

21 世纪大学英语系列
全国高等农业院校教材



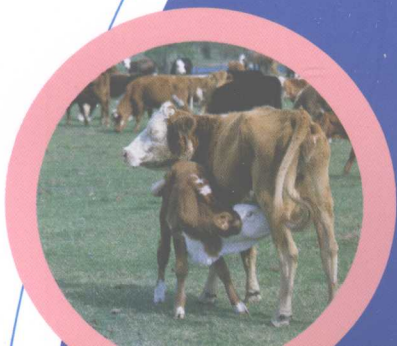
畜牧兽医专业英语听力教程

Listening Comprehension for Animal Science and Veterinary Medicine

周 虚 王守宏 主 编



Mitochondria
Sites of Absorption
Respiration
Estrous Cycles and Their Regulation
Judging Breeding Pig
Proximate Analysis of Foods
Animal Protein Concentrates
Inflammation
The Adaptive Immune Response
General Characteristics of Viruses
Basic Life Cycle of Nematodes
...



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Science and Veterinary Medicine

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前 言

英语是世界上使用国家和地区广泛的语言,国外约 60% 的科技文献是用英文发表的,英语已真正成为国际科技交流的主导语言。随着我国加入 WTO 和全球经济一体化,对外科技交流越来越多。为了充分介绍我国的研究成果,让世人了解我国科学家的贡献,也为了更好地学习国外的先进技术和成果,专业英语的训练显得尤为重要。教育部 2007 年 10 月颁布的《大学英语课程教学要求》规定:各高等学校应当根据实际情况,按照《课程要求》确定本校的大学英语教学目标,设计各自的大学英语课程体系,将综合英语类、语言技能类、语言应用类、语言文化类和专业英语类等必修课程和选修课程有机结合,以确保不同层次的学生在英语应用能力方面得到充分的训练和提高。

目前,国内许多院校在动物科学和动物医学专业大三或大四开设了专业英语选修课。主编本人也多年从事动物科学、动物医学、生物技术三个专业本科生及研究生的专业英语教学,也进行专业课双语教学。在教学实践中深深感觉到,目前国内的专业英语教学存在较大的问题,即多数采取传统的教学方法,主要注重讲授专业文献的阅读和翻译;国内现有畜牧兽医方面的专业英语教材或教学参考书也仅限于阅读和翻译的模式,例如,给出一篇文章,列出生词,分析几个难句,最后附上参考译文。这种模式培养出来的学生往往有较强的阅读理解和翻译(笔译)能力,但是不懂得专业单词的读音,开口说很困难,也听不懂英语学术报告。虽然努力尝试改革教学方法,在培养学生英语听、说、读、写和实际应用能力上下工夫,但是,苦于没有合适的教材。据编著者所知,迄今国内还没有畜牧兽医方面的听力教材出版。正是基于上述原因,多年前就产生了编辑出版一本语音教材的想法。在吉



林大学农学部教务处、复旦大学出版社的大力支持下,现在终于如愿以偿了。希望本教程的出版能对提高国内的畜牧兽医专业英语教学水平有所帮助。

本教程包含 22 个单元,文章均选自英文原版教材或期刊文献,内容涉及动物遗传育种与繁殖、动物营养与饲料、基础兽医学、预防兽医学和临床兽医学等各方面。每个单元,首先列出本篇文章中的主要专业词汇,标注音标和中文释义;接着给出了 2~4 种类型的习题,要求学生在听完语音材料后完成练习;然后给出原文和参考答案。随本书一同出版的是一张配套的光盘,光盘不仅录制了语音,还有文字稿,并且附有丰富的图片,即用电脑鼠标指示一些关键专业词汇或术语时,就会显示出相关的图片,帮助形象化的理解。这是本教材的又一特色。

本教程可供高等农业院校动物科学、动物医学和生物技术本科生使用,也可作为相关专业的研究生或其他从业人员自学之用。

本教程的编写人员中,除王守宏教授(吉林大学农学部公共教学中心)专门从事英语教学和研究外,其余都是畜牧兽医专业人才;副主编杨素芳副教授工作单位是广西大学动物科技学院,其余人员工作单位均为吉林大学畜牧兽医学院。由于编者水平有限,加上缺乏相关的参考模式,本教程可能还显得很稚嫩,缺点和错误在所难免。恳请广大使用者和专家们提出宝贵意见和建议,以便今后不断完善。

周 虚

2007 年底完成初稿

2008 年底完成终稿

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Unit 1

Mitochondria



Words and Expressions

mitochondria [ˌmaɪtəˈkɒndrɪə] <i>n.</i>	线粒体
fractional [ˈfrækʃənl] <i>a.</i>	分级的, 分数的, 微不足道的
centrifugation [senˌtrɪfjuˈgeɪʃən] <i>n.</i>	离心作用
particulate [pəˈtɪkjʊlɪt, pəˈtɪkjʊlərt] <i>n.</i>	微粒子
retina [ˈretɪnə] <i>n.</i>	视网膜
filamentous [fɪləˈmentəs] <i>a.</i>	细丝状的, 纤维所成的
hypophysis [haɪˈpɒfɪsɪs] <i>n.</i>	脑下垂体
vesiculate [vɪˈsɪkjʊlɪt] <i>v.</i>	使……成小囊状
sperm [spɜːm] <i>n.</i>	精液, 精子
contractile [kənˈtræktɪl] <i>a.</i>	可收缩的
neuron [ˈnjuərɒn] <i>n.</i>	神经元, 神经细胞
oocyte [ˈəʊəsaɪt] <i>n.</i>	卵母细胞
cancerous [ˈkænsərəs] <i>a.</i>	癌的, 似癌的, 生癌的
oxidative [ˈɒksɪdətɪv] <i>a.</i>	氧化的
glycolytic [ˌɡlaɪkəˈlɪtɪk] <i>a.</i>	糖分解的
adrenal cortex	肾上腺皮质
adrenocorticotrophic hormone	促肾上腺皮质激素
impulse transmission	冲动传播



Listening and Exercises

Part A Isolation of Mitochondria

1. Listen to the recording and answer the questions.

- (1) When were mitochondria first isolated by fractional centrifugation of ruptured cells?
- (2) According to the text, what's the main function of mitochondria?
- (3) According to the text, where are mitochondria usually concentrated in cells?

2. Indicate that the following statements are true or false according to the text.

- (1) Mitochondria were first isolated by fractional centrifugation of ruptured cells by Hooogeboom and co-workers in 1948.
- (2) There are many enzymes concerned with energy transfer in mitochondria.
- (3) There are a few mitochondria near the secretory surfaces.

Part B Size and Shape of Mitochondria

3. Listen to the recording and fill in the following spaces.

Mitochondria are usually (1) to $1.0\mu\text{m}$ in (2) sectional diameter and vary in length (3) to a maximum of (4) μm . They may be filamentous or granular and may change from one form to (5) depending upon the physiological conditions of the (6) and the way the cells are (7). They may also attach to one another and then dissociate at a (8) time. Occasionally they are enlarged at one end, having the shape of a (9) racket. In mammals the shape and form of the mitochondria varies with (10) state; for example, after removal of the hypophysis the (11) and structure of the mitochondria in the adrenal cortex is greatly altered. It returns to normal on injection of adrenocorticotrophic (12). Un-



der unfavorable conditions mitochondria (13) abnormal, sometimes fusing to form (14) bodies, sometimes vesiculating. Mitochondria in germinal tissues of some species transform (15) egg yolk granules.

Listen to the recording again and check your answers.

Part C Location and Number of Mitochondria

4. Listen to the recording and answer the questions.

- (1) Can mitochondria move in a cell?
- (2) Where do the mitochondria aggregate as rings in the sperm?
- (3) According to the text, how many mitochondria are there in a rat liver cell?
- (4) According to the text, which kind of cells has more mitochondria, animal cells or plant cells?



Tapescripts

Part A Isolation of Mitochondria

Mitochondria were first isolated by fractional centrifugation of ruptured cells by Bensley and Hoerr in 1934 and recognized as sites of cellular respiration by Hoogetboom and co-workers in 1948. Separated from other cell particulates, mitochondria maintain their identity. Biochemical analyses of mitochondria demonstrated the presence of many enzymes concerned with energy transfer. Mitochondria are often concentrated in regions of great cellular activity, such as the secretory surfaces (glandular cells), absorptive surfaces (intestinal lining cells), near the impulse-propagating nodes of a nerve cell, and in active muscle fibers. These locations permit mitochondria to deliver most directly the high-energy compounds needed for the corresponding cell activities.

Part B Size and Shape of Mitochondria

Mitochondria are usually 0.5 to 1.0 μm in cross sectional diameter and va-



ry in length up to a maximum of $7\mu\text{m}$. They may be filamentous or granular and may change from one form to another depending upon the physiological conditions of the cells and the way the cells are treated. They may also attach to one another and then dissociate at a later time. Occasionally they are enlarged at one end, having the shape of a tennis racket. In mammals the shape and form of the mitochondria varies with hormonal state; for example, after removal of the **hypophysis** the form and structure of the mitochondria in the adrenal cortex is greatly altered. It returns to normal on injection of adrenocorticotrophic hormone. Under unfavorable conditions mitochondria become abnormal, sometimes fusing to form large bodies, sometimes vesiculating. Mitochondria in germinal tissues of some species transform into egg yolk granules.

Part C Location and Number of Mitochondria

Mitochondria show active movement, especially in cells undergoing division. In some cells, however they appear to be stationary. They may aggregate as rings around the **sperm** tail, be present in rows between contractile units in muscle cells, and aggregate at nodes of neurons where impulse transmission occurs. In secretory cells they accumulate at the base of the cells, in the retina at one end of the rod cells, and in kidney tubule cells they accumulate along infoldings of the cell membrane.

In a rat liver cell as many as 1,600 mitochondria have been recorded; in some oocytes a hundred times as many may be present, and in the giant amoeba half a million have been estimated. Mitochondria are quite numerous in brown fat cells to which they impart their color. Plant cells generally have fewer mitochondria than animal cells. The number of mitochondria decreases in cancerous cells, perhaps because of the tumor's lowered oxidative and increased glycolytic activity.

Unit 2

Sites of Absorption



Words and Expressions

esophagus [i:'sɒfəgəs] <i>n.</i>	食管
epithelial [ˌepɪ'θi:liəl] <i>a.</i>	上皮的
monogastric [ˌmɒnə'gæstrɪk] <i>a.</i>	单胃的
hydrolyze ['hɑdrəlaɪz] <i>v.</i>	水解
carbohydrate ['kɑ:bəʊ'hɑdreɪt] <i>n.</i>	碳水化合物, 糖
pouch [paʊtʃ] <i>n.</i>	小袋, 囊; 烟草袋; 钱包
inorganic [ˌɪnɔ:'gænrɪk] <i>a.</i>	无组织的, 无生物的, 无机的
ethanol ['eθə,nəʊl] <i>n.</i>	乙醇, 酒精
mucosa [mju:'kəʊsə] <i>n.</i>	黏膜, 黏液膜
lumen ['lu:mɪn] <i>n.</i>	(管状器官内的) 内腔
carnivore ['kɑ:nɪvɔ:] <i>n.</i>	食肉动物; 食虫植物
omnivore ['ɒmnɪvɔ:] <i>n.</i>	杂食动物; 杂食的人
herbivore ['hɜ:bɪvɔ:] <i>n.</i>	食草动物
colon [kəʊ'ləʊn] <i>n.</i>	结肠
electrolyte [ˌɪlektroˈlaɪt] <i>n.</i>	电解质, 电解液
fermentation [ˌfɜ:men'teɪʃən] <i>n.</i>	发酵
polysaccharide [ˌpɒlɪ'sækəraɪd] <i>n.</i>	多糖(类)
microbial [maɪ'krəʊbiəl] <i>a.</i>	微生物的; 细菌的



ruminant [ˈruːmɪnənt] *a.*

反刍的

n.

反刍动物



Listening and Exercises

Part A

1. Indicate that the following statements are true or false according to the text.

- (1) We have found that the phenomenon of absorption of food occurred in the mouth and esophagus.
- (2) Proteins, fats and carbohydrates are digested completely in stomach.
- (3) Alcohol can be absorbed from the monogastric stomach.
- (4) Water can be absorbed from stomach pouches largely.
- (5) The net rate of absorption of water-soluble substances from the lumen is small in normal, though they can cross the water-permeable pores of the gastric mucosa.

Part B

2. Listen to the recording and answer the questions.

- (1) Where is the chief site of absorption in carnivores, omnivores and herbivores?
- (2) Where are vitamin B₁₂, bile acids, and water absorbed largely?
- (3) Where does water and electrolyte absorption occur in large intestine?
- (4) What animal is mentioned in the text that extensive digestive changes occur in the large intestine because of microbial fermentation.
- (5) What part of the digestive tract does digestion and absorption more significantly in ruminants?



Part A

No absorption of food or of end products of digestion is known to occur in the mouth and esophagus. Certain drugs, however, may be absorbed from their epithelial surfaces.

Absorption from the stomach of the monogastric animal is very limited under normal conditions. On the whole, food substances are degraded to absorbable units only to a limited extent in the stomach. Proteins are only partially degraded, fats are hydrolyzed only to a slight extent, and carbohydrate digestion is far from complete. Although water can be absorbed from stomach pouches, it is doubtful that under ordinary circumstances water remains in the stomach long enough to undergo any significant reduction in volume. Inorganic salts are not absorbed in significant amounts, but certain drugs such as ethanol are absorbed from the monogastric stomach. There is a continuous flux of water and water-soluble substances across the water-permeable pores of the gastric mucosa, but normally their net rate of absorption from the lumen is small.

Part B

The small intestine is the chief site of absorption in carnivores and omnivores. It is also of great importance in herbivores. Vitamins, minerals, and end products of digestion are absorbed largely from the proximal half; vitamin B₁₂, bile acids from bile, and water are absorbed largely in the distal portion.

The large intestine as an organ of absorption is of limited importance in carnivores and humans except in the initial part of the colon, where water and electrolyte absorption occurs. Conversely, the large intestine in all herbivores is well adapted for absorption, particularly of short-chain fatty acids derived



from fermentation of polysaccharides. Bacterial proteins produced in the large intestine, however, are not digested for absorption of amino acids. This is especially true in single-stomached herbivores such as the horse, where extensive digestive changes occur in the large intestine because of microbial fermentation. Digestive changes in the large intestine of ruminants are of less significance because digestion and absorption are so extensive in the anterior part of the digestive tract.

Unit 3

Respiration



Words and Expressions

inspiration [ˌɪnspə'reɪʃən] <i>n.</i>	吸气, 吸入
thorax ['θɔ:ræks] <i>n.</i>	胸; 胸廓
diaphragm ['daɪəfræm] <i>n.</i>	横膈膜, 隔板, 快门, 光圈
craniad ['kreɪniəd] <i>a.</i>	向颅, 向颅的方向, 向头部
expiration [ˌekspraɪ'reɪʃən] <i>n.</i>	呼气, 吐气
viscera ['vɪsərə] (<i>viscus</i> 的复数) <i>n.</i>	内脏, 肠
intercostal [ˌɪntə'kɒstəl] <i>a.</i>	肋间的
anesthesia [ˌænɪs'ti:zɪə] <i>n.</i>	麻醉, 麻木
abdominal [æb'dɒmɪnəl] <i>a.</i>	腹部的
rumen ['ru:men] <i>n.</i>	瘤胃
ventilation [ˌventɪl'eɪʃən] <i>n.</i>	通风, 流通空气



Listening and Exercises

Part A Respiratory Cycle

1. Listen to the recording and fill in the following spaces.

Inspiration is an enlargement of the thorax and lungs (1) an accompanying inflow of air. The thorax is enlarged by contraction of the diaphragm