

pronunciation, for example.

Medical terminology is largely taken from Greek and Latin, which both have very specific accenting rules. Although there are no absolute rules in English telling you which syllable to stress, there are some similar stress patterns followed by medical words.

1. The main stress is never on the last syllable in long words with several syllables.
2. The main stress is on the second-to-the-last syllable if it is long. For example,
ne'phritis
rectoste'nosis
3. The main stress is on the third-to-the-last syllable if the second-to-the-last syllable is short. For example,
cardiomy'opathy
gastroduode'nostomy

As you work through this book you will come across many words that comply with the patterns. Unfortunately, you will also find words that do not. So remember the general rules, but be aware of exceptions in your learning of medical terminology.

SECTION **B**

Case Study

Case 1: Multiple Health Problems Secondary to Injury

D. S. , a 28-year-old woman, was treated for injuries sustained in a train derailment accident. During the course of her treatment, she was seen by several specialists. For pain in her knee and hip joints, she was referred to an orthopedist. For migraine headaches and blurry vision, she consulted a neurologist. For pain on urination and occasional bloody urine, she saw a urologist. Later, for a persistent dry cough and problems resulting from a fractured nose, she was referred to an otorhinolaryngologist. During her initial course of treatment, she had a CT scan of her abdomen and brain and an MRI of her hip and knee. Both imaging studies required her to lie motionless on her back for 45 minutes.

Several months after the accident, D. S. was still experiencing some discomfort, and she decided to investigate alternative therapies. She made an appointment with a naturist practitioner who specialized in homeopathy and herbal medicine. Before her appointment, she browsed in the Nutra-Medica Shop, which carried nutritional supplements, vitamin and mineral products, homeopathic remedies, and herbal formulas. She planned to ask the therapist about some of the products that she saw there, which included remedies with the trade names Pneumogen, Arthogesia-Plus, Renovite, Nephrostat, and Hematone.


CASE STUDY QUESTIONS

• *Multiple choice.*

- [] 1. The -ist in the word neurologist is a _____.
- | | |
|----------------|-------------------|
| a. prefix | b. root |
| c. suffix | d. combining form |
| e. conjunction | |

Webster's Online Dictionary). Merriam-Webster provides a free online dictionary, thesaurus, audio pronunciations, Word of the Day, word games, and other English language resources.

The screenshot shows the Merriam-Webster Online website. At the top, there's a navigation bar with the Merriam-Webster logo and the slogan "Anything's Possible. Keep Thinking." Below this, there are several featured sections: "FREE Daily Features" which includes Daily Crossword, Word Game, Learner's Word of the Day, and Daily Podcast; "FREE Weekly Feature" which is the Visual Dictionary; and "WORD OF THE DAY" for April 01, 2010, which is "puerile". There is also an "OPEN DICTIONARY" section for "articloid". A search box is prominently displayed in the center with the text "Merriam-Webster OnLine Search" and "SELECT A REFERENCE:" with radio buttons for Dictionary, Thesaurus, Spanish-English, and Medical. A search button is next to the search box.

The audio pronunciation tool is especially useful for those who have problem pronouncing certain words. When a word is entered in the search box and the search button pressed, you get the definition of the word, which is in boldface followed by a red audio icon: . Click on the audio icon. A pop-up window will open, and in most cases the audio pronunciation will play automatically. The audio pronunciation of the word “hear it again” link in the pop-up window to replay the pronunciation. When you are done, close the pop-up window.

The pop-up window contains the Merriam-Webster logo at the top. Below the logo, it says "Audio pronunciation for 'plague'". Underneath that is a red audio icon followed by the text "hear it again". At the bottom of the window, it says "Having trouble hearing a pronunciation? * Click here to listen with your default audio player."



Chapter 2

SUFFIXES

Objectives

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

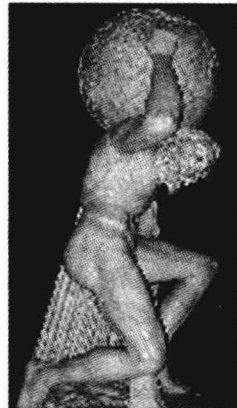
- ◇ Describe the basic concepts of suffixes
- ◇ Understand the two types of suffixes
- ◇ Recognize the basic suffixes meaning “diseased condition of”
- ◇ Recognize the basic suffixes for medical specialties and specialists
- ◇ Memorize rules for forming plurals

The suffixes given in this chapter are general ones that are used throughout medical terminology. Additional suffixes will be presented in later chapters, as they pertain to disease states, medical treatment, or specific body systems.

**WORD
FOCUS**

Atlas

According to ancient Greek lore, Atlas and fellow Titans battled Zeus for the control of the universe, and lost. As a punishment, Atlas was condemned to hold up the heavens forever. He is often depicted, as in Rockefeller Center, carrying a globe on his shoulders. The name perhaps means lit. "The Bearer (of the Heavens)" from the stem of *tlenai* "to bear". In medical English, the word "atlas" means the first vertebra of the neck, articulating immediately with the skull, thus sustaining the globe of the head, whence the name.



SECTION **B**

Word Parts

TABLE 2-1 Suffixes That Mean “Diseased Condition Of”

SUFFIX	EXAMPLE
-ia	anemia 贫血, leukemia 白血病, apoplexia 中风, phobia 恐怖症
-ism	alcoholism 酒精中毒, hyperthyroidism 甲状腺机能亢进, arsenism 砷中毒
-sis *	avitaminosis 维生素缺乏症, necrosis 坏死, pyosis 化脓, toxicosis 中毒, acidosis 酸中毒
-pathy	neuropathy 神经病, psychopathy 精神变态, cardiopathy 心脏病, andropathy 男性病

* The ending -sis may appear with a combining vowel, such as -osis, -iasis, -esis, or -asis.

WORD PART EXERCISE 2-1

- Write the suffix that means “diseased condition of” in each of the following words.

1. egotism (exaggerated self-importance) _____
2. cystipathy (urinary bladder disorder) _____
3. insomnia (inability to sleep) _____
4. parasitism (infection with parasites or behaving as a parasite) _____
5. thrombosis (having a blood clot in a vessel) _____
6. psoriasis (skin disease) _____
7. analgesia (absence of pain) _____
8. sclerosis (hardening) _____
9. alcoholism (poisoning by excessive intake of alcohol) _____
10. arthropathy (disease of the joint) _____

TABLE 2-2 Suffixes for Medical Specialties and Specialists

SUFFIX	MEANING	EXAMPLE
-ian	specialist in a field of study	physician 内科医生, obstetrician 产科医生
-iatrics	medical specialty	geriatrics 老年医学, p(a)ediatrics 儿科学
-iatry	medical specialty	psychiatry 精神病学, pediatry 儿科学
-ics	medical specialty	orthopedics 整形外科学, statistics 统计学
-ist	specialist in a field of study	cardiologist 心脏病学家, oculist 眼科医生
-logy	study of	physiology 生理学, pathology 病理学

WORD PART EXERCISE 2-2

● Write the suffix in each of the following words that means “study of”, “medical specialty”, or “specialist in a field of study”.

1. dentist (one who treats the teeth and mouth) _____
2. neurology (the study of the nervous system) _____
3. pediatrics (treatment of children) _____
4. technologist (specialist in a technical field) _____
5. psychiatry (study and treatment of mental disorders) _____

● Write a word for a specialist in each of the following fields.

6. anatomy (study of body structure) _____
7. pediatrics (care and treatment of children) _____
8. radiology (use of radiation in diagnosis and treatment) _____
9. orthodontics (correction of the teeth) _____
10. ophthalmology (study of the diseases of the eye) _____

TABLE 2-3 Irregular Plural Endings

WORD ENDING	PLURAL ENDING	SINGULAR EXAMPLE	PLURAL EXAMPLE
-a	-ae	vertebra 椎骨, pleura 胸膜	vertebrae, pleurae
-en	-ina	foramen 小孔	foramina

(Continued)

WORD ENDING	PLURAL ENDING	SINGULAR EXAMPLE	PLURAL EXAMPLE
-ex, -ix, -yx	-ices	appendix 阑尾, cortex 皮质	appendices, cortices
-is	-es	diagnosis 诊断, dermatosis 皮肤病	diagnoses, dermatoses
-ma	-mata	sarcoma 肉瘤	sarcomata
-nx *	-nges	meninx 脑膜	meninges
-on	-a	spermatozoon 精子, ganglion 神经节	spermatozoa, ganglia
-um	-a	ovum 卵子, septum 膈	ova, septa
-us	-i	bacillus 杆菌, focus 病灶	bacilli, foci

* The ending -nx may appear with a combining vowel, such as -anx, -inx, or -ynx.

WORD PART EXERCISE 2-3

- Write the plural form of each of the following words. The word ending is underlined in each.

- vertebra (bone of the spine) _____
- ganglion (mass of nerve tissue) _____
- omentum (abdominal membrane) _____
- testis (male gonad) _____
- lumen (central opening) _____
- matrix (background substance; mold) _____
- serum (liquid) _____
- meninx (membrane around the brain and spinal cord) _____
- nucleus (a central or essential part) _____
- pelvis (bony hip girdle) _____
- adenoma (tumor of a gland) _____

WORD PART REVIEW EXERCISE

- Identify the suffix that means “diseased condition of” in each of the

following words.

- | | |
|-------------------|---------------------|
| 1. egotism _____ | 4. acidism _____ |
| 2. anemia _____ | 5. acidosis _____ |
| 3. stenosis _____ | 6. anesthesia _____ |

● *Give the suffix in the following words that means "specialty" or "specialist".*

- | | |
|----------------------|---------------------|
| 7. psychiatry _____ | 9. obstetrics _____ |
| 8. orthopedist _____ | 10. urology _____ |

● *Give the name of the specialist in each of the following fields.*

- | | |
|-----------------------|----------------------|
| 11. pediatrics _____ | 13. pharmacy _____ |
| 12. dermatology _____ | 14. gynecology _____ |

● *Write the plural for each of the following words. The word ending is underlined.*

- | | |
|---|-------|
| 15. patella (kneecap) | _____ |
| 16. prognosis (prediction of disease outcome) | _____ |
| 17. bacterium (type of microorganism) | _____ |
| 18. fungus (simple, nongreen plant) | _____ |
| 19. protozoan (single-celled animal) | _____ |
| 20. pharynx (throat) | _____ |
| 21. apex (high point; tip) | _____ |

● *Write the singular form for each of the following words. The word ending is underlined.*

- | | |
|--|-------|
| 22. foramina (openings) | _____ |
| 23. nuclei (center; core) | _____ |
| 24. ganglia (small masses of nerve tissue) | _____ |
| 25. vertebrae (spinal bones) | _____ |
| 26. indices (directories; lists) | _____ |
| 27. carcinomata (cancers) | _____ |

SECTION **C**

Case Study

Case 1: Displaced Fracture of the Femoral Neck

While walking home from the train station, M. A. , a 72-year-old woman with osteoporosis, tripped over a broken curb and fell. In the emergency department, she was assessed for severe pain, swelling, and bruising of her left thigh. A radiograph showed a displaced left femoral neck fracture. M. A. was prepared for surgery and given a preoperative injection of an analgesic to relieve her pain. Intraoperatively, she was given spinal anesthesia and positioned on an operating room table, with her left hip elevated on a small pillow. Intravenous antibiotics were given before the incision. Her left hip was repaired with a bipolar hemiarthroplasty. Postoperative care included maintaining the left hip in abduction, blood and fluid replacement, physical therapy, and vigilance for development of avascular necrosis and possible dislocation.

Case 2: Intertrochanteric Fracture

A. R. , aged 88, slipped on the wet grass and fell while gardening in his back yard. His neighbor was unable to help him to a standing position and called for an ambulance. A. R. had excruciating pain in his right leg, which was externally rotated, slightly shorter than his left leg, and adducted. Preoperative radiographs showed a non-displaced right intertrochanteric fracture. Intraoperatively, Mr. R. was given spinal anesthesia and positioned on an orthopedic table with his right hip abducted and secured in traction. He had an open reduction and internal fixation with a compression screw and side plate with screws. His postoperative recovery was unremarkable, although he was at risk for deep vein thrombosis, that is, blood clots in his legs. He was discharged to a rehabilitation facility for several weeks of physical therapy and assistance with activities of daily living, such as personal hygiene, dressing, eating, ambulating, and toileting.

CASE STUDY QUESTIONS

● *Write a word from the case histories that means the same as each of the following :*

- 1. replacement of half of the joint component _____
- 2. substances that act against microorganisms _____
- 3. in a position away from the midline of the body _____
- 4. in a position toward the midline of the body _____

● *Identify and define the prefix in each of the following words.*

	Prefix	Meaning of Prefix
5. displace and dislocate	_____	_____
6. replacement, recovery, and rehabilitation	_____	_____
7. avascular	_____	_____
8. anesthesia and analgesic	_____	_____
9. orthopedic	_____	_____
10. externally	_____	_____
11. bipolar	_____	_____
12. unremarkable	_____	_____

● *Fill in the blanks.*

- 13. The adjective for the operative time span from decision for surgery to placement on the operating room table is _____.
- 14. The adjective for the operative time span from placement on the operating room table until transfer to postanesthesia recovery unit or intensive care unit is _____.
- 15. The adjective for the operative time span from admission to postanesthesia is _____.

Common Medical Affixes

Before going on to Part Two , here are some more basic affixes that are used

very frequently in medical literature. They will reappear in Part Two, but it is strongly recommended that students learn them at this stage, as they are of great use in learning medical terminology. Try to memorize them and do the exercises that follow.

Affixes for Organs and Body Parts		
AFFIX	MEANING	EXAMPLE
arthro-	joint	arthritis 关节炎, arthralgia 关节痛, arthrolysis 关节松解术, arthroedema 关节水肿, arthrocele 关节肿胀, arthropathy 关节病
cardio- -cardium	heart, upper opening of stomach	cardiovascular 心血管的, cardiotonics 强心剂, cardiospasmus 贲门痉挛, cardialgia 心痛, myocardium 心肌, pericardium 心包, epicardium 心外膜, precardium 心前区
cysto-	urinary bladder	cystitis 膀胱炎, cystolith 膀胱结石, cystospasm 膀胱痉挛, cystodynia 膀胱痛, cystocele 膀胱突出, cystopyelitis 膀胱肾盂炎
cholecysto-	gall bladder	cholecystitis 胆囊炎, cholecystectomy 胆囊切除术, cholecystalgia 胆绞痛, cholecystocele 胆囊囊肿, cholecystomy 胆囊切开术, cholecystogastrostomy 胆囊胃吻合术
entero- -entery	intestine	enteritis 肠炎, enterorrhagia 肠出血, enteroscopy 肠镜检查, enterobactin 肠菌素, dysentery 痢疾, mesentery 肠系膜
gastro-	stomach	gastritis 胃炎, gastrocele 胃膨出, gastroduodenitis 胃十二指肠炎, gastrointestinal 胃肠的, gastropathy 胃病, gastrodynia 胃痛
hepato-	liver	hepatitis B 乙型肝炎, hepatoma 肝肿瘤, hepatopostema 肝脓肿, hepatologist 肝脏病学家, hepatase 肝解毒酶, hepatic 肝脏的
myo-	muscle	myocardium 心肌, myoma 肌瘤, myoblast 肌原细胞, 成肌细胞, myodynia 肌痛, myoalbumin 肌清蛋白, myocarditis 心肌炎
nephro- -reno-	kidney	nephralgia 肾痛, nephropathy 肾病, nephrolith 肾结石, nephroblast 成肾细胞, renal 肾脏的, renography 肾造影术
pancreato-	pancreas	pancreatopathy 胰腺病, pancreatin 胰酶, pancreatoid 胰样的, pancreatolith 胰石, pancreatitis 胰腺炎, pancreatectomy 胰切除
pulmo(no)- pneumo-*	lung	pulmonary 肺的, pulmogram 肺部 X 线照片, pulmonitis = pneumonia 肺炎, pneumobacillus 肺炎杆菌, pneumocin 肺炎球菌素
spleno- -lieno-	spleen	alienia 无脾, splenectomy 脾切除术, splenalgia 脾神经痛, lienopathy, lienography 脾造影术, lienotoxin 脾毒素
* "Pneumo-" may also mean "air", as in pneumoderma(皮下气肿).		

Affixes for Diseases and Symptoms

AFFIX	MEANING	EXAMPLE
-algia -dynia *	pain	gastralgia 胃痛, gastrodynia 胃痛, arthralgia 关节痛, neuralgia 神经痛, costalgia 肋痛, rachiodynia 脊柱痛
carcino-	cancer	carcinogen 致癌物, carcinectomy 癌切除术, carcinogenic 致癌的, carcinocytemia 癌细胞血症, carcinoid 类癌瘤, carcinoma 癌瘤
dys-	difficulty, disorder	dysaudia 听力障碍, dysentery 痢疾, dysmenorrhea 痛经, dysfunction 机能障碍, dysplasia 发育异常, dyspnea 呼吸困难
-emia	blood disorder	leukemia 白血病, hyperemia 充血, bacteremia 菌血症, hypoglycemia 低血糖, gastremia 胃充血, anemia 贫血
-itis	inflammation	hepatitis 肝炎, nephritis 肾炎, enteritis 肠炎, otitis media 中耳炎, bronchitis 支气管炎, tracheitis 气管炎, cholecystitis 胆囊炎, phlebitis 静脉炎, tonsillitis 扁桃体炎, spondylitis 脊椎炎
-lith -lithiasis	stone, stone disease	nephrolith 肾石, cystolithiasis 膀胱结石病, haematolith 血管石, cholecystolithiasis 胆结石病, cholelith 胆石, gastrolithiasis 胃石病
mal-	bad	malfuction 机能障碍, malnutrition 营养不良, malformation 畸形, maladaptation 适应失调, malignant 恶性的, malposition 错位
-oma onc(h)o-	tumour	hematoma 血肿, carcinoma 癌瘤, hepatoma 肝肿瘤, sarcoma 肉瘤, oncology 肿瘤学, onchocyte 肝肿细胞
-rrhagia -rrhage -staxis	bleeding	hemorrhage 出血, cystorrhagia 膀胱出血, enterostaxis 肠渗血, pneumorrhagia 肺出血, bronchostaxis 支气管出血, epistaxis 鼻衄
-rrh(o)ea	flow, discharge	diarrhea 腹泻, dermatorrhoea 汗溢, seborrhea 皮脂溢, 脂溢性皮炎, otorrhea 耳液溢, pseudodiarrhea 假性腹泻, dysmenorrhoea 痛经

* Another suffix for "pain" is -ache, which is used only to form a limited number of words, like stomachache, headache, backache, toothache, and earache.

COMMON MEDICAL AFFIX EXERCISE

- Match the following terms and write the appropriate letter to the left of each number.

- | | |
|--------------------------|----------|
| _____ 1. malodorous | a. 肝癌 |
| _____ 2. myoma | b. 胆囊炎 |
| _____ 3. hepatocarcinoma | c. 有恶臭的 |
| _____ 4. lienopathy | d. 肌瘤 |
| _____ 5. cholecystitis | e. 脾病 |
| | |
| _____ 6. cystolithiasis | a. 肠渗血 |
| _____ 7. arthrolith | b. 胃出血 |
| _____ 8. cardialgia | c. 关节石 |
| _____ 9. gastrorrhagia | d. 心灼痛 |
| _____ 10. enterostaxis | e. 膀胱结石病 |
| | |
| _____ 11. nephritis | a. 胰腺炎 |
| _____ 12. splenodynia | b. 肾炎 |
| _____ 13. pyopericardium | c. 心包积液 |
| _____ 14. pancreatitis | d. 肺容量计 |
| _____ 15. pulmometer | e. 脾痛 |
| | |
| _____ 16. diarrhea | a. 出血 |
| _____ 17. dysencephalia | b. 瘤细胞 |
| _____ 18. oncocyte | c. 腹泻 |
| _____ 19. hemorrhage | d. 败血症 |
| _____ 20. septicemia | e. 脑功能障碍 |
| | |
| _____ 21. pneumococcal | a. 痢疾 |
| _____ 22. dysentery | b. 肾核蛋白 |
| _____ 23. renosine | c. 肺炎球菌的 |
| _____ 24. myofibroma | d. 适应失调 |
| _____ 25. maladaptation | e. 肌纤维瘤 |

Useful Websites

— <http://www.medword.com/prefixes.html> —

The screenshot shows a web browser window displaying the Medword.com website. The page title is "Medical Terminology Basics: Prefixes Page 1". The main content area contains the following text:

Prefixes, the most frequently used elements in the formation of Greek and Latin words, consist of one or more syllables (prepositions or adverbs) placed before words or roots to show various kinds of relationships. They are never used independently, but when added before verbs, adjectives, or nouns, they modify the meaning. Many prefixes are added to other words with a hyphen, but medical dictionary publishers are opting to drop the hyphen on many of the more common prefixed medical words.

Most prefixes are a part of words in ordinary speech and do not refer specifically to medical or scientific terminology, but there are many that occur frequently in medical terminology, and studying them is an important step in learning medical terms and building a medical vocabulary.

You may also be interested in reviewing these Medword pages: [Suffixes](#), [USP Drug Listings](#), [Basic Medical](#)

On the right side of the page, there is a sidebar titled "MEDWORD RESOURCES" with the following links:

- Abbreviation / Acronym Finder
- Access Symbols
- ASL Alphabet
- Back To Basics
- Calculators
- Conversion Tools
- Crosswords /
- WordSearch / Sudoku

At the bottom of the page, there is a navigation bar with the text: "正在下载图片 http://www.medword.com/pics/nav_11.gif Internet 100%

This is the first “Prefixes” page (3 prefixes pages) from Medword.com. On this page you can see a brief description of the prefixes, followed by a list of the commonest medical prefixes, their uses and examples. It is highly recommended that students learn these prefixes at this stage, since all the prefixes listed here are absolutely essential for the learning of medical terminology.

At the bottom of each page, you will find links to other resources including quizzes and tests. On the right column, there is a very useful list of links to other medical resources.



PART TWO

Diseases, Treatment and Body Systems

