

(下册)

# 科技英语教程

A COURSE FOR SCIENCE ENGLISH

李桂山 主编



机械工业出版社

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本书是为高等学校学生编写的科技英语教材。难度适中,既有科普知识,也有前沿科技内容,英语专业学生与非英语专业学生均可使用。本书选材求新求实,内涵丰富,所收入的文章都是反映欧美等国有关科技发展、科技动态、科技报道、科技探索等方面的内容,全部是原文,均选自90年代国外现行书刊。语言和内容富有时代气息,可以帮助大学生在提高科技英语阅读能力的同时又学到科技知识。

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# 《科技英语教程》下册

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## 前 言

《科技英语教程》是根据高校英语专业教学大纲的要求编写的,可供高校英语专业三、四年级学生,理工科院校公共英语课的六级学生及广大自学者使用。

本书科技内容和专业题目覆盖面广,其中包括:通信卫星、太阳能、生态环境、医药、化工、计算机、气象、交通工具、合成材料、生物工程等。在科技飞速发展的今天,要求我们每个人都应该具有科技头脑,至少要尽可能多地掌握一些科技知识。随着改革开放的不断深化,我国科学技术有了长足的发展,对英语人才的需求也提出了更高的标准,他们不仅应该精通英语,还要通过英语掌握较多的科技知识。这是社会的要求,时代的要求,也是我国国情的要求。

本书内容求新求实,富有时代气息,所选材料都是 20 世纪末的优秀科技文章。编者从近年美、英、加等国出版的书中选取科技时文、科技报道、科普知识及科技人物评述。题材广泛,具有科学性、可读性和趣味性。

本教程共分两册,本书为下册,共 30 课。每课中包括课文注释、生词、词汇练习、问答题、句子和段落翻译等形式。每课的副课文 Homereading 可由学生自学阅读,这是一篇配合主课文的课外阅读材料,对于学生增长科技知识、拓宽科技视野、把握科技英语特点均大有裨益。

本书编写过程中,在我院任教的加拿大专家 Al Hergot and Ida Hergot 夫妇给予了大力支持,并提供了一些阅读资料。在此我们表示衷心的感谢。孙静和柳娜老师为本书做了大量的编辑工作。

由于时间仓促,编者水平所限,本教程中不妥之处在所难免,请同行与广大读者批评指正。

编 者

于天津理工学院外语系

1999 年 4 月 16 日

# Contents

## **Lesson One**

|                        |   |
|------------------------|---|
| Eating Disorders ..... | 1 |
|------------------------|---|

## **Lesson Two**

|                                    |   |
|------------------------------------|---|
| New Scientific Breakthroughs ..... | 9 |
|------------------------------------|---|

## **Lesson Three**

|                           |    |
|---------------------------|----|
| The Popular Science ..... | 17 |
|---------------------------|----|

## **Lesson Four**

|  |    |
|--|----|
| Improving Gene Transfer in Livestock ..... | 28 |
|--|----|

## **Lesson Five**

|   |    |
|---|----|
| Electrical and Electronic Engineering in the Future ... | 36 |
|---|----|

## **Lesson Six**

|                        |    |
|------------------------|----|
| Fuel for thought ..... | 44 |
|------------------------|----|

## **Lesson Seven**

|   |    |
|---|----|
| Deep Chill Triggers Record Ozone Hole ..... | 53 |
|---|----|

## **Lesson Eight**

|   |    |
|---|----|
| Sea Otter Declines Blamed on Hungry Killers ..... | 60 |
|---|----|

## **Lesson Nine**

|   |    |
|---|----|
| The Science that Imitates Nature's Mechanisms ..... | 71 |
|---|----|

## **Lesson Ten**

|                                    |    |
|------------------------------------|----|
| Information Handling Systems ..... | 82 |
|------------------------------------|----|

## **Lesson Eleven**

|                     |    |
|---------------------|----|
| Medical Waste ..... | 89 |
|---------------------|----|

## **Lesson Twelve**

|                                    |    |
|------------------------------------|----|
| Miniaturization of Equipment ..... | 96 |
|------------------------------------|----|

|   |     |
|---|-----|
| <b>Lesson Thirteen</b>                          |     |
| Computers in Education .....                    | 103 |
| <b>Lesson Fourteen</b>                          |     |
| DNA Suggests Cultural Traits Affect Whale's     |     |
| Evolution .....                                 | 114 |
| <b>Lesson Fifteen</b>                           |     |
| Robot .....                                     | 124 |
| <b>Lesson Sixteen</b>                           |     |
| A High-Tech Dragnet .....                       | 134 |
| <b>Lesson Seventeen</b>                         |     |
| Fingerprint System Extends Arm of the Law ..... | 141 |
| <b>Lesson Eighteen</b>                          |     |
| Technical Innovations in Pipeline Coatings      |     |
| and Their Impact on the Environment .....       | 150 |
| <b>Lesson Nineteen</b>                          |     |
| Machine Components .....                        | 158 |
| <b>Lesson Twenty</b>                            |     |
| The Bermuda Triangle; A Mystery of the Air      |     |
| and Sea .....                                   | 165 |
| <b>Lesson Twenty-One</b>                        |     |
| Lost and Found in Orbit .....                   | 174 |
| <b>Lesson Twenty-Two</b>                        |     |
| Cardiac Contagion .....                         | 181 |
| <b>Lesson Twenty-Three</b>                      |     |
| Digital Divide .....                            | 191 |
| <b>Lesson Twenty-Four</b>                       |     |
| An Attack on Aging .....                        | 201 |
| <b>Lesson Twenty-Five</b>                       |     |
| Save the Swordfish .....                        | 208 |
| <b>Lesson Twenty-Six</b>                        |     |

|                                   |     |
|-----------------------------------|-----|
| Manual; Milling Machine .....     | 214 |
| <b>Lesson Twenty-Seven</b>        |     |
| Transistor .....                  | 220 |
| <b>Lesson Twenty-Eight</b>        |     |
| Once more with Feeling .....      | 230 |
| <b>Lesson Twenty-Nine</b>         |     |
| The Bits and Bytes of Voice ..... | 241 |
| <b>Lesson Thirty</b>              |     |
| Tangled in the Net .....          | 251 |



# Lesson One

## Eating Disorders

Millions of people in the United States are affected by eating disorders. More than 90 percent of those afflicted are adolescent or young adult women. While all eating disorders share some common manifestations, anorexia nervosa, bulimia nervosa, and binge eating each have distinctive symptoms and risks.

People who intentionally starve themselves (even while experiencing severe hunger pains) suffer from anorexia nervosa. The disorder, which usually begins around the time of puberty, involves extreme weight loss to at least 15 percent below the individual's normal body weight. Many people with the disorder look emaciated but are convinced they are overweight. In — patients with anorexia nervosa, starvation can damage vital organs such as the heart and brain. To protect itself, the body shifts into slow gear: menstrual periods stop, blood pressure rates drop, and thyroid function slows. Excessive thirst and frequent urination may occur. Dehydration contributes to constipation, and reduced body fat leads to lowered body temperature and the inability to withstand cold. Mild anemia, swollen joints, reduced muscle mass, and light — headedness also commonly occur in anorexia nervosa.

Anorexia nervosa sufferers can exhibit sudden angry outbursts or become socially withdrawn. One in ten cases of anorexia nervosa leads to death from starvation, cardiac arrest, other medical complications, or suicide. Clinical depression and

anxiety place many individuals with eating disorders at risk for suicidal behavior.

People with bulimia nervosa consume large amounts of food and then rid their bodies of the excess calories by vomiting, abusing laxatives or diuretics, taking enemas, or exercising obsessively. Some use a combination of all these forms of purging. Individuals with bulimia who use drugs to stimulate vomiting, bowel movements, or urination may be in considerable danger, as this practice increases the risk of bingeing and purging is common.

Because many individuals with bulimia binge and purging in secret and maintain normal or above normal body weight, they can often successfully hide their problem for years. But bulimia nervosa patients—even those of normal weight—can severely damage their bodies by frequent binge eating and purging. In rare instance, binge eating causes the stomach to rupture; purging may result in heart failure due to loss of vital minerals such as potassium. Vomiting can cause the esophagus to become inflamed and glands near the cheeks to become swollen. As in anorexia nervosa, bulimia may lead to irregular menstrual periods. Psychological effects include compulsive stealing as well as possible indications of obsessive—compulsive disorder, an illness characterized by repetitive thoughts and behaviors. Obsessive-compulsive disorder can also accompany anorexia nervosa. As with anorexia nervosa, bulimia typically begins during adolescence. Eventually, half of those with anorexia nervosa will develop bulimia. The condition occurs most often in women but is also found in men.

Binge-eating disorder is found in about two percent of the general population. As many as one-third of this group are men.

It also affects older women, though with less frequency. Recent research shows that binge-eating disorder occurs in about 30 percent of people participating in medically supervised weight control programs. This disorder differs from bulimia because its sufferers do not purge. Individuals with binge-eating disorder feel that they lose control of themselves when eating. They eat large quantities of food and do not stop until they are uncomfortable full. Most sufferers are overweight or obese and have a history of weight fluctuations. As a result, they are prone to the serious medical problems associated with obesity, such as high cholesterol, high blood pressure, and diabetes. Obese individuals also have a higher risk for gallbladder disease, heart disease, and some types of cancer. Usually they have more difficulty losing weight and keeping it off than do people with other serious weight problems. Like anorexic and bulimic sufferers who exhibit psychological problems, individuals with binge-eating disorder have high rates of simultaneously occurring psychiatric illnesses—especially depression.

### New words

- |                 |             |
|-----------------|-------------|
| 1. emaciate     | v. 消瘦, 使憔悴  |
| 2. anorexia     | n. 厌食       |
| 3. dehydration  | n. 脱水       |
| 4. constipation | n. 便秘       |
| 5. bulimia      | n. 易饿病      |
| 6. laxative     | adj. 放松的    |
| 7. enema        | n. 灌肠剂      |
| 8. purge        | v. 泻肚       |
| 9. rupture      | v/n. 脱出, 破裂 |
| 10. obese       | adj. 肥胖的    |

|                 |             |
|-----------------|-------------|
| 11. fluctuation | n. 波动,起伏    |
| 12. gallbladder | n. 胆囊       |
| 13. psychiatric | adj. 精神病治疗的 |
| 14. menstrual   | n. 月经       |
| 15. diuretics   | n. 利尿剂      |
| 16. esophagus   | n. 食道       |
| 17. potassium   | n. 钾        |

## Notes

1. share some common manifestations 表现出的症状,有一些是相同的。
2. the body shifts into slow gear 机体内部运转逐渐缓慢下来
3. become socially withdrawn 变得不愿与人交往
4. other medical complications 其他内科综合症
5. clinical depression 由于治疗效果不佳而导致的沮丧和消沉
6. binge-eating 暴食暴饮

## Exercises

### I. Complete the sentences with the given words in proper forms.

emaciated    afflict    manifestations    dehydration  
constipation    medical complication    binge-eating  
purge    bulimia    obese    fluctuation  
potassium    esophagus

1. Purging may result in heart failure due to loss of vital minerals such as \_\_\_\_\_.
2. Most binge-eating disorder suffers are overweight or \_\_\_\_\_ and have a history of weight \_\_\_\_\_.
3. \_\_\_\_\_ nervosa patients can severely damage their bodies by frequent \_\_\_\_\_ and \_\_\_\_\_.
4. Vomiting can cause the \_\_\_\_\_ to become inflamed and glands

near the cheeks to become swollen.

5. \_\_\_\_\_ contributes to \_\_\_\_\_.
6. More than 90 percent of the people \_\_\_\_\_ are adolescent or young adult women.
7. All eating disorders share some common \_\_\_\_\_.
8. Many people with the disorders look \_\_\_\_\_ but convinced that they are overweight.
9. One in ten cases of anorexia nervosa leads to death from starvation, cardiac arrest, other \_\_\_\_\_ or suicide.

## **II. Comprehension questions.**

1. How many types of eating disorders are talked about here?
2. What are the common manifestations that all eating disorders share?
3. What kind of people may suffer from anorexia nervosa and when does the disorder usually begin?
4. What will be the possible physical and psychological consequences that may occur to those with anorexia nervosa?
5. What is the worst result that may occur to individuals with eating disorders?
6. What kind of people may suffer from bulimia nervosa and when does the disorder usually begin?
7. How do those with these kinds of disorders rid their bodies of excess calories?
8. What will be the physical consequences as well as the psychological ones binge-eating individuals may suffer from?
9. Who suffer most from binge-eating, men or women?
10. In what ways does binge-eating disorder differ from bulimia?
11. What medical problems may occur to those with binge-eating disorder?

### III. Translate the following passages into Chinese.

1. Millions of people in the United States are affected by eating disorders. More than 90 percent of those afflicted are adolescent or young adult women. While all eating disorders share some common manifestations, anorexia nervosa, bulimia nervosa, and binge eating each have distinctive symptoms and risks.
2. Many people with the disorder look emaciated but are convinced they are overweight. In-patients with anorexia nervosa, starvation can damage vital organs such as the heart and brain. To protect itself, the body shifts into slow gear: menstrual periods stop, blood pressure rates drop, and thyroid function slows. Excessive thirst and frequent urination may occur. Dehydration contributes to constipation, and reduced body fat leads to lowered body temperature and the inability to withstand cold. Mild anemia, swollen joints, reduced muscle mass, and light-headedness also commonly occur in anorexia nervosa.
3. Because many individuals with bulimia binge and purging in secret and maintain normal or above normal body weight, they can often successfully hide their problem for years. But bulimia nervosa patients—even those of normal weight—can severely damage their bodies by frequent binge eating and purging. In rare instance, binge eating causes the stomach to rupture; purging may result in heart failure due to loss of vital minerals such as potassium. Vomiting can cause the esophagus to become inflamed and glands near the cheeks to become swollen. As in anorexia nervosa, bulimia may lead to irregular menstrual periods.

## Homereading

### Study Finds How Green Tea Might Fight Cancer

Green tea contains substances that can kill tumor cells, which may explain why the drink, popular in Asia, seems to protect people from cancer, researchers say. Green tea is much richer in these compounds than other kinds of tea, the husband-and-wife team at Purdue University found. "Our research shows that green tea leaves are rich in this anti-cancer compound, with concentrations high enough to induce anti-cancer effects in the body," Dorothy Morre, a professor of foods and nutrition at Purdue, said in a statement. She and her husband James Morre, a chemist and pharmacologist (药理学家) at Purdue, had heard reports of green tea's purported effects and Set Out to see if there was a mechanism. Speaking at a meeting this week of the American Society of Cell Biology in San Francisco, they said they found green tea affects an enzyme (酶) known as NOX. "Normal cells express the NOX enzyme only when they are dividing in response to growth hormone signals," Dorothy Morre said in a statement. "In contrast, cancer cells have somehow gained the ability to express NOX activity at all times." This tumor-associated NOX activity is called tNOX. The Morres set out to see if there was something in green tea that affects NOX.

They found epigallocatechin (上五倍子儿茶酚) gallate (五倍子酸盐) or EGCg for short, interfered with tNOX but not with normal NOX. "This is one of the first studies to directly link the EGCg in green tea to anti-cancer activity," Morre said. The EGCg limits the activity of breast cancer tumor cells grown in the laboratory, but does not seem to affect normal, healthy breast cells, the Morres reported. Now tests are needed to see if

EGCg is active in the bodies of people who drink green tea. Green tea and black tea both come from the same bush in the camellia family (茶属). But black tea has been allowed to ferment, which may interfere with compounds such as EGCg the Morres said.



# Lesson Two

## New Scientific Breakthroughs

Peering into the 21<sup>st</sup> century, authorities on the future see extraordinary changes.

Whether in the home, the workplace or outer space, many of these changes will be of the sort that seemed unthinkable only a few years ago. Cars that can spot their own parking places, household appliances that talk back, factories in orbit and computers powered by protein cells, to name a few.

### **Technology: Is It Machine or Human?**

New scientific breakthroughs will allow machines to take on more tasks that the human brain has traditionally done.

Computers, which once only remembered data, will make more decisions. Machines that tell doctors today what symptoms the patients have may soon be recommending surgery. Others will design new buildings after questioning buyers about their preferences. Increasingly, human thought processes and even values are being programmed into computers, according to Earl Joseph, president of Minneapolis consulting firm. "Imaging machines which are smarter and more intelligent than humans and, with their embedded initiative, can't wait to tell you about it," he says.

In everyday life, the future will mean talking directly to computers without pushing buttons. Just tell a toaster, stove or other kitchen device what to do, and it will hear the message. The oven may even decide itself how long to cook the roast. Tell