

全国普通高等教育医学类系列教材

FUNDAMENTALS OF

MEDICINE:

A TEXTBOOK FOR CHINESE STUDENTS

医学基础导读

——英文读本

张忠芳 主编



科学出版社

全国普通高等教育医学类系列教材

医学基础导读

——英文读本

FUNDAMENTALS OF MEDICINE:
A TEXTBOOK FOR CHINESE STUDENTS

—— 主编 ——

张忠芳

科学出版社

北京

内 容 简 介

本书是在作者长期从事医学专业英语教学以及用英文讲授医学专业课的基础上,结合中国医学生的特点和需求,参考国外医学院校基础医学教材所编写的一本关于基础医学的英文读本。内容涉及医学基本原理以及人体各大器官系统的结构与功能,目的是为开展全英文教学的医学院校学生提供入门教材,同时也可供医学生以及临床医生和医学工作者阅读专业文献奠定基础。重要医学概念在正文中用黑体字标出,并且每一章后均设计了练习题,供读者自测使用。

本教材适用于临床医学、护理学、预防医学,以及医学检验等专业学生。

图书在版编目(CIP)数据

医学基础导读:英文读本= Fundamentals of
medicine: a textbook for chinese students/ 张忠芳
主编. —北京: 科学出版社, 2014.8
全国普通高等教育医学类系列教材
ISBN 978-7-03-041557-8

I. ①医… II. ①张… III. ①基础医学-高等学校-
教材-英文 IV. ①R3

中国版本图书馆 CIP 数据核字(2014)第 174637 号

责任编辑: 闵捷 陆纯燕
责任印制: 谭宏宇/封面设计: 殷靓

科学出版社 出版

北京东黄城根北街 16 号

邮政编码: 100717

<http://www.sciencep.com>

南京展望文化发展有限公司排版

上海叶大印务发展有限公司印刷

科学出版社出版 各地新华书店经销

*

2014年8月第 一 版 开本: B5(720×1000)

2014年8月第一次印刷 印张: 16

字数: 315 000

定价: 58.00 元



PREFACE

It is a true honor for me to write this introduction to *Fundamentals of Medicine: A Textbook for Chinese Students* in response to the request of the author.

There are many textbooks of professional English and they are all very similar focusing mainly on the terminologies, phrase uses, and grammatical enlightenments related to the context of a particular profession. But the aspired learners of the professions would find these books too soft in the academic contents and deficient in bringing the historic aroma distinctively associated with the original language.

Fundamentals of Medicine: A Textbook for Chinese Students authored by Dr. Zhongfang Zhang (张忠芳) is an exception. It provides learners not only the academic vigorousness of basic knowledge of medicine but also the cultural aspects of medicine studied and practiced in original Latin and Greek. Chinese students using this book are better served here by the superb skills of the author who is a medical professional with long experience in teaching Chinese students medicine in English. Students of the English-based Medical Program at Shantou University Medical College where the author serves are able to pass the United States Medical Licensing Examination (USMLE) Step 1 with a passing rate of over 95%. This is a monumental testament to the credibility of the author.

Junhui Bian
Professor and Executive Dean
Shantou University Medical College
June, 2014

CONTENTS

PART I GENERAL PRINCIPLES


001

Chapter 1	Introduction to Medical Terminology	003
Chapter 2	Overview of Medical Science	016
Chapter 3	Diseases	028
Chapter 4	Levels of Organization of the Human Body	039
Chapter 5	Genetics	049
Chapter 6	Pharmacology	055

PART II ORGAN SYSTEMS

069

Chapter 7	Integumentary System	071
Chapter 8	Musculoskeletal System	078
Chapter 9	Cardiovascular System ,Blood and Lymph	088
Chapter 10	Respiratory System	103
Chapter 11	Digestive System	111
Chapter 12	Urinary System	120
Chapter 13	Nervous System.....	128



Chapter 14	Special Senses	140
Chapter 15	Endocrine System	150
Chapter 16	Reproductive System.....	160
Appendix I	Glossary	169
Appendix II	Commonly Used Word Components	191
Appendix III	Clinically Used Abbreviations	213
Appendix IV	Key to Exercises.....	240
Selected References	249

PART I
GENERAL PRINCIPLES

Word Roots

Word roots are the fundamental parts of medical terms. A word root gives the basic meaning of a medical term. Because of the origin of word roots, some medical terms may look different but mean the same. For example, both epinephrine and adrenaline refer to the same hormone secreted from a gland situated above the kidney. These two words contain a root meaning the kidney. Epinephrine has a Greek root “*nephr*” while adrenaline comes from a Latin root “*ren*”.

Prefixes

Prefixes are the parts of a word attached before a word root. A prefix functions to modify a word root without changing the central meaning of it. It may refer to size, shape, color, direction, position, amount, etc. For instance, intercostal means between the ribs while infracostal means below the ribs.

Suffixes

Suffixes are word endings. A suffix is the part of a word added to the end of a word root. Just like a prefix, a suffix functions to modify the word root. It may refer to an instrument (e.g., *-scope*), a test (e.g., *-metry*), a procedure (e.g., *-tomy*), or a clinical problem (e.g., *-oma*, meaning a tumor). A suffix can be used to change the form of a word from a noun, for instant, to an adjective, e.g., muscle to muscular.

Commonly Used Prefixes and Suffixes in Medicine

Prefixes

Prefix	Meaning	Example
a-	without 无, 没有	asepsis 无菌处理法
an-		anesthesia 麻醉
ab-	away from 远离	abnormal 异常

(Continued)

Prefix	Meaning	Example
ante-	before, in front of 在……前	antecubital 肘前的
anti-	against 反, 对抗	antibody 抗体
auto-	self 自我的	autonomic 自动的
bi-	two 二	bilateral 双侧的
de-	remove 去掉	dehydration 脱水
di-	two 二	dioxide 二氧化物
dis-	apart or separation 分离	dislocation 脱臼, 脱位
dys-	painful, difficult 痛	dysuria 尿痛
endo-	inside, inner 内部的	endocrine 内分泌
erythro-	red 红色的	erythrocyte 红细胞
ex-	away from, outside 离开, 外部的	exogenous 外源的
ex-	out of 去掉	excision 切除
extra-	outside, beyond 在……之外	extracellular 细胞外的
hemi-	half 半个	hemisphere 半球
hyper-	excessive, above 超过, 在……之上	hyperglycemia 高血糖
hypo-	under 低于, 在……之下	hypodermic 皮下的
in-	not 不, 否	indigestion 消化不良
inter-	between 在……之间	intercostal 肋间的
intra-	within 在……之内	intravenous 静脉内的
leuc/o-	white 白色的	leucocyte 白细胞
macr/o-	large 巨大的	macrophage 巨噬细胞
micr/o	small 小的	microbiology 微生物
mono-	one 单, 一	monocellular 单细胞的
multi-	many 很多	multilateral 多边的
poly-	many 很多的	polyuria 多尿的
post-	behind, after 在……后面	postocular 眼球后的
pre-	before (time) 时间/位置之前的	premature 未成熟的

(Continued)

Prefix	Meaning	Example
re-	again 再	repolarization 复极
semi-	half 半	semipermeable 半透的
sub-	under 下面的	subcutaneous 皮下的
tri-	three 三	tricuspid 三尖(瓣)的

Suffixes

Suffix	Meaning	Example
-algia	pain 痛	arthralgia 关节痛
-ase	enzyme 酶	protease 蛋白酶
-crine	to secrete 分泌	endocrine 内分泌
-cyte	cell 细胞	erythrocyte 红细胞
-dynia	pain 痛	gastrodynia 胃痛
-ectomy	excision 切除	appendectomy 阑尾切除术
-emia	blood condition 血液情况	anemia 贫血
-gram	the record itself 图	electrocardiogram 心电图
-ian	expert 专家	clinician 临床医生
-iatrics	branch of medicine 医学分支	pediatrics 儿科学
-iatry	branch of medicine 医学分支	psychiatry 精神病学
-in	chemical substance 化学物质	heparin 肝素
-ism	condition 病症	alcoholism 酒精中毒症
-ist	expert 专家	dentist 牙医
-itis	inflammation 炎症	hepatitis 肝炎
-logist	one who studies and treats 专家	urologist 泌尿科医生
-logy	process of study 学科	biology 生物学
-lysis	destruction or break down 分解	hemolysis 溶血

(Continued)

Suffix	Meaning	Example
-megaly	enlargement 扩大,增大	splenomegaly 脾肿大
-odynia	pain 痛	glossodynia 舌痛
-oma	tumor 肿瘤	osteoma 骨肿瘤
-osis	an abnormal condition 异常情况	erythrocytosis 红细胞增多
-pathy	disease 病	nephropathy 肾病
-penia	deficiency 缺乏	leucopenia 白细胞减少症
-scope	instrument for viewing 观察用工具	cystoscope 膀胱镜
-scopy	process of examination 检测过程	bronchoscopy 支气管镜检查
-tomy	incision 切开术	gastrotomy 胃切开术
-uria	urine condition 与尿有关的情况	hematuria 血尿

* Following suffixes are used to make adjectives: -ac, -al, -ar, -ary, -ic, -ical, -ile, -ous, etc. For example, skeletal is the adjective of skeleton, muscular means muscle.

Terms Used to Describe the Human Body

Directional Terms

The location or direction of a structure in the body can be described with a group of special terms to avoid confusion. When these terms are employed, an individual must be in standard anatomical position: the body is standing, with arms on the side, feet together, and the head and palms facing forward (Fig. 1-2, Table 1-1).

Table 1-1 Directional terms

Directional terms	Meaning
anterior or ventral	front part of the body 前(腹)侧
posterior or dorsal	back part of the body 后(背)侧

(Continued)

Directional terms	Meaning
deep	away from the surface 深部
superficial	near the surface 浅表
proximal	near the point of attachment 近端
distal	far from the point of attachment 远端
inferior	below 下
superior	above 上
medial	near the midline of the body 近中线的
lateral	far from the midline of the body 远离中线的

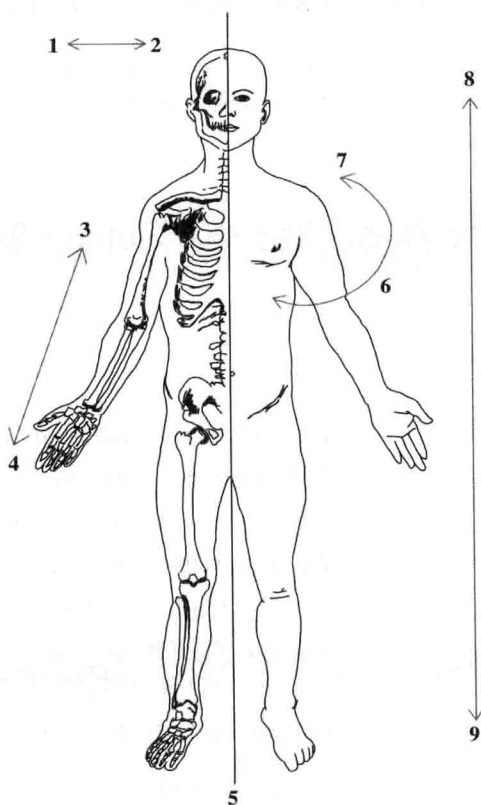


Fig.1-2 Directional terms

Body Planes

The body planes include the **sagittal plane**, the **transverse plane** and the **coronary plane**. These planes refer to the three directions in which the body can be cut. These terms are used to describe the exact location of body parts. The sagittal plane divides the body into right and left sides. The transverse plane divides the body into ventral (front) and dorsal (back) parts. The coronary plane cuts the body into upper and lower parts (Fig.1-3).

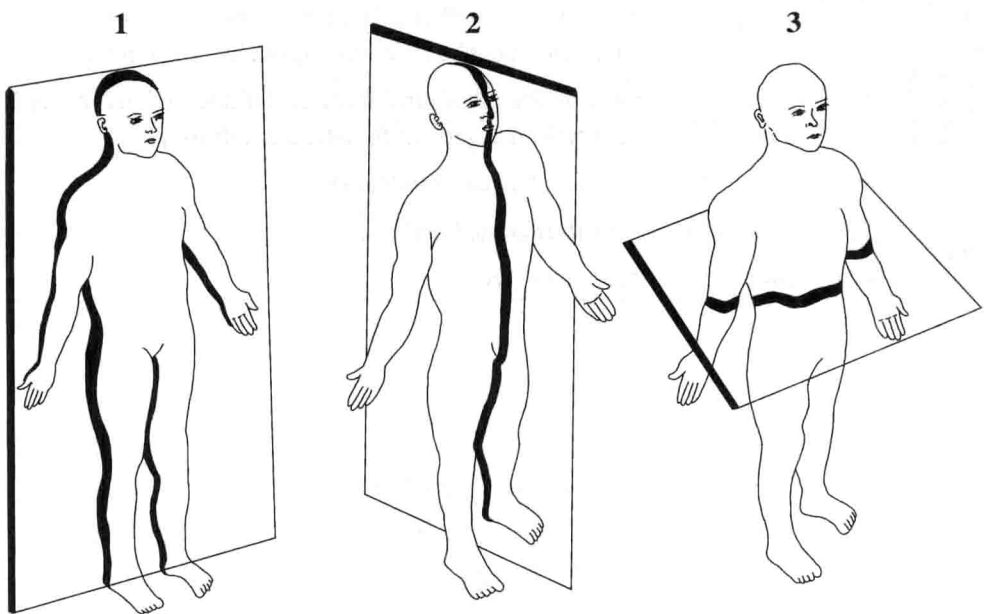


Fig.1-3 Body planes

Body Regions

The human body is composed of a head and neck, trunk, and limbs. The head contains the brain, eyes, ears, nose and mouth. The trunk includes the chest or thorax and abdomen. The abdomen can be further divided into four parts or quadrants: **right upper quadrant (RUQ)**, **left upper quadrant (LUQ)**, **right lower quadrant (RLQ)**, and **left lower quadrant (LLQ)** (Table 1-2, Fig. 1-4, Fig. 1-5). Limbs include the upper limbs (arms) and the lower limbs (legs).

Table 1-2 Body regions

Regions		Main Parts Included	
head and neck		brain, sense organs, larynx	
trunk	thorax (chest)	lungs, heart	
	abdomen	RUQ	the liver (right lobe), gallbladder, part of the pancreas and parts of the small and large intestines.
		LUQ	the liver (left lobe), stomach, spleen, part of the pancreas, and parts of the small and large intestines.
		RLQ	parts of the small and large intestines, right ovary and right fallopian tube in female, appendix, and right ureter.
		LLQ	parts of the small and large intestines, left ovary and right fallopian tube in female, and left ureter.
pelvis		Genitals, Urinary bladder (UB)	
limbs	upper extremities	arms, forearms, hands	
	lower extremities	thigh, legs, feet	

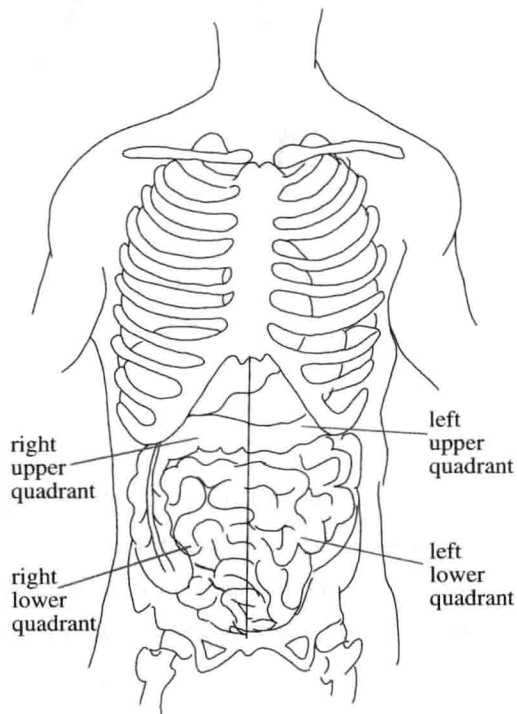


Fig.1-4 Quadrants of the abdomen

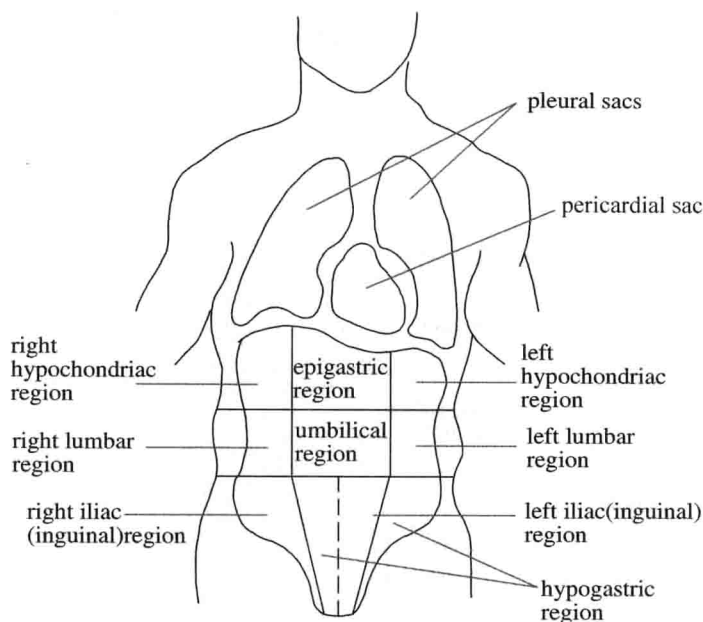


Fig.1-5 The cavities of the human body

Body Cavities

The human body consists of several body cavities, which contain and protect internal organs of the body (Fig. 1-6). Body cavities are divided into the **ventral cavity** and the **dorsal cavity** according to their locations. The ventral cavity includes the **thoracic cavity** (containing the heart and the lungs) and the **abdominopelvic cavity**. The abdominopelvic cavity can be further divided into the **abdominal cavity** and the **pelvic cavity**. The stomach, intestines, liver, gallbladder, pancreas, spleen, kidneys and ureters are all located in the abdominal cavity. The urinary bladder and internal reproductive organs of both males and females are in the pelvic cavity. The dorsal cavity contains the brain and the spinal cord, which are located in the **cranial cavity** and the **spinal cavity** respectively.