

- 大学英语拓展课程系列
- 教育部推荐使用大学外语类教材

拓展课程



Medical English Course

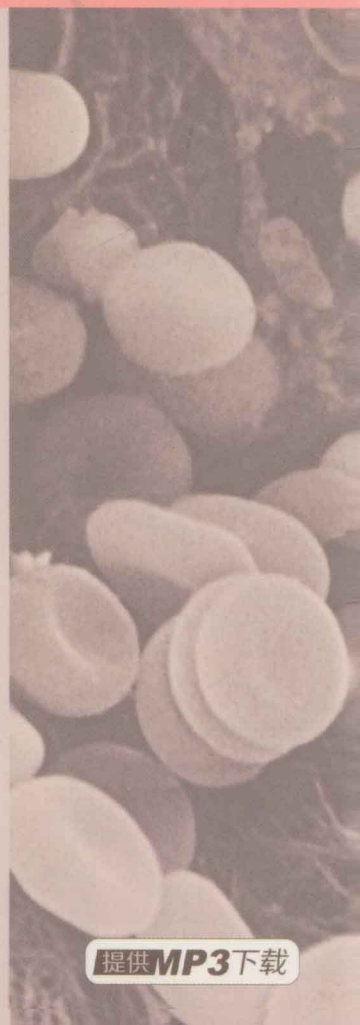
Biological Medicine

医学英语教程

生物医学

学生用书

华仲乐 主编



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前言

本书的第一版是根据国家教育部对大学生提出的掌握专业英语的要求,在世纪之交编写的,因此,书名为《新世纪医学英语教程》(生物医学)。十多年过去了,我们欣喜地看到,这本教材得到广大师生的厚爱,仍有很强的生命力。为了进一步提升教材的质量,以期更好地为今日的师生服务,我们根据多年使用的实际情况,对《新世纪医学英语教程》进行修订。

我们在第一版的前言中指出,作为专业英语教材,首先应当与医学教学的实际相结合。当前的医学发展,尽管有着日新月异的变化,生物医学仍然是医学教学的主线。修订后的教材更有代表性地涉及生物医学的各个主要领域,从细胞、组织到人体系统,循序渐进,推进到当前医学所特别关注的营养、微生物、肿瘤和遗传等前沿阵地。为了兼顾学生继续提高英语语言水平和熟悉医学英语的双重需要,兼顾对医学知识的了解和阅读专业文献的不同要求,本书每个单元均包括一篇概述性的文章(Reading A)和一篇专业性较强的文章(Reading B)。前者以轻松、活泼的文体介绍一般的医学内容,后者以严谨的科技语言论述具体的医学问题,两者之间构成一种内容一致、语言风格互相补充的关系。课文有一定长度,从阅读量上保证提高阅读能力的基本需要。为了便于课文内容的讲授和理解,修订本增加了一些插图和表格,使教材更具亲和力和时代感。

本书的练习安排突出在听、说、读、写、译等各个方面的全面要求:设有阅读理解、词汇运用、听说互动及英汉互译等练习项目;根据医学英语词汇的特点,专设构词基础这一项目,以使学生在词汇方面有所突破。每个练习项目紧扣课文,既是对课文从内容到形式的复习,又是课文内容的有机延伸。比如,阅读理解练习有选择、是非、简答等形式,有针对性而不繁琐;词

汇运用部分所用例句均与医学内容相关,为学生提供运用重点词汇的范例;听说互动以听写为基础,材料由浅入深,要求从易到难为学生逐步掌握听说能力打好基础;英汉互译突出对医学英语常用语法结构的运用,这也是医学英语写作最基本、最实际的训练。构词基础简明扼要地介绍医学英语构词的基本规则,并提供最常用的词素和实例。练习编写考虑内容的实际用途,学生的实际水平,有的放矢,有根有据。

由于各医学院校和师生的情况各不相同,我们建议使用本教材的教师根据具体情况对内容酌情选用。我们相信,经过十余年实践的医学英语教师完全有能力用好本书,为提高学生的医学英语实际能力做出贡献。尽管本书已经过修订完善,我们仍然期待使用本书的教师和同学提出宝贵的意见和建议,使本书在编者和使用者的共同努力下不断更新,处于时代的前列。

本书的修订由华仲乐教授、丁年青教授和胡继岳教授主持。修订过程得到诸多关心医学英语的同仁的帮助,更得到出版社编辑的大力协助,在此表示衷心感谢。

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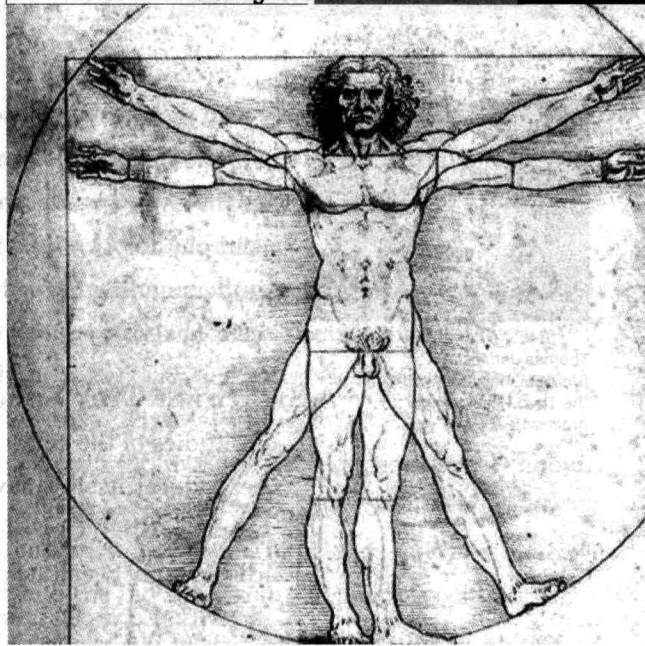
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The Human Figure has always served as a subject for artists. This sketch, by Leonardo da Vinci, was made to study proportions.

Unit 1

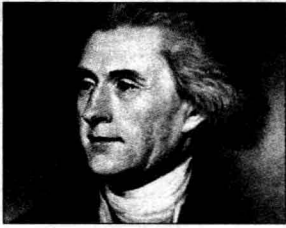
Reading A

The Human Complex — A Never-failing Source of Wonderment

"In my view," wrote Thomas Jefferson in 1814, "no knowledge can be more satisfactory to a man than that of his own frame, its parts, their functions and actions." Distinguished thinkers before and since Jefferson have held this belief, but curiously, it is not one that the average person wholeheartedly shares.

Man's attitude toward his own body — his single most precious possession — is decidedly ambivalent. At one and the same time he is fascinated by it and fearful of it, partly in echo of ancient taboos, partly in the conviction that the body is too complicated to understand.

The possible approaches to a study of the body are legion. To the cynic, the body is no more than a tenement of clay; to the poet, a palace of the soul; to the physician, an all-too-ailing hulk. The psychiatrist sees it as a housing for the mind and personality. The geneticist sees it as a perpetuator of its own kind. The biologist sees it as an organism which can alter the future as a result of the experience of the past.



Thomas Jefferson
(Political Philosopher &
the Third President of
America)

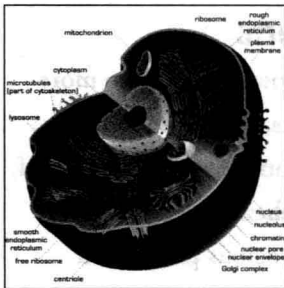
All the specialized scientific views of the body are valid. All, however, must start from the same premise: an awareness of the body's basic structure and functions — its anatomy and physiology. And the bedrock principle of our present understanding of the body is that all living matter is composed of cells basically similar in structure and function.

A Swarm of Tiny Specialists

Studies of the cell — what it is, what it does and how it reproduces itself — have revealed it to be a fantastically complex world in itself. One of the major wonders of the cell is the disparity between its minuteness and the prodigiousness of its activity. Each cell is so tiny that millions of them may be found in a half-inch cube of human body tissue. Yet each comprises an almost unimaginably busy chemical laboratory with a highly ordered division of labor.

The cell has two main parts: a nucleus, containing the genetic material deoxyribonucleic acid (DNA), and a surrounding semifluid cytoplasm. Bounding the cytoplasm is the cell membrane, which keeps the cell contents in and undesirable material out, yet permits passage of both proper nutrients and wastes. The nucleus — cell headquarters — governs the major activities of the cytoplasm; its finest hour, however, comes at reproduction time, when chromosomes containing DNA split. It is in the cytoplasm that the cell's day-to-day business is carried on. Each of its various components, or organelles, is a specialist of surpassing skill. One type breaks down the food given entry by the cell membrane and converts it into energy. Another provides the site for the synthesis of protein — along with reproduction, a major function of most cells. Another packages the manufactured protein for transport wherever needed in the body.

To operate efficiently, the cell thus requires specific help from the body as a whole: food to provide raw material for the release of energy, oxygen to help break down the food, water to transport



The Organelles in an
Animal Cell

inorganic substances like calcium and sodium. Once its needs are satisfied, the cell itself provides the intricate mechanism for maintaining the balance essential to keep it in kilter – in short, to keep the body alive and healthy.

Cells share certain common characteristics, but most of the body's cells develop specialized features and abilities. The cells that form bone collect calcium salts; these cells are locked together in solid chunks, immobile. By contrast, the white cells of the blood, which fight off invading bacteria, roam freely about the body. Other cells make special chemicals for the body's use – the hormones produced in the endocrine glands, or the digestive enzymes poured into the intestine from the pancreas. Still other cells form the incredibly thin membranes in the lung or kidney that permit the filtering or exchange of dissolved body fuels and wastes.

According to their particular features and their intended functions, cells form different types of tissue: bone, muscle, blood, nerve tissue, connective tissue and epithelium. The cells that make up each of these are not identical, but belong together by reason of underlying similarities.

For example, the cells of bowel muscle are rounder and shorter than the long, spindly cells of leg muscle, yet both kinds contract forcefully when stimulated by a chemical or electrical impulse. The cells that make up bone tissue differ sufficiently to make brittle bone in one place and spongy, resilient cartilage in another, yet all store the salts which give bone its calcified structure. The loose network of cells that supports the fatty padding under the skin and the dense capsule of cells that holds the knee joint in place are both forms of connective tissue. All nerve cells, varied as they may be, receive and conduct electrochemical impulses. All blood cells, varied as they may be, float freely in a circulating fluid, plasma.



Different Types of Epithelium

The most versatile cells are those of the various kinds of

epithelium. Forming the body's external coating — the skin — epithelial cells protect things inside from things outside. They also form the lining of the mouth, stomach and bowel, the inner surface of blood vessels, and the membranes that permit the lungs to breathe and the kidneys to excrete. Over the cornea of the eye they become a sort of transparent windshield, to permit the free entry of light to the retina. Other epithelial cells secrete a protective mucus to keep intestines, lungs and nasal passages from drying out. Still others manufacture powerful hormones that regulate the body's chemical reactions.

Interlock and Overlap

The tissues comprise the structural materials of the body's organ systems. These, in turn, may be compared to a number of corporations with interlocking directorates. Indeed the interdependence of the organ systems has led to some disagreement over how many there are. The venerable Gray's Anatomy — used by medical students for more than 100 years — lists 10 systems: nervous, digestive, respiratory, vascular, urogenital, endocrine, skeletal, muscular, joints and external covering. Other authorities categorize joints and bones together because they are so closely related, or separate the sense organs from the nervous system, or lump all the internal organs — respiratory, digestive, endocrine and urogenital — under the resounding title of splanchnological system.

Far more important than their labels is the fact that the systems interact; the breakdown of one can damage or destroy the others. Ideally, of course, all systems would do their jobs perfectly all the time. Unfortunately, nature permits no such perfection. All of them suffer from malfunctions at one point or another. The wonder is that breakdowns are the exception rather than the rule.

Within the healthy body itself there is no absolute criterion for "normal". Variations occur not only between individuals, but within the individual himself, sometimes from hour to hour, depending on his activity at the time. Doctors privately joke that even a baboon could get through medical school if he learned to say, with enough profundity, "It varies." One of the practitioner's major headaches is to determine whether a patient's condition reflects an actual illness or merely a variation within a broad range of normal. The breadth of this range may be indicated by a few statistics. The weight of the healthy heart

is considered to be anywhere between 240 and 360 grams; the weight of the healthy liver, between 1,000 and 2,000 grams; the level of sugar in the blood, between 70 and 130 milligrams.

Vocabulary

complex /'kɒmpleks/ <i>n. & a.</i>	复合体; 复杂的	称DNA)
ambivalent /æm'brɪvələnt/ <i>a.</i>	怀有矛盾心情的	cytoplasm /'saɪtəʊplæzəm/ <i>n.</i> 细胞质, 细胞浆
taboo /tə'buː/ <i>n.</i>	禁忌	membrane /'membren/ <i>n.</i> 膜
conviction /kən'vɪkʃən/ <i>n.</i>	信念	headquarters /hed'kwɔːtəz/ <i>n.</i> 司令部, 总部
approach /ə'prəʊtʃ/ <i>n.</i>	方式, 方法	chromosome /'krəʊməsəʊm/ <i>n.</i> 染色体
legion /'liːdʒən/ <i>a.</i>	许多, 大量	organelle /ɔːgə'nel/ <i>n.</i> 细胞器
cynic /'sɪnɪk/ <i>n.</i>	愤世嫉俗者	surpass /sə'pɑːs/ <i>v.</i> 超过
tenement /'tenəmənt/ <i>n.</i>	住房, 廉价公寓	synthesis /'sɪnθɪsɪs/ <i>n.</i> 合成
all-too-ailing <i>a.</i>	极易生病的	sodium /'səʊdɪəm/ <i>n.</i> 钠
hulk /hʌlk/ <i>n.</i>	船身; (笨重的) 躯体	intricate /'ɪntrɪkɪt/ <i>a.</i> 错综复杂的
psychiatrist /saɪ'kaɪətrɪst/ <i>n.</i>	精神科医生, 精神病学家	kilter /'kɪltə/ <i>n.</i> 正常状态
geneticist /dʒɪ'netɪsɪst/ <i>n.</i>	遗传学家	chunk /tʃʌŋk/ <i>n.</i> 厚片, 大块
perpetuator /pə'petʃueɪtə/ <i>n.</i>	使……永存的人或物	immobile /ɪ'məʊbaɪl/ <i>a.</i> 不动的, 不活动的
specialized /'speʃəlaɪzd/ <i>a.</i>	专业的, 专用的; 有……专长的	hormone /'hɔːməʊn/ <i>n.</i> 激素
valid /'vælɪd/ <i>a.</i>	有根据的	endocrine /'endəʊkraɪn/ <i>a.</i> 内分泌(腺)的
premise /'premɪs/ <i>n.</i>	前提	gland /glænd/ <i>n.</i> 腺, 腺体
anatomy /ə'nætəmi/ <i>n.</i>	解剖学	digestive /dɪ'dʒestɪv/ <i>a.</i> 消化的
physiology /fɪzɪ'ɒlədʒɪ/ <i>n.</i>	生理学	enzyme /'enzaim/ <i>n.</i> 酶
bedrock /'bedrɒk/ <i>n.</i>	基石; 基本事实	intestine /ɪn'testɪn/ <i>n.</i> 肠
swarm /swɔːm/ <i>n.</i>	一群	pancreas /'pæŋkriəs/ <i>n.</i> 胰(腺)
disparity /dɪ'spærɪti/ <i>n.</i>	不同, 不等	dissolve /dɪ'zɒlv/ <i>v.</i> (使)溶化
minute /maɪ'njuːt/ <i>a.</i>	细微的	connective /kə'nektɪv/ <i>a.</i> 起连接作用的
prodigious /prə'dɪdʒəs/ <i>a.</i>	巨大的, 惊人的	epithelium /'epɪθiːliəm/ <i>n.</i> 上皮
nucleus /'njuːklɪəs/ <i>n.</i>	核; 细胞核	underlying /ˌʌndə'laɪɪŋ/ <i>a.</i> 构成潜在原因的; 成为基础的
deoxyribonucleic acid	脱氧核糖核酸(简	bowel /'bəʊəl/ <i>n.</i> 肠
		spindly /'spɪndli/ <i>a.</i> 细长的
		brittle /'brɪtl/ <i>a.</i> 易碎的, 脆的

spongy /'spʌndʒɪ/ a.	海绵似的；疏松多孔的	overlap /əʊvə'leɪp/ v.	重叠
resilient /rɪ'zɪliənt/ a.	有弹性的；适应能力强的	directoriate /dɪ'rektəri/ n.	董事会，理事会；董事职位
cartilage /'kɑ:t(i)lɪdʒ/ n.	软骨	venerable /'venərəbl/ a.	令人崇敬的
padding /'pædɪŋ/ n.	垫料	respiratory /rɪ'spaɪərətəri/ a.	呼吸的
versatile /'vɜ:sətaɪl/ a.	多才多艺的；有多种能力的	vascular /'væskjulər/ a.	血管的；脉管的
external /ɪk'stɜ:nl/ a.	外部的	urogenital /juərəʊ'dʒenɪtl/ a.	泌尿生殖的
lining /'laɪnɪŋ/ n.	衬里；衬料	skeletal /'skelɪtl/ a.	骨骼的
excrete /ɪk'skri:t/ v.	排泄	categorize /'kætɪgəraɪz/ v.	把……归类
cornea /'kɔ:niə/ n.	角膜	resounding /rɪ'zaʊndɪŋ/ a.	响亮的
transparent /træns'pærənt/ a.	透明的	splanchnological	
windshield /'wɪndʃi:ld/ n.	挡风玻璃	/splæŋknə'lɒdʒɪkəl/ a.	内脏学的
retina /'retɪnə/ n.	视网膜	malfunction /mæl'fʌŋkʃən/ n.	故障；疾病
secrete /sɪ'kri:t/ v.	分泌	absolute /'æbsəlu:t/ a.	绝对的
mucus /'mju:kəs/ n.	粘液	criterion /kraɪ'tɪəriən/ n.	标准
nasal /'neɪzl/ a.	鼻的	variation /veəri'eɪʃən/ n.	变动；变化
interlock /ɪntə'lɒk/ v.	连锁；互联	baboon /bə'bu:n/ n.	狒狒
		profundity /prə'fʌndɪti/ n.	深奥；深奥的事物

I. Comprehension Questions

A. Based on the information in the text, choose the best answer to each of the following questions.

1. *What attitude have great thinkers taken toward the human body?*

- A) They have been curious about its functions and actions.
- B) They have been satisfied with the little knowledge known to man.
- C) They have shared the same belief with average persons.
- D) They have regarded knowledge of the human body as taboos.

2. *The second paragraph implies that ____.*

- A) all people basically take the same approach to the study of the body
- B) all approaches toward the study of the body are scientific
- C) a valid study of the body requires a sound knowledge of anatomy and physiology

D) anatomy and physiology are all we need to know to understand the body

3. The studies of the cell probably do not include ____.

- A) its structure
- B) its functions
- C) its perpetuation
- D) its origin

4. What is true of the cell membrane?

- A) It is one of the two main parts of the cell.
- B) It is surrounded by the cytoplasm.
- C) It forms an impassable wall to all materials.
- D) It only allows certain materials in and out.

5. Organelles are involved in all of the following cell activities except ____.

- A) the changing of food into energy
- B) the reproduction of cells
- C) the making of protein
- D) the provision of nutrients

6. Which of the following is probably a common characteristic of cells?

- A) They are highly mobile.
- B) They function when basic needs are met.
- C) They make special chemicals.
- D) They have extremely thin membranes.

7. Cells making up one type of tissue ____.

- A) are identical
- B) are similar in appearance
- C) share certain features and perform similar functions
- D) receive and conduct impulses

8. Different categorizations of organ systems are mentioned to show that ____.

- A) organ systems are often dependent on each other
- B) organ systems operate in different ways
- C) Gray's Anatomy is no longer used by medical students
- D) organ systems should be organized under new titles

B. Based on the last two paragraphs, decide whether the following statements are true or false.

- | | T | F |
|--|--------------------------|--------------------------|
| 1. The classification of organ systems is more important than their interaction. | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. As systems interact, the breakdown of one system can seriously affect the others. | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Although problems may occur in all organ systems at times, they usually work well enough most of the time. | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Depending on a person's activity at a given time, variations that occur within a range can be quite normal. | <input type="checkbox"/> | <input type="checkbox"/> |

II. Words to Remember and Use

A. Complete the following sentences with proper words from the box, changing forms where necessary.

*ambivalent, conviction, approach, disparity, underlying,
resilient, versatile, categorize, transparent, criterion*

- They will soon introduce a more _____ decision-making process.
- Rare cancers that occur in AIDS patients are the clinical indicators of the _____ immune deficiency due to HIV.
- Many factors, such as beliefs about health and disease, religious _____ and even consideration of prestige, influence the selection and preparation of food.
- Some researches have found a striking _____ between the limited damage to the brain and total destruction of the mind.
- Prevalence estimates of overweight vary and depend on the _____ used.
- The bones of women are generally lighter and smaller than those of men, while children's bones are more _____ than those of adults.
- When _____ on the basis of their particular features and intended functions, muscles are divided into the voluntary and the involuntary.

8. Different _____ to personal health can lead to different behaviors.
9. Many Americans are _____ about the high-sodium and high-fat convenience foods; they love their taste, but are obviously worried about their undesirable effects on health.
10. Aspirin is such a _____ drug that it has been used to alleviate many disorders, dangers and discomforts.

B. Suggest as many adjectives as you can that give qualitative descriptions of different tissues.

For example:

- | | |
|--------------------------|--------------------------------|
| 1. <u>brittle (bone)</u> | 2. <u>transparent (cornea)</u> |
| 3. _____ | 4. _____ |
| 5. _____ | 6. _____ |
| 7. _____ | 8. _____ |
| 9. _____ | 10. _____ |

III. Listen and Respond

A. Listen to the short talk carefully, and fill in the blank spaces with the information you get from the talk. (Write down the main points if the missing parts are long.)

Epithelial Tissue

Epithelium forms a protective covering for the body and all its organs; in fact it is the main tissue of the outer layer of the skin. It forms the lining of _____ the blood vessels, the uterus and other body cavities.

Epithelium has _____, and the cells of which it is composed vary accordingly. For instance, the cells of some kinds of epithelium produce secretions, such as mucus, digestive juices, perspiration and other substances. The digestive tract is lined with a special kind of epithelium whose cells _____. The air that we breathe passes over yet another form of epithelium that lines the respiratory tract. This lining secretes mucus and is also provided with tiny hair-like projections called cilia. Together,