



普通高等教育“十二五”规划教材
医学英语基础课程系列教材

医学英语基础教程 教学参考

程天凤



廖荣霞 主编



内附光盘



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内 容 简 介

本书是“医学英语基础课程系列教材”中《医学英语基础教程》的配套教学参考书。本书包括《医学英语基础教程》中各单元的习题参考答案、视(音)频录音文稿、课文译文、词汇补充信息等内容,为课堂教学与自主学习提供必要的参考资料。为适应多媒体教学的需要,方便授课教师备课,本书附赠一张光盘,内容为 PowerPoint 格式的多媒体课件。

本书既可作为讲授《医学英语基础教程》教师的教学参考书,也可作为自学者学习指南。

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本书使用的缩写和符号

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本书使用的缩写和符号

Abbreviations and Symbols Used in the Book

- abbr.* abbreviation 缩写
- BrE* British English 英式英语
- [C] countable nouns 可数名词
- [U] uncountable nouns 不可数名词
- idm idiom 习语
- pl.* plural 复数
- sing.* singular 单数
- [pl.] plural nouns 复数名词, 即总是复数或表示复数意义的名词
- [sing.] singular nouns 单数名词, 即总是单数形式的名词
- sb somebody 某人
- sth something 某事物
- ~ replaces the headword of an entry 代替词目
- shows new part of speech in an entry 表示词条中新的词类



序 Preface

外语(主要是英语),既是求知、交流的工具,又是系统、精深的学问。一个人的知识、能力、素养包含很多内涵,而外语水平是其中的重要方面。对医学院校本科生、研究生而言,英语也就成为重要的课程。对医学生的英语教学是一个系统工程,它包括“公共英语”课程(在学生高中学习奠定的基础上进一步提高公共英语水平)、“医学英语”课程(着重教授医学英语的基础知识并培养医学英语综合能力)以及从基础到临床各课程中涉及的与学科相关的医学英语(结合本学科内容讲授大量专业词汇、惯用语、常用语法,以至进行双语教学或全英语教学)。学生从这些不同阶段、不同环节、不同领域得到系统而深入的英语培训。在这个系统工程中,“医学英语”极其重要,不可或缺。医学英语作为专门用途英语(English for Specific Purposes, ESP)中科技英语的一个分支,是医学领域从业人员在国际交流和涉外职业活动中运用的专业英语。要掌握“医学英语”,医学专业人员需要在从业以前,在学校里得到培训和提高。他们需要利用“医学英语”这一工具进行英语资料(文献)阅读,从而不断获得专业进展信息,增长知识,掌握动态,拓宽视野,指导工作;进行写作、报告、交流、科技论文和成果答辩,以体现劳动价值、学术水平和知识产权。一个医学专业人员的“医学英语”水平反映和影响他(她)的学术成长,一所医科大学科技、师资队伍“医学英语”的群体水平,也反映和影响这所大学的整体发展。因此,必须从多方面大力加强对医学生和医学专业人员的“医学英语”教学与培训。

我们第三军医大学除“公共外语教研室”外,还专设了“医学英语教研室”。对医学英语教师的核心和特殊要求是具有生物医学和英语语言学的双重、复合型知识结构和能力,可说是“人才难得”。可喜的是,有些高校已经开始有计划地培养这样的人才了。

进行“医学英语”教学,必须以具有较好学术性和应用性的系列教材为依据。“医学英语基础课程系列教材”以第三军医大学医学英语教研室教师为主要编写力量,主编廖荣霞教授是我校培养的具有医学博士学位的英语教师。这支编写队伍凭借自身长期的教学实践经验,以极大的努力,出色地完成了编写工作。该“系列教材”以《医学英语基础教程》、《英文生物医学文献阅读教程》和《英文SCI生物医学论文写作教程》为主干教材,并辅以词汇、泛读、学术交流医学英语等专项训练教材。三部

主干教材各有侧重,相互衔接,逐步提高。主干教材和辅助教材共同为医学院校本科生、硕士研究生、博士研究生以及教师们提高医学英语水平,提供了必备而重要的教与学的依据和基础。我作为第三军医大学的一名老教师,谨对主编和参编者的辛劳,致以诚挚的谢意和敬意,并欣然作序。

中国工程院医药卫生学部与工程管理学部院士
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2012年3月于重庆



前 言

Foreword

《医学英语基础教程教学参考》是第三军医大学“医学英语基础课程系列教材”中《医学英语基础教程》(以下简称《基础教程》)的配套教学参考书,以《基础教程》为编写依据。

《基础教程》是基于“需求分析”编写的一本本科生医学英语课程配套教材,在内容编排上分为 Human Anatomy, Histology and Embryology, Biochemistry and Molecular Biology, Physiology, Medical Immunology, Medical Microbiology, Pathology 七个主题式教学单元,各单元主体均包含 Intriguing Picture, Lead - In, Preparation, Reading, Video Watching and Speaking, Writing 和 Autonomous Learning 七个部分。

本书的编写目的在于为使用《基础教程》的教学参与者(即师生双方)以及自学者提供必要的基本参考资料。本书分为与《基础教程》一致的七个单元,各单元包括 Key to the Exercises, Translation of the Texts 和 Supplementary Information on the New Words 三个部分,分别提供《基础教程》各单元相关部分的习题参考答案与视(音)频录音文稿、课文译文及词汇补充信息等内容。这将便于教师备课,不同学习进度的学生预习、复习时对教学内容和重点、难点有更为准确的理解和把握。随书附赠的光盘内容为各单元的分课时(每单元 8 个课时)多媒体课件(PowerPoint 格式)。这些课件适应多媒体教学的要求,为教师合理分配教学重难点、安排教学内容、组织教学活动提供了基本的参考。本书是使用《基础教程》为教材的师生必要的教学参考书,更是《基础教程》自学者确保学习效果、提高学习效率的必备学习参考资料。

“医学英语基础课程系列教材”受到第三军医大学“重点建设教材”专项基金的资助。我们的老校长、著名防原医学与病理学教授程天民院士对丛书的编写给予了极大的关注和鼓励,在百忙之中指导我们的工作,欣然为丛书作序并题写书名,我们永志不忘。感谢科学出版社对本套丛书的大力支持。

本书的编写队伍为《基础教程》编者的原班人马。第三军医大学医学英语教研室老师在使用《基础教程》开展教学的过程中对基本教学资料加以总结和提炼,几经完善和修改,形成本书的雏形。本书编者以医学英语教师为主体,相关生物医学专业教师(均为本学科专业课程双语教学的实践者)及英语语言学专家参与编写,确保了对用英语表述的生物医学知识的准确阐释和对医学英语特点的准确描述。在此谨对参与本书编写的所有教师表示由衷的感谢。第三军医大学 2008 级八年制本科和 2010 级五年制本科的同学在试用本书过程中提出了许多宝贵的反馈意见,在此谨致谢意。

廖荣霞

2014 年 2 月



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Unit 1 Human Anatomy



Key to the Exercises

I. Preparation

Enjoy a video clip. You may watch it twice to achieve a good understanding. After watching, please fill in each of the following blanks with one word.

- 1) Cardiac
- 2) conscious
- 3) unstriated
- 4) elongated, striated, voluntary

Script

I tell you, working in a place like this, you can sure learn a lot about muscles. Hah. I mean sure there are three different types of muscles; cardiac, smooth, and skeletal. And skeletal is the only type you can see but what you can't see? Pretty impressive. Hey, thanks, Rex.

There are three fundamental types of muscle tissue; cardiac, smooth and skeletal. Cardiac muscle forms the walls of the heart and contracts to propel blood through the blood vessels of the body. Cardiac muscles are involuntary. Involuntary muscles are muscles we have no conscious control over. Cardiac muscles are striated, which means the muscle tissue has obvious stripes or striations.

Smooth muscle forms the walls of hollow structures like the digestive tract. It's also responsible for changing the diameter of these tubes to move stuff like food through them. Smooth muscle is controlled by the autonomic nervous system. Basically that means the smooth muscle works without any conscious help from us. It's on autopilot.

Smooth muscle cells are unstriated. That means they don't have the stripes that cardiac and skeletal muscles have, but like cardiac muscles, smooth muscles are involuntary. We can't control them consciously.

Skeletal muscles, the final division, are typically attached to the skeletal system, hence the cover name—skeletal muscles.

The skeletal muscles are also responsible for body movements and facial

expressions. Throwing balls, running from the police, frowning in disgust, all these things are the bread and butter of skeletal muscles.

Skeletal muscle cells are elongated, striated and under voluntary control.

So when you think skeletal muscles, think striated and voluntary. Apart from movement, skeletal muscles have a number of other responsibilities. Skeletal muscles help you stand. They maintain posture by resisting the pull of gravity.

Nothing can resist the downward pull of gravity. Just watch! Hah! It's impossible, I tell you.

II. Reading

Text A

Comprehension Check

Pair work: Discuss and answer the following questions. Try not to look back at the text.

- 1) The ability to change shape has become the most important property of muscle cells. (Para. 2)
- 2) The prefixes myo- and sarco- are frequently used in naming structures associated with muscle. (Para. 3)
- 3) Striated muscle is composed of regular, repeating elements which give the cells a finely cross-striated appearance when they are viewed microscopically. Smooth muscle, in contrast, lacks such repeating elements and thus has no striations. (Para. 3)
- 4) The advantage of skeletal muscle is that it is capable of powerful contractions (about 100 watts per kilogram) because of the regular organization of its contractile proteins. Its disadvantage is that its contractile range is limited; wherever a larger range of movement is required, it is achieved through the amplification provided by the lever systems of the skeleton to which the muscle is attached (hence the name skeletal muscle). (Para. 5)
- 5) Because skeletal muscle is involved in many movements, such as breathing, blinking, swallowing, and the actions of the muscles of the perineum and in the middle ear, which are usually or exclusively driven at an unconscious level. (Para. 6)
- 6) Because cardiac muscle is provided with a continuous supply of energy by numerous blood vessels around the fibers, and abundant mitochondria within them. (Para. 7)
- 7) Smooth muscle is found in all systems of the body, in the walls of the viscera, including most of the gastrointestinal, respiratory, urinary and reproductive tracts, in the tunica media of blood vessels, in the dermis (as the arrector pili muscles), in the intrinsic muscles of the eye, and the dartos muscular layer of the scrotum. In some places, smooth muscle fasciculi are associated with those of skeletal muscle, e.g. the

sphincters of the anus and the urinary bladder, the tarsal muscles of the upper and lower eyelids, the suspensory muscle of the duodenum, a transitional zone in the esophagus, and fasciae and ligaments on the pelvic aspect of the pelvic diaphragm. (Para. 8)

- 8) These features are well illustrated by the role of smooth muscle in the walls of tubes and sacs, where its action regulates the size of the enclosed lumen and, in some cases, the consequent movement of luminal contents. (Para. 9)

Language Practice

1. Read the text carefully and then fill out the missing information in the following short passage. The beginning letter of each missing word has been given.

- | | | | |
|---------------|-----------------|--------------|----------------|
| 1) mechanical | 2) inflate | 3) pump | 4) tissue |
| 5) mass | 6) cardiac | 7) Cardiac | 8) bulk |
| 9) striated | 10) involuntary | 11) viscera | 12) unstriated |
| 13) skeleton | 14) voluntary | 15) contract | |

2. Paraphrase the following sentences. Pay special attention to the underlined parts.

- The proteins called molecular motors are able to make cells become shorter or longer much more quickly.
- In addition, the filaments of actin and myosin arrange themselves mainly in the same direction. Under this condition, the whole cell contracts linearly as a result of interactions between the molecules within the cell.
- The lengthened cells of unstriated muscle are smaller than the cells of striated muscle, and they gradually become narrower towards the ends.
- A smooth muscle cell may be stimulated to react or increase its activity in several ways.

3. Identify the expression from each of the following sentences which corresponds in meaning to one of the Chinese expressions given below. (These sentences are well written.

It is suggested that you read them aloud and learn them by heart.)

- | | |
|------------------------------|----------------|
| 1) a variety of | 各种各样的 |
| 2) (be) referred to as | 被称作 |
| 3) convert... into | 将……转化/转变为…… |
| 4) attach... to | 把……固定/附(着)在……上 |
| 5) exclusively | 专门地; 仅仅 |
| 6) branching network | 分支网络 |
| 7) (be) resistant to | 对……有抵抗力的; 耐……的 |
| 8) differ from... in | 在……方面不同于…… |
| 9) (be) associated with | 与……相关 |
| 10) (be) well illustrated by | 被……很好地阐明 |

4. Translate the following sentences into English with some expressions you have identified in exercise 3.

- 1) Certain symptoms are associated with withdrawal from specific drugs.
- 2) Muscles are composed of individual cells, often referred to as fibers because they are so long and threadlike.
- 3) A stem cell has the capacity to develop into any of a variety of different cell types.
- 4) Of all flu samples tested this year, 4.6% have been resistant to antiviral medications.
- 5) Found exclusively in animal cells, lysosomes are responsible for degrading certain components that have become obsolete for the cell or organism.
- 6) The branching network of myofilaments is stabilized by cross-linking proteins.
- 7) The accessory organs of digestion are illustrated in Figure 12-4.
- 8) Mitochondria can convert energy from nutrients into ATP.
- 9) Racial groups differ from one another in gene frequency.
- 10) Tendons attach muscles to bones to produce movement at the joints.

Note: The underlining points out the expressions identified in exercise 3.

Text B

Comprehension Check

Answer the following questions.

- 1) The diaphragm is the major muscle of inspiration, responsible for approximately two-thirds of quiet breathing in healthy humans. (Para. 1)
- 2) The primary role of the intercostals muscles is to stiffen the chest wall, preventing paradoxical motion during descent of the diaphragm in inspiration. (Para. 5)
- 3) The abdomen is relaxed/in relaxation, when the diaphragm contracts during normal breathing. (Para. 7)
- 4) The medial aspect of the rib is elevated and this increases the transverse dimension of the chest in the same manner as a bucket handle swinging outwards (Fig. 2A). This effect is most evident in the lower ribs. Movements at the costovertebral joints cause elevation of the anterior ends of the ribs that push the body of the sternum and the upper ribs forwards. This 'pump handle' movement is most evident in the superior ribs and increases the anteroposterior dimension of the thorax (Fig. 2B). (Para. 2)

Language Practice

1. Translate the following sentences into Chinese.

- 1) 膈肌是主要吸气肌,负责健康人约三分之二的平静呼吸。
- 2) 肋间外肌是吸气运动中最活跃的肌肉,而肋间内肌(不如肋间外肌强壮)在呼气运动中最活跃。

- 3) 增加胸廓的上下径、左右径和前后径可以使胸膜腔的容积增大,导致胸膜腔内压降低,从而使空气进入肺。
- 4) 因位于肝脏上方的右侧膈穹窿比位于胃上方的左侧膈穹窿遇到的阻力更大,故膈肌右脚和右侧纤维比左边的更加结实。
- 5) 参与通气的肌肉在睡眠过程中也必须保持工作状态,当咽肌松弛时,上气道的阻力增加。

2. Paraphrase the following sentences. Pay special attention to the underlined parts.

- 1) Breathing is a process in which the abdomen and thorax work together well.
- 2) After its movement is stopped by the abdominal viscera, the central tendon is fastened and serves as a starting point from which the fibers of the diaphragm go on to contract.

III. Video Watching and Speaking

Clip One

Watch the video clip and do the exercises given below.

Take notes while watching, and then answer the following questions.

- 1) Shape D corresponds to the shape of the deltoid muscle and A corresponds to that of the trapezius muscle.
- 2) Palmaris longus is longer, because the term "longus" refers to the longest muscle on a muscle section, and the term "brevis" describes the shortest.
- 3) "Rectus" means straight, "transversus" means across, and "oblique" means oriented at an angle to the long axis of the body.
- 4) The origin of a muscle refers to its attachment to immovable bone, and its insertion refers to its attachment to movable bone. The sternocleidomastoid muscle originates from the sternum and clavicle, namely, the beginning of the muscle, but eventually inserts itself on a part of the temporal bone called the mastoid process.
- 5) The seven criteria are location, shape, relative size, direction of fibers, number of origins, origin and insertion, and action. A good way to remember all these ways to classify muscles is by using the phrase "LAD SNOR", in which each letter is the beginning letter of a term used to describe muscle orientation and location.

Script

You see, skeletal muscles are named using 7 different naming criteria. Within each muscle's name, there are certain descriptions that characterize the muscle. These naming criteria are: location, shape, relative size, direction of fibers, number of origins, origin and insertion, and, lastly, action. Knowing these naming criteria will help you identify muscles more easily on an exam or help you understand more about individual muscles when you hear their names.