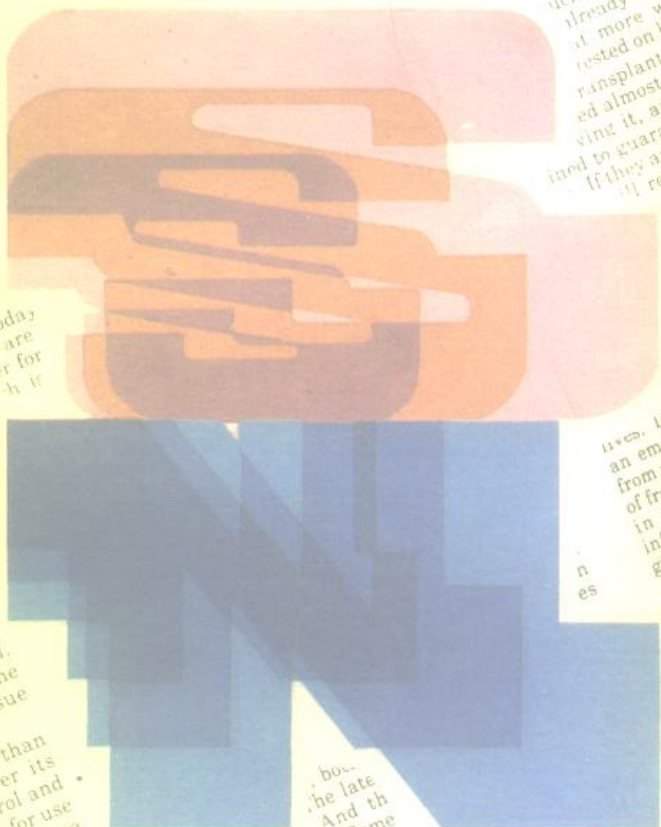


科技新闻选

SCIENCE IN THE NEWS

美国之音慢速英语

VOA SPECIAL ENGLISH



中国对外翻译出版公司

China Translation & Publishing Corporation

英汉对照读物

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贾宗谊 刘 荣 译
钟允之 谢栋凤

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by VOA Special English
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出 版 说 明

我们生活在科学技术高度发达的时代，我们的未来离不开科学技术。因此，在大多数人，特别是在青少年中普及科学知识，并介绍国外科技发展的情况是很有必要的。《科技新闻选》是由美国之音慢速英语“科技新闻”节目提供的30篇广播稿，它介绍了科学技术上的一些新发现、新进展和新成果，每篇文章篇幅不长，内容生动有趣，语言简单易懂，符合大多数人的知识水平和要求。通过本书读者既可以学习英语和科普知识，又可以了解目前世界上科学技术发展的一些新情况。为了满足广大读者的需要，我们还提供了参考译文。

本书可供广大具有中等文化水平和一般英语水平的读者阅读。

中国对外翻译出版公司

一九九二年七月

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AIDS -- ACQUIRED IMMUNE DEFICIENCY SYNDROME

AIDS is in the news almost every day. Some reports tell about the deadly sickness. Others describe attempts to develop treatments. And others report the continuing increase in death and tragedy caused by the spreading virus. Here, we will discuss this worldwide problem and the efforts of researchers to treat it.

AIDS is a life-threatening sickness that attacks the body's natural defense system against disease. It can destroy the body's ability to protect itself.

AIDS itself does not kill. But because the body's defense system is damaged, the patient has little ability to fight off many other diseases -- including pneumonia, cancer, blindness and mental disorders.

The World Health Organization says as many as 10-million persons worldwide may have the virus that causes AIDS. Experts believe about 350-thousand persons have the disease. And one-million more may get it in the next five years. In the United States, about 50,000 persons have died with AIDS. The country's top medical official says more than 90 percent of all Americans who had the AIDS virus five years ago are dead.

There is no cure for AIDS and no vaccine medicine to prevent it. However, researchers know much more about AIDS than they did just a few years ago. We now know that AIDS is caused by a virus. The virus invades healthy cells, including white blood cells that are part of our defense system against disease. It takes control of the healthy cell's genetic material and forces the cell to make a copy of the virus. The cell then dies. And the viral particles move on to invade and kill more healthy cells.

The AIDS virus is carried in a person's body fluids. The virus can be passed sexually or by sharing instruments used to take intravenous drugs. It also can be passed in blood products or from a pregnant woman with AIDS to her developing baby.

艾 滋 病

(获得性免疫缺陷综合症)

艾滋病几乎成了每日新闻：一些报道谈论这种不治之症；另一些报道描述在艾滋病治疗方面所作的尝试；而其他则报道因艾滋病毒的传播造成的死亡和悲剧不断发生。本文将讨论这个全球性问题以及研究人员为治疗艾滋病所作出的努力。

艾滋病是一种威胁生命的疾病，它侵袭人体内的自然免疫系统，它能破坏人体的自卫能力。

艾滋病本身并不致命，但是，由于人体的免疫系统遭到破坏，病人几乎没有什么能力来抵抗许许多多其他疾病的侵袭，——它们包括肺炎、癌症、眼睛失明和精神错乱。

世界卫生组织称，全世界可能有1000万人带有引起艾滋病的病毒。专家们认为，大约35万人已经得了艾滋病，并且在今后的5年里可能有100万以上的人患艾滋病。在美国，大约已有5万人死于艾滋病，美国医疗卫生部门的最高官员说，5年前带有艾滋病毒的美国人中90%以上已死亡。

艾滋病无法治疗，也没有预防艾滋病的疫苗。但是，研究人员现在比几年前对艾滋病有了更多的了解。我们现在知道，艾滋病是由一种病毒引起的，这种病毒侵入健康细胞，其中包括我们的免疫系统的组成部分白血球细胞。它控制健康细胞的遗传物质，并迫使健康细胞繁殖病毒，然后死亡，而这种病毒却继续侵入和杀死更多的健康细胞。

艾滋病毒存在于人的体液里。这种病毒可以通过性生活或共用静脉注射器得以传播，它还可以通过血制品传播，

Many stories about the spread of AIDS are false. You cannot get AIDS by working or attending school with someone who has the disease. You cannot get it by touching drinking glasses or other objects used by such persons. Experts say no one has gotten AIDS by living with, caring for or touching an AIDS patient.

There are several warning signs of an AIDS infection. They include always feeling tired, unexplained weight loss and the uncontrolled expulsion of body wastes. Other warning signs are the appearance of white areas on the mouth, dark red areas of skin that do not disappear and a higher than normal body temperature.

However, just because you have one or more of these conditions does not mean you have AIDS. Always go to a doctor or health center for a complete examination. The doctor may give you an AIDS blood test.

When a virus enters the body, the body's defenses against disease produce antibodies to fight the virus. The test shows if the body has produced antibodies to the AIDS virus. Results of the test are known after a few hours. The test tells only if your body has produced AIDS antibodies. It cannot tell if you have AIDS or if you will ever get the disease. In December (1988), the United States government approved a simpler and faster AIDS blood test. The newer test can confirm the presence of the AIDS antibodies in about five minutes.

Only a few drugs have been approved for use in the United States as AIDS treatments. In 1984, health officials approved the drug pentamidine for use by persons with AIDS-related pneumonia. AIDS-related pneumonia is the most common cause of death in AIDS patients. Three years later, the drug AZT became the first drug approved for general use in the United States against the AIDS virus itself. Tests have shown that AZT can extend the life of persons with AIDS or sicknesses linked to AIDS. The tests show that a patient's chance of living longer is greatest when treatment is started early.

A third drug was approved in December (1988). The drug, alpha interferon, is a protein found naturally in

也可以从一位患艾滋病的孕妇身上传染到她的妊娠婴儿身上。

有关艾滋病传播的许多报道是错误的。与艾滋病患者一起工作或上学不会传染上艾滋病，触摸他们用过的饮水杯或其他东西也不会传染上艾滋病。专家们说：与艾滋病患者一起生活、照料艾滋病患者或触摸艾滋病人，都不会得艾滋病。

艾滋病的传染有几种警告性迹象，其中包括总觉得累、查不出原因的消瘦和大小便失禁。其他警告性迹象是：嘴上出现一块块白斑，皮肤上出现一块块紫斑，体温高于正常人。

然而，如果你只有以上的一种或一种以上的症状还不能说是得了艾滋病。到医生那儿或到健康中心去作一次全面检查，医生可能会给你作艾滋病验血检查。

在艾滋病毒进入人体时，人体的免疫系统产生抗体与病毒作斗争。血液检查将表明人体是否已产生艾滋病毒的抗体。检查结果几个小时后就能知道。验血只能表明人体是否已产生艾滋病抗体，但不能表明是否已得艾滋病或者将会得艾滋病。1988年12月，美国政府批准了一种较简便、较快的艾滋病验血检查方法。这种较新的验血方法可以在5分钟内证实艾滋病抗体的存在。

在美国只有少数药品被准予用于艾滋病治疗。1984年，卫生部门的官员批准药品戊烷脒用于治疗与艾滋病有关的肺炎病人，这种病是艾滋病人死亡的最普遍的原因。3年以后，药品AZT成为美国最早被批准用于治疗艾滋病毒的药物。试验表明：AZT能够延长艾滋病人或与艾滋病有关的其他病人的生命。试验还表明：治疗越及时，延长病人生命的可能性就越大。

1988年12月，第三种用于治疗艾滋病的药物得到批

the human body in small amounts. Large amounts can be made in the laboratory. Health officials say alpha interferon can be used to treat Kaposi's sarcoma, a cancer common in AIDS patients.

American officials announced in February (1989) that they will permit the use of a treatment before all tests of its effectiveness were completed. The treatment uses aerosol pentamidine, a gaseous form of pentamidine. Early tests showed that the use of aerosol pentamidine lowers a patient's chance of developing AIDS-related pneumonia. Some researchers say the treatment may have harmful side effects. Others dispute the finding.

There recently was some bad news for patients who depend on the small number of approved AIDS treatments. Doctors in the United States found evidence that some patients are developing viruses that oppose, or resist, the treatments. In the most serious example, drug-resistant forms of the AIDS virus were found in persons receiving AZT. Many researchers said they are not surprised by the finding.

Viruses and bacteria usually become resistant to drugs through changes in genetic information. These genetic changes permit the viruses and bacteria to survive in the presence of a drug that normally would kill them.

Scientists are working on a number of possible new AIDS drugs. Experts say one of the most promising is called CD-4. It is a man-made copy of a protein that appears naturally on some of our major disease-fighting cells.

Doctors say the AIDS virus usually begins its attack by linking to the protein cover of disease-fighting cells. They hope the CD-4 drug will block this link. They hope the AIDS virus will link instead to the CD-4. The virus then would not be able to attack real cells.

In one study, CD-4 was given to six Rhesus monkeys. Four of the animals had the simian immunodeficiency virus, or SIV. SIV is similar to the AIDS virus, and attacks CD-4 molecules. Two weeks later, researchers

准。这种药物叫 α 干扰素，是一种能自然地人体中找到的少量蛋白质，而大量蛋白质可在实验室里生产。卫生部门官员说， α 干扰素可以用于治疗卡波济肉瘤，这是艾滋病病人普遍得的一种癌症。

1989年2月，美国官员宣布，他们将在还没有完成所有的效果试验之前就允许使用一种疗法，这种疗法采用烟雾状戊烷脒——一种气体状戊烷脒。早期试验表明：使用烟雾状戊烷脒，能够使病人患与艾滋病有关的肺炎的可能性减小。一些研究人员说，这种疗法可能引起有害的副作用；其他研究人员则对这一研究结果有争议。

对于那些依赖于少数已获准的艾滋病疗法的病人来说，最近有一些坏消息。美国的医生们找到证据说，一些病人正在繁殖的病毒能对抗或抵制那些艾滋病疗法。一个最严重的例子是，在接受AZT药物治疗的病人身上找到了抗药性艾滋病毒。许多研究人员说，他们对这一发现并不感到惊奇。

病毒和细菌通常通过基因信息的变化对药物产生抵抗性。这些基因变化允许病毒和细菌在一种通常会杀死它们的药物面前生存下来。

科学家们正在研制一些可能医治艾滋病的新药。专家们说，最有希望的一种药叫CD-4。它是一种人类复制的蛋白质，这种蛋白质自然地出现于我们的一些主要抗病细胞。

医生们说，艾滋病毒是以与抗病细胞的蛋白层相连接开始其侵袭的。他们希望新药CD-4能够阻止这种连接。他们还希望艾滋病毒将与CD-4连接，这样它就不能侵袭真正的细胞。

在一次试验中，给6只罗猴服用了新药CD-4，其中4只罗猴已染上了猴类免疫缺陷病毒，或者叫SIV病毒。

were unable to find the SIV virus in the animals' blood and bone marrow. The researchers said the study did not last long enough to show if CD-4 improved the animals' natural defenses against disease. And the results do not mean the drug necessarily will work in humans.

Doctors now have started human tests of the drug. Researchers also are developing drugs similar to CD-4 that would block chemicals needed by the AIDS virus.

Experts say there probably never will be one drug that can cure AIDS. They say this is because the perfect medicine must do so many different things. They say the (most) effective treatment probably will include more than one medicine. For example, doctors might use anti-viral drugs to attack the AIDS virus. At the same time, the patient might receive medicines to treat diseases linked to AIDS. And other drugs might strengthen the patient's weakened defense system against disease.

Doctors say it will be many years before scientists develop this effective treatment. Until then, health experts say, the best immediate way to deal with the problem is through education and prevention.

SIV 类似艾滋病毒，它侵袭 CD-4 的分子。两周以后，研究人员从罗猴的血液和骨髓里未能找到 SIV 病毒。研究人员说，这项试验的时间不够长，还不能表明 CD-4 能否加强罗猴自身的免疫能力，而且试验结果也没有表明这种新药对人类一定有效。

医生们现已开始对人类试用这种新药。与此同时，研究人员正在研制能够阻止艾滋病毒所需要的化学物质的类似 CD-4 的新药。

专家们称，决不可能只有一种医治艾滋病的药，他们说，这是因为一种完美的药物必须有许多不同的功效，而最有效的治疗可能需要不止一种药物。例如：医生们可能在用抗病毒的药来杀死艾滋病毒的同时让病人服药治疗与艾滋病有关的疾病，与此同时，其他药物可能用来增强病人减弱了的免疫功能。

医生们说，离科学家们研究出这种有效疗法还需要许多年的时间。卫生部门专家说，在这之前，解决这个问题的最为直接有效的办法是教育和预防。

BIOFEEDBACK

We are not born knowing how to throw a ball. We must learn how to do it. We take the ball in our hand. We squeeze the muscles in our hand and arm to hold the ball firm. We ease the muscles to let the ball drop to the ground. We do this several times. We have now learned what we must do to hold the ball so we can throw it.

We repeat this method of learning for each step of the action. For pulling the arm back. For throwing the arm forward. For releasing the ball so it will hit its target. At each step, we think about the movement. We feel what our body is doing. And we see immediately if we have thrown the ball correctly. We have learned a new skill.

This method of learning by thinking, feeling and seeing the results of our effort is called "feedback."

One of the first recorded experiments on feedback took place early in this century. It was a foolish experiment, in some ways. Yet it helped prove that feedback could work.

Scientist J. H. Bair wanted to teach a group of young men to move their ears. Bair gave the men's ears a series of electric shocks. The shocks made the ear muscles jump. It looked as if the men were moving their ears.

Bair told the men to think hard about what was happening. Feel the muscles jump, he said. Then Bair stopped the electric shocks. Again he told the men to think hard and try to feel their ear muscles jumping. The experiment worked. The men were able to move their ears, on their own, just by thinking about the action. Bair's experiment showed that to control an action, a person must first be able to recognize it.

Since Bair's time, a few scientists wondered if feedback could be used for a more serious purpose: to control body activities to improve health.

A good way to observe the body's unseen activities is to measure the electric signals created by chemical reactions in the body. The patient is connected to an electronic device by wires placed on top of the skin. One

生 物 反 馈

我们并非生来就知道如何抛球。我们必须学习如何去。我们把球拿在手里，收紧手上和臂部的肌肉把球握牢，我们放松肌肉让球落到地上。我们这样做上几次。于是，我们就知道了必须做些什么，才能握住球再把它抛出去。

我们重复这种学习方法，掌握每一个动作：把手臂收回来，把手臂伸向前方，把球放了使它击中目标。每一步，我们都要想着我们的动作。我们感觉我们所正在做的，如果我们已正确地投球，我们可以立即看到。这样，我们学会了一种新的技能。

这种通过思考、感觉和察看我们努力的结果的学习方法，叫作“反馈”。

首批有记载的有关反馈的试验之一是在本世纪初进行的。从某些方面来说，那是一种愚蠢的试验，但是，它有助于证明反馈是行得通的。

科学家 J. H. 贝尔想教会一批年轻人活动他们的耳朵，他对这些人的耳朵进行一系列电击，电击使耳朵的肌肉跳动，看上去就好像这些人在活动他们的耳朵。

贝尔告诉这些人努力想着所发生的事并感觉肌肉的跳动。然后贝尔停止电击，他又告诉这些人努力想象并感觉耳朵肌肉在跳动。这个试验成功了。这些人仅以想象其动作的方法就可以自行活动他们的耳朵。贝尔的试验表明，一个人要想控制一个动作，首先必须认识它。

自贝尔的试验以来，一些科学家就想知道反馈能否被用来达到更为重要的目的：即控制身体活动，以促进健康。

一个观察体内看不见的活动的好方法是，测量体内化学反应所产生的电信号。用放在人体表面的电线，把病人同电子仪器连接起来，一种这样的仪器把电信号变成一条

such device shows the electric signals as a thin line on a moving piece of paper. Other devices may change the electric signals into sounds or colored lights.

Using electronic instruments to measure inner body activities is called "biofeedback." Teaching a patient to control the activities in this way is called biofeedback training.

Organized biofeedback research began in the early 1960s. Electromyography was one of the most important parts of the new research. An electromyography device records the electric signals produced by chemical reactions in the muscles as the muscles move. It can measure movements so small we cannot see them with our eyes. For example, it can tell when a muscle is tense and when it is at rest. Most biofeedback training today involves teaching people to control muscle tension.

Researchers connect a patient to the device. Every time one of the patient's muscles moves, the device makes a sound. If the muscles become tense, the sounds get faster. If the muscles become less tense, the sounds slow down. The patient now has a way to recognize muscle tension, by hearing it.

Electromyography machines are used most often to teach people how to make their muscles less tense. This can help people who suffer from headaches. The muscles in the neck of a headache victim become very tense. The muscles squeeze blood vessels leading to the brain. The blood pushes hard to get through the vessel. It settles back and then tries to push through again, like a river trying to find a hole in a dam.

If the muscles stop squeezing the blood vessels suddenly, the blood will flow through very quickly. This creates the painful bursts that make headache victims feel they are being hit on the head repeatedly.

One young woman suffered from a headache for six years. Her head ached when she woke in the morning. It ached all through the day. And it ached when she went to bed at night. She took as many as 70 aspirin pills every week. But the pain never stopped. Then a doctor told her about biofeedback training. She thought