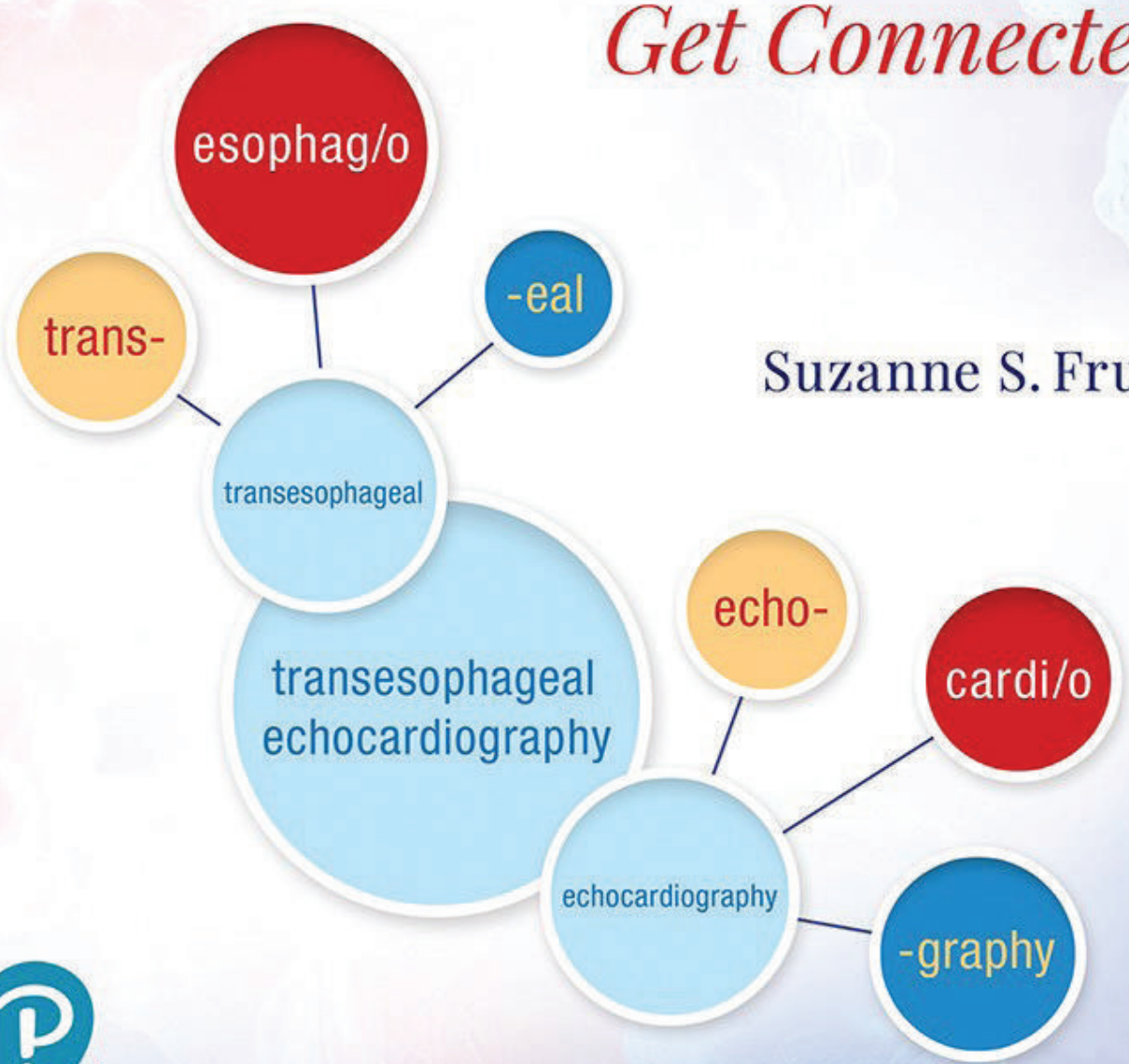
Third Edition

Medical Terminology

Get Connected!



Suzanne S. Frucht

Third Edition

Medical Terminology

Get Connected!

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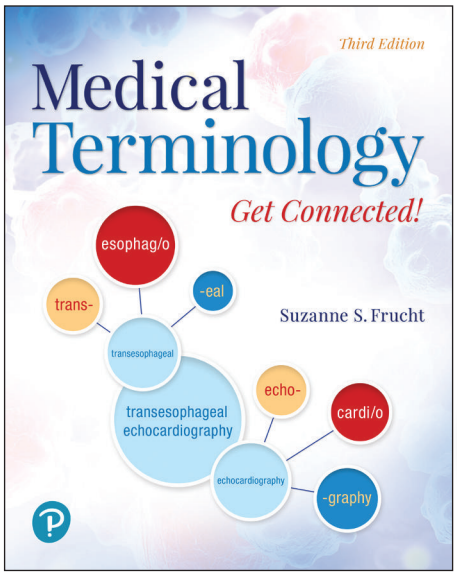
Make the Connection!

Welcome to your first leap into the study of medical language. You may be curious about the title of this book and why it is so important to "get connected." In this socially networked world, where we can organize the meaningful aspects of our lives and link them with others, it is clear that successful experiences involve making connections. Medical terminology is no different. Let us illustrate.

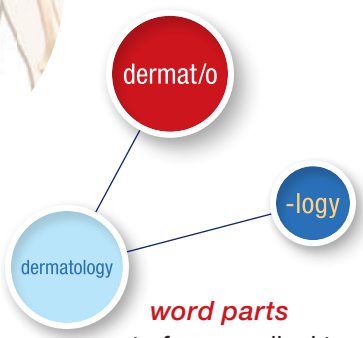


Medical Terminology is about ***connecting...***

with peers and classmates
to help you study

organs and structures
that comprise body systems

with colleagues and patients
for accurate medical communication



word parts
to form medical terms

This text will give you the ability to build and interpret medical terms with accuracy and confidence. It will demonstrate the interconnectedness of body structures and systems. It will provide you with activities and online resources that will foster peer-to-peer study opportunities. And finally, it will help you acquire the tools necessary to communicate effectively in a professional healthcare environment.

So let's get ***connected*** with the features of this book.

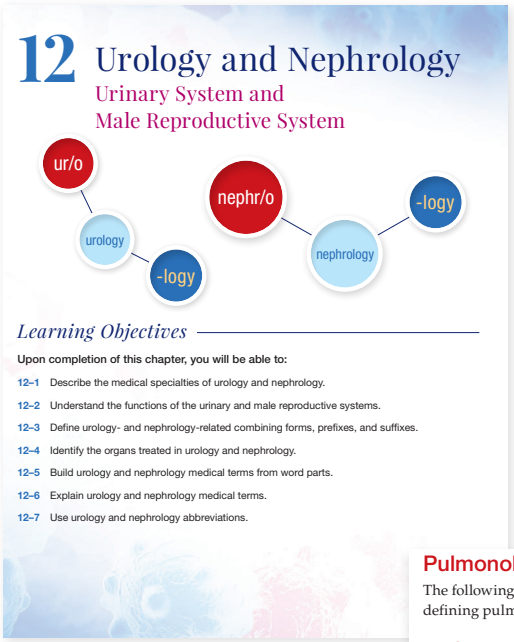
What Makes This Book Different

You will quickly notice that this book is not arranged like most other medical terminology texts. Others present medical terms within the framework of basic human anatomy and physiology, creating a mini-A&P course. Instead, this book organizes and presents terms by medical specialty. This gives you an immediate window into how the healthcare world is organized—around medical specialties, and not by organ systems.

This is a true introductory-level "essentials" text focusing solely on medical terminology, and on teaching how to construct and translate medical terms. Designed to be fun, accessible, and eye-catching, it guides readers step-by-step toward mastery of relevant word parts, understanding word roots, and assembling terms. To help you learn meanings, correct spelling, pronunciation, and other components of each term, the book contains numerous exercises, tips, and colorful figures for learning and practice. It is flexible enough to be used either in support of lectures, or as a workbook to support independent study.

New for this edition

- Increased information is provided regarding the medical specialists related to each chapter.
- A more robust and enhanced art program more clearly illustrates the information being conveyed and provides a visual correlation to the textual content.
- All word parts, terms, and definitions have been reviewed and updated for currency and accuracy.
- Practice Exercises have been reviewed and augmented to further reinforce the Learning Objectives of each chapter while providing a more meaningful way to review each chapter's content.
- Additional entries have been added to each chapter's Vocabulary section to provide a more comprehensive list of related medical terms not solely composed of word parts.
- Updated Appendix II includes a listing of additional abbreviations and symbols other than those presented in the text, and identifies alternate meanings where applicable to reinforce the need for caution when using abbreviations.



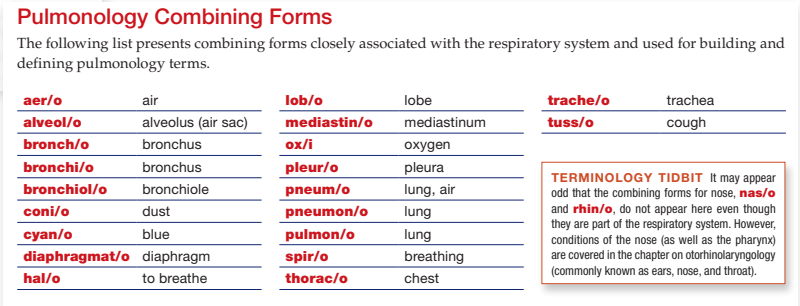
Here is a summary of the key objectives of the book.

Introduce selected medical specialties

Each chapter in Section II begins with a brief description of its particular medical specialty, along with some examples of healthcare workers in this specialty and some conditions that they treat. This section also provides a brief overview of the body system in which these specialists focus.

Define relevant combining forms, suffixes, and prefixes

This section in each chapter introduces the word parts that build the terms most common to each medical specialty. Color-coded word parts (**red combining forms**, **blue suffixes**, and **fuschia prefixes**) allow for quick recognition throughout the book. Each chapter's lists are built upon previous chapters' information, as many word parts are used with more than one medical specialty.



Pulmonology Combining Forms

The following list presents combining forms closely associated with the respiratory system and used for building and defining pulmonology terms.

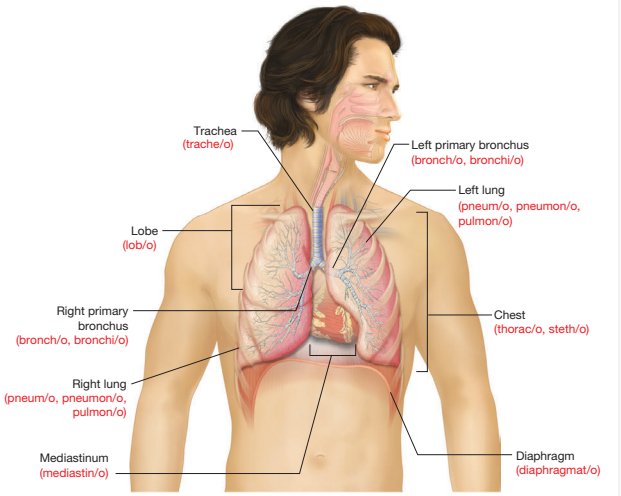
aer/o	air	**lob/o**	lobe	**trache/o**	trachea
alveol/o	alveolus (air sac)	**mediastin/o**	mediastinum	**tuss/o**	cough
bronch/o	bronchus	**ox/i**	oxygen		
bronchi/o	bronchus	**pleur/o**	pleura		
bronchiol/o	bronchiole	**pneum/o**	lung, air		
coni/o	dust	**pneumon/o**	lung		
cyan/o	blue	**pulmon/o**	lung		
diaphragmat/o	diaphragm	**spir/o**	breathing		
hal/o	to breathe	**thorac/o**	chest		

TERMINOLOGY TIDBIT It may appear odd that the combining forms for nose, **nas/o** and **rhin/o**, do not appear here even though they are part of the respiratory system. However, conditions of the nose (as well as the pharynx) are covered in the chapter on otorhinolaryngology (commonly known as ears, nose, and throat).

Identify organs and structures treated by the medical specialty

Each medical specialty chapter presents a quick visual summary of the corresponding organs and/or structures from the related body system. To reinforce the combining forms introduced in the preceding section, this art is labeled with both the names and combining forms (**in red**) of each organ and/or structure where applicable.

Organs Commonly Treated in Pulmonary Disease



Building Cardiology Terms

This section presents word parts most often used to build cardiology terms. Following the explanation of the term, you have the opportunity to begin building your medical vocabulary. Read the meaning for each term and then fill in the blanks to build a single medical term. Use the slashes to divide prefixes, word roots, combining vowels, and suffixes. To help you out, you will find a key to the word parts underneath the blanks: **wr** for word roots, **p** for prefix, **cv** for combining vowel, and **s** for suffix. Remember that not every term will contain all these word parts. As you gain experience, this process becomes easier. Answers can be found online at www.pearsonhighered.com/healthprofessionsresources.

1. **angi/o** – *combining form meaning* **vessel;** *plural is* **vessels**

   May be used to refer to either blood vessels or lymph vessels; it does not indicate a specific type of blood vessel, such as artery, vein, or capillary

   a. record of a vessel _____ (wr) / ___ (cv) / _____ (s)
   b. process of recording a vessel _____ (wr) / ___ (cv) / _____ (s)
   c. vessel tumor _____ (wr) / _____ (s)
   d. surgical repair of a vessel _____ (wr) / ___ (cv) / _____ (s)
   e. involuntary muscle spasm in a vessel _____ (wr) / ___ (cv) / _____ (s)
   f. inflammation of many vessels _____ (p) / _____ (wr) / _____ (s)

2. **aort/o** – *combining form meaning* **aorta**

   Largest artery in the body; receives oxygenated blood from the left ventricle and delivers it to all other arteries for distribution to the entire body (see again Figures 7-2 and 7-3, and Figure 7-5■)

   a. pertaining to the aorta _____ (wr) / _____ (s)
   b. surgical repair of the aorta _____ (wr) / ___ (cv) / _____ (s)

3. **arteri/o** – *combining form meaning* **artery;** *plural is* **arteries**

   Blood vessels that carry blood away from heart and toward a capillary bed; the arterial wall contains a thick layer of **smooth muscle** that contracts or relaxes to change the size of a **lumen**, the channel through which blood flows; contraction of the muscle narrows the lumen and increases the pressure pushing the blood, whereas relaxation of the muscle enlarges the lumen and decreases the pressure; smooth inner lining is **endothelium;** smooth lining reduces friction of blood cells flowing through the vessel; arteries to the lungs carry deoxygenated blood and arteries to the body carry oxygenated blood (see also Figure 7-1)

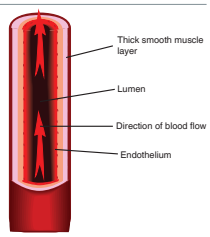


Figure 7-4 Structure of a typical artery *(Designua/Shutterstock)*

Build medical terms from word parts

The heart of each chapter, this section is where you will apply your medical vocabulary knowledge. Each word part is explained and then followed by a list of phrases followed by a color-coded blank line divided by slash marks. These marks indicate how many word parts are necessary to build the term. You complete this activity by filling in the blanks as you work through this section. NEW for the third edition, more anatomy and physiology figures have been provided to better illustrate the structures and organs presented in this section. This information gives more detail of the structure of each organ, how it accomplishes its functions, and how it interacts with other organs in the system.

Explain medical terms

You will quickly learn that not all medical terms are built completely from word parts. The medical specialty vocabulary section defines this type of term. Note that some terms, such as *heart valve prolapse* or *fistula*, have no word parts in them at all, while other terms, such as *coronary artery bypass graft* or *peripheral vascular disease*, contain some word parts, but the whole term is not built using word parts.

Neurology Vocabulary

The neurology terms presented in this section include eponyms, modern English words, and those that contain Latin or Greek word parts but are not constructed solely from these word parts. When you recognize word parts within a term, they will give you a hint about the word's meaning. In these instances, look for the word parts to follow the term.

TERM	EXPLANATION
Alzheimer's disease (AD)	Chronic brain condition involving progressive disorientation, speech and gait disturbances, and loss of memory
amyotrophic lateral sclerosis (ALS) **a-** = without **my/o** = muscle **-trophic** = development **scler/o** = hardening **-osis** = abnormal condition	Disease with muscular weakness and atrophy due to degeneration of motor neurons of spinal cord; commonly called *Lou Gehrig's disease* **TERMINOLOGY TIDBIT** Sclerosis is a good example of how a word root combined with a suffix may be used as either a suffix or a free-standing term. In this example, scler + -osis may be used as the suffix -sclerosis or the term sclerosis.
analgesic **an-** = without **alges/o** = sense of pain **-ic** = pertaining to	Drug to treat minor to moderate pain without loss of consciousness
anesthetic **an-** = without **esthesi/o** = sensation **-tic** = pertaining to	Drug that produces loss of sensation or loss of consciousness **TERMINOLOGY TIDBIT** Occasionally a few letters are dropped from or changed in a combining form when the term is built. In this term the letters **si** are dropped when the suffix -tic is added to **esthesi/o**.
anticonvulsant **anti-** = against	Medication to reduce excitability of neurons and to prevent uncontrolled neuron activity associated with seizures
Bell's palsy	One-sided facial muscle weakness or paralysis; usually is temporary
brain tumor	Intracranial mass, either benign or malignant; benign tumor of brain can still be fatal because it will grow and cause pressure on normal brain tissue

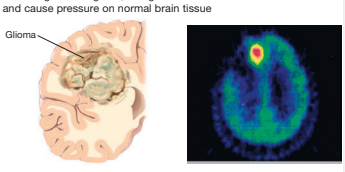
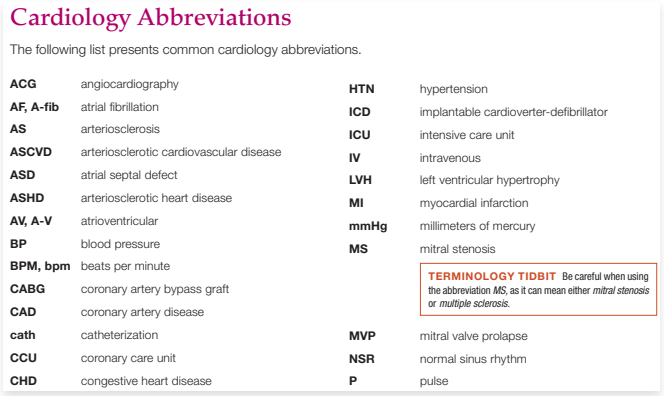


Figure 14-9 (A) Illustration of a large brain tumor and (B) PET scan image revealing brain tumor in the frontal lobe of the brain *[(B) Courtesy of Dr. Giovanni DiChiro and Dr. Ramesh Raman of the Neuroimaging Branch, National Institute of Neurological Disorders and Stroke, National Institutes of Health.]*

Use abbreviations

Abbreviations are an essential part of medical language because they save time. However, only approved abbreviations may be used in order to prevent misunderstandings. This section of each chapter presents the most commonly used abbreviations for that medical specialty. Throughout the book abbreviations are included, when possible, immediately following terms. Appendix II also offers a listing of additional abbreviations and symbols, including those that should no longer be used.



Cardiology Abbreviations

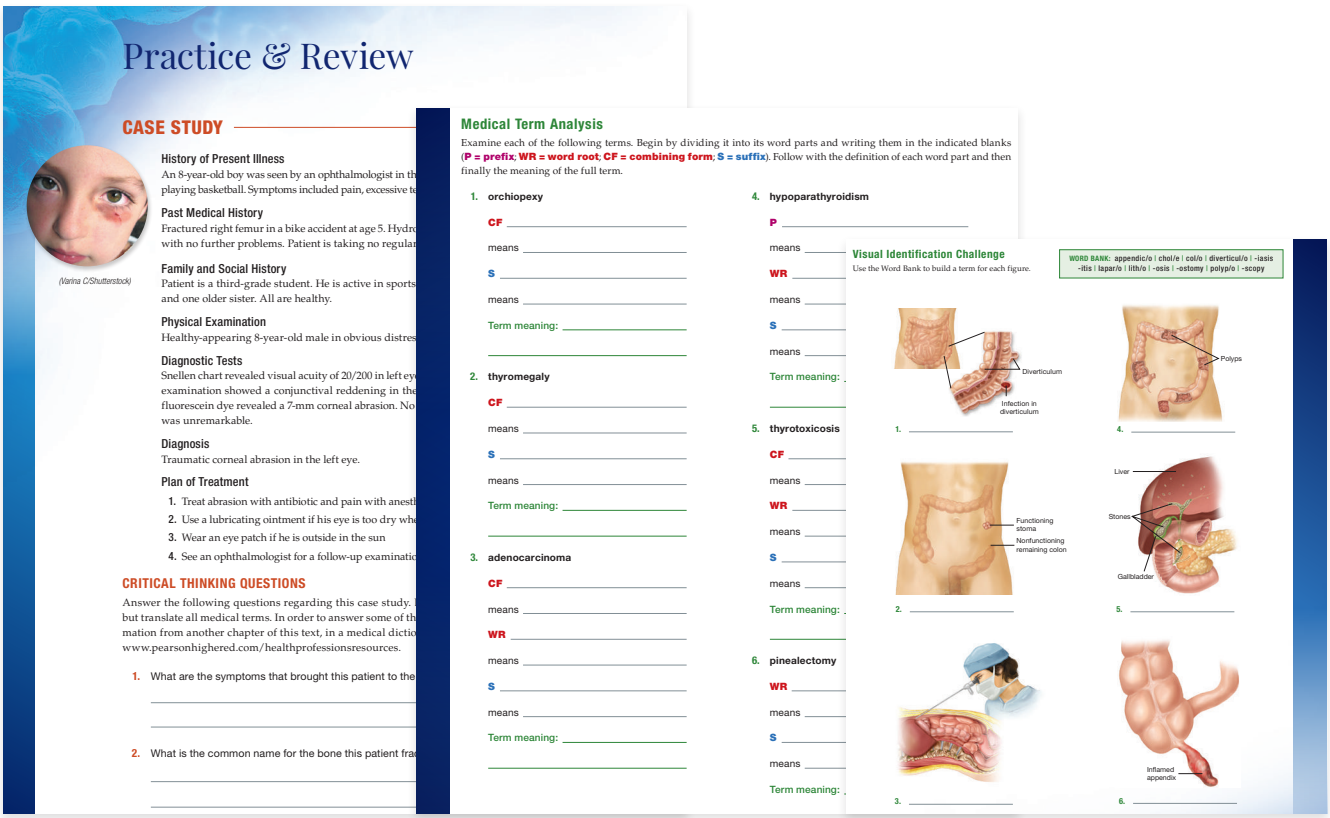
The following list presents common cardiology abbreviations.

ACG	angiocardiography
AF, A-fib	atrial fibrillation
AS	arteriosclerosis
ASCVD	arteriosclerotic cardiovascular disease
ASD	atrial septal defect
ASHD	arteriosclerotic heart disease
AV, A-V	atrioventricular
BP	blood pressure
BPM, bpm	beats per minute
CABG	coronary artery bypass graft
CAD	coronary artery disease
cath	catheterization
CCU	coronary care unit
CHD	congestive heart disease
HTN	hypertension
ICD	implantable cardioverter-defibrillator
ICU	intensive care unit
IV	intravenous
LVH	left ventricular hypertrophy
MI	myocardial infarction
mmHg	millimeters of mercury
MS	mitral stenosis
MVP	mitral valve prolapse
NSR	normal sinus rhythm
P	pulse

TERMINOLOGY TIDBIT Be careful when using the abbreviation *MS*, as it can mean either *mitral stenosis* or *multiple sclerosis*.

Practice using medical terms

As with any newly learned skill, practice is essential. Each chapter closes with a large variety of exercises. These include real-life application exercises (Case Study and Transcription Practice), pronunciation practice (Sound It Out), as well as more typical types of recall exercises (labeling, multiple choice, fill-in-the-blank, matching). In addition, this section includes exercises requiring higher levels of critical thinking (Medical Term Analysis and Visual Identification Challenge). For this third edition, these activities have been reviewed, augmented, and updated to further reinforce the Learning Objectives of each chapter while providing a more meaningful way to assess your grasp of each chapter's content.



Practice & Review

CASE STUDY

(Varina C/Shutterstock)

History of Present Illness
An 8-year-old boy was seen by an ophthalmologist in th
playing basketball. Symptoms included pain, excessive te

Past Medical History
Fractured right femur in a bike accident at age 5. Hydro
with no further problems. Patient is taking no regular

Family and Social History
Patient is a third-grade student. He is active in sports
and one older sister. All are healthy.

Physical Examination
Healthy-appearing 8-year-old male in obvious distres

Diagnostic Tests
Snellen chart revealed visual acuity of 20/200 in left ey
examination showed a conjunctival reddening in the
fluorescein dye revealed a 7-mm corneal abrasion. No
was unremarkable.

Diagnosis
Traumatic corneal abrasion in the left eye.

Plan of Treatment
1. Treat abrasion with antibiotic and pain with anesth
2. Use a lubricating ointment if his eye is too dry wh
3. Wear an eye patch if he is outside in the sun
4. See an ophthalmologist for a follow-up examinatio

CRITICAL THINKING QUESTIONS

Answer the following questions regarding this case study.
but translate all medical terms. In order to answer some of th
mation from another chapter of this text, in a medical dictio
www.pearsonhighered.com/healthprofessionsresources.

1. What are the symptoms that brought this patient to the

2. What is the common name for the bone this patient fra

Medical Term Analysis

Examine each of the following terms. Begin by dividing it into its word parts and writing them in the indicated blanks (**P = prefix**; **WR = word root**; **CF = combining form**; **S = suffix**). Follow with the definition of each word part and then finally the meaning of the full term.

1. **orchiopexy**
   CF _____
   means _____
   S _____
   means _____
   Term meaning: _____

2. **thyromegaly**
   CF _____
   means _____
   S _____
   means _____
   Term meaning: _____

3. **adenocarcinoma**
   CF _____
   means _____
   WR _____
   means _____
   S _____
   means _____
   Term meaning: _____

4. **hypoparathyroidism**
   P _____
   means _____
   WR _____
   means _____
   S _____
   means _____
   Term meaning: _____

5. **thyrotoxicosis**
   CF _____
   means _____
   WR _____
   means _____
   S _____
   means _____
   Term meaning: _____

6. **pinealectomy**
   WR _____
   means _____
   S _____
   means _____
   Term meaning: _____

Visual Identification Challenge

Use the Word Bank to build a term for each figure.

WORD BANK: appendic/o | chol/e | col/o | diverticul/o | -iasis -itis | lapar/o | lith/o | -osis | -ostomy | polyp/o | -scopy

1. _____

4. _____

2. _____

5. _____

3. _____

6. _____

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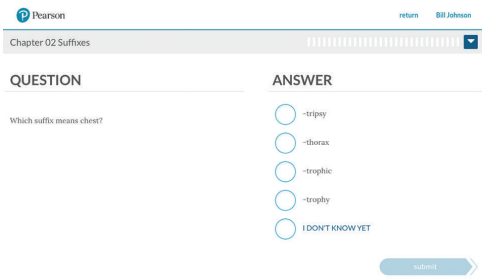

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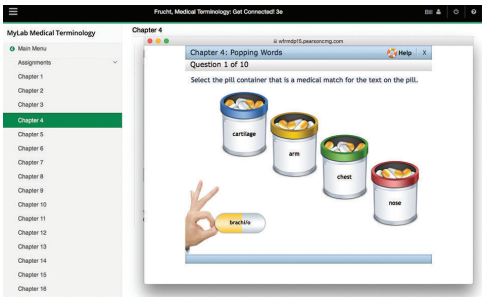

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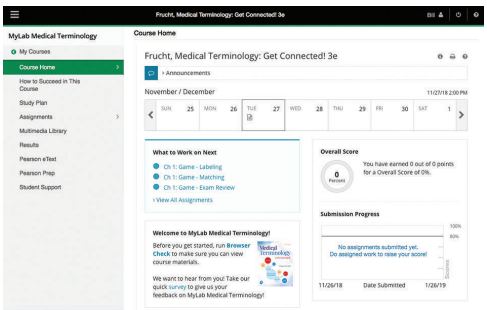

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About the Author

Suzanne S. Frucht is an Associate Professor Emeritus of Anatomy and Physiology at Northwest Missouri State University (NWMSU). She holds baccalaureate degrees in biological sciences and physical therapy from Indiana University, an MS in biological sciences at NWMSU, and a PhD in molecular biology and biochemistry from the University of Missouri–Kansas City.

For 14 years Dr. Frucht worked full time as a physical therapist in various healthcare settings, including acute care hospitals, extended care facilities, and home health. Based on her educational and clinical experience, she was invited to teach medical terminology part-time in 1988 and became a full-time faculty member three years later as she discovered her love for the challenge of teaching. Dr. Frucht has taught a variety of courses, including medical terminology, human anatomy, human physiology, and animal anatomy and physiology. She received the Governor's Award for Excellence in Teaching in 2003. Since retiring from teaching in 2008, she continues to be active in student learning through teaching medical terminology as an online course and writing medical terminology texts and anatomy and physiology laboratory manuals.

Dedication

For Rikki,

the classiest and bravest woman in my life.

Acknowledgments

No textbook can ever reach the hands of students without the extraordinary contributions of numerous talented and dedicated professionals. *Medical Terminology: Get Connected!, Third Edition* is certainly no exception and I would like to take this opportunity to acknowledge their contributions.

Foremost, I would like to acknowledge Pearson Education, particularly John Goucher, Executive Portfolio Manager, for his continued support. This project has benefited from an unparalleled team, especially Melissa Bashe, Managing Producer for Health Science, and I believe this third edition fulfills everyone's high expectations.

Many, many thanks go to Danielle Doller, Development Editor. Her professionalism, expertise, sound ideas, and friendship always keep me on track. I know any project I undertake is more successful because of her.

And last, but certainly not least, my utmost appreciation goes to Garnet Tomich, Quality Assurance Editor, and the myriad reviewers whose comments and suggestions at each turn helped make this third edition even better.

Without the hard work and dedication of each of these individuals, plus everyone else who has had a hand in this project, there might be a book, but certainly not this one. Words can never express my thanks.

– Suzanne Frucht

Editorial Development Team

The content and format of *Medical Terminology: Get Connected!, Third Edition* are the result of an incredible collaboration of expert educators from across the country. This book represents the collective insights, experience, and thousands of hours of work performed by members of this development team. Their influence will continue to have an impact for decades to come. Let us introduce, and offer our deepest gratitude to, the members of our team.

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A Commitment to Accuracy

As a learner embarking on a career in health care, you probably already know how critically important it is to be precise in your work. Patients and co-workers will be counting on you to avoid errors on a daily basis. Likewise, we owe it to you—the reader—to ensure accuracy in this book. We have gone to great lengths to verify that the information provided in *Medical Terminology: Get Connected!*, *Third Edition* is complete and correct. To this end, here are the steps we have taken:

1. **Editorial review**—We have assembled a large team of developmental consultants to critique every word and every image in this book. Multiple content experts have read each chapter for accuracy.
2. **Accurate Ancillaries**—The teaching and learning ancillaries are often as important to instruction as the textbook itself. Therefore we took steps to ensure accuracy and consistency of these components by reviewing every ancillary component.

While our intent and actions have been directed at creating an error-free text, we have established a process for correcting any mistakes that may have slipped past our editors. Pearson takes this issue seriously and therefore welcomes any and all feedback that you can provide along the lines of helping us enhance the accuracy of this text. If you identify any errors that need to be corrected in a subsequent printing, please notify us either through your institution's Pearson representative or by mail:

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CONTENTS

SECTION III: *Appendices*

Appendix IV—Answer Keys and the Glossary can be found online at* ***www.pearsonhighered.com/healthprofessionsresources.*

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SECTION I
Basic Word Building

Introduction to Medical Terminology 1

Learning Objectives

Upon completion of this chapter, you will be able to:

1–1 Identify the three types of medical terms.

1–2 Explain the differences between prefixes, suffixes, word roots, and combining vowels.

1–3 Form combining forms.

1–4 Explain how to analyze (build and interpret) medical terms.

1–5 Describe how to pluralize medical terms.

1–6 Understand how to pronounce medical terms.

A Brief Introduction to Medical Terminology

In our daily lives, each of us is surrounded by medical terminology. Of course, healthcare professionals use it to communicate with each other (Figure 1-1 ■), but every person is exposed to these terms whether in the doctor's office, talking with friends, reading the newspaper, or watching television. Using medical terminology is an efficient method of conveying very specific and important information. Because each term has a precise meaning, detailed information can be quickly shared using only a few words. Therefore, everyone has something to gain from learning how to understand and use medical terminology whether in one's professional or personal life.

There are three common types of medical terms:

1. Terms built from **Latin** and **Greek** word parts; examples are *cardiology* and *tonsillectomy*.
2. Terms based on a person's name, called **eponyms**; examples are *Alzheimer's disease* and *Parkinson's disease*. Be prepared to see eponyms written in either the possessive form, *Alzheimer's disease*, or the nonpossessive form, *Alzheimer disease*.
3. Terms utilizing **modern English** words; examples are *magnetic resonance imaging* and *irritable bowel syndrome*.

Without doubt, the majority of medical terms are based on Latin and Greek word parts. The remainder of this chapter teaches how to build and analyze this type of medical term.

Figure 1-1 Medical team reviewing patient's medical record on a tablet *(Stuart Jenner/ Shutterstock)*

Elements of Latin- and Greek-Based Medical Terms

Learning medical terminology is similar to learning a foreign language because the basis for the majority of medical terms is Latin or Greek. In mastering this "language of medicine," you will:

- Begin by memorizing individual word parts
- Learn to analyze and build terms from word parts
- Gain skill and confidence through repetitious use of terms
- Make these terms a permanent part of your professional vocabulary

Latin- and Greek-based medical terms are constructed using word parts from four different categories: **word roots**, **suffixes**, **prefixes**, and **combining vowels**.

Word Roots

The word root is the foundation of most medical terms and gives the essential meaning of the term. It frequently but not always refers to a body structure, organ, or system. See examples in Table 1-1 ■.

Table 1-1 Examples of Word Roots

WORD ROOT	MEANING	USED IN MEDICAL TERM	MEANING OF MEDICAL TERM
arthr	joint	**arthr**oscope	instrument for viewing a *joint*
carcin	cancer	**carcin**ogen	that which produces *cancer*
cardi	heart	**cardi**omegaly	enlarged *heart*
cephal	head	**cephal**ic	pertaining to the *head*
electr	electricity	**electr**ocardiogram	record of heart's *electrical* (activity)
gastr	stomach	**gastr**ic	pertaining to the *stomach*
hepat	liver	**hepat**oma	*liver* tumor
my	muscle	**my**ocardium	heart *muscle*
oste	bone	**oste**ocyte	*bone* cell
rhin	nose	**rhin**orrhea	*nose* discharge

Suffixes

A suffix is found at the end of a medical term. The type of information it provides includes conditions, diseases, surgical procedures, and diagnostic procedures involving the word root. See examples in Table 1-2 ■. To help you recognize **suffixes** in this text, they are color-coded in **blue**. *Note that when a suffix is written by itself, a hyphen is placed at the front.*

Table 1-2 Examples of Suffixes

SUFFIX	MEANING	USED IN MEDICAL TERM	MEANING OF MEDICAL TERM
-ectomy	surgical removal	gastr**ectomy**	*surgical removal* of stomach
-gram	a record	electrocardio**gram**	*record* of heart's electrical (activity)
-itis	inflammation	arthr**itis**	joint *inflammation*
-logy	study of	cardio**logy**	*study of* the heart
-megaly	enlarged	hepato**megaly**	*enlarged* liver
-pathy	disease	myo**pathy**	muscle *disease*

Prefixes

A prefix is found at the beginning of a medical term. It often indicates information such as abnormal conditions, numbers, positions, or times. See examples in Table 1-3 ■. Many medical terms do not have a prefix. To help you recognize **prefixes** in this text, they are color-coded in **fuchsia**. *Note that when a prefix is written by itself, a hyphen is placed at the end.*

Table 1-3 Examples of Prefixes

PREFIX	MEANING	USED IN MEDICAL TERM	MEANING OF MEDICAL TERM
a-	without	**a**pnea	*without* breathing
bi-	two	**bi**lateral	*two* sides
dys-	abnormal, difficult, painful	**dys**uria	*painful or difficult* urination
inter-	between	**inter**vertebral	*between* vertebrae
post-	after	**post**surgical	*after* surgery
sub-	under	**sub**cutaneous	*under* the skin

Combining Vowels

Combining vowels (most often the vowel *o*) are used for two reasons: to connect word parts and to make medical terms easier to spell and pronounce. Combining vowels are placed either between a word root and suffix (when the suffix begins with a consonant) or between two word roots. They are not used between a prefix and word root. See Table 1-4 ■ for examples. *Note that the slashes (/) are used to divide the term into its word parts.*

Table 1-4 Examples of the Use of Combining Vowels

TERM WITH COMBINING VOWELS	MEANING
electr/o/cardi/o/gram	record of heart's electrical (activity)
hepat/o/megaly	enlarged liver
oste/o/arthr/itis	bone and joint inflammation
rhin/o/plasty	surgical repair of the nose

However, combining vowels are *not* always necessary.

- To decide whether one is needed between a word root and suffix, look at the first letter of the suffix. Do *not* use a combining vowel between a word root and suffix if the suffix begins in a vowel. For example, the correct way to combine the word root **arthr** and the suffix **-itis** is *arthr/itis,* not *arthr/o/itis.*
- Place a combining vowel between two word roots, even if the second word root begins with a vowel. The term *gastr/o/enter/o/logy* is correct, while *gastr/enter/o/logy* is incorrect. Note that adding the combining vowel also makes the term easier to pronounce.

Combining Forms

Combining forms consist of a word root and its combining vowel. Throughout this text, combining forms will be written with a slash (/) between these two word parts. For example, **electr/o** is the combining form meaning electricity. See Figure 1-2 ■ for more examples of combining forms that relate to parts of the body. To help with recognizing **combining forms** in this text, they are color-coded in **red**.

A combining form is not another category of word part because it consists of two other word parts. However, word roots are normally presented as combining forms; these are easier to pronounce and therefore, to remember. Word roots will be given as combining forms throughout this text.

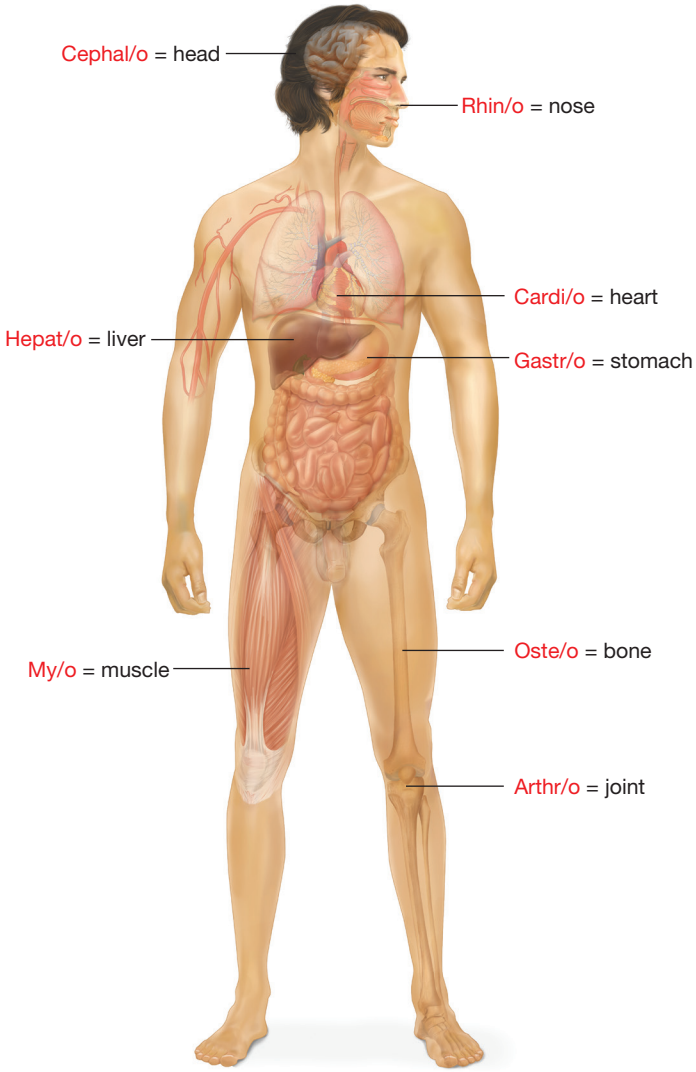

Figure 1-2 Common combining forms for organs or regions of the body

Strategies for Analyzing Medical Terms

Using medical terms is a two-way street; you need to learn both how to define medical terms used by other people and how to build medical terms for yourself. There are some specific strategies that will help with learning both.

TERMINOLOGY TIDBIT Do not try to memorize every medical term. Instead, figure out how the word is formed from its components. In a short time, you will be able to do this automatically when seeing a new term.

Defining Medical Terms

When you first encounter an unfamiliar medical term, don't panic! Remember that the meaning of the individual word parts will give you the information needed to understand at least the basic meaning of the word.

Follow these simple steps:

1. Divide the term into its word parts.
2. Define each word part.
3. Put the meaning of the word parts together in order to see what the term is describing.

For example, follow the steps to define the term *dysmenorrhea*.

1. Divide the term into its word parts: dys / men / o / rrhea
2. Define each word part
   - **dys-** → prefix meaning abnormal, difficult, or painful
   - **men/o** → combining form meaning menstruation
   - **-rrhea** → suffix meaning discharge
3. Put the meaning of individual word parts together: abnormal, difficult, or painful menstruation discharge. See Figure 1-3 ■ for an overview of this process.

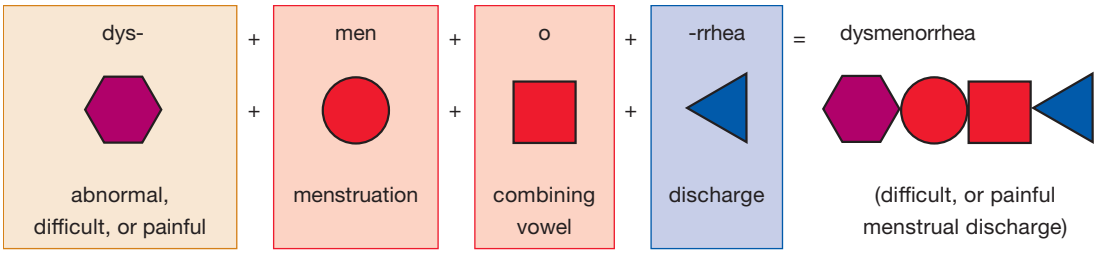

Figure 1-3 You can figure out the meaning of a medical term by dividing it into its word parts and then defining each part

Building Medical Terms

Building medical terms is almost the reverse of defining them. Begin by selecting word parts that convey the meaning needed. Then place the word parts in the correct order to build a complete term.

For example, build a term for the phrase *fibrous skin tumor*. First, choose word parts that represent each portion of the phrase.

- combining form **fibr/o** means *fibrous*
- combining form **dermat/o** means *skin*
- suffix **-oma** means *tumor, mass*

Then place these word parts in the correct order to complete the whole term: *dermatofibroma*.

It is important to realize that not all possible combinations of word parts will build actual medical terms used by medical professionals. When first learning to build medical terms, this is very frustrating, but do not give up! After working with medical terms for only a short period of time, you will find making correct choices gets easier and easier.

TERMINOLOGY TIDBIT To gain a quick understanding of a term, it may be helpful for you to read from the end of the word (the suffix) back to the beginning (the prefix), and then pick up the word root. For example, *endocarditis* reads inflammation (**-itis**) inner, within (**endo-**) the heart (**cardi**). The complete term means *inflammation of the inner (lining) of the heart.*

Rules for Building Plurals

Latin- and Greek-style medical terms do not follow the same pluralization rules used in English. Refer to the rules presented in Table 1-5 ■ when deciding how to pluralize medical terms.

Table 1-5 Rules for Pluralizing Medical Terms

IF THE WORD ENDS IN	SINGULAR	PLURAL
–a, keep –a and add –e	vertebra	vertebrae
–ax, drop –x and add –ces	thorax	thoraces
–ex, drop –ex and add –ices	apex	apices
–is, drop –is and add –es	metastasis	metastases
–ix, drop –x and add –ces	appendix	appendices
–ma, keep –ma and add –ta	sarcoma	sarcomata
–on, drop –on and add –a	spermatozoon	spermatozoa
–us, drop –us and add –i	alveolus	alveoli
–um, drop –um and add –a	ovum	ova
–x, drop –x and add –ges	phalanx	phalanges
–y, drop –y and add –ies	biopsy	biopsies

Pronouncing Medical Terms

Often medical terms are difficult to pronounce because the word parts are unfamiliar to us, or they contain letter combinations that do not occur in English words. Refer to Table 1-6 ■ for hints on pronouncing these letter combinations. Refer to the MyLab Medical Terminology e-text companion to this book for a phonetic pronunciation of each medical term presented in this text. Any syllable that should be stressed is written in uppercase.

Table 1-6 Hints for Pronouncing Medical Terms

HINT	EXAMPLES
-ae or -oe, pronounce only second letter	bursae (BER-see) coelom (SEE-lum)
c and g have soft sound if followed by e, i, or y	cerebrum (seh-REE-brum) gingivitis (jin-jih-VYE-tis)
c and g have hard sound if followed by other letters	cardiac (KAR-dee-ak) gastric (GAS-trik)
ch- at beginning of word has hard k sound	cholesterol (koh-LES-ter-all) chemical (KEM-ih-kull)
-e or -es at end of word pronounced as separate syllable	syncope (SIN-koh-pee) nares (NAIR-eez)
-i at end of word pronounced “eye”	bronchi (BRONG-keye) nuclei (NOO-klee-eye)
pn- at beginning of word, pronounce only n	pneumonia (noo-MOH-nee-ah) pneumogram (NOO-moh-gram)
pn in middle of word, pronounce hard p and hard n	tachypnea (tak-ip-NEE-ah) hypopnea (high-POP-nee-ah)
ps- at beginning of word, pronounce only s	psychiatry (sigh-KYE-ah-tree) psychology (sigh-KALL-oh-jee)

Practice & Review

PRACTICE

Recognizing Types of Medical Terms

Indicate whether each of the medical terms below is a Latin/Greek term, eponym, or modern English term.

1. hepatitis _____
2. ball and socket _____
3. Bell's palsy _____
4. arthrogram _____
5. cardiomegaly _____
6. Addison's disease _____
7. activities of daily living _____
8. Hodgkin's disease _____
9. pacemaker _____
10. gastritis _____

Forming Plurals

Fill in the following blanks with the missing singular or plural form of the term.

	Singular	Plural
1.	bursa	_____
2.	diverticulum	_____
3.	_____	adenomata
4.	ganglion	_____
5.	index	_____
6.	_____	diagnoses
7.	_____	nuclei