



Medical Terminology

Basic Elements

1st Lecture

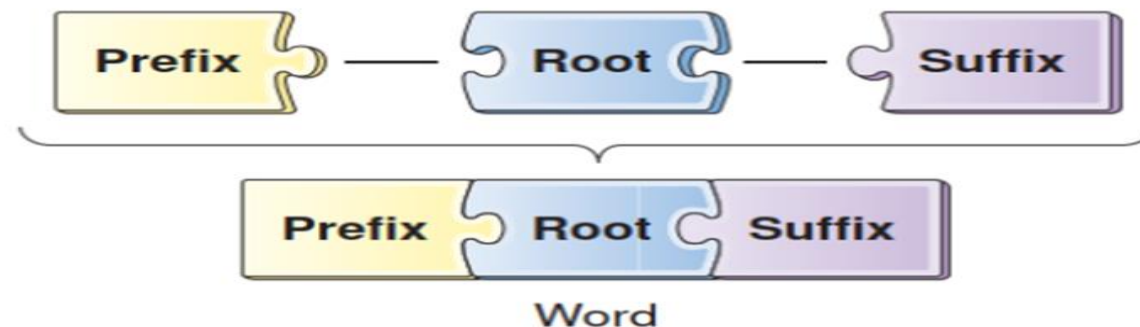
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Medical terminology is a special vocabulary used by health care professionals for effective and accurate communication. Because it is based mainly on Greek and Latin words, medical terminology is consistent and uniform throughout the world. Many medical word elements in current use had their origin as early as the 1st century B.C., when Hippocrates practiced medicine. With technological and scientific advancements in medicine many 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.

A medical word consists of some or all of the following elements: **word root**, **combining form**, **suffix**, and **prefix**. How you combine these elements, and whether all or some of them are present in a medical word, determines the meaning of a word. The purpose of this course is to help you learn to identify these elements and use them to build medical terms.



Word Roots

A word root is the core of a medical term and contains the fundamental meaning of the word. It is the foundation on which other elements are added to develop a complete term.

Most word roots are derived from Greek or Latin. Because of this twofold origin, two different roots may have the same meaning. For example, the Greek word *derm* and the Latin word *cutane* both refer to the skin.

As a general rule, Greek word roots are used to build words that describe a disease, condition, treatment, or diagnosis; Latin word roots are used to build words that describe anatomic structures.

Consequently, the Greek root *derm* is used primarily in terms that describe a disease, condition, treatment, or diagnosis of the skin; the Latin root *cutane* is used primarily to describe an anatomic structure. Most medical terms contain at least one word root. (See Table 1–1.)

Table 1-1**EXAMPLES OF WORD ROOTS**

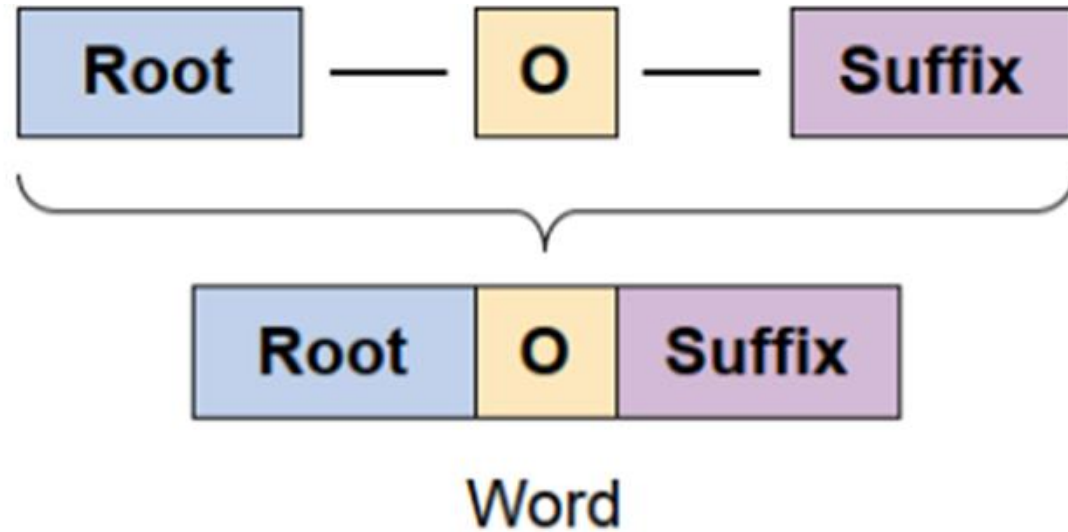
This table lists examples of word roots as well as their phonetic pronunciations. Begin learning the pronunciations as you review the information below.

Greek or Latin Word	Word Root	Meaning	Word Analysis
dermatos (Gr*)	derm	skin	dermat/itis (dĕr-mă-Tĭ-tĭs): inflammation of the skin <i>A term that describes a skin disease</i>
nephros (Gr)	nephr	kidney	nephr/oma (nĕ-FRŌ-mă): tumor of the kidney <i>A term that describes a kidney disease</i>
stoma (Gr)	stomat	mouth	stomat/o/pathy (stō-mă-TŎP-ă-thē): any disease of the mouth <i>A term that describes a mouth disease</i>
cutis (L)	cutane	skin	sub/cutane/ous (sŭb-kŭ-TĀ-nē-ŭs): beneath the skin <i>A term that describes the anatomic tissue layer beneath the skin</i>
oris (L)	or	mouth	or/al (OR-ăl): pertaining to the mouth <i>A term that describes an anatomic structure</i>
renes (L)	ren	kidney	ren/al (RĒ-năl): pertains to the kidney <i>A term that describes an anatomic structure</i>

*It is not important to know the origin of a medical word. This information is only provided to illustrate that there may be two different word roots for a single term.

Combining Vowel

When a suffix beginning with a consonant is added to a root, a vowel (usually an o) is inserted between the root and the suffix to aid in pronunciation.



Thus, when the suffix -logy, meaning “study of,” is added to the root neur, meaning “nerve or nervous system,” a combining vowel is added:

neur + o + logy = neurology (study of the nervous system)

Combining Forms

A combining form is a word root to which a vowel (usually an o) is added. The vowel has no meaning of its own, but enables two elements to be connected. Like the word root, the combining form is the basic foundation on which other elements are added to build a complete word. In this course, a combining form will be listed as word root/vowel (such as gastr/o), as illustrated in Table 1–2.

Examples:

cardi/o –

arthr/o –

gastr/o –

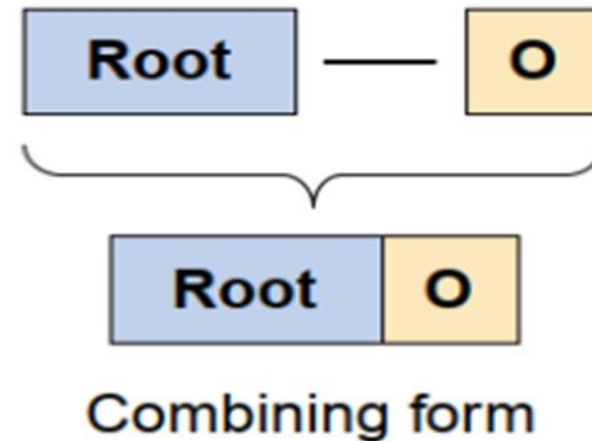


Table 1-2**EXAMPLES OF COMBINING FORMS**

This table illustrates how word roots and vowels create combining forms. Learning combining forms rather than word roots makes pronunciation a little easier because of the terminal vowel. For example, in the table below, the word roots *gastr* and *nephr* are difficult to pronounce, whereas their combining forms *gastr/o* and *nephr/o* are easier to pronounce.

Word Root	+	Vowel	=	Combining Form	Meaning
erythr/	+	<i>o</i>	=	erythr/o	red
gastr/	+	<i>o</i>	=	gastr/o	stomach
hepat/	+	<i>o</i>	=	hepat/o	liver
immun/	+	<i>o</i>	=	immun/o	immune, immunity, safe
nephr/	+	<i>o</i>	=	nephr/o	kidney
oste/	+	<i>o</i>	=	oste/o	bone

Suffixes: A suffix is a word element placed at the end of a word or word root that changes the meaning of the word. In the terms tonsill/itis, and tonsill/ectomy, the suffixes are -itis (inflammation) and -ectomy (excision, removal). Changing the suffix changes the meaning of the word. In medical terminology, a suffix usually indicates a procedure, condition, disease, or part of speech. Many suffixes are derived from Greek or Latin words. (See Table 1–3.)

Table 1–3

EXAMPLES OF SUFFIXES

This table lists examples of suffixes as well as their phonetic pronunciations. Begin learning the pronunciations as you review the information below.

Combining Form	+	Suffix	=	Medical Word	Meaning
gastr/o (stomach)	+	-itis (inflammation)	=	gastritis gās-TRĪ-tīs	inflammation of the stomach
	+	-megaly (enlargement)	=	gastromegaly gās-trō-MĒG-ă-lē	enlargement of the stomach
	+	-oma (tumor)	=	gastroma gās-TRŌ-mă	tumor of the stomach
hepat/o (liver)	+	-itis (inflammation)	=	hepatitis hēp-ă-TĪ-tīs	inflammation of the liver
	+	-megaly (enlargement)	=	hepatomegaly hēp-ă-tō-MĒG-ă-lē	enlargement of the liver
	+	-oma (tumor)	=	hepatoma hēp-ă-TŌ-mă	tumor of the liver

Prefixes: a prefix is a word element attached to the beginning of a word or word root. Adding or changing a prefix changes the meaning of the word. The prefix usually indicates a number, time, position, direction, or negation. Many of the same prefixes found in medical terminology are also found in the English language. (See Table 1–4.)

Table 1–4

EXAMPLES OF PREFIXES

This table lists examples of prefixes as well as their phonetic pronunciations. Begin learning the pronunciations as you review the information below.

Prefix	+	Word Root	+	Suffix	=	Medical Word	Meaning
a- (without)	+	<i>mast</i> (breast)	+	<i>-ia</i> (condition)	=	amastia ă-MĀS-tē-ă	without a breast
hyper- (excessive, above normal)	+	<i>therm</i> (heat)	+	<i>-ia</i> (condition)	=	hyperthermia hī-pēr-THĒR-mē-ă	condition of excessive heat
intra- (in, within)	+	<i>muscul</i> (muscle)	+	<i>-ar</i> (relating to)	=	intramuscular în-tră-MŪS-kū-lăr	within the muscle
macro- (large)	+	<i>card</i> (heart)	+	<i>-ia</i> (condition)	=	macrocardia măk-rō-KĀR-dē-ă	condition of a large heart
micro- (small)	+	<i>card</i> (heart)	+	<i>-ia</i> (condition)	=	microcardia mī-krō-KĀR-dē-ă	condition of a small heart

Basic Rules

Defining and building medical words are crucial skills in mastering medical terminology. Following the basic rules for each will help you master these skills.

Defining Medical Words

Here are the three basic rules for defining medical words using the example term **gastroenteritis**.

Rule #1

Define the suffix, or last part of the word. In this case, **-itis**, which means inflammation.

Rule #2

Define the first part of the word (which may be a word root, combining form, or prefix). In this case, the combining form **gastr/o** means stomach.

Rule #3

Define the middle parts of the word. In this case, **enter/** means intestine.

When you analyze **gastroenteritis** following the three previous rules, the meaning is revealed as: **1. inflammation (of)** **2. stomach (and)** **3. intestine**

Thus, the definition of gastroenteritis is “inflammation (of) stomach (and) intestine.” Table 1–5 further illustrates this process.

Table 1–5

DEFINING GASTROENTERITIS

This table illustrates the three rules of defining a medical word using the example *gastroenteritis*.

Combining Form	Middle	Suffix
gastr/o	enter/	-itis
stomach	intestine	inflammation
(rule 2)	(rule 3)	(rule 1)

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

Rule #1: A word root links a suffix that begins with a vowel.

Word Root	+	Suffix	=	Medical Word	Meaning
hepat/ liver	+	-itis inflammation	=	hepatitis hĕp-ă-Tĭ-tĭs	inflammation of the liver

Rule #2

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

Combining Form	+	Suffix	=	Medical Word	Meaning
hepat/o liver	+	-cyte cell	=	hepatocyte HĒP-ă-tō-sīt	liver cell

Rule #3: Use a combining form to link 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 osteoarthritis. 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.

Combining Form	+	Word Root	+	Suffix	=	Medical Word	Meaning
oste/o bone	+	chondr/ cartilage	+	-itis inflammation	=	osteochondritis ōs-tē-ō-kōn-DRĪ-tīs	inflammation of bone and cartilage
oste/o bone	+	arthr/ joint	+	-itis inflammation	=	osteoarthritis ōs-tē-ō-ăr-THRĪ-tīs	inflammation of bone and joint