **Belsey Mark IV operation**, a procedure to correct gastroesophageal reflux
- **Heimlich maneuver**, a technique for removing foreign objects from the airway of a choking victim.

What's in a name?

Medical devices such as catheters (tubes passed through body channels) are often named for their inventors; for example:

- the **Foley catheter** is an indwelling urinary catheter
- a **Hickman catheter** is a central venous catheter inserted for long-term use
- a **Malecot catheter** is a tube used for gastrostomy feedings
- a **Swan-Ganz catheter** is threaded into the pulmonary artery.

Recognizing word components

Words can be made up of roots, prefixes, and suffixes.

At the root of it all

A root is just what the word implies-where it all starts. A root can be a whole word or part of a word. Roots come from many different languages (such as Greek, Latin,

Arabic, French, and German) and find their way into English.

Perfect prefix

A prefix is a word component or whole word that attaches to the front of a root. A prefix can drastically change the meaning of a word. For example, the prefix *extra-* changes the word *ordinary* to *extraordinary*.

Super suffix

A suffix is a word component that attaches to the end of a root. Among other feats, a suffix can change the form of a word from an adjective, for instance, into an adverb. So you could add the suffix *-ly* to *extreme* to make *extremely* (as in *extremely interesting*).

Prefixes and suffixes are important, but focus on the root of the word to get the meaning quickly.



Memory Jogger

To remember where a prefix goes and where a suffix goes, you can do two things.



Think of the word prefix: **Pre-** means before, so a prefix is a word or word component that's "fixed" to the word "before" the root. If the prefix comes before the suffix comes afterwards.



If that doesn't jazz you, just use the alphabet: **P** comes before the **S** in the alphabet, so a prefix comes before the suffix-and before a root, for that matter, which starts with **R**. So now you have **PRS** (pretty riveting stuff).