

# Living Well with Heart Failure

## What you need to know *by heart*



**The Heart Function Centre**

Centre universitaire  
de santé McGill



McGill University  
Health Centre

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## Introduction

**H**eat failure is a major disease in Canada. Half a million Canadians have it. You can live well with heart failure by knowing how to manage your symptoms. The information in this booklet will tell you and your family how to live with this condition and help you stay out of the hospital.



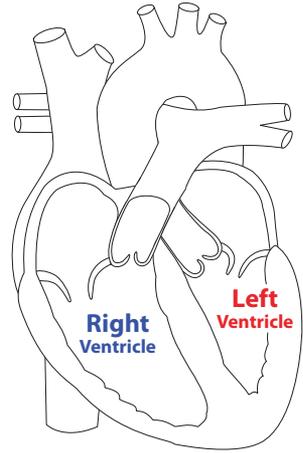
This booklet will also discuss heart failure pills and other treatments like devices that are put into the heart. This booklet does not replace regular medical care; you will still need to have regular follow up appointments.

## What is Heart Failure?

The term “heart failure” does not mean that your heart has stopped working. It means that your heart is weak and cannot pump the right amount of blood to the rest of your body. Think of a car. In order for a car to run well the engine needs to pump oil to the rest of the car parts. For your body to work well, your heart needs to pump blood to the other parts of your body. If something goes wrong with the heart then the right amount of blood cannot get to the rest of your body. This is what happens in heart failure. To understand heart failure, you need to know the basics of how the heart works.

# The Heart: A Blood Pump

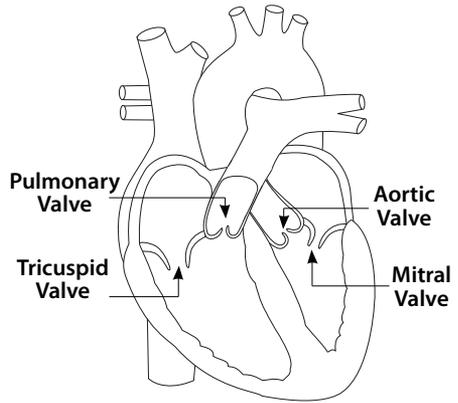
- Your heart is a muscle that sits between your lungs to the left of the breastbone. It is about the size of your fist. The main job of the heart is to pump blood to the rest of the body. Blood is made up of about 80% water and carries oxygen and vitamins from the food you eat to all parts of your body. Blood travels through your body by blood vessels called veins and arteries.



- The heart is made up of two pumps that act as one. The pump on the right side is called the right ventricle and the pump on the left side is called the left ventricle. These two pumps contract together to produce a heartbeat. Before each heartbeat, the right ventricle fills up with blood coming from the body. This blood is low in oxygen. The right ventricle then pumps this oxygen poor blood to the lungs. In the lungs, the blood becomes oxygen rich. This blood then moves to the left ventricle where it is pushed out to the rest of your body.
- The left ventricle is the main blood pump of the heart. It needs to be a bit stronger than the right ventricle since it must have enough power to move all the blood coming from the right side of the heart to the entire body. If the left ventricle does not work well, your body will not get the right amount of blood. This will lead to lower blood pressure and less blood flow.

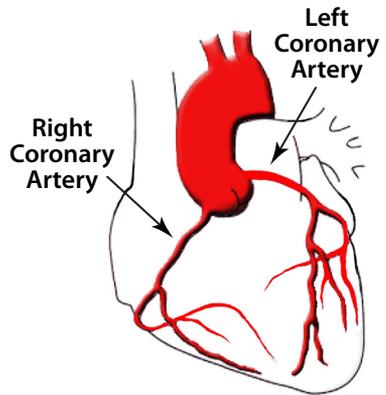
# Heart Circulation: The Four Valves

The blood flow of the heart is in one direction—from right to left. Four valves control the flow of blood. Their job is to prevent blood from backing up into the lungs, liver, stomach, and legs. They are like doors opening to let blood in and closing to keep blood from backing up. If the valves do not open and close as they should then blood will start to back up. This can make you feel short of breath and cause stomach and leg swelling.



# The Coronary Arteries: The Heart Pipes

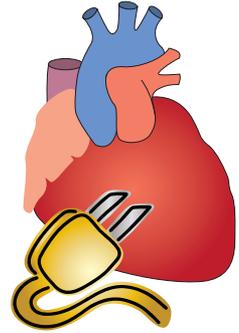
Your heart needs blood rich in oxygen in order to survive. Blood is supplied to the heart by blood vessels called coronary arteries, which feed the entire heart muscle.



Think of these arteries as the pipes of the heart. If you have clogged heart arteries due to fat build up, the blood will not flow well. Your heart will be starving for oxygen-rich blood. You may get chest pains, shortness of breath and get tired easily. Your heart will have to work harder and beat faster in order to get the right amount of blood to the heart muscle. This will stress the heart muscle and make it weak.

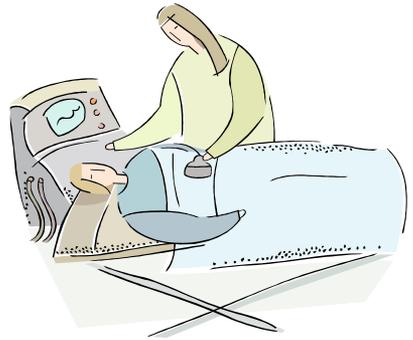
# The Heart's Electricity Cells

The heart has electrical cells that make the heart beat and pump blood. During a normal heartbeat, an electrical signal will tell the rest of the heart cells when to beat. These electrical cells also help both sides of the heart beat in a coordinated way. Sometimes an electrical “short circuit” can cause irregular heart rhythms. This is more likely to happen when you have heart failure. Your heart may skip beats or it may beat too quickly or too slowly. This will make it harder for your heart to pump oxygen rich blood to your body. You may feel like your heart is pounding or skipping beats.



# The Ejection Fraction

An ultrasound of the heart called an echocardiogram measures how strong your heart is by a percentage called the ejection fraction or EF. The EF shows how well your left ventricle is pumping. Remember that the left ventricle is the main blood pump of the heart. A strong heart pumps out 50-60% of blood every time it beats. An EF less than 40% means that your heart is weak and that you have heart failure. You can also have a normal EF and have heart failure. This means that your left ventricle is pumping well but there are problems with the way that your heart fills up with blood.



## What Happens in Heart Failure?

When your heart becomes weak for any reason it pumps out less blood and your blood pressure will be low. The body tries to fix this by releasing special hormones. These hormones temporarily help to improve your heart function. This is why you can have heart failure for a long time without having any symptoms. Over time, these hormones have a bad effect on your heart.

The hormones cause a fast heart rate, narrowing of the blood vessels, and salt and water retention.

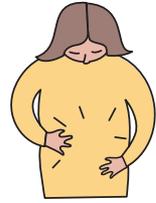
- The fast heart rate will overwork your heart.
- Narrow blood vessels will make it harder for blood to get through. Think of a hose and a straw. It would be easier for blood to flow through a blood vessel as wide as a hose than a blood vessel as narrow as a straw.
- Your kidneys will save salt and water. This will cause fluid build up and make it harder for your heart to pump well. This fluid build-up can also cause high blood pressure.
- All of these events will overwork your heart. It will lose its small, fist shape and get bigger. This will make it harder for your heart to pump well because it is harder to get fluid out from something big than something that is small. Imagine trying to wring water out of a bath towel. It would be a lot easier to get water out of something smaller like a facecloth!



# Signs and Symptoms of Heart Failure

*The main signs and symptoms are:*

- **Weight gain:** A sudden weight gain (3 lbs or 1 kilogram in three days or 5 lbs or 2 kg in 1 week) is an early sign that there is fluid building up.



- **Trouble breathing:** Shortness of breath is a sign that fluid is building up inside or around your lungs.



- **Nighttime shortness of breath:** You may notice that you need more pillows to help you breathe better. You may also find that you need to sleep in a sitting position.

- **Swelling in your feet, ankles, legs, and stomach:** Fluid is building up in the tissues of your body.



- **Lack of energy:** This is caused by low blood flow to the rest of the body.

## Causes of Heart Failure

**Blocked heart arteries:** Hardened fat builds up in the heart and clogs the coronary arteries. The arteries become narrow. Remember that these are the heart's pipes. Any blockage will cause less blood flow to the heart muscle. This can lead to heart attacks, which will damage the heart muscle.

**High blood pressure:** Blood pressure is the force of blood pushing against the walls of the arteries. A blood pressure of 140/90 or more stiffens the blood vessels and makes the heart muscle work harder. High blood pressure can also damage your eyes and kidneys and cause a stroke.

**Diabetes:** Diabetes is when there is too much sugar in the blood. Too much sugar in the blood can damage your heart blood vessels by causing them to thicken. This makes it difficult for blood to get through and can lead to heart attacks. High blood sugar levels can also damage all other blood vessels of your body. This can lead to a stroke, blindness, kidney failure, and poor blood circulation in the legs.

**Drugs and alcohol:** Drugs and alcohol can damage the heart cells because they are toxic. This causes the heart muscle to become weak.

**Leaky heart valves:** Leaky heart valves can cause blood to back up. Remember that the heart valves are the doors to the heart. If they don't close when they are supposed to, then blood will back up.

**Heart infection:** Viruses like the flu or pneumonia can infect the heart muscle and cause heart failure.

**Family history of heart problems:** You are more likely to get heart disease if it runs in your family.

# The Top Ten Things You Can Do to Prevent Heart Failure Symptoms

## 1 Take Your Heart Pills

Your heart pills are very important. These pills are described later in this booklet under the section called *Heart Pills: What They Do For Your Heart*.



- Your pills will help to block the hormones that damaged your heart.
- Your pills will give your heart a rest by slowing down your heart rate.
- Your pills will make your heart stronger by getting your big heart back into a smaller shape.
- Your pills will help get rid of the extra fluid that is causing fluid build up.
- Your pills will help the heart pump better. This will help with symptoms such as swelling and shortness of breath.
- Always take your pills even if you are feeling well.
- Always carry a list of your pills with you.
- Make sure that you never run out of pills.
- Check with your pharmacist or heart doctor (cardiologist) before using cortisone, herbal or natural products, antacids, or non-steroidal anti-inflammatory drugs such as Ibuprofen, Indomethacin, Naproxen, Celecoxib and cold medicines that contain pseudoephedrine. All of these can worsen your symptoms.
- Avoid taking grapefruit juice with your heart pills. Grapefruit juice can affect your body's ability to absorb the pills.

## 2 Weigh Yourself Everyday

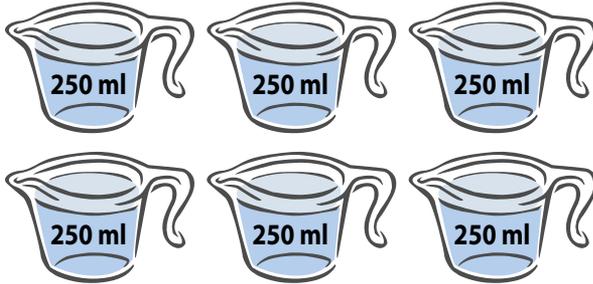
One of the earliest symptoms in heart failure is a sudden weight gain. This means that fluid is building up. You need to weigh yourself everyday to prevent this symptom from getting worse.

- Buy a digital scale with big numbers. A digital scale is more accurate than a needle scale.
- The best time to weigh yourself is in the morning as soon as you get up. First, go to the bathroom and empty your bladder. Then, wearing no clothes (if possible), step on the scale.
- Call your nurse if you gain more than 3 lbs (1 kg) over three days or 5 lbs (2 kg) in one week.
- Record your daily weight in the weight log at the end of this booklet. If you are having any heart failure symptoms write them down. Bring your booklet to your clinic visits.



### 3 Limit Your Fluid Intake

You should not drink more than 6 measuring cups (1500 ml) of fluid per day. If you drink more than this, you risk fluid build up.



#### *Fluids include:*

- Water
- Coffee
- Tea
- Juice
- Milk
- Soft drinks
- Soup
- Ice cream
- Jell-o
- Popsicles
- Sauces
- Meal supplements such as Boost and Ensure

## 4 Limit Your Sodium Intake

Sodium is part of salt and causes fluid to build up because it draws extra water into the body. You should not have more than 2000 milligrams (mg) of sodium per day. This is about ½ teaspoon.

*Here are a few tips to cut back on your sodium intake:*

- Avoid processed and canned foods.
- Avoid using salt when you are cooking.
- Take the salt shaker off your table.
- Learn to read food labels. Look out for foods that contain the word sodium.
- If you cannot pronounce the ingredients on the label, think twice about buying the product.
- Use herbs such as garlic, pepper and lemon juice to add flavour to your foods.
- Limit the use of Worcestershire sauce, steak sauce or ketchup.
- Avoid soy sauce.
- Avoid salt substitutes. Many of them contain potassium. Too much potassium is bad for the heart because it can cause a dangerous heart rhythm.
- Avoid eating out at restaurants. Restaurant food has too much salt.



## 5 Eat Healthy

Making good food choices will help you keep a healthy weight. Here are a few general tips but you will need to see our dietitian to help you plan a diet that is best for you. You can also get a free copy of Canada's Food Guide at the Health Canada website:

[www.healthcanada.gc.ca/foodguide](http://www.healthcanada.gc.ca/foodguide) or call: 1-866-225-0709.



- Eat less red meat and more fish and poultry.
- Increase the amount of fibre in your diet by eating foods such as whole grain breads, legumes, fruits, and vegetables.

## 6 Stop Smoking

Smoking is bad for you. The tar in cigarettes narrows the heart arteries. Your heart has to work harder to pump blood. Smoking can lead to a heart attack, stroke, emphysema, and lung cancer.



- The MUHC has a stop smoking program. For more information please call 514-934-1934 Ext. 32503.
- The Canadian Cancer Society can refer you to the Stop Smoking Centers in your area. This bilingual service is free. Please call 1-866-527-7383.

## 7 Reduce Alcohol Drinking

You need to stop or reduce your intake of alcohol. Alcohol can damage your heart cells and other organs like the liver. You may need support to stop drinking alcohol.

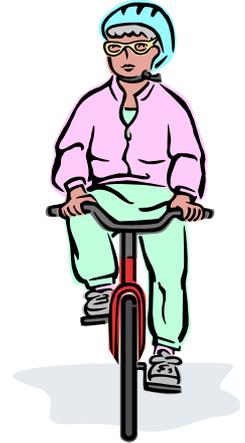


- The Montreal General Hospital has an outpatient program. Please call 514-934-8311. This program is only offered in English. For French services call St. Luc Hospital at 514-890-8321.
- You can also call Alcoholics Anonymous at 514-376-9230.

## 8 Exercise

Exercise makes you feel better. Remember that your heart is a muscle and it needs exercise. Exercise helps the heart become stronger. It can also be a great stress buster!

- You should exercise at least 30 minutes per day. Walking, swimming, and biking are good ways to exercise. Start gradually and choose an activity that you enjoy. For example, start walking for 10 minutes per day and build up to 30 minutes.
- Avoid exercising if the weather is too hot or too cold.



### **STOP exercising if you:**

- Feel short of breath;
- Have any chest pressure or chest pains;
- Feel dizzy;
- Have trouble exercising and talking at the same time. This means that you are doing too much.

## 9 Take Care of Your Teeth

Visit your dentist regularly. You need to take good care of your teeth to prevent cavities and gum disease.



- Gum disease can cause infections in the blood. Blood infections can spread to your heart valves.
- Tell your dentist that you have heart failure.
- Tell your dentist if you have metallic heart valves or if you were born with heart problems.

## 10 Get Vaccinated

The flu and lung infections like pneumonia can make your heart weaker and worsen your symptoms. Protect your heart!



- Get your flu shot each year in the fall.
- You may need a pneumonia shot. Ask your family doctor if you need one.
- You can go to your local CLSC for these shots.

## General Tips

### Sexual Activity

You can still have a good sex life but you may need to slow it down a bit. Here are some tips.



- Restart sexual activity gradually.
- Talk to your partner.
- Pick a quiet time when you are not stressed.
- Avoid having sex after a meal.
- Avoid positions where you need to support your weight with your arms.

### Travel

You can travel if your heart condition has been stable for at least 6 months. This means that you have not been hospitalized nor have had any heart medication changes. You also need to check with your insurance company before making travel plans. If you don't have any travel insurance, it is a good idea to get some.



Here are a few other travel tips:

- Make sure that you get the proper vaccinations. Call your local CLSC traveller's clinic.
- Drink bottled water.
- Bring a list of the pills that you are taking and a copy of your health record.
- Bring enough pills with you.

# Heart Failure Treatment

*Heart failure treatment is generally a combination of:*

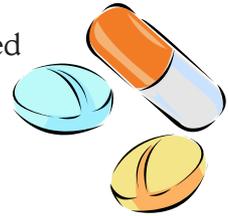
- Heart pills
- Devices that are put into the heart
- Surgery

*The goals of heart failure therapy are:*

- To treat the cause: for example, blocked heart arteries can be unblocked with a simple procedure where a heart specialist puts in metal springs that keeps the arteries open. Heart surgeons can also bypass blocked arteries and fix leaky heart valves to make the heart stronger.
- To improve symptoms.
- To make your quality of life better by keeping you out of the hospital.
- To make you live longer.

# Heart Pills: What They Do for Your Heart

Below is a list of the most common pills prescribed for heart failure. You may be on all or some of these pills. Your heart doctor (cardiologist) will decide what combination of pills is best for you.



There are side effects to the heart pills but this does not mean that you will have them. Some of these pills can affect your other organs such as the kidneys, liver, thyroid gland, and lungs. Blood tests will be done at every visit.

## Diuretics (also known as water pills)

- Furosemide (Lasix)
- Metolazone (Zaroxilyn)
- Aldactone ( Spironolactone)
- Hydrochlorthiazide (Hydrodiuril)



### *What They Do:*

- Help the kidneys get rid of extra water and salt in your body by making you urinate more often.
- Prevent fluid build up.
- Improve symptoms such as leg swelling, stomach bloating and shortness of breath.

### *Main side effects:*

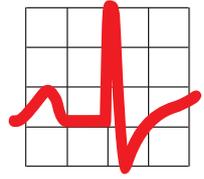
- Can weaken the kidneys over time.
- Can cause low potassium levels. You may need to take potassium pills.
- Aldactone can cause high potassium levels. Bloods tests to check the potassium level will be done at each visit.
- Diuretics can cause gout due to a build up of uric acid in the joints. You may need to take anti-gout pills.

## Anti-Arrhythmics

- Amiodarone (Cordarone)

### *What They Do:*

- Used when the heart rate is too fast or irregular.
- Help to make your heart beat in a regular and coordinated way.



### *Main Side Effects:*

- Dizziness.
- Weakness.
- Can cause problems with the thyroid gland, lungs and liver. You will get blood tests to check your thyroid gland and liver at every visit. You will also need special lung tests.
- Blurred vision. If you get this symptom you will be referred to an eye specialist.
- Can cause a bluish discoloration to the skin. Be careful in the sun and wear sunscreen at all times.

## Digitalis

- Digoxin (Toloxin)

### *What it does:*

- Helps your heart to pump better.

### *Main Side Effects:*

- Low pulse.
- Nausea and vomiting.
- Yellow halos around objects. If this happens you need to inform your doctor or nurse.



## Statins

- Pravastatin (Pravachol)
- Atorvastatin (Lipitor)
- Simvastatin (Zocor)
- Rosuvastatin (Crestor)

### *What They Do:*

- Lower cholesterol

### *Main Side Effects:*

- Can make the liver work too hard.
- Muscle pains.

## Cholesterol



## Beta Blockers

- Carvedilol (Coreg)
- Metoprolol (Lopressor)
- Bisoprolol (Monacor)



### *What They Do:*

- Keep the heart from working so hard by slowing down your heart rate.
- Give your heart a chance to rest and recover.

### *Main Side Effects:*

- Dizziness: Be careful when getting up from a lying or sitting position.
- Fatigue: Beta-blockers may cause fatigue at the beginning but this symptom usually improves over time. You need to give yourself a bit of time to get used to this pill.
- If you are a man, you may have problems getting or maintaining an erection.

## Angiotensin converting enzyme (ACE) inhibitors

- Captopril (Capoten)
- Enalapril (Vasotec)
- Lisinopril (Prinivil, Zestril)
- Quinapril (Accupril)
- Ramipril (Altace)
- Perindopril (Coversyl)
- Fosinopril (Monopril)
- Trandolapril (Mavik)



### *What They Do:*

- Block the hormones that harm the heart.
- Widen your blood vessels. This makes it easier for blood to flow through the arteries.
- Lower blood pressure.
- Slow down the process of heart failure.
- Make the kidneys work better.

### *Main Side Effects:*

- Dry cough.
- Dizziness.
- Can increase kidney and potassium levels.
- Can cause a bad rash or swelling of the face.

## Angiotensin Receptor Blockers (ARBs)

- Losartan (Cozaar)
- Valsartan (Diovan)
- Candesartan (Atacand)
- Irbesartan (Avapro)



### *What They Do:*

- Same actions as ACE inhibitors.

### *Main Side Effects:*

- Same as ACE inhibitors but no cough.

# Implantable Devices in Heart Failure

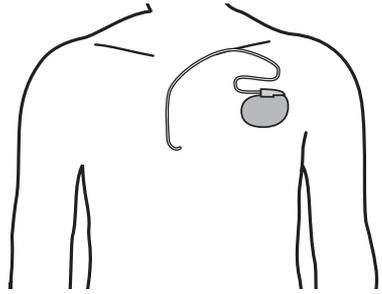
These devices are put into the heart. They are used when there are problems with the heart's electrical system. Your heart doctor will tell you which device is best for you.



- The devices are used to correct heart rhythms that are too fast, too slow or irregular.
- The devices include pacemakers, defibrillators, resynchronization therapy or a combination of devices.
- The devices are implanted on an outpatient basis using local anaesthesia.
- The devices are small and weigh a few ounces. They contain a battery and a small computer that gives signals to the heart.
- Regular follow-up appointments at the pacemaker clinic are needed to check the devices.
- You still need to take your heart pills even if you have an implantable device.
- You may or may not need one or more of these devices. Your heart doctor will tell you if you need them.

## Pacemaker

- This device is used mainly when the heart beats too slowly.
- A pacemaker monitors your heart rate. If your heart rate is too slow, then the pacemaker will send painless electrical signals that will make your heart beat at a normal rate.



## Implantable Cardioverter Defibrillator (ICD)

- This device is used mainly to treat very fast heart rates.
- An ICD will send painless electrical signals to your heart that will make it slow down to a normal rate. It may also give off painful shocks if it senses that you are having a dangerous heart rhythm.
- The ICD can also be programmed to be a pacemaker.
- **If you receive one or more shocks, the law states that you cannot drive for 6 months.**

## Cardiac Resynchronization Therapy (CRT) or Biventricular Pacemaker

- This device is used when the right and left pumps of the heart are not beating in a coordinated way. In other words, they are “out of sync”. When this happens, the heart cannot pump the right amount of blood to the rest of the body.
- CRT or a biventricular pacemaker sends signals to both the right and left sides of the heart so that the heart can beat in a coordinated way. By beating “in sync”, the right amount of blood can be pumped to the rest of the body.

## Other Treatments

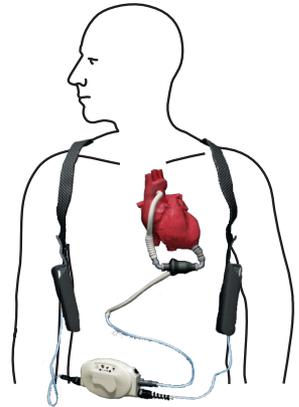
### Research Studies

- You and/or a family member may be asked to be part of a research study. Research means being part of a study that tests new treatments for heart failure.
- The research treatments may or may not work for you but you will be helping to improve health care.
- Your participation in research studies is up to you but it is important to know that your care will not be affected if you choose not to participate. If you do agree to participate you may withdraw at any time.



### Mechanical Heart (Left Ventricular Assist Device)

- This is a pump that is put into the heart by a surgeon. This pump takes over or helps your heart pump blood to the rest of the body.
- Part of the device is inside the heart and the other part is outside the body. The outside part is the controller that powers the mechanical heart.
- The mechanical heart could be used temporarily until you get a heart transplant.
- The mechanical heart can also be permanent if you don't qualify for a heart transplant.



## Heart Transplant

- This is an operation where a very sick heart is replaced with a healthy heart from a deceased donor.
- Heart transplant is indicated when your heart failure symptoms have become so severe that all other treatments have failed.
- Heart transplant is not a cure. After transplant you will still need to take medicines for the rest of your life to prevent rejection. You will also need to have frequent blood tests and medical follow-ups.



## Resources



### My Tool Box:

#### The Building Blocks of Self

- The *My Tool Box* program is a free 6-session workshop offered by the McGill University Health Centre. This workshop helps in developing the skills that are needed to manage the day-to-day challenges of living with a chronic health condition.
- The *My Tool Box* workshop includes topics such as: problem solving, dealing with frustration and fear, fitness and healthy eating, improving strength, and techniques for reducing stress.
- For more information about these workshops, please call 514-934-1934 local 71585 or e-mail [mytoolbox.mni@mcgill.ca](mailto:mytoolbox.mni@mcgill.ca)

#### Heart and Stroke Foundation of Canada (Quebec Division)

- Telephone: 514-871-1551 or 1-800-567-8563
- Internet access: [www.heartandstroke.ca](http://www.heartandstroke.ca)

## Important Names

My heart doctor's name is: \_\_\_\_\_

My nurse's name is: \_\_\_\_\_

# The **10** Key Points to Remember

- 1 Take your heart pills as prescribed.
- 2 Weigh yourself daily to prevent fluid from building up.
- 3 Record your weight in the weight log section in this booklet and bring it with you to every visit.
- 4 Limit your fluid and salt intake.
- 5 Make healthy food choices.
- 6 Stop smoking.
- 7 Exercise.
- 8 Reduce your intake of alcohol.
- 9 Get your flu and pneumonia shots.
- 10 Visit your dentist regularly.



