



## Introduction to Medical Terminology (Part I)

By

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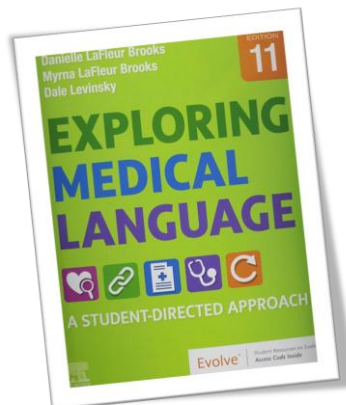


## Reference Book

### ■ Exploring Medical Language

**A Student-Directed Approach 11th Edition (2022)**

By: Danielle LaFleur Brooks, Myrna LaFleur Brooks, Dale Levinsky



## Contents

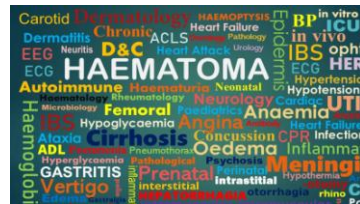
- Introduction and Definition
- The four parts of medical terms.
  - ✓ Word roots
  - ✓ Combining forms.
  - ✓ Prefixes (the most common Prefixes).
  - ✓ Suffixes (the most common suffixes).
- Strategy for interpreting medical terms.
- Word building.
- Exercises.



## Objectives

**After finishing this lecture, you should be able to:**

- Discuss the four parts of medical terms.
- Recognize word roots and combining forms.
- Identify the Prefixes and the most common prefixes.
- Identify the Suffixes and the most common suffixes.
- Define word building
- Describe interpreting medical terms.



### Introduction and Definition:

- The **language of medicine** is based on **medical terms**, which are constructed in a way that communicates specific details of [anatomy](#), [physiology](#), [procedures](#), [injury](#), or [disease](#).
- Many medical terms appear highly technical at first glance, and some of them are quite long, but there are patterns in their complexity and a logic to the way they are constructed.

## Thyroparathyroidectomy



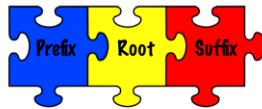
### Introduction and Definition:

- Medical terms are words used to describe **disease** as well as **aspects** of medicine and health care.
- Terms built from **Greek** and **Latin** word parts.
- **Medical terminology** is the use of medical terms to attain a standardized means of communication within the practice of medicine and in the healthcare industry.



## Introduction and Definition:

- Learning medical terminology can initially seem like studying a **strange new language**.
- Once you understand some of the basic rules about how medical terms are formed using **word building**, it will become much like piecing together a **puzzle**.
- Understanding medical terms requires being able to **put words together** or **build words from their parts**.



## Why are many medical terms different than words we use in everyday life?

- Medical language allows for **clear**, **concise** and **consistent communication** locally, nationally, and internationally.
- It enables everyone involved in medicine and health care to perform more accurately & efficiently for the patient's benefit.

### For example:

- using the medical term **osteoarthritis**, which means **inflammation of the bone and joint**, offers a clear and concise written or verbal communication using one word instead of six.
- No matter the national language used, **the meaning of the medical term does not change**.



## Origins of Medical Language:

- The vocabulary of medical language reflects its development over time beginning with the ancient Greeks.
- More than 2,000 years ago Hippocrates and Aristotle were among the first to study and write about medicine.
- The Romans continued the practice, adopting elements of the **Greek language** to use alongside **Latin**.
- The majority of terms in use today are built from **Greek** and **Latin** word parts.



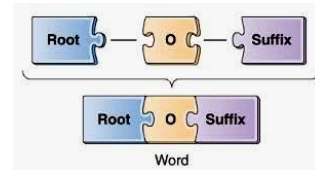
## The four parts of medical terms:

- **Medical terminology:** composed of:
  - **Prefix:** is placed at the beginning of a word to modify or change its meaning. **Pre** means “before”  
Prefixes may also indicate a location, number, or time.
  - **Root:** the fundamental meaning part of a word.
  - **Suffix:** The ending part of a word that modifies the meaning.
  - **Combining vowels:**



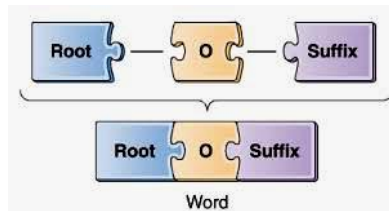
## Combining Form:

- When writing a word root by itself, its combining form is typically used.
- This consists of the word root and its **combining vowel** written in a **word root/vowel** form.
- For example:
  - ✓ **Cardi**/o
  - ✓ **Hem**/o or **Hemat**/o
  - ✓ **Rhin**/o
  - ✓ **Nephr**/o



## Combining Vowels:

- A combining vowel makes it possible to pronounce long medical terms with ease and to combine several word parts.
- Vowels are speech sounds represented by the letters: **a, e, i, o, u**, and sometimes **y**.
- most often the vowel (**O**).



## Uses of Combining Vowels:

### The combining vowel is:

- Placed to connect two word roots:

**Oste O** arthritis      **Cardi o** pulmon ary

- Placed to connect a word root and a suffix:

**Hepat O** megaly      arthr **o** -scope

- Kept between two word roots, even if the second word root begins with a vowel

For example: **Gastro**enteritis

- Not placed** to connect a prefix and a word root:
- Not** all medical terms have combining vowels.

## Four Guidelines for Using Combining Vowels:

Combining Vowel Guidelines	Example
1. When connecting a word root and a suffix, a combining vowel is <b>USED</b> if the suffix does not begin with a vowel.	arthr/o/pathy
2. When connecting a word root and a suffix, a combining vowel is <b>USUALLY NOT USED</b> if the suffix begins with a vowel.	hepat/ic
3. When connecting two word roots, a combining vowel is <b>USUALLY USED</b> even if vowels are present at the junction.	oste/o/arthr/itis
4. When connecting a prefix and a word root, a combining vowel is <b>NOT USED</b> .	sub/hepat/ic

## Guidelines for Using Combining Vowels:

- **Word root:** core of a word; example, **gastr**.
- **Suffix:** attached at the end of a word root to modify its meaning; example, **-ic**.
- **Prefix:** attached at the beginning of a word root to modify its meaning; example, **epi-**
- **Combining vowel:** usually an (**o**) used between two word roots or a word root and suffix to ease pronunciation; example, **gastrointestinal**
- **Combining form:** word root plus combining vowel separated by a **slash (/)**; example, **gastr/o**

## Common Combining Forms:

Combining Form	Meaning	Example (Definition)
<b>bi/o</b>	<b>life</b>	biology (study of life)
<b>carcin/o</b>	<b>cancer</b>	carcinoma (cancerous tumor)
<b>cardi/o</b>	<b>heart</b>	cardiac (pertaining to the heart)
<b>chem/o</b>	<b>chemical</b>	chemotherapy (treatment with chemicals)
<b>cis/o</b>	<b>to cut</b>	incision (process of cutting into)
<b>dermat/o</b>	<b>skin</b>	dermatology (study of the skin)
<b>enter/o</b>	<b>small intestine</b>	enteric (pertaining to the small intestine)
<b>gastr/o</b>	<b>stomach</b>	gastric (pertaining to the stomach)
<b>hemat/o</b>	<b>blood</b>	hematic (pertaining to the blood)



### Common Combining Forms:

Combining Form	Meaning	Example (Definition)
<b>immun/o</b>	<b>protection</b>	immunology (study of protection)
<b>laryng/o</b>	<b>larynx</b>	laryngeal (pertaining to the voice box)
<b>nephr/o</b>	<b>kidney</b>	nephromegaly (enlarged kidney)
<b>neur/o</b>	<b>nerve</b>	neural (pertaining to a nerve)
<b>ophthalm/o</b>	<b>eye</b>	ophthalmic (pertaining to the eye)
<b>ot/o</b>	<b>ear</b>	otic (pertaining to the ear)
<b>path/o</b>	<b>disease</b>	pathology (study of disease)
<b>pulmon/o</b>	<b>lung</b>	pulmonary (pertaining to the lungs)
<b>rhin/o</b>	<b>nose</b>	rhinoplasty (surgical repair of the nose)

### Word root:

- The **word root** is the foundation of a medical term.
- provides the general meaning of the word.
- **word root** often indicates the body system or part of the body.

For example: **path, rhin, ot, enter, larynx, dermat, bi**

Chem, nephr, ophthalm,

- A medical term may have **more than one word root**.

For example:

**Otorhinolaryngology (Otolaryngology)** combines:

**Ot o rhin o laryng o -logy → Otorhinolaryngology**

= the medical specialty that deals with diseases of the ear, nose and throat.



## Prefix:

- Adding it to the front of a term forms a new medical word.
- When written, prefixes are **followed by a hyphen (-)**.
- Not every term will have a prefix.

### Example:

the prefix **bi-** stands for two (2) of something, such as **bilateral**, meaning to **have two sides**.



## Prefix:

### Prefixes often indicate:

- Number such as **bi-**, meaning **two**
- Position, such as **sub-**, meaning **under**.
- Direction, such as **intra-**, meaning **within**.
- Time, such as **brady-**, meaning **slow**.
- Negation, such as **a-**, meaning **without**.



### Common Prefixes:

Prefix	Meaning	Example (Definition)
a-	without	aphasia (without speech)
an-	without	Anoxia (without oxygen)
anti-	against	antibiotic (against life)
auto-	self	autograft (a graft from one's own body)
brady-	slow	bradycardia (slow heartbeat)
de-	without	depigmentation (without pigment)
dys-	painful; difficult; abnormal	dysuria (painful urination); dyspnea (difficulty breathing); dystrophy (abnormal development)
endo-	within; inner	endoscope (instrument to view within); endocardium (inner lining of heart)

### Number Prefix:

Prefix	Meaning	Example (Definition)
bi-	two	bilateral (two sides)
hemi-	half	hemiplegia (paralysis of one side/half of the body)
mono-	one	monoplegia (paralysis of one extremity)
multi-	many	multigravida (woman with many [ $\geq 2$ ] pregnancies)
pan-	all	pansinusitis (inflammation of all the sinuses)
poly-	many	polymyositis (inflammation of many muscles)
quadri-	four	quadriplegia (paralysis of all four limbs)
semi-	partial	semiconscious (partially conscious)
tetra-	four	tetraplegia (paralysis of all four limbs)
tri-	three	triceps (muscle with three heads)

## Suffix:

- It is attached to the end of a word to add meaning, such as a condition, disease, or procedure.
- When written, suffixes are **preceded by a hyphen (-)**.
- Every medical term must have a suffix.

### Suffixes frequently indicate:



- Procedures:** such as:  
-scopy = visual examination, or -tomy = incision.
- Conditions:** such as -itis = inflammation
- Diseases:** such as -oma = meaning tumor.

## Suffix:

- The suffix added to a word root.  
**Cardi + -itis** → **Carditis** (inflammation of the heart)
- The suffix added directly to a prefix, without a word root  
**Dys - + -trophy** → **Dystrophy** (abnormal development)



### Common Suffixes:

Suffix	Meaning	Example (Definition)
-algia	pain	gastralgia (stomach pain)
-dynia	pain	cardiodynia (heart pain)
-gen	that which produces	pathogen (that which produces disease)
-genic	producing	carcinogenic (cancer producing)
-ia	condition	Bradycardia (condition of slow heart)
-logist	one who studies	cardiologist (one who studies the heart)
-logy	study of	cardiology (study of the heart)
-lytic	destruction	thrombolytic (clot destruction)
-malacia	Abnormal softening	chondromalacia (abnormal cartilage softening)
-trophy	development	hypertrophy (excessive development)

### Common Suffixes:

Suffix	Meaning	Example (Definition)
-megaly	enlarged	cardiomegaly (enlarged heart)
-oma	Tumor mass	carcinoma (cancerous tumor) hematoma (mass of blood)
-osis	abnormal condition	cyanosis (abnormal condition of being blue)
-pathy	disease	myopathy (muscle disease)
-plegia	paralysis	laryngoplegia (paralysis of larynx)
-sclerosis	hardening	arteriosclerosis (hardening of an artery)
-stenosis	narrowing	angiostenosis (narrowing of a vessel)
-therapy	treatment	chemotherapy (treatment with chemicals)

### Adjective Suffixes: used to convert a word root into an adjective.

Suffix	Meaning	Example (Definition)
-ac	pertaining to	cardiac (pertaining to the heart)
-al	pertaining to	duodenal (pertaining to the duodenum)
-an	pertaining to	ovarian (pertaining to the ovary)
-ar	pertaining to	ventricular (pertaining to a ventricle)
-ary	pertaining to	pulmonary (pertaining to the lungs)
-atic	pertaining to	lymphatic (pertaining to lymph)
-eal	pertaining to	esophageal (pertaining to the esophagus)
-iac	pertaining to	chondriac (pertaining to cartilage)
-ic	pertaining to	gastric (pertaining to the stomach)
-ical	pertaining to	chemical (pertaining to a chemical)

### Surgical Suffixes:

Suffix	Meaning	Example (Definition)
-centesis	puncture to withdraw fluid	arthrocentesis (puncture to withdraw fluid from a joint)
-ectomy	surgical removal	gastrectomy (surgical removal of the stomach)
-ostomy	surgically create an opening	colostomy (surgically create an opening for the colon [through the abdominal wall])
-otomy	cutting into	thoracotomy (cutting into the chest)
-plasty	surgical repair	dermatoplasty (surgical repair of the skin)
-tome	instrument to cut	dermatome (instrument to cut skin)

## Procedural Suffixes:

Suffix	Meaning	Example (Definition)
-gram	record	electrocardiogram (record of heart's electricity)
-graphy	process of recording	electrocardiography (process of recording the heart's electrical activity)
-meter	instrument for measuring	audiometer (instrument for measuring hearing)
-metry	process of measuring	audiometry (process of measuring hearing)
-scope	instrument for viewing	gastroscope (instrument for viewing stomach)
-scopic	pertaining to visually examining	endoscopic (pertaining to visually examining within)
-scopy	process of visually examining	gastroscopy (process of visually examining the stomach)

## Building Medical Terms From Word Parts:

- Four different word parts or elements can be used to construct medical terms:
  1. The **word root** is the base of the word.
  2. A **prefix** is at the beginning of the word.
  3. A **suffix** is at the end of the word.
  4. The **combining vowel** is a vowel (usually **o**)

**Cardi o gram** = record of the heart

**Peri cardi um** = around the heart

**Card itis** = inflammation of the heart

**Cardi o my o pathy**

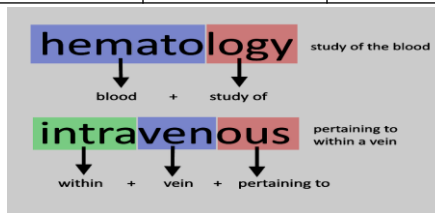
= disease of the heart muscle



## Building Medical Terms From Word Parts:

- Word building consists of putting together **two or more** word elements to form a variety of terms.
- Prefixes and suffixes may be added to a combining form to create a new descriptive term.

Prefix	Word root	Suffix	Medical term
<b>hypo-</b> (below)	<b>derm</b> (skin)	<b>-ic</b> (pertaining to)	<b>Hypodermic</b> (pertaining to below the skin)
<b>Peri-</b> around	<b>Cardi</b> heart	<b>-it is</b> inflammation	<b>Pericarditis</b> inflammation around the heart.



## Interpreting Medical Terms:

- The following strategy is a reliable method for puzzling out the meaning of an unfamiliar medical term:

**Example: Gastroenterology.**

Step	Example (Definition)
Divide the term into its word parts	gastr/o/enter/o/logy
Define each word part.	<b>gastr</b> = stomach <b>o</b> = combining vowel, no meaning <b>enter</b> = small intestine <b>o</b> = combining vowel, no meaning <b>-logy</b> = study of
Combine the meaning of the word parts	stomach, small intestine, study of



## Interpreting Medical Terms:

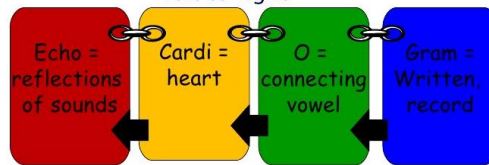
- To gain a quick understanding of a term, it may be helpful to read **from the end of the word** (or the suffix) **back to the beginning** (the prefix), and then pick up the word root.

For example:

**Pericarditis** (from the end back to the beginning) reads:

**inflammation** (-itis) **around** (peri-) the **heart** (cardi/o).

Define Echocardiogram reading from  
left to right



## Questions and Comments:



# Exercises



## Exercise 1- Complete the Statement:

1. The vowel that connects two word roots or a suffix with a word root is usually a(n) \_\_\_\_\_.
2. A(n) \_\_\_\_\_ is used at the beginning of a word to indicate number, location, or time.
3. The four components of a medical term are \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.
4. The combination of a word root and the combining vowel is called a(n) \_\_\_\_\_.
5. A word part used at the end of a word root to change the meaning of the word is called a(n) \_\_\_\_\_.

**Exercise 2- Name That Term:****Use the suffix -logy to write a term for each medical specialty:**

1. Immunity \_\_\_\_\_
2. . Blood \_\_\_\_\_
3. Kidney \_\_\_\_\_
4. Nerve \_\_\_\_\_
5. Heart \_\_\_\_\_
6. Skin \_\_\_\_\_
7. Disease \_\_\_\_\_
8. Stomach \_\_\_\_\_
9. Eye \_\_\_\_\_
10. Female \_\_\_\_\_

**Exercise 3- Combining Form and Suffix Practice:**

Join a combining form and a suffix to build words with the following meanings

1. cutting into the stomach \_\_\_\_\_
2. surgical repair of a joint \_\_\_\_\_
3. inflammation of the skin \_\_\_\_\_
4. surgical removal of the voice box \_\_\_\_\_
5. study of lungs \_\_\_\_\_
6. abnormal softening of a kidney \_\_\_\_\_
7. enlarged heart \_\_\_\_\_
8. nose discharge \_\_\_\_\_

**Exercise4- Identify and define the Prefixes in the following terms:**

1. Eupnea \_\_\_\_\_
2. Postoperative \_\_\_\_\_
3. Subcutaneous \_\_\_\_\_
4. Tachycardia \_\_\_\_\_
5. Monoplegia \_\_\_\_\_
6. Pseudocyesis \_\_\_\_\_
7. Intercostal \_\_\_\_\_
8. Hypoglycemia \_\_\_\_\_

Word root	Medical Term	
Cardi/o		Gland
Aden/o		Chemical
Carcin/o		Cancer
Hydr/o		immune
Dermat/o		Skin
Hemat/o		Kidney
Immun/o		Water
Chem/o		blood
Nephr/o		Heart

Prefix	Medical Term	
Tachy-		Against
Anti-		Over, above
Brady-		Slow
Inter-		Different
Homo-		Same
Intra-		Under, below
Hetero-		Between
Hyper-		Inside
Hypo-		Fast

Suffix	Medical Term	
-gram		Study of treatment
-logy		Instrument for viewing
-scope		Tumor mass
-plasty		pertaining to
-ary		disease
-megaly		surgical repair
-oma		enlarged
-therapy		
-pathy		record

## Some Medical Terminology Video's links:

Medical Terminology - The Basics - Lesson 1	<a href="http://youtube.com/watch?v=04Wh2E9oNug">http://youtube.com/watch?v=04Wh2E9oNug</a>
Physical Therapy Abbreviations and Documentation Tips	<a href="https://www.youtube.com/watch?v=1kzMmurC_aA">https://www.youtube.com/watch?v=1kzMmurC_aA</a>
Using Medical Terminology in Physical Therapy	<a href="http://youtube.com/watch?v=LgTROnDObdo">http://youtube.com/watch?v=LgTROnDObdo</a>
Understanding Medical Terminology	
What is physiotherapy and why is it important? - Robin Higginson - Nuffield Health	<a href="http://youtube.com/watch?v=2Bn5XNe0XUQ">http://youtube.com/watch?v=2Bn5XNe0XUQ</a>
Life as a Physiotherapy Degree Student   Health Sciences   University of Southampton	<a href="https://www.youtube.com/watch?v=lccSa-0jrls">https://www.youtube.com/watch?v=lccSa-0jrls</a>
Physiotherapy Treatment - Types, Importance and Uses	<a href="http://youtube.com/watch?v=FF4BNIf8sYo">http://youtube.com/watch?v=FF4BNIf8sYo</a>
Physiotherapy EDUCATION	<a href="http://youtube.com/watch?v=JFMhJBcFhbE">http://youtube.com/watch?v=JFMhJBcFhbE</a>
Medical Terminology Quiz 1- Prefixes/Suffixes	<a href="https://www.youtube.com/watch?v=Cjllax_hOj8">https://www.youtube.com/watch?v=Cjllax_hOj8</a>
Medical Terminology - The Basics - Lesson 1   Practice and Example Problems	<a href="http://youtube.com/watch?v=2C1YXWSYNzw">http://youtube.com/watch?v=2C1YXWSYNzw</a>
Medical Terminology - The Basics - Lesson 2	<a href="http://youtube.com/watch?v=ALWrvliACb">http://youtube.com/watch?v=ALWrvliACb</a>
Medical Terminology - The Basics - Lesson 4	<a href="http://youtube.com/watch?v=TGPPBiQkN8Y">http://youtube.com/watch?v=TGPPBiQkN8Y</a>