

《探索英语——震撼听说读系列》丛书

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Discovery
CHANNEL

The Human Design
人体的奥秘

探索英语编委会 编

新世界出版社
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Preface

前 言

Discovery Channel 是美国著名的电视系列节目，自从播出后便以其丰富的主题、独特的视角、优美的画面和生动的语言感染了全世界的人们并掀起了一场全球性的探索热潮。

Discovery Channel 电视节目在我国各地电视台播出后引起了极大的反响，越来越多的人开始关注我们周围的世界，探知宇宙、自然、历史、科学、人类、动物、军事、医学等各种学科领域的知识。

《探索英语——震撼听说读系列》是一套集听、说、读为一体的英语学习丛书，根据探索节目内容编排而成，共分七大主题——宇宙、自然、动物、历史、科学、探案、军事。每个主题下又由数本小主题组成，独立成册。这套丛书采用中英文双语形式，每本书均设有背景知识、难点注释、词汇解释、综合理解练习。

高品位的节目，高质量的音效，高水准的配音及优美、流畅、地道的语言表达是这套丛书的特点，也使它独具魅力，可谓是学习英语类图书中难得的上好教材。读者可以借助磁带或 CD 聆听纯正的英语朗读，在享受的同时磨练听力，还可以通过阅读细细体味原汁原味的英语美文、精巧的句式和短语，从而丰富语言知识。此外，读者也可以利用书中设

置的讨论题结合主题展开讨论，表述自己的观点和看法，以此达到练习口语的目的。另外，由于本书内容由解说词和谈话构成，所以部分语句不可避免地存在不符合书面语法的情况，这是英语（尤其是美语）口语的特点，而并非错误。

如今英语学习已进入了一个崭新的时代，全面提升英语素质的图书受到越来越多人的欢迎。《探索英语——震撼听说读系列》丛书愿为英语学习爱好者和不断寻求新知的人打开一扇窗，清新的空气会令人心旷神怡，感悟英语学习也能如此惬意、愉悦，同时带来的是前所未有的心灵震撼。

我们衷心希望这套丛书能对读者提高英语素质有所益处，让读者在阅读和聆听的同时感受快乐和满足。让我们一起走进探索英语，体会那份震撼与魅力吧。

编者

2004年11月30日

How to Use This Book

学习指南

专家提示您采用以下方法学习：

- 阅读“背景介绍”

它有助于您更好地了解本书的主题和相关的知识。

- 学习“相关词汇”

这里的词汇全部与本书主题紧密相关，大多数取自正文，个别词汇源于他处是扩展词汇。它们对学习者进行针对主题展开的讨论大有帮助，也便于记忆。

- “正文”学前的热身

进入正文学习时请先听一遍录音，测试一下自己能听懂多少内容，有心者可做个记录。

- “正文”泛读

在不参考注解的前提下阅读正文，测试一下自己的理解能力，并培养把握中心大意的能力。

- “正文”精读

1. 借助词汇注解仔细阅读全文，全面理解文中的内容；
2. 学习词汇、短语和其在文中的用法；学习或背诵文中的好句子、好段落。文中的词汇和短语均用黑体显示并有标号，方便您随时查找，其音标和中文释义标在书页的一侧，

音标前有标号。好句子和好段落均用下划线标出。当然，您也可以自己采集好句子和好段落，反复回味。

- “理解练习”

这是为检测您对本书的理解而设置的小小练习，您可以在开始泛听和泛读之前先浏览一遍题目。

- “讨论题”

这是针对学生而设置的口语练习，学生可以利用所学的词汇和对主题的了解和掌握表述自己的观点和看法。每个讨论题均有参考答案。

- “译文”

在书后我们提供了译文，供您参考。

- “词汇表”

词汇表中包括单词和短语两部分，所有正文中标出的单词均列在表中，表中的中文释义比正文中的多，含有每个单词在其他的句子中的不同解释。

以上是我们的建议，衷心希望您能学有所获。

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The Human Design

人体的奥秘

Background 背景介绍

生命的起源是什么呢？作为万物之灵的人类身体里又蕴藏着多少神奇而时刻不停息的运动呢？

恩格斯曾指出：“生命是蛋白体的存在方式。这个存在方式的基本因素在于和它周围的外部自然界的不断的新陈代谢。而这种新陈代谢一停止，生命就随之停止，结果便是蛋白质的分解。”（《自然辩证法》）他还指出，经过不知多少万年的演化，在一定条件下，不定形的蛋白质中产生了有组织的细胞；从原生生物中分化出植物、动物；从动物中进化出脊椎动物；脊椎动物又经过千万年的进化，才从类人猿中进化出人类。人类是宇宙中物质进化发展的最高级形式。恩格斯说，人类生命是把力学、物理学、化学、生物学等结合为一个有机整体的高度的统一体。特别是思维着的大脑，更是地球上物质进化开出的“最美的花朵”。身体的基本单元是细胞。它由细胞膜、细胞质、细胞核、染色体等很复杂的结构组成。

人体结构极其复杂。206 块骨骼，656 块肌肉，50 万亿个细胞，2000 万亿个神经元构成的神经系统，以及由它调控的运动系统、呼吸系统、循环系统、消化系统、内分泌系

统、生殖系统、泌尿系统八大系统和成千上万小系统有机结合，协同工作，才能创造出能够思考的万物之灵——人类。而且一个人只要生存，就一刻不停地进行着呼吸、养料的输送和消化、受损细胞的修复和调节。人体外部我们用肉眼可看到皮肤和肌肉，内部在骨骼的支撑下，呼吸系统获得的氧气，消化系统从食物中获取的能量，都由血液循环带到身体的各个部位，以满足人体的生存活动的需要。神经系统则掌管着神经细胞的所有活动，负责各种信息与脑部的联系。内分泌系统则控制着数十种活动的节律，包括睡眠、清醒、储存及消耗食物、细胞的生长和胚胎的形成和发育等。

人体是一部庞大的机器。它究竟是如何运行的呢？本书将帮您揭开人体活动的神秘面纱，详尽地展示人体的结构和作用。从心脏出发，通过纵横交错的血管抵达全身各处，从皮肤、肌肉、骨骼到神经系统，从脑部、眼、耳、鼻、口到消化和内分泌系统，直到受精卵形成以及发育成最初人体，您将领略生命惊心动魄的全过程。

还等什么，快来开始这神奇的人身之旅吧！

☞ Key Words 相关词汇

- digestive system 消化系统
 nervous system 神经系统
 immune system 免疫系统
 circulation system 循环系统
 endocrine system 内分泌系统
 bone *n.* 骨骼
 muscle *n.* 肌肉
 breathing *n.* 呼吸
 metabolism *n.* 新陈代谢
 brain *n.* 大脑
 heart *n.* 心脏
 lung *n.* 肺
 liver *n.* 肝
 stomach *n.* 胃
 small (large) intestine 小 (大) 肠
 kidney *n.* 肾
 gall bladder 胆囊
 bladder *n.* 膀胱
 uterus *n.* 子宫
 ovary *n.* 卵巢
 urine *n.* 尿
 artery *n.* 动脉
 vein *n.* 静脉

vessel *n.* 脉管, 血管
aorta *n.* 主动脉
arteriole *n.* 细动脉
capillary *n.* 毛细管
white cell 白血球
red cell 红血球
plasma *n.* 血浆
hormone 激素
hormone *n.* 荷尔蒙, 激素
estrogen *n.* 雌激素
germ *n.* 细菌
bacteria *n.* 细菌
joint *n.* 关节
the spinal cord 脊髓
shoulder blade 肩胛骨
femur *n.* 大腿骨
kneecap *n.* 膝盖骨
skin *n.* 皮肤
cornea *n.* 角膜
retina *n.* 视网膜
puberty *n.* 青春期
fetus *n.* 胎儿

Text 正文

The Human Design

The human body is a miracle **in motion**¹. With it we can do more things than any creature on earth. But our bodies do a lot more than meets the eye. At any given moment, we're breathing and pumping, digesting and repairing, regulating and regenerating, and even making new life.

Inside us is a maze of interdependent systems: not one works alone. Blood gets oxygen from the lungs, and fuel from the **digestive system**². In the bloodstream, the **immune system**³ is on constant patrol, hunting down germs and damaged cells. Our glands control dozens of activities: when we sleep and wake up, when we store food and when we use it. The **nervous system**⁴ relays signals back and forth to the brain, the master of every move we make.

At the heart of all these is the heart.

We say the heart leaps, sinks, swells, aches and breaks. What it really does is pump. The heart drives blood all over the body through a labyrinth⁵ of vessels⁶. While the blood is getting pushed around, it drops off

1 在运转中

2 消化系统

3 免疫系统

4 神经系统

5 ['læbərɪnθ]
n. 迷宫6 ['vesl]
n. 脉管, 血管

1 ['kɑ:geu]

n. 货物

supplies for every cell. The deliveries include food and water, but the most critical **cargo**¹ is oxygen.

Blood soaks up oxygen in the lungs and enters the heart. The heart has four hollow chambers that work in pairs as two separate pumps. One pumps blood to the lungs to pick up oxygen, while the other pumps blood through the body to drop it off.

The left side of the heart is in charge of getting blood to the body. The lower chamber, the left **ventricle**², is the heart's most powerful muscle. It propels blood out with enough pressure to travel through the entire body and back. This is no small feat: there are 60,000 miles of blood vessels — enough to go around the Earth 2.5 times.

Blood leaves the heart through the body's largest **artery**³, the **aorta**⁴. It runs north where the blood can take off towards the arms or brain, and then turns south, to feed the middle and lower body.

Arteries are more than just tubes. Built into their strong walls are muscles that control **blood pressure**⁵ and direct blood to where it's most needed. Large arteries branch into small **tributaries**⁶ called **arterioles**⁷. They in turn lead to **capillaries**⁸, where the blood drops off its vital supplies. The walls of these tiny vessels are thin enough for **molecules**⁹ to **slip through**¹⁰. Like coffee grinds in a filter, the blood stays inside, but fuel

2 ['ventrikl]

n. [解] [动] 心室

3 ['ɑ:təri]

n. 动脉

4 [ei'ɔ:tə]

n. 主动脉

5 血压

6 ['tribjutəri]

n. 支流

7 [ɑ:'tiəriəul]

n. 细动脉

8 [kə'pɪləri]

n. 毛细血管

9 ['mɒlikju:l]

n. [化] 分子

10 过滤

and oxygen **seep**¹ through to feed nearby cells.

Blood has three main ingredients. **Plasma**² is the liquid part of our blood. White cells are hunters. Their prey are germs and viruses. Red cells deliver food and oxygen. The harder we work, the more of these molecules we need. Blood is also a trash collector. When muscles burn oxygen and food, they create waste: carbon dioxide. Blood helps get rid of this gaseous garbage.

After trading oxygen for carbon dioxide, blood heads back towards the lungs and heart. Capillaries drain into small veins, which join up to form large vessels. **Veins**³ often lie next to arteries running the opposite direction. Every second, the two vessels carry the same amount of blood; but the veins are wider, to make up for the loss of pressure and the flow against gravity.

Just 40 seconds after leaving the heart, the blood is back. This time it enters the right side. The right ventricle pumps it on a short trip through the **pulmonary artery**⁴ to the lungs. If spread out, the surface area of the lungs would cover a tennis court. Lungs are a miracle of evolution, designed to put the maximum amount of oxygen into the blood. Although they fill 90% of the chest, the lungs weigh only two and a half pounds. Millions of branching air passages make them light and spongy. Lung design is essential for our sur-

1 [si:p]

v. 渗出, 渗透

2. ['plæzmə]

n. 血浆

3. [veɪn] n. 静脉

4 肺动脉

vival, since oxygen makes up only one-fifth of the air we breathe.

When we breathe in, muscles between the ribs pull up the **ribcage**¹. A dome-shaped muscle below the lungs, the **diaphragm**², moves down. Each breath is forced down through a labyrinth of tubes inside the lungs.

The air passages split over and over again, ending in miniature air bags called **alveoli**³. The thin walls of these air **sacs**⁴ allow a quick exchange of carbon dioxide and oxygen. Once loaded with life-giving oxygen, the blood returns to the heart to take a trip around the body again.

Muscles are where our bodies burn up the most fuel and oxygen. The harder we work, the more demand muscles place on the heart and lungs. Energy comes from a form of sugar — **glycogen**⁵ — that is stored in the liver. One quarter of the chemical energy in the glycogen fuel is turned into useful power, while three quarters is wasted as heat. When we burn fuel, blood carries the extra heat to the skin where it is radiated.

The human body has 656 muscles, each one made up of millions of tiny cells as thin as a hair, and up to two inches long. Muscles are controlled by the nervous system, which sends electrical signals down the **spinal cord**⁶ and on through individual nerves. The nerve

1 ['ribkidʒ]

n. 胸腔

2 ['daɪəfræm]

n. 横膈膜

3 [ælvɪəʊ'lai]

n. 肺泡 (复数形式) 单数 alveolus

4 [sæk] n. 囊

5 ['glʌlkəʊdʒən]

n. 糖原

6 脊髓

spinal ['spainl]

adj. 脊柱的

sends an electric shock to the cell's surface, and that makes tiny fibers inside the cell contract. When they do, the muscles shorten. A **fraction**¹ of the cells in each muscle are used for light work. To increase the pull, the nervous system recruits more cells and fires more often.

1 ['fræk](ə)n]

n. 小部分

But, muscles alone can't handle body movement. We'd be like jellyfish without bones to support us. The human skeleton has 206 separate bones, from 2 feet long to only a fraction of an inch. Each bone has been perfectly designed by evolution for a different purpose.

The arms are supported by a bony framework across the shoulders, only loosely connected to the rest of the skeleton. Because our **shoulder blades**² aren't attached to the ribcage, our arms have an enormous range of movement.

2 [解] 肩胛骨

The human hand is an amazing piece of bioengineering. The thumb facing the fingertips gives us a strong, sensitive grip. The fragile finger bones and joints are built for delicate work.

Naturally, the bones with the most weight to support are the largest ones. These are the **femurs**³, or thighbones.

3 ['fi:mə]

n. [解] 大腿骨

Movable bones don't actually touch, but have a wear-resistant bearing between them: a joint. The knee is the most complex joint in the human body. The **kneecap**⁴ allows muscles to pull strongly around the

4 ['ni:kæp]

n. 膝盖骨