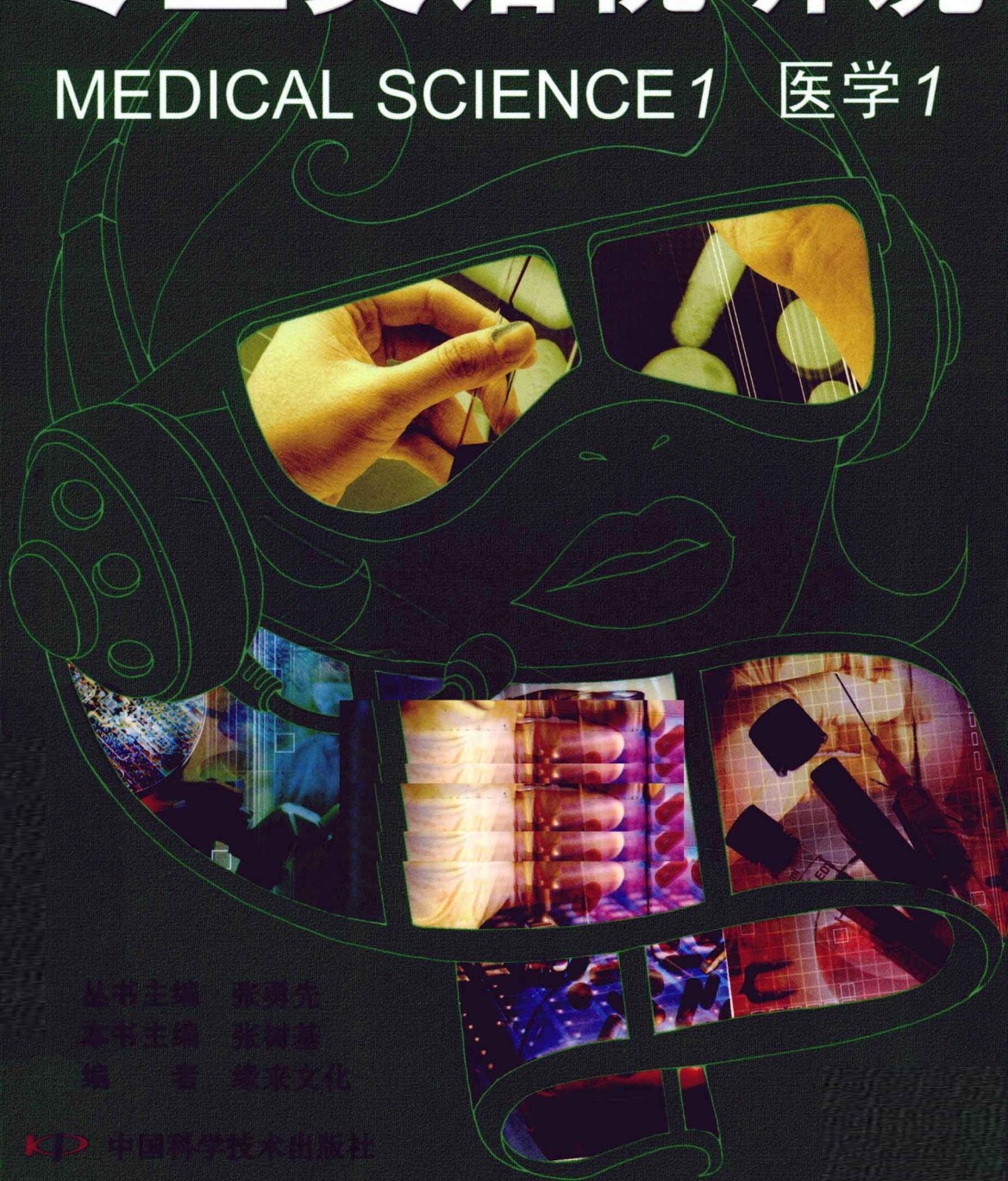


Audio-visual English for Professionals

专业英语视听说

MEDICAL SCIENCE 1 医学 1



丛书主编 张明先
本书主编 张树基
编者 培来文化



专业 英语 视听说

Audio-visual Audio-visual Professionals

医学 I
Medical Science 1

丛书主编 张勇先
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《专业英语视听说》教材是依据教育部《大学英语课程教学要求》的文件精神,聘请国内知名学者组成专家指导委员会,由全国 30 余所著名高等院校的外语教授和相关专业教授等教学专家联袂编写的一套视听说一体化教材。编写这套教材的目的是为了把现代科技和现代英语教育理念相结合,立足英语教学改革,更新教育观念,依靠多媒体技术和多样化课堂教学模式的支持,实现学生听、说、读、写能力的综合演练,从而改进和提高英语教学效果。全套教材以教育部最新公布的专业目录为依据,涉及文、史、经济、理、工、农、医等 20 多个学科方向,覆盖 100 多个专业领域,堪称目前国内最大规模的专业英语系列教材。

本系列教材有以下两个最突出的特点:

1. 教材内容板块精心设计,既注意借鉴国外教材的先进理念,吸纳多年来我国外语教学积累的经验,又充分照顾了中国学生的思维方式和英语学习习惯。这套教材包括视听说教学用书、DVD 教学光盘和点读笔三部分(点读笔属于可选项,老师和学生可以根据自己的实际需要选择是否使用),每册书都包含 16 篇短文和高清晰的配套视频资料。所有的音像视频资料均由澳大利亚 classroom video、德国 DW、加拿大 VEC 等公司提供版权,并经过国内专业英语权威专家组共同筛选审定,内容涉及面广、取材新颖、难易适度,充分反映了各个学科的最新学术成果和发展方向。纸质教材板块的设计充分考虑了中国学生学习专业英语的特点和目标,内容浓缩了大量的专业词汇和专业用法,反映了各个学科的基本理论和基本概念,内容包括:①引导部分(介绍该单元主题的背景知识、教学重点、难点等);②视听说演练(紧扣视频内容,设计视频主题讨论、完成视频问题等互动形式);③附录文章(围绕该单元主题,介绍某一方面的学科发展、前沿知识等内容)。教材中设计了大量的练习,练习的形式活泼多样,注意与视频内容的完美结合和有机互动,能够同时调动教师和学生双方的积极性,促使他们采用多媒体、多样化课堂教学模式,开展视、听、说综合实践演练活动,充分体现英语教学的实用性、文化性和趣味性。

2. 努力把现代科技引入课堂教学实践,从而提高教学的互动性、趣味性,改善教学效果。多媒体教学是现代教学改革的一个目标,如何利用好多媒体技术,使这个技术不仅在形式上,更在实质内容上改变课堂教学模式,实现多样化教学、互动性教学,



这也是现代教学改革的一个关键问题。这套教材在这个问题上进行了一次有益的尝试。配套视频资料、教材内文设计以及点读笔支持功能等都可以帮助师生在多模式教学的改革之路上大胆前行。

这套教材还支持点读笔的点读发声,变纸质无声读物为有声读物。用点读笔点击配套课本,就能发出相应清晰、标准的语音,点读笔内置扬声器,既可以外放,也可以用耳机收听,如果外接音箱就可供教师作教学示范和学生户外学习。点读笔还有复读、暂停等功能,支持 USB 下载,随身携带非常方便,满足很多自学者的需要。

本系列教材编写实施“精品战略”。首先由丛书编委会讨论确定教学大纲,然后依据大纲要求由作者编写,各分册主编统一统稿,最后由专家审定。从教材规划到教材编写、专家审稿、编辑加工、出版发行等,都有计划、有步骤地实施,层层把关,步步强化,使“精品意识”、“质量意识”贯彻全程。

值得提出的是,本系列教材在编写审定过程中,各个学科的专家对教材书稿进行了严格把关,提出精辟意见,对保证教材质量起到了重要的作用,为教材的编写出版创造了有利条件。在此表示感谢!

本系列教材在编写过程中,为了保持与英文的一致,译文均保留了英制单位。

本系列教材在吸纳传统经验,借鉴先进理念的基础上,进行了一定力度的改革与创新,在探索的过程中难免有不足之处,甚或错漏之处,敬请各教学单位、各位教学人员在使用过程中发现问题,及时提出批评指正,以便我们重印或再版时予以修改,使教材质量不断提高,更好地适应高素质、国际化专业人才的培养需要。

张勇先

2010年6月

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Unit 1

The Miracle of Love



I. Lead-in Questions

1. Do you know any interesting characteristics about sperms?
2. How can a sperm meet an egg?



II. Vocabulary

wondrous ['wʌndrəs] *adj.* 令人惊奇的

sperm [spɜ:m] *n.* 精液, 精子

testes [tests] *n.* testis (睾丸) 的复数

coil [kɔɪl] *v.* 盘绕, 卷

tubule ['tju:bju:l] *n.* 小管, 细管

courier ['kʊriə] *n.* 送快信的人

chromosome ['krəʊməsəʊm] *n.* 染色体

ovary ['əʊvəri] *n.* 卵巢

puberty ['pjʊ:bɜ:tɪ] *n.* 青春期

fimbria ['fɪmbriə] *n.* 伞, 毛缘

follicle ['fɒlɪkl] *n.* 小囊, 滤泡

rupture ['rʌptʃə(r)] *v.* 破裂, 裂开

entourage [ɒntu'ra:ʒ] *n.* 周围, 环境

ovulation [əʊvjʊ'leɪʃən] *n.* 排卵, 产卵

作用

uterus ['ju:tərəs] *n.* 子宫

cilia ['sɪliə] *n.* 睫, 纤毛

synchronize ['sɪŋkrənaɪz] *v.* 同步

ritual ['rɪtʃʊəl] *n.* 典礼, (宗教) 仪式

utilize [ju:'tɪlaɪz] *vt.* 利用

flirt [flɜ:t] *vi.* 调情

microscopic [maɪkrə'skɒpɪk] *adj.* 用显微镜可见的, 精微的

pheromone ['ferəməʊn] *n.* 信息素

resemblance [rɪ'zembləns] *n.* 类同之处

amphetamine [æm'fetəmi:n] *n.* 安非他明

stimulus ['stɪmjʊləs] *n.* 刺激物, 促进因素

spongy ['spʌŋdʒɪ] *adj.* 多孔而有弹性的

penis ['pi:nɪs] *n.* 阳物, 阴茎

armada [ɑ:'mɑ:də] *n.* 舰队

muscular ['mʌskjʊlə] *adj.* 肌肉的, 强健的

cue [kju:] *n.* 暗示, 提示

vas [væs] *n.* 血管, 脉管

loop [lu:p] *vt.* 使成环, 以圈结

ejaculation [ɪ,dʒækju'leɪʃən] *n.* 射精

gland [glænd] *n.* 腺

urethra [juə'ri:θrə] *n.* 尿道

acidic[ə'sɪdɪk] *adj.* 酸的, 酸性的

lethal[ˈli:θəl] *adj.* 致命的

perish[ˈperɪʃ] *vi.* 毁灭, 死亡

cervix[ˈsɜ:vrɪks] *n.* 颈部, 子宫颈

plug[plʌg] *vt.* 堵, 塞, 插上

mucus[ˈmju:kəs] *n.* 黏液, 胶

thrashing[θræʃɪŋ] *adj.* (打击等)沉重的

capacitate[kəˈpæsɪteɪt] *vt.* 使能够, 赋

予能力

embark[ɪmˈbɑ:k] *n.* 着手, 从事

elite[eɪˈli:t] *n.* 精华, 精锐

corona[kəˈrəʊnə] *n.* 冠状物, 王冠

enzyme[ˈenzɑɪm] *n.* 酶

hurdle[ˈhɜ:dl] *n.* 障碍

victor[ˈvɪktə] *n.* 胜利者



III. Exercises for Listening

Exercise 1 判断下列句子的正(T)误(F)

- () 1. In a man's body, the sperms control the transportation of genes, and each sperm has an individual genetic code.
- () 2. Sperms can survive as long as 10 days while waiting to meet the egg.
- () 3. Reproductive mechanisms of both men and women are focused on quality instead of quantity.
- () 4. Because ovulation happens quietly, most women can't feel anything during this process.
- () 5. After ovulation, the egg must be fertilized within a day, or it can not survive anymore.
- () 6. Sexual excitement has a great effect on about all of the body's functions and senses.
- () 7. Only with a series of very complicated physical and psychological events, as well as the cooperation of several glands, can ejaculation happen.
- () 8. The cervix is always blocked by thick mucus to prevent bacteria and sperms from coming in.
- () 9. Of all the sperms, only a very small part of them can finally reach the egg.
- () 10. If accidentally more than one sperm enters the egg at the same time, there will be a great chance of creating twins.



Exercise 2 翻译下列词汇

1. 遗传密码	2. 生殖机制
3. 生育期	4. 输卵管
5. 卵泡	6. 有性繁殖
7. 性刺激	8. 海绵体
9. 神经系统	10. 输精管

Exercise 3 完成下列句子

- Life has _____ on earth for four billion years. It has developed towards _____ and beauty.
- The completed sperm is a courier, designed to _____ a very special _____, _____ the man's genes.
- A woman's body takes a somewhat different _____ in the quest to _____ her genes. Instead of _____, the woman's reproductive mechanism is _____ quality.
- The earliest forms of life—such as these _____—didn't _____ the trouble. They _____ without sex. And they did it by cloning.
- Sexual _____ guarantees _____ within the species and a good _____—that's why it caught on.
- The thermal camera _____ rising body temperature, and the _____ excitement has a powerful _____ on just about all the bodily _____ and senses.
- The giant _____ is quickly pumped out by a series of _____—cued by a signal from the _____ system.
- Ejaculation is the result of a _____ of very complicated physical and _____ events—requiring the _____ of several glands.
- This marks the beginning of an extraordinary battle for _____. To protect the woman from outside _____ the environment inside the vagina is _____—making it extremely _____ for the sperms.
- Immediately, a _____ transforms the egg's surface, _____ the door behind

the sperm. The entry of another sperm would mean _____ chromosomes in the cell—the result would be _____.

Exercise 4 讨论下列问题

1. There is a sentence in the video “Instead of quantity, the woman’s reproductive mechanism is focused on quality.” What is the meaning of it?
2. What are the main differences between sexual and asexual reproduction?
3. Of all the 500 million sperms, why at last is there only one can fertilize the egg?
4. Could you briefly describe how a sperm changes its shape during the whole course of fertilization?
5. What do you think is the most impressive characteristic of sperms?

附录

课文:

Life has existed on earth for four billion years. It has developed towards amazing perfection and beauty. A wondrous planet of diversity and life, yet its greatest miracle is the miracle of love. Often, it begins like this: two people want to share their lives with each other, and hope to build a family. One of life’s greatest adventures is when two people become three.

For millions of years, the genes of man have been travelling from one generation to the next. And with the man, it’s the sperms which handle the transportation of these genes. Each day an incredible 100 million sperms are created. In other words, a thousand new sperms every second. What’s fantastic is that each one has an individual genetic code. This enormous production takes place in the man’s two sperm factories—the testes. They are made up of numerous tiny coiled tubules. The total length of these tubules can be up to 800 metres, in each testicle. It takes 10 weeks for a sperm to develop.

This is a cross section of one of the tubules—and inside lies the assembly line of the sperm factory. Primitive sperm cells are stored by the walls of the tubules. As these cells divide, they’re moved towards the centre of the tube to mature. Over the course of several



weeks, they develop a head, mid-piece and tail. The completed sperm is a courier, designed to deliver a very special package, containing the man's genes. To be successful, the sperm, with its half set of chromosomes must meet and join with the woman's egg—containing the other half. Sperms can survive up to 5 days waiting for their chance.

A woman's body takes a somewhat different approach in the quest to pass on her genes. Instead of quantity, the woman's reproductive mechanism is focused on quality. At birth the woman's two ovaries contain a million immature egg cells which at puberty, will be reduced to some 400,000. But of all these, only one egg a month will ripen during her fertile period. Around 400 over her lifetime. Here's the ovary again, on the left, with a fimbria of the Fallopian tube on the right. When it's ready, the egg follicle moves to the edge of the ovary and fills with fluid—the pressure increases and it ruptures. The egg, with a huge entourage of hormone-producing cells is pushed out of the ovary. This is nature's own quiet drama—yet many women can sense exactly when the ovulation takes place.

Nearest the egg are the thousands of nutritional cells providing nourishment for the egg cell in the next few days of its life. The egg cell, here on the lower left, is no larger than the tip of a pin. The supple fimbriae of the Fallopian tube tries to capture the egg. And so, accompanied by its nutritional cells, the egg disappears into the Fallopian tube—for further transport towards the uterus. This begins a fantastic journey—where the egg meets the sperm—and we'll follow it here in the Fallopian tube.

In reality this journey takes a little more than four days—despite the Fallopian tube being only six inches long. Millions of tiny cilia, united in synchronized movement, carry the egg along. The tiny egg contains everything needed to bring about a new life, everything but the contents of a sperm, the package with the man's genetic make-up and his DNA.

Time is running short. The egg must be fertilized within 24 hours following ovulation, or it will die. Sexual reproduction involves a pressure of time—and it's a complicated and risky business. So why do we bother? First of all, you have to find someone you care for and someone who cares for you. And even when a suitable partner surfaces, you can only transfer half of your own genes to your offspring.

The earliest forms of life—such as these bacteria—didn't bother with the trouble. They reproduced without sex. And they did it by cloning. Even these simple water organisms create exact copies of themselves. Here is that process of division—a cell splits into two and

the two new cells contain the exact same genetic make-up. We don't know how evolution created the sexes. But we do know why. Sexual reproduction guarantees vital variation within the species and a good survival rate—that's why it caught on.

Sexual reproduction seems to require mating rituals, in endless variation, with every species utilizing its own special methods, animals, as well as humans. Flirting is an old trick of the mating trade. Looks and smiles are an important part of the human ritual. As the saying goes, the chemistry's got to be right, for any hope of attraction. In wildlife we know that the reproductive mechanisms are affected by smells microscopic chemical particles seen here enlarged two million times, seen through a scanning electron microscope. These tiny, chemical particles are called pheromones. Some scientists suggest that these tiny scent molecules also affect human sexuality.

There is a particular smelling organ which receives the pheromones' signals, sending them on to the brain. It's located deep inside the human nose and consists of a small round formation, in the middle of this picture. To touch and know the scent of the loved one can be an overwhelming experience. And the bodies of the lovers will literally flow with chemicals some of which bear remarkable resemblance to Amphetamines, creating a natural stimulus.

The thermal camera registers rising body temperature, and the sexual excitement has a powerful effect on just about all the bodily functions and senses. A thermal camera registers how the cold blue areas shift to green and become a warm red as blood fills the spongy tissue of the penis. Special substances signal the blood vessels to relax and allow the blood through. The temperature in the testes is always a few degrees below body temperature, and registers as blue. And here hundreds of millions of sperms are being prepared for the long journey out. The giant armada is quickly pumped out by a series of muscular contractions—cued by a signal from the nervous system. The sperms will first enter the vas deferens, a fifteen-inch tube looping back into the body. Ejaculation is the result of a series of very complicated physical and psychological events—requiring the cooperation of several glands, in exactly the right order, at exactly the right moment.

Looking down the urethra, the tunnel which the armada will rush through, we're moments away from 500 million sperms entering the woman's vagina. This marks the beginning of an extraordinary battle for survival and success. To protect the woman from outside infec-



tion the environment inside the vagina is acidic—making it extremely lethal for the sperms. So lethal, one fifth will perish almost instantly. Many are deformed, some have two tails. It's estimated that about 40 percent from a perfectly healthy male are not up to their task. But the healthy sperms press on. Ahead of them lies only one possible route—through the cervix—the gateway to the uterus.

But most of the time, the cervix is plugged with thick mucus, impossible for bacteria and sperms to penetrate. Only for a couple of days each month, this mucus will thin and form tiny channels. At when the time is right the sperms can find their way through, on to the uterus. The final destination, the egg in the Fallopian tube, lies about fifteen centimetres away. An enormous distance for the microscopic sperms, no longer than six hundredths of a millimetre in length. Only a few thousand sperms will finally reach the uterus—each centimetre requiring one thousand strokes of the tail. Sperms are outstanding swimmers. It'll take the leader group a mere 30 minutes to reach the Fallopian tube.

And once inside the journey becomes even more difficult. The sperms will now have to swim against the current created by the millions of thrashing cilia, trying to lead the egg forward. If the woman hasn't recently ovulated, the sperms must wait here—until an egg comes rolling past. But they can only survive a maximum of 5 days before they die. During their journey the sperms have matured and become able to conceive—scientists say they've capacitated. Even though timing may be right there are still no guarantees that conception will take place. Of all the millions of sperms embarking on this journey only a few hundred will reach the egg. And still, within this elite group the selection process continues as the sperms swim near the egg.

The nutritional cells form a corona-like surface around the egg, preventing the progress of the sperms and must therefore, be broken down. Some get stuck on the gigantic egg, which is 85,000 times larger than the sperms. Others cooperate energetically, dissolving the nutritional cells using special enzymes in their heads. A few of these powerhouses will reach the final destination—having completed 20,000 strokes of the tail.

The next hurdle is the hard outer surface of the egg. Thankfully, the surface is able to recognize the sperm, and the proteins of the egg unite with those of the sperm. Now begins a dramatic change in the head of the sperm. The protective cap begins to break down and the sperm fights its way to cross the last major obstacle. Here is the winner on its way in,



the sole champion of some 500 million sperms.

Immediately, a chemical reaction transforms the egg's surface, closing the door behind the sperm. The entry of another sperm would mean too many chromosomes in the cell—the result would be disastrous. Once the winning sperm has entered the egg, it no longer has use for its tail, and it's broken off from the head whose valuable contents are now exposed. At last, the journey is completed and the victor delivers its genetic package.

课文参考译文：

地球上的生命已经有 40 亿年的历史了，而且生命形式正日趋完美。地球是一个具有众多生命形式的神奇星球，然而最美妙的要数爱的奇迹了。爱，通常是这样开始的：两个人愿意同甘共苦，并且希望组成一个家庭。生命最大的历险之一就是，当两个人变成三个。

几百万年以来，人类的基因从一代遗传给下一代。从男人的角度来说，精子控制着基因的遗传。不可思议的是一个男人体内每天产生 1 亿个精子，换句话说就是每秒产生 1 000 个新的精子。更加令人难以置信的是，每个精子都有一套独立的遗传密码。这不计其数的精子是由两个精子加工厂——睾丸提供的。睾丸是由无数微小、卷曲的细管组成的。每个睾丸中的细管总长度可达 800 米。每个精子需要 10 周的时间发育成熟。

这是其中一个细管的截面图，里面是这个精子加工厂的生产线。最初的精子细胞储备在细管壁上。随着细胞的分裂，它们被转移到细管的中间，逐渐发育成熟。经过几个星期的时间，它们长出了头部、身体和尾巴。成形的精子是一个传递特殊信息包的载体，信息包中包含着男性的基因信息。为了成功地实现信息传递，含有半组染色体的精子必须与含有另外半组染色体的女性的卵子相遇并结合。精子可以存活长达 5 天的时间，等待与卵子结合的机会。

为了传递基因信息，女性身体则采用了一种不同的方法。她们的生殖机制更注重传递载体的质量，而不是数量。在出生时，女性的两个卵巢内就有 100 万个未成熟的卵细胞；在青春期时则减少为大约 40 万个。但是女性在生育期，这么多的卵子中每月只有一个卵子发育成熟，所以女性一生中大约排卵 400 个左右。左边是女性的卵巢，右边是输卵管的纤毛。卵子发育成熟后，卵泡就会移到卵巢的边缘，并充满液体。随着压力的增大，卵泡最终破裂。卵子随着大量生成激素的细胞一起被排



出卵巢。这是大自然的一幕哑剧,然而很多女性能够准确地感受到,什么时候会发生排卵。

最靠近卵子的是数千个营养细胞,在排卵发生后的几天里,这些细胞将为卵子的成活提供所需的营养。左下方是卵细胞,它只有针尖那么大。输卵管入口处柔软的纤毛试图抓住卵子。在营养细胞的陪伴下,卵子消失在输卵管里,准备被运往子宫。

奇妙的旅行现在开始,最终将实现卵子和精子的结合。我们将从输卵管开始跟踪卵子。尽管输卵管只有6英寸长,但实际上,要完成这样的旅行却需要四天多时间。无数的小纤毛协调行动,推着卵子向前移动。微小的卵子中包含有孕育新生命所需的一切,除了精子中的男性基因成分和DNA的信息包之外。

时间快速地流逝着,卵子必须在排卵后的24小时内受精,否则就会死去。性繁殖有时间要求,而且过程复杂,风险很高。那么,我们为什么还要为此伤脑筋呢?首先,你必须找一个你爱的,和爱你的人。即使一个合适的伴侣出现了,你也只能将自己一半的基因遗传给你的后代。

最早的生命形式,如这些细菌,它们没有这样的烦恼,因为它们是无性繁殖,采取克隆的方式繁衍后代。即使这些简单的水生物,它们也是在克隆和自己完全一样的后代。细胞分裂的过程是这样的,一个细胞分裂成两个新细胞,这两个新的细胞中包含有完全相同的遗传物质。我们不知道在生物进化过程中有性繁殖是如何产生的,但我们却知道其中的原因。有性繁殖保证了同一物种内部存在至关重要的差异性,并确保了较高的成活率,所以有性繁殖才广泛存在。

有性繁殖需要交配仪式,而且各种物种都有自己独特的方式,动物如此,人类也不例外。调情是交配的老把戏,眼神和微笑是人类性交的重要部分。俗话说得好,吸引力离不开恰当的化学作用。我们知道,野生动物的繁殖机制受气味的影响,这里看到的微小化学粒子,是经过电子扫描显微镜放大了200万倍后的图像。这些微小的化学粒子被称作“信息素”。一些科学家认为,人类的性活动也受到这些微小的气味分子的影响。

人类有一个独特的嗅觉器官,能够接收“信息素”信号,并将信号传递给大脑。这个器官在鼻腔深处,图片中间的圆形结构就是。接触并确认自己爱人的气味是一种奇妙的感受。两个相爱的人体内确实流动着某些化学物质,一些化学物质与安非他明非常相似,使人产生一种自然的冲动。

红外摄像机记录下了体温的上升,性刺激对身体几乎所有功能和感觉器官产生巨



大的影响。红外摄像机记录下了低温的蓝色区域是怎样变成绿色,随着血液充满了阴茎的海绵体,又是怎样变成温暖的红色的。特殊的物质让血管放松,使血液流过。睾丸的温度总是比体温要低几度,因此显示为蓝色。这儿,数不清的精子正为长途跋涉做准备,受神经系统发出信号的指示,肌肉开始连续收缩,并迅速排出大量精子,精子首先进入到输精管内,输精管约 15 英寸长,和身体内部形成环状连接。射精是一系列非常复杂的身体和心理活动的结果,需要几个腺体以准确的顺序,在恰当的时间相互配合。

接下来是尿道,众多精子必须从这里经过。5 亿个精子将在片刻之后进入女性的阴道。一场生与死,成与败的特殊战斗即将由此展开。为了避免外界感染,阴道内的环境是呈酸性的,这对精子来说是致命的,因此,有五分之二的精子会立即死去,其中很多精子是畸形的,有的有两条尾巴。据估计,一个非常健康男人排出的精子中,有 40% 无法完成它们的任务。健康的精子继续奋力前进,它们的前方只有一条道路,通过子宫的门户——子宫颈,到达子宫。

但是大多数时候,子宫颈被厚厚的黏液堵住,使细菌和精子无法通过。一个月中只有几天时间,黏液才会变薄,形成一个狭小的通道。只有在这时,精子才能找到途径顺利通过,并到达子宫。精子最终的目的地是输卵管中的卵子,此时它距离精子只有 15 厘米远,但对于只有 0.06 毫米长的微小精子来说,这简直是万里长征。最终,只有几千个精子能够抵达子宫,它们每前进 1 厘米,都要摆动尾巴上千次。精子是游泳健将,第一群精子到达输卵管只需要 30 分钟时间。

一旦进入输卵管,前面的行程更加艰难。为了输送卵子,无数的纤毛会产生一种向前的推力,精子必须逆流而上,迎着纤毛形成的急流前进。如果该妇女最近没有排卵,精子必须原地等待,直到有卵子排出。但是它们最多只能存活 5 天。精子在旅行过程中发育成熟,能够使卵子受孕。科学家称它们为有活力的精子。即使受孕时间选择无误,仍然不能保证卵子会受孕。因为,尽管开始时有上百万个精子,但最终能够接近卵子的只有几百个。而且,随着精子进一步接近卵子,对这群精子中精英分子的筛选过程仍然在继续。

卵子周围的营养细胞形成一层壳状保护膜,阻止精子的进入,因此精子必须打破这层保护膜。有些精子吸附在巨大的卵子上,因为卵子的体积是精子的 85 000 倍。其他一些精子则齐心协力,通过其头部特殊的酶来溶解营养细胞。少数强壮的精子经过 20 000 次的摆尾动作后,最终到达了目的地。

下一个障碍是卵子坚硬的表层。幸亏表层能够识别精子,而且卵子的蛋白质会与



精子的蛋白质相结合。接下来,精子的头部将发生惊人的变化,保护层开始脱落,精子奋力地通过最后一个主要障碍。在这里,胜利者正在进入卵子,这是5亿个精子中唯一的冠军。

化学反应迅速改变了卵子的表层,关闭了精子进入的通道。如果有另一个精子进入,意味着细胞染色体过多,将带来灾难性的后果。一旦取胜的精子进入卵子后,尾巴就失去了作用,便会与头部分离,暴露出头部中有价值的物质。最后,获胜的精子结束了长途旅行,并传递遗传信息包。

Keys to Exercises

Exercise 1 判断下列句子的正(T)误(F)

1. T 2. F 3. F 4. T 5. T
6. F 7. F 8. T 9. T 10. F

Exercise 2 翻译下列词汇

- | | |
|----------------------|---------------------------|
| 1. genetic code | 2. reproductive mechanism |
| 3. fertile period | 4. Fallopian tube |
| 5. egg follicle | 6. sexual reproduction |
| 7. sexual excitement | 8. spongy tissue |
| 9. nervous system | 10. vas deferens |

Exercise 3 完成下列句子

1. existed; amazing perfection
2. deliver; package; containing
3. approach; pass on; quantity; focused on
4. bacteria; bother with; reproduced
5. reproduction; vital variation; survival rate
6. register; sexual; effect; functions