

Prefixes and Suffixes

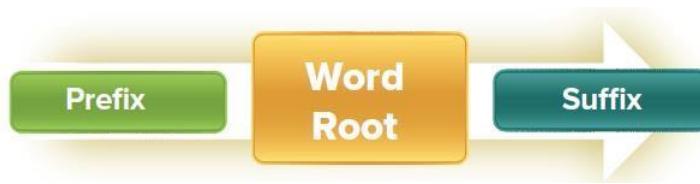
Misspellings and mispronunciations in a medical setting can result in life-threatening situations. A misspelled or a misunderstood abbreviation for a medicine dosage can have very serious consequences. Aside from the possibility of written mistakes, people in health care must check and recheck verbal instructions.

Forming Medical Terms

Medical terminology is a language of compound words matched together to define and condense phrases related to the human body, disease, and conditions.

Many medical terms are formed from two or more of the following four basic word parts that are the foundation for medical terminology:

1. **A word root** is the portion of the word that contains its basic meaning. For example, the word root (cardi) means “heart.”
2. **Combining forms** are the word root and a combining vowel that connects or links two parts whenever two consonants come together. For example, laryngoplasty, which is made up of the combining form laryng-, the combining vowel o, and the suffix -plasty).
(A combining vowel is *not* used when the suffix begins with a vowel because this would make pronunciation difficult. A combining vowel is only used when the suffix begins with a consonant).
3. **Prefixes** are word parts attached to the beginning of a word or word root that modify its meaning.
For example, the prefix peri-, meaning “around, near, surrounding,” helps to form the word pericardium, meaning “around or surrounding the heart.”
Prefixes almost always indicates a location, number, time or period of time, or status, size or quantity.
4. **Suffixes** are word parts attached to the end of a word or word root that modify its meaning. For example, the suffix -oid, meaning “like or resembling,” helps to form the word fibroid, meaning “made of fibrous tissue.”
Suffixes usually indicates a condition, procedure, disorder, or disease.



Phonics

With medical terminology, sounds are not always pronounced the same as in everyday English pronunciation, and there are not even persistent rules that a combination of specific letters will always be pronounced in the same way. One thing that helps in both the Standard English and medical worlds, is to learn how to pronounce *phonetically* — by breaking up word sounds into smaller parts (breaking up word into basic parts — prefix, root, and suffix — this can simplify the task of pronunciation).

Pronouncing Common Prefixes and Beginning Sounds

Because many medical terms start with a combination of letters, the pronunciation isn't always obvious. Some letters are silent that aren't normally in the English language, whereas some letters take on a whole new sound.

- Terms beginning with the letters (**ps**) are pronounced with an “**s**” sound. The **p** is silent, as it usually is when it appears at the beginning of a medical word.

Example:

Psychology: pronounced as ----- (sigh-CALL-ogy)

- Terms beginning with (**pn**) are pronounced only with the “**n**” sound. Again, the **p** is silent.

Example:

Pneumonia: pronounced as ----- (new-MOAN-ia)

- Terms beginning with (**pt**) work exactly the same. Once again, the **p** is silent.

Example:

Ptosis: pronounced as ----- (TOE-sis)

- Terms beginning with (**ch**) often take on the hard consonant sound like a “**k**.” **Example:**

Chronic: pronounced as ----- (KRON-ic)

- Terms beginning with (**c**) or (**g**) can take on sound of “**s**” or “**j**” if they come before *e*, *i*, or *y*.

Examples:

Cycle: pronounced as ----- (SIGH-cull)

Cytoplasm: pronounced as ----- (SIGH-toe-plazm)

Genetic: pronounced as ----- (**je-NET-ic**)

Giant: pronounced as ----- (**J-EYE-unt**)

But (**c**) and (**g**) have a hard sound before other letters.

Examples:

Cast: pronounced as ----- (**CAst**)

Cardiac: pronounced as ----- (**CARD-iak**)

Gastric: pronounced as ----- (**GAS-trick**)

Gonads: pronounced as ----- (**GO-nadz**)

What if you cannot see the term, but only hear it? In this case you can find the term in a medical dictionary using some useful rules that help you to recall those hard-to-pronounce beginnings.

- If the word begins with an “**s**” sound, this word could begin with (**c**, **ps**, or **s**) letters:

Examples: Cytology: pronounced as ----- (**sigh-TOL-oh-jee**)

Psychiatrist: pronounced as ----- (**sigh-KIY-a-trist**)

Serology: pronounced as ----- (**sir-ROL-oh-jee**)

- If the word begins with a “**z**” sound, this word could begin with (**x** or **z**) letters:

Examples: Xeroderma: pronounced as ----- (**zero-DER-mah**)

Zygote: pronounced as ----- (**zEYE-goat**)

- If the word begins with an “**f**” sound, this word could begin with (**f** or **p**) letters:

Examples: Flatus: pronounced as ----- (**FLAY-tus**)

Phlegm: pronounced as ----- (**FLEM** — also note the silent *g* before *m*)

- If the word begins with a “**j**” sound, this word could begin with (**g** or **j**) letters:

Examples: Gingivitis: pronounced as ----- (**JIN-jih-VIT-is**)

Jaundice: pronounced as ----- (**JOHN-dis**)

- If the word begins with a “**k**” sound, it could begin with (**c**, **ch**, or **k**) letters:

Examples: Crepitus: pronounced as ----- (**KREP-i-tus**)

Cholera: pronounced as ----- (**CALL-er-ah**)

Kyphosis: pronounced as ----- (**kie-FOE-sis**)

Pronouncing Common Suffixes and Endings

➤ Singular and Plural Endings

Many medical terms originate from Greek and Latin words. The rules for forming the singular and plural forms of some words follow the rules of these languages rather than English.

For example:

The heart has a left **atrium** and a right **atrium** for a total of two **atria**, not two atriums. Other words, such as virus and viruses, are changed from singular to plural by following English rules.

Each medical term needs to be considered individually when changing from the singular to the plural form. The following examples illustrate how terms that follow Greek and Latin rules are pluralized.

| Words ending in | Singular | Plural |
|--|------------|------------|
| (-a) change ending to (-ae) | Vertebra | Vertebræ |
| (-ax) change the (x) to (c) and add (es) | Thorax | Thoraces |
| (-ex) or(-ix) change the (x) to (c) and add (es) | Appendix | Appendices |
| (-is) change ending to (-es) | Metastasis | Metastases |
| (-ma or -oma) change ending to (-mata) | Sarcoma | Sarcomata |
| (-nx) change the (x) to (g) and add (es) | Larynx | Larynges |
| (-on) change ending to (-a) | Ganglion | Ganglia |
| (-um) change ending to (-a) | Ovum | Ova |
| (-us) change ending to (-i) | Calculus | Calculi |

The exceptions to **change (-is)** ending to **(es)** to form plural words include the following:

- Epididymis, epididymides
- Femur, femora
- Iris, irides

The exceptions to **change (-us)** ending to **(i)** to form plural words include the following:

- Corpus, corpora
- Meatus, meatus (stays the same)
- Plexus, plexuses
- Viscus, viscera

➤ Pronouncing Common Suffixes

- For terms ending in **(-i)** (usually form plurals), the **(i)** is always pronounced “**eye.**” **Examples:**
Calculus, calculi: pronounced as ----- (**KAL-kyul-eye**)
Glomerulus, glomeruli: pronounced as ----- (**glom-MERUL-eye**)
- Terms ending in **(-ae)** (often form plurals) are pronounced “**ay**” (or sometimes “**eh**”) **Example:**
Vertebra, vertebrae: pronounced as ----- (**VERT-e-bray**)
- In terms ending in **(-es)** (often plurals), the **(es)** is pronounced as “**eez**” if it were a separate syllable.
Example:
Naris, Nares: pronounced as ----- (**nar-EEZ**)

Pronouncing Common Combinations

A long medical term must be broken up into the word parts in order to arrive at a definition and a pronunciation. You can do this in two ways:

- Some people like to look at the suffix first to determine if the term is a condition, a procedure, disorder, or disease. Once the suffix is defined, then move to the beginning of the word to define the prefix, if there is one, and the word root. This method is preferred by many people.
- Others prefer to tackle the term from the beginning, establishing a meaning for the prefix first, then moving to the word root, and to the suffix last of all.

The pronunciation of a word can sometimes change when you take some prefixes, couple them with root words, and add vowels and suffixes.

Examples:

Hypertension (**high-per-TEN-shun**): High blood pressure.

Hypotension (**high-poh-TEN-shun**): Low blood pressure.

There is not much difference in the pronunciation of hypertension and hypotension, and one means the opposite of the other, it is important to hear and see the different spelling of the prefix application.

Oliguria (**ol-ig-YOUR-ee-ah**): infrequent urination.

Polyuria (**pol-ee-YOUR-ee-ah**): Excessive or frequent urination.

Suffixes can also affect the pronunciation of a word. Different suffixes can mean different pronunciations.

Example:

Erythrocytes (eh-RITH-roh-sites): Red blood cells

Erythrocytosis (eh-RITH-ROH-sigh-TOE-sis): Having increased erythrocytes.

Understanding

Prefixes ➤ Prefixes Related to Size and Quantity

| Prefix | Meaning | Example with pronunciation & meaning |
|----------|---------------|---|
| bi-, di- | twice, double | bilateral [bī-LAT-er-ăl] (both sides of the body) |
| hemi- | half | Hemiplegia [hēm-ĭ-PLĒ-jē-ă] (paralysis of half of the body) |
| micro- | small | Microscopic [mī-krō-SKOP-ik] (too small to see without a scope device) |
| mono- | single | monomania [mōn-ō-MĀ-nē-ă] (single thought or idea) |
| uni- | one, single | unilateral [yū-ni-LÄT-ĕr-ăl] (one side of the body) |
| multi- | many | multiarticular [MUL-tē-är-TŪIK-yū-lär] (many joints) |
| poly- | many | polyarteritis [pōl-ĕ-är-tĕr-ī-tīs] (inflammation of multiple arteries) |

➤ Prefixes Related to Position or Location

| Prefix | Meaning | Example with pronunciation & meaning |
|--------|--|---|
| sub- | less than, under, inferior, below or beneath | subcutaneous [süb-kyū-TĀ-nē-ūs] (beneath the skin) |
| supra- | above, over, excessive | supramaxillary [sū-prā-MÄK-si-lär-ē] (above the maxilla) |
| trans- | across, through | transdermal [trāns-DĚR-mäl] (across/through the skin) |
| peri- | around, about, near | periappendicitis [PĚR-ē-ă-pěn-dī-SI-tīs] (Inflammation surrounding the appendix) |

➤ Prefixes Related to Time

| Prefix | Meaning | Example with pronunciation & meaning |
|--------|------------------|---|
| pre- | before | prenatal [prē-NĀ-tăl] (before the birth of a child) |
| post- | after, following | postnatal [pōst-NĀ-tăl] (after the birth of a child) |

➤ Prefixes Related to Presence or Quality

| Prefix | Meaning | Example with pronunciation & meaning |
|--------|---------|--|
| brady- | slow | bradycardia [brăd-ĕ-KĂR-dē-ă] slow heartbeat. |

| | | |
|--------|------------------------------|---|
| tachy- | fast | tachycardia [TÄK-i-KÄR-dē-ä] rapid or fast heartbeat. |
| hyper- | above normal, overly | hypertension (high-per-TEN-shun): High blood pressure. |
| hypo- | below normal | hypotension (high-poh-TEN-shun): Low blood pressure. |
| dys- | abnormal, difficult, painful | dysfunctional [dīs-FUNGK-shūn-ăl] functioning abnormally |
| mal- | bad, inadequate | malabsorption [mäl-ăb-SОРP-shūn] Inadequate absorption |

Understanding Suffixes

➤ Suffixes Related to Sensation and Feelings

| Suffix | Meaning | Example with pronunciation & meaning |
|---------------------|-------------------|--|
| -kinesia, - kinesis | movement | bradykinesia [brād-ĭ-kīn-Ē-zē-ă] Decrease in movement |
| -esthesia | sensation | paresthesia [pär-ĕs-THĒ-zē-ă] abnormal sensation |
| -phobia | fear | acrophobia [äk-rō-FŌ-bē-ă] fear of heights |
| -phonia | sound | neuraphonia [nūr-ă-FŌ-nē-ă] Loss of sounds |
| -phoria | feeling, carrying | euphoria [yü-FŌR-ē-ă] feeling of well-being. |
| -algia | pain | Neuralgia [nr·al·juh] pain due to an irritated or damaged nerve |

➤ Suffixes Related to Conditions or Symptoms

| Suffix | Meaning | Example with pronunciation & meaning |
|---------|-------------------------------------|---|
| -trophy | nutrition | dystrophy [dī-ST्रō-fē] inadequate nutrition |
| -edema | swelling | lymphedema [līmf-ĕ-DĒ-mă] swelling result from obstructed lymph glands |
| -itis | Inflammation | Appendicitis (a-pen-di-SITE-is): Inflammation of the appendix |
| -osis | condition, state, process | halitosis [hăl-ĕ-TŌ-sĭs] bad breath state |
| -megaly | enlargement | cephalomegaly [SĚF-ă-lō-MĚG-ă-lē] enlargement of the head |
| -oma | tumour, neoplasm | myoma [mī-Ō-mă] Tumour of muscle |
| -pathy | abnormal condition, disease process | osteopathy [o's-tē-O'P-ă-thē] bone disease. |

➤ Suffixes Related to Body Parts or Chemical Elements

| Suffix | Meaning | Example with pronunciation & meaning |
|--------|---------|--------------------------------------|
|--------|---------|--------------------------------------|

| | | |
|--------------------|---------|--|
| -cyte | cell | thrombocyte [THRO^M-bō-sīt] blood platelet cell |
| -derma | skin | scleroderma [sklēr-ō-DĒR-mă] hardening of the skin |
| -emia | blood | uremia [yū-RĒ-mē-ă] excess urea in the blood |
| -globin, -globulin | protein | hemoglobin [hē-mō-GLŌ-bīn] protein of red blood cells |
| -oxia | oxygen | anoxia [ān-O^K-sē-ă] Lack of oxygen |
| -uria | urine | pyuria [pī-YŪ-rē-ă] Pus in the urine |

➤ **Suffixes Related to Surgical or Procedural Processes**

| Suffix | Meaning | Example with pronunciation & meaning |
|---------|---|---|
| -ectomy | Surgical removal of | Appendectomy (ap-pen-DEK-toe-me): Surgical removal of the appendix |
| -otomy | Surgical incision or cutting into | Colotomy (koh-LOT-oh-me): Surgical cutting into the colon |
| -ostomy | Surgical creation of an artificial opening | Colostomy (koh-LOST-oh-me): Surgical creation of an opening in the colon |
| -plasty | Surgical repair | Abdominoplasty (ab-DOM-in-o-plasty): Surgical repair of the abdomen |
| -scope | instrument used for visual examination or for viewing | Bronchoscope (BRONK-o-scope): Instrument used to examine bronchus |
| -scopy | visual examination (process of viewing) | Bronchoscopy (bronk-OSK-oh-pee): Visual examination of bronchus using a bronchoscope |
| -graphy | process of recording a record or picture | Cardiography (car-dee-OG-rah-fee): Process of recording heart activity |
| -gram | Resulting record or picture | Cardiogram (CARD-ee-oh-gram): Film produced by a cardiography |