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新  
编

# 临床实用 医学英语

MODERN CLINICAL MEDICAL  
ENGLISH IN PRACTICE

DNA



科学出版社

Modern Clinical Medical  
English in Practice

新编临床实用医学英语

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## 内 容 简 介

本教程共分为15个单元,每个单元分为A、B两篇课文。全书的编写以人体系统为主线。每个单元围绕临床常见病的症状与起因、诊断、防治与治疗以及相关研究为框架编写。每篇课文之后,都配有相应练习,便于学生复习巩固所学知识。本教程注重突出时代性、实用性、易读性等特点。

本书适合医学院校本科生使用。

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# 前 言

众所周知,当今世界已进入一个经济迅猛发展,竞争不断加剧的时代。在高等教育日益国际化的背景下,世界竞争的焦点是科技竞争,科技竞争的关键是人才竞争,人才竞争的核心是人才素质的竞争。因此,培养出既有丰富的专业知识又有较高的英语水平的复合型、应用型人才越来越受到社会各界的重视和欢迎。这种新形势对专门用途的英语(ESP)教学提出了更高的要求。针对医科大学的学生,就是要在基础英语教学完成后开设医学英语课程,帮助学生从基础阶段学习顺利地过渡到专业阅读阶段学习,从应试性学习过渡到应用性学习。具体来讲,就是培养学生既能顺利阅读和翻译各科医学专业文献,又能用英语进行学术交流的能力。为此,根据教育部《大学英语教学大纲》和《大学英语课程教学要求》,结合医学院校英语教学的实际,我们组织了英语教学经验丰富、医学知识功底深厚的专家教授编写了这本供医学院校本科生教学使用的《新编临床实用医学英语》。

本教程的选材注重知识性、科学性、时代性。她既不同于一般英语教材对语言点和语言技巧的强调,也有别于英语原版专业教材对学生相关专业知识和限制;她在弥补专业英语的训练相对不足的同时,也避免了由于学生专业背景知识的差异,不能理解英语原版教材的瓶颈,可以较好地满足医学院校本科生专业英语教学的需求。

本教程的显著特点主要体现在以下几个方面:

(1) 文章大多选自近年来出版和发表的医学文章、书籍或学术杂志的节选或改编,时代性强,可读性强。

(2) 文章内容基于医学各专业学科重点,突出课文的实用性。以医学知识带动英语的学习,以英语促进更多医学知识的获得,可达到专业知识的学习和英语语言学习互相补充与促进的效果。通过学生医学英语的习得,培养和发展学生利用英语进行医学学术交流的能力。

(3) 在内容的取舍上主要遵循了两个原则:一是力图覆盖医学重点学科的主要知识,二是以临床常见病和多发病为主。

(4) 考虑到《大学英语教学大纲》和《大学英语课程教学要求》对专业英语学时和阅读量的要求,在单元内容安排上采用了主课文和副课文之分。副课文文章或在内容上与主课文密切相关,或独立成篇。对主课文从注释和练习两方面进行了重点处理安排,可作为教师课内重点讲解和讨论的内容,副课文主要供学生课后学习,以弥补学生课内阅读量不足的缺憾,起到进一步扩大学术视野的作用。

(5) 文章的语言特点是学术性与生活性两方面兼顾。目的是既能满足学生进行口头和书面交流的需求,又能理论联系实际,指导他们将来的工作和生活,提高他们的工作能力、生活水平和质量。

(6) 文章的难度起点是大学英语四级水平,充分考虑了学生的可接受能力和英语水平。

我们希望学生通过对本教程的学习,能在读、写、说、译诸能力方面有所提高,逐步获得阅读英语医学专业原版书刊的能力,利用英语顺利进行学术交流的能力。

在本书的编写过程中,我们参考并选用了其他一些教材和资料中的有关内容,在此谨向有关单位和个人表示衷心的感谢。由于编者学识和水平所限,书中难免有纰漏和错误,敬请同行和读者不吝赐教,我们将表示万分感谢。

编 者

2014年3月

# THE OATH OF A MEDICAL STUDENT

Health related, life entrusted.

The moment I step into the hallowed medical institution,

I pledge solemnly

I will volunteer myself to medicine with love for my motherland and loyalty to the people.

I will scrupulously abide by the medical ethics, respect my teachers and discipline myself.

I will strive diligently for the perfection of technology and for all-round development of myself.

I am determined to strive diligently to eliminate man's suffering, enhance man's health conditions and uphold the chasteness and honor of medicine.

I will heal the wounded and rescue the dying, regardless of the hardships.

I will always be in earnest pursuit of better achievement.

I will work all my life for the development of the nation's medical enterprise as well as mankind's physical and mental health.

## 医学生誓言

健康所系、性命相托。

当我步入神圣医学学府的时刻,谨庄严宣誓:

我志愿献身医学,热爱祖国,忠于人民,恪守医德,尊师守纪,刻苦钻研,孜孜不倦,精益求精,全面发展。

我决心竭尽全力除人类之病痛,助健康之完美,维护医术的圣洁和荣誉。救死扶伤,不辞艰辛,执着追求,为祖国医药卫生事业的发展和人类身心健康奋斗终生!

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# Unit 1 Cardiovascular Diseases

## Pre-reading Activities

I. Read the following paragraph and talk about with your partner how to identify the symptoms of heart disease.

The dramatic scene is familiar in the movies and on TV: The man clutches his chest and somebody screams, "He's having a heart attack!" Though we've all seen that Hollywood depiction unfold, it's important to be aware that heart attack is just one kind of heart disease. Heart disease is a general term for several problems that, together, kill more people than anything else. Identifying symptoms early can help you recognize an emergency or take action to prevent a larger health crisis. More than one in three adults has one or more of the damaging conditions associated with heart disease. Many of these conditions are related to plaque buildup in the walls of the arteries, or atherosclerosis, which makes it harder for blood to flow and creating a risk for heart attack or stroke.

II. Try to understand the following terms before you read Text A.

**plaque** [plæk, plæk] *n.* a small abnormal patch on or inside the body 血小板; 斑块; 噬斑; 蚀斑

**atherosclerosis** [ˌæθərəʊskləˈrəʊsɪs] *n.* a condition caused by plaque built up in the arteries [内科] 动脉粥样硬化; 动脉硬化

**clot** [klɒt] *n.* a lump of material formed from the content of a liquid [生理] 凝块 *vi.* 凝结 *vt.* 使凝结成块

**angina** [ænˈdʒaɪnə] *n.* pain in the chest 心绞痛; 咽喉痛; 咽喉炎

**cardiac** [ˈkɑːdiæk] *adj.* of heart 心脏的; 心脏病的 *n.* 强心剂; 强胃剂

**rupture** [ˈrʌptʃə] *vi.* break open 破裂; 发疝气 *vt.* 使破裂; 断绝

## Text A Coronary Artery Disease

### Focus

Introduction

Causes

Signs and Symptoms

Diagnosis

Medicinal Treatment

Surgical Treatment

Prevention



## Introduction

Coronary artery disease <sup>[1]</sup>, also called coronary heart disease (CHD), is a condition in which plaque builds up inside the coronary arteries (Fig. 1-1). These arteries supply oxygen-rich blood to your heart muscle. Plaque is made up of fat, cholesterol, calcium, and other substances found in the blood. When plaque builds up in the arteries, the condition is called **atherosclerosis**. The buildup of **plaque** occurs over many years. Over time, plaque hardens and narrows your coronary arteries. This limits the flow of oxygen-rich blood to your heart muscle. Eventually, an area of plaque can **rupture**. This causes a blood **clot** to form on the surface of the plaque (Fig. 1-2). If the clot becomes large enough, it can mostly or completely block blood flow through a coronary artery.

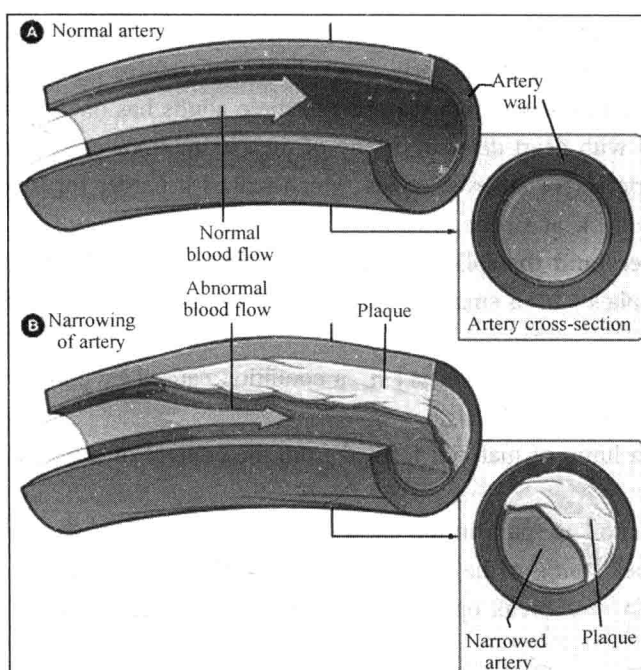


Fig. 1-1 A shows a normal artery with normal blood flow and B shows an artery with plaque buildup

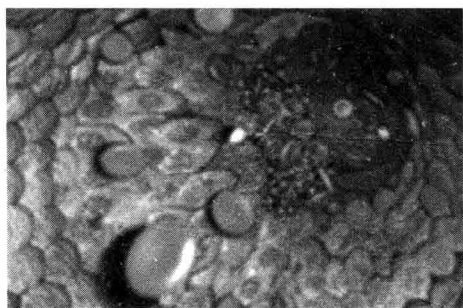


Fig. 1-2 Illustration of clot formation in blood vessels

## Causes

Research suggests that coronary heart disease starts when certain factors damage the inner layers of the coronary arteries. These factors include:

- Smoking
- High levels of certain fats and cholesterol in the blood
- High blood pressure
- High levels of sugar in the blood due to in-

**sulin** resistance or diabetes

When damage occurs, your body starts a healing process. The healing may cause plaque to build up where the arteries are damaged. The buildup of plaque in the coronary arteries may start in childhood. Over time, plaque can narrow or block some of your coronary arteries. This reduces the flow of oxygen-rich blood to your heart muscle. Eventually, an area of plaque can rupture. If this happens, blood cell fragments called **platelets** will stick to the site of the injury and may clump together to form blood clots. Blood clots narrow the coronary arteries even more and worsen angina or cause a heart attack.

## Signs and Symptoms

A common symptom of coronary heart disease (CHD) is **angina**. Angina is chest pain or discomfort that occurs if an area of your heart muscle doesn't get enough oxygen-rich blood. Angina may feel like pressure or squeezing in your chest. You also may feel it in your shoulders, arms, neck, jaw, or back. Angina pain may even feel like indigestion. The pain tends to get worse with activity and go away with rest. Emotional stress also can trigger the pain. Another common symptom of CHD is shortness of breath. This symptom happens if CHD causes **heart failure**. When you have heart failure, your heart can't pump enough blood to meet your body's needs. Fluid builds up in your lungs, making it hard to breathe. The severity of these symptoms varies. They may get more severe as the buildup of plaque continues to narrow the coronary arteries.

## Diagnosis

A coronary artery must be narrowed to less than 30% of its original size before there is a serious reduction in the blood flow to the heart muscle served by that vessel. Generally, about 5% of the total cardiac output of blood goes through the coronary arteries; thus there is adequate coronary blood flow to meet normal demands at rest even if the vessels are 70% to 90% **occluded** (Fig. 1-3). If the coronary arteries are seriously blocked, however, blood flow may not be adequate for any increased demand, such as that of exercise or an emotional upset. If the heart muscle cannot get enough oxygen—a state known as **myocardial ischemia**—symptoms such as chest pain (angina) or shortness of breath may result.

A **presumptive** diagnosis of coronary disease is based on a review of symptoms, health history, an **electrocardiogram**, and an exercise stress test, perhaps with a **thallium** scan. A more definitive diagnosis requires cardiac **catheterization** and **angiography**.

If severe narrowing is suspected, a coronary **angiogram** may be needed. This examination entails threading a **catheter** through a blood vessel into the heart, and then injecting a dye into the coronary arteries to make them visible on X-rays.

## Medicinal Treatment

Various medications constitute the first-line treatment of coronary artery disease. These include:

**Beta-Blocking Drugs:** These agents act by blocking the effect of the sympathetic nervous

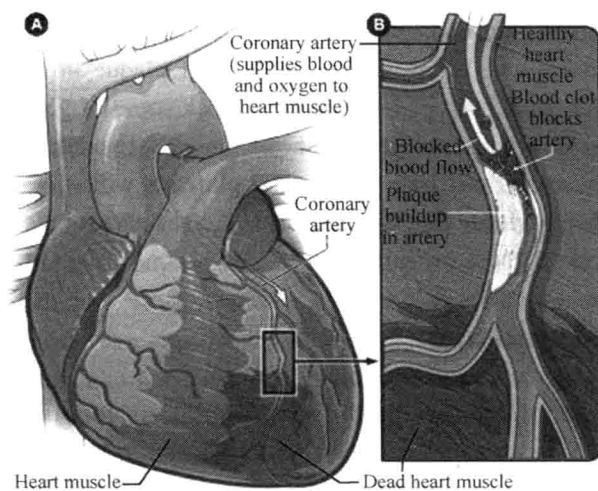


Fig. 1-3 A is an overview of a heart and coronary artery showing damage (dead heart muscle) caused by a heart attack. B is a cross-section of the coronary artery with plaque buildup and a blood clot

system<sup>[2]</sup> on the heart, slowing heart rate, decreasing blood pressure, and thereby reducing the oxygen demand of the heart. Studies have found that these drugs also can reduce the chances of dying or suffering a recurrent heart attack if they are started shortly after suffering a heart attack and continued for 2 years.

**Calcium-Channel-Blocking Drugs:** All muscles need varying amounts of calcium in order to contract. By reducing the amount of calcium that enters the muscle cells in the coronary artery walls, **spasms** can be prevented. Some calcium-channel-blocking drugs also decrease the work-load of the heart and some lower the heart rate as well.

**Nitrates:** **Nitroglycerin** may be prescribed to both treat and prevent attacks of angina.

## Surgical Treatment

### Coronary artery bypass surgery

An estimated 170,000 Americans undergo coronary artery bypass surgery<sup>[3]</sup> each year.

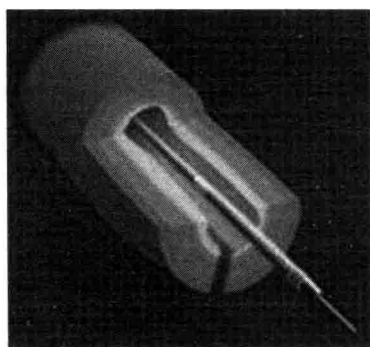


Fig. 1-4 Coronary artery bypass surgery

This operation, once considered a difficult achievement, is now almost a routine in many medical centers (Fig. 1-4). Indeed, there is a good deal of controversy over whether it is now being used unnecessarily to treat coronary disease that could be controlled just as effectively by more conservative, less costly medical therapies.

The operation itself is relatively simple. For “**on-pump**” procedures, circulation is maintained by a heart-lung machine. In an “**off-pump**” operation, the surgeon operates directly on the beating heart. Most people who undergo the operation report feeling vastly better after-

ward. Very often, the patient may have suffered from disabling angina or other cardiac limitations before the operation. With an increased blood supply to the heart muscle, these problems should be eliminated or minimized.

It should be noted that not all people with severe coronary disease are suitable candidates for surgery, and also that the operation is not always successful in achieving its intended goals. As with any surgical procedure, the operation involves some risk; nationwide, about 1% to 3% of bypass patients do not survive the operation or recovery period. The risk is highest for people who have heart failure or are **debilitated** by age or other medical conditions. Women do particularly poorly.

## Angioplasty

A relatively recent and increasingly popular treatment for **atherosclerotic** arterial diseases is **transluminal** angioplasty <sup>[4]</sup>, also referred to as balloon angioplasty <sup>[5]</sup>. Used to treat severely blocked coronary arteries as well as arteries diseased with atherosclerotic plaque in other parts of the body, this technique involves threading a catheter with an **inflatable** balloon like tip through the artery to the area of blockage. The balloon is inflated, flattening the fatty deposits and widening the arterial channel, allowing more blood to reach the heart muscle.

Angioplasty offers several obvious advantages:

- The operation is performed under local **anesthesia**.
- Although invasive, it does not involve surgery or the use of a heart-lung machine.
- It is not as costly as coronary bypass surgery, nor does it involve more than 1 or 2 days of hospitalization under ordinary circumstances.

Angioplasty is also being used to treat blockages in the arteries of the legs and the **carotid** artery, the major vessel carrying blood to the brain.

A variation of balloon angioplasty uses a tiny drill-like device to shave away fatty deposits, similar to a **Roto-Rooter**. Another still experimental variation, called laser **ablation**, is performed through a special viewing tube (fiber-optic catheter) that is inserted into the clogged artery. A laser, an intense beam of light, is used to vaporize the plaque.

## Prevention

Sounds simple doesn't it? Cardiovascular disease is the No. 1 cause of death in the world. Stroke is the No. 4 cause of death in the United States. One reason these statistics are fact is undeniably a lack of commitment to a heart-healthy lifestyle. Your lifestyle is not only your best defense against heart disease and stroke, it's also your responsibility. A heart-healthy lifestyle includes the ideas listed below. By following these simple steps you can reduce all of the modifiable risk factors for heart disease, heart attack and stroke (Fig. 1-5).

### Stop smoking

If you smoke, quit. If someone in your household smokes, encourage them to quit. We know it's tough. But it's tougher to recover from a heart attack or stroke or to live with chronic heart disease. Commit to quit. We're here to help if you need it.

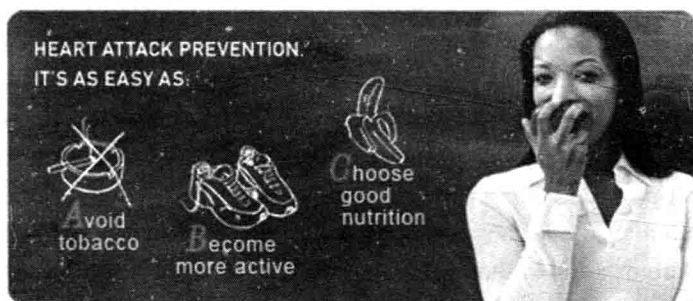


Fig. 1-5 Heart attack prevention

## Be physically active everyday

Be physically active every day. Research has shown that getting at least 30 minutes of physical activity on 5 or more days of the week can help lower blood pressure, lower cholesterol and keep your weight at a healthy level. But something is better than nothing. If you're doing nothing now, start out slow. Even 10 minutes at a time may offer some health benefits. Studies show that people who have achieved even a moderate level of fitness are much less likely to die early than those with a low fitness level.

## Choose good nutrition

A healthy diet is one of the best weapons you have to fight cardiovascular disease. The food you eat (and the amount) can affect other controllable risk factors: cholesterol, blood pressure, diabetes and overweight. Choose nutrient-rich foods—which have vitamins, minerals, fiber and other nutrients but are lower in calories—over nutrient-poor foods. A diet rich in vegetables, fruits, whole-grain and high-fiber foods, fish, lean protein and fat-free or low-fat dairy products is the key. And to maintain a healthy weight, coordinate your diet with your physical activity level so you're using up as many calories as you take in.

## New Words and Expressions

coronary [ˈkɔːrənəri] *adj.* 冠状的

platelet [ˈpleɪtlɪt] *n.* 血小板

insulin [ˈɪnsjʊlɪn, ˈɪnsə-] *n.* 胰岛素

occlude [əˈkluːd] *v.* 使闭塞; 堵塞

heart failure *n.* 心衰

myocardial [ˌmaɪəʊˈkɑːdiəl] *n.* 心肌衰弱 *adj.* 心肌的

ischemia [ɪsˈkiːmiə] *n.* 局部缺血

presumptive [prɪˈzʌmptɪv, priː-] *adj.* 假定的; 根据推定的

electrocardiogram [ɪˌlektroʊˈkɑːdiəʊgræm] *n.* 心电图

thallium [ˈθæliəm] *n.* 铊

catheterization [ˌkæθɪtəraɪˈzeɪʃən, -riˈz-] *n.* 导管插入; 导管插入术

angiography [ˌændʒiˈɒɡrəfi] *n.* 血管造影术; 血管照相术

angiogram [ˈændʒiəʊgræm] *n.* 血管造影片  
 catheter [ˈkæθɪtə] *n.* 导管;导尿管;尿液管  
 beta-blocking [ˌbi:təˈblɒkɪŋ] *adj.* [药理学](药物)阻滞  $\beta$  受体的  
 spasm [ˈspæzəm] *n.* 痉挛;抽搐  
 nitrate [ˈnaɪtreɪt] *n.* 硝酸盐  
 nitroglycerin [ˌnaɪtrəˈglɪsərɪn] *n.* 硝酸甘油;硝化甘油;甘油三硝酸酯  
 atherosclerotic [ˌæθərəʊskləˈrɒtɪk] *n.* 动脉粥样硬化患者 *adj.* 动脉粥样硬化的  
 rooter [ˈru:tə, ˈru-] *n.* 拔根者;挖土机;除根机  
 inflatable [ɪnˈfleɪtəbl] *adj.* 膨胀的,可充气的  
 anesthesia [ˌænisˈθi:ziə] *n.* 麻醉;麻木  
 carotid [kəˈrɒtɪd] *n.* 颈动脉 *adj.* 颈动脉的  
 ablation [æbˈleɪʃən] *n.* 消融;切除  
 debilitated [dɪˈbɪlɪteɪtɪd] *adj.* 操劳过度的;疲惫不堪的  
 on-pump *adj.* 体外循环  
 off-pump *adj.* 非体外循环

## Notes

[1] **Coronary artery disease**: 冠状动脉疾病,通常被称作冠心病(CHD)。心脏的形状类似于一个倒置的、前后略扁的圆锥体。左右两支冠状动脉位于心脏顶部,几乎环绕心脏一周,就像一顶皇冠,因此得名。冠状动脉主要负责供给心脏血液,保证心脏有足够的营养。正常情况下,冠状动脉壁内层光滑,管壁有弹性,血液畅通无阻。但是血液中胆固醇和脂肪含量过高,就会在血管壁上留下脂肪条痕,日积月累变成一层坚硬的脂肪组织,腐蚀动脉壁,使动脉弹性减小,通道变窄,阻碍血液流动。这些沉积的脂肪组织看起来像是黄色的粥样,也就是冠状动脉粥样硬化,95%~99%的冠心病由此引起。

[2] **Sympathetic nervous system**: 交感神经系统

[3] **Coronary artery bypass surgery**: 冠状动脉搭桥手术

[4] **Transluminal angioplasty**: 腔间血管成形术

[5] **balloon angioplasty**: 气球血管成形术,这种外科手术在临床上等同于经皮穿刺冠状动脉成形(PTCA),经皮穿刺冠状动脉成形术是治疗冠状动脉粥样硬化性心脏病的有效方法。

## Post-reading Activities

### I. Answer the following questions according to Text A.

1. What is coronary heart disease?
2. What cause coronary heart disease?
3. What are signs and symptoms of coronary artery disease?
4. How do doctors diagnose coronary artery disease?
5. How do doctors treat coronary artery disease?
6. What is coronary artery bypass surgery?
7. What are the advantages of angioplasty?

## II. Terms Explanation.

1. CHD
2. atherosclerosis
3. Coronary artery bypass surgery
4. balloon angioplasty

## III. Translate the following terms into English.

1. 动脉粥样硬化	2. 冠状动脉	3. 心绞痛
4. 血管造影术	5. 冠状动脉疾病	6. 心衰
7. 搭桥手术	8. 心血管疾病	9. 冠心病
10. 血管成形术	11. 局部缺血	12. 颈动脉
13. 局部麻醉	14. 凝块	15. 心电图

## IV. Complete the following paragraphs according to the text.

A. maintain	B. pressure	C. fat-free	D. affect	E. nutrient-poor
F. oxygen-rich	G. weapons	H. angina	I. trigger	J. using up

A common symptom of coronary heart disease is \_\_\_\_ 1 \_\_\_\_\_. Angina is chest pain or discomfort that occurs if an area of your heart muscle doesn't get enough \_\_\_\_ 2 \_\_\_\_\_ blood. Angina may feel like \_\_\_\_ 3 \_\_\_\_\_ in your chest. You also may feel it in your shoulders, arms, neck, jaw, or back. Angina pain may even feel like indigestion. The pain tends to get worse with activity and go away with rest. Emotional stress also can \_\_\_\_ 4 \_\_\_\_\_ the pain.

A healthy diet is one of the best \_\_\_\_ 5 \_\_\_\_\_ you have to fight cardiovascular disease. The food you eat (and the amount) can \_\_\_\_ 6 \_\_\_\_\_ other controllable risk factors: cholesterol, blood pressure, diabetes and overweight. Choose nutrient-rich foods—which have vitamins, minerals, fiber and other nutrients but are lower in calories—over \_\_\_\_ 7 \_\_\_\_\_ foods. A diet rich in vegetables, fruits, whole-grain and high-fiber foods, fish, lean protein and \_\_\_\_ 8 \_\_\_\_\_ or low-fat dairy products is the key. And to \_\_\_\_ 9 \_\_\_\_\_ a healthy weight, coordinate your diet with your physical activity level so you're \_\_\_\_ 10 \_\_\_\_\_ as many calories as you take in.

## V. Translate the following paragraph into Chinese.

Your doctor may recommend the DASH (Dietary Approaches to Stop Hypertension) eating plan if you have high blood pressure. The DASH eating plan focuses on fruits, vegetables, whole grains, and other foods that are heart healthy and low in fat, cholesterol, and sodium. DASH also focuses on fat-free or low-fat milk and dairy products, fish, poultry, and nuts. The DASH eating plan is reduced in red meats (including lean red meats), sweets, added sugars, and sugar-containing beverages. It's rich in nutrients, protein, and fiber. The DASH eating plan is a good healthy eating plan, even for those who don't have high blood pressure.

You also should try to limit the amount of sodium (salt) that you eat. This means choosing low-salt and "no added salt" foods and seasonings at the table or while cooking. The Nutrition Facts label on food packaging shows the amount of sodium in the item.

## Text B Heart Failure

### **Focus**

**Congestive Heart Failure (CHF)**

**What Causes Heart Failure**

**How Quickly Does Heart Failure Develop**

**What Is the Treatment for CHF**

Hearing the words “heart failure” can make you think the heart suddenly stops. Heart failure doesn’t mean your heart has stopped working. It means your heart isn’t as strong as it used to be. The heart is a muscle that pumps blood through the body. You get heart failure when something hurts the heart muscle and over time, the heart muscle gets weaker, loses more strength and has to work harder to keep blood moving (Fig. 1-6).

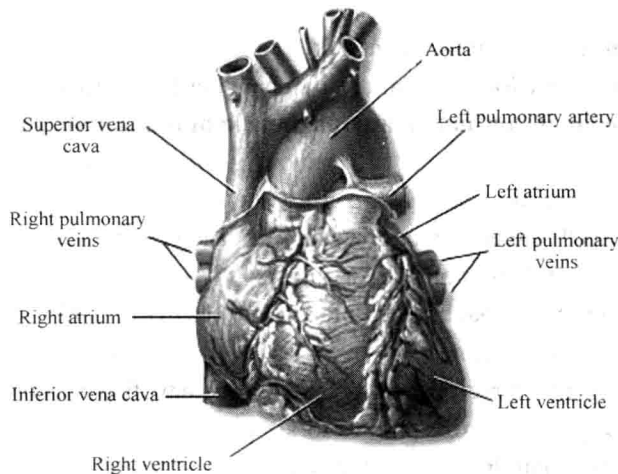


Fig. 1-6 Heart

## **Congestive Heart Failure ( CHF )**

Congestive heart failure refers to the buildup of fluid that may occur in some people with heart failure. With CHF, the ventricles of the heart cannot pump out all the blood they receive. This means they cannot receive all the incoming blood. The result is a backup of fluid that is then forced into the body and lung tissues. This can lead to shortness of breath or swelling in the legs, feet or stomach.

### **Ejection Fraction**

You may hear your physician talk of your ejection fraction <sup>[1]</sup>. Ejection fraction (EF) is a measurement of the amount of blood that is forced out of the left ventricle of the heart, to the rest of the body. The left ventricle only pumps a fraction of the blood it contains. Most people have a normal EF between 55% ~ 75%. Women have a wider range of normal than men. Their EF can be between 50% ~ 75%. A low EF means that the heart is too weak to force the proper



amount of blood out with each contraction.

## What Causes Heart Failure

Sometimes heart failure is the result of heart valve problems or infections in the heart. Heart failure may also happen if you have blocked arteries.

**The following conditions can lead to heart failure:**

- High blood pressure
- Alcohol abuse
- Uncontrolled diabetes
- Birth defects in the heart itself
- High cholesterol
- Illegal drugs, such as cocaine
- Obesity
- Some medicines used to treat cancer
- Smoking
- Injury to the heart from an accident

You can lower your risk for heart failure by changing the factors that you can control.

**Contact your doctor if you notice any of these symptoms start to worsen:**

- Dizzy spells
- Chest pain or tightness
- Shortness of breath either at rest or when exercising
- Swelling of the feet, legs, stomach, or fingers
- Hacking, dry cough or coughing up blood
- Tiring easily, fatigue, weakness
- Sudden weight gain—three or more pounds in one day, five or more pounds in one week
- Needing to sit up or use extra pillows to sleep
- Needing to empty **bladder** several times a night

## How Quickly Does Heart Failure Develop

Heart failure is usually a chronic disease. That means it's a long-term condition that tends to gradually become worse. By the time someone is diagnosed, chances are that the heart has been losing pumping capacity little by little for quite a while. At first the heart tries to make up for this by:

**Enlarging.** When the heart chamber enlarges, it stretches more and can contract more strongly, so it pumps more blood. This will work for a while until the heart becomes so large, it can no longer squeeze effectively.

**Developing more muscle mass.** The increase in muscle mass occurs because the contracting cells of the heart get bigger or thicker. This lets the heart pump more strongly, at least initially.

**Pumping faster.** This helps to increase the heart's output of blood.

The body also tries to compensate in other ways. The blood vessels narrow to keep blood pressure up, trying to make up for the heart's loss of power. The body diverts blood away from