

THIRD EDITION

Medical Terminology

Language for Healthcare

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MEDICAL TERMINOLOGY: LANGUAGE FOR HEALTH CARE

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To the Student

Medical Terminology: Language for Health Care, Third Edition, is designed for you, the students in the allied health curriculum, who need to know the language of health care. Its purpose is to help you succeed in your chosen health care careers by familiarizing you with how medical words are formed and by providing a systematic learning structure.

Before this section takes you through a short, instructive journey on how the book is set up and how it will work best for you, take the time to go through some general tips for success in school.

How Can I Succeed in This Class?

If you're reading this, you're on the right track.

"You are the same today that you are going to be five years from now except for two things: the people with whom you associate and the books you read."

Charles Jones

Right now, you're probably leafing through this book feeling just a little overwhelmed. You're trying to juggle several other classes (which probably are equally daunting), possibly a job, and on top of it all, a life.

This special section —To the Student—has been designed specifically to help you focus. It's here to help you learn how to manage your time and your studies to succeed.

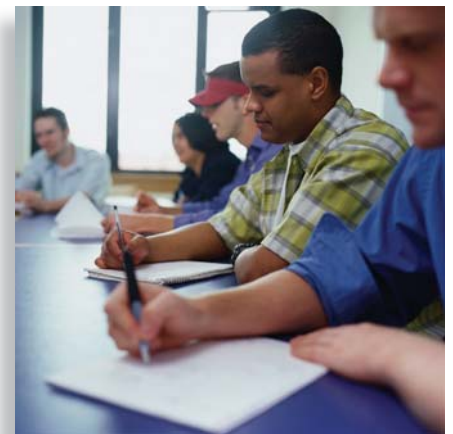
Start Here

It's true—you are what you put into your studies. You have a lot of time and money invested in your education; you've been planning since high school, working an extra job or through summer vacations to save your money. Don't blow it now by only putting in half of the effort this class requires. Succeeding in this class (and life) requires:

- a commitment—of time and perseverance
- knowing and motivating yourself
- getting organized
- managing your time

This specially designed section will help you learn how to be effective in these areas, as well as offer guidance in:

- getting the most out of your class
- thinking through—and applying—the material
- getting the most out of your textbook
- finding extra help when you need it





A Commitment—of Time and Perseverance

Learning—and mastering—takes time and patience. Nothing worthwhile comes easily. Be committed to your studies and you will reap the benefits in the long run.

Consider this: your education is building the foundation for your future—a future in your chosen profession. Sloppy and hurried work now will only lead to lack of success later. Two or four years of committed education time now is nothing compared to the lifetime that awaits you.

Note: A good rule of thumb is to allow a minimum of 2 hours of study time each week for every hour you spend in class.

For instance, 3 hours of class deserve 6 hours of weekly study time. If you set aside time each day to study, you will be investing a little time every day, including the weekend. Study time includes completing exercises, reading the text, practicing words, listening to recordings, and reviewing notes.

Why Study Medical Terminology?

If you were moving to a foreign country where very few people spoke English, you would make every effort to learn the language of that country. You have chosen a course of study in allied health or health care and you will need to know the language that is used in that discipline. Medical terminology covers the specific words and phrases you will need to learn to function effectively and understand the “language” of health care.

Whether you deal with the clinical side or the administrative side, everyone involved in health care uses various terms to describe certain diseases, procedures, and office practices. Many of the terms used in health care are “built up,” which means they are formed from word parts. In this text, you will learn how to understand words by breaking them down into parts. Although learning a new “language” basically involves memorization, this text gives you tools to help you learn large numbers of terms without memorizing each one. Take advantage of all the study elements within the text, on the student CD-ROM, and on the Web site to help you become a proficient participant in allied health.

Knowing and Motivating Yourself

What type of a learner are you? When are you most productive? Know yourself and your limits and work within them. Know how to motivate yourself to give your all to your studies and achieve your goals. Quite bluntly, you are the one who will benefit most from your success. If you lack self-motivation and drive, you will be the first person to suffer.

Know yourself: There are many types of learners, and no right or wrong way of learning. Which category do you fall into?

Visual Learner—You respond best to “seeing” processes and information. Particularly focus on text illustrations and charts, course handouts. Check to see if there are animations on the course or text Web site to help you. Also, consider drawing diagrams in your notes to illustrate concepts.

Auditory Learner—You work best by listening to—and possibly tape recording—the class lecture and by talking information through with a study partner. Your study sessions should include a flash card drill with a study partner or family member.

Tactile/Kinesthetic Learner—You learn best by being “hands on.” You’ll benefit by applying what you’ve learned during class time. Think of ways to apply your critical thinking skills in a variety of situations. Perhaps a text Web site or interactive CD-ROM will also help you.

Identify your own personal preferences for learning and seek out the resources that will best help you with your studies. Also, learn by recognizing your weaknesses and try to compensate for them while you work to improve them.

Getting Organized

It’s simple, yet it’s fundamental. It seems the more organized you are, the easier things come. Take the time before your course begins to look around and analyze your life and your study habits. Get organized now and you’ll find you have a little more time—and a lot less stress.

- Find a calendar system that works for you. The best kind is one that you can take with you everywhere. To be truly organized, you should integrate all aspects of your life into this one calendar—school, work, leisure. Some people also find it helpful to have an additional monthly calendar posted by their desk for “at a glance” dates and to have a picture of what’s to come. If you do this, be sure you are consistently synchronizing both calendars so you don’t miss anything. More tips for organizing your calendar can be found in the time management discussion on the next page.
- By the same token, keep everything for your course or courses in one place—and at your fingertips. A three-ring binder works well because it allows you to add or organize handouts and notes from class in any order you prefer. Incorporating your own custom tabs helps you flip to exactly what you need at a moment’s notice.
- Find your space. Find a place that helps you be organized and focused. If it’s your desk in your room or elsewhere in your home, keep it clean. Clutter adds confusion, stress, and wastes time. Or perhaps your “space” is at the library. If that’s the case, keep a backpack or bag that’s fully stocked with what you might need—your text, binder or notes, pens, highlighters, Post-its, phone numbers of study partners (hint: a good place to keep phone numbers is in your “one place for everything calendar”).



A Helpful Hint—add extra “padding” into your deadlines to yourself. If you have a test on Friday, set a goal for yourself to have most of the studying done by Wednesday. Then, take time on Thursday to look over the work again, with a fresh eye. Review anything you had trouble remembering and be ready for the test on Friday.

Managing Your Time

Managing your time is the single most important thing you can do to help yourself. And, it’s probably one of the most difficult tasks to successfully master.

You are taking this course because you want to succeed in life. You are preparing for a career. In school, you are expected to work much harder and to learn much more than you ever have before. To be successful you need to invest in your education with a commitment of time.



How Time Slips Away

People tend to let an enormous amount of time slip away from them, mainly in three ways:

1. **Procrastination**, putting off chores simply because you don't feel in the mood to do them right away
2. **Distraction**, getting sidetracked by the endless variety of other things that seem easier or more fun to do, often not realizing how much time they eat up
3. **Underestimating the value of small bits of time**, thinking it's not worth doing any work because you have something else to do or somewhere else to be in 20 minutes or so.

We all lead busy lives. But we all make choices as to how we spend our time. Choose wisely and make the most of every minute you have by implementing these tips.

- **Know yourself and when you'll be able to study most efficiently.** When are you most productive? Are you a late nighter? Or an early bird? Plan to study when you are most alert and can have some uninterrupted time. This could include a quick 5-minute review before class or a one-hour problem solving study session with a friend.
- **Create a set study time for yourself daily.** Having a set schedule for yourself helps you commit to studying, and helps you plan instead of cram.
- **Organize all of your activities in one place.** Find—and use—a planner that is small enough to carry with you everywhere. This can be a \$2.50 paper calendar or a more expensive electronic version. They all work on the same premise.
- **Less is more. Schedule study time using shorter, focused blocks with small breaks.** Doing this offers two benefits:
 1. You will be less fatigued and gain more from your effort, and
 2. Studying will seem less overwhelming and you will be less likely to procrastinate.
- **Do plan time for leisure, friends, exercise, and sleep.** Studying should be your main focus, but you need to balance your time—and your life.
- Make sure you log your projects and homework deadlines in your personal calendar.
- “Plot” your assignments on your calendar or task list. If you have a report, for instance, break the assignment down into smaller targets. For example, set a goal for a first draft, second draft, and final copy.
- Try to complete tasks ahead of schedule. This will give you a chance to carefully review your work before you hand it in (instead of at 1 a.m. when you are half awake). You'll feel less stressed in the long run.
- Prioritize! In your calendar or planner, highlight or number key projects; do them first, and then cross them off when you've completed them. Give yourself a pat on the back for getting them done!
- Review your calendar and reprioritize daily.
- Try to resist distractions by setting and sticking to a designated study time (remember your commitment!). Distractions may include friends, surfing the Internet, or even a pet lizard.
- Multitask when possible—You may find a lot of extra time you didn't think you had. Review material in your head while walking to class, doing laundry, or during “mental down time.” (Note—mental down time does NOT mean in the middle of lecture.)

Note: Plan to study and plan for leisure. Being well balanced will help you focus when it is time to study.

Tip: Try combining social time with studying (a study partner) or social time with mealtime or exercise (dine or work out with a friend). Being a good student doesn't mean you have to be a hermit. It does mean you need to know how to smartly budget your time.

Learn to Manage or Avoid Time Wasters

DON'T

- Don't let friends manage your time

Tip: Kindly ask, "Can we talk later?" when you are trying to study; this will keep you in control of your time without alienating your friends.

- Don't get sucked into the Internet

It's easy to lose hours in front of the computer surfing the web. Set a time limit for you self and stick to it.

DO

- Do use small bits of time to your advantage

Example: Arrive to class five minutes early and review notes. Review your personal calendar for upcoming due dates and events while eating meals or waiting for appointments.

- Do balance your life—sleep, study, and leisure are all important. Keep each in balance.

Getting the Most out of Classes

Believe it or not, instructors want you to succeed. They put a lot of effort into helping you learn and preparing their classes. Attending class is one of the simplest, most valuable things you can do to help yourself. But it doesn't end there; getting the most out of your classes means being organized. Here's how:

Prepare Before You Go to Class

Really! You'll be amazed at how much better you understand the material when you preview the chapter before you go to class. Don't feel overwhelmed by this suggestion. One tip that may help you—plan to arrive to class 5-15 minutes before lecture. Bring your text with you and skim the chapter before class begins. This will at the very least give you an overview of what may be discussed.

Be a Good Listener

Most people think they are good listeners, but few really are. Are you?

Obvious, but important points to remember:

- You can't listen if you are talking.
- You aren't listening if you are daydreaming.
- Listening and comprehending are two different things. If you don't understand something your instructor is saying, ask a question or jot a note



and visit the instructor after hours. Don't feel dumb or intimidated; you probably aren't the only person who "doesn't get it."

Take Good Notes

- Use a standard size notebook, or better yet, a three-ring binder with loose leaf notepaper. The binder will allow you to organize and integrate your notes and handouts, make use of easy-to-reference tabs, etc.
- Use a standard black or blue ink pen to take your initial notes. You can annotate later using a pencil, which can be erased if need be.
- Start a new page for each class or note-taking session (yes—you can and should also take notes from your textbook).
- Label each page with the date and a heading for each day.
- Focus on main points and try to use an outline format to take notes to capture key ideas and organize sub-points.
- Leave lots of white space in your note-taking. A solid page of notes is difficult to study.
- Review and edit your notes shortly after class—at least within 24 hours to make sure they make sense and that you've recorded core thoughts. You may also want to compare your notes with a study partner later to make sure neither of you have missed anything.

Get a Study Partner



Having a study partner has so many benefits. First, he/she can help you keep your commitment to this class. By having set study dates, you can combine study and social time, and maybe even make it fun! In addition, you now have two sets of eyes and ears and two minds to help digest the information from class and from the text. Talk through concepts, compare notes, and quiz each other.

An Obvious Note: Don't take advantage of your study partner by skipping class or skipping study dates. You soon won't have a study partner—or a friend!

Helpful Hint: Take your text to class, and keep it open to the topics being discussed. You can take brief notes in your textbook margin or reference textbook pages in your notebook to help you study later.

How to Study for an Exam

- rereading is not studying
- be an active learner—
 - Read.
 - Be an active participant in class; ask questions.
 - Finish reading all material—text, notes, handouts—at least three days prior to the exam.
 - Three days prior to the exam, set aside time each day to do self-testing, practice problems, review notes, and use critical thinking skills to understand the material.
 - Analyze your weaknesses, and create an “I don't know this yet” list. Focus on strengthening these areas and narrow your list as you study.
 - Create your own study tools such as flash cards and checklists and practice defining key terms.

- Make up a mock test. If you were the instructor, what questions would you put on the test? You will be surprised at how accurate you will be.

Useful tools to help: the end-of-chapter reviews, questions and practice problems; text Web site; student CD-ROM; and your study partner.

Very Important

Be sure to sleep and eat well before the exam.

If you are determined to fail, just follow these few simple instructions:

1. Skip class, or if you do attend, arrive fashionably late.
2. Don't buy the book, or if you buy it, don't read it.
3. Don't bother studying if you have to be somewhere else in 20 minutes; that's not enough time to get anything done.
4. Big test coming up? Beat the stress by relaxing with friends, going out for a few beers, or hanging out in an Internet chat room. Be sure to complain to your chat room friends about how there's not way you can pass the test tomorrow.
5. Don't ask questions in class; you're probably the only one who doesn't know the answer, and everyone else will think you're stupid.
6. Don't visit the instructor in his or her office; instructors don't want to be bothered.
7. If you miss a class, trust your friends' notes to be complete and accurate.
8. Be sure to pull an all-nighter before the exam; you don't have time to sleep.
9. Don't strain your brain trying to do the chapter review. Look up the answers and fill them in. You can fool your friends into thinking you're really smart (as long as they don't see your test grade).
10. When you study with friends, have a good time—chat about things unrelated to your study topic.
11. The time to begin studying for an exam is the day before the test. Four hours ought to be plenty.

Getting the Most Out of Your Textbook

McGraw-Hill and the authors of this book have invested their time, research, and talents to help you succeed as well. The goal is to make learning easier for you.

What's New This Edition

- The material in various chapters has been expanded to include new procedures, more on electronic health records, and more on use of the Internet.
- This edition of the textbook features more than DOUBLE the number of practice exercises with heavy emphasis on the building up and deconstructing of word parts.
- By the end of studying this text, students will be able to understand a wide range of medical vocabulary.

McGraw-Hill LearnSmart: Medical Terminology

McGraw-Hill LearnSmart is a diagnostic learning system that determines the level of student knowledge, then feeds the student appropriate content. Students learn faster and study more efficiently.

As a student works within the system, LearnSmart develops a personal learning path adapted to what the student has learned and retained. LearnSmart is also able to recommend additional study resources to help the student master topics.

In addition to being an innovative, outstanding study tool, LearnSmart has features for instructors. There is a Course Gauge where the instructor can see exactly what students have accomplished as well as a built-in assessment tool for graded assignments.

Students and instructors will be able to access LearnSmart anywhere via a web browser. And for students on the go, it will also be available through any iPhone or iPod Touch.

McGraw-Hill Connect Allied Health

McGraw-Hill *Connect Allied Health* is a web-based assignment and assessment platform that gives students the means to better connect with their coursework, with their instructors, and with the important concepts that they will need to know for success now and in the future. With *Connect Allied Health*, instructors can deliver assignments, quizzes and tests easily online. Students can practice important skills at their own pace and on their own schedule. With *Connect Allied Health Plus*, students also

get 24/7 online access to an eBook—an online edition of the text—to aid them in successfully completing their work, wherever and whenever they choose.

Here's How

Throughout the pages of *Medical Terminology: Language for Health Care*, you'll find an organized learning system. Follow it throughout your course and you will become a proficient “speaker” of the language of health care.

A Journey Through *Medical Terminology: Language for Health Care*

Forming Medical Terms

The first three chapters of the book introduce the way that most medical terms are formed. Most medical terms are built from word parts, often derived from Latin and Greek terms. These three chapters introduce many of the major word parts used in the formation of medical terms.

Chapter 1 gives the major combining forms used in medical terminology except for the combining forms that are more specific to each body part. Those combining forms are learned in each chapter that covers a different body system.

Chapter 2 provides the majority of general prefixes and suffixes that are used to form medical terms. Learning these prefixes and suffixes will enable you to break apart built-up terms that you are not familiar with and understand their meanings by knowing the meaning of the parts.

Chapter 3 introduces you to the body systems you will be studying throughout this book. It also covers the most commonly used body system word parts, which are then repeated in the individual body system chapters. This concentrated repetition is designed to reinforce the body system approach to medical word building.

Using the Systematic Learning Approach

Chapters 4 through 16 are the body system chapters. The format of these chapters is designed to acquaint you with an overview of each body system, including coverage of its basic anatomy and physiology. At the same time, each chapter teaches the specific terms and word parts used in the medical terminology. Each body system chapter is presented in the following format:

- | | |
|---|--|
| A. Objectives | G. Pharmacological Terms |
| B. Structure and Function | H. Terminology in Action and Challenge Section |
| C. Combining Forms and Abbreviations | I. Using the Internet |
| D. Diagnostic, Procedural, and Laboratory Terms | J. Section Exercises |
| E. Pathological Terms | K. Chapter Review |
| F. Surgical Terms | L. Answers to Chapter Exercises |

CHAPTER

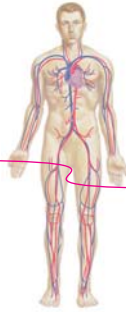
6

CARDIOLOGY

The Cardiovascular System

After studying this chapter, you will be able to:

- 6.1 Name the parts of the cardiovascular system and discuss the function of each part
- 6.2 Define combining forms used in building words that relate to the cardiovascular system
- 6.3 Identify the meaning of related abbreviations
- 6.4 Name the common diagnoses, clinical procedures, and laboratory tests used in treating disorders of the cardiovascular system
- 6.5 List and define the major pathological conditions of the cardiovascular system
- 6.6 Explain the meaning of surgical terms related to the cardiovascular system
- 6.7 Recognize common pharmacological agents used in treating disorders of the cardiovascular system



Structure and Function

The cardiovascular system is the body's delivery service. Figure 6-1 on the next page shows the routes of blood circulation throughout the cardiovascular system. The heart pumps blood through the blood vessels to all the cells of the body. The average adult heart is about 5 inches long and 3.5 inches wide and weighs anywhere from 7 ounces to almost 14 ounces, depending on an individual's size and gender.

The heart wall consists of a double-layered protective sac and two additional layers:

1. The protective sac is the pericardium. The pericardium covers the pericardial cavity which is filled with pericardial fluid, a lubricant for the membranes of the heart. The pericardium itself consists of the visceral pericardium (the inner layer) which is also called the epicardium and is attached to the heart wall and the parietal pericardium (the outer portion of the pericardium).
2. The second layer is the myocardium, a thick layer of muscular tissue.
3. The inner layer, the endocardium, forms a membranous lining for the chambers and valves of the heart.

The heart is divided into four chambers. The right atrium receives oxygen-poor blood from the body and pumps it to the right ventricle, which pumps oxygen-rich blood to the lungs.

23. Fill in the missing part in the following sequence: pulmonary arteries → _____ → pulmonary veins.

Combining Forms and Abbreviations

The lists below include combining forms and abbreviations that relate specifically to the cardiovascular system. Pronunciations are provided for the examples.

COMBINING FORM	MEANING	EXAMPLE
angi(o)	blood vessel	angiogram [AN-jē-ō-grām], image of a blood vessel
aort(e)	aorta	aortitis [a-ōr-Tĭ-tĭs], inflammation of the aorta
arteri(o), arter(o)	artery	arteriosclerosis [ar-TER-ē-ō-skler-ō-sĭs], hardening of the arteries
ather(o)	fatty matter	atherosclerosis [ATH-ēr-ō-skler-ō-sĭs], hardening of the arteries with irregular plaque deposits
atri(o)	atrium	atrioventricular [A-TRĭ-ō-vĕn-trĭK-yū-lĭd], relating to the atria and ventricles of the heart
cardi(o)	heart	cardiomyopathy [KAR-dĭ-ō-mĭ-ŌP-ĭ-ā-the], disease of the heart muscle
hemangi(o)	blood vessel	hemangioma [hĕ-MAN-jē-ō-mĭ], abnormal growth of blood vessels

Building Words

Complete each of the following urinary terms by putting a word part in the blank.

94. bladder inflammation: cyst____.
95. removal of a kidney: _____ectomy.
96. tumor in the bladder: _____cele.
97. blood in the urine: hematur____.
98. common urinary test: _____lysis.
99. bladder tumor: cyst____.
100. enlargement of the kidneys: nephro____.

Diagnostic, Procedural, and Laboratory Terms

Specialists in the urinary system are urologists, who treat disorders of the male and female urinary tracts and the male reproductive system, and nephrologists, who treat disorders of the kidneys. Urinalysis is the most common diagnostic and laboratory test of the urinary system. It involves the examination of urine for the presence of normal or abnormal amounts of various elements. Substances in the urine are a prime factor in the diagnosis of diseases of the urinary system as well as of other body systems. In addition, various imaging and blood tests help diagnose conditions or diseases.

Urinalysis

Urinalysis is the examination of urine for microscopic properties (E) a specimen bottle by their arrangement, the insertion of

Pathological Terms

The digestive system is both the site and the source of many diseases and disorders. What we take into our mouth determines the type of nutrition our body receives. Eating disorders can be the catalyst for disease processes to start.

Eating Disorders

Anorexia is a loss of appetite. In its most severe form, anorexia nervosa, it is a morbid refusal to eat because the person wishes to be dangerously thin. Bulimia is a disease wherein bingeing on food and then purposely purging or vomiting is also a quest for abnormal weight loss. Both anorexia nervosa and bulimia can produce many health problems and symptoms, such as hair loss, amenorrhea, and heart damage. Figure 14-9 shows the overlap of starving, bingeing, and purging that can be present in both anorexia nervosa and bulimia. Obesity is often the result of overeating, although recent gene studies indicate a possible hereditary defect in many obese people. Obesity can be one of the factors in many health problems, such as heart disease and diabetes. Many eating disorders can be treated with psychological counseling; some, such as anorexia nervosa, may result in death if the patient is not treated at an eating disorder unit or clinic.

Disorders of the Mouth, Pharynx, and Esophagus

Areas in the mouth can become inflamed from an infection, allergy, injury, or internal disorder. Cheilitis occurs on the lips; glossitis occurs on the tongue; sialadenitis occurs in the salivary glands; and parotitis or parotiditis occurs in the parotid glands. Various other dental disorders may similarly cause inflammation (see Chapter 23). Halitosis is unusually foul-mouth odor, which may be caused by poor dental hygiene, gum disease, certain foods, or by an internal disorder such as a sinus infection. Ankyloglossia is a condition in which the tongue is partially or completely attached to the floor of the mouth, thereby preventing normal movement. Normal swallowing is an important part of maintaining good nutrition. People with swallowing disorders may have trouble getting the nutrition they need.



FIGURE 14-9 Starving, bingeing, and purging are symptoms that can overlap in both anorexia nervosa and bulimia.

The National Association of Anorexia Nervosa and Related Disorders (www.anad.org) offers support for eating disorders at their Web site.

A. The Objectives alert you to the major concepts to learn. Complete the exercises in each section of the chapter. Answers to the exercises appear at the end of the chapter.

B. The Structure and Function section provides an overview of the body system with important key terms. These terms are listed in a Vocabulary Review table at the end of each section.

C. The Combining Forms and Abbreviations section introduces the combining forms and abbreviations relating specifically to the body system that is the subject of the chapter.

D. The Diagnostic, Procedural, and Laboratory Terms section introduces medical terms used in ordering and receiving laboratory reports, making diagnoses, and performing medical procedures.

E. The Pathological Terms section covers a range of diseases and conditions for each body system.

F. The **Surgical Terms** section provides an overview of common surgical procedures performed for each body system.

...was negative. Since then, she has experienced some rectal bleeding. This time her colonoscopy shows several suspicious-looking polyps near the rectum. Dr. Walker biopsies several of them. The result is positive for cancer, but the area of malignancy that needs to be removed is limited.

102. Why might the operation include a colectomy?

Surgical Terms

Treating the digestive tract often includes biopsies, surgeries, and observation using endoscopes. The following is a list of some of the surgical procedures performed on the digestive system.

- **Abdominocentesis or paracentesis** is a surgical puncture to remove fluid or relieve pressure in the abdominal cavity, as in ascites.
- **Cholelithotomy** is an incision for the removal of stones. **Cholelithotripsy** is an incision for removal of stones in the common bile duct. **Cholelithotripsy** is the crushing of gallstones using sound waves or other techniques.
- Surgical repair of the digestive tract includes **cheiloplasty** (lip repair), **glossorrhaphy** (tongue suturing), **esophagoplasty** (esophagus repair), and **proctoplasty** (repair of the rectum and anus).
- Some parts of the digestive tract may require partial or complete removal because of malignancies or chronic inflammation. A **glossectomy** is removal of the tongue. A **polypectomy** is the removal of polyps, particularly in areas such as the colon, which are susceptible to cancer. An **appendectomy** is the removal of a diseased appendix.

G. The **Pharmacological Terms** section covers the classes of drugs used to treat illnesses of the system being discussed and provides examples of both generic and trade name medications.

Pharmacological Terms

Males are sometimes treated with hormone replacement therapy (usually, testosterone). Such treatment can help with sexual problems and with some of the signs of aging. Medications for impotence may help some men restore sexual function. It may also be treated surgically or with mechanical devices. Some erectile dysfunction is a vascular problem and may be treated with transient vasoconstrictors, medications that cause temporary constriction of the blood vessels in the penis. Table 11-2 lists some of the medications used to treat disorders of the male reproductive system.

Anabolic steroids can help overcome the symptoms of some wasting diseases and build muscle mass. The ability of such drugs to increase muscle mass means that they are important to some athletes. However, the widespread use of anabolic steroids by some people has proven to be dangerous, even fatal. Many sports organizations now disqualify athletes who are found using steroids.

The American Academy of Pediatrics (www.aap.org/family/steroids.htm) discusses the abuse of steroids in children's sports.

TABLE 11-2 Drugs Used to Treat Disorders of the Male Reproductive System

Drug Class	Purpose	Generic	Trade Name
treatments for benign prostatic hypertrophy	to cure or relieve enlargement of the prostate	finasteride dutasteride terazosin	Proscar Avodart Hytrin

H. The **Terminology in Action** and **Challenge** Sections are an additional opportunity for critical thinking.

The item shown in Figure 12-2 gives results for a patient's expected results for a certain imaging service.

Critical Thinking

113. What tests, if any, are abnormal?
114. The laboratory was instructed to do a T3 and T4 uptake test. What was the patient's physician trying to determine?

TERMINOLOGY IN ACTION

Alicia Minor is a 21-year-old student who is prone to migraine headaches. Her latest visit to her family doctor included a general physical and a CBC as well as a urinalysis. All test results were normal except for a low hemoglobin count. Alicia complains that "Hemol" does not relieve her headaches and she wants to use her mother's aspirin. Do you think the doctor will recommend aspirin? Why or why not? What are some steps Alicia can take in her daily life to raise her hemoglobin count?

USING THE INTERNET

Go to the Web site of the Aplastic Anemia Association (www.aplastic.org). Choose one of their online articles and write a paragraph summarizing its content.

I. **Using the Internet** offers you an opportunity to gather information from a medical Web site and familiarize yourself with medical offerings on the Internet.

J. **Section Exercises** provide review of each section.

K. The **Chapter Review** gives a complete listing of key terms, combining forms, and abbreviations learned in the chapter.

L. **Answers to Chapter Exercises** allow self-study and instant feedback so you can determine how well you learned the material.

CHALLENGE SECTION

Dr. Lin has a patient with diabetes. Notes on the patient's record are as follows:
"Patient is a 49-year-old female with a history of diabetes. Patient notices localized edema on lower aspect of leg. Area is very red and feels hot to the touch. The skin has the dimpled appearance (*signs d'orange*) of the outside of an orange, and appears 'stretched.' Patient has fever, chills, and headache. Also, patient feels fatigued."
Dr. Lin orders a CBC that shows an elevated WBC, indicating a bacterial infection. No pus has formed in the area. There is an indication of swollen lymph nodes. Treatment includes antibiotics (penicillin V, 250 mg q.i.d. for 10-14 days), bed rest, and elevation of infected area with warm, moist compresses 6x daily.

Critical Thinking

176. The patient has a diagnosis of cellulitis. What does that mean? Is it potentially dangerous if untreated?
177. What could happen if the patient feels better and stops the antibiotic early?

TERMINOLOGY IN ACTION

The letter shown below is a referral from a general practitioner to a dermatologist's office. As a learning exercise, define from memory the terms from the integumentary system that you find in the letter.

Special Features

Each chapter contains some special features that reinforce learning, provide additional information, or expose you to realistic situations that you may encounter in your chosen allied health profession.

CASE STUDY

Providing Relief

Dr. Lin has several patients in their mid-fifties who are concerned about dry skin, age spots, and wrinkling. One patient has dry skin with severe pruritus. Her skin is extremely rough in spots. Dr. Lin suggests that there may be a hormonal cause, since the patient is in menopause and since the production of hormones decreases during and after menopause. He refers her to her gynecologist.

Meanwhile, he prescribes something to control the pruritus. Another patient is a young child with an allergic rash. The doctor writes the following prescriptions.

Critical Thinking

157. Prescription A is for which patient?
158. Prescription B is for what condition?

Dr. A. Lin 100 West 20th Street • Youngstown, OH 44444 • (330) 333-1234 prescription: <u>Hydrocortisone cream 1%</u> <u>100 mg</u> quantity: <u>30 gm</u> date: <u>11/15/12</u>	Dr. A. Lin 100 West 20th Street • Youngstown, OH 44444 • (330) 333-1234 prescription: <u>Diphenhydramine tablet 25 mg</u> quantity: <u>10 tablets</u> date: <u>11/15/12</u>
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A. Case Studies throughout the text provide you with realistic health care situations. The case studies shows you how terminology and abbreviations are used in a realistic context.

B. Critical Thinking following the case studies and in some other special sections, you are asked critical thinking questions. Critical thinking skills are essential to the development of your decision-making skills as a future allied health care professional.

PHARMACOLOGIC

Build Your Medical
Find and define at least one

MORE ABOUT . . .

The Heart
The heart is the body's main pump, sending blood, oxygen, and nutrients to sustain all parts of the body. The heart is surprisingly small for such a large body function—only the size of an average adult fist. Although the heart has two sides, its shape is not symmetrical.



Systemic Circulation
The heart pumps blood through the arteries to the cells of the body. The blood moves in a surge caused by the muscular contraction of the heart. This surge is called the pulse. The blood that goes from the heart to the cells of the body, through the arteries, is called the systemic circulation.



FIGURE 7-3 The abdominal thrust is used to save choking victims.

Although interpretation of pulse rates is controversial, most agree that pulse rates

At the Heimlich Institute's Web site (www.heimlichinstitute.org), you can learn more about saving people and even pets who have something blocking their airway.

The Science Museum of Minnesota (www.sciencemuseumofminnesota.org) has a simple experiment to show you how vocal cords work as well as a video of vocal cords in action.

C. More About boxes throughout the book provide some medical information that would not normally appear within a medical terminology text.

D. Internet References appear in many places in the margin of the text. These references direct you to the Internet to learn more about the material being studied and to familiarize yourself with using the Internet to enhance your knowledge—something that will be helpful to you both personally and professionally throughout your life. Although all Web sites have been checked, some Web sites become inactive. In such cases, if the Web site does not work, use a search engine on your computer to find another source. Simply insert a related word and go to some suggested sites to find more information.

Warning: Using the Internet can be helpful but it may also be harmful. Some people are posting false and even damaging or misleading medical information on the Internet. Check the source of the site to make sure it is a trustworthy medical resource. Avoid advertisements, clubs, and articles written by anyone asking for a donation. Use common sense—if it sounds too good to be true, it usually is false. Also, if someone is trying to sell you something, beware of buying medical items on the Internet without sound medical advice. Never substitute the advice of someone you don't know on the Internet for the advice you can get from a medical professional.

Specialized Chapters

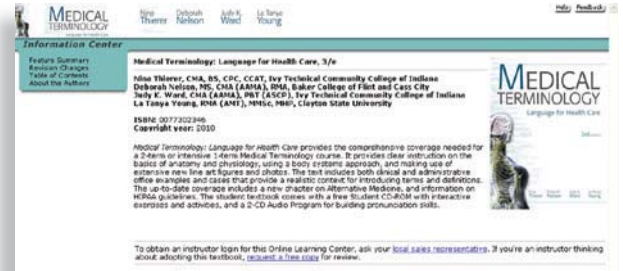
Chapters 17 through 23 cover general and special areas of health care.

- Chapter 17 Human Development
- Chapter 18 Terms in Oncology—Cancer and Its Causes
- Chapter 19 Diagnostic Imaging, Radiation Oncology, and Surgery
- Chapter 20 Terms in Psychiatry
- Chapter 21 Terms in Dental Practice
- Chapter 22 Terms in Pharmacology
- Chapter 23 Terms in Complementary and Alternative Medicine

Additional Study Resources

In addition to the textbook, McGraw-Hill offers the following study resources to enhance your learning of medical terminology:

- An interactive student CD-ROM. The next section gives instructions for using the CD-ROM.
- A set of English audio CDs. The two English audio CDs are organized by chapter sections. You can use these to test your ability to spell and pronounce all key terms in the book.
- An Online Learning Center (OLC) Web site. The Web site (www.mhhe.com/medterm3e) includes an Information Center with general information about the medical terminology program. It includes an instructor's side with resources for classroom testing and management. For you, the student, it includes major checkpoints from the text along with additional learning activities. These additional activities will reinforce what you learned in the text and what you practiced on the student CD-ROM.
- A Spanish-English audio CD (available for purchase). To use this audio CD effectively, listen to the Spanish words while you look at the selected Spanish terms in the appropriate body system chapter. If you want to read the definition in Spanish, refer to the Spanish Glossary on the Online Learning Center (www.mhhe.com/medterm3e).



Using the CD-ROM

The Medical Terminology: Language for Health Care, Third Edition Student CD-ROM is an interactive tutorial designed to complement the student textbook. In it you will find key terms, flashcards, drag and drop word building and labeling exercises, and games (such as Hangman and That's Epidemic!) that are designed to challenge you.

System Requirements

To run this product, your computer must meet the following minimum specifications:

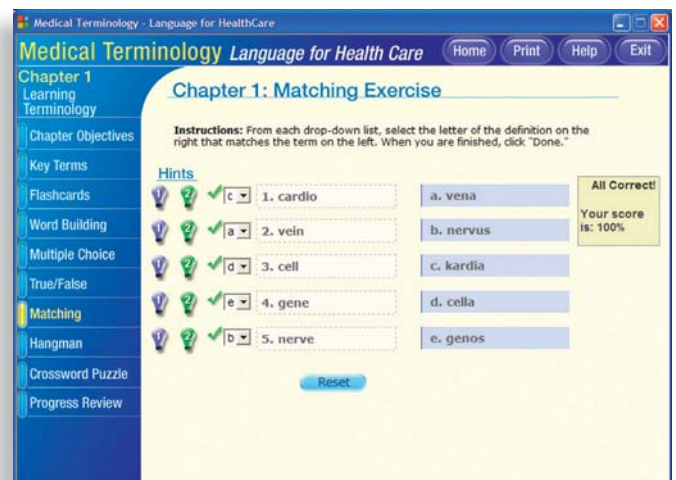
- Pentium II or higher processor
- Microsoft Vista 2000, or XP (Windows XP recommended)
- 64 MB of RAM or higher (128 required for Windows XP)
- 800x600 or higher desktop display
- 16-bit or higher desktop color (24-bit or 32-bit highly recommended)
- Internet Explorer 5.5 or higher required (6.0 or higher recommended)
- Windows Media Player 7.1 or higher required (9.0 or higher recommended)

Installation

The installation and setup program checks your computer to make sure it meets the minimum specifications to run the Medical Terminology: Language for Health Care, Second Edition Student CD-ROM.

To run the installation program:

1. Insert the CD-ROM into your CD-ROM drive.
2. In the Run: box, type D:/Start_Here.exe (Where D is the letter of your CD-ROM drive).



- If you have already installed the program, AutoRun will ask if you want to run the program instead.
- If AutoRun does not start automatically, you will need to follow these steps:
 1. Click the Windows Start menu and go to Run.
 2. In the Run: box, type D:\autorun.exe (where D is the letter of your CD-ROM drive).
 3. Click OK.
 4. To run the program after it is installed, go to the Windows Start menu, point your mouse to Programs (or All Programs), point your mouse to Medical Terminology, and click the icon for Medical Terminology.

The Help Section

Once you have installed the software, you are strongly encouraged to read and review the Help section of this software. The Help section will explain in detail all of the features and activities. It will also discuss frequently asked questions and offer troubleshooting tips. To access help, click on the Help button found on the top right of your computer screen.

Software Support

If you are experiencing difficulties with this product, please contact our Digital CARE team at <http://www.mhhe.com/support>.