MEDICAL ENGLISH FOR MEDICINE MAJORS

医学英语

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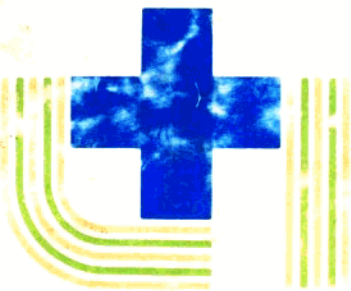

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前　言

大学英语教学大纲指出："为了保证教学的延续性，并能指导学生以英语为工具阅读有关专业书刊，获取专业信息，应在第5至第7学期由专业教师开设专业阅读课，专业阅读课为必修课。"本书根据大学英语教学大纲的要求，选编了36课医学英语，以供学完大学英语的医学院学生提高医学专业英语水平。

本教材的编写原则是突出实用性和时代感。所谓实用性，一方面是指全书的选材原则和顺序基本遵循医学基础课程的内容和顺序；另一方面每篇课文之后都有若干有关阅读理解方面的练习题，旨在帮助读者在获取专业信息方面得到提高。同时在课文的选材上也注意到选用科普读物、教科书、科研报告、病理报告等多种文体的文章。所谓时代感指的是课文的取材范围一般限制在90年代出版的英文期刊杂志和原版教科书，目的在于使读者学习本教材的同时又获取了医学发展的较新信息。

该书所选文章难易适中，长短适度，循序渐进，可以帮助学生较快地掌握医学英语。

编　者

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Lesson 1 Medicine as a Science

Medicine in part is a branch of applied biology. The substance of biologic science underlies most of the medical progress of the past half century which has so remarkably advanced the ability of the physician to intervene in illness. Much of this progress has been in fundamental or "basic" science, conducted in the pursuit of truth for its own sake. Significant progress has also resulted from research conducted by physician——scientists with a specified clinical goal in mind——for example, the elucidation of a disease mechanism. Advances in medicine also continue to occur simply by astute clinical observations concerning patients and their illnesses, but these are now the exceptions.

A recent study traced the origins of ten major clinical innovations in cardiovascular and pulmonary medicine to document the actual antecedents of medical progress. Over 60 per cent of the enabling discoveries were in the category of basic science; over 40 per cent were the result of research carried out without any particular clinical application in mind.

The present bioscientific character of medical practice is a relatively recent development. Throughout most of recorded history medicine was anything but scientific, being dominated by empiricism and shackled by dogma. Diagnoses were inexact, causes of diseases poorly understood, and therapies frivolous and haphazard.

Harbingers of change emerged slowly in the early nineteenth century, as new principles of physics and chemistry were applied to medicine. Physiologists stressed functions of organs and tissues. Pathologists, led by Virchow (1821—1902), stressed the critical study of normal and abnormal tissues and the correlation of features of disease with precise anatomic observations. Bacteriologists, with Pasteur (1822—1895) and Koch (1843—1910) in the vanguard, began to identify the microorganisms and to implicate specific organisms in specific diseases—— the anthrax bacillus in anthrax, the tubercle bacillus in consumption, the pneumococcus in lobar pneumonia, the streptococcus in puerperal fever. The groundwork for future therapies was being laid by these great scientists.

Slowly, specific therapies——insulin for diabetes, liver extract for pernicious anemia—— or specific immunizations——diphtheria antitoxin, pneumococcic antisera ——appeared. But it was not until the decade 1935—1945 that the entry of sulfonamides and penicillin into clinical medicine made curable a large number of previously lethal and untreatable diseases. It is customary to date the beginnings of modern medicine from these relatively recent events.

The language of contemporary biologic science has become increasingly biochemical. The compositions of organs, tissues, cells, and membranes have been defined. The biosynthesis and catabolism of hundreds of compounds have been elucidated. The regulation of body processes has been described at progressively finer levels, and in chemical language. Many pharmacologic agents are now understood in terms of specific loci and mecha-

nisms of action. The expansion of new knowledge continues at a pace that is bewildering to all but experts in a given field. Current advances are particularly rapid in immunology, molecular biology, and peptide research.

We have entered a molecular age of basic biologic science, and molecular biology is now a recognized discipline. The molecular influence pervades all the traditional disciplines underlying clinical medicine.

Medicine is not only a branch of applied biology, however. It also subsumed many aspects of psychology, sociology, anthropology, and economics. These disciplines, too long neglected, are now increasingly recognized as intrinsically germane to medicine as a discipline and the practice of medicine as a profession.

New Words

intervene *v.* (事件或情况)插入，在其间发生
pursuit *n.* 追求
elucidation *n.* 阐明，说明
astute *a.* 敏锐的
document *v.* 用文件证明；供以文件或证件
antecedent *n.* 前例；前事
shackle *v.* 束缚
frivolous *a.* 不庄重的
haphazard *a.* 偶然的
harbinger *n.* 先驱；前兆
vanguard *n.* 军队等的先头部队，先锋
implicate *v.* 示某人某事和…有连带关系
anthrax *n.* 炭疽病
puerperal *a.* 分娩的；因分娩而引起的
pernicious *a.* 有害的；恶性的
antitoxin *n.* 抗毒素
antiserum *n.* 抗血清
contemporary *a.* 当代的
elucidate *v.* 阐明；解释

locus *n*. 所在地;病灶
molecular *a*. 分子的
peptide *n*. 肽
pervade *v*. 遍及;充满
subsume *v*. 包含,包摄
psychology *n*. 心理学
sociology *n*. 社会学
anthropology *n*. 人类学
intrinsic *a*. 固有的
germane *a*. 密切有关的

Comprehension of the Text

Ⅰ. Answer the following questions:

1. What is the main idea of the text?
2. What is the relation between the progress of biologic science and the progress of medicine?
3. What was discovered by a recent study which traced the origins of ten major clinical innovations in cardiovascular and pulmonary medicine?
4. How was medicine like throughout most of recorded history?
5. Why did harbingers of change in medicine begin to emerge slowly in the nineteenth century?
6. When and how did modern medicine begin?
7. Why does the writer believe that the language of contemporary biologic science has become increasingly biochemical?
8. What disciplines are now increasingly recognized as intrinsically germane to medicine?

Ⅱ. Decide whether the following statements are true or false according to the text:

1. As a whole, medicine is a branch of applied biology.
2. The progress of biologic science accounted for the medical progress of the past half century.

3. Most advances in medicine today are made through simply astute clinical observations concerning patients and their illnesses.
4. After studying 10 major clinical innovations in cardiovascular and pulmonary medicine, it was found that over 60% of the discoveries were in the category of basic science while 40% were conducted by physician-scientists.
5. In the greater part of recorded history medicine was dominated by empiricism and bound with dogma.
6. With the advent of new principles of physics and chemistry and their application to medicine, medicine began to progress rapidly.
7. It is customary to date the beginning of modern medicine from the entry of sulfonamides and penicillin into clinical medicine in the decade 1935—1945.
8. The language of contemporary biologic science has become more and more biochemical.
9. The expansion of new knowledge continues at a pace that is bewildering to experts in all fields.
10. It is now increasingly recognized that social sciences, such as sociology, economics and ethics, are intrinsically related to medicine as a discipline and the practice of medicine as a profession.

Lesson 2 Biologic Processes in Puberty

Somatic Changes

One usually becomes aware of the onset of puberty through its somatic manifestations. But these are preceded by hormonal changes, which in turn are triggered by activities in hypothalamic and other brain centers. The precise mechanisms that determine the onset of puberty are as yet unknown.

Height and Weight

The pubescent growth spurt is among the more dramatic events encountered during development. Growth in stature is in progress throughout childhood. Actually, by age 10, boys have already attained 78 per cent and girls 84 per cent of their adult height. What makes the growth spurt at puberty noteworthy is mainly its rate rather than its magnitude. The height spurt typically starts at about 10.5 years among girls, reaches peak velocity at 12, and ends by 14. But it may start as early as 9.5 or end as late as 15 years. Among boys, the onset is usually at about 12 to 13 (or as early as 10.5 and as late as 16), the peak at 14, and the end at 16 (or between 13.5 and 17.5). During the year of peak height velocity, a body grows on an average of 3 to 5 inches and a girl somewhat less. This means an actual doubling in velocity of growth and approximates the rapid growth rate of the two-year-old child. Following the growth spurt, the rate of growth decelerates rapidly. Most girls at 14 years and most boys

at 16 years reach 98 per cent of their ultimate adult height. Further noticeable growth in stature ceases at about 18 years in women and at 20 years in men.

The gain in weight during puberty follows a similar pattern to height, but it is a more labile index of development than height. The non-skeletal growth increments are more marked than those for skeletal growth; by age 10, boys have gained only 55 per cent and girls 59 per cent of their adult weight. The factors which contribute to gain in weight are the increased size of the skeleton, muscles, and internal organs, and the amount of fat.

Musculature and Strength

There is a marked increase in the size and strength of the musculature at puberty in both sexes but more so for males. This is the result of muscle cells becoming more numerous and larger. Among boys, the increase in number of cells is fourteen-fold; among girls, ten-fold. In females, maximum muscle cell size is reached by age 10.5, whereas in males cells continue to enlarge until the end of the third decade.

Body Proportions

The difference between the physique of the child and the adult is determined by variation in body proportions as well as size. During puberty body proportions undergo marked changes, and when these are in progress they may become sources of concern and distress to adolescents who feel that they look neither like their former childhood selves nor quite like adults. For example, legs accelerate in growth a year before the trunk, contributing to the stereotype of the gangling adolescent. Leg

growth itself is not uniform; the foot accelerates first (though it stops growing soon), followed by the calf and the thigh. Similarly, hand and forearm grow ahead of the upper arm.

The adult face becomes distinctive through changes, undergone during puberty. The neural pattern of growth, which also characterizes the growth of the cranium, places it ahead of other systems in the developmental schedule. Thus, throughout the growth period the size of the head becomes progressively smaller relative to the rest of the body.

Internal Changes

Numerous internal changes accompany the more evident manifestations of puberty. The heart, like other muscles of the body, participates in the growth spurt and its weight nearly doubles. The steady rise of systolic blood pressure throughout childhood accelerates and soon attains adult values. The concurrent decline in pulse rate is checked, and there may even be a slight increase in the resting heart rate. Blood volume, hemoglobin, and the number of red blood cells are all increased. All these changes are more marked among males.

The respiratory system undergoes similar changes. Lung size and respiratory capacity increase during puberty, whereas respiratory rate continues to decrease. These changes once again favor the male, including a greater efficiency in oxygen exchange.

The net effect of these and related physiologic alterations in puberty greatly increases the capacity for physical exertion and allows quicker recovery from its effects. Greater exercise tolerance combined with superior strength permits individuals of both

sexes to vastly outperform their prepubescent selves in physical effort.

New Words

puberty *n.* 青春期
somatic *a.* 躯体的
precede *v.* 先于…；比…优先
trigger *v.* 引起，激发
hypothalamic *a.* 视丘下的
pubescent *a.* 青春期的
spurt *n.* 突然的激增
stature *n.* 身高，身材
noteworthy *a.* 值得注意的，显著的
magnitude *n.* 广大，巨大
peak *n.* 山顶，山峰
velocity *n.* 速度，速率
doubling *n.* 加倍，双倍
decelerate *v.* 使减速，降低速度
noticeable *a.* 值得注意的，显著的
labile *a.* 易变的，不稳定的
non-skeletal *a.* 不属于骨骼的，与骨骼无关的
increment *n.* 增长，增值
musculature *n.* 肌肉系统
physique *n.* 体格
adolescent *n.* 青少年
stereotype *n.* 陈规，旧框框
gangling *a.* 细长的，不结实的
calf *n.* 小腿，腓
thigh *n.* 大腿，股
forearm *n.* 前臂
neural *a.* 神经的，神经系统的
cranium *n.* 头盖，脑壳
relative to 相对的，比较的
systolic *a.* 收缩的
concurrent *a.* 同时发生的，共存的
hemoglobin *n.* 血红蛋白
capacity *n.* 容积，容量
net *a.* 纯净的
exertion *n.* 努力，费力
tolerance *n.* 忍受，容忍
outperform *v.* 超额完成，过度执行
prepubescent *a.* 青春期前的

Comprehension of the Text

Ⅰ. Answer the following questions:

1. What is the main idea of the text?
2. What are the main somatic manifestations of puberty?
3. Compare the height spurt among boys and among girls during puberty.
4. Describe some internal changes at puberty.

Ⅱ. Choose the best answer according to the text:

1. _____ are the main manifestations which make one become aware of the onset of puberty.
   a. Hormonal changes b. Somatic changes
   c. The growths of musculature and strength
   d. The changes of body proportions
2. It is the _____ of the growth spurt at puberty that makes it noteworthy.
   a. speed b. magnitude c. rate d. size
3. The height spurt starts _____ among girls than among boys.
   a. earlier b. later c. slower d. quicker
4. Which of the following statements is true?
   a. Both the gain in height and the gain in weight are reliable indexes of development.
   b. As an index of development, weight is more reliable than height.
   c. As an index of development, weight is not as reliable as height.
   d. The gain in weight during puberty follows a similar pattern to height, so they both are reliable indexes of devel-

opment.

5. In males muscle cells continue to enlarge _____.
   a. and reach their maximum size at age 10.5
   b. even they are in their forties
   c. even they are in their thirties
   d. until the age of 29 or so
6. Variation _____ determines the difference between the physique of the child and the adult.
   a. in body proportions
   b. in both body proportions and size
   c. in body size
   d. in body weight and height
7. Throughout the growth period the size of the head, as compared with the size of the rest of the body, becomes _____.
   a. progressively larger
   b. progressively smaller
   c. proportionally larger
   d. proportionally smaller
8. During puberty, the heart participates in the growth spurt and its weight _____.
   a. increases almost three times
   b. almost triples
   c. quadruples
   d. almost doubles
9. Which of the following statements is true?
   a. During puberty lung size, respiratory capacity and respiratory rate increase markedly.
   b. The increases in lung size, respiratory capacity and respiratory rate during puberty follow a similar pattern.
   c. Lung size and respiratory capacity increase during puberty, but respiratory rate continues to go down.
   d. Along with the increase in lung size and respiratory ca-

pacity during puberty, the respiratory rate tends to accelerate, too.

10. Why can individuals of both sexes in puberty vastly outperform their prepubescent selves in physical effort?
    a. Because they have greater exercise tolerance.
    b. Because they have iron will.
    c. Because they have larger lung capacity and stronger muscles.
    d. Because they have greater exercise tolerance and superior strength.