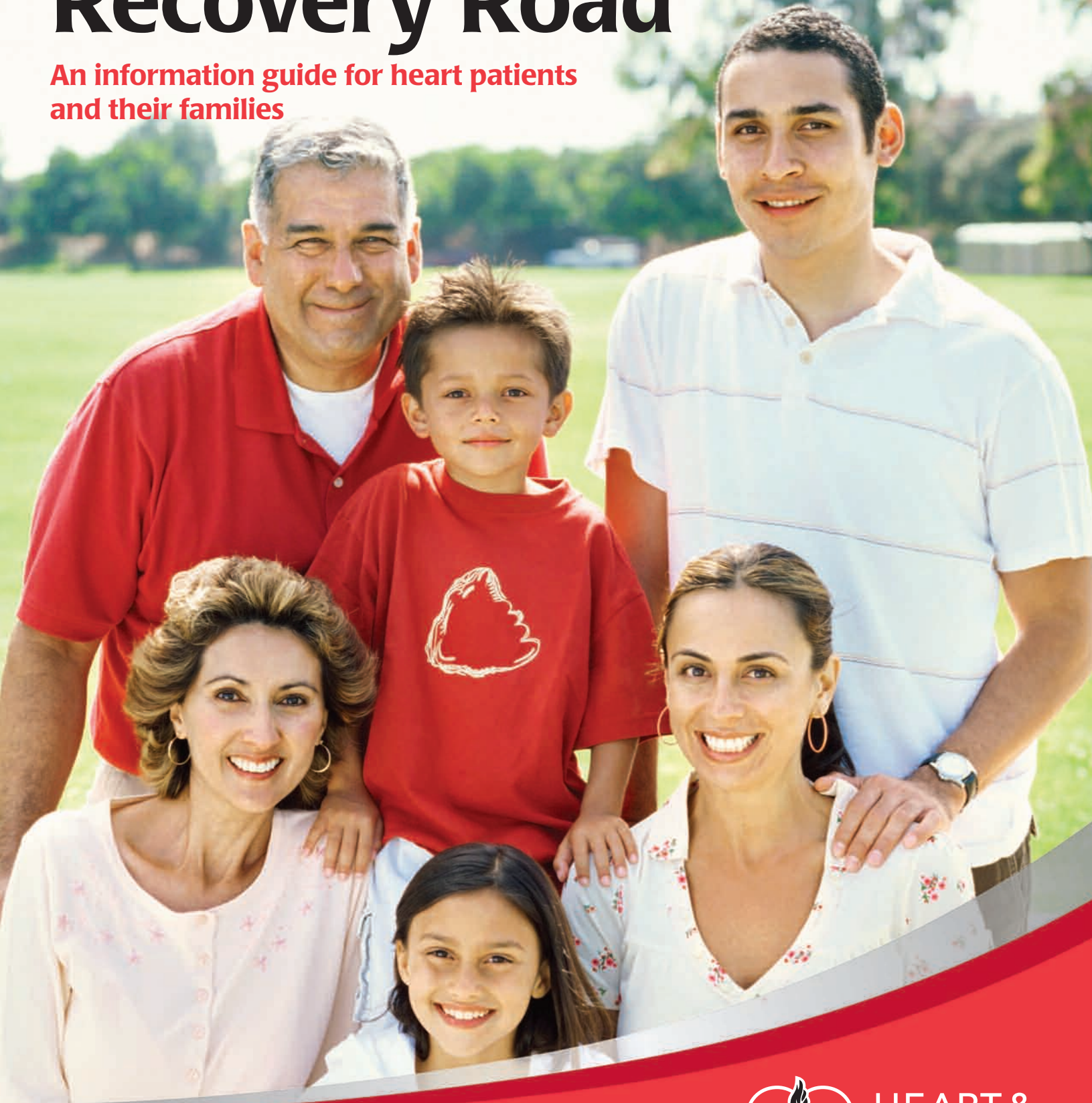


Heart&Stroke

# Recovery Road

An information guide for heart patients  
and their families



HEART &  
STROKE  
FOUNDATION

*Finding answers. For life.*

[www.heartandstroke.ca](http://www.heartandstroke.ca)

# Recovery Road

This booklet is entitled Recovery Road for a reason. You've either just had a heart attack, a heart procedure, or maybe you have been diagnosed with angina or other heart problem. In these pages, you will learn about what has happened to you and what you can do to reclaim your health – information that will improve the success of your recovery, so you can live as healthy and productive a life as possible. And yes, it is possible – though not always easy – to live with heart disease, and continue to live life to its fullest.

In these pages, you will find some tools to help you do just that. How you decide to use them, and where you choose to start, is up to you. We hope that you will also share them with your family and friends so they, too, can lend a hand. Think of this booklet as a rough set of plans that you can personalize and use to rebuild a healthier future.

The Heart and Stroke Foundation protects the health of millions of Canadians by funding world-class research that results in medical advances, social change and health education that prevent and reduce death and disability due to heart disease and stroke. Since 1952, thanks in large part to our research and health education programs, the death rate from heart disease and stroke in Canada has fallen by 70%. But with millions still at risk – both old and young – more work is needed.

This booklet is the result of feedback and comments from people with heart disease and their caregivers – doctors, nurses, families and friends. We thank them all for sharing their experiences and expertise to help other people with heart disease.

All of us wish you much success, because great things happen when you put your heart into it.

## *How to use this booklet*

This is your own personal resource to help you through your recovery. It covers many topics that may be of interest or concern to you and your family. There is also room to add further information you may find, or that your healthcare providers (doctors, nurses, dietitians, and exercise specialists) give you. As you add information, this booklet will become your personalized record of recovery.

But while this is *your* record, it can be shared with your family and caregivers. Encourage others around you to read it and learn for themselves. Heart disease within a family affects everyone differently, and this booklet will help the important people in your life understand what you are experiencing. They may also find some of the information will motivate and help them to improve their own health and lifestyle.

In this resource, you will find internet addresses and telephone numbers to lead you to more information. In addition to using the resources provided, you can also note other programs such as education seminars, support groups or exercise programs that you find along your journey.

The Heart and Stroke Foundation's Web site ([www.heartandstroke.ca](http://www.heartandstroke.ca)) contains more information on heart disease, stroke, healthy living and heart-healthy recipes. You may also wish to call the Heart and Stroke Foundation at 1-888-HSF-INFO (1-888-473-4636), or your local Foundation office.

The information in this book or from any other source (internet, pamphlet or book) should not replace the advice of your own medical team. Always discuss recovery and treatment options with your doctor.

Heart disease and stroke is still the leading cause of death in Canada – with one in three Canadian deaths due each year to these devastating diseases.

The Heart and Stroke Foundation continues to lead in eliminating heart disease and stroke by delivering breakthrough medical advances, effecting social change, and providing health education (professional and consumer) that help reduce the devastating impact resulting from these diseases. Help us continue to improve survival rates and inspire hope for longer, healthier lives.

SEE WHAT HAPPENS WHEN YOU PUT YOUR HEART INTO IT.™ visit [www.heartandstroke.ca](http://www.heartandstroke.ca)

# Recovery Road

## Table of Contents



### *Introduction*

1. Understanding heart disease.....	1
Types of heart disease.....	4
2. Treating heart disease.....	27
Diagnostic tests.....	27
Surgery and other procedures.....	35
3. Understanding the causes of heart disease.....	43
4. Optimizing your heart health.....	58
5. Preparing for an emergency.....	74
6. Returning home.....	84
7. Getting the most from your meds.....	94
8. Resources.....	100
9. My heart diary.....	104
10. Glossary.....	116
11. Evaluation form.....	121

# 1. Understanding heart disease

*In this chapter, you will learn about the basic anatomy of the heart, how it works. and the most common types of heart disease.*

## *Where is my heart located?*

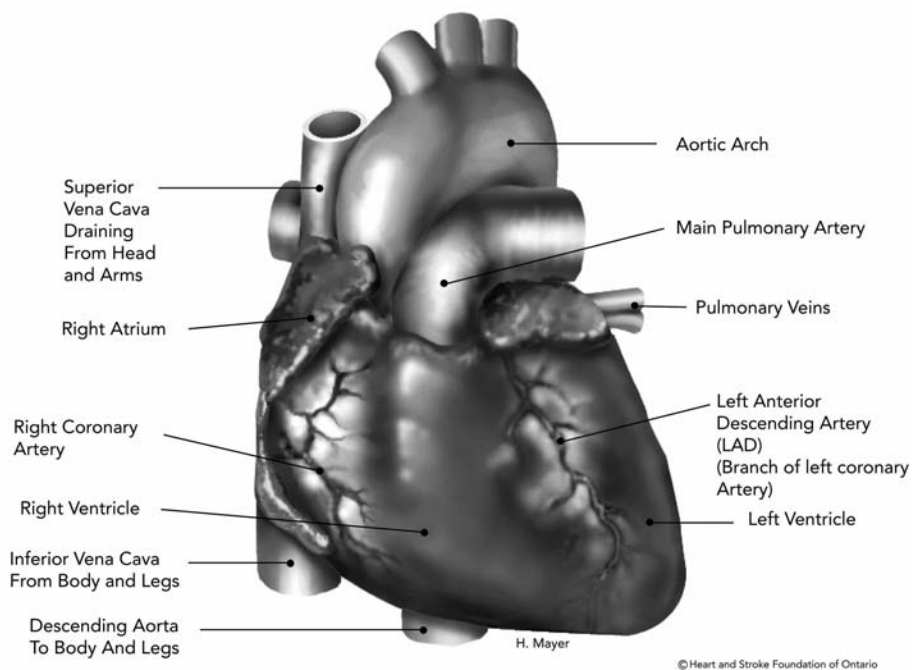
Your heart is located in the centre of your chest, slightly to the left, behind the lower part of your breastbone.

## *What does my heart look like?*

Your heart is a hollow, muscular organ about the same size as your fist. It is a two-sided pump, with a muscular wall called the septum separating the right and left sides.

Both the right and left sides have an upper and lower chamber. The upper chambers are called atria (singular: atrium) and the lower chambers are called ventricles. Linking the chambers (the atria and ventricles) are small valves that open and close when your heart beats.

In order for your heart to work, it requires its own supply of oxygen-rich blood. Oxygen-rich blood is funneled to the heart muscle by the surrounding coronary arteries at a rate of five litres a minute. The left coronary artery supplies blood to the left side of the heart and the septum. The right coronary artery supplies blood to the right side and the back of the heart.



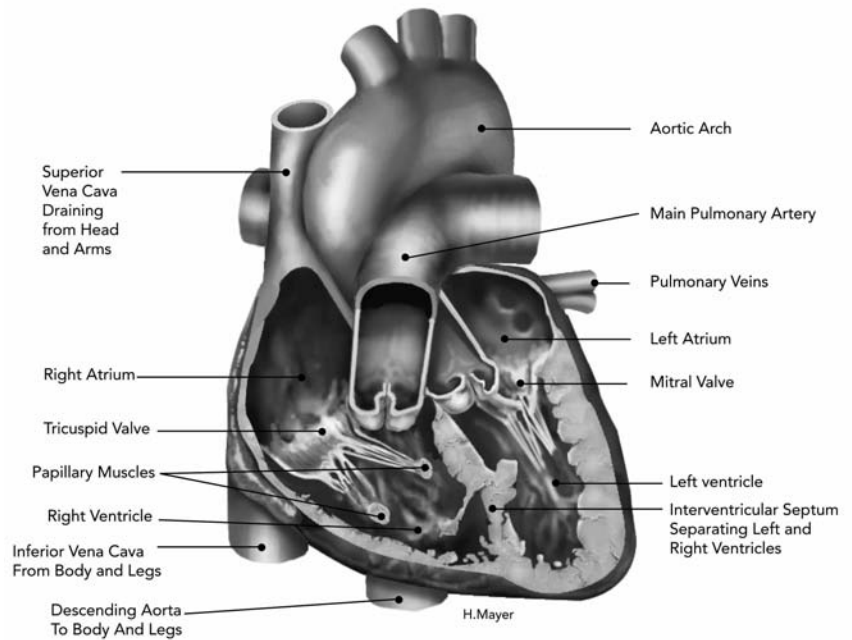
## How does my heart work?

Clench your fist, relax it, clench it again. This is how your heart contracts and rests. Small but mighty, your heart muscle beats non-stop to keep your entire body supplied with oxygen-rich blood.

Electrical signals prompt your heart to beat, forcing blood through all four chambers. In order to pump in a regular rhythm, your heart has a built-in pacemaker. Your body's natural pacemaker is located in the right atrium.

Blood is pumped through your heart in the following way:

1. Blood from your body (muscles, organs, brain and heart) flows into the right atrium, which acts as a collecting chamber.
2. When the atrium contracts (squeezes), the tricuspid valve between the right atrium and the right ventricle opens. When the valve opens, blood flows into the right ventricle.
3. When the right ventricle contracts once more, it pumps the blood to the pulmonary artery through the pulmonary valve. From there, it goes to the lungs.
4. Once the blood reaches the lungs, waste material (carbon dioxide) is removed and fresh oxygen is added to it.
5. The blood flows back into the left atrium.
6. When the left atrium contracts, the mitral valve between the left atrium and left ventricle opens. The blood flows through into the left ventricle.
7. From the left ventricle, the oxygen-rich blood is pumped into the aorta and then to all parts of your body. With each beat (contraction) of your heart, blood rushes through your arteries. Blood rushing through your arteries creates a



© Heart and Stroke Foundation of Ontario

pulse that you can feel with your fingertips. How fast your heart beats, or your pulse rate, depends partly on how hard your heart must beat in order to send blood to all parts of your body.

### *What are the common types of heart disease?*

To plan a successful recovery, you need information about your condition – and how it should be treated. Many people with heart disease and their caregivers tell us how frustrated they are by the lack of information specific to their heart condition. This booklet offers a brief overview of a few common conditions to help you get started, but it will not address all the particulars of your condition.

If you come across a term you don't understand, you may be able to find it in the glossary at the back of this booklet. If you would like more detailed explanations or information, you may wish to search the Heart and Stroke Foundation's Web site ([www.heartandstroke.ca](http://www.heartandstroke.ca)). Or, you can call the Heart and Stroke Foundation at 1-888-HSF-INFO (1-888-473-4636) and ask to have specific information sent to you.

#### Results That Change Lives

##### Canadian Heart Health Initiative (CIHI)

*The Foundation was a major partner in CIHI, a multi-level strategy that links national, provincial and local health departments. Launched in 1986, the strategy continues to support the prevention of cardiovascular disease by combining research and the implementation of community-based heart-health programs.*

### *Common terms you may encounter*

In the following sections, we focus on the heart and heart disease. When you are reading about the heart, you may also sometimes see the terms “cardiovascular” or even “cerebrovascular.” In medical terminology, “cardiac” is used to refer to things related to the heart. “Vascular” refers to the system of blood vessels (veins, arteries and smaller blood vessels). So “cardiovascular” (“cardio” + “vascular”) refers to the heart and the blood vessels while “cerebrovascular” (“cerebro” + “vascular”) means the brain and the blood vessels.

## What is heart disease?

Most people think of heart disease as one condition. But in fact, heart disease is a group of conditions affecting the structure and functions of the heart and has many root causes. Coronary artery disease, for example, develops when a combination of fatty materials, calcium and scar tissue (called plaque) builds up in the arteries that supply blood to your heart (coronary arteries). The plaque buildup narrows the arteries (atherosclerosis) and prevents the heart from getting enough blood.

## What exactly is a heart attack?

When the blood supply to the heart is slowed or stopped because of a blockage, a heart attack occurs. Atherosclerosis, the narrowing of coronary arteries due to plaque buildup, causes more than 90% of heart attacks. A heart attack may also occur when a coronary artery temporarily contracts or goes into a severe spasm, effectively shutting off the flow of blood to the heart. The length of time the blood supply is cut off will determine the amount of damage to the heart. Some heart attacks may not affect the heart's functioning, but others may interfere with its ability to pump effectively. Sometimes a heart attack may lead to cardiac arrest.

### Results That Change Lives

#### Canada's first heart unit

*In 1962, Foundation researchers established the first-ever specialized coronary unit for hospitalized heart attack patients, now adopted as the gold standard for care in hospitals worldwide.*

## What is cardiac arrest?

When a person stops breathing and the heart stops beating, the condition is called cardiac arrest. While the most common cause is heart attack, cardiac arrest can also be caused by drowning, stroke, electrocution, suffocation, drug overdose and injury. Performing CPR (cardiopulmonary resuscitation) keeps oxygen flowing to the heart and brain – buying extra time until medical help arrives.

## Types of heart disease

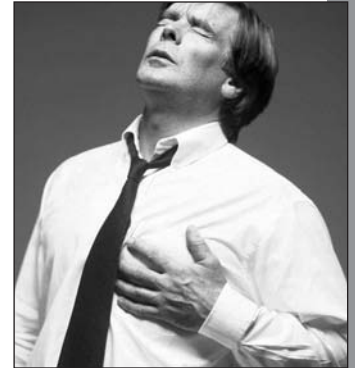
Heart disease describes many heart conditions. Coronary artery disease (CAD) is the most common of these conditions and occurs when blood vessels in your

heart become blocked or narrowed, preventing oxygen-rich blood from reaching your heart. It can cause chest pain – called angina – or even a heart attack.

## Angina

Angina – also sometimes called angina pectoris – occurs when your heart doesn't get as much blood and oxygen as it needs because one or more of its arteries (coronary arteries) is blocked causing pain in the chest. People who have angina describe the pain as a squeezing, suffocating or burning feeling.

Angina is not a heart attack. It is a warning signal that you are at increased risk of a heart attack, cardiac arrest or sudden cardiac death. Usually, the pain will go away with rest or medication, but it is your heart telling you that your body is working too hard and needs to slow down. Angina is a warning to you to stop what you are doing and rest. If you experience this kind of chest pain, see your doctor to determine the cause, and get treatment if necessary.



## Causes of angina

Angina is the pain you feel when one or more of your coronary arteries becomes damaged, blocked or narrowed and isn't able to bring enough oxygen-rich blood to your heart. The pain may occur during physical activity, stress, periods of extreme cold or hot temperatures, after heavy meals, while drinking alcohol or smoking. Angina is most often caused by:

- Coronary artery disease as a result of atherosclerosis – a buildup of fatty deposits that block the flow of blood through the coronary arteries.
- Coronary artery spasm – one of the blood vessels supplying the heart muscle vigorously contracts, causing blood flowing to the part of the heart supplied by the artery to decrease or even stop, resulting in a heart attack.

In some cases angina can be caused by uncontrolled high blood pressure, or other heart conditions such as narrowing of one of the valves in the heart (aortic stenosis) or an enlarged heart (hypertrophic cardiomyopathy). Sometimes, people

can have chest pain that is the result of other health conditions such as lung problems, muscle problems or bone problems.

## *Symptoms of angina*

- Pain that starts in the centre of your chest, but spreads to your left arm, neck, back, throat or jaw
- Tightness, pressure, squeezing and/or aching feeling in your chest or arm(s)
- Feeling of moderate to severe indigestion that is persistent
- Sharp, burning or cramping pain
- An ache starting in, or spreading to, your neck, jaw, throat, shoulder, back or arm(s)
- Discomfort in your neck or upper back, particularly between the shoulder blades
- Numbness or a loss of feeling in your arms, shoulders or wrists.

If you experience one or more of these symptoms, see your doctor right away. If your pattern of angina changes, call your doctor as soon as possible.

Usually angina only lasts a few minutes, but if the pain lasts longer, it may mean that you have a sudden, total blockage of a coronary artery or that you may be having a heart attack and you need to get help immediately. If you are experiencing chest pain or pressure that is not relieved with rest or medication (nitroglycerin) after 15 minutes, you may be having a heart attack. Don't delay. Immediately call 9-1-1 or your local emergency response number.

## *Types of angina*

**Stable angina** usually follows a predictable pattern. The pain generally happens at about the same time that you are exercising or under emotional stress. The pain is usually relieved with rest or medication. If you have stable angina, try to track how long it lasts and what helps ease the pain. This will allow you to notice any change in the pattern, which could mean you have developed unstable angina.

**Unstable angina** causes chest pain that is unexpected and usually happens when you are at rest. If you have chest pain that is new, worsening or constant, you have a greater risk of having a heart attack, an irregular heartbeat (arrhythmia), and even sudden death. See your doctor as soon as possible.

**Variant angina** also called Prinzmetal's angina, usually happens spontaneously, and unlike stable angina, it nearly always happens while you are at rest. It doesn't follow physical exertion or emotional stress. Attacks may be very painful and usually happen between midnight and 8 a.m. It is caused by coronary artery spasm. About two-thirds of people with variant angina have severe atherosclerosis in at least one major coronary artery and the spasm usually happens very close to the blockage.

**Microvascular angina** causes chest pain but without any apparent blockage in a coronary artery. The pain is caused by an improper functioning of the tiny blood vessels that feed your heart. (This condition may also be referred to as Syndrome X, not to be confused with metabolic syndrome, which is also known as Syndrome X.)

**Atypical angina** You may not experience typical symptoms of angina and instead may feel a vague chest discomfort, shortness of breath, fatigue, nausea, back or neck pain or burning indigestion. Women are more likely to experience atypical symptoms such as vague chest discomfort.

## *How is angina diagnosed?*

Your doctor will probably review your medical history and give you a complete physical exam, which will include a few tests before recommending

Recovery  
Road

treatment. These tests may include: angiography, electrocardiogram (ECG/ EKG), echocardiogram, exercise electrocardiogram (stress test), thallium or cardiolute scan, and transesophageal echocardiogram (TEE).

## *How is angina treated?*

Lifestyle changes and medications are the most common ways to treat and control angina. Sometimes, surgery may be necessary.

Certain medications may help prevent or relieve the symptoms of angina, including: anti-platelets, beta blockers, calcium channel blockers and nitroglycerin. (See the chapter entitled, Getting the most from your meds)

Angina can also be treated by widening or bypassing the narrowed artery to increase the blood flow to your heart. Procedures to treat angina might include: percutaneous coronary intervention (PCI, also known as angioplasty with stent), atherectomy, and coronary artery bypass surgery.

## **Arrhythmia**

We all have our own normal heart beat rhythm. Some are faster or slower than others. Usually, the heart beats between 60 and 80 times a minute. When you receive a diagnosis of arrhythmia, it is an abnormal heart rhythm for you. The pumping action of your heart is triggered by electrical impulses that begin in your heart's natural pacemaker, called the *sinus node* (also called sinoatrial or SA node). Arrhythmia may cause your heart to beat too slowly (bradycardia – less than 60 beats per minutes) or too quickly (tachycardia – more than 100 beats per minute), or cause uncoordinated contractions (fibrillation).

## *Slow heartbeat – bradycardia*

Bradycardia occurs when your heart beats so slowly that it cannot pump enough blood for your body's needs. If it is not treated, it may cause excessive tiredness, dizziness, lightheadedness or fainting, because not enough blood is reaching the brain. This may be corrected with an implanted pacemaker to help your heart beat normally. Bradycardia occurs for several different reasons:

## Sick sinus syndrome

Bradycardia results from a malfunction in the sinus node (the heart's natural pacemaker), which makes it fire too slowly. This condition may be caused by increasing age or disease. Some medications can also cause or aggravate a slow heartbeat. The resulting arrhythmia may be temporary or permanent. It can be treated with medication or with a pacemaker.

## Heart block

Heart block is the slowing down or interruption of the electrical signal to the lower chambers of the heart (ventricles) that causes the heart muscle to contract. The heart's electrical system normally sends signals from the upper chambers of the heart (atria) to the lower chambers (ventricles) in a pattern that causes a heartbeat, a coordinated contraction of the heart muscle.

## *Rapid heartbeat – tachycardia*

Tachycardia occurs when your heart beats too fast. If you have tachycardia, your heartbeat might feel like a strong pulse in your neck or a fluttering, racing beat in your chest. You may also feel discomfort in your chest, weakness, shortness of breath, faint, sweaty or dizzy. If you have any of these symptoms, see your doctor immediately. There are two main types of tachycardia:

### Tachycardia above a ventricle

These are rapid heartbeats in the atria (the top chambers of your heart) or in the AV (atrioventricular) node – the electrical connection between the atria and the ventricles (the lower chambers of your heart).

- **Atrial flutter** In atrial flutter, an extra or early electrical impulse travels around and around the atria in a circular path rather than down along its normal path. This electrical signal causes the atria to “flutter,” contracting at a much higher rate than normal. Atrial flutter is usually not life threatening, but it may still cause chest pain, faintness or other more serious problems.
- **Atrial fibrillation** This common form of tachycardia occurs when the electrical activity in the atria is disorganized and very rapid. The pattern of electrical

activity stimulates the atria randomly and at a high speed, which causes a series of very rapid contractions of the heart's upper chambers, preventing them from pumping effectively. Though not usually life-threatening, the rapid, irregular and uncoordinated beating of the ventricles may cause lightheadedness or palpitations. If it goes on for several days or longer, it may increase your risk of stroke, because blood trapped in the atria can clot and travel from your heart to your brain, causing a stroke.

- **Paroxysmal supraventricular tachycardia (PSVT)** This type of tachycardia produces heart rates between 140 and 250 beats per minute. (Normally, the heart beats 60 to 80 times per minute.) PSVT usually occurs in people who are born with an extra electrical circuit or pathway between the atria and the ventricles. PSVT often first happens in younger people, but may also start later in life. It may be distressing, but is rarely life-threatening.
- **Wolff-Parkinson-White (WPW) Syndrome** This is a congenital abnormality (present at birth) involving the heart's electrical system. Most people with WPW syndrome lead normal lives. Many have no symptoms and have no episodes of tachycardia. In some people, WPW syndrome can cause rapid heartbeats (paroxysmal supraventricular tachycardia), with heart rates rising up to 240 beats per minute. (The normal rate is 60 to 80 beats per minute.) Other symptoms include palpitations, shortness of breath, fainting and possibly angina (chest pain). While the condition is present at birth, symptoms are more likely to appear in adults. WPW is usually diagnosed in adolescence or early adulthood.

## Tachycardia in a ventricle

- **Ventricular tachycardia** This occurs when the ventricles (the lower chambers of the heart) beat too fast. It may be very serious because the ventricles are responsible for pumping blood to the rest of the body. If tachycardia becomes so severe that the ventricles can't pump effectively, it may be life threatening. Ventricular tachycardia can be treated with medications. Other treatments include an implantable defibrillator, catheter ablation, non-surgical procedures to destroy malfunctioning cells, or surgery to remove damaged heart tissue.

- **Ventricular fibrillation** Incorrectly timed electrical signals or ones that do not follow normal pathways may set off ventricular fibrillation. Like atrial fibrillation, this happens when the electrical signal that normally triggers a heartbeat splits and goes off on random paths around the ventricles instead of following its normal route. This results in a series of rapid but ineffective contractions of the ventricles. Without immediate treatment, it may be fatal. It is treated by administering an electric shock to the heart, using a machine called an Automated External Defibrillator (AED). This shock allows the heart to reset itself and return to its normal rhythm.

### *How is arrhythmia diagnosed?*

Your doctor will probably review your medical history and give you a complete physical exam, which will include a few tests before recommending treatment. These tests may include: an electrocardiogram (ECG or EKG), electrophysiology studies (EPS), event monitoring, holter monitoring and tilt-table exam.

### *How is arrhythmia treated?*

Many arrhythmias are treatable with lifestyle changes, medications, surgery or other non-surgical techniques. Treatment will depend upon the extent and frequency of arrhythmia.

Most people with an arrhythmia can lead normal, active lives. Sometimes, lifestyle changes such as avoiding stress, and cutting out alcohol and caffeine (coffee, tea, soft drinks, chocolate, and some over-the-counter pain medicines) may be helpful.

Your doctor may prescribe medications to stabilize your heart rhythm including digitalis/digoxin, beta-blockers and calcium-channel blockers.

Sometimes medications and lifestyle changes may not work for you and surgery is needed. These techniques could include: arrhythmia

#### Results That Change Lives

##### Restoring good rhythm

*An out-of-sync group of heart cells can result in irregular heartbeats. Previously, correction by destroying the 'off-beat' spots was an open-heart procedure. Thanks to Heart and Stroke Foundation research, it is a less traumatic closed-heart process, in which a unique electrode-covered balloon is navigated through the vessels to the heart and wipes out off-beat' spots.*

ablation, cardioversion therapy, defibrillation, pacemaker implantation and ventricular resection/remodelling.

## Atherosclerosis

Like water through a hose, blood flows through your arteries, delivering oxygen and nutrients to your organs. When your arteries become clogged with fatty deposits (known as plaque), they lose their elasticity and become narrow. This blocks or slows the smooth passage of blood.

Plaque is a sticky, yellow substance made up of fatty substances such as cholesterol, calcium, and waste products from your cells. Atherosclerosis is a slow, progressive condition that may begin as early as childhood, and occur anywhere in the body but usually affects large and medium sized arteries.

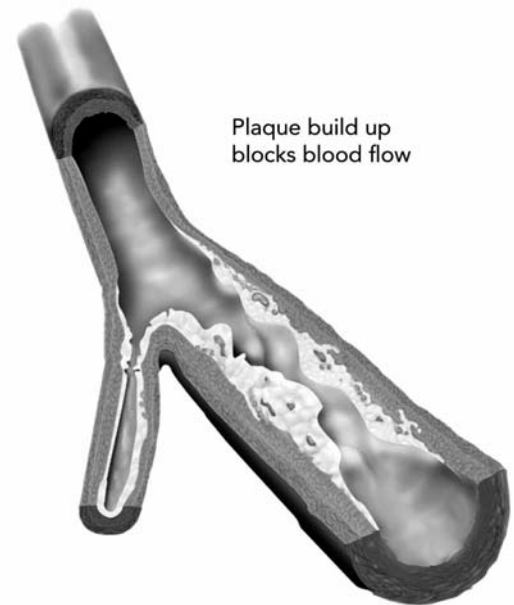
### *What causes atherosclerosis?*

The causes of atherosclerosis are complicated and still not completely understood. Atherosclerosis is thought to start when the inner lining of the artery becomes damaged. The blood vessel wall reacts to this injury by depositing fatty substances, cholesterol, calcium and other substances on the inner lining of the artery. The result is a progressive thickening of the blood vessel wall. High blood pressure, high levels of cholesterol and triglycerides in the blood, and smoking can all contribute to the development of plaque.

Risk factors for atherosclerosis include diabetes, obesity, high blood cholesterol, eating a high-fat diet, or a family history of heart disease.

### *Symptoms of atherosclerosis*

Sometimes atherosclerosis causes no symptoms until it is far enough advanced to block a large part of an important blood vessel. If the blockage occurs in an artery of the heart (coronary artery), it will cause angina (chest pain).



© Heart and Stroke Foundation of Canada

As it progresses, atherosclerosis in the arteries of the heart may cause a heart attack or if it develops in the brain, it may cause a stroke.

If atherosclerosis blocks the flow of blood through your coronary arteries, you may develop coronary artery disease (CAD), which may lead to angina or a heart attack. If it blocks the arteries in your brain, it may lead to a stroke.

### *How is atherosclerosis diagnosed?*

Atherosclerosis can be diagnosed using angiography or doppler ultrasound.

### *Treatment of atherosclerosis*

Your doctor may treat your atherosclerosis by prescribing lifestyle changes, medications, surgery or other procedures.

You may be prescribed a medication to reduce fats and cholesterol in your blood or medications to control your blood pressure. Sometimes, anti-platelets or anticoagulants may be prescribed to reduce your risk of developing a blood clot. (See the chapter entitled, Getting the most from your meds.)

Your doctor may suggest that you undergo certain procedures to treat your condition. They may include: percutaneous coronary intervention (PCI, also known as angioplasty with stent), coronary artery bypass surgery, or thrombolytic therapy.

## **Cardiomyopathy**

Cardiomyopathy (cardio-my-op-pa-thee) means disease of the heart muscle. It damages the muscle tone of your heart and reduces its ability to pump blood to the rest of your body.

### *Types of cardiomyopathy*

There are four main types of cardiomyopathy:

**Dilated (congestive) cardiomyopathy** This is the most common form of cardiomyopathy. It affects the chambers of the heart by weakening their walls. It may be caused by a viral infection of the heart muscle, excessive alcohol consumption, cocaine and abuse of antidepressant drugs. In rare cases, it may be

caused by pregnancy or connective tissue disease such as rheumatoid arthritis. But in most cases, the cause is unknown.

**Hypertrophic cardiomyopathy** This causes a thickening of the heart's walls, which makes it harder for it to pump blood. In one form, the wall between the bottom chambers of the heart (the septum) becomes enlarged and blocks the flow of blood. It is usually an inherited disease, but sometimes the cause is not clear. It may occur as a birth defect but may affect people of all ages.

**Restrictive cardiomyopathy** This condition restricts the heart from stretching properly, which limits the amount of blood that fills the heart's chambers. It is a rare type of cardiomyopathy.

**Ischemic cardiomyopathy** Cardiac ischemia happens when an artery leading to the heart becomes narrowed or blocked for a short time and oxygen-rich blood cannot reach the heart. Ischemic cardiomyopathy is the loss or weakening of heart muscle tissue caused by ischemia (which causes chest pain called angina) or silent ischemia (which causes no pain). The ischemia usually results from coronary artery disease and heart attacks.

### *Symptoms of cardiomyopathy*

Some people have no signs and symptoms in the early stages of the disease. But as it develops, symptoms usually appear, which are often associated with congestive heart failure. Symptoms include: extreme fatigue, breathlessness upon exertion (caused by fluid building up in the lungs), decreased physical stamina and arrhythmias. Dilated (congestive) cardiomyopathy may cause swelling of the legs and abdomen, heart murmurs and the formation of blood clots in the heart. Hypertrophic cardiomyopathy may cause dizziness, fainting, heart murmurs and chest pain (angina). Restrictive cardiomyopathy may cause swelling of the hands and feet. If you have one or more of these symptoms, see your doctor. Get immediate medical help if you experience chest pain or difficulty breathing.

### *How is cardiomyopathy diagnosed?*

Diagnosing cardiomyopathy may require several tests. Any of the following

may be required to make a firm diagnosis: angiography, blood tests, cardiac catheterization, chest X-ray, echocardiogram, electrocardiogram (ECG), and transesophageal echocardiogram.

### *How is cardiomyopathy treated?*

Your doctor may treat your cardiomyopathy by suggesting lifestyle changes, medications or surgery.

You can lower your risk of heart disease by knowing and controlling your blood pressure, diabetes and blood cholesterol. It is also important to lead a healthy lifestyle by being smoke-free, physically active, eating a healthy diet that is lower in fat, especially saturated and trans fat, achieving and maintaining a healthy weight, limiting alcohol use and reducing your stress.

If the underlying cause of cardiomyopathy is known, it must be treated immediately with medications including: ACE inhibitors, beta blockers and calcium channel blockers.

Surgery may be an option depending on what type of cardiomyopathy you have. Talk to your doctor to find out more about whether surgery can improve your condition. For a small percentage of patients with very advanced cardiomyopathy, a heart transplant may be necessary.

## **Congenital heart disease**

Congenital means existing at birth. A congenital heart defect happens when the heart or the blood vessels near the heart don't develop normally before birth. Congenital heart defects are present in about 1% of live births and are the most frequent congenital malformations in newborns. In most cases, we don't know why they happen. Some causes include viral infections, certain conditions such as Down Syndrome and drug abuse during pregnancy (alcohol, cocaine). Treatments for congenital heart defects have come a long way. Today, most children grow up to lead full, active lives.



Recovery  
Road

## *Types of congenital heart disease*

There are many types of congenital heart defects.

**Obstruction of blood flow (stenosis)** A narrowing or obstruction that partly or completely blocks the flow of blood. Obstructions can occur in heart valves, arteries or veins. The three most common forms are pulmonary stenosis, aortic stenosis, and coarctation of the aorta.

**Septal defects (holes in the heart)** When a baby is born with an opening between the wall (the septum) that separates the right and left sides of the heart, blood flows between the right and left chambers of the heart instead of flowing normally to the rest of the body. This may cause the heart to become enlarged. This defect is commonly referred to as a “hole in the heart.” The two most common forms are atrial septal defect and ventricular septal defect.

**Patent ductus arteriosus** The ductus arteriosus, a blood passageway that normally closes after birth fails to close properly – causing too much blood to flow to the lungs. The severity of the problem depends on how large the opening is and how prematurely the baby was born. Medications now exist to either close (or keep open) the ductus arteriosus, without having to resort to surgery. If however these medications do not work, surgery is required.

**Cyanotic defects** In these defects, blood pumped to the body contains less-than-normal amounts of oxygen – called cyanosis – a blue discoloration of the skin caused by low oxygen content in the blood. The term “blue babies” is often applied to infants with cyanosis.

**Tetralogy of fallot** This condition involves four different defects that make the level of oxygen in the blood too low.

**Transposition of the great arteries** The position of the pulmonary artery and the aorta are reversed. Some type of opening (such as an atrial septal defect or ventricular septal defect) also exists between the right and left sides of the heart. The aorta is connected to the right ventricle, so most of the blood returning to the heart from the body is pumped back out without first going to the lungs to refresh with oxygen. The pulmonary artery is connected to the left ventricle, so that most

of the blood returning from the lungs goes back to the lungs again.

**Ebstein's anomaly** In this rare condition, the tricuspid valve, which controls blood flow between the upper right chamber of the heart (right atrium) and the lower-right chamber (right ventricle), is located lower than normal, causing the ventricle to be too small, and the atrium to be too large.

### *Symptoms of congenital heart disease*

The most common signs and symptoms of congenital heart defects are: a heart murmur, a bluish tint to skin, lips, and fingernails ("blue baby"), fast breathing, shortness of breath, poor feeding, especially in infants because they tire easily while nursing, poor weight gain in infants and fatigue during exercise or activity (older children).

### *How is congenital heart disease diagnosed?*

A heart defect may be discovered during pregnancy, after birth or in adulthood, when the body puts greater demands on the heart. If a heart defect is suspected, your child will be referred to a pediatric cardiologist who will take a family and medical history, do a physical examination, and order tests, which may include: electrocardiogram (ECG/ EKG), echocardiogram, chest X-ray and cardiac catheterization.

### *Treatment for congenital heart disease*

Most congenital heart defects can be treated with medication or surgery. Here are the kinds of medication that may be used to help treat heart defects: ACE inhibitors, Beta-blockers, diuretics, digoxin, inotropes and prostaglandin E1. (See the chapter entitled, Getting the most from your meds.)

Medication is also often needed after surgery. They may include: antiarrhythmics, ACE inhibitors, digoxin and diuretics. In the first six months after surgery, antibiotics may be recommended before dental work or other invasive procedures to prevent infection of the heart (endocarditis). Speak to your doctor or dentist about antibiotics before dental work.

Open heart surgery is performed to close holes in the heart, repair valves, widen arteries or openings to valves, return the aorta or pulmonary artery back to its normal position. Heart transplant is a procedure in which the defective heart is replaced by a healthy donor heart. Other procedures include cardiac catheterization and percutaneous coronary intervention (PCI, also known as angioplasty with stent).

For more information, please see our resource, *Heart & Soul: Your Guide to Living with Congenital Heart Disease*, for parents of children born with this condition on our Web site [www.heartandstroke.ca](http://www.heartandstroke.ca) under heart disease.

## What is congestive heart failure?

Congestive heart failure (CHF) or heart failure is when your heart does not pump as strongly as it should so your body does not get the right amount of blood and oxygen it needs to work properly. This weakened pumping action can cause a backup of fluid in your lungs and other parts of your body. Excessive fluid in your lungs can cause a life-threatening condition called acute pulmonary edema, which requires emergency treatment.

Congestive heart failure has many causes including: poor blood flow to the heart over a long period of time, which may cause chest pain (angina), heart muscle damage from a previous heart attack, long-standing high blood pressure, a faulty heart valve, an infection causing inflammation of the heart muscle, excessive use of alcohol or drugs, diabetes, and an unknown disease of the heart muscle.

### *Symptoms of congestive heart failure*

When the heart doesn't pump well and congestion happens, you may experience: shortness of breath, swollen ankles and legs, sudden weight gain, tiredness or loss of energy, loss or change in appetite, and fluid buildup in the lungs, causing a nighttime cough.

Certain factors may cause these symptoms to worsen, such as eating high-salt foods, drinking excessive fluids, taking medications that cause salt and water to be retained or having fast heart rhythms, a cold or the flu.

### *When should I call my doctor?*

Contact your doctor if you experience any of the following: increased shortness of breath, weight gain of more than 2 pounds (1 kg) over 2 days, or 5 pounds (3 kg) in a single week, nausea or vomiting, bloating or feeling full all the time, cough or cold symptoms that last for two weeks or more, extreme tiredness, increased swelling of the feet or legs, and increased urination at night.

### *How is congestive heart failure diagnosed?*

There is no specific test to determine if you have heart failure. Your doctor will likely do a thorough medical history and physical examination and may also want to do a few other tests including: blood tests, echocardiogram, electrocardiogram (ECG/EKG), exercise electrocardiogram, chest X-ray or thallium or cardioline scan (nuclear medicine).

### *Treatment of congestive heart failure*

You can manage your congestive heart failure by working with your healthcare team and taking your medications. Your doctor may also recommend surgery.

Some medications commonly used to treat CHF include: ACE inhibitors, Beta blockers, digoxin, diuretics and aldosterone antagonists. (See the chapter entitled, Getting the most from your meds.)

Sometimes, lifestyle changes and medications may not be enough to control your symptoms. If you have severe heart failure, you may need surgery, including procedures such as cardiomyoplasty, coronary artery bypass surgery, implantation of a pacemaker, heart transplant and heart pump (a special device placed inside the body to take over the heart's pumping action – until a donor heart becomes available for transplant).

For more information, please see our resource *Managing Congestive Heart Failure* on our Web site [www.heartandstroke.ca](http://www.heartandstroke.ca) under heart disease.

## What is coronary artery disease?

Coronary artery disease (CAD) is the most common form of heart disease. It occurs when arteries in the heart are blocked, leading to complications including:

- Angina (chest pain) – if the heart does not have enough oxygen or
- Heart attack – if the heart does not get any oxygen at all. During a heart attack, some of the heart muscle can die from a lack of oxygen.

## *Causes of coronary artery disease*

Over many years, plaque builds up on artery walls. Plaque is a sticky, yellow substance made of fatty substances such as cholesterol, as well as calcium and waste products from your cells. It narrows and clogs the arteries, slowing the flow of blood. The process is called atherosclerosis. Atherosclerosis is a slow, progressive condition that may begin as early as childhood and occur anywhere in the body, but it usually affects large and medium-sized arteries.

Sometimes plaque in an artery can rupture. The body's repair system in turn creates a blood clot to heal the wound. The clot, however, can block the artery, leading to either a heart attack or stroke.

## *Symptoms of coronary artery disease*

Early warning signs may include: fatigue, pain and/or dizziness. You may also experience the symptoms associated with angina: a squeezing, suffocating or burning feeling in the centre of your chest that may move to your arm, neck, back, throat or jaw. Women are more likely to experience atypical symptoms such as vague chest discomfort. If left untreated, CAD can lead to other serious problems such as heart attack, stroke or even death.

## *How is coronary artery disease diagnosed?*

Your doctor will start by taking a medical history, doing a physical exam, which may include chest X-rays, angiography, echocardiogram or electrocardiogram (ECG/EKG).

## *Treatments for coronary artery disease*

There is no cure for CAD, but there are many treatments, such as medications, surgery and lifestyle changes, that can slow down its progress.

Medications used to treat coronary artery disease include: anti-platelets, ACE inhibitors, Beta blockers, calcium channel blockers and nitrates (nitroglycerin). (See chapter entitled, Getting the most from your meds.)

Your doctor may also suggest these procedures: percutaneous coronary intervention (PCI, also known as angioplasty with stent) or coronary artery bypass surgery.

## *Infective endocarditis*

Infective endocarditis (also called bacterial endocarditis) is an infection of the heart valves or lining of the heart. The name of this condition has changed because we now know that other organisms besides bacteria may cause the disease.

### *Causes of endocarditis*

This problem happens when bacteria or other organisms in your bloodstream collect on a valve or in the lining of your heart where there was previous damage. Usually this occurs in people with underlying heart conditions such as those who have had a heart valve replacement or repair, or rheumatic heart disease.

### *Symptoms of endocarditis*

Symptoms of endocarditis include, fever, chills, weakness, fatigue, aching joints and muscles, night sweats, shortness of breath, paleness, persistent cough, swelling in the feet, legs or abdomen, unexplained weight loss, blood in urine, a new heart murmur and tenderness in the spleen.

### *How is endocarditis diagnosed?*

Diagnosing endocarditis usually involves: blood tests, chest X-rays or an echocardiogram.

### *Treatment of endocarditis*

Endocarditis is treated with long-term courses of intravenous antibiotics. In

severe cases, heart valve replacement may be needed if your heart is not pumping effectively or the infection is not responding to the antibiotics.

## *Prevention of endocarditis*

If you are at high risk of infective endocarditis, any situation that could allow bacteria to enter your bloodstream puts you at risk for infection. This can range from having your teeth cleaned to complex surgery. Talk to your doctor about how to reduce your risk by consistently using antibiotics prior to these procedures to prevent infection.

## *Dental care with endocarditis*

If you have heart valve problems, artificial heart valves or certain other cardiovascular problems, talk to your doctor about taking antibiotics before having any dental work to reduce your risk of infection of the heart.

Medications such as anti-platelets (ASA, acetylsalicylic acid) may cause complications, like excessive bleeding, during dental procedures. Check with your doctor about your medications before having dental work.

## **What is rheumatic heart disease?**

Rheumatic heart disease describes a group of acute (short-term) and chronic (long-term) heart disorders that can occur as a result of acute rheumatic fever. One common result of rheumatic fever is heart valve damage.

Rheumatic fever is an inflammatory disease that may affect many connective tissues of the body, especially those of the heart, joints, brain or skin. It usually starts out as a “strep throat” (streptococcal) infection. Anyone can get acute rheumatic fever, but it usually occurs in children between the ages of five and 15. About 60% of people with rheumatic fever develop some degree of subsequent heart disease.

Acute rheumatic fever can damage every part of the heart, including the outer sac (the pericardium), the inner lining (the endocardium) and the valves. However, the most common form of rheumatic heart disease affects the heart

valves, particularly the mitral valve. It may take several years after an episode of rheumatic fever for valve damage to develop or symptoms to appear.

Antibiotics can prevent streptococcal infection from developing into rheumatic fever. Any child with a persistent sore throat should have a throat culture to check for strep infection. Penicillin or another antibiotic will usually prevent strep throat from developing into rheumatic fever.

### *Symptoms of rheumatic heart disease*

Symptoms can include: chest pain, excessive fatigue, heart palpitations (when the heart flutters or misses beats), a thumping sensation in the chest, shortness of breath, and swollen ankles, wrists or stomach.

### *Treatment of rheumatic heart disease*

If heart damage from rheumatic fever is identified in childhood or young adulthood, daily antibiotics may be required until the age of 25 or 30, to help prevent recurrence of rheumatic fever and avoid the development of infective bacterial endocarditis – an infection of the heart valves or lining of the heart. Additional treatment will depend on the type of heart damage.

## **Valve disorders**

There are several different kinds of valve disorders, and each of them can be classified as mild, moderate or severe. Untreated, they may lead to dizzy spells, shortness of breath, faintness, irregular pulse or serious complications. Fortunately, many valve disorders are treatable with medications, surgery or other medical techniques.

Heart valves are delicate but very durable. They open and close more than 100,000 times every day. In most people, the heart valves function perfectly, day after day and year after year, but age, heart problems and diseases such as congenital heart disease and rheumatic heart disease can damage or cause these valves to function improperly.

## Types of valve disorders

Valve disorders can be categorized into four different types:

**Stenosis (narrowing)** Sometimes, age or disease can prevent heart valves from opening properly. The valves become narrower, and this narrowing is called stenosis. As the opening narrows, the heart can't push as much blood through as before. Valve stenosis makes the heart less efficient. Because stenosis makes the heart work harder to pump the same volume of blood, it may also lead to an increase in the size of the heart muscle. Unfortunately, larger doesn't mean stronger or more efficient when it comes to hearts. In fact, enlargement of the heart muscle may lead to serious complications.

- **Pulmonary valve stenosis** is a subtype of stenosis, which is a narrowing or obstruction that partly or completely blocks the flow of blood. Obstructions can occur in heart valves, arteries or veins. The pulmonary valve (which lets blood flow from the right lower chamber of the heart to the lungs) is narrowed. As a result, the right lower chamber (right ventricle) must pump harder than normal to overcome the obstruction. This may cause stress on, and enlargement of, the right ventricle.

**Prolapse (slipping out of place)** In valve prolapse, the valve flaps do not close smoothly or evenly. Instead, they collapse backwards into the heart chamber they are supposed to be sealing off. This sometimes makes a clicking noise and allows a small amount of blood to leak backward through the valve. This group of



*"Whether their work involves testing new pharmacological treatments, implementing better preventative approaches, or introducing new surgical procedures, more than 900 Heart and Stroke Foundation researchers across Canada share a passionate drive to improve people's lives."*

**Andreas Wielgosz, MSc MD PhD FRCPC**  
**Heart and Stroke Foundation Spokesperson**

Professor, Departments of Medicine and Epidemiology & Community Medicine, University of Ottawa

conditions may be called mitral valve prolapse, click-murmur syndrome, Barlow's syndrome, balloon mitral valve and floppy valve syndrome.

**Regurgitation (backwards flow)** When a heart valve doesn't close securely, it is referred to as regurgitation (or sometimes called valvular insufficiency). This condition reduces the heart's pumping efficiency. When the heart contracts, blood is forced backwards through the damaged valve as well as forward in the proper direction. This not only limits the heart's ability to supply the body with blood, but may also cause problems with the lungs.

### *Symptoms of valve disorders*

A heart valve disorder may cause a variety of symptoms including: angina (chest pain, often a sign that the heart muscle is not getting enough blood), palpitations (irregular heartbeats caused by problems with the heart's electrical system), shortness of breath (sometimes the result of a narrowing (stenosis) of the one of the heart's valves) and swelling.

### *How are valve disorders diagnosed?*

Heart valve disorders are usually diagnosed based on a description of symptoms and on a physical examination. Often a valve disorder makes a very distinctive murmuring sound, which can be easily heard through a stethoscope. Additional tests may could include cardiac catheterization, chest X-ray, electrocardiogram (ECG/EKG) and echocardiogram.

### *Treatment of valve disorders*

Heart valve problems can be treated in many ways. Your doctor will decide on the best treatment for you, based on your age, general health and the severity of your problem. Some patients may be treated with a combination of drugs and lifestyle changes. Other patients may need more intensive treatment such as surgical valve repair or replacement.

Several different types of medications are available to help relieve the symptoms

caused by heart valve disorders, including: ACE inhibitors, anticoagulants, Beta blockers, digoxin (digitalis) and diuretics. (See the chapter entitled, Getting the most from your meds.)

## **Surgical and other procedures for valve disorders**

Procedures for heart valve disorder may include valve repair or replacement. (See section on surgical and non-invasive procedures.)

## 2. Treating heart disease

*In this chapter, we'll look at the tests, common surgeries and other procedures to treat heart disease. Please note that medications are covered in the chapter Getting the most from your meds.*

### *Diagnostic tests*

Today, there are a wide range of tests that can be used to determine if you have a heart problem, what type of problem you have and how serious it is. Not all tests are necessary for all patients. Your doctor will decide what tests you require.

In the next section, we will describe some of the most common heart tests. **It is important before any test to talk with your doctor about how to prepare.**

In some cases, you may need to follow specific instructions about eating, drinking and taking medications. If you are having your test performed in a clinic or centre, you might also want to talk with the people at the clinic about how to prepare.

More detailed information on these tests is also available from the Heart and Stroke Foundation Web site at [www.heartandstroke.ca/heart](http://www.heartandstroke.ca/heart).

### **Angiogram**

---

**What it is** An angiogram is a test that takes X-ray pictures of the coronary arteries and the vessels that supply blood to the heart.

---

**Why it is performed** Angiograms may be recommended for patients with angina (chest pain) or those with suspected coronary artery disease (CAD). The test gives doctors valuable information on the condition of the coronary arteries, such as atherosclerosis, regurgitation (blood flowing backwards through the heart valves) or pooling of blood in a chamber because of a valve malfunction.

---

**What is done** During an angiogram, a special dye is released into the coronary arteries from a catheter (special tube) inserted in a blood vessel. This dye makes the blood vessels visible when an X-ray is taken of them. Angiography allows doctors to clearly see how blood flows into the heart. This allows them to pinpoint problems with the coronary arteries.

---

## How to prepare

Angiogram is a very common procedure and is generally considered safe. In some patients, the contrast dye may cause nausea, the need to urinate or even allergic reactions, although these are rare. Generally, you should not eat or drink for 6 to 18 hours before having an angiogram. Speak to your doctor about how to prepare for the test, specifically about, food, drink and medications.

---

## Blood Tests

### What it is

A small sample of your blood is taken.

### Why it is performed

Depending on what your doctor is looking for, any of the following may be tested:

- blood flow through the vessels
- blood clotting factors and components
- blood cholesterol levels
- blood sugar (glucose) levels
- blood calcium levels

### What is done

Blood is drawn from a vein in one arm. Your arm is first cleaned with an antiseptic and then a tourniquet (an elastic band) or a blood pressure cuff is placed around the upper arm, which causes the veins in the lower arm to fill with blood. A needle is inserted into the vein and the blood is collected in a vial or syringe. Once blood is taken, the needle is removed and a bandage is applied. The whole procedure should take no more than five minutes.

### How to prepare

No special preparation is needed.

---

## Cardiac Catheterization

### What it is

Cardiac catheterization is a technique that is used to perform several different tests and procedures. It is usually used in conjunction with other tests such as angiograms and electrophysiology studies.

### Why it is performed

Cardiac catheterization is normally used to evaluate heart valves, heart function and blood supply, as well as heart abnormalities in newborns. It may also be performed to determine whether or not you may need heart surgery. As well, cardiac catheterization may be used therapeutically to repair a heart defect, open a narrowed heart valve (stenosis), and open blocked arteries or heart grafts.

### What is done

A thin flexible tube called a catheter is passed through an artery or vein at the top of the leg (groin) or in the arm to reach the heart. Then X-rays are used to see the blood vessels and heart. The catheter also measures

the pressure inside your heart and blood vessels and can determine if blood is mixing between the two sides of the heart. Sometimes, a dye is injected through the catheter to see the heart and its arteries (angiogram). This lets your doctor see the flow of blood through your heart and blood vessels. Controlled electrical impulses may also be sent through the catheter to see how your heart reacts or to trigger irregular heartbeats (electrophysiology studies).

---

**How to prepare**

You will probably be told not to eat or drink anything after midnight the night before your electrocardiogram (ECG). If you have diabetes, talk to your doctor about how to prepare for the test including when you should eat and take your insulin or other medications. Tell your doctor about all medications including prescription drugs, especially blood-thinners or anti-platelet drugs, and over-the-counter medications that you may be taking. You may want to take a list of your medications and their dosages to the test.

---

## Chest X-Ray

---

**What it is**

A chest X-ray is a picture of the heart, lungs and bones of the chest.

**Why it is performed**

It can help your doctor determine if your heart is an unusual shape or if it is larger than it should be. It may also help confirm the presence of a valve disorder and provide important detailed information about your condition and its seriousness.

---

**What is done**

Wearing a hospital gown, you will be asked to lie on an X-ray table and a technologist will help you get positioned properly. You will have to hold your breath and lie very still for two to three seconds. The X-ray machine is turned on briefly, letting a small beam of X-rays pass through your chest to create an image on special X-ray film. Sometimes two pictures are taken – a front and side view. The X-ray film takes about 10 minutes to develop.

---

**How to prepare**

No special preparation is necessary. Having chest X-rays is completely painless and only takes a few minutes.

---

## Doppler Ultrasound

---

**What it is**

Similar to an echocardiogram, a Doppler ultrasound (or Doppler echocardiography) is a test in which very high frequency sound waves are bounced off your heart and blood vessels. The returning sound waves (echoes) are picked up and turned into pictures showing blood flow through the arteries or the heart itself.

---

**Why it is performed**

Doppler ultrasound testing allows doctors to clearly see how blood flows through the heart and blood vessels. It also lets them see and measure obstructions in arteries and measure the degree of narrowing or leakage of heart valves. It may be recommended for patients with atherosclerosis or coronary artery disease. It is used to assess blood flow through the coronary arteries (the blood vessels supplying the heart), the carotid artery (the main artery in the neck), the major arteries in the arms and legs, or in the heart itself (echocardiography).

**What is done**

A special gel is rubbed on the part of the body being tested to improve sound quality. Then, a transducer (a hand-held instrument that transmits sound waves) is held against your skin while images of the blood vessels are recorded. The test takes about 30 minutes and is painless.

**How to prepare**

There is usually no need to restrict foods or fluids, or to make any special preparations before a Doppler ultrasound test.

## Echocardiogram

**What it is**

An echocardiogram uses sound waves (ultrasound) to create a picture of your heart. The recorded waves show the shape, texture and movement of your heart valves, as well as the size of your heart chambers and how well they are working.

**Why it is performed**

It may be recommended if you are experiencing abnormal heart sounds, shortness of breath, palpitations, angina (chest pain) or have a history of stroke. It is very useful in diagnosing heart valve problems.

**What is done**

A gel is placed on your chest to help transmit the sound waves and a transducer (a unit that directs sound waves) is moved over your chest. This test involves no pain or discomfort. A typical test takes about 15 to 45 minutes.

**How to prepare**

For a regular echocardiogram, no special preparation is needed.

## Electrocardiogram (ECG/EKG)

**What it is**

An electrocardiogram (ECG or EKG) is a test that checks how your heart is functioning by measuring the electrical activity of the heart.

**Why it is performed**

An ECG may be recommended if you are experiencing arrhythmia, palpitations, dizziness, excessive fatigue or angina and is used to:

- detect abnormal heart rhythms that may have caused blood clots to form
- detect heart problems, including a recent or ongoing heart attack, abnormal heart rhythms (arrhythmias), coronary artery blockage, areas

- of damaged heart muscle (from a prior heart attack), enlargement of the heart, and inflammation of the sac surrounding the heart (pericarditis)
- detect non-heart conditions such as electrolyte imbalances and lung diseases
- monitor recovery from a heart attack, progression of heart disease, or the effectiveness of certain heart medications or a pacemaker
- rule out hidden heart disease in patients about to undergo surgery.

**What is done** An ECG is a non-invasive procedure, which means that nothing is injected into the body. It is painless. A number of electrodes – usually a total of 12 to 15 – are attached to various locations on your body including your arm, leg and chest. The electrodes are attached by small suction cups or adhesive patches. Sensors in the pads detect the electrical activity of your heart. Sometimes the test is performed while you sit or lie still. Results are recorded on graph paper and interpreted or read by your doctor or a technologist. The test usually takes 5 to 10 minutes.

**How to prepare** You do not have to restrict what you eat or drink before your ECG, although it is recommended that you not smoke just before the beginning. You will be asked to remove your jewelry and wear a hospital gown.

## Results That Change Lives

### Long-distance monitoring

*ECG telemetry, a Foundation-funded technology, has drastically improved the diagnosis of heart disease, paving the way for improved treatment. Patients can go about their daily activities while doctors monitor their hearts from several kilometres away.*

## Electrophysiology Studies (EPS)

**What it is** An electrophysiology study (EPS) is a test that helps determine what kind of arrhythmia (irregular heartbeat) you have and what can be done to control it.

**Why it is performed** To diagnose heart rhythm disorders.

**What is done** Special catheters (thin flexible tubes) are inserted through a vein in your arm, groin or neck and guided to your heart to record its electrical activity. You will be asked to lie on a special table and be monitored by an ECG machine. An intravenous (IV) will be attached, and the site where the catheters are to be inserted will be cleaned. You'll then be given a local anesthetic to numb the skin so you feel no pain. Then, the catheters will be carefully guided through a vein into the right side of the heart. You will be given controlled electrical impulses to see how your heart reacts.

**How to prepare**

You will probably be told not to eat or drink anything after midnight the night before your test. If you have diabetes or are taking any medications, talk to your doctor to find out if you need to make any special preparations.

---

**Exercise Electrocardiogram (ECG/Stress Test)**

---

**What it is**

An exercise ECG measures your heart's electrical activity, blood pressure and heart rate while you exercise – usually by walking on a treadmill.

**Why it is performed**

It is usually done to pinpoint the cause of unexplained chest pain, especially if coronary artery disease (heart disease) is suspected. If you have been diagnosed with coronary artery disease, you may be given an exercise ECG to determine how far the disease has progressed and how much exercise you can do safely. If you have had a heart attack or heart surgery, it can help determine how much work or exercise you can do safely. It may also be recommended if you are experiencing irregular heartbeats (arrhythmia), very fast or slow heartbeats (tachycardia or bradycardia), palpitations (unusual throbbing or fluttering sensations in the heart), dizziness or excessive fatigue.

**What is done**

An exercise ECG is usually done in a clinic or hospital. You will be asked to walk on a treadmill (or sometimes pedal a stationary bicycle). Small metal electrodes are attached to your chest, then you will either begin by walking slowly or pedalling. As you walk, a technician will monitor your heart's activity and rate, your breathing and blood pressure. Gradually the speed of the treadmill is increased so you have to walk more quickly. This will help your doctor see how your heart handles progressively greater challenges. The test continues until your heart is beating as fast as it safely can (you reach your peak exercise capacity, given your age and condition), or until you experience chest pain.

**How to prepare**

Wear clothing and shoes that are comfortable for exercising. You'll probably be told not to smoke or eat for at least two hours before the test. Talk to your doctor about any medications you are taking.

---

**Holter or Event Monitoring**

---

**What it is**

Two methods for monitoring and recording your heart rhythm.

**Why it is performed**

Holter or event monitoring is usually used to diagnose heart rhythm disturbances – specifically to find the cause of palpitations or dizziness.

**What is done**

In Holter monitoring, you wear a small recording device, called a Holter monitor, which is connected to small metal disks called electrodes that are placed on your chest to get a reading of your heart rate and rhythm over a 24-hour period or longer. Your heart's rhythm is transmitted and

recorded on a tape, then played back into a computer so it can be analyzed to find out what is causing your arrhythmia. Some monitors let you push a record button to capture a rhythm as soon as you feel any symptoms. Like a Holter monitor, an event monitor also uses a recording device to monitor your heart, although it is usually smaller, either the size of a pager or wristwatch. Unlike the Holter, it only records when you feel symptoms.

---

**How to prepare**

Setting up the monitors involves a few minutes and then you can go about your regular daily activities. You may be asked to write down any symptoms you have while wearing the monitor so your heartbeat at that particular time can later be analyzed.

---

## Thallium or Cardiolite Scan

---

**What it is**

A thallium scan uses radioactive tracer to see how much blood is reaching different parts of your heart. These tests are the more common forms of tests called nuclear medicine scans. You may also hear them called thallium myocardial imaging, cold spot imaging, myocardial perfusion imaging or thallium scintigraphy.

---

**Why it is performed**

These scans are often done to determine the size and location of injured muscle after a heart attack and will help your doctor find out more about your heart's cells and their blood supply. It is also sometimes done after bypass surgery to see whether grafted blood vessels are functioning properly. It may be recommended for people with persistent unexplained chest pain, or to learn more about irregularities found during an electrocardiogram (ECG/EKG).

---

**What is done**

You will be asked to lie on a table, then a small amount of thallium (a radioactive tracer) is injected into a vein in your arm. A special camera then measures the amount of the tracer that is carried through your bloodstream into your heart. The parts of your heart that receive good blood supply will pick up the tracer. The areas with poor blood supply will not pick it up, so will appear as dark areas (cold spots) on the scan. Thallium scans may sometimes be done after exercise.

---

**How to prepare**

You will probably be told not eat or drink for at least three hours before your test, or have any tobacco, alcohol, caffeinated beverages or over-the-counter medications for 24 hours before. Be sure to talk to your doctor if you have diabetes, discuss any prescription medications you are taking, and if you have any allergies.

---

## Tilt Table Exam

---

<b>What it is</b>	This test help doctors understand how your body posture affects your blood pressure.
<b>Why it is performed</b>	The goal is to find out if different drugs or different body positions will trigger an arrhythmia (abnormal heartbeat) or symptoms.
<b>What is done</b>	In this test, you are asked to lie on a special bed that can be tilted to different positions. You will be safely strapped in. Your heart and blood pressure will be monitored throughout the test. An IV (an intravenous line or tube) is put into a vein in your arm so you can receive different drugs during the test. Then, the bed you are lying on is tilted, so that you go from a reclining position to an almost upright one. At the same time, you may be given drugs through the IV. Some of these medications may cause side effects such as stomach ache, nausea, light-headedness or a rapid heartbeat. These effects don't last long. Your reactions will often help your doctor pinpoint the exact cause of your arrhythmia. The test varies per patient and usually lasts from 30 minutes to two hours.
<b>How to prepare</b>	Your doctor will talk to you about what you can eat and drink before the test. He or she will also tell you if and how to adjust any medications you may be taking.

---

## Transesophageal Echocardiogram (TEE)

---

<b>What it is</b>	A transesophageal echocardiogram (TEE) is a special type of echocardiogram.
<b>Why it is performed</b>	It is usually done when your doctor wants to look more closely at your heart to see if it could be producing blood clots.
<b>What is done</b>	You may be given a mild sedative to help you relax. You may also be given oxygen during the procedure. Your throat will be numbed with an anesthetic, then a flexible tube about the size of your index finger is inserted into your mouth and down your esophagus. During the procedure, you may feel the probe moving, but it won't be painful or interfere with your breathing. The transducer at the tip of the tube releases sound waves that bounce off your heart and are converted into pictures on a video screen. The doctor can move the tube up, down and sideways to look at different parts of your heart from different angles. The test usually takes about 20 to 40 minutes.
<b>How to prepare</b>	You will be asked not eat or drink for 4 to 6 hours before your exam and to take any prescribed medications with only a sip of water. You should also arrange to have someone drive you home after the exam in case you are feeling drowsy.

---

## *Surgery and other procedures*

Sometimes, procedures are needed to fix heart problems. Procedures are usually divided into two broad categories: surgical and non-surgical. Surgical procedures or operations usually involve cutting the chest open in order to access the heart. Minimally invasive surgery requires much smaller incisions than those traditionally needed for heart surgery. However, not all procedures can be performed using this new technique.

Most non-surgical techniques use a catheter (a thin, flexible tube) to access the heart. The chest is not opened for catheter-based procedures.

Whether you require a surgical or non-surgical procedure will depend on a number of factors. Talk with your doctor about all of your options and which one is best for you. It is important that you understand what is being done, why it is being done and what you can expect before and after your procedure. Other good sources of information include cardiac nurses. The Heart and Stroke Foundation Web site, [www.heartandstroke.ca](http://www.heartandstroke.ca) also has more information on these procedures.

### **Ablation**

---

**What it is** Ablation is a procedure for restoring normal heart rhythm, particularly if the condition has not responded to medication.

---

**Why it is performed** Abnormal heart rhythms (arrhythmias) can cause palpitations, fatigue, shortness of breath and most important, stroke. The goal is to restore a regular rhythm to prevent these conditions from occurring.

---

**What is done** Many abnormally fast heart rhythms are triggered by areas of abnormal heart tissue that cause the electrical system of the heart to short circuit. By ablating or destroying these areas, the scar tissue that forms helps to prevent this short circuit and allows for a return to a normal, regular heart rhythm. There are two main ways in which ablation can be performed: surgically or by catheter (nonsurgically).

---

### **Cardioversion Therapy**

---

**What it is** Cardioversion is the process of restoring the heart's normal rhythm from an abnormal rhythm. It is also referred to as the application of direct-current or DC current for cardioversion.

---

**Why it is performed**

Most elective cardioversions are performed to treat atrial fibrillation, a rhythm disturbance of the upper chambers (atria) of the heart. Atrial fibrillation usually is not life-threatening, but can result in less efficient blood pumping and irregular or fast heartbeat. Fibrillation can be treated with antiarrhythmic medications or with electrical intervention. In this section, we will discuss electrical cardioversion.

---

**What is done**

Cardioversion is performed by placing two external paddles on the patient's chest or with one on the chest and one on the back. A selected amount of energy/ electrical pulse is then sent from the paddles through the body to the heart. The energy jolts the heart out of atrial fibrillation and back into normal rhythm.

---

## Coronary Artery Bypass Surgery (CABG)

---

**What it is**

This surgery improves the blood flow to the heart muscle. It is commonly referred to as bypass surgery.

---

**Why it is performed**

Bypass surgery is performed to improve blood flow problems to the heart muscle caused by the buildup of plaque (atherosclerosis) in the coronary arteries. The surgery involves using a piece of blood vessel (artery, vein) taken from another part of the body to create a detour or bypass around the blocked portion of the coronary artery.

---

**What is done**

A piece of a healthy blood vessel from the patient's leg, arm, or chest is "harvested" to be used as the bypass. Unless you are undergoing one of the newer procedures (minimally invasive bypass or off-pump or beating-heart surgery), the heart is stopped so the surgeons can work on it. (A machine called the heart-lung machine will take over the work of your heart and lungs while the surgeon is operating on the heart.) The section of healthy blood vessel is attached above and below the blocked artery. When the heart is restarted, blood flow is diverted through the bypass around the narrowed portion of the diseased artery. Depending upon the number of blockages, several bypasses may be created.

**Off-Pump or Beating-Heart Surgery**

This procedure is similar to bypass surgery, except the heart is not stopped and the patient is not put on a heart-lung machine. Using special equipment to stabilize or quiet the area of the heart, the surgeons work on the heart as it continues to beat.

---

## Heart Valve Repair or Replacement

---

**What it is**

Surgery or other procedures to repair or replace a valve in the heart that is not working correctly.

---

## Why it is performed

Valves control the flow of blood by making it move in one direction through the different chambers or parts of the heart. If a valve is not working correctly, blood flow is impaired. If a valve does not close properly, blood may leak between the chambers or flow backwards, a condition known as valve regurgitation, insufficiency or incompetence. If a valve is narrowed (also called stenosed), blood flow through the heart may be restricted. If the valve problem is minor, it may be treated with medication. But if the heart valve damage is severe, a procedure may be required to repair or replace the malfunctioning valve.

## What is done **Surgical procedures to repair valves include:**

- Opening up valves that have thickened or have become stuck together (commissurotomy).
- Enlarging the ring of fibrous tissue at the base of a heart valve (annulus) with sutures or a ring-like device (annuloplasty).
- Reshaping the valve by cutting out a section or sections of a leaflet.
- Removing calcium buildup from the leaflets (decalcification).
- Replacing or shortening the cords that support the valves.
- Patching holes or tears in the leaflets with a tissue patch.

Some surgical procedures may be conducted without cutting the chest open (minimally invasive valve repair).

### **Non-surgical valve repair includes:**

- Enlarging a narrowed valve or opening up calcified tissue using a balloon-tipped catheter (percutaneous or balloon valvuloplasty).
- Opening up blocked (stenosed) mitral valves using a balloon-tipped catheter (percutaneous mitral balloon valvotomy).

### **Valve replacement:**

If they cannot be repaired, damaged valves may be replaced. Most valve replacement surgery involves open-heart surgery, although some procedures are not being conducted through small incisions into the chest (minimally invasive valve replacement). Doctors are also developing non-surgical valve replacement procedures using thin, flexible tubes called catheters to work inside the heart. Replacement valves can be either man-made (mechanical) or made from animal or human tissue (biological valves).

## Results That Change Lives

### **Newborn heart repair**

*In the past, babies born with heart defects often died before surgeons could repair the problem. Foundation-funded researchers discovered that a naturally occurring substance, Prostaglandin E, could maintain a unique feature of fetal circulation, giving surgeons precious time to repair the defect.*

## Heart Transplant Surgery

---

<b>What it is</b>	The removal of a failing heart and pre-existing hardware such as an implantable cardio-defibrillator or pacemakers and its replacement by a donor heart.
<b>Why it is performed</b>	Heart transplant is used to treat severe, end-stage heart failure. For severely ill patients, a mechanical heart (mechanical assist device) may be used temporarily while waiting for a donor heart.
<b>What is done</b>	During the operation, a bypass machine will be used to pump blood for the rest of your body. Most of the old, failing heart will be removed. The posterior walls of both upper chambers (atria) are left in place and the new heart is attached to this remaining tissue. The blood vessels leading in and out of the heart are also attached to the new heart. As a precaution, pacer wires are put in the heart, which can be connected to an external pacemaker if necessary. If the pacer wires are not required, they will be removed. The new heart is then shocked so it will start beating and the chest is closed.

---

## Implantable Cardioverter Defibrillator (ICD)

---

<b>What it is</b>	A procedure for inserting an ICD, a device that regulates irregular heart rhythms by sending an electrical impulse to your heart.
<b>Why it is performed</b>	<p>An ICD is implanted to treat dangerously fast heart rates that occur in the lower chambers of the heart and to prevent sudden cardiac arrest. ICDs are usually prescribed for people who:</p> <ul style="list-style-type: none"><li>• have experienced at least one episode of ventricular tachycardia or ventricular fibrillation</li><li>• have had a cardiac arrest</li><li>• have been unable to control their heart rhythm problem with drug therapy (medication), or have had severe or unacceptable side effects from the medication.</li></ul>
<b>What is done</b>	<p>Like an artificial pacemaker, the ICD consists of two parts. The leads are wires with electrodes at the tip that transmit electrical signals to and from the heart muscle.</p> <p>There are several ways of implanting the leads of an ICD:</p> <ul style="list-style-type: none"><li>• Transvenous Approach – through a vein. In this method, a small incision is made near the collarbone and the leads are maneuvered through a vein into the heart. The tip of each lead is positioned next to the inside wall of the heart (the endocardium).</li><li>• Thoracotomy – In this approach, the chest is opened and thin oval patches made of rubber and wire mesh are sewn onto the outside of the heart (epicardium). These patches are connected to the leads.</li></ul>

- Sternotomy – This approach is similar to a thoracotomy, the difference is that the incision is made over the breastbone (the sternum) and the leads are placed into the heart. A sternotomy may be combined with coronary artery bypass surgery or heart valve surgery.
- Subxiphoid Approach – This approach is also similar to a thoracotomy, but the incision is made slightly to the left of the breastbone (sternum). Once the leads are in place and tested, they will be connected to the ICD unit. The ICD is then placed under the skin, either near the collarbone or somewhere above or at the waistline.

---

## Implantable Pacemaker

---

**What it is** In this surgical procedure, surgeons implant a device called a pacemaker, which regulates heart rate and rhythm.

**Why it is performed** It is performed to treat abnormal heart rates or rhythms (arrhythmia), particularly if they have not responded well to drug therapy (medication).

**What is done** The pacemaker consists of two parts. The leads are wires with electrodes at the tip that transmit electrical signals to the heart muscle from the pulse generator. These electrical signals cause the heart muscle to contract (pump). The pulse generator (often referred to as the pacemaker) is a small unit with a computer that generates the electrical signal. Most pacemaker implantations are performed under local anesthesia (similar to the anesthesia used by dentists). In **Endocardial Lead Positioning** (the most common ways of implanting an artificial pacemaker), a thin, flexible tube (catheter) will be threaded into the heart. The leads are attached to the inside lining of the heart and the pulse generator slipped into a small pocket made just beneath the skin of your upper chest or your abdomen. In **Epicardial Lead Positioning**, a larger incision is made in the chest, so it is usually performed under a general anesthetic. The exterior surface of the heart is exposed and the leads attached directly to the surface (epicardium) of the heart. The pulse generator is usually placed under the skin in the upper abdomen, but may also be placed in the upper chest area.

---

## Mechanical Assist Device

---

**What it is** A man-made pump that can temporarily help the pumping action of the heart.

**Why it is performed** A mechanical assist device is used to help maintain blood circulation. There are several different types, including:

- Intra-aortic Balloon Pump (IABP) – a balloon that inflates and deflates at a specified rate to help the flow of blood through the aorta and

decrease the workload on the left ventricle (the main pumping chamber of the heart). Typically, this device is used to help the left side of the heart for relatively short periods of time. It is referred to as “acute support.” Patients who require this type of temporary support include those with: a recent heart attack, heart inflammation (acute myocarditis), or difficulty coming off cardiopulmonary bypass after open-heart surgery.

- Implantable Ventricular Assist Device (VAD), also known as a ventricular assist system or VAS – a mechanical pump that helps a weakened heart pump blood throughout the body. A VAD is typically used when the heart is severely weakened, such as in severe or end-stage congestive heart failure. These patients may require longer-term support.
- Total Artificial Heart (TAH) – a mechanical device that can permanently replace the heart and has no external tubes or cables is still in development. Several successful cases have been reported. However, research is ongoing.

---

**What is done** Surgery is not required to put in an intra-aortic balloon pump but implantation of the VAD or a total artificial heart requires open-heart surgery.

---

## **Percutaneous Coronary Intervention (PCI, or angioplasty with stent)**

---

**What it is** PCI, formerly known as angioplasty with stent, is a non-surgical procedure that uses a catheter (a thin flexible tube) to place a small structure called a stent to open up blood vessels in the heart that have been narrowed by plaque buildup.

**Why it is performed** PCI improves blood flow, thus decreasing heart-related chest pain (angina), making you feel better and increasing your ability to be active. PCI is usually scheduled ahead of time.

**What is done** A catheter is inserted into the blood vessels either in the groin or in the arm. Using a special type of X-ray called fluoroscopy, the catheter is threaded through the blood vessels into the heart where the coronary artery is narrowed. When the tip is in place, a balloon tip covered with a stent is inflated. The balloon tip compresses the plaque and expands the stent. Once the plaque is compressed and the stent is in place, the balloon is deflated and withdrawn. The stent stays in the artery, holding it open.

---

## **Ventricular Resection Remodelling**

---

**What it is** Surgery to treat congestive heart failure caused by an enlarged heart. It usually involves reshaping or reducing an over-sized left ventricle, the main pumping chamber of the heart. There are different types of ventricular resection surgery. Procedures include: Surgical Ventricular Restoration (SVR), ventricular aneurysmectomy, Left Ventricular (LV) reconstruction, and the Dor Procedure. Sometimes,

ventricular resection or remodelling is combined with coronary artery bypass surgery or valve repair

---

**Why it is performed**

The goal of ventricular resection is to restore the heart to a more normal size and shape, thereby improving its ability to pump blood. Enhanced blood circulation relieves the symptoms of congestive heart failure (shortness of breath, swelling, fatigue and angina). Ventricular resection may be performed on people who have developed congestive heart failure or heart enlargement because of a previous heart attack, dilated cardiomyopathy or hypertensive cardiomyopathy.

---

**What is done**

The heart is stopped and the patient is placed on a heart lung machine. The heart is opened. If there is scar tissue or an aneurysm, the affected tissue will be removed. The surgeon will try to reshape the left ventricle so it is smaller and restores the elliptical shape of the heart. These changes will significantly improve the pumping action of the heart.

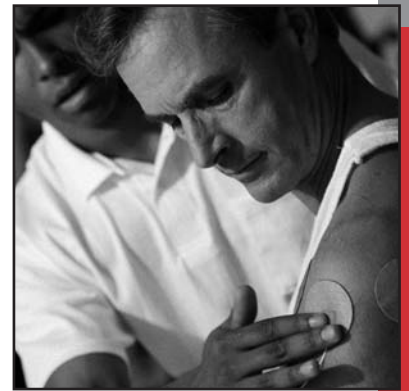
---

*How to prepare*

Most of the procedures described above are performed in a hospital or clinic and are scheduled ahead of time (i.e., they are called *elective*). A week or so before your procedure, you will probably be asked to visit your hospital and various tests, such as blood and urine tests and an electrocardiogram, will be performed. Your doctor will explain the risks and benefits of the procedure and you will be asked to sign a consent form. Be certain to tell your doctor about:

- any allergies or allergic reactions you have had
- bleeding problems
- all of the prescription and non-prescription medications you are taking, including herbal remedies and supplements
- any other medical conditions you may have
- any recent changes in your health
- whether you have body piercings in your chest and/or abdomen
- whether you are, or may be, pregnant.

All of these factors could affect how your body responds to the treatment, so it is important that you report this information to your doctor.



If your procedure requires a general anesthetic, to reduce the risk of vomiting while asleep you will be asked not to eat or drink after midnight the night before surgery. If you smoke, you should stop at least two weeks before your surgery, as smoking can contribute to blood clotting and breathing problems.

If your procedure is performed using a catheter, you will probably be awake but may be given a sedative to help you relax. The area around where the catheter will be inserted (e.g., the groin area) may be shaved. An intravenous (IV) line is inserted so, if necessary, you can be given medications quickly. Electrodes will be placed on your body to monitor your heart, and a small device called a pulse oximeter may be clipped on a finger or ear to track the oxygen level in your blood.

When the procedure is completed, the catheter will be withdrawn and pressure put on the insertion site to stop the bleeding. Once the bleeding has stopped, a tight bandage will be applied. You will need to remain lying flat during this time. If the catheter was inserted in the groin, you will have to keep your leg straight for several hours. If it was inserted in the arm, your arm will be kept elevated on pillows and kept straight with an arm board.

After the procedure, you will probably go to a recovery room for several hours of observation. You will be asked to remain in bed for two to six hours, depending upon your specific condition. Pain medication may be given if you experience any discomfort. You will be encouraged to drink water and other fluids to help flush the contrast dye from your body. After some procedures, it is common for the patient to stay in the hospital overnight. If you are going home after the procedure, be certain to have someone who can drive you. When you return home, keep an eye on the insertion site. A small bruise is normal, but contact your doctor if you experience increased pain, redness, swelling, bleeding or other draining from the insertion site, fever, and/or chills.

### 3. Understanding the causes of heart disease

*In this chapter we'll look at the risk factors for heart disease. We'll answer the questions:*

- *What is a risk factor?*
- *What are the risk factors for heart disease?*
- *What are the risk factors you can change or control?*

*There is also a checklist so you can determine what risk factors you may have.*

#### *What are risk factors?*

Risk factors are any habits, traits or conditions in a person or the environment that may increase the chances of developing a disease. Decades of research have identified a number of risk factors that may increase a person's risk of heart disease. Some of these risk factors are characteristics, traits or choices made by people themselves, such as the kinds of foods they like to eat (diet), whether or not they smoke or how they cope with stress. Many risk factors reflect the environment or society in which we live. For example, communities without sidewalks or parks may discourage people from walking and being physically active.



Individual risk factors are usually grouped into two broad categories: those you can't control and those you can do something about.

#### *What are the risk factors for heart disease?*

The following chart shows the two broad categories of risk factors for heart disease: those you can't control and those you can.

Recovery  
Road

Risk factors for heart disease	
Risk factors you can't control	Risk factors you can do something about
<ul style="list-style-type: none"> <li>• age</li> <li>• gender</li> <li>• family history of heart disease</li> <li>• ethnicity</li> <li>• personal history of heart disease</li> </ul>	<ul style="list-style-type: none"> <li>• high blood pressure (hypertension)</li> <li>• high blood cholesterol</li> <li>• diabetes</li> <li>• being overweight</li> <li>• excessive alcohol consumption</li> <li>• physical inactivity</li> <li>• smoking</li> <li>• stress</li> </ul>

### *Risk factors you can't control*

While you have no control over these risk factors, it is important to know about them and how they may add to your risk-factor profile.

**Age:** Generally, the more you age, the more at risk you are for heart disease.

**Gender:** Generally, men have a greater risk for heart disease than women. After menopause, however, women's risk of heart disease rises dramatically.

**Family history:** If you have one or more immediate family members (mother, father, grandparent, or sibling) who has been diagnosed with heart disease before

age 55, you are at greater risk. Learn as much as you can about your family history and report it to your doctor.

**Ethnicity:** If you are of African, South Asian, or First Nations descent, you are at greater risk for heart disease.

### *Risk factors you can do something about*

As we saw, there are some risk factors you can't control or change. But there are many others that you can do something about. Making heart-healthy lifestyle changes can help you feel better, reduce the risk of complications and potentially prevent more heart problems.

#### Results That Change Lives

##### Gene library

*Medical researchers have mapped more than 84,000 DNA sequences found in genes related to the cardiovascular system. This milestone gene library, compiled with Foundation funding, will help researchers and physicians develop leading-edge treatments.*

## High blood pressure (hypertension)

Blood pressure is a measure of the pressure or force of blood against the walls of your blood vessels. The top number represents the pressure when your heart contracts and pushes blood out (systolic). The bottom number is the lowest pressure when the heart relaxes between beats (diastolic). Over time, high blood pressure can damage blood vessel walls causing scarring that promotes the build-up of fatty plaque, which can narrow and eventually block arteries. It also strains the heart and eventually weakens it.

Understanding your blood pressure reading		
Number	Name	What it means
<b>Top or first number</b>	<b>Systolic</b>	Systolic pressure represents the pressure when the heart contracts and forces blood into the blood vessels. This is the higher of the two numbers and is usually expressed first (i.e. a blood pressure of 120/70 means the systolic pressure is 120 mm Hg).
<b>Bottom or second number</b>	<b>Diastolic</b>	Diastolic pressure represents the pressure when the heart is relaxed. This is the lower of the two numbers and is usually expressed second (i.e. a blood pressure of 120/70 means the diastolic pressure is 70 mm Hg).

Blood pressure that is consistently more than 140 / 90 mm Hg is considered high, but if you have diabetes, 130 / 80 mm Hg is high. Normal blood pressure is below 120 / 80 mm Hg..

If you have been told you have high-normal blood pressure, Canadian guidelines recommend that you have your blood pressure checked at least once a year. High normal ranges between 130/85 and 139/89.

A number of lifestyle changes may help to reduce your blood pressure.

They include:

- Being smoke-free.
- Maintaining a healthy body weight. If you are overweight, losing even a modest amount of weight can help to reduce your blood pressure.

- Eating a healthy, balanced, reduced-fat diet.
- Reducing the amount of salt in your diet. Try to limit your consumption of foods with added salt such as fast foods and smoked, salted, or cured meats and fish.
- Checking with your doctor to see if you should eat foods rich in potassium (e.g., bananas, cantaloupes, grapefruits, oranges, tomato or prune juice, melons, prunes, molasses and potatoes).
- Participating in regular physical activity. Check with your doctor first if you have been inactive for a while.
- Limiting alcohol intake to no more than two drinks a day, to a weekly maximum of 14 drinks for men and nine drinks for women.
- Taking time to relax. Stress may raise blood pressure in some people.

Your physician may also prescribe blood pressure-lowering medications. In people with secondary hypertension (high blood pressure due to another disease), treating the underlying problem may help to lower blood pressure. For more information about blood pressure-lowering medications, please refer to the chapter, Getting the Most From Your Meds.

## *High blood cholesterol*

Cholesterol is a soft waxy substance made by our bodies. It is one of the fats (lipids) normally found in the blood and every cell of the body. We often associate

---



*“Hypertension is the leading risk for death according to the World Health Organization. This is sad because hypertension is largely preventable by healthy living and in those with hypertension the adverse outcomes associated with hypertension are preventable by treatment with lifestyle changes and drugs. We know what needs to be done – we need to do it.”*

**Norm Campbell, MD, FRCPC**  
**Heart and Stroke Foundation Researcher**  
Professor of Medicine  
University of Calgary

cholesterol with health problems. In fact, cholesterol is a vital building block of cell membranes, hormones and vitamin D. Without it, our bodies couldn't function. Cholesterol is transported in the blood in tiny cholesterol-protein packets called lipoproteins. The following chart explains the most common forms of cholesterol and other blood fats.

<b>Types of fats (lipids) in the blood</b>	
<b>Name</b>	<b>What it is</b>
<b>Low density lipoproteins (LDL)</b>	LDL cholesterol is known as “bad” cholesterol. While our bodies need normal amounts of LDL cholesterol for cell growth and repair, high levels of LDL cholesterol are responsible for the buildup of plaque in the arteries.
<b>High density lipoproteins (HDL)</b>	HDL cholesterol is known as “good” cholesterol because it helps move cholesterol out of the cells that line the arteries to the bloodstream and back to the liver for disposal.
<b>Triglycerides</b>	Another type of fat called triglyceride is usually measured when your cholesterol is tested. Triglyceride is not cholesterol. However, it is the most common form of fat in our bodies. It appears to be associated with increased heart disease risk, although the exact relationship is not yet clear. High blood triglycerides may increase the tendency of the blood to clot.

*In Canada, cholesterol is measured in millimoles per litre (mmol/L). In the United States, the measurement is measured in milligrams per decilitre (mg/dl). To convert American cholesterol readings to an approximate Canadian equivalent, divide the American number by 40. For triglycerides, divide the American number by 90.*

When cholesterol is tested, you will usually receive five categories of results:

1. Total cholesterol: total cholesterol refers to the total amount of cholesterol in your blood. This includes LDL and HDL cholesterol.
2. LDL cholesterol: High levels of low-density lipoproteins (LDL) can cause a buildup of plaque (cholesterol deposits) inside your arteries. This can lead to narrowing of the arteries and increased risk of heart attack or stroke.

3. HDL cholesterol: Research suggests HDL cholesterol may help protect us from atherosclerosis (the gradual narrowing of the arteries by plaque), heart disease and stroke. Higher levels of HDL cholesterol are generally associated with a reduced risk of heart disease and stroke.
4. Triglycerides: High triglyceride levels are linked to low levels of HDL (good) cholesterol, excess body weight and poorly controlled diabetes.
5. Total cholesterol/HDL cholesterol ratio: This ratio shows how high your HDL (good) cholesterol is relative to your overall cholesterol levels. Your total cholesterol/HDL cholesterol ratio, which will be given in your cholesterol test results, is calculated by dividing your total cholesterol number by your HDL cholesterol number. A lower number is associated with a lower risk of heart disease.

**For most Canadians, the target levels for blood fats should be:**

<b>Total cholesterol</b>	less than 5.2 mmol/L
<b>LDL cholesterol</b>	less than 3.5 mmol/L
<b>HDL cholesterol</b>	more than 1.0 mmol/L for men and 1.3 mmol/L for women
<b>Total cholesterol/HDL ratio</b>	less than 5.0
<b>Triglycerides</b>	less than 1.7 mmol/L



*“Keeping blood cholesterol under control is a key factor in reducing the risk of heart disease and stroke. Studies have shown that a 1 mmol/L reduction in plasma (blood) total cholesterol can reduce coronary heart disease risk by 25%.”*

**Ruth McPherson, MD, PhD, FRCPC**  
**Heart and Stroke Foundation Researcher**

Director, Lipid Clinic, Lipid Research Laboratory, University of Ottawa Heart Institute, Professor, Medicine & Biochemistry, University of Ottawa

When looking at your cholesterol test results, it's important to remember there is no ideal level for any type of cholesterol. Test results should be considered together with your risk factors, medical history and present health. For example, test results that are normal for a healthy young adult might indicate a health risk for an older adult with diabetes. Your doctor is the best person to interpret your test results and advise you if you need to take action.

When deciding your target cholesterol ranges, your doctor will take into account your cardiovascular risk factors. The more risk factors you have, the more important it is to keep cholesterol levels within their target range.

To achieve and maintain healthy cholesterol levels you need to:

1. Eat a diet lower in saturated and trans fat.
2. Achieve and maintain a healthy weight.
3. Be physically active at least 30 minutes a day, most or all days of the week.
4. Be smoke-free.

For more information about these and other healthy lifestyle changes, please refer to the chapter *Optimizing Your Heart Health*.

Sometimes diet and exercise are not enough to bring your cholesterol to healthy levels. Several types of drugs are available to lower your cholesterol. For more information about cholesterol-lowering medications, please refer to the chapter *Getting the Most From Your Meds*.

## *Diabetes*

Diabetes develops when your body does not produce enough insulin or your body does not effectively use the insulin that it does produce. Your body needs insulin to break down sugar for energy. There are three types of diabetes:

- Type 1 diabetes – usually develops in children, teenagers and young adults. It is treated with insulin. About 10% of people with diabetes have type 1.
- Type 2 diabetes – often occurs in overweight adults. Some 90% of people with diabetes have type 2.
- Gestational diabetes – develops in 2% to 4% of women during pregnancy and usually goes away after the birth of the baby. It does increase the risk of the

mother and child developing diabetes later in life.

Diabetes is diagnosed with blood tests. Like cholesterol, the amount of glucose (sugar) in your blood is measured in *millimoles per litre*(mmol/L). More than one blood test may be required to confirm a diagnosis of diabetes.

Type of test	Results that suggest diabetes
Fasting blood glucose (no eating or drinking anything except water for at least eight hours prior to the test).	7.0 mmol/L or greater
Casual blood glucose (test conducted at any time, regardless of when you last ate).	11.0 mmol/L or greater
Oral glucose tolerance test (a blood test conducted two hours after you consume a special sweetened drink).	11.1 mmol/L or greater

Diabetes increases the risk of high blood pressure, atherosclerosis (narrowing of the arteries), coronary artery disease and stroke – particularly if your blood sugar levels are poorly controlled. It can result in circulation problems caused by damage to the blood vessels. To reduce your risk:

- Have your doctor test your blood sugar levels if you are 40 or older, have a family history of diabetes, are overweight, have high blood pressure or high blood cholesterol.
- Achieve and maintain a healthy weight.
- Ask your doctor to refer you to a registered dietitian to learn about healthy eating. Follow Canada’s Food Guide ([www.healthcanada.ca/foodguide](http://www.healthcanada.ca/foodguide)).
- Work closely with your healthcare team to set goals for your blood glucose and know your target levels.
- Learn how to monitor your blood sugar and tell your doctor if you cannot keep it under control.
- Become physically active. Work with your doctor to design a program that’s right for you.

- Visit the Canadian Diabetes Association Web site ([www.diabetes.ca](http://www.diabetes.ca)) for more information or contact your local branch of the Canadian Diabetes Association.

### What is prediabetes?

*Prediabetes refers to blood glucose levels that are near to, but not as high as, the levels that define a diagnosis of diabetes (a fasting plasma glucose of 7.0 mmol/L). It is sometimes referred to as impaired glucose tolerance (IGT) or impaired fasting glucose (IFG). Prediabetes does not mean you have diabetes. However, it may indicate that you are at increased risk for developing diabetes in the future. If you are told you have prediabetes, you should talk with your doctor about how frequently your blood glucose should be tested. Making healthy lifestyle changes, such as losing weight, eating a healthy diet and being physically active, could help to prevent your developing diabetes.*

### Being overweight

When it comes to weight, ask yourself these questions:

1. Am I overweight?
2. How is the weight distributed on my body?

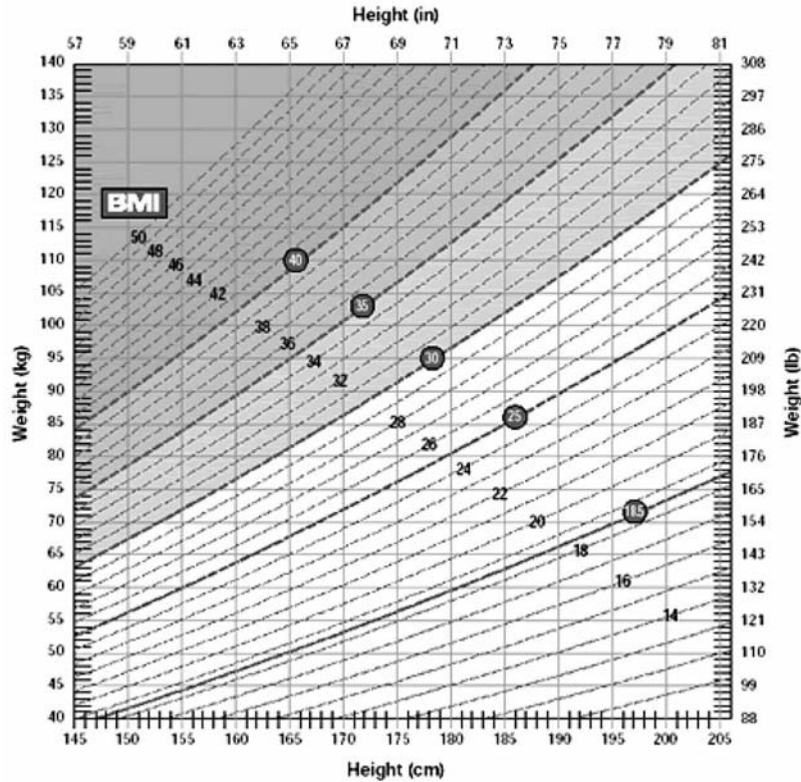
Your Body Mass Index (BMI) can tell you whether you are overweight or obese. Being overweight or obese increases the risk of high blood pressure, high blood cholesterol and diabetes – all of which puts your heart health at risk.

Research shows that people who have too much fat around their waist and upper body are at greater risk of developing heart disease than people who carry their excess fat around their hips and thighs. An easy way to understand how fat is distributed is to think about the shape of apples and pears. If you carry your weight in your upper body, you have a shape like an apple. If you carry your weight around your lower body, you have a pear shape. People with an apple shape are more likely to develop heart disease and diabetes than people with a pear shape.



## Am I overweight? How to calculate your BMI

The BMI is a measure based upon both your weight and your height. To calculate your BMI, divide your weight in kilograms by the square of your height in metres (your height X your height). For example, if you weigh 45 kg and you're 110 cm tall, the calculation would look like this:  $45 \text{ kg} \div 220 = 20 \text{ BMI}$ . Or you can simply find your BMI on the chart below.



Using BMI, Health Canada has established a range of weights for Canadian adults 18 and older to indicate healthy and unhealthy weights.

Classification	BMI Category (kg/m <sup>2</sup> )	Risk of developing health problems
Underweight	< 18.5	Increased
Normal Weight	18.5 - 24.9	Least
Overweight	25.0 - 29.9	Increased
Obese class I	30.0 - 34.9	High
Obese class II	35.0 - 39.9	Very high
Obese class III	> = 40.0	Extremely high

The BMI is considered accurate for most adults over the age of 18, with the exception of pregnant or breastfeeding women. Health Canada warns that the categories may under- or overestimate the health risk for some people. For example, very muscular athletes may have a low percentage of body fat but, because they have a large amount of muscle, they may have a BMI that puts them in the overweight category. The BMI may also be a poor indicator of health risk for some ethnic groups. **Even if you have a normal BMI, it is suggested that you also look at your shape.**

### **Am I an apple or a pear? How to determine your shape**

Measuring your waist is the quickest and easiest way to see if your shape is putting your health at risk. People who carry excess weight around the middle (apple shape) versus around the hips (pear shaped) are at greater risk of health problems including high blood pressure, high blood cholesterol, diabetes and heart disease. In general, men with a waist circumference of 40 inches (102 centimetres) or more and women with a waist circumference of 35 inches (88 centimetres) or more are at greater risk.

### **Excessive alcohol consumption**

You may have heard that alcohol – particularly red wine – is good for your heart. But drinking too much of any type of alcohol can increase your blood pressure and contribute to the development of heart disease and stroke.

There is some evidence that people who drink moderately have a somewhat lower risk of heart disease and stroke than those who either do not drink at all or who drink excessively. But if you really want to have an impact on your heart health, you're better off eating a healthy diet, being physically active most days of the week and being smoke-free.

#### **Results That Change Lives**

##### **Identifying heart attack risk**

*INTERHEART, a study co-funded by the Heart and Stroke Foundation, identified nine modifiable factors that account for a full 90 per cent of all first heart attacks in 52 countries, meaning we can better prevent the majority of premature heart attacks.*

If you drink alcohol, limit yourself to one or two standard drinks a day, to a weekly maximum of nine for women and 14 for men.

### **One drink equals:**

- 341 mL / 12 oz (1 bottle) of regular strength beer (5% alcohol)
- 142 mL / 5 oz wine (12% alcohol)
- 43 mL / 1 1/2 oz spirits (40% alcohol)

### *Physical inactivity*

People who are physically inactive have twice the risk for heart disease and stroke. Active living is important to maintaining good heart health throughout your life. Whether it's gardening, walking or running, being active means something different to everyone – but everything counts.

There are lots of important reasons to make physical activity part of your life. It's a great way to maintain a healthy weight, reduce high blood pressure, lower cholesterol levels, manage stress and cut your risk of heart disease and stroke.

### *Smoking*

Smoking or exposure to second-hand smoke has many negative health effects that increase your risk of developing heart disease and stroke. Smoking contributes to the build-up of plaque in your arteries, increases the risk of blood clots, reduces the oxygen in your blood, increases your blood pressure and makes your heart



*"After you quit smoking, your risk of heart attack begins to decrease within just two days. Within a year it's cut in half. And within 10 to 15 years, your risk of heart disease is almost the same as a non-smoker."*

**Paul W. McDonald, PhD**

**Heart and Stroke Foundation Researcher**

Associate Professor of Health Studies and Gerontology

Co-Director, Population Health Research Group

University of Waterloo

work harder. Smoking also nearly doubles the risk of ischemic stroke, a stroke caused by a blood clot.

## *Stress*

Many life events such as moving, leaving school, changing jobs, and experiencing losses can cause stress. Daily hassles such as being stuck in traffic, deadlines or conflicts may also be stress provoking. Whether you're planning a wedding or dealing with a death in the family, you may benefit from learning effective stress-busting techniques.

The relationship between stress and heart disease and stroke isn't completely clear, but some people with high levels of stress or prolonged stress may have higher blood cholesterol, increased blood pressure or be more prone to developing atherosclerosis (narrowing of the arteries).

If your life is full of stress, it may be difficult to lead a healthy lifestyle. Some people respond by overeating, eating unhealthy foods, consuming too much alcohol or smoking – reactions that can, over time, increase the risk of developing heart disease and stroke.

Responding to stress with anger can also be harmful, since it sets off a series of physiological changes including increased heart rate and elevated blood pressure levels that can increase your chance of having a heart attack. People who are prone to anger are also more likely to turn to unhealthy behaviours such as smoking, excessive alcohol consumption and overeating.

### Results That Change Lives

#### Hormone therapy and heart disease

*It was once thought that hormone therapy (HT) might help to reduce the risk of heart disease in post-menopausal women. However, more recent studies have suggested that using HT for more than five years may increase the risk of stroke, blood clots and breast cancer. The Heart and Stroke Foundation recommends that women should not begin or continue HT (either estrogen alone or combined estrogen-progestin) for the sole purpose of preventing heart disease or stroke. Women should discuss all health risks and benefits associated with HT with their doctors before making a decision.*

## Are you at risk?

Here is a checklist of the risk factors for heart disease. Tick off all that apply to you. You can also ask other members of your family to complete the check list. Are they aware of their risk for heart disease?

**Check Risk factor You're at risk if at least one of the following is true:**

	Age	<ul style="list-style-type: none"> <li>• Man over age 55</li> <li>• Woman after menopause</li> </ul>
	Family history	<ul style="list-style-type: none"> <li>• Male relative (grandparent, parent or sibling) who developed heart disease before 55</li> <li>• Female relative who developed heart disease before menopause</li> </ul>
	Ethnicity	<ul style="list-style-type: none"> <li>• First Nations</li> <li>• African descent</li> <li>• South Asian descent</li> </ul>
	Personal medical history	<ul style="list-style-type: none"> <li>• Previous heart attack or heart surgery</li> <li>• Have been told by a doctor that you have coronary artery disease or atherosclerosis (narrowing of the arteries)</li> </ul>
	High blood pressure	<ul style="list-style-type: none"> <li>• BP consistently higher than 140/90 mmHg</li> <li>• You have diabetes and your BP is consistently higher than 130/80 mm Hg</li> <li>• You have been prescribed blood pressure-lowering medication</li> </ul>
	High blood cholesterol	<ul style="list-style-type: none"> <li>• Total cholesterol is greater than 5.2 mmol/L</li> <li>• HDL cholesterol is less than 1.0 mmol/L for men or 1.2 mmol/L for women</li> <li>• Total cholesterol/HDL cholesterol ratio is greater than 5.0</li> <li>• Triglycerides are greater than 1.7 mmol/L</li> </ul>
	Diabetes	<ul style="list-style-type: none"> <li>• You have been diagnosed with diabetes or prescribed medication for diabetes</li> <li>• On two or more tests, your glucose was greater than:                             <ul style="list-style-type: none"> <li>– 7.0 mmol/L for fasting test</li> <li>– 11.0 mmol/L for a casual test</li> <li>– 11.1 mmol/L for an oral glucose test</li> </ul> </li> </ul>
	Weight	<ul style="list-style-type: none"> <li>• Your BMI is equal to or greater than 25.0</li> <li>• Your waist circumference is equal to or greater than 40 inches (102 centimetres) for a man or 35 inches (88 centimetres) for a woman</li> </ul>

Check	Risk factor	You're at risk if at least one of the following is true:
	Alcohol Consumption	• You drink more than 1 to 2 drinks a day or exceed a weekly maximum of 14 for men and nine for women
	Smoking	• You smoke or are regularly exposed to other people's tobacco smoke (second-hand smoke).
	Stress	• You frequently feel overwhelmed by the pressures in your life

### *What can I do?*

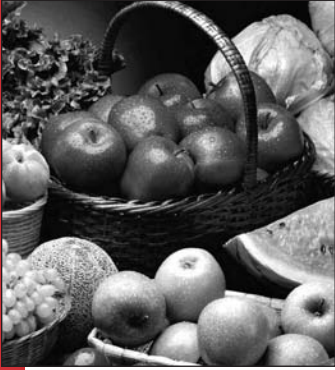
Knowing your risks for heart disease is only the first step. The next step is doing something to reduce your risk by making heart-healthy changes. There's more information on how to make these sorts of changes in the next chapter, *Optimizing Your Heart Health*.

You should also talk with your doctor about cardiac rehabilitation programs in your area. Cardiac rehabilitation is a program of exercise, education and counselling designed to help you recover after a heart attack or other heart condition. This personalized program will help you regain your strength, prevent your condition from getting worse and, by addressing your risk factors, reduce your risk of having heart problems in the future. For more information about cardiac rehabilitation programs, please refer to the chapter *Returning Home*.

Learn more about your risk factors and receive a personalized health action plan by completing the Heart and Stroke Foundation's confidential interactive Heart & Stroke Risk Assessment™. To get your action plan, go to the Heart and Stroke Foundation Web site at [www.heartandstroke.ca/risk](http://www.heartandstroke.ca/risk).

## 4. Optimizing your heart health

*Today is the perfect day to take charge of your heart health. In this chapter we will look at four pillars of a heart-healthy lifestyle: healthy eating, physical activity, being smoke-free and good mental health.*



### *Healthy eating*

Healthy eating helps keep your blood vessels, heart, and other organs healthy by keeping a lid on blood pressure, blood sugar and cholesterol levels, helps maintain a healthy body weight, and provides a steady supply of fuel to keep you feeling energized throughout the day.

And making wise food choices doesn't have to be difficult – even in our fast-paced, fast-food world. There are lots of simple ways to add healthy foods to your daily eating plan, and even small changes in your eating habits can add up to big health benefits for you and your family.

It all starts with the same four food groups you'll find in *Canada's Food Guide*. You can download a copy of this easy-to-use information sheet from Health Canada's Web site at <http://www.healthcanada.ca/foodguide>, or get a copy sent to you by calling 1-800-OCANADA (1-800-622-6232). The number of daily servings you need from each group depends on your age and gender.

### **Vegetables and fruit**

Adding more vegetables and fruits to your diet is one way to immediately improve your overall health. Most vegetables are low in calories and loaded with plant chemicals that help prevent plaque from narrowing your arteries. Research shows that eating five to 10 servings a day may reduce your risk of heart attack and stroke. Many fruits and vegetables are also rich in potassium, which helps keep the heart's electrical system working properly; and magnesium, which keeps the heart rhythm steady and helps control blood pressure. Vegetables and fruits

are also rich in filling fibre, which can help control your weight. Choose orange and dark green vegetables more often. These include carrots, butternut squash, sweet potatoes, romaine lettuce, broccoli and kale.

### **Breads and grains**

Look for the whole grain on food packages. Try whole-wheat pasta, pumpernickel or rye bread, oatmeal, bran cereal, barley and so many more. These satisfying foods are packed with important nutrients as well as fibre. Oats and oat bran contain soluble fibre, which may lower cholesterol and blood sugar. Whole-wheat bread (with the germ) and wheat bran contain insoluble fibre, which promotes bowel health and helps maintain a healthy weight. Make at least half of your grain servings whole grain every day.

### **Milk and alternatives**

Choose lower-fat versions of milk, fortified soy beverages, powdered milk, cheese and yogurt, which are an important source of calcium – a nutrient the heart needs to beat efficiently. Milk and alternatives are also a source of magnesium, which may help to lower blood pressure and plays an important role in maintaining the health of the heart muscle and the nerves that make the heartbeat regular.

### **Meats and alternatives**

Chicken, lean beef, fish, beans, nuts and soy products are all good sources of protein, which satisfies your hunger. Your body uses protein to build and repair muscle and other tissues. Lentils, peas, and beans are also high in fibre, which can help control your cholesterol and maintain a healthy weight.

### **Oils and fat**

Your body needs some fat to function properly. However, it's important to choose fats carefully because some kinds promote heart and blood vessel health, while others harm it. Since all fats are calorie-heavy, it's best to use even the healthier ones in moderation. Only about 20% to 35% of the calories we eat should come from fat. This amounts to about 45 to 75 grams per day for women and 60 to 105 grams for men. (A tablespoon of oil equals 14 grams.)

Canada's Food Guide recommends including a small amount – 30 to 45 mL (2 to 3 tbsp) of unsaturated fat each day. Unsaturated fats (*monounsaturated and polyunsaturated fats*) help improve your blood fat profile by lowering levels of damaging LDL cholesterol and triglycerides, and boosting the amount of healthy HDL cholesterol in the blood. Monounsaturated fat is found in foods such as olive oil, canola oil and avocados. Polyunsaturated fat is found in safflower, sunflower, corn and soybean oils. Heart-healthy omega-3 fats, which are found in cold-water fish such as salmon, mackerel, trout, and sardines, as well as walnuts and flax seed, are one type of polyunsaturated fat. Use unsaturated oils for cooking, salad dressings, margarine and mayonnaise.

Choosing foods that are low in *saturated fat and trans fat* helps keep blood cholesterol levels in a healthy range. Saturated fat is found in fatty meats, butter and full-fat dairy products, lard, coconut and palm oil. Trans fat is found in partially hydrogenated margarines and vegetable shortening, French fries, doughnuts, crackers, cookies, commercially baked products, and other processed foods. Read the Nutrition Facts tables on all food packaging. Look for products with 0 trans fat.

### **Tips to reduce fat intake**

Use reduced fat products wherever possible, such as skim milk, low-fat salad dressings and lower fat cheese. Use lean cuts of meat, and broil or bake your foods instead of frying them.

If you need to use fat, spray or drizzle canola, olive or safflower oils on foods or in pans or use a teaspoon of non-hydrogenated margarine. Always measure out the amount you need.

## Results That Change Lives

### **TRANSforming our food supply**

*The Heart and Stroke Foundation leads the fight to rid processed trans fats from Canadians' diet. Trans fats have a serious impact on coronary heart disease. Canadians consume the highest levels of trans fats in the world. The Foundation and Health Canada – co-chairs of the national trans fat task force – released a report to the federal minister of health in June 2006, which recommended regulations to reduce trans fats in Canada's food supply to the lowest possible level.*

## Salt

For your body to function properly, you actually only need a small amount of salt in your daily diet. Most Canadians use from one to three teaspoons of salt daily – much more than they need. Curbing the amount of salt you eat can help keep your blood pressure in a healthy range. The Heart and Stroke Foundation recommends that Canadians consume no more than 2,300 mg (the equivalent of about 1 tsp/ 5mL) of salt a day total from processed foods and salt added during food preparation. Look for the sodium values in the Nutrition Fact tables on food packages and in recipe nutrient analyses. If you have high blood pressure, consult your physician for specific dietary recommendations.



### Tips for lowering salt intake

- Remove the salt shaker from the table to avoid adding excess salt.
- Choose fresh and fresh-frozen foods instead of canned and bottled goods. Salt is used as a preservative in non-perishable items.
- Avoid processed foods, such as deli meats, dry soup mixes, casserole mixes, smoked meat and fish, salted nuts and potato chips.
- When cooking, use fresh or dried herbs, lemon juice, flavoured vinegar or spices such as curry, paprika and ginger instead of salt.

### Food labels

Food labels give you a snapshot of what is in the food you are eating. The ingredient list includes the items in the food in descending order by weight – which means the higher the ingredient is on the list, the greater the amount in the food.

### Tips for reading the ingredient list

Fats can be listed as: fat, lard, shortening, oils (palm, coconut, vegetable, hydrogenated), monoglycerides, diglycerides, or tallow.

Sugars can be listed as: sugar, honey, molasses, anything that ends in “ose” (dextrose, sucrose, fructose, maltose, lactose), or syrups.

Recovery  
Road

Salts can be listed as: salt, MSG, sodium, baking soda, baking powder, brine, soy sauce or spices.

The other part of the label is the Nutrition Facts table. This gives you detailed information about the nutritional content per serving.

## **Tips for reading the nutrition information**

How much is in one serving? Information about nutritional content is only correct if it matches the serving size listed. If the serving size is one cup, then measure out one cup of the product and see what the amount looks like.

- Concerned about calories? Look on the label under “Energy” to find out how many calories (often listed as kcals) one serving contains.
- Cutting back on fat? Check under “Fat”. Although different types of fat are sometimes listed, “total fat” in grams is the most useful information.
- Looking for more fibre? Look under “Carbohydrates”. You’re making good choices if you get more than 2 grams of fibre per serving. Foods providing more than 6 grams are an excellent source of fibre.
- Trying to cut back on salt? Look for sodium in milligrams. The Heart and Stroke Foundation recommends healthy adults should be getting no more than 2,300 milligrams per day from all sources, whether added or in food products. Check with your physician about your own sodium restrictions.

## *Healthy eating: how to get started*

Food is one of the great pleasures in life – and you don’t have to give up flavour, or completely avoid all the foods you love when you decide to adopt a healthier eating style. Tinker with some of your favourite higher-fat recipes to see if you can eliminate some of the fat without losing the great taste – for example, by substituting evaporated 2% milk for cream in sauces and soups or using unsweetened applesauce in muffin recipes instead of oil. Perhaps you’d like to learn new cooking techniques and trying out new dishes as a taste adventure – no doubt you’ll discover many new favourite foods. Here are some tips to get you started:

- When you eat out, look for dishes that are broiled, baked, barbecued,

charbroiled, grilled, poached, roasted, steamed or stir-fried. Avoid creamy sauces, mayonnaise, and gravies and order salad dressings on the side.

- Start meals with a vegetable-based soup, leafy dark-green salad with low-fat dressing or whole-grain bread.
- Treat yourself to a cooking course for a cooking style that uses fat sparingly and emphasizes vegetables – such as Japanese or Indian cuisine.
- Splurge on a couple of new, heart-healthy cookbooks that feature tantalizing new recipes, and slimmed-down versions of old favourites.
- Create a meal plan for the week around the four food groups – whole grain products, vegetables and fruit, lower-fat milk products and lean meat and alternatives such as fish, beans, nuts and soya.
- Make a shopping list with the foods you'll need for the week's meal plan. This will help you avoid impulse decisions and high fat, high salt temptations.
- Spend the maximum amount of time shopping in the outer aisles of the grocery store where you'll find the vegetables, fruit, bread, meat and milk.
- Divide up your cart into four quarters, based on the four food groups. Fill half the cart with vegetables, fruit and whole grains, one quarter with lower-fat dairy products and the other quarter with lean meat and alternatives such as fish, beans, nuts and soya products.
- Read the Nutrition Facts table on food packages. Choose products lower in salt, saturated and trans fat. Look for products that have 2 grams of fibre or more.

### *Health Check™*

Grocery shopping for healthy foods today can sometimes be complicated and time-consuming. To help you quickly identify products that can contribute to a healthy and balanced diet, the Heart and Stroke Foundation created a not-for-profit food information program called Health Check™. This program is suitable for you and everyone in your family aged four years and over. The Foundation's dietitians evaluate every



*Check for* Health Check™

food in the program, based on Canada's Food Guide. When a food product has been approved, the Health Check symbol and the Heart and Stroke Foundation name are placed on the packaging. The Health Check symbol can be found on more than 1,000 foods, including grain products, vegetables and fruit, milk products, as well as meat and alternatives.

For more information on nutrition and Heart&Stroke cookbooks, visit our Web site at [www.heartandstroke.ca](http://www.heartandstroke.ca) or call 1-888-HSF-INFO (1-888-473-4636).

## Physical activity

If scientists could pack all of the benefits of physical activity into a pill, doctors would prescribe it to each and every one of their patients. Regular exercise not only keeps the heart muscle strong and healthy, it assists with:

- reducing stress levels
- controlling blood sugar levels
- improving blood cholesterol levels
- lowering blood pressure
- achieving and maintaining a healthy body weight
- improving mood

### Before starting

*Remember to check with your doctor before starting any physical activity program. You may want to ask whether there are any activities you should avoid (strenuous weight-lifting, for example), and how hard you should work at them.*

*And if you've had open heart surgery or a heart attack, ask your doctor about a cardiac rehabilitation program.*

### Types of physical activity

A good exercise program includes three kinds of physical activity: endurance, strength and flexibility.

#### 1. Endurance activities

This type of physical activity makes your heart beat faster and your lungs work

harder. Endurance activity gets the large muscles of the body working. These muscles then call on your heart and lungs to work harder to provide them with the oxygen and fuel to keep them going. Some examples of endurance activities are brisk walking, jogging, cycling, and swimming.

Walking is a great start-up activity for beginners, or people with heart problems. Anyone can do it, it can be done anytime, and the only equipment needed is a good pair of walking shoes. The following is a sample walking program for beginners:

### *HeartWalk program*

The HeartWalk Workout is a special exercise program developed by the Heart and Stroke Foundation to help people with cardiovascular problems get regular, healthy exercise. Before starting any physical activity program, check with your doctor first.



### **When to start**

Start off slowly. Follow the program just as is. At first, resist the urge to walk longer. If you overdo it, you may feel sore and tired afterwards and get discouraged.

If 10 minutes is too much to start, walk just five minutes. You may continue to follow the program by adding five minutes to your walking as it progresses. Keep track of your progress on a calendar or in a daily journal.

### **How it works**

**Weeks 1 and 2:** Walk every SECOND day.

- Walk 10 minutes
- Set an easy pace the first week, go a little faster the second week.

**Weeks 3 and 4:** Work out FOUR times a week.

- Walk 10 minutes;
- Set a little faster pace;
- Speed up and go further the fourth week.

**Weeks 5 and 6:** Work out FIVE times a week.

- Walk briskly for 25 to 30 minutes;
- Start to pump or swing your arms;
- Walk up gentle hills; lean forward a little when going up hill.

## Workout tips

- Find a walking partner. It will keep each of you motivated.
- If the weather is too hot or cold, walk in a mall instead.
- Match clothing to weather. If it's cold, layer clothes. If it's hot, wear light, cotton clothing.

## Program goal

Build up your exercise tolerance until you can walk at least 30 minutes, five times a week. Feeling great? Build up to an hour!

## Safety tip

If you have chest pain or discomfort while walking, immediately stop and rest. If you have been prescribed nitroglycerin, take it as instructed. For more information, check out the chapter, Getting the most from your meds.

## Am I working hard enough?

How do you know if you are walking hard enough to get some healthy benefits? There are several ways to monitor your exercise intensity, or how briskly you should be walking:

**Heart rate (pulse):** One way to monitor your physical activity intensity is to take your pulse. You can feel your pulse on the thumb side of your wrist or on the side of your neck next to your Adam's apple. Count the number of beats in 15 seconds and multiply by four. If you have heart disease, your doctor should give you an exercising pulse range. Keep in mind that some common heart medications may affect your heart rate.

**Perceived exertion:** An easier way to monitor your activity intensity is to simply listen to what your body is telling you. As a beginner, you should be expending

enough effort to be sweating lightly, while maintaining a fairly comfortable pace.

**Talk test:** This is a way to make sure that you are not overdoing it. When you are walking or being active, you should be able to carry on a conversation without having to gasp for air. If you cannot, slow down a little bit.

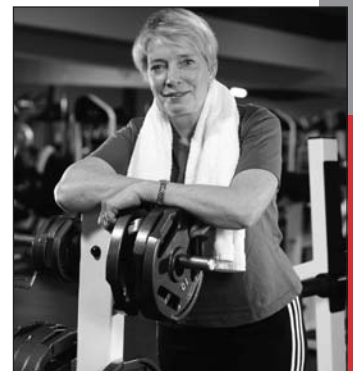
## 2. Strength Activities

Strength activities make you work your muscles against resistance.

Strengthening exercises make it easier to do everyday jobs such heavy yard work, shovelling snow, or lifting and carrying groceries. Strength activities combined with endurance activities on a regular basis can also help you manage your weight and help maintain healthy blood sugar levels. Low-to moderate-level strength training is safe if you have heart disease, but you need to check with your doctor before beginning any strength activity. Working with resistance (like weight lifting) can raise your blood pressure, which can be dangerous for people with some heart conditions.

Here are some tips if you are considering adding strength training to your exercise routine:

- Lift weights every other day, making sure to leave a rest day in between.
- Spend a minimum of 15 minutes for each weight training session. Start with light weights (450-900 g), and see if you can lift them eight to 12 times. If it is too easy, add some more weight. If you cannot get through eight to 12 repetitions, use smaller weights.
- Use 2 full seconds to lift the weight and 2 full seconds to return it back to the starting position. Do not fling or jerk the weights.
- Breathe out as you lift the weight and inhale as you lower the weight. NEVER hold your breath when you are weight lifting. This can cause a dangerous increase in blood pressure.



### 3. Flexibility activities

Flexibility activities are important for keeping you limber and flexible. Flexibility can help to prevent injuries and keep your joints and muscles moving freely so you can continue doing everyday activities. A flexibility activity program may include light stretching, yoga, and/or relaxation exercises. Here are some tips to get you going:



- Never stretch to the point of feeling pain.
- Hold the stretch for 20 seconds in a relaxed manner.
- Do not bounce or jerk while stretching.
- Stretch after endurance and strength activities, while your muscles are warm.
- Breathe slowly and calmly. Do NOT hold your breath.
- Think about relaxing the muscles while you are stretching them.

#### Other tips

Always warm up before you become more active and cool down afterwards. Warm-up and cool-down exercises consist of working at a slower pace than your workout (walking or cycling slower), as well as some gentle and easy stretches. Warming up and cooling down are very important for people with heart conditions. Easing in and out of physical activity allows your heart rate to gradually speed up and slow down, and puts less stress on your heart. It also helps prepare your muscles for activity and reduces the risk of injury or undue soreness. Know what intensity you should be working at. Learn to count your heart rate and to judge how your body feels at each level of activity intensity. Your doctor, cardiologist, or exercise specialist will help you with this. Try being active with your spouse, family, or friends – you can reconnect while you both work towards better health! Join a local health club or walking group to make exercise a social outing.

- When it's hot and humid or very cold outdoors, switch to indoor activities such as mall walking or riding a stationary cycle.
- Always drink lots of water while you are active.
- Wear comfortable clothes that are not restrictive.

- If you have been prescribed nitroglycerin, keep it handy. Know how to use it and what to do if you experience chest pain or discomfort (angina).

### When to stop physical activity

Everyone who is active needs to listen to their body and pay attention to warning signs that something may not be right. Here are some signs to stop and get help:

- *The activity you are doing is causing you undue pain.*
- *You become unreasonably short of breath.* Being active will normally cause you to breathe more rapidly and deeply. However, if you start gasping for air and having trouble catching your breath, slow down and get help. If you continue to gasp for air, call an ambulance.
- *You feel your heart palpitating or your pulse becomes irregular.* If this continues, get help.
- *If you have any of the signs of a heart attack (see p.75), call 9-1-1 or your local emergency number. Do not wait.* While having heart disease puts you at a higher risk of having an emergency while exercising, research has shown that physical activity is very safe for people with heart conditions. It can help you to manage your condition, and make it possible for you to live your life to the fullest. The most important points to remember are to consult with your doctor and listen to your body.

### Living smoke free

The benefits of giving up tobacco and embarking on a smoke-free lifestyle begin almost immediately after you stub out your last cigarette:

- **After 20 minutes:** blood pressure and pulse rate drop.
- **After 8 hours:** dangerous levels of carbon monoxide in your blood go down, and oxygen levels rise.
- **After 24 hours:** your odds of heart attack start tapering off.
- **After 48 hours:** your senses of taste and smell become sharper.
- **After 2 weeks to 3 months:** Circulation improves, walking may become easier, and lung function improves up to 30 percent.

- **After 1 year:** Your chance of suffering a smoking-related heart attack is cut in half!

## Getting started

Once you've resolved to start a smoke-free life, you can significantly improve your chances of success by simply planning ahead. Here's how:

### Set a date

If you are ready to become smoke free, set a date and work towards it. The immediate withdrawal symptoms last about three weeks – so plan to coddle yourself a bit, and take a break from some of your other responsibilities for at least that long.

### Study up

If you were planning to learn ballroom dancing, you'd take a class, or at least read a book on the subject. Learning to live smoke-free is no different. There's no shortage of excellent resources and support. For more information on some of these programs, visit the Heart and Stroke Foundation's Web site at [www.heartandstroke.ca](http://www.heartandstroke.ca) (search for smoke free), or call the Foundation at 1-888-HSF-INFO (1-888-473-4636). Health Canada also offers reading material, free telephone counselling and an e-newsletter. For more information, log on to [www.gosmokefree.ca](http://www.gosmokefree.ca), or call 1-800-O-CANADA (1-800-622-0632).

### Track down triggers

Think about those situations, emotions or surroundings that make you want to light up. It may be with a cup of coffee, with your friends, or when you are tense. Find new ways to deal with these situations or avoid them completely. Think of some alternatives to smoking that will get you through the rough spots. Chew

## Results That Change Lives

### Advocating for a smoke-free world

*A long-time advocate for tough tobacco control legislation, the Foundation has been instrumental in public education and advocacy campaigns to strengthen tobacco control legislation and regulations affecting second-hand smoke, tobacco-related pricing, labelling, advertising and sponsorship. The Foundation and its partners have helped sharply reduce smoking rates by about 62 per cent in the last 40 years – meaning fewer deaths. In 1965, 50 percent of Canadians smoked. In 2005, only 19 per cent smoked.*

sugarless gum or munch on vegetable sticks. Take up crafts or knitting, or keep your walking shoes handy to take a quick walk and keep yourself busy.

### **Enlist support**

Tell the important people in your life about your resolution to go smoke-free – no doubt they will be delighted to cheer you on. Plan outings and events with smoke-free friends. Ask your physician or pharmacist about the many effective tools that are now available to help you become smoke free – including nicotine gum, patches and inhalers.

### ***A healthy mind***

Your mind and your emotions are just as important to your health as your body – after all, you need to feel good about yourself to feel truly well. In fact, studies have shown that being depressed can seriously interfere with recovering from heart disease.

So just as you take care of your body's health, it's important to nurture your mental health as well. Here are some suggestions:

### **Eat a balanced diet**

Healthy foods are just as important to the health of your brain as they are to the health of your body. For example, omega-3 fats (found in cold water fish such as salmon and herring) may help balance chemicals in the brain that boost mood.

### **Be physically active**

Physical activity increases levels of natural mood-lifting chemicals in the body.

### **Get outdoors**

Regular exposure to outdoor light may help you sleep more restfully and lift your spirits.

### **Get enough sleep**

A good night's rest nurtures both your mental and physical health.

### **Do activities you enjoy**

Crafts, reading, building – take time to do activities that spark your interest,

and makes you feel alive and happy. Or try a new hobby – learning a new skill is stimulating, challenging, and builds self-confidence. You might even discover a new passion.

## **Manage stress**

Tai chi, yoga, deep-breathing exercises, meditation or even just a warm, relaxing bath are healthy ways to deal with stress.

## **Reach out to others**

Ask a friend to lunch or a movie, get together with your book club or attend a class or lecture. Getting together with other people stimulates your mind, and buoys your spirits.

## **Volunteer your time**

Donate your expertise to a local charity's fund-raising drive, or lend a hand at a library, animal shelter, or any other organization that could use your talents. You'll help others – and feel good about yourself.

More and more studies show that people who socialize with others, who volunteer and who are involved with their communities are physically and mentally healthier than those who do not.

## **When to get help**

Sometimes feelings can become too much for you to handle alone. Being told you have heart disease or being hospitalized can be scary. Any change can be stressful, so it's not surprising that many heart patients report feeling blue, anxious or discouraged at times.

If these feelings linger, it is important to talk with someone you trust about your feelings, such as your doctor or a counsellor. Depression is not a sign that you are weak or can't cope – it is a disease that needs to be treated as quickly as possible. Depression can seriously interfere with your recovery. The earlier you start treatment, the faster you're likely to recover.

In the chapter, *Returning home*, there is a list of the warning signs of depression. Check out this information. If you think you may be depressed or becoming depressed, talk to someone immediately.

Trying to make heart-healthy lifestyle changes? Log onto the interactive Heart&Stroke Risk Assessment at [www.heartandstroke.ca/risk](http://www.heartandstroke.ca/risk) to receive your own action plan to better health.



Recovery  
Road

## 5. Preparing for emergencies



*In this section, you'll learn to recognize the signs that can warn of a heart attack, stroke, cardiac arrest, and certain other urgent situations – and what to do if they arise. We'll also give you some pointers on developing your own emergency action plan. Finally, you'll learn why it's so important to take immediate action if you suspect you, or someone you love, is having a heart attack or stroke – and what happens in hospital afterward.*

### *What to watch for*

The first step in planning for an emergency is learning what to look out for. Below, you'll find a list of warning signs that can signal some of the complications and medical problems that can occur. Review this list – and have your caregiver and family do so, too. (You may want to post a copy in a prominent spot – like over the phone – where you'll see it regularly.)

Condition	Warning signals	What to do
<b>Stroke</b>	<ul style="list-style-type: none"><li>• <i>Weakness</i>: sudden weakness, numbness or tingling in the face, arm or leg, even if temporary</li><li>• <i>Trouble speaking</i>: sudden difficulty speaking or understanding or sudden confusion, even if temporary</li><li>• <i>Vision problems</i>: sudden trouble with vision, even if temporary</li><li>• <i>Headache</i>: sudden severe, and unusual headache</li><li>• <i>Dizziness</i>: sudden loss of balance, especially with any of the above signs.</li></ul>	Call 9-1-1 or your local emergency services

Condition	Warning signals	What to do
<b>Angina</b>	<ul style="list-style-type: none"> <li>• <i>Change in usual symptoms.</i> Angina comes on with less activity, during rest, more often or more severely, or wakes you up at night.</li> <li>• <i>Change in response to medication.</i> Nitroglycerin doesn't work as fast as before, or you need to take it more often.</li> <li>• Shortness of breath</li> <li>• Swelling ankles or legs</li> <li>• Lightheadedness</li> <li>• Racing, pounding heart</li> <li>• Fainting</li> <li>• Extreme tiredness</li> <li>• Sudden weight gain (2.3 kg or more in a week)</li> <li>• Pain that doesn't disappear after a minute of rest</li> <li>• Pain that doesn't disappear five minutes after first dose of nitroglycerin</li> <li>• Pain that doesn't disappear within five minutes of third dose of nitroglycerin</li> </ul>	<p>Call your doctor.</p> <p>Take one dose of nitroglycerin, and call a family member or doctor. Take 2 more doses, 5 minutes apart. Chew and swallow 1 adult 325 mg ASA tablet (or 2 – 80 mg tablets). Call 9-1-1 or your local emergency services.</p>
<b>Cardiac arrest</b>	<ul style="list-style-type: none"> <li>• No heartbeat</li> <li>• No breathing</li> </ul>	<ol style="list-style-type: none"> <li>1) Call 9-1-1 or your local emergency number or ask someone to call</li> <li>2) Perform CPR</li> <li>3) Seek access to an AED if available</li> </ol>
<b>Heart attack</b>	<ul style="list-style-type: none"> <li>• Pain: Sudden discomfort or pain that does <u>not</u> go away with rest. The pain may be in the chest, neck, jaw, shoulder, arms or back. It may feel like burning, squeezing, heaviness, tightness or pressure. In women, the pain may be more vague.</li> <li>• Shortness of breath: Difficulty breathing</li> <li>• Nausea: indigestion; vomiting</li> <li>• Sweating: cool, clammy skin</li> <li>• Fear: anxiety; denial</li> </ul> <p>Signs may be mild or severe and may come and go.</p>	<p>Chew and swallow 1 adult 325 mg ASA tablet (or 2 – 80 mg tablets).</p> <p>Call 9-1-1 or your local emergency services.</p>

Condition	Warning signals	What to do
<b>Heart attack (cont'd)</b>	Remember that <i>denial</i> can be a sign of a heart attack, too. None of us wants to think about having a heart attack or stroke – it's just too frightening. Consequently, some people will insist the pain or discomfort caused by a heart attack is just indigestion, and that it will go away. But it's critical to get to hospital as soon as possible, because just how much damage a heart attack or stroke causes will depend on how long the artery stays blocked – and treatments like clot-busting medications can improve chances of survival, and reduce the odds of ending up with long-term problems. So if you or someone near you is having one or more of the symptoms of a heart attack, don't deny the evidence – GET HELP.	Call 9-1-1 or your local emergency services.
<b>Congestive Heart Failure</b>	<ul style="list-style-type: none"> <li>• Shortness of breath while lying down, or waking up in the middle of the night short of breath</li> <li>• Swollen ankles or legs</li> <li>• Sudden weight gain</li> <li>• Tiredness or loss of energy</li> <li>• Loss or change in appetite</li> </ul>	Call your doctor.
<b>Pneumonia</b>	<ul style="list-style-type: none"> <li>• Very fast or very slow breathing</li> <li>• Shallow breaths</li> <li>• Confusion or behaviour changes</li> <li>• Chills or fever</li> <li>• Chest pains</li> <li>• Problems swallowing</li> <li>• Vomiting</li> </ul>	Call your doctor or in an emergency call 9-1-1 or your local emergency services.
<b>Blood clot in the lungs (pulmonary embolism)</b>	<ul style="list-style-type: none"> <li>• Coughing or wheezing</li> <li>• Being unable to breathe, extreme shortness of breath</li> <li>• Sharp pain in the chest</li> <li>• Blue colour around the mouth</li> <li>• Dizziness</li> </ul>	Call 9-1-1 or your local emergency services.

Condition	Warning signals	What to do
<b>Blood clot in the leg (thrombophlebitis)</b>	<ul style="list-style-type: none"> <li>• Redness, swelling or warmth in a part of a leg, that is different when compared to the other leg.</li> </ul>	<p>Do not rub, exercise or excessively move the leg. Call your doctor or hospital. If you are unable to reach your doctor, call 9-1-1 or go to the hospital.</p>
<b>Low blood glucose (someone with diabetes)</b>	<ul style="list-style-type: none"> <li>• Shaky, light-headedness</li> <li>• Nervous, irritable</li> <li>• Confused</li> <li>• Hungry</li> <li>• Your heart rate is faster</li> <li>• Sweaty, headachy</li> <li>• Weak</li> <li>• A numbness or tingling in your tongue or lips</li> </ul>	<p>Check your blood glucose immediately. If you don't have your metre with you, treat the symptoms anyway. It is better to be safe. Eat or drink a fast-acting carbohydrate (15 grams):</p> <ul style="list-style-type: none"> <li>• 15 g of glucose in the form of glucose tablets</li> <li>• 15 mL (3 teaspoons) or 3 packets of table sugar dissolved in water</li> <li>• 175 mL (3/4 cup) of juice or regular soft drink</li> <li>• 15 mL (1 tablespoon) of honey</li> </ul> <p>Wait 10 to 15 minutes, then check your blood glucose again. If it is still low:</p> <ul style="list-style-type: none"> <li>• Treat again</li> <li>• If your next meal is more than one hour away, or you are going to be active, eat a snack, such as a half-sandwich or cheese and crackers (something with 15 grams of carbohydrate and a protein source.)</li> </ul>

## *Your action plan*

Knowing the signs of a potential emergency and having an action plan in place may save your life – or the life of someone you care about. Talk with your family members about how to handle each of the urgent situations listed above. Who should you call if you're having angina pain? Who should be notified if you have to go to hospital?

Here are some other things to consider while writing your emergency plan:

- Find out how and where to get emergency help. Post 9-1-1 or the number for emergency services near each phone in your house. Also post your street address and directions to your home. (If you have a telephone on which you can program numbers, key in 9-1-1 or the emergency number for your area.)
- Add the name and number of a neighbour to your emergency list, too. Program this number into your phone, as well.
- Keep a bottle of adult, 325 mg ASA (acetylsalicylic acid, or Aspirin®) tablets on hand so you can chew and swallow one if you suspect you're having a heart attack (this medicine prevents more clots from forming). Make sure your family members know where it is, too.
- Keep a medical history and list of medications in a place where they can be quickly located. Review your medical history with your doctor and record important dates such as when and why you were hospitalized, and any changes in your health status. (There is space to record this sort of information in the Diary section of this booklet.)
- Make a copy of your medication list – and keep it in your wallet at all times.
- Consider purchasing a MedicAlert® necklace or bracelet – it can alert ambulance and hospital personnel to your condition so you receive the best care in an emergency. The service also features a 24-hour hotline that can provide health professionals with more detailed health information that can save time and complications in an emergency. For more information, visit [www.medicalert.ca](http://www.medicalert.ca), or call 1-800-668-1507.
- List the steps of your own emergency plan and review them with your family.

You may want to post it in a visible spot (the fridge, or over the phone, for example), or store it with your medical history and medications list.

### If an emergency does arise:

- 1) **Don't panic.** Keep calm and try to keep others calm.
- 2) **Act.** Call the emergency number.
- 3) **Follow instructions.** Often, the doctor, nurse or emergency services operator will give you instructions over the phone. Keep a pad of paper near the phone so you can write down what to do. If you don't understand what you are told, ask the doctor, nurse or operator to explain the instructions again. Do exactly what they tell you to do.
- 4) **Don't delay.** That means don't pack a bag, or drive yourself to the hospital.

### What can family and friends do?

Learn the warning signs of heart attack and stroke. (See pp. 74, 75)

And remember, many people refuse to believe they're having a heart attack – so if you suspect a problem, act immediately.

Have a list of the person's current medications and medical history ready so that it can be provided to healthcare personnel when the ambulance comes or on arrival at the hospital.

Take a CPR course, so you'll know what to do in an emergency. (See below.)

### CPR and AEDs

If you care about someone who has heart disease, or is recovering from a heart attack, one of the most important things you can do is to take a CPR class. That's because a heart attack sometimes causes the heart's electrical system to fail, triggering a cardiac arrest – the heart stops beating, breathing stops. A person's chance of survival drops 7% to 10% for every minute that goes by without help. On the other hand, if you know how

#### Results That Change Lives

##### Bringing CPR to Canada

*The Heart and Stroke Foundation sets the guidelines for Cardio-Pulmonary Resuscitation (CPR) and Automated External Defibrillator (AED) training in Canada. The Foundation develops training materials for Canadian CPR trainers and advocates for access to defibrillation – ensuring that Canada is at the leading edge of lifesaving resuscitation research and practice.*

to respond to this emergency, their chances of recovery may improve by 50% or more!

Cardiopulmonary resuscitation (CPR) is an easy-to-learn, emergency technique that involves pressing down on the chest and rescue breathing, which keeps blood flowing to the heart and brain until help arrives.

CPR buys time until emergency personnel can try restarting the heart with an electrical shock. This technique, called defibrillation, improves survival rates by up to 50% if it's given within the first few minutes of cardiac arrest. It is now possible for people who don't have extensive medical training to deliver a similar life-saving jolt. *Automated External Defibrillators* (AEDs) are machines that can tell whether the heart has stopped beating effectively, and if so, deliver an electrical shock. Many public buildings and workplaces now keep these devices on site.

St. John's Ambulance, Red Cross Society, Lifesaving Society, the Canadian Ski Patrol, and the Heart and Stroke Foundation offer CPR courses and AED training. To find out more, visit [www.heartandstroke.ca](http://www.heartandstroke.ca) or call 1-888-HSF-INFO (1-888-473-4636).



*"For more than 50 years, Canadians have looked to the Heart and Stroke Foundation to fund vital research that will reduce their risk of heart disease and stroke and improve the quality of their lives. Our research achievements include a scale that measures the severity of strokes and the creation of new artificial blood vessels made from human tissues. Today we are researching how to save more lives through CPR and how to tackle the growing obesity epidemic. We are on the threshold of more exciting breakthroughs that will continue to reduce death and disability from heart disease and stroke."*

**Sally Brown**  
CEO, Heart and Stroke Foundation of Canada

## Clot busters – a reason to rush to emergency rooms

If you think you are having a heart attack, it is critical to call 9-1-1 or your local emergency services and get to the hospital as quickly as possible. The quicker you get to the hospital, the sooner you can be given clot busters.

Heart attacks are usually caused by a blood clot blocking the flow of blood in a coronary artery. The longer the clot is there, the greater the risk of permanent damage to the heart muscle.

Thrombolytics (clot busters) are drugs that dissolve blood clots. They work best when given within the first few hours of a heart attack. The longer you wait, the greater the risk of permanent heart damage or death.

If you have had a heart attack, it is important to find out which thrombolytic agent you received. The main clot busters are t-PA (tissue plasminogen activator) streptokinase (strep-to-KI-nas) and urokinase (ur-o-KI-nas).

## Clot busters and blood thinners

Clot busters are given in the hospital to dissolve a blood clot.

Anticoagulants, also known as blood thinners interfere with clotting action and help to prevent blood clots from forming. When you are in hospital, you may be given the anticoagulant warfarin to prevent more blood clots from forming. Warfarin is given intravenously and takes several days to take effect. When you leave the hospital, you may be switched to a pill form of anticoagulant or antiplatelet agent.

Anti-platelets are medications that also reduce the risk of clots forming in the blood. Anti-platelets are medications that help to prevent the formation of blood clots by keeping platelets (the body's natural blood-clotters) from sticking together.

Common anticoagulants and antiplatelet agents include acetylsalicylic acid – “ASA” (Aspirin®), clopidogrel, dipyridamole and ticlopidine.

If you are prescribed an anticoagulant, follow your doctor's instructions carefully. You may need to have your blood tested regularly to see how long it takes for it

### Results That Change Lives

#### Busting clots

*Over the past 50 years, Heart and Stroke Foundation researchers have pioneered the use of a full array of clot-preventing and clot-busting drugs, which can prevent or reduce the damage from heart attacks and strokes.*

to clot. Try to avoid injuries. The anticoagulant may cause you to bleed more if you cut or bruise yourself. Before having any dental work done, explain to your dentist that you are taking an anticoagulant.

## What happens at the hospital?

When you arrive at the hospital, you may be admitted to an Intensive Care Unit (ICU) or Coronary Care Unit (CCU). Depending on your condition, after a day or two you may be moved to a hospital ward. At this point, your damaged heart is beginning to heal. A scar will begin to form over the damaged areas of your heart. As well, tiny branches of blood vessels may begin to grow from the blocked coronary artery. These new branches will carry more blood to the area around the damage. This healing can take place over several weeks or months.

No two people recover in the same way. Your heart will need an equal amount of time and rest to heal. How much time this takes will depend on:

- The amount of damage to your heart
- Your general, physical health
- Your emotional health

Your heart will also need a balance of rest and light activity. As you get stronger, you will be encouraged by your healthcare team at the

hospital to:

- Do your own self-care (washing and dressing)
- Sit up in a chair for short periods
- Take walks in the halls
- Go up and down stairs

The amount of activity will be increased slowly. Spreading your activities over the day will help to reduce stress and make the best use of your energy.

As you prepare to leave the hospital, write down questions you would like to ask your doctor or healthcare team. Among the questions you may want to ask are:

- How active should I be?



- What medications will I be taking and how should I take them? Are there side effects I should watch out for? (Read the chapter, Getting the most from your meds for more questions you should ask about your medications.)
  - Will I be enrolled in a cardiac rehabilitation program?
  - Are there warning signs I should watch out for? What should I do if they occur?
  - When can I resume intimate relations with my partner? (More information on this topic is available in the next chapter, Returning home).
- 



*“After I had my heart attack, I found two things played a major role in my recovery: my sense of humor, which reinforced my will to live, and, equally important, the Heart and Stroke Foundation’s wonderful Recovery Road. It served as my daily bible, giving me hope and inspiration with its words of wisdom, guidance and assurance.”*

**Lou Eisen**

Heart patient and comedian, author of the Angina Monologues

## 6. Returning home



*If you have been hospitalized, returning home is a big step. In this chapter we'll discuss some of the issues that typically arise when heart patients return home, such as driving, intimate relations and going back to work. We'll also look at the physical and emotional effects of heart disease.*

You've been told you can go home and you're looking forward to it. But at the same time, you may feel a little anxious or worried. And you probably have a lot of questions.

Typical questions of heart patients who are heading home include:

- What can I do and what sort of things should I avoid doing? Is it safe for me to climb stairs, drive, or have intimate relations with my partner?
- My doctor says I should change my diet but I don't know how to do that. Who could help me?
- I'm really worried about going back to work. Am I well enough to work?
- They say I should exercise but could that trigger a heart attack?
- What kinds of symptoms do I have to worry about?

### *Plan for success*

Successful ventures usually start with a plan. That is what you need – a plan to help you make a successful return home.

There are lots of people who can help you build a successful plan. They include your doctor, your cardiac nurses and the hospital discharge planner. A social worker, counsellor or psychologist can also help you deal with your feelings, especially if you're fearful, anxious or depressed.

What are your concerns or questions about going home? Write them down.

Work with your doctor or cardiac nurses to get answers. And encourage your family, partner or spouse to ask questions as well. The more information you have, the smoother your return home will be.

### *Cardiac rehabilitation*

Cardiac rehabilitation (cardiac rehab) is one of the most important things you can do to assist your recovery. Cardiac rehab programs are offered through many hospitals; they may also be offered by public health departments, clinics, or YM/YWCAs. The components of a cardiac rehab program vary but usually include:

- Medical assessment: evaluating your physical abilities, limitations and risk factors.
- Physical activity: exercises to improve your cardiovascular and muscular fitness.
- Lifestyle education: expert advice about diet and nutrition
- Psychosocial support: support and strategies for managing depression, anxiety, returning to work

A cardiac rehabilitation team comprises professionals with specialized areas of expertise who work together to improve your physical and emotional health. The team may include a physician, exercise physiologist, nurse, occupational therapist, physical educator, nutritionist and psychiatrist.

Cardiac rehabilitation will help you regain your strength and independence, and overcome your anxieties and fears. You'll learn how to make heart-healthy living a part of your life, for the rest of your life. And along the way, you'll also meet a support group of professionals and people just like you dealing with the same challenges you face each day.

### *Recovering is more than physical*

When you experience a health crisis, you must recover both physically and emotionally. You may experience a range of emotions when you return home from the hospital. Many of them are normal and are part of the healing process. It is impossible to have a heart condition and not feel like your world has been turned upside-down. Recovering from a heart condition will, at the very least, interrupt your life and that of your family and friends.

The range of emotions that you may experience when you return home from the hospital commonly includes:

- **Sadness:** In the early stages of your recovery, you may feel down in the dumps, with little energy or motivation. You may feel like your way of life has changed forever.
- **Fear:** This may be the most common emotion and the most understandable. You may have thoughts such as “Am I going to die?” “Will I have another heart attack?” “Will I be able to return to my job?” These concerns are often made worse by physical symptoms such as chest pain or fatigue. As time passes, your worries and fears should diminish as your life gets back on track.
- **Anger:** This is a common emotion and may include negative thoughts such as “Why me?” “Why did this have to happen now?” This anger may cause you to be irritable or lose your patience, particularly with loved ones. Try to remember that they may be going through some of these emotions as well. Being angry is a normal feeling. Try to work through it using stress management techniques such as meditation, deep breathing or yoga.

You may also experience other feelings such as shock, disbelief, confusion, anxiety, panic, guilt, lowered self-esteem, preoccupation, loneliness, sadness, helplessness, frustration, resentment and bitterness. This is a long list, and you likely won't experience all of these emotions. These are the common emotions of grief. There are several reasons that you may be grieving. Grief is an emotional reaction to a loss. You may be grieving about changes in your way of life, or some of the lifestyle that you now have to give up. Sometimes writing down your emotions may help you understand what you are feeling.

As you work through this period of grief, you will also experience some positive emotions, such as hope, growth, healing, acceptance, and openness to new opportunities. You may meet new friends in a cardiac rehabilitation program, or discover that a daily walk is invigorating and stress-relieving. You may gain a new outlook on life and take the opportunity to reorganize your priorities.

## *More than the blues – depression*

Sometimes feelings can become too much for you to handle by yourself. You may be suffering from depression. Depression is not something you can just snap out of. It is not a sign you are weak or not trying. Depression is a normal reaction to a major change in your life. Depression becomes a problem if it lingers and seriously interferes with your life.

The warning signs of depression include:

- Feeling sad, anxious, irritable, nervous, guilty, worthless or hopeless
- Changes in your sleep pattern (insomnia or sleeping more than normal)
- Changes in appetite; gaining or losing weight without trying
- Loss of interest in activities you used to enjoy
- Restless or sluggish behaviour
- Persistent or recurring headaches, digestive disorders (e.g. stomach aches, nausea, constipation or diarrhea), or chronic pain
- Difficulty concentrating, remembering things or making decisions
- Fatigue or loss of energy
- Change in work style or productivity
- Thoughts of suicide or death – ***if these occur, seek immediate professional help.***

**If you have two or more of these symptoms for more than two weeks, contact your doctor.** Depression can be treated and the faster you are treated, the better the outcome. Treatment can involve speaking to a trained mental health professional such as a social worker, taking antidepressant medications, or both.

## *Don't forget the caregiver*

Heart disease can also be stressful for all of the people who love and care for you. Here are some helpful coping strategies for your caregiver:

- Share your feelings with a close friend or another caregiver who can listen to your thoughts.
- Take care of your physical health. Eat a healthy diet. Try to be physically active

Recovery  
Road

most days of the week.

- Do something you find relaxing, such as taking a walk, reading a book, yoga, tai chi, Pilates or listening to calming music.
- Get spiritual support. Talk with your clergy or spiritual advisor.
- If you have two or more of the warning signs of depression for more than two weeks, contact your doctor or social worker.

## *Resuming your activities*

In time, you will be able to go back to doing most of the things you did before your heart attack or heart surgery. The following table gives you some general guidelines about what is safe for most people. **Everyone is different, so talk with your doctor about what you can and cannot do at each stage in your recovery.**

<b>Week at home</b>	<b>Activities</b>
<b>1 to 3</b>	<ul style="list-style-type: none"> <li>• Sit outside</li> </ul>
	<ul style="list-style-type: none"> <li>• Do light housework</li> <li>• Engage in hobbies or activities you can do sitting down (reading, crafts)</li> <li>• Climb one flight of stairs slowly</li> <li>• Walk around your house or yard or as instructed by your cardiac rehab team or your doctor</li> <li>• Ride in a car as a passenger (short trips of about half an hour)</li> <li>• Lift weights up to 5 lb (2.2 kg)</li> <li>• Make a few social visits</li> </ul>
<b>3 to 6</b>	<ul style="list-style-type: none"> <li>• Continue walking as instructed by your Cardiac Rehab team or doctor</li> <li>• Climb two flights of stairs</li> </ul> <p>Resume sexual relations once you can climb two flights, (but avoid if you have had a large meal or alcohol in the past two hours or are feeling tired.</p> <ul style="list-style-type: none"> <li>• Make more social visits</li> <li>• Garden, grocery shop or housework (lightly)</li> <li>• Lift up to 10 lb (4.5 kg).</li> <li>• Ride in a car for up to one hour or, if approved by your doctor, driving</li> <li>• Dance (slowly), fish, sail a small boat, cycle at medium speed, play table tennis or 5-pin bowling.</li> </ul>

---

**After 6 weeks**

- Resume all normal levels of activity for you such as walking at a brisk pace, swimming, cycling, cross-country skiing, skating (go at your own pace and rest when necessary)
  - Lift or carry up to 20 lb (9 kg)
  - Return to work, with your doctor's approval
  - Golf. Start with 9 holes and play during the cooler parts of the day in the summer months. Use a cart to carry your clubs.
- 

Some things that you have to be careful about are:

- Very hot or very cold water
- Lifting heavy weights
- Pushing or pulling actions that cause you to hold your breath
- Working for long periods with your arms above your head
- Repetitive arm work such as raking, digging, grass cutting or vacuuming
- Snow shovelling
- Activity after a meal
- Driving
- Sexual relations

## *Driving*

Talk with your doctor about when it will be safe for you to start driving again. Most people who have had a heart attack should wait at least four to six weeks after they leave the hospital before driving. You need to consider your own safety and the safety of others. Your reaction time may be slower than normal due to weakness, fatigue or medications.

People who earn a living by driving are usually not permitted to drive for a period of at least three months after they return home. This waiting time may vary. The ministry responsible for transportation in your province or territories will want information from your doctor when it decides if and when your commercial license will be reissued.

If you are a mature adult, you may want to investigate seniors' driving courses. These courses are designed to help people age 50 and over. To find out if there are courses in your area, contact your automobile association, seniors' association,

public library, police, or safety organizations such as the Canadian Safety Council ([www.safety-council.org/training/55alive/55alive.htm](http://www.safety-council.org/training/55alive/55alive.htm)).

If you are uncertain about whether it is safe for you to drive, here are some questions to ask yourself. Answer the following questions and then discuss your answers with your doctor or a member of your cardiac rehabilitation team.

Yes	No	Question
		Have you noticed any change in your driving skills?
		Do others honk at you or show signs of irritation?
		Have you lost confidence in your ability to drive? For example, do you drive less and only in good weather?
		Have you ever become lost while driving?
		Have you ever forgotten where you were going?
		Do you think that at present you are an unsafe driver?
		In the last year, have you had any car accidents or minor fender-benders?
		In the last year, have you received any traffic citations or tickets for speeding, going too slow, improper turns, failure to stop, or other traffic offences?
		Have others criticized your driving or refused to drive with you?

Source: Regional Geriatric Assessment Program of Ottawa-Carleton

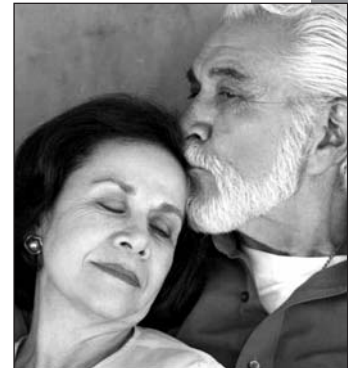
## *Sexual activity*

It's normal to feel anxious or uncertain about resuming sexual activity after your heart attack, heart surgery or if you have a heart condition. If you are concerned that sexual activity may bring on a heart attack, this is very rare. Sexual activity is not as demanding on your heart as you may think. In fact, if you can easily walk up two flights of stairs or walk briskly, your heart can meet the demands of sexual activity.

Most people can usually resume sexual activity within two to three weeks of coming home from the hospital. Some medications, however, may reduce your sex drive. Some men may find that certain drugs may make it more difficult to

obtain or maintain an erection. Talk to your doctor about any questions or concerns you may have.

- Don't feel that you must have sexual intercourse to show love for your partner. Hugging, kissing, caressing, massaging and touching all show love and affection. Find out different ways to please each other.
- Plan in advance for intimacy. Choose times when you are both rested and will have no interruptions. Also, set aside plenty of time. That way, if you have slowed sexual responses, you can allow yourself enough time for lovemaking.
- If you're a woman experiencing vaginal dryness because of heart medications or hormonal changes, try using a water-soluble lubricant such as K-Y Jelly. Don't use petroleum jelly – it doesn't dissolve in water and can cause vaginal infection.
- Avoid alternative herbal remedies to restore your sexual function or interest. Many herbs interact with medications commonly prescribed for heart disease.



### *Air travel*

Air travel may be stressful if you are recovering from heart surgery or have a heart condition – whether you are navigating through a crowded airport with your luggage or dealing with the cramped space and lowered humidity levels on-board. If you have recently had a heart attack or have an existing heart condition, always talk to your doctor and check with your airline before you plan a trip. Most major insurance companies will not provide out-of-province or out-of-country medical insurance earlier than 90 days after a heart attack or a change in your medical treatment. Each airline also has its own policy for flying passengers after a heart attack.

### *Shovelling snow*

Both strenuous exercise and cold weather independently increase blood pressure, push the heart rate up, and increase blood concentration of fibrinogen,

a protein involved in blood clotting. All of these factors contribute to increased heart attack risk. The risks become even greater when vigorous exercise and cold weather are combined, for example, when shovelling snow under harsh environmental conditions. The Heart and Stroke Foundation advises Canadians with known heart or blood vessel disease – including stroke – previous heart surgery, and uncontrolled high blood pressure, to check with their doctor before shovelling snow.

## *Going back to work*

If you worked before your heart attack or heart condition, you can usually go back to the same job within eight to 16 weeks. How soon you can return depends on many factors including your symptoms, how you feel and how physically demanding or stressful your job is. It may be a good idea to return on a part-time basis at first and gradually work up to full-time hours.

If you are close to, or over, retirement age, you may not want to return to work. You may feel that you would rather spend more time with your family, pursuing hobbies or interests you enjoy, or volunteer work. You may be eligible for a retirement pension, employment insurance, or disability pension. To help you find out what benefits you are eligible for, talk with:

- Your social worker
- Your former employer's human resources department
- Your union representative
- Your local Employment Insurance office

Maybe you feel you cannot return to your previous type of work. Or maybe you feel that you have been given a chance to try something new. Choosing a new career can be exciting. Spend some time exploring new ideas. Your family and friends can support you in making a change. You might also want to call upon:

- Members of your cardiac rehabilitation team, such as your social worker, occupation therapist, or vocational counsellor.

- If you think retraining would help you, contact your local Human Resources Development Canada office. Some offices provide aptitude testing and résumé-writing workshops, as well as retraining programs.
  - Aptitude testing, career counselling and résumé-writing services are also provided through many community colleges and Boards of Education continuing adult education programs. There are also private agencies that can provide similar services.
- 



*“At 26, I was diagnosed with myocarditis, an inflammation of the heart caused by a virus. I developed congestive heart failure and needed a heart transplant. My body rejected the organ at first, but thanks to leading-edge research and care, I am now healthier than ever. That’s why I give back by volunteering for the Heart and Stroke Foundation. Without it, I wouldn’t be here today.”*

**Patti Gilchrist**

Heart patient and Heart and Stroke Foundation volunteer

## 7. Getting the most from your meds

*In this chapter, we'll look at the sort of prescription medications typically given to heart patients. We'll look at the different classes of drugs, what they do, and what you need to know to use them safely.*



Depending upon your own unique needs, you may be prescribed one or more medications (drugs). It is important that you understand:

- What drug(s) you are taking
- Why you are taking them
- How you should take them (with food?)
- When you should take them

### *Side effects*

Most side effects from medications are not serious. However, some side effects should be reported to your doctor. Ask your doctor or pharmacist to explain to you what side effects you should watch for and report. Your doctor or pharmacist may be able to make suggestions that may decrease or get rid of the side effects.

Side effects can sometimes occur because a medication is interacting with other drugs you take, including over-the-counter (non-prescription) or herbal remedies. Make sure your doctor and pharmacist know about any over-the-counter medications, herbal remedies or vitamin supplements you take.

### **Caution**

**Never stop taking your medication or change how much you take without talking with your doctor. In some cases, suddenly stopping your medication can be dangerous.**

The following table summarizes the main classes of prescription medications used to treat people with heart disease. For more information about these

medications, please go to the Heart and Stroke Foundation Web site ([www.heartandstroke.ca](http://www.heartandstroke.ca)) or speak with your doctor, cardiac nurse or pharmacist.

**Used to treat the condition of:**

<b>Medication (Class)</b>	<b>Angina</b>	<b>High blood cholesterol</b>	<b>Heart failure</b>	<b>Coronary heart disease</b>	<b>High blood pressure</b>	<b>Arrhythmia</b>
<b>Angiotensin-Converting Enzyme (ACE) Inhibitors</b> work to relax blood vessels and increase the supply of blood and oxygen to the heart.			<b>X</b>		<b>X</b>	
<b>Angiotensin-II-receptor blockers (ARBs)</b> block an enzyme that causes blood vessels to narrow.					<b>X</b>	
<b>Antiarrhythmics</b> slow down the electrical impulses in your heart so it can beat regularly again.						<b>X</b>
<b>Anticoagulants</b> work to prevent harmful clots from forming in the blood vessels. They do not dissolve clots that have already formed, but may prevent them from getting larger.				<b>X</b>		
<b>Platelet Aggregation Inhibitors (antiplatelets)</b> prevent dangerous blood clots from forming in the blood vessels.				<b>X</b>		
<b>Beta-Adrenergic Blocking Agents (beta blockers)</b> affect the response to some nerve impulses in certain parts of the body. As a result, they decrease the heart's need for blood and oxygen by reducing its workload. They also help the heart to beat more regularly.	<b>X</b>		<b>X</b>		<b>X</b>	<b>X</b>
<b>Calcium Channel Blockers (CCBs)</b> relax blood vessels and increase the supply of blood and oxygen to the heart while reducing its workload.	<b>X</b>					<b>X</b>

Used to treat the condition of:

Medication (Class)	Angina	High blood cholesterol	Heart failure	Coronary heart disease	High blood pressure	Arrhythmia
<b>Centrally Acting Antihypertensives</b>					<b>X</b>	
<b>Cholesterol Absorption Inhibitors</b> (ezetimibe) help lower the levels of total and LDL-cholesterol in your blood by preventing your body from absorbing and storing cholesterol in your liver and improving the way cholesterol is cleared from your blood.		<b>X</b>				
<b>Digitalis Medicine (digoxin)</b> improves the strength and efficiency of the heart, or controls the rate and rhythm of the heartbeat.			<b>X</b>			<b>X</b>
<b>Diuretics</b> reduce the amount of water in the body by increasing urine output.			<b>X</b>		<b>X</b>	
<b>Fibrates or Fibric acid derivatives</b> reduce high cholesterol levels.		<b>X</b>				
<b>Niacin</b> , also known as nicotinic acid, slows the liver's production of LDL (the "bad") cholesterol. It also raises HDL (the "good") cholesterol.		<b>X</b>				
<b>Nitrates (nitroglycerin)</b> widen (dilate) your blood vessels – making it easier for blood to flow through and let more oxygen-rich blood reach your heart.	<b>X</b>					
<b>Resins (Bile Acid Sequestrants)</b> bind to bile, preventing it from being used during digestion. In response, your liver makes more bile and the more it makes, the more LDL-cholesterol (the "bad" cholesterol) it needs – which means there is less LDL-cholesterol circulating through your blood.		<b>X</b>				

Medication (Class)	Used to treat the condition of:					
	Angina	High blood cholesterol	Heart failure	Coronary heart disease	High blood pressure	Arrhythmia
<b>Statins</b> help block an enzyme in the liver that helps your body make cholesterol. By blocking this enzyme, your body makes less cholesterol.		<b>X</b>				

### *What about alternative or complementary therapies?*

While natural may seem to be safe, this is may not always be the case. Alternative or complementary therapies are not necessarily the best approach to effectively treat cardiovascular disease, says Dr. Jafna Cox, Heart and Stroke Foundation spokesperson.

Physicians are seeing an increase in the use of therapies such as dietary supplements and herbal remedies to treat heart disease, Dr. Cox says. Currently, there is a lack of long-term scientific evidence to support their effectiveness, and very little monitoring being done in the production of some of these herbal treatments, he adds. What's more, many Canadians are unaware of the risks and side effects of complementary medicines.

### *Five ways to remember to take your medication*

If you have trouble remembering to take your medications, try the following:

- Take your medications at the same time every day. Establish a routine.
- Set a separate alarm clock to remind you when it is time to take your medications.
- Purchase a pillbox (dosette) marked with days and times. These are available at your local pharmacy. Talk with your pharmacist before using one, however. Some medications should be kept in their original packaging.
- Keep a daily medication chart. (See chapter My Heart Diary.) Make copies and hang it up where you will see it and fill it in every day.

## *Paying for medications*

When you are in the hospital, all of your medications are paid for. But when you return home, your medications will be paid for by your provincial drug plan, your private health insurance, or by yourself. To find out what sort of drug coverage you are eligible for, talk to:

- Your social worker
- Your pharmacist
- If you are employed, your employer's human resources department
- If you are a member of a union, your union representative
- Your provincial health insurance program
- Your private health insurance company

## *Communicating with your doctor*

You and your doctor are partners working together towards the same goal – restoring you to the best possible health. But just like any relationship, the patient/doctor partnership is most successful when both members share information and decision-making. And all of that depends on clear communication. So how can you make those conversations more effective, even when you're both pressed for time?

- Before you leave home, jot down any questions you'd like to ask – and bring the list with you. (You might also want to bring a small notebook, or this binder to write down what the doctor tells you.)
- If you've been having symptoms, make and bring a list of those, too.
- Bring a list of all the medicines you take – including over-the-counter medications, vitamins, and herbal supplements.
- If you don't understand something your doctor says, ask him or her to explain it again.
- Don't hold back information – that's like hiding pieces of a puzzle. The more information you share, the more likely it is that your doctor will be able to help you – for instance, by switching you to a medication that doesn't have the same side-effects. And don't be afraid to mention symptoms you may find

embarrassing such as feeling hopeless, empty or worthless.

- Bring someone with you – to remind you of questions you forgot to ask, and help remember what the doctor said.

Still, people with high blood pressure, diabetes, and heart disease may find it difficult to keep taking their medications. After all, these conditions usually don't make you feel sick, and sometimes, the drugs used to treat them may have side-effects or other drawbacks. If you're having misgivings about the medications you're taking, talk them over with your health care provider. He or she may be able to suggest ways of getting around any problems – for example, by taking a pill at a different time of day, or switching to a different drug.

Here's a chart you can use to guide that discussion. List the benefits of taking your medication (the pros) and the disadvantages or drawbacks (the cons). Then, take your list and discuss it with your pharmacist, doctor, nurse or other healthcare professional.

<b>Benefits of taking my medication (pros)</b>	<b>Drawbacks or disadvantages of taking my medication (cons)</b>	<b>Things that could be done to reduce/eliminate disadvantages</b>
• Taking my medication will keep my blood pressure, blood glucose or blood cholesterol in a healthy range.		
• Taking my medication will reduce my risk of developing heart disease, having a stroke, or developing other diseases.		

## 8. Resources

*In this chapter, we'll look at some resources for information on specific heart health-related topics. Please note that these resources may change over time. There is also a listing of the provincial Heart and Stroke Foundation offices across Canada.*

### **Alcohol (low-risk drinking)**

The Heart and Stroke Foundation Web site has information on alcohol and heart disease. [www.heartandstroke.ca](http://www.heartandstroke.ca)

### **Blood pressure**

For more information on blood pressure, and blood pressure-lowering medications, visit the Heart&Stroke Blood Pressure Action Plan™ at [www.heartandstroke.ca/bp](http://www.heartandstroke.ca/bp). Or call the Heart and Stroke Foundation at 1-888-HSF-INFO (1-888-473-4636) for more information.

### **Cardiac rehabilitation**

Starting a cardiac rehabilitation program within 30 days of a heart attack can reduce your chance of another heart attack, and cut your risk of dying by 20 to 30%. Still, only about 30% of people who are hospitalized for heart disease go on to participate in one of these programs – which provide advice on everything from exercise and quitting smoking to addressing the anxiety and depression that can follow a heart attack. To locate a centre in your area, visit the Canadian Cardiac Rehabilitation Foundation's Web site at: [www.cardiacrehabilitation.ca](http://www.cardiacrehabilitation.ca)

### **Cholesterol**

Know and control your cholesterol levels. If you have been diagnosed with, or are at increased risk for, high blood cholesterol our resource entitled "Living with Cholesterol" will help you to manage it and lower your numbers. Visit [www.heartandstroke.ca/heart](http://www.heartandstroke.ca/heart) to find a copy under our resources section.

## **Diabetes**

Contact the Canadian Diabetes Association by calling 1-800-BANTING (1-800-226-8484), or visiting [www.diabetes.ca](http://www.diabetes.ca)

## **Drug coverage**

If you don't know if you are eligible for your province's drug plan, contact your provincial ministry of health. Information about federal and provincial drug programs can also be found on this Government of Canada Web site:

<http://www.canadabenefits.gc.ca>

## **General health information**

The Canadian Health Network is a national, bilingual health promotion program found on the Web at [www.canadian-health-network.ca](http://www.canadian-health-network.ca). It provides links to more than 20,000 English and French Canadian Web-based resources that pass a rigorous quality assurance process to ensure that the information is timely, accurate and relevant.

## **Healthy eating**

To learn more about the Health Check™ program, find a list of participating restaurants and manufacturers, view nutrition brochures on topics such as fast food, or download heart-healthy recipes, visit [www.heartandstroke.ca/healthyliving](http://www.heartandstroke.ca/healthyliving) or [www.healthcheck.org](http://www.healthcheck.org).

Check out the latest version of Canada's Food Guide on Health Canada's Web site: [www.healthcanada.ca/foodguide](http://www.healthcanada.ca/foodguide) and you can produce your own personalized guide by visiting [www.myfoodguide.ca](http://www.myfoodguide.ca)

For lots of great ideas on healthy eating, including recipes, go to the Heart and Stroke Foundation's Web site: [www.heartandstroke.ca](http://www.heartandstroke.ca) or call 1-888-HSF-INFO (1-888-473-4636).

The Dietitians of Canada Web site also features a broad range of information about healthy eating and a food diary EatTracker. It also allows you to search for a dietitian in your community. [www.dietitians.ca](http://www.dietitians.ca)

## **Healthy weights**

Visit the Heart and Stroke Foundation's Healthy Weight, Healthy You resources at: [www.heartandstroke.ca/healthyweight](http://www.heartandstroke.ca/healthyweight) Or call 1-888-HSF-INFO (1-888-473-4636) for information and resources.

## **Heart disease**

The Heart and Stroke Foundation's Web site is packed with terrific information and resources, from definitions of different conditions, tests and procedures to our free monthly e-newsletter He@lthline [www.heartandstroke.ca](http://www.heartandstroke.ca) You'll receive healthy living information, physical activity tips and nutritious heart-healthy recipes.

## **Smoking**

Information on becoming smoke-free is available from:

Your Heart and Stroke Foundation office, or the Heart and Stroke Foundation Web site: [www.heartandstroke.ca](http://www.heartandstroke.ca)

Or visit Health Canada's tobacco control website at [www.gosmokefree.ca](http://www.gosmokefree.ca) or call 1-800 O Canada (1-800-622-6232) to find resources or to find your provincial or territorial "Quit Line" to get support in becoming smoke free.

## **Stress**

The Heart and Stroke Foundation Web site features information on stress, tips on coping with stress and a list of resources. [www.heartandstroke.ca](http://www.heartandstroke.ca)

## **Stroke**

The Heart and Stroke Foundation has a number of resources on stroke tests, treatments and prevention. They are available free of charge by going to the Heart and Stroke Foundation Web site ([www.heartandstroke.ca](http://www.heartandstroke.ca)) or by calling 1-888-HSF-INFO (1-888-473-4636).

## *Heart and Stroke Foundation offices across Canada*

### **Heart and Stroke Foundation of Canada**

222 Queen Street, Suite 1402  
Ottawa, ON K1P 5V9  
Telephone: 613-569-4361  
Fax: 613-569-3278

### **Heart and Stroke Foundation of Alberta, NWT & Nunavut**

100-119 14 Street NW  
Calgary, Alberta T2N 1Z6  
Telephone: 403-264-5549  
Fax: 403-237-0803

### **Heart and Stroke Foundation of BC & Yukon**

1212 West Broadway  
Vancouver, British Columbia V6H 3V2  
Telephone: 604-736-4404  
Fax: 604-736-8732

### **Heart and Stroke Foundation of Manitoba**

The Heart and Stroke Building  
6 Donald Street, Suite 200  
Winnipeg, Manitoba R3L 0K6  
Telephone: 204-949-2000  
Fax: 204-957-1365

### **Heart and Stroke Foundation of New Brunswick**

133 Prince William Street, Suite 606  
Saint John, New Brunswick E2L 2B5  
Telephone: 506-634-1620  
Fax: 506-648-0098

### **Heart and Stroke Foundation of Newfoundland & Labrador**

P.O. Box 5819  
St. John's, Newfoundland A1C 5X3  
Telephone: 709-753-8521  
Fax: 709-753-3117

### **Heart and Stroke Foundation of Nova Scotia**

5161 George St., 7th Floor  
Halifax, Nova Scotia B3J 1M7  
Telephone: 902-423-7530  
Fax: 902-492-1464

### **Heart and Stroke Foundation of Ontario**

2300 Yonge Street, Suite 1300  
PO Box 2414  
Toronto, Ontario M4P 1E4  
Telephone: 416-489-7111  
Fax: 416-489-6885

### **Heart and Stroke Foundation of Prince Edward Island**

180 Kent Street  
P.O. Box 279  
Charlottetown, Prince Edward Island C1A 7K4  
Telephone: 902-892-7441  
Fax: 902-368-7068

### **Heart and Stroke Foundation of Quebec**

1434 Sainte-Catherine Street West, Suite 500  
Montreal, Quebec H3G 1R4  
Telephone: 514-871-1551  
Fax: 514-871-9385

### **Heart and Stroke Foundation of Saskatchewan**

279 – 3rd Ave N.  
Saskatoon, Saskatchewan S7K 2H8  
Telephone: 306-244-2124  
Fax: 306-664-4016

## 9. My Heart Diary



*Keeping track of important information can help you feel like you have more control over your heart health. It will also help you to respond more efficiently to emergencies. In this section, there are places where you can record information about yourself, your medical care and recovery, your medications, and your health goals, such as becoming more physically active. There is also a place to record your feelings or to write down questions you want to ask your healthcare team.*

There are six parts to this heart diary. You may record:

- Information about you and your condition (Part 1)
- The names and phone numbers of your cardiac rehabilitation centre, and other care providers (Part 2)
- Information about the history of your care and recovery (Part 3)
- Your medications (Part 4)
- Your health goals, and your progress towards meeting those goals (Part 5)
- Your physical activity (Part 6)
- Your feelings or any other information you would like to record (Part 7)

## Part 1: Important information about me and my heart condition

First Name		Last Name	
Birth Date:	Day	Month	Year
Address			
City/Town		Postal Code	
Phone		Email address	
Home situation	Alone	With Someone Else	Other
Do you have a caregiver at home?	Yes	No	
Name of caregiver		Phone or Email of caregiver	
Date of heart attack:	Day	Month	Year
Type of procedure:	Angioplasty	Bypass _____	Other (_____)
Date of procedure:	Day	Month	Year
Other diagnosis:			
Date of diagnosis:			
Tests performed:			
Date performed:	Month	Year	

Results:

Name of hospital where I was treated

Other details (write in all you know)

Write down any other relevant conditions you have (eg., diabetes, high blood pressure, angina, etc.)

Describe what you are doing to improve your heart health

Recovery  
Road

## Part 2. Important names and telephone numbers

In the following section, you can write in the names and telephone numbers of people who are important in your recovery. You may want to include your doctor and pharmacist, as well as numbers for the members of your cardiac rehabilitation team. You can also write in the names and phone numbers of services or organizations in your community (Meals on Wheels, home care services, or your local YMCA Healthy Heart program).

Copy the 'Emergency Services' section and post it by your telephone, along with your address, and a list of the medications you're taking. During a crisis, even the calmest person can get flustered – so having this information at your fingertips can save crucial minutes. It will also come in handy if a visitor has to call for help.

Emergency services	Name	Telephone number
Emergency Services		
My family doctor		
My cardiologist		
My pharmacist		

### My Cardiac Rehab Centre

Doctor		
Dietitian		
Nurse		
Exercise therapist		
Psychologist		

### Community services




## *Part 4. My medications*

For many recovering heart patients, medications are an important part of their care. In this table, you can record information on all the medications you take. If you are not certain about why you were prescribed a certain drug or what side effects to watch out for, speak with your doctor, cardiac nurse or pharmacist.

We've also provided a space for you to record any non-prescription drugs or remedies you may take regularly. Over-the-counter (non-prescription) drugs, herbal therapies and vitamins can interact with some prescription medications, so you share this list with your doctor or pharmacist.

## *Weekly medication chart*

If you have to take pills at different times of the day, or have to take several different types of medications, it can be challenging to keep track. This chart can help you. List when you're supposed to take your medications, check whether or not you're supposed to take them with food, the name of the medication and a brief description. Each time you take each medication, check it off on your chart on page 110.





## Part 5. My health goals

No doubt you and your healthcare team have probably set some goals for your recovery. Perhaps your doctor has recommended getting your blood pressure or LDL cholesterol down to a certain target with physical activity, diet and medications. Or maybe he or she has advised you to try to reduce your waist measurement, or gradually increase the number of minutes you walk each day.

Making changes to manage high cholesterol, high blood pressure or diabetes can be tough. And it's hard to keep yourself motivated – after all, these conditions don't usually make you feel sick. "It can be especially hard if your doctor prescribes medication, and you don't like taking pills," notes Dr. Michael Evans, a family doctor and advisor to the Heart and Stroke Foundation. "But I try to explain the benefits of taking control are really, really important. If you bring down your blood pressure, cholesterol, or blood glucose you may not feel any different – but you'll substantially reduce your risk of heart attack and stroke."

Keeping a record of your goals – and what you're doing to reach them – is one tool that can help you stay motivated. This section gives you a place to do just that.

### Goal 1

Date	My goal	My progress

## Goal 2

Date	My goal	My progress

## Goal 3

Date	My goal	My progress

## Goal 4

Date	My goal	My progress

## *Part 6. Physical activity log*

Being at least moderately physically active for 30 to 60 minutes, most days of the week, will reduce your risk of high blood pressure, heart disease, stroke, high cholesterol and diabetes. Regular physical activity will also help to control your weight and relieve stress.

Copy this one month log, and use the pages to keep track of your physical activity. Under each day, jot down what you did (walked or swam), how many minutes you spent at it, and how hard you worked – light, moderate, or high intensity. Post the log where you will see it frequently such as in your office or on your fridge. Remember, the keys to improving your level of health and fitness are to slowly increase the:

- frequency of your activity (how many times a week)
- length of time you are active
- the effort or intensity of your activity

Other important things to remember:

- Listen to your body. Don't push yourself to the point of pain or exhaustion.
- Vary the intensity (effort) at which you work from day to day.
- Do a variety of different activities to reduce boredom and the risk of injury.

For example, walk one day, swim the next and bike the third.

If you have any questions or concerns about your activity program, take your log and show it to your cardiologist or cardiac rehabilitation team.





## 10. Glossary

### **Ace inhibitors (angiotensin converting enzyme inhibitors)**

A type of medication used to treat high blood pressure. ACE inhibitors belong to a class of drugs called vasodilators, which work by causing blood vessels to relax.

### **AED (Automated External Defibrillator)**

A machine used to re-establish normal heart rhythm. The human operator places the pads on the chest of the victim and the machine determines whether there is abnormal electrical activity in the heart. If the heart is beating abnormally, or has stopped beating entirely, the machine signals the operator to deliver a shock (defibrillation) to re-set the heart.

### **Angina**

Also known as angina pectoris, it is chest pain or the sensation of chest pressure caused by coronary artery disease. Pain occurs when the heart muscle doesn't receive enough blood because arteries supplying blood to the heart muscle are narrowed.

### **Angioplasty with stent (also known as Percutaneous Coronary Intervention, PCI)**

A medical procedure used to widen coronary arteries blocked by plaque. A catheter, a thin tube, containing a tiny balloon is inserted into the narrowed artery. It is then inflated to widen the narrowed section of the artery and place a stent, an expandable metal mesh to keep the artery permanently open. The balloon and catheter are then removed.

### **Antiarrhythmics**

A class of drugs used to treat patients who have irregular heart rhythms, also known as arrhythmias.

### **Anticoagulants**

A class of drugs given to prevent a blood clot, also known as a thrombus, from forming or growing larger. Anticoagulants are sometimes referred to as "blood thinners."

### **Antihypertensive medication**

Drugs that are used to treat high blood pressure, also known as hypertension.

### **Antiplatelet medications**

Drugs that help prevent platelets, tiny cells in the blood, from clumping together and forming blood clots.

### **Aorta**

The heart's major artery. Measuring an inch or more

in diameter, it delivers oxygenated blood from the left ventricle to all parts of the body through arteries and capillaries.

### **Aortic valve**

The valve that controls blood flow between the heart's left ventricle, the main pumping chamber of the heart, and the aorta, the main artery that supplies oxygenated blood to the rest of the body.

### **Arrhythmia**

An abnormal heart rhythm.

### **Arteries**

Blood vessels that carry oxygenated blood from the heart to the rest of the body.

### **ASA (acetylsalicylic acid)**

Commonly referred to as Aspirin™, ASA is a drug that can be used to relieve pain or thin the blood. Clinical trials have shown that in certain individuals, ASA alone, or with other blood-thinning drugs, can help to prevent heart attack and stroke.

### **Atherosclerosis**

A condition in which the inner layer of the arterial wall becomes thick and irregular due to the buildup of plaque and scar tissue. This buildup can interfere with the blood flow through the vessels and can lead to blood clot formation.

### **Atria**

The heart's two upper chambers. The atria pump blood to the ventricles, the heart's lower chambers.

### **Beta blockers (beta-adrenergic blocking agents)**

A class of medication used to reduce the heart's need for oxygen by reducing its workload. They can also help the heart to beat more regularly. Beta-blockers can be used to treat high blood pressure, angina, arrhythmias and congestive heart failure.

### **Blood clot**

A semi-solid mass of coagulated red and white blood cells. Blood clots form in response to an injury to help stop bleeding. Sometimes the body mistakes other problems, such as a plaque-clogged artery, for an injury. If this occurs, a blood clot can form inside a blood vessel. The risk here is the blood clot can dislodge and travel to the brain, causing a stroke, or to the heart, triggering a heart attack.

### **Blood pressure**

The pressure exerted by the flow of blood on blood

vessel walls. Blood pressure is expressed as two numbers. The higher (systolic) number represents the pressure while the heart is beating. The lower (diastolic) number represents the pressure when the heart is resting between beats. The systolic number is always stated first and the diastolic number is listed second. For example, 120/80 means the systolic blood pressure is 120 and the diastolic blood pressure is 80.

### **Body Mass Index (BMI)**

A tool to help determine whether a person's weight is in a healthy range for someone of his or her height. The Body Mass Index is calculated by dividing weight in kilograms by height in metres squared.

### **Bypass surgery, coronary artery**

Also known as coronary artery bypass graft (CABG), it is an open-heart operation in which blood flow is rerouted around narrowed or clogged arteries in the heart.

### **Calcium channel blockers**

A class of medications that work to relax blood vessels and increase the supply of oxygen to the heart while reducing its workload. Calcium channel blockers are used to lower high blood pressure, treat chest pain caused by coronary artery disease and treat arrhythmias.

### **Cardiac arrest**

A condition in which the heart suddenly stops beating.

### **Cardiac catheterization**

A test used to check the function of blood vessels that supply the heart as well as the heart itself. A catheter is inserted into an artery in the groin and a special dye is injected and tracked by X-ray to show blood flow through the blood vessels and arteries.

### **Cardiac rehabilitation (cardiac rehab)**

A program of counselling, physical activity and lifestyle change to help people with heart disease reduce their risk of a heart attack and improve their overall quality of life.

### **Cardiovascular disease**

Cardiovascular disease is a broad term referring to diseases of the cardiovascular system. This includes diseases of the heart and the blood vessels including the blood flow to the brain. Cardiovascular disease may also be referred to as circulatory disease.

### **Cerebrovascular**

Referring to the blood vessels that supply the brain.

### **Cholesterol**

A type of fat found in the blood. There are several different kinds of cholesterol. Low-density lipoprotein

cholesterol (LDL) – known as “bad” cholesterol – contributes to plaque buildup in the blood vessels. High-density lipoprotein cholesterol – known as “good” cholesterol (HDL) – helps reduce the risk of heart disease and stroke. Cholesterol is manufactured by the liver.

### **Computed Axial Tomography (CAT or CT) scan**

These scans use special X-ray equipment to obtain cross-sectional images of the body. CT imaging is particularly useful because it shows soft tissues and blood vessels with great clarity.

### **Deep vein thrombosis (DVT)**

A condition when a blood clot forms in one of the deep veins of the body, usually in the leg.

### **Defibrillation**

Using electroshock to re-establish normal heart rhythm. (See AED.)

### **Depression**

A feeling of deep sadness that can cause symptoms including disordered sleep, appetite change, lack of energy, tension and irritability, feelings of worthlessness, thoughts of suicide and loss of concentration. Depression can occur after a heart attack or a stroke and can interfere with recovery.

### **Diabetes mellitus**

A condition which interferes with the production or use of insulin, a hormone that enables the body to use sugar in food as a source of energy. Diabetes increases the risk of developing heart disease and stroke. There are two types of diabetes:

- In type 1, also known as insulin dependent diabetes, the pancreas makes little or no insulin.
- In type 2 the pancreas does not produce enough insulin or the body is unable to effectively use the insulin that is produced.

### **Digitalis**

A medication that belongs to a class of drugs known as cardiac glycosides. Digitalis, which is also known as digoxin and digitoxin, strengthens and slows the contraction of the heart muscle.

### **Diuretics**

A class of drugs used to lower blood pressure by reducing the amount of water and salts in the body by increasing urine output.

### **Doppler ultrasound**

A test in which very high frequency sound waves are bounced off the heart and blood vessels. The returning sound waves are then translated into images that show blood flow through the arteries and the heart.

## **Electrocardiogram, electrocardiography (ECG or EKG)**

A diagnostic test that records the electrical activity created by the heart's rhythm. Dr. Willem Einthoven, who invented the forerunner of the modern electrocardiogram machine, called his creation an electrokardiogram, which is why the test is sometimes called an EKG.

## **Electrophysiologic study (EPS)**

Testing to investigate abnormal heart rhythms. In an EPS, a catheter is inserted into a vein into the heart. A device inside the catheter records the heart's electrical activity.

## **Enlarged heart**

A condition in which the heart is larger than normal. It may be inherited or caused by long-term heavy physical activity, or disorder such as obesity, high blood pressure or heart disease.

## **Exercise electrocardiogram (exercise ECG or EKG)**

A medical test that records the heart's response to exercise. In an exercise ECG, the electrical activity of the heart, as well as blood pressure and heart rate, are monitored while the patient exercises, usually by walking on a treadmill or riding an exercise bike.

## **Fibrillation**

The rapid, uncoordinated contraction of individual fibres in the heart muscle. Fibrillation can occur in the heart's upper chambers (atrial fibrillation) or lower chambers (ventricular fibrillation). When the atria or ventricles fibrillate, they quiver and are unable to contract powerfully enough to pump blood effectively.

## **Heart assist device**

A mechanical device used to help a failing heart pump blood.

## **Heart attack**

A heart attack (myocardial infarction) occurs when the blood supply to the heart muscle is interrupted. If blood flow is not restored quickly, the area of the heart muscle normally fed by the blocked artery is permanently damaged.

## **Heart murmur**

A clicking or murmuring sound caused by turbulent or abnormal flow of blood through the heart. Most heart murmurs are not dangerous, but some may indicate a problem that requires treatment. Murmurs can be caused by problems with the opening or closing of valves or a by structural problems such as a hole

in one of the walls of the heart.

## **Homocysteine**

An amino acid found in the blood. Elevated homocysteine levels have been associated with an increased risk of heart disease, stroke and peripheral vascular disease.

## **Hypertension**

A medical condition in which blood pressure is consistently above the normal range (high blood pressure).

## **Ischemic heart disease**

Decreased blood flow to the heart muscle, due to a blockage in or narrowing of one or more of the heart's arteries.

## **Lipoproteins**

Fat molecules covered with a protein coating. The protein covering makes it possible for the fat to circulate in blood. There are many types of lipoproteins but the two most commonly talked about are low-density lipoprotein (LDL), also known as "bad" cholesterol and high-density lipoprotein (HDL), also known as "good" cholesterol.

## **Microvascular heart disease**

Plaque buildup that affects the smaller vessels that branch off the main coronary arteries.

## **Minimally invasive heart surgery**

Surgical repairs to the heart performed through small incisions in the chest wall. This type of surgery eliminates the need to cut through the breastbone, which occurs in open-heart surgery, and therefore, reduces recovery time.

## **Mitral valve**

The mitral valve separates the upper left chamber of the heart (the left atrium) from the lower left chamber (the left ventricle). The valve has two leaflets or flaps.

## **Nicotinic acid**

Nicotinic acid (niacin) is a member of the B group of vitamins, which has been shown to help lower cholesterol levels.

## **Nitrates**

A group of medications used to treat or prevent chest pain (angina). Nitrates may also be used to treat heart attack or congestive heart failure. They relax the arteries, allowing more blood to flow to the heart.

## **Nitroglycerine**

A medication used to treat or prevent chest pain (angina) by relaxing coronary arteries and allowing

more blood to flow to the heart muscle.

### **Open-heart surgery**

Any operation in which the chest is opened and a heart-lung machine is used to support the patient while surgeons repair a heart abnormality. Open-heart surgery is used for coronary artery bypass graft (CABG) surgery, to repair congenital defects and replace or repair heart valves.

### **Pacemaker**

The heart's natural pacemaker is the sinoatrial node, a group of cells in the upper right chamber (atrium) of the heart. These cells keep the heart muscle pumping in a regular rhythm by sending electrical messages through the atrioventricular node to the lower pumping chambers of the heart (the ventricles). An artificial pacemaker is a small, battery-operated device that uses a small electric charge to help the heart beat in a normal rhythm. Some artificial pacemakers are permanent (internal) and some are temporary (external).

### **Palpitations**

Rapid or throbbing sensations in the chest caused by fluttering or irregular beating of the heart.

### **Percutaneous Coronary Intervention (PCI) (angioplasty with stent)**

A non-surgical procedure that uses a catheter (a thin flexible tube) to place a small structure called a stent to open up blood vessels in the heart that have been narrowed by plaque buildup, a condition known as atherosclerosis.

### **Pericardium**

The sac or membrane that surrounds the heart.

### **Peripheral arterial disease (PAD)**

Narrowing of the peripheral arteries, the blood vessels that carry blood from the heart to the arms and legs.

### **Plaque**

Plaque refers to cholesterol and other materials that build up on the inside of blood vessel walls.

### **Platelets**

Cells produced in the bone marrow and control bleeding by causing the blood to clot.

### **Polyunsaturated fat**

A type of fat found in vegetable oils and margarines that doesn't appear to raise blood cholesterol levels. Sources include safflower, sunflower, corn, soybean and sesame oils, walnuts, pine nuts and fish.

### **Pulmonary valve**

The heart valve located between the right ventricle and the pulmonary artery that controls blood flow to the lungs.

### **Regurgitation**

Blood flow in the opposite direction from normal, such as the backward flowing of blood into the heart through a damaged heart valve.

### **Restenosis**

Re-closing or re-narrowing of a blood vessel after it has been opened by a cardiac procedure such as angioplasty.

### **Revascularization**

Procedures to open up blocked blood vessels to improve blood flow to the heart. Coronary artery bypass surgery and angioplasty are two types of revascularization techniques.

### **Saturated fat**

Fats that are usually solid at room temperature. Mainly found in foods that come from animals, saturated fats increase blood cholesterol.

### **Septum**

The thick, muscular wall dividing the heart's right and left sides.

### **Silent ischemia**

A blockage of the blood supply to the heart muscle without pain or other symptoms.

### **Sinus node**

Located in the right upper chamber of the heart (the right atrium), it is the heart's natural pacemaker, generating the electrical signal that triggers the heart's chambers to contract and pump blood.

### **Statins**

A class or type of cholesterol-lowering medication that lowers LDL cholesterol levels by restricting the body's ability to make cholesterol. Statins may also lower levels of other blood fats called triglycerides.

### **Stenosis**

The narrowing or constriction of a blood vessel or valve in the heart due to a buildup of plaque on artery walls.

### **Stent**

An expandable, metal mesh tube used to hold a blood vessel open. Stents are commonly put in place during Percutaneous Coronary Intervention (PCI) also known as balloon angioplasty.

## **Stroke**

An interruption or blockage of blood flow to the brain. This can occur if a blood clot gets stuck in a vessel (ischemic stroke), or when a blood vessel bursts (hemorrhagic stroke). In both types of stroke, the brain is deprived of the oxygen and nutrients in the blood. If blood flow is not restored quickly, brain cells in the affected area die. The effects of a stroke depend on how much of the brain is damaged and where the damage occurred.

## **Syncope**

The medical term for fainting or loss of consciousness.

## **Tachycardia**

Abnormally fast heart rhythm.

## **Tissue plasminogen activator (tPA)**

Tissue plasminogen activator (tPA) is a medication given to heart attack or ischemic stroke patients to dissolve blood clots.

## **Tomography**

A test using computers and X-rays to view parts of the body after the injection of a dye.

## **Trans fatty acids**

A fat produced when oil is turned into solid fat through a chemical process called hydrogenation. Trans fats raise blood cholesterol and increase the risk of heart disease and stroke.

## **Transesophageal echocardiography (TEE)**

A diagnostic test using an ultrasound device that is passed into the esophagus to create a clear image of the heart muscle and other parts of the heart. A tube with a device called a transducer directs ultrasound waves into the heart and translates them into a clear image.

## **Transient ischemic attack (TIA)**

A transient ischemic attack (TIA) or “mini-stroke” is caused by a temporary blockage in a blood vessel supplying the brain.

## **Tricuspid valve**

The tricuspid valve separates the heart’s right upper chamber (atrium) from the right lower chamber (ventricle). This heart valve has three leaflets or flaps. As the valve opens and closes, it controls the flow of blood between the two chambers.

## **Triglycerides**

Fat-like substances that are carried through the bloodstream to the tissues. Much of the body’s fat is

stored in the form of triglycerides for later use as energy.

## **Unsaturated fat**

Fat that is liquid at room temperature. Vegetable oils are unsaturated fats. Unsaturated fats include polyunsaturated fats, and monounsaturated fats. They include most nuts, olives, avocados, and cold-water fish like salmon.

## **Vein**

A blood vessel that carries oxygen-poor blood from various parts of the body back to the heart.

## **Ventricles**

The two lower chambers of the heart. The ventricles pump blood from the heart to other parts of the body. The right ventricle pumps blood to the lungs to pick up oxygen, while the left ventricle pumps blood to the rest of the body.

## **Waist circumference**

The distance or measurement around the waist. A man’s risk of cardiovascular disease increases when his waist measures more than 102 cm (40 inches). A woman’s risk increases when her waist measures more than 88 cm (35 inches).

## **X-ray**

A diagnostic test that uses invisible electromagnetic energy beams to produce images of internal tissues, bones, and organs onto film.

# 11. Evaluation form

Please take a few minutes to complete and return this evaluation. Based on your feedback, the Heart and Stroke Foundation is able to improve this booklet to help people who have experienced heart disease manage their conditions and improve their quality of life. We appreciate your honest responses. All responses are strictly confidential. Describe what you are doing to improve your heart health.

## 1. Where did you receive this copy of *Recovery Road*?

- In the hospital                       Rehabilitation clinic                       Family physician office  
 From the Heart and Stroke Foundation                       Other, please specify \_\_\_\_\_

## 2. Who gave you this copy of *Recovery Road*?

- Local Heart and Stroke Foundation office                       Physician in hospital (cardiologist, internist)  
 Family physician                       Nurse                       Social worker                       Ordered yourself  
 Other, please specify \_\_\_\_\_

## 3. Did you receive this booklet at a time when it was most helpful to you?

- Yes                       No  
 If no, when would it have been more useful to receive *Recovery Road*? \_\_\_\_\_

## 4. Please indicate how you found the information in *Recovery Road* to be overall.

	Very Good	Good	Fair	Poor	Very Poor
a. How well did the specific concerns discussed in this booklet match the concerns that you or your loved one had about heart disease?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Overall, how would you rate the information provided in this booklet?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Please rate how each of the following aspects of this booklet met your needs.					
The resource over all	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Organization of the information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Diagrams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ease of use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Language (how easy it was to read and understand)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The ratio between words and pictures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Front cover design	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



## 5. How do you rate the following sections in this booklet?

	Very Good	Good	Fair	Poor	Very Poor
1. Understanding heart disease	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.1 Types of heart disease	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Treating heart disease	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.1 Diagnostic tests	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.2 Surgery and other procedures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Understanding the causes of heart disease	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Optimizing your heart health	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Preparing for an emergency	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Returning home	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Getting the most from your meds	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. My heart diary	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Glossary	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## 6. Would you recommend this booklet to other people that have experienced heart disease?

Yes     No    If no, please explain \_\_\_\_\_.

## 7. What topics would you like covered in this booklet in more detail?

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

## 8. If you could change something about this booklet, what would it be?

\_\_\_\_\_

## 9. What other languages would you prefer this booklet to be in, if any?

\_\_\_\_\_

## 10. Demographic Information (for statistical purposes only)

Gender:     Male     Female

### To which of the following age groups do you belong?

- under the age of 35             35-44 years of age             45-54 years of age  
 55-64 years of age             65-74 years of age             75 and over

**Thank you very much for taking the time to fill out this evaluation. Please send your completed form to:**

**Heart and Stroke Foundation, ATTN: Health Information Services,  
2300 Yonge Street, Suite 1300, P.O. Box 2414, Toronto, ON, M4P 1E4.**

## Heart attack warning signals

Thousands of Canadians die from heart attacks every year because they don't get medical treatment quickly enough. Learn to recognize the signals of a heart attack, so you can react quickly – and save a life.

### Pain

- sudden discomfort or pain that does not go away with rest
- pain that may be in the chest, neck, jaw, shoulder, arms or back
- pain that may feel like burning, squeezing, heaviness, tightness or pressure
- in women, pain may be more vague
- chest pain or discomfort that is brought on with exertion and goes away with rest
- shortness of breath, difficulty breathing

### Nausea

- indigestion
- vomiting

### Sweating

- cool, clammy skin

### Fear

- anxiety
- denial

### If you are experiencing any of these signals, you should:

- CALL 9-1-1 or your local emergency number immediately, or have someone call for you. Keep a list of emergency numbers near the phone at all times.
- Stop all activity and sit or lie down, in whatever position is most comfortable.
- If you take nitroglycerin, take your normal dosage.
- If you are experiencing chest pain, chew and swallow one adult 325 mg ASA tablet (acetylsalicylic acid, commonly referred to as Aspirin®) or two 80 mg tablets. Pain medicines such as acetaminophen (e.g. Tylenol) or ibuprofen (e.g. Advil®) do not work the same way as ASA (i.e. Aspirin®) and therefore will not help in the emergency situation described above.

**Learn more at [heartandstroke.ca](http://heartandstroke.ca)**

# Recovery Road



**HEART &  
STROKE  
FOUNDATION**

*Finding answers. For life.*

## **Thanks to the millions of Canadians who put their hearts into supporting our vital work.**

Because of you, the Foundation has helped reduce the mortality rate from heart disease and stroke by 70% over the past 50 years. Sadly, still one in three Canadians deaths are due to heart disease and stroke every year – and millions remain at risk.

More answers are needed to facilitate further medical advances, effect social change and provide public and professional health education that save lives – today and for generations to come.

The Heart and Stroke Foundation Web site offers a wealth of information and tools to help you and your family prevent and manage heart disease and stroke. Find:

- Delicious heart-healthy recipes
- Tips to get and stay active for life
- Current heart disease and stroke patient information
- Breaking news on Foundation funded research
- Free newsletters, Heart&Stroke He@lthline and He@lthline for Parents
- How to get involved and make a difference in your community

**SEE WHAT HAPPENS WHEN YOU PUT YOUR HEART INTO IT™**

**[www.heartandstroke.ca](http://www.heartandstroke.ca)**

or call

**1-888-HSF-INFO  
(1-888-473-4636)**

Supported by



***Working for a healthier world™***

The Heart and Stroke Foundation thanks Pfizer Canada for providing the funds to make the development of this resource possible.

This booklet has been independently researched, written and reviewed by the Heart and Stroke Foundation and is based on scientific evidence. Acceptance of financial support by the Heart and Stroke Foundation does not constitute an endorsement.

™Pfizer Inc., used under license

HP6205E  
V2.0