

高等医学院校英语改革教材
供医学院校各专业使用

医学英语综合教程

▶ 主 编 / 张 聪 陈红锐 李 响

An Integrated Course in Medical English



人民军医出版社
PEOPLE'S MILITARY MEDICAL PRESS

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内 容 提 要

本书由高等医学院校中长期从事英语教学的一线教师根据当前 ESP 教学改革的需要编写。全书按照人体解剖系统分为 8 个单元,每个单元下设 A、B、C、D 四个部分。A 部分归纳与本单元知识体系相关的术语,配有相应的构词法讲解及练习题;B 部分遴选两篇与该系统相关的课文,以听力训练的方式为掌握专业英语打基础;C 部分为全书的核心,针对相关系统的知识对上述课文进行多种形式操练,包括生词记忆、注释阅读、阅读理解、词汇练习、翻译训练等;D 部分是口语训练,帮助学生对学过的东西用英语进行表达性陈述,以实现学以致用。为方便查询,书后还附有词根词缀表及词汇总表。本书可供各医学院校师生作为教材或辅助训练资料,也可作为英语爱好者的自学用书。

前 言

ESP(English for special purpose)是近年来大学英语教学改革的方向,其中适用于医学院校的 EMP(English for medical purpose)教学更是在各院校中先行了一步。这项改革促使一批各具特色的英语教材纷纷涌现,教材建设呈现出勃勃生机。但是,随着改革的深入,我们发现现有的医学英语教材存在着很多弊端,如不能同时满足医学生课内学习和课外阅读的需求,内容上随意拼凑缺乏整体感,欠缺教材配套的音频资料,不能兼顾医学生听、说、读、写、译等全方位训练。

为此,我们集中了一些从事一线教学工作的年富力强的教师,力图打造一部有着较高专业性,尤其适于医学生课堂学习和课外自学的实用性教材。本教材所选文章的专业性较高,信息容量较大,系统性较强,并配有相关的音频资料(可从 www.pmmp.com.cn/ref/001 网址下载后使用),既适于医学生课堂学习,也可用于课外自学。

《医学英语综合教程》全书共包括 8 个单元,根据临床基本分类,按系统分别设置为呼吸系统(the respiratory system)、肌肉骨骼系统(the musculoskeletal system)、神经系统(the nervous system)、内分泌系统(the endocrine system)、循环系统(the circulatory system)、免疫系统(the immune system)、消化系统(the digestive system)和泌尿系统(the urinary system)。

每个单元再分别设有 Part A、Part B、Part C、Part D,具体如下。

1. Part A medical terminology 针对医学英语术语构词复杂、拼写难度大这一难点进行训练。在每一单元中归纳总结了与本单元知识体系相关的术语,并配有相应的练习题,帮助学生掌握和巩固所学医学术语。

2. Part B listening 根据各系统的不同,分别选择内容贴近 Part C 的两篇课文,以听力训练的方式使学生在学课文前,对本堂课的相关知识有所了解,为深入学习 Part C 热身,也为 Part D 打下基础。

3. Part C reading 是每单元的核心内容,分为 Text A 和 Text B。Text A 侧重从解剖学角度探究人体某一系统的相关知识,附有生词表(vocabulary)和课文注释(notes to the text)。课后练习采用多种形式进行操练,包括阅读理解(comprehension check,意在测试学生对课文内容的理解)、词汇练习(vocabulary study,即练习文中所学词汇)、翻译(translation)

tion,即训练学生英汉互译能力)。Text B 则侧重介绍该系统中的一种典型疾病,除附有生词表(vocabulary)和课文注释(notes to the text)外,课后操练练习包括阅读理解(comprehension check)和词汇练习(vocabulary study)。

4. Part D speaking 即口语训练,是全书的点睛之笔,促进学生学以致用。该部分练习题的设定主要以综合性论述为主,帮助学生认真梳理本单元学习过的内容并进行总结,通过英语口语表达完成综合性陈述(presentation),实现从输入(input)向输出(output)的转化。通过该部分的训练,学生不仅可以加深对所学内容的理解,提高归纳总结能力,而且在英语表述方面还会有很大提高。

本教材书后有 2 个附录,其中附录 A 收入本书涉及的词根词缀表,附录 B 为本书中各个单元的生词汇总,便于读者查阅。

本书的出版是对所有参编者最大的鼓励,在此,我们感谢所有为本书做出贡献的人。书中若存在不足或疏漏之处,欢迎读者批评指正。

《医学英语综合教程》编者

2015 年 4 月

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Unit 1 The Respiratory System

Part A

Medical Terminology

Combining Form	Meaning	Sample Words
alveol/o-	alveolus 肺泡	alveolitis 肺泡炎 alveolate 蜂窝状的
bronch(i)/o-	bronchus 支气管	bronchiectasis 支气管扩张 bronchismus 支气管痉挛
laryng/o-	larynx 喉	laryngoscope 喉镜 laryngeal 喉的
muc/o-	of mucous 黏液的	muciform 黏液样的 mucosa 黏膜
pharyng/o-	pharynx 咽	pharyngitis 咽炎 pharyngoamygdalitis 咽扁桃体炎
pleur/o-	pleura 胸膜	pleural 胸膜的 pleurisy 胸膜炎
pulm/o-	lung 肺	pulmometry 肺容量测定法 pulmonary 肺的
rhin/o-	nose 鼻	rhinology 鼻科学 rhinoscleroma 鼻硬结病
-spir/o-	breathing 呼吸	spirometer 肺量计 respiration 呼吸
trache/o-	trachea 气管	tracheostomy 气管造口术 tracheobronchial 气管支气管的

Exercises

Task I . Choose the definition from Column B that best matches the combining form in Column A .

Column A	Column B
1. pleur/o-	A. breathing
2. alveol/o-	B. trachea
3. bronch(i)/o-	C. larynx
4. -spir/o-	D. pleura
5. trache/o-	E. nose
6. laryng/o-	F. pharynx
7. rhin/o-	G. alveolus
8. pharyng/o-	H. of mucus
9. pulm/o-	I. bronchus
10. muc/o-	J. lung

Task II . Translate the following words and phrases into English .

1. 黏液样的 _____
2. 气管支气管的 _____
3. 肺泡炎 _____
4. 鼻硬结病 _____
5. 胸膜的 _____
6. 支气管扩张 _____
7. 咽炎 _____
8. 肺量计 _____
9. 肺的 _____
10. 喉镜 _____

Part B

Listening

Vocabulary

- respiratory [ri'spaɪrətəri] *adj.* 呼吸的
- organism ['ɔ:ɡənɪzəm] *n.* 有机体; 生物体
- metabolism [mi'tæbəlɪzəm] *n.* 新陈代谢
- nutrient ['nju:triənt] *n.* 营养物
- sustenance ['sʌstənəns] *n.* 养料; 营养
- tar [tɑ:] *n.* 焦油
- particle ['pɑ:tɪkl] *n.* 微粒
- stain [steɪn] *vt.* 给……着色
- residue ['rezɪdju:] *n.* 残余
- tissue ['tɪʃu:] *n.* 组织
- carcinogen [kɑ:'sɪnədʒən] *n.* 致癌物质
- benzopyrene ['benzəu'paɪri:n] *n.* 苯并芘
- monoxide [mɒ'nɒksaɪd] *n.* 一氧化物
- odorless ['əʊdəlɪs] *adj.* 没有气味的
- fatal ['feɪtəl] *adj.* 致命的
- inhalation [ɪnhə'leɪʃən] *n.* 吸入
- hemoglobin [ˌhi:məu'gləʊbɪn] *n.* 血红蛋白; 血红蛋白
- hydrogen cyanide [ˌhaɪdrədʒən 'saɪənaɪd] *n.* 氢氰酸
- toxic ['tɒksɪk] *adj.* 有毒的
- hydrocarbon [ˌhaɪdrə'kɑ:bən] *n.* 碳氢化合物
- nitrous [ˌnaɪtrəs] *adj.* 氮的, 含氮的
- oxide ['ɒksaɪd] *n.* 氧化物
- oxidize ['ɒksaɪz] *vt.* 使氧化
- lining ['laɪnɪŋ] *n.* 内层, 衬壁
- tracheal ['treɪkiəl] *adj.* 气管的
- irritate ['ɪrɪteɪt] *vt.* 使发炎
- inflammation [ˌɪnflə'meɪʃən] *n.* 炎症
- cilium ['sɪliəm] *n.* (pl. cilia) 纤毛
- trachea [trə'ki:ə] *n.* 气管
- clog [klɒɡ] *vt.* 阻碍; 堵塞
- combustion [kəm'bʌstʃən] *n.* 燃烧
- impede [ɪm'pi:d] *vt.* 阻碍
- mucus ['mju:kəs] *n.* 黏液
- irritation [ˌɪrɪ'teɪʃən] *n.* 发炎
- inhalant [ɪn'heɪlənt] *n.* 被吸入的东西
- larynx ['lærɪŋks] *n.* 喉
- prone [prəʊn] *adj.* 易于……的
- clot [klɒt] *vi. & n.* 凝结, 壅塞; 块, 凝块
- stroke [strəʊk] *n.* 卒中(中风)
- asthma ['æsmə] *n.* 哮喘
- crush [krʌʃ] *vt.* 压垮
- vigorous ['vɪɡərəs] *adj.* 精力充沛的
- eliminate [ɪ'lɪmɪneɪt] *vt.* 消除
- diminish [dɪ'mɪnɪʃ] *vt.* 减少
- alleviate [ə'li:vɪeɪt] *vt.* 减轻; 缓和
- CDC (abbr.) Centers for Disease Control 疾病防治中心
- surveillance [sə'veɪləns] *n.* 监督
- implement ['ɪmplɪmənt] *vt.* 贯彻; 完成
- intervention [ˌɪntə'venʃən] *n.* 介入

Task I . *The recording can be obtained from the website : www.pmmp.com.cn/ref/001. Listen to Passage One and choose the best answer according to what you heard.*

1. The breathing in of oxygen and release of carbon is accomplished through _____ system.
A. immune B. musculoskeletal C. endocrine D. respiratory
2. _____ in tar is a cancer trigger.
A. Carcinogen benzopyrene B. Lung tissue
C. Residue D. Tar particles
3. The followings except _____ are toxic substances that enter the respiratory system.
A. tar particles B. alveoli
C. carbon monoxide D. hydrogen cyanide
4. The frequent throat inflammation is caused by _____.
A. hot smoke of tobacco B. nitrous oxides
C. hair-like cilia D. mucus buildup
5. The damages inhalants cause to the trachea, larynx and lung function are the following except _____.
A. heart disease B. lung infection
C. high blood pressure D. damage to the immune system

Task II . *The recording can be obtained from the website : www.pmmp.com.cn/ref/001. Listen to Passage Two and answer the following questions.*

1. What types of people are the least able to bear the burden of asthma?
2. Why Jasmine's parents didn't allow her to take part in vigorous activities?
3. What did Jasmine's parents learn from an asthma case manager?
4. Whom does the burden of asthma fall on according to the passage?
5. What should CDC do to control the progress of asthma?

Part C

Reading

Text A

The Respiratory System

1 The cells of the human body require a constant stream of oxygen to stay alive. The respiratory system provides oxygen to the body's cells while removing carbon dioxide, a waste product that can be **lethal** if allowed to accumulate. There are three major parts of the respiratory system: the airway, the lungs, and the muscles of respiration. The airway, which includes the nose, mouth, **pharynx**, larynx, trachea, **bronchi**, and **bronchioles**, carries air between the lungs and the body's exterior. The lungs act as the

functional units of the respiratory system by passing oxygen into the body and carbon dioxide out of the body. Finally, the muscles of respiration, including the **diaphragm** and **intercostal** muscles, work together to act as a pump, pushing air into and out of the lungs during breathing.

Anatomy of the Respiratory System (Figure 1-1)

2 Nose and Nasal Cavity

The nose and nasal cavity form the main external opening for the respiratory system and are the first section of the body's airway—the **respiratory tract** through which air moves. The nose is a structure of

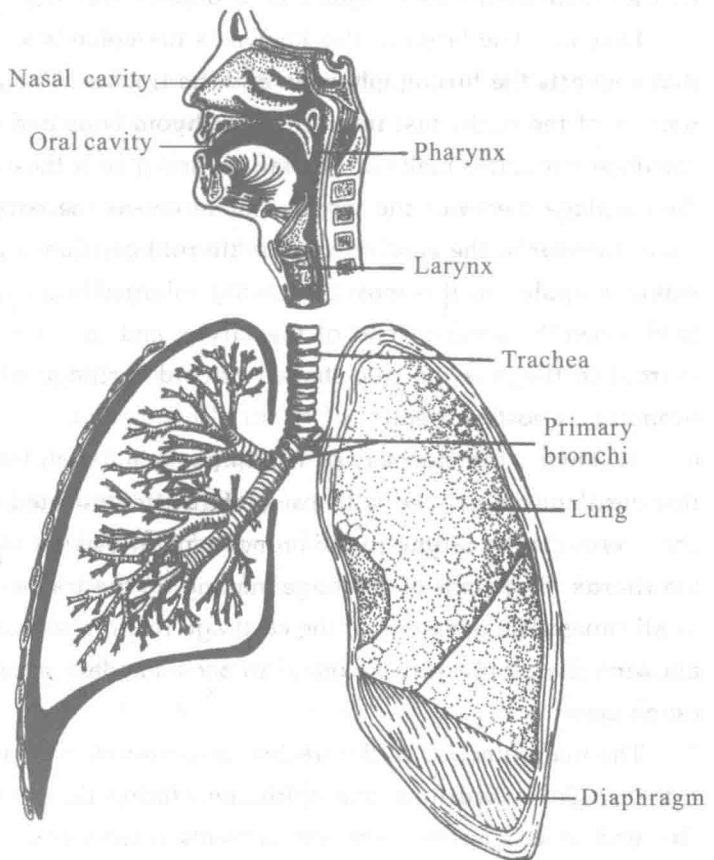


Fig.1-1 The respiratory system

the face made of **cartilage**, bone, muscle, and skin that supports and protects the **anterior portion** of the nasal cavity. The nasal cavity is a hollow space within the nose and skull that is lined with hairs and mucus **membrane**. The function of the nasal cavity is to warm, **moisturize**, and **filter** air entering the body before it reaches the lungs. Hairs and mucus lining the nasal cavity help to trap dust, **mold**, **pollen** and other environmental **contaminants** before they can reach the inner portions of the body.

3 **Mouth** The mouth, also known as the oral cavity, is the secondary external opening for the respiratory tract. Most normal breathing takes place through the nasal cavity, but the oral cavity can be used to supplement or replace the nasal cavity's functions when needed.

4 **Pharynx** The pharynx, also known as the throat, is a **muscular funnel** that extends from the **posterior** end of the nasal cavity to the **superior** end of the **esophagus** and larynx. The **epiglottis** is a **flap of elastic** cartilage that acts as a switch between the trachea and the esophagus. Because the pharynx is also used to swallow food, the epiglottis ensures that air passes into the trachea by covering the opening to the esophagus. During the process of swallowing, the epiglottis moves to cover the trachea to ensure that food enters the esophagus and to prevent choking.

5 **Larynx** The larynx, also known as the **voice box**, is a short section of the airway that connects the **laryngopharynx** and the trachea. The larynx is located in the anterior portion of the neck, just **inferior** to the **hyoid** bone and superior to the trachea. Several cartilage structures make up the larynx and give it its structure. The epiglottis is one of the cartilage pieces of the larynx and serves as the cover of the larynx during swallowing. Inferior to the epiglottis is the **thyroid** cartilage, which is often referred to as **the Adam's apple*** as it is most commonly enlarged and visible in adult males. The thyroid holds open the anterior end of the larynx and protects the vocal **folds**. Inferior to the thyroid cartilage is the ring-shaped **cricoid** cartilage which holds the larynx open and supports its posterior end.

6 **Trachea** The trachea, or **windpipe**, is a 5-inch long tube made of C-shaped **hyaline** cartilage rings lined with **pseudostratified ciliated columnar epithelium**. The trachea connects the larynx to the bronchi and allows air to pass through the neck and into the **thorax**. The rings of cartilage making up the trachea allow it to remain open to air at all times. The open end of the cartilage rings faces posteriorly toward the esophagus, allowing the esophagus to expand to accommodate masses of food moving through the esophagus.

7 The main function of the trachea is to provide a clear airway for air to enter and exit the lungs. In addition, the epithelium lining the trachea produces mucus that traps dust and other contaminants and prevents it from reaching the lungs. Cilia on the surface of the **epithelial** cells move the mucus superiorly toward the pharynx where it can be swallowed and digested in the **gastrointestinal** tract.

8 **Bronchi and Bronchioles** At the inferior end of the trachea, the airway splits into left and right branches known as the primary bronchi. The left and right bronchi run into each lung before branching off into smaller bronchi—bronchioles.

9 The main function of the bronchi and bronchioles is to carry air from the trachea into the lungs. Smooth muscle tissue in their walls helps to regulate airflow into the lungs. When greater volumes of air are required by the body, such as during exercise, the smooth muscle relaxes to **dilate** the bronchi and bronchioles. The dilated airway provides less resistance to airflow and allows more air to pass into and out of the lungs. The smooth muscle fibers are able to contract during rest to prevent **hyperventilation**.

10 **Lungs** The lungs are a pair of large, **spongy** organs found in the thorax **lateral** to the heart and superior to the diaphragm. Each lung is surrounded by a **pleural** membrane that provides the lung with space to expand as well as a negative pressure space relative to the body's exterior. The negative pressure allows the lungs to passively fill with air as they relax. The left and right lungs are slightly different in size and shape due to the heart pointing to the left side of the body. The left lung is therefore slightly smaller than the right lung and is made up of 2 **lobes** while the right lung has 3 lobes. The interior of the lungs is made up of spongy tissues containing many **capillaries** and around 30 million tiny **sacs** known as **alveoli**.

11 **Muscles of Respiration** Surrounding the lungs are sets of muscles that are able to cause air to be **inhaled** or **exhaled** from the lungs. The principal muscle of respiration in the human body is the diaphragm, a thin sheet of **skeletal** muscle that forms the floor of the thorax. When the diaphragm contracts, it moves inferiorly a few inches into the **abdominal** cavity, expanding the space within the **thoracic** cavity and pulling air into the lungs. Relaxation of the diaphragm allows air to flow back out the lungs during exhalation.

Physiology of the Respiratory System

12 **Pulmonary Ventilation** Pulmonary ventilation is the process of moving air into and out of the lungs to facilitate gas exchange. The respiratory system uses both a negative pressure system and the contraction of muscles to achieve pulmonary ventilation. The negative pressure system of the respiratory system involves the establishment of a negative pressure **gradient** between the alveoli and the external atmosphere. The pleural membrane seals the lungs and maintains the lungs at a pressure slightly below that of the atmosphere when the lungs are at rest. This results in air following the pressure gradient and passively filling the lungs at rest. As the lungs fill with air, the pressure within the lungs rises until it matches the atmospheric pressure.

13 To exhale air, the diaphragm and external intercostal muscles relax while the internal intercostal muscles contract to reduce the volume of the thorax and increase the pressure within the thoracic cavity. The pressure gradient is now reversed, resulting in the exhalation of air until the pressures inside the lungs and outside of the body are

equal.

14 **External Respiration** External respiration is the exchange of gases between the air filling the alveoli and the blood in the capillaries surrounding the walls of the alveoli. Air entering the lungs from the atmosphere has a higher partial pressure of oxygen and a lower partial pressure of carbon dioxide than does the blood in the capillaries. The difference in partial pressures causes the gases to **diffuse** passively along their pressure gradients from high to low pressure through the simple **squamous** epithelium lining of the alveoli. The net result of external respiration is the movement of oxygen from the air into the blood and the movement of carbon dioxide from the blood into the air. The oxygen can then be transported to the body's tissues while carbon dioxide is released into the atmosphere during exhalation.

15 **Internal Respiration** Internal respiration is the exchange of gases between the blood in capillaries and the tissues of the body. Capillary blood has a higher partial pressure of oxygen and a lower partial pressure of carbon dioxide than the tissues through which it passes. The difference in partial pressures leads to the diffusion of gases along their pressure gradients from high to low pressure through the **endothelium** lining of the capillaries.

16 **Transportation of Gases** The two major respiratory gases, oxygen and carbon dioxide, are transported through the body in the blood. Blood **plasma** has the ability to transport some **dissolved** oxygen and carbon dioxide, but most of the gases transported in the blood are bonded to transport **molecules**. Hemoglobin is an important transport molecule found in red blood cells that carries almost 99% of the oxygen in the blood. Hemoglobin can also carry a small amount of carbon dioxide from the tissues back to the lungs. However, the vast majority of carbon dioxide is carried in the plasma as **bicarbonate ion**. When the partial pressure of carbon dioxide is high in the tissues, the **enzyme carbonic anhydrase catalyzes** a reaction between carbon dioxide and water to form carbonic **acid**. Carbonic acid then **dissociates** into **hydrogen** ion and bicarbonate ion. When the partial pressure of carbon dioxide is low in the lungs, the reactions reverse and carbon dioxide is liberated into the lungs to be exhaled.

(1622 words)

(This passage is adapted from <http://www.innerbody.com/anatomy/respiratory#full-description>)

Vocabulary

lethal¹ ['li:θəl] *adj.* 致命的, 致死的

支气管

pharynx¹ ['færiŋks] *n.* 咽

bronchiole¹ ['brɔŋkiəul] *n.* 细支气管

bronchus¹ ['brɔŋkəs] *n.* (pl. bronchi)

diaphragm¹ ['daɪəfrəm] *n.* 膈

- intercostal¹ [intə'kɒstəl] *adj.* 肋间的
- anatomy¹ [ə'nætəmi] *n.* 解剖; 解剖学
- cavity² ['kæviti] *n.* 腔
- tract² [trækt] *n.* 道
- cartilage² ['kɑ:tilidʒ] *n.* 软骨
- anterior² [æn'tiəriə] *adj.* 位于前部的
- portion² ['pɔ:ʃən] *n.* 一部分
- membrane² ['mem,brein] *n.* 膜
- moisturize² ['mɔistʃəraiz] *vt.* 给……增加水分
- filter² ['filtə] *vt.* 过滤, 滤除
- mold² [məʊld] *n.* 霉
- pollen² ['pɒlin] *n.* 花粉
- contaminant² [kən'tæminənt] *n.* 污染物
- muscular⁴ ['mʌskjulə] *adj.* 肌的
- funnel⁴ ['fʌnəl] *n.* 漏斗; 漏斗状物
- posterior⁴ [pɒ'stiəriə] *adj.* 后面的
- superior⁴ [sju:'piəriə] *adj.* 上面的
- esophagus⁴ [i'sɒfəgəs] *n.* 食管
- epiglottis⁴ [epi'glɒtɪs] *n.* 会厌
- flap⁴ [flæp] *n.* 皮瓣
- elastic⁴ [i'læstɪk] *adj.* 有弹性的
- voice box⁵ 喉头
- laryngopharynx⁵ [lə ,rɪŋgəu'færɪŋks] *n.* 喉咽
- inferior⁵ [in 'fiəriə] *adj.* 下面的
- hyoid⁵ ['haɪɔɪd] *adj.* 舌骨的
- thyroid⁵ ['θaɪraɪd] *n.* 甲状腺
- fold⁵ [fəʊld] *n.* 皱襞, 褶
- cricoid⁵ ['kraɪkɔɪd] *adj.* 环状的
- windpipe⁶ ['wɪndpaɪp] *n.* 气管
- hyaline⁶ ['haɪəlɪn] *adj.* 透明的
- pseudostratified⁶ [sju:'dæu'strætɪfaɪd] *adj.* 假复层的
- ciliated⁶ ['sɪli'eɪtɪd] *adj.* 有纤毛的
- columnar⁶ [kə'lʌmnə] *adj.* 柱状的
- epithelium⁶ [epi'θi:lɪəm] *n.* 上皮
- thorax⁶ ['θɔ:ræks] *n.* 胸
- epithelial⁷ [epi'θi:lɪəl] *adj.* 上皮的; 皮膜的
- gastrointestinal⁷ [,gæstrəuɪn'testɪnəl] *adj.* 胃与肠的
- dilate⁹ [daɪ'leɪt] *vt.* 使扩大
- hyperventilation⁹ [,haɪpə ,ventɪ'leɪʃən] *n.* 通气过度
- spongy¹⁰ ['spɒndʒɪ] *adj.* 海绵质状的
- lateral¹⁰ ['lætərəl] *adj.* 侧的
- pleural¹⁰ ['pluərəl] *adj.* 胸膜的
- lobe¹⁰ [ləʊb] *n.* 肺叶
- capillary¹⁰ [kə'pɪləri] *n.* 毛细血管
- sac¹⁰ [sæk] *n.* 液囊
- alveolus¹⁰ [ælvi'əʊləs] *n.* (pl. alveoli) 肺泡
- inhale¹¹ [ɪn'heɪl] *vt. & vi.* 吸入
- exhale¹¹ [eks'heɪl] *vt.* 呼出 *vi.* 呼气
- skeletal¹¹ ['skelɪtl] *adj.* 骨骼的
- abdominal¹¹ [æb'dɒmənəl] *adj.* 腹部的
- thoracic¹¹ [θəu'ræsɪk] *adj.* 胸的
- physiology¹² [fɪzi'ɒlədʒɪ] *n.* 生理学
- pulmonary¹² [pʌlmənəri] *adj.* 肺的
- ventilation¹² [ventɪ'leɪʃən] *n.* 通气, 换气
- gradient¹² ['greɪdɪənt] *n.* 梯度
- diffuse¹⁴ [dɪ'fju:z] *vi.* 扩散
- squamous¹⁴ ['skweɪməs] *adj.* 鳞状的
- endothelium¹⁵ [,endəu'θɪ:lɪəm] *n.* 内皮
- plasma¹⁶ ['plæzmə] *n.* 血浆
- dissolve¹⁶ [dɪ'sɒlv] *vt.* 溶解
- molecule¹⁶ ['mɒlɪkjʊ:l] *n.* 分子, 微小颗粒
- bicarbonate¹⁶ [baɪ'kɑ:bənɪt] *n.* 碳酸氢盐离子
- ion¹⁶ [aɪən] *n.* 离子
- enzyme¹⁶ ['enzaim] *n.* 酶
- carbonic anhydrase¹⁶ [kɑ:'bɒnɪk æn'hɑɪdreɪs] 碳酸酐酶
- catalyze¹⁶ ['kætəlaɪz] *vt.* 催化
- acid¹⁶ ['æsɪd] *n.* 酸
- dissociate¹⁶ [dɪ'səʊʃeɪt] *vi.* 分离, 离解
- hydrogen¹⁶ ['haɪdʒən] *n.* 氢