Introduction to Medical Terminology

Medical terminology is language that is used to describe anatomical structures, processes, conditions, medical procedures, and treatments. At first glance, medical terms may appear intimidating, but once you understand the standard structure of medical words and the [definitions](https://openmd.com/dictionary/) of some common word elements, the meaning of thousands of medical terms is easily unlocked.

Most medical terms adhere to a fixed structure of a prefix, a root, and a suffix. These word components are assembled like building blocks to create a vast vocabulary.

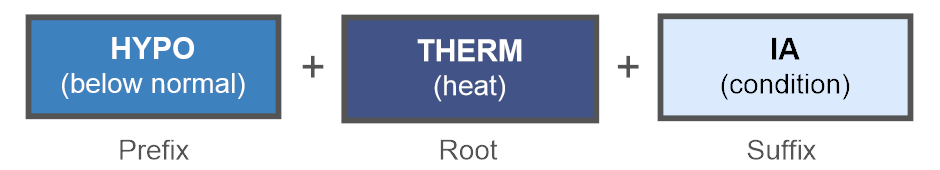
The physicians of Greece are considered the founders of rational medicine, and medical terms are primarily derived from Greek and Latin.[1](https://openmd.com/guide/medical-terminology#references) Over the centuries, the language of medicine has evolved into multiple national medical languages. Today, medical English is the primary language for international communication. It is used in most influential medical journals and has become the language of choice at international conferences.[2](https://openmd.com/guide/medical-terminology#references)

Basic Term Structure

Medical terms are composed of these standard [word parts](https://openmd.com/dictionary/browse-word-parts.php):

* **Prefix:** When included, the prefix appears at the beginning of a medical term and usually indicates a location, direction, type, quality, or quantity.
* **Root:** The root gives a term its essential meaning. Nearly all medical terms contain at least one root. When a prefix is absent, the term begins with a root.
* **Suffix:** The suffix appears at the end of a term and may indicate a specialty, test, procedure, function, disorder, or status. Otherwise, it may simply define whether the word is a noun, verb, or adjective.
* **Combining vowel:** A combining vowel (usually the letter “o”) may be added between word parts to aid in pronunciation.

Breaking a word down into its component parts should help readers ascertain the meaning of an unfamiliar term. For example, hypothermia has the prefix hypo- (meaning below normal), the root therm (heat or warmth), and the suffix -ia (condition).



Word Roots

A root is the foundational element of any medical term. Roots often indicate a body part or system.

Common word roots:

|  |  |
| --- | --- |
| **Head** | |
| brain | **enceph** |
| ear | **ot**, **aur** |
| eardrum | **tympan**, **myring** |
| eye | **ophthalm**, **ocul** |
| face | **faci** |
| nose | **rhin** |
| skull | **crani** |
| tongue | **lingu** |
| tooth | **odont**, **dent** |

|  |  |
| --- | --- |
| **Heart and Circulatory System** | |
| aorta | **aort** |
| arteries | **arteri** |
| blood | **hem**, **sangu** |
| blood vessels | **angi** |
| heart | **cardi** |
| veins | **ven**, **phleb** |

|  |  |
| --- | --- |
| **Bones and Muscles** | |
| arm | **brachi** |
| back | **dorsa** |
| bone | **oste** |
| foot | **pod**, **ped** |
| muscle | **myo** |
| rib | **cost** |
| shoulder | **scapul** |
| wrist | **carp** |

|  |  |
| --- | --- |
| **Digestive System** | |
| appendix | **append** |
| colon | **col** |
| esophagus | **esophag** |
| intestine (usually small) | **enter** |
| kidney | **ren**, **neph** |
| liver | **hepat** |
| stomach | **gastr** |

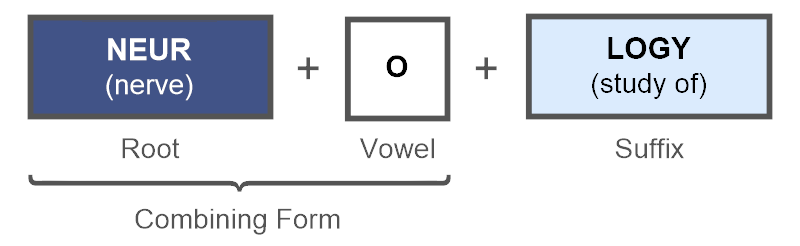
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| **Other Common Roots** | |
| cancer | **carci** |
| drug | **chem** |
| electric | **electr** |
| heat | **therm** |
| knowledge | **gnos** |
| life | **bi** |
| pressure | **bar** |
| returned sound | **echo** |

***Compound Words***

A medical word may include multiple roots. This frequently occurs when referencing more than one body part or system. For example, cardio-pulmo-nary means pertaining to the heart and lungs; gastro-entero-logy means the study of the stomach and intestines.

***Combining Forms***

A combining vowel is used when a root is followed by another word part that begins with a consonant. A combining vowel (usually the letter "o") is added after the root (e.g., neur-**o**-logy) to aid pronunciation. The root and vowel together (e.g., neur-o) are called the combining form. For simplicity, combining vowel options are omitted from the word part tables.



Prefixes

A prefix modifies the meaning of the word root. It may indicate a location, type, quality, body category, or quantity. Prefixes are optional and do not appear in all medical terms.

Common prefixes:

|  |  |
| --- | --- |
| **Size** | |
| large | **macro-**, **mega(lo)-** |
| small | **micro-** |

|  |  |
| --- | --- |
| **Number** | |
| half | **semi-** |
| half (one side) | **hemi-** |
| one | **mono-**, **uni-** |
| two | three | four | **bi-** | **tri-** | **quad(ri)-** |
| equal | **equi-** |
| many | **poly-** |

|  |  |
| --- | --- |
| **Level** | |
| above normal | **hyper-** |
| below normal | **hypo-** |
| normal/good | **eu-** |

|  |  |
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| **Time or Speed** | |
| before | **pro-**, **pre-**, **ante-** |
| after | **post-** |
| back/backward | **retro-** |
| again | **re-** |
| fast | **tachy-** |
| slow | **brady-** |
| new | **neo-** |
| time, long time | **chron-** |

|  |  |
| --- | --- |
| **Location or Relationship** | |
| away from | **ab-** |
| above | **supra-** |
| around | **peri-** |
| across | **trans-** |
| between | **inter-** |
| out of, outside | **ex-**, **ec(t)-** |
| self | **auto-** |
| through, completely | **dia-** |
| together | **con-** |
| toward | **ad-** |
| within, inside | **end(o)-** |

|  |  |
| --- | --- |
| **Function or Quality** | |
| against | **anti-**, **contra-** |
| bad | **mal-** |
| cause | **eti-** |
| self | **auto-** |
| without | **a-**, **de-** |
| abnormal, bad | **dys-** |

Suffixes

Medical terms always end with a suffix.[3](https://openmd.com/guide/medical-terminology#references) The suffix usually indicates a specialty, test, procedure, function, condition/disorder, or status. For example, “itis” means inflammation and “ectomy” means removal.

Alternatively, the suffix may simply make the word a noun or adjective. For example, the endings -a, -e, -um, and -us are commonly used to create a singular noun (e.g., crani-um).

Although the suffix appears at the end of the term, it often comes first in the definition. For example, appendicitis means inflammation (-itis) of the appendix.[4](https://openmd.com/guide/medical-terminology#references) Accordingly, it is sometimes helpful to read unfamiliar medical terms from right to left.

Occasionally, medical terms are composed of only a prefix and a suffix. For example, apnea includes the prefix a- (without) and suffix -pnea (breathing).

Common suffixes (letters in parentheses are not always present):

|  |  |
| --- | --- |
| **Basic Noun and Adjective Suffixes** | |
| (noun form) | **-a**, **-e**, **-um**, **-is** |
| causing | **-genic** |
| condition | **-ia**, **-ism**, **-sis**, **-y** |
| specialty | **-iatry**, **-iatrics**, **-ics** |
| specialist | **-ian**, **-ist** |
| structure | **-um**, **-us** |
| small, little | **-ula, -ulum, -ulus** |
| study of | **-logy** |
| pertaining to | **-ac**, **-ar(y)**, **-(e/i)al**, **-ic(al)**, **-ior**, **-ory**, **-ous**, **-tic** |

|  |  |
| --- | --- |
| **Tests and Procedures** | |
| removal of | **-ectomy** |
| image/record | **-gram** |
| recording instrument | **-graph(y)** |
| cut in | **-otomy** |
| visual examination | **-scopy** |
| opening | **-stomy** |

|  |  |
| --- | --- |
| **Pathology or Function** | |
| blood (condition of) | **-emia** |
| breathing | **-pnea** |
| inflammation | **-itis** |
| condition or disease | **-osis** |
| deficiency | **-penia** |
| disease | **-pathy** |
| excessive flow | **-rrhag(e/ia)** |
| mass, tumor | **-oma** |

***Plural Forms***

Adding an “s” or “es” to the end of a word is often the straightforward method to make a word plural in English and many modern Romance languages. In medical terminology, however, things are a little more complicated. The plural form of each word is based on the last two letters of the singular suffix.

There are several exceptions. For example, “virus” is a Latin term without a plural form. “Viruses” is the accepted plural form. Elsewhere, the suffix “s” or “es” occasionally prevails in common usage. For example, the plural form of “hematoma” is “hematomas” rather than “hematomata.”

Common singular endings and corresponding plural endings:

|  |  |
| --- | --- |
| **Plural Forms5** | |
| Singular | **Plural** |
| a | **ae** |
| en | **ina** |
| ex, ix, yx | **ices** |
| is | **es** |
| ma | **mata** |
| (a/i/y)nx | **nges** |
| um | **a** |
| us | **i(i)** |

*Additional resources:*

* [*OpenMD Medical Dictionary*](https://openmd.com/dictionary/) and [word parts glossary](https://openmd.com/dictionary/medical-word-parts), which provides definitions for 750 medical roots, prefixes, and suffixes.
* [*Understanding Medical Words*](https://medlineplus.gov/medwords/Tutorial_Understanding_Medical_Words.pdf) by MedlinePlus provides a concise introduction to medical terminology and several quizzes.
* TheFreeDictionary's [*Medical Dictionary*](https://medical-dictionary.thefreedictionary.com/) by Farlex is a comprehensive dictionary of medical terms (including word parts) from American Heritage, Collins Encyclopedia, and other major publishers.

*Related Guides:*

* [The History of Medical Terminology](https://openmd.com/guide/history-of-medical-terminology)  
  Review of the Greek and Latin origins of modern medical terminology.

**References**

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2. Wulff HR. The Language of Medicine. J R Soc Med. 2004;97(4):187–8.
3. Ehrlich A, Schroeder CL. Introduction to Medical Terminology. 3rd ed. Delmar, Cengage Learning; 2014:5.
4. Nath, JL, Lindsley KP. A Short Course in Medical Terminology. 4th ed. Philadelphia: Wolters Kluwer Health; 2018:38.
5. Cohen BJ. Medical Terminology: An Illustrated Guide. 6th ed. Baltimore: Wolters Kluwer Health/Lippincott Williams & Wilkins; 2011. Tables 2–4.

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* [Medical Dictionary](https://openmd.com/dictionary/)
* [Browse Terms (A-Z)](https://openmd.com/dictionary/browse/a)
* [Abbreviations](https://openmd.com/dictionary/medical-abbreviations)
* [Prescription Abbreviations](https://openmd.com/guide/prescription-abbreviations)
* [Dangerous Abbreviations](https://openmd.com/guide/dangerous-medical-abbreviations)
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