

جامعة الساحل الغربي

قسم العلوم الطبية

# مصطلحات طبية

## Medica Terminology

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The language of medicine is a specialized vocabulary used by health care providers. Many current medical word elements originated as early as the 4th century B.C., when Hippocrates practiced medicine. With technological and scientific advancements in medicine, new terms have evolved to reflect these innovations. For example, radiographic terms, such as magnetic resonance imaging (MRI) and ultrasound (US), are now used to describe current diagnostic procedures.

## MEDICAL WORD ELEMENTS

A medical word consists of some or all of the following elements:

- word root
- combining form
- suffix
- prefix

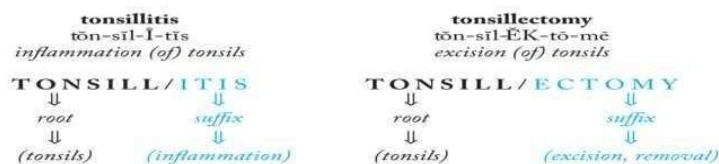
How these elements are combined and whether all or some of them are present in a medical term determines the meaning of a word. To understand the meaning of medical words, it is



important to learn how to divide them into their basic elements. This chapter covers the basic principles of medical word building and how to pronounce the terms correctly. Pronunciations are provided with all terms. In addition, pronunciation guidelines are located on the inside back cover of this book so you can refer to them throughout the chapters to help pronounce terms correctly.

## Word Roots

A **word root** (WR) is the foundation of a medical term and contains its primary meaning. All medical terms have at least one word root. Examine the terms **tonsillitis**, **tonsillectomy**, **colitis**, and **colectomy** listed below to determine their basic elements (roots and suffixes) and meanings. You will note that the meaning of the word changes whenever you change one of the word elements. (In the examples that follow, word roots are in **boldface** and suffixes are in blue.)



**Word Analysis** The roots *tonsill* and *col* indicate body parts, the tonsils and colon, respectively. The suffix *-itis* means *inflammation*; the suffix *-ectomy* means *excision, removal*. By adding a different suffix to the root, the meaning of the word changes, as shown in the above examples.

## Combining Forms

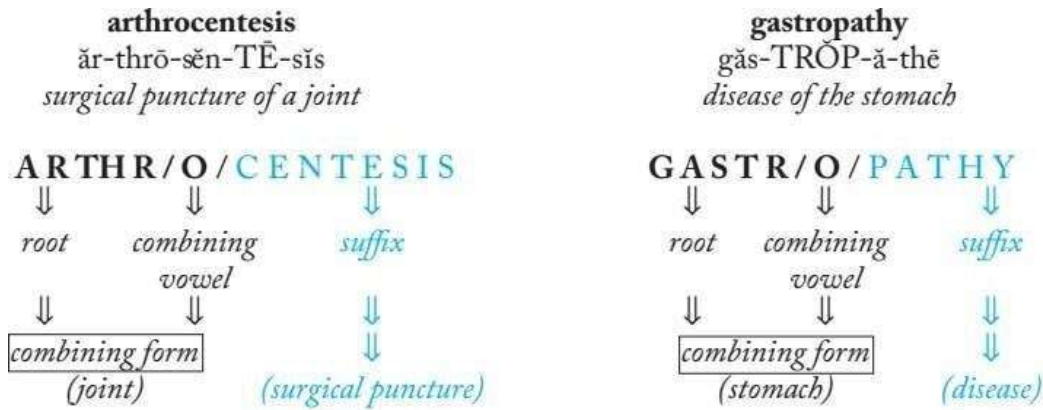
A **combining form** (CF) is created when a word root is combined with a vowel. The vowel, known as a combining vowel, is usually an *o*, but sometimes it is an *i* or *e*. The combining vowel has no meaning of its own but enables two word elements to be connected. Like the word root, the combining form is the basic foundation to which other word elements are added to build a complete medical word. In this text, a combining form will be listed as *word root/vowel* (such as *arthr/o*, *gastr/o*, *nephr/o*, *neur/o*, and *oste/o*), as illustrated in the following examples. The difficulty of pronouncing certain combinations of word roots requires insertion of a vowel. Like the word root, the combining form usually indicates a body part.

### Examples of Combining Forms

Word Root	+	Combining Vowel	=	Combining Form	Meaning
arthr	+	o	=	arthr/o	joint
gastr	+	o	=	gastr/o	stomach
nephr	+	o	=	nephr/o	kidney
neur	+	o	=	neur/o	nerve
oste	+	o	=	oste/o	bone

### Linking Suffixes

A CF links with a suffix that begins with a consonant. Examples of suffixes that begin with a consonant are *-centesis* and *-pathy*. This linking is illustrated below in the terms *arthr/o/centesis* and *gastr/o/pathy*.

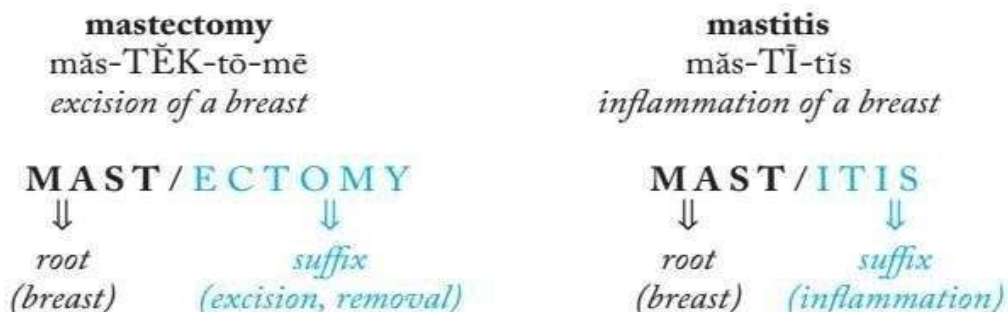


A WR links with a suffix that begins with a vowel. Examples of suffixes that begin with a vowel are *-itis* and *-ectomy*. This linking is illustrated below in the terms *arthr/itis* and *gastr/ectomy*.

**Word Analysis** The roots *gastr* and *arthr* indicate body parts. The suffix *-itis* means *inflammation*; *-centesis* means *puncture*; *-pathy* means *disease*; and *-ectomy* means *excision, removal*.

### Suffixes

A **suffix** is a word element placed at the end of a word that changes the meaning of the word. In the terms *mast/ectomy* and *mast/itis*, the suffixes are *-ectomy* (excision, removal) and *-itis* (inflammation). Changing the suffix changes the meaning of the word. In medical terminology, a suffix usually describes a pathology (disease or abnormality), symptom, surgical or diagnostic procedure, or part of speech.



When studying medical terminology, try to learn the combining form rather than the root because the combining form makes most words easier to pronounce. In the example of *arthrocentesis*, the root without a connecting vowel would be written *arthrcentesis* (ār-thr-

s̃en-TĒ-s̃ 1s). Spelled this way, the term is difficult to pronounce. By adding the vowel after the root, the word arthrocentesis (ār-thrō-s̃ enTĒ-s̃ 1s) is much easier to pronounce.

**Word Analysis** The root *mast* indicates the body part, the breast. The suffix *-ectomy* means *excision, removal*; the suffix *-itis* means *inflammation*. Adding different suffixes to the root *mast* changes the meaning of the word.

## Prefixes

A **prefix** is a word element attached to the beginning of a word or word root. However, not all medical terms have a prefix. Adding or changing a prefix changes the meaning of the word. The prefix usually indicates a number, time, position, direction, or negation. Prefixes do not require adding a connecting vowel. Many prefixes in medical terms are the same as the prefixes used in the English language. Consider the following terms. (In the examples that follow, word roots are in **boldface**, suffixes are in **blue**, and prefixes are in **pink**.)

The prefixes *pre-* and *post-* indicate a state of time. Both prefixes are attached directly to the word root that follows. In the above examples, *pre-* and *post-* are attached to the root *nat*. In this text, whenever a prefix stands alone it will be followed by a hyphen, as in *pre-* and *post-*. Whenever a suffix stands alone, it will be preceded by a hyphen, as in *-al*.

**Word Analysis** The root *nat* means *birth*; the suffix *-al* means *pertaining to*.

### Activity 1-1

#### Matching Word Elements

Match the numbered list items with their definitions in the right-hand column.

1.	<i>pre-</i> means	a. foundation of a word, such as <i>cardi</i> and <i>arthr</i>
2.	basic components of words	b. end of a word
3.	combining form	c. beginning of a
4.	combining vowel(s)	d. word root, suffix, combining form, and prefix
5.	<i>post-</i> means	e. stomach
6.	suffix <i>-itis</i>	f. inflammation
7.	<i>gastr</i> means	g. arthr/o
8.	location of prefixes	h. “o” and “i”
9.	location of suffixes	i. after
10.	word root	j. Before

### Activity 1-2

#### Understanding Medical Word Elements

A- Fill in the following blanks to complete the sentences correctly.



1. The four elements used to form medical words are \_\_\_\_\_

2. A root is the main part or foundation of a word. In the words arthritis, arthroma, and arthroscope, the root is \_\_\_\_\_

B- Identify the following statements as true or false by circling *True* or *False* for each statement. If false, rewrite the statement correctly on the line provided.

3. A combining vowel is usually an *e*. **True**  
**False**

4. A word root links a suffix that begins with a consonant. **True**  
**e**  
**Fals**  
**e**

5. A combining vowel links multiple roots to each other.

**True**  
**False**

6. A combining form links a suffix that begins with a consonant. **True**  
**False**

7. Whenever a prefix stands alone, it will be preceded by a hyphen. **True** **False**

8. In the term intramuscular, *intra-* is the prefix. **True** **False**

C- Underline the word root in each of following combining forms.

9. splen/o (spleen)
10. hyster/o (uterus)
11. enter/o (intestine)
12. neur/o (nerve)
13. ot/o (ear)
14. dermat/o (skin)
15. hydr/o (water)

### Activity 1-3

A- Underline the word roots in the following terms.

## Medical Word

## Meaning

1. nephritis *inflammation of the kidneys*
2. Arthrodesis *fixation of a joint*
3. dermatitis *inflammation of the skin*
4. arthrocentesis *surgical puncture of a joint*
5. gastrectomy *excision of the stomach*

B- Underline the following elements that are combining forms.

6. nephr kidney
7. hepat/o liver
8. Arthr joint
9. oste/o/arthr bone, joint
10. cholangi/o bile vessel

## DEFINING AND BUILDING MEDICAL WORDS

Defining and building medical words are crucial skills in mastering medical terminology. Following the basic guidelines will help develop these skills.

### Defining Medical Words

Here are three steps for defining medical words using the term oste/o/arthr/itis (~ os-tē-ō-är-**THRĪ**-t̃ is) as an example.

1. Define the **suffix**, or last part of the word. In this case, the suffix **-itis** means *inflammation*.
2. Define the first part of the word (**word root** or **combining form**, or **prefix**). In this case, the combining form **oste/o** means *bone*.
3. Define the middle parts of the word (**word root** or **combining form**). In this case, **arthr** means *joint*. Table 1-1 further illustrates this process.



TABLE 1-1 Defining Osteoarthritis

This table illustrates the three steps of defining a medical word using the example osteoarthritis.

Combining Form	Middle	Suffix
oste/o	arthr	-itis
bone	joint	inflammation
(rule 2)	(rule 3)	(rule 1)

Therefore, oste/o/arthr/itis is an *inflammation of bone(s) and joint(s)*.

**Building Medical Words:** There are three rules for building medical words.

### Rule #1

A word root links a suffix that begins with a vowel.

Word Root	+	Suffix	=	Medical Word	Meaning
append appendix	+	-ectomy excision, removal	=	append/ectomy ăp-ĕn-DĒK-tō-mĕ	excision of the appendix
gastr stomach	+	-itis inflammation	=	gastr/itis gās-TRĪ-tīs	inflammation of the stomach

## Rule #2

A combining form (root + o) links a suffix that begins with a consonant.

Combining Form	+	Suffix	=	Medical Word	Meaning
colon/o colon	+	-scope instrument for examining	=	colon/o/scope kō-LŌN-ō-skōp	instrument for examining the colon

## Rule #3



A combining form (root + o) links a root to another root to form a compound word. This rule holds true even if the next root begins with a vowel, as in gastroenteritis. Keep in mind that the rules for linking multiple roots to each other are slightly different from the rules for linking roots and combining forms to suffixes. Following are several examples.

Combining Form	+	Word Root	+	Suffix	=	Medical Word	Meaning
gastr/o stomach	+	enter intestine (usually small intestine)	+	-itis inflammation	=	gastr/o/enter/itis gās-trō-ĕn-tēr-Ī-tīs	inflammation of stomach and intestine (usually small intestine)
gastr/o stomach	+	col colon	+	-itis inflammation	=	gastr/o/col/itis gās-trō-kō-LĪ-tīs	inflammation of stomach and colon
oste/o (bone)	+	chondr cartilage	+	-itis inflammation	=	osteochondritis ōs-tĕ-ō-kōn-DRĪ-tīs	inflammation of bone and cartilage
oste/o (bone)	+	arthr joint	+	-itis inflammation	=	osteoarthritis ōs-tĕ-ō-ār-THRĪ-tīs	inflammation of bone and joint



### Activity 1-4

Defining Medical Words Use the following table to complete the statements below. The first one is completed for you.

Combining Forms	Suffixes and Prefixes	Meaning
append/o		appendix
arthr/o		joint
col/o, colon/o		colon
enter/o		intestine (usually small)
gastr/o		stomach
mast/o		breast
oste/o		bone
	-centesis	surgical puncture
	-itis	inflammation
	-pathy	disease
	-scope	instrument to view or examine
	pre-	before
	post-	after

1. Mast/ectomy is an excision of a breast.
2. Tonsill/itis is an \_\_ of the tonsils.
3. A colon/o/scope is an instrument to examine the \_\_\_\_\_.
4. Oste/o/malacia is a softening of a \_\_\_\_\_ (singular).
5. Post/nat/al means pertaining to (the period) \_\_\_\_\_ birth.
6. Arthr/o/centesis is a surgical puncture of a \_\_\_\_\_.
7. Arthr/o/pathy is a \_\_\_\_\_ of the joints.
8. A prefix that means *before* is \_\_\_\_.
9. The combining form for *stomach* is \_\_\_\_.
10. The suffix for *disease* is \_\_\_\_.
11. The combining form for *breast* is \_\_\_\_.
12. The suffix that means *instrument to examine* is \_\_\_\_\_.
13. The combining form *append/o* refers to \_\_\_\_\_ the \_\_\_\_\_.
14. Gastro/enter/itis is an inflammation of the stomach and the \_\_\_\_\_.
15. The suffix for *surgical puncture* is \_\_\_\_\_.

### Activity 1-5

#### Defining and Building Medical Words

The three steps for defining medical words are:

1. Define the last part of the word, or suffix.
2. Define the first part of the word, or prefix, word root, or combining form.
3. Define the middle of the word.

First pronounce the term aloud. Then apply the above three steps to define the terms in the following table. If you are uncertain of a definition, refer to Appendix A of this textbook, which provides an alphabetical list of word elements and their definitions. The first one is completed for you.

Term	Definition
1. col/itis kō-LĪ-tīs	inflammation (of) colon
2. gastr/o/scope GĀS-trō-skōp	
3. hepat/itis hēp-ă-TĪ-tīs	
4. pre/nat/al prē-NĀ-tāl	
5. tonsill/ectomy tōn-sil-ĒK-tō-mē	
6. tonsill/itis tōn-sil-Ī-tīs	

Refer to the section “Building Medical Words” to complete this activity. Write the number for the rule that applies to each listed term and a short summary of the rule. Use the abbreviations *WR* to designate a word root and *CF* to designate *combining form*. The first one is completed for you.



Term	Rule	Summary of Rule
7. append/ectomy ăp-ĕn-DĚK-tō-mē	1	<i>A WR links a suffix that begins with a vowel.</i>
8. arthr/o/centesis ăr-thrō-sĕn-TĚ-sīs		
9. col/ectomy kō-LĚK-tō-mē		
10. colon/o/scope kō-LŎN-ō-skōp		
11. gastr/itis găs-TRĪ-tīs		
12. gastr/o/enter/o/col/itis găs-trō-ĕn-tĕr-ō-kōl-Ī-tīs		
13. arthr/o/pathy ăr-THRŎP-ă-thē		
14. oste/o/arthr/itis ōs-tē-ō-ăr-THRĪ-tīs		
15. oste/o/chondr/itis ōs-tē-ō-kōn-DRĪ-tīs		

