

供全国医学院校使用

医学英语新教程

A New Course of Medical English

王兰英 王玉安◎主编

上册



 復旦大學出版社

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《医学英语新教程》是本专科医学院校英语提高阶段的必修课程,旨在提升高年级医学生和研究生英文文献的阅读和翻译能力,熟知医学词汇的构词规律,为以后医学信息技术的交流和传播奠定良好的基础。

本教材编写的理念突出时代性和实用性。选材反映了医学科技新进展,体现现代医学理念,将基础医学和临床医学知识有机结合,使语言学习和巩固医学知识融为一体,学以致用。教材的内容和练习设计突出了阅读和翻译能力的培养,并注重医学写作和口语会话能力的提高。教材语言材料的选择难易适度,与大学英语阶段教学相衔接,在巩固语言基础知识的同时,立足于扩大医学词汇,攻破医学学术语难读、难记、难写的困扰。

本教材分上、下册两册。上册侧重基础医学知识,选材包括生理学、病理学、解剖学、免疫学、心理学等,共8个单元;下册侧重临床医学知识,包括内科学、外科学、儿科学、肿瘤学、老年病学等,共8个单元。所有材料选自国外英文版教材,语言规范,具有科学性和趣味性。单元主要内容包括 **Section A**:医学词汇构词讲解和练习;**Section B**:医学文献阅读,其中 **Passage 1** 是课堂教学的精读部分,配有丰富的习题以巩固课文语言知识;**Passage 2** 供学生课后阅读,配有 **True or False** 阅读理解题;**Passage 3 (Medical Conversation)** 为学生课堂 **Role Play** 使用,以提高医学口语表达能力。教材的附录1有各单元的生词汇总,并附有音标,方便朗读;附录2是英汉双解的常用医学缩略词,便于查阅。



本教材在教学过程中可以根据教学计划灵活安排,每单元可安排4学时左右,教师应指定一些内容让学生自主学习。

书中不妥之处请广大读者批评指正。

编者
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CONTENTS

Unit One Cytology / 001

Section A:	Medical Terminology	/ 001
Section B:	Readings	/ 007
Passage 1	Cell Structure and Cellular Transport Mechanisms	/ 007
Passage 2	Cell Injury	/ 020
Passage 3	Medical Conversation	/ 026

Unit Two Body Temperature and Metabolism / 030

Section A:	Medical Terminology	/ 030
Section B:	Readings	/ 032
Passage 1	Body Temperature and Metabolism	/ 032
Passage 2	Fever of Unknown Origin	/ 046
Passage 3	Medical Conversation	/ 057

Unit Three The Cardiovascular System / 060

Section A:	Medical Terminology	/ 060
Section B:	Readings	/ 063
Passage 1	The Heart	/ 063
Passage 2	Heart Disease	/ 075
Passage 3	Medical Conversation	/ 081

**Unit Four Human Physiology / 083**

Section A:	Medical Terminology	/ 083
Section B:	Readings	/ 085
Passage 1	Introduction of Physiology	/ 085
Passage 2	Hypoxia	/ 099
Passage 3	Medical Conversation	/ 108

Unit Five Stress and Diseases / 111

Section A:	Medical Terminology	/ 111
Section B:	Readings	/ 114
Passage 1	Stress	/ 114
Passage 2	Effects of Aging	/ 130
Passage 3	Medical Conversation	/ 137

Unit Six General Pathology / 139

Section A:	Medical Terminology	/ 139
Section B:	Readings	/ 141
Passage 1	Introduction of General Pathology	/ 141
Passage 2	AIDS & Other Virus Infections of Immune System	/ 154
Passage 3	Medical Conversation	/ 162

Unit Seven The Respiratory System / 165

Section A:	Medical Terminology	/ 165
Section B:	Readings	/ 168
Passage 1	Pathophysiology of Bronchiectasis	/ 168
Passage 2	Alternations of Pulmonary Function	/ 183
Passage 3	Medical Conversation	/ 192

Unit Eight Tumor Immunology / 197

Section A: Medical Terminology / 198

Section B: Readings / 201

Passage 1: Mechanism of Tumor Immunology / 201

Passage 2: Immunotherapy / 214

Passage 3: Medical Conversation / 221

Appendix / 224

I Glossary / 224

II Medical Abbreviations / 257

Cytology

Cell theory refers to the idea as cells are the basic unit of structure in every living thing. Development of this theory during the mid 17th century was made possible by advances in microscopy. This theory is one of the foundations of biology. The theory says that new cells are formed from other existing cells, and that the cell is a fundamental unit of structure, function and organization in all living organisms.

Credit for developing cell theory is usually given to three scientists: Theodor Schwann, Matthias Jakob Schleiden, and Rudolf Virchow. In 1839, Schwann and Schleiden suggested that cells were the basic unit of life.

The generally accepted parts of modern cell theory include: (1) All known living things are made up of one or more cells. (2) All living cells arise from pre-existing cells by division. (3) The cell is the fundamental unit of structure and function in all living organisms. (4) The activity of an organism depends on the total activity of independent cells. (5) Energy flow (metabolism and biochemistry) occurs within cells. (6) Cells contain hereditary information (DNA) which is passed from cell to cell during cell division. (7) All cells are basically the same in chemical composition in organisms of similar species.

Section A Medical Terminology

1. Objectives of Studying Medical Language

The study of medical terminology is the study of the parts that make up medical



words and the building of both a general vocabulary and a vocabulary for each of the body systems. A few linguistic concepts need to be understood before you can analyze the terms themselves. Most medical words are made from a combination of the following elements; the part of the word that we shall call the BASE (ROOT/STEM) because it contains the most fundamental meaning of that word, prefixes and suffixes, and vowels that join all these parts.

The BASE of a medical word is that word structure that is capable of combining with another base or a suffix to form a medical word that has meaning. The word base is what is left after all added elements are removed. This reduced part of the word contains its most fundamental meaning. The prefixes and suffixes alter the meaning of these bases.

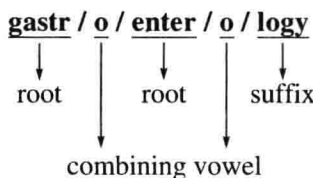
There are three major objectives to keep in mind as you study medical terminology.

1) To analyze words structurally. Your goal is to learn the tools of word analysis which will make the understanding of complex terminology easier. For example, we will learn to divide words into basic elements such as roots, suffixes, prefixes, combining vowels, and combining forms. With this knowledge of word construction and the meanings of the specific word elements, even the longest and the most complicated terms can be handled and understood.

You may or may not already know the meanings of the following terms, but this is how we will learn to analyze them structurally.

e.g. **gastroenterology**

胃肠学



The root **gastr** means stomach.

The root **enter** means intestines.

The suffix **-logy** means process of study.

The combining vowel **o** to link root to root and root to suffix.

The entire word (always reading the meaning of terms starting from the suffix back to the first part of the word) means then; the process of study of the stomach

and intestines.

Three important rules to remember as you study the medical language are:

- Read the meaning of medical terms from the suffix back to the first part of the word.

- Drop the combining vowel (usually *o*) before a suffix beginning with a vowel: **gastric** not **gastroic**.

- Retain the combining vowel between two roots in a word.

2) To correlate an understanding of word elements with the basic anatomy, physiology, and disease processes of the human body. For example, the term **hemat/o/ology** means the study of the blood. This term, however, will mean more to you as you learn the many different components of blood, how they function in the body, and the various disease conditions associated with blood.

3) To be continually aware of spelling and pronunciation problems.

Spelling is especially critical in the medical language because many words are pronounced alike but spelled differently and have entirely different meanings. For example:

Ileum: a part of the small intestine.

ilium: a part of the pelvic, hip, or bone.

It should be obvious as well that a misspelled word may give the wrong meaning to a diagnosis. For example:

hepatoma: tumor of the liver; an abnormal growth of liver cells.

hematoma: a mass or collection of blood under the skin.

2. Basic Word Structure

Studying medical words is very similar to learning a new language. The words at first sound strange and complicated although they may stand for commonly known English terms. The words **gastralgia**, meaning “stomach ache,” and **ophthalmologist**, meaning “eye doctor,” are examples.

These basic component parts of medical words are:

- Word base/root (foundation of the word): **gastr/ic** (**gastr** meaning stomach)

- Suffix (word ending): **gastr/itis** (**-itis** meaning inflammation)

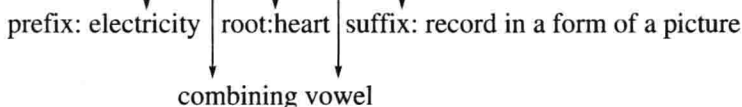
- Prefix (word beginning): **trans/gastric** (**trans** meaning across)



• **Combining vowel:** a vowel (usually *o*) linking the root to the suffix or to another root, such as combining vowel *o* in electr/o/ cardi/o/ gram. The combining vowel doesn't have meaning itself. It serves as the link between two roots or a root and suffix.

e.g. **electrocardiogram** electr / o / cardi / o / gram

心电图



A. Study the Following Combining Forms

Combining Form	Meaning	Example and Its Meaning
chol/e-	bile	cholangiolitis; inflammation of the small bile ducts 胆小管炎
chromo-	color	chromosome; rob-shaped structure in the nucleus of a cell, formed of DNA which carries the genes 染色体
cyto-	cell	cytobiology; a scientific discipline that studies cells 细胞生物学
gluco-	sweetness	glucolysis; the metabolic pathway that converts glucose into pyruvate 糖酵解
hepato-	liver	hepatitis; inflammation of the liver 肝炎
lipo-	lipid	lipoprotein; any of a group of conjugated proteins in which at least one of the components is a lipid 脂蛋白
lyo-	to dissolve	lyolysis; the formation of an acid and a base from the interaction of a salt with a solvent 液解 (作用)
myo-	muscle	myocardial; of or relating to the muscular tissue of the heart 心肌的
ov/-ovar-	ovary	ovariotomy; surgical removal of an ovary or a tumor in an ovary 卵巢切除术; 卵巢肿瘤切除术

phag/o-	eating	phagocytosis: destruction of bacteria cells and foreign bodies by phagocytes 吞噬作用
pharmaco-	drug	pharmacokinetic: property of a drug which has an effect over a period of time 药物代谢动力学
phospho-	phosphorus	phospholipid: compound with fatty acids, which is one of the main components of membranous tissue 磷脂
splen/o-	spleen	splenalgia: pain over the region of the spleen 脾(神经)痛
vago-	vagus nerve	vagotomy: operation to cut through the vagus nerve 迷走神经切断术

B. Study the Following Prefixes

Prefix	Meaning	Example and Its Meaning
anti-	against	antigen: a substance/molecule that when introduced into the body triggers the production of an antibody by the immune system 抗原
auto-	self	autocrine: a cell secretes a hormone or chemical 自分泌
dys-	bad	dysfunction: any disturbance or abnormality in the function of an organ or a part of the body 功能障碍
endo-	within	endocrine: of or denoting endocrine glands or their secretions 内分泌的
extra-	beyond	extracellular: situated or happening outside a cell or cells 细胞外的
homo-	same	homotype: that which has the same fundamental type of structure with something else 同型
hyper-	over, high	hypertension: a condition in which your blood pressure is chronically or suddenly elevated 高血压
hypo-	under, low	hypotension: unusually low blood pressure 低血压
intra-	within	intracellular: situated or occurring inside a cell or cells 细胞内的
macro-	large	macrophage: any large phagocytic cell occurring in the



		blood, lymph, and connective tissue of vertebrates 巨噬细胞
micro-	small	microanalysis: the chemical analysis of tiny samples of a substance 微量分析
multi-	many/much	multicentric: the same pathological lesion occurring in many different sites at the same time 多发源点的
oligo-	few/little	oligosaccharide: a carbohydrate that consists of a relatively small number of monosaccharides 低聚糖
pseudo-	false	pseudocyst: false cyst 假囊肿

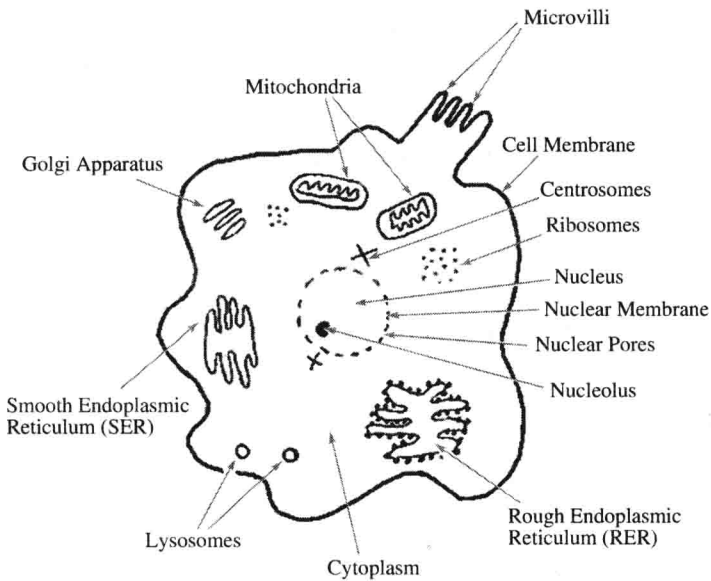
C. Match the Following Phrases with Their Medical Words

Description	Medical word
1. pertaining to a condition present at birth	a. cytoplasm
2. the signs of a disease	b. complication
3. the determination of the outcome of a disease	c. oligosaccharide
4. compound with fatty acids, which is one of the main components of membranous tissue	d. lipoprotein
5. a secondary disorder following a previous disorder	e. congenital
6. substance inside the cell membrane, which surrounds the nucleus of a cell	f. symptom
7. an increase in cell or organ size	g. endoplasm
8. protein which combines with lipids and carries them in the bloodstream and lymph system	h. prognosis
9. rod-shaped structure in the nucleus of a cell, formed of DNA which carries the genes	i. pinocytosis
10. a carbohydrate whose molecules are composed of a relatively small number of monosaccharide units	j. phospholipid
11. inner layer of the cytoplasm, which is less dense than the rest	k. chromosome
12. process by which a cell surrounds and takes in fluid	l. hypertrophy

Section B Readings

Passage 1

Cell Structure and Cellular Transport Mechanisms



1 All living organisms are made of cells and cell products. This simple statement, called the Cell Theory, was first proposed over 150 years ago. You may think of a theory as a guess or hypothesis, and sometimes this is so. But a theory is actually the best explanation of all the available evidence. All of the evidence science has gathered so far supports the validity of the Cell Theory.

2 Cells are the smallest living subunits of a **multicellular** organism such as a human being. A cell is a complex arrangement of the chemicals; is living; and carries out specific activities. Microorganisms, such as **amoebas** and bacteria, are single cells which function independently. Human cells, however, must work together, and function

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interdependently. Homeostasis depends upon the contributions of all of the different kinds of cells.

3 Human cells vary in size, shape, and function. Most human cells are so small they can only be seen with the aid of a microscope, and are measured in units called **microns**. One exception is the human **ovum** or egg cell, which is about one millimeter in diameter, just visible to the unaided eye. Some nerve cells, although microscopic in diameter, may be quite long. Those in our arms and legs, for example, are at least two feet long.

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4 With respect to shape, human cells vary greatly. Some are round or spherical, others **rectangular**, still others irregular. White blood cells even change shape as they move.

Cell Structure

5 Despite their many differences, human cells have several similar structural features: a cell membrane, **cytoplasm** and cell **organelles**, and a nucleus. Red blood cells are an exception since they have no nuclei when mature. The cell membrane forms the outer boundary of the cell, and surrounds the cytoplasm, organelles, and nucleus.

25

Cell Membrane

6 Also called the plasma membrane, the cell membrane is made of **phospholipids**, **cholesterol**, and proteins. The phospholipids permit lipid-soluble materials to easily enter or leave the cell by **diffusion** through the cell membrane. Cholesterol provides greater stability to the membrane. The proteins have several functions: some form pores or openings to permit passage of materials; others are enzymes that also help substances enter the cell. Still other proteins, with **oligosaccharides** on their outer surface, are antigens, markers that identify the cells of an individual as "self". And yet another group of proteins serves as receptor sites for hormones. Many hormones bring about their specific effects by first bonding to a particular receptor on the cell membrane. This bonding then triggers chemical reactions within the cell membrane or the interior of the cell.

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7 Although the cell membrane is the outer boundary of the cell, it should already be apparent to you that it is not a static or wall-like boundary, but rather an active, dynamic one. The cell membrane is selectively permeable, that is, certain substances are permitted to pass through and others are not. 45

Nucleus

8 With the exception of mature red blood cells, all human cells have a nucleus. The nucleus floats in the cytoplasm, and is bounded by a double-layered nuclear membrane with many pores. 50

9 A **nucleolus** is a small sphere made of DNA, RNA, and protein. The nucleoli form a type of RNA called ribosomal RNA, which becomes part of **ribosome** (a cell organelle) and is involved in protein synthesis. 55

10 The nucleus is the control center of the cell because it contains the **chromosomes**. The 46 chromosomes of a human cell are usually not visible; they are long threads called **chromatin**. When a cell divides, however, the chromatin coils extensively into visible chromosomes. Chromosomes are made of DNA and protein. Remember from our earlier discussion that the DNA is the genetic code for the characteristics and activities of the cell. Although the DNA in the nucleus of each cell contains all of the genetic information for all human traits, only a small number of genes are actually active in a particular cell. These active genes are the codes for the proteins necessary for the specific cell type. 60 65

Cytoplasm and Cell Organelles

11 Cytoplasm is a watery solution of minerals, gases, and organic molecules that is found between the cell membrane and the nucleus. Chemical reactions take place within the cytoplasm, and the cell organelles are found here. Cell organelles are **intracellular** structures, often bounded by their own membranes, which have specific roles in cellular functioning. 70

12 The **endoplasmic reticulum** (ER) is an extensive network of membranous tubules that extend from the nuclear membrane to the cell membrane. Rough ER has numerous ribosomes on its surface, while 75