

Heart Surgery

A GUIDE FOR PATIENTS, FAMILIES
AND CAREGIVERS



London Health Sciences Centre

Heart Surgery

A GUIDE FOR PATIENTS, FAMILIES AND CAREGIVERS

PLEASE READ THIS GUIDE BEFORE YOUR SURGERY

Write down any questions that you may have in the spaces provided.

PLEASE BRING THIS GUIDE WITH YOU FOR YOUR HOSPITAL STAY

Phone Numbers:

London Health Sciences Centre: 519-685-8500

Pre-Admission Clinic: ext. 35422

Cardiac Surgery Inpatient Unit: ext. 32444

Cardiac Surgery Recovery Unit: ext. 36660

Cardiologist: Name _____ ext. _____

Surgeon: Name _____ ext. _____

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Introduction

Having heart surgery can be a significant event in your life which may affect you and your family in many ways.

This book is designed to help you and your family understand what your disease involves, what to expect while you are in the hospital, how to identify and modify your risk factors and possible treatment options.

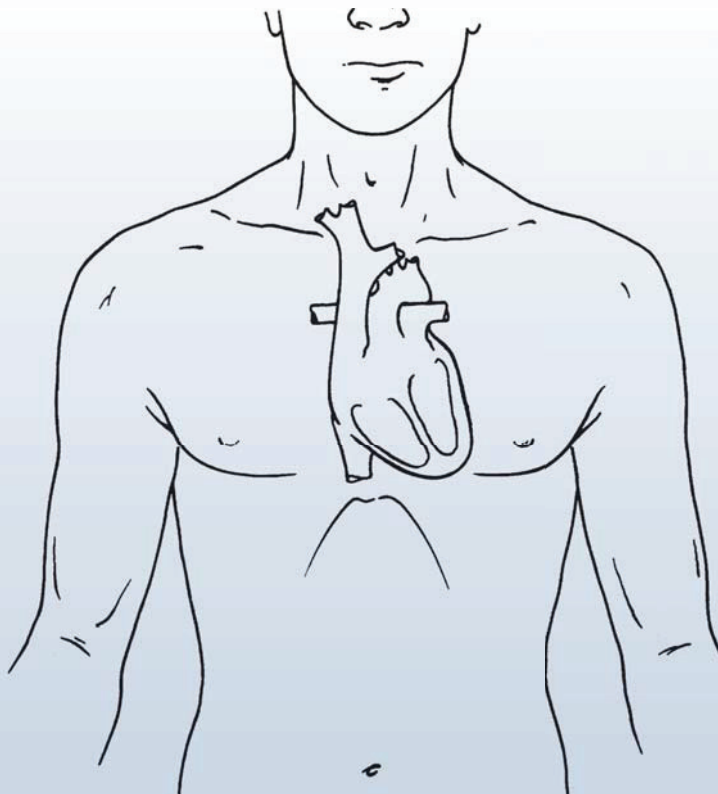
Our goals include, working with you to develop a plan for your recovery, and building towards your healthy heart lifestyle. **To assist us with this please ask us any questions you may have and share your goals and expectations with us.**

Your Heart And How It Works

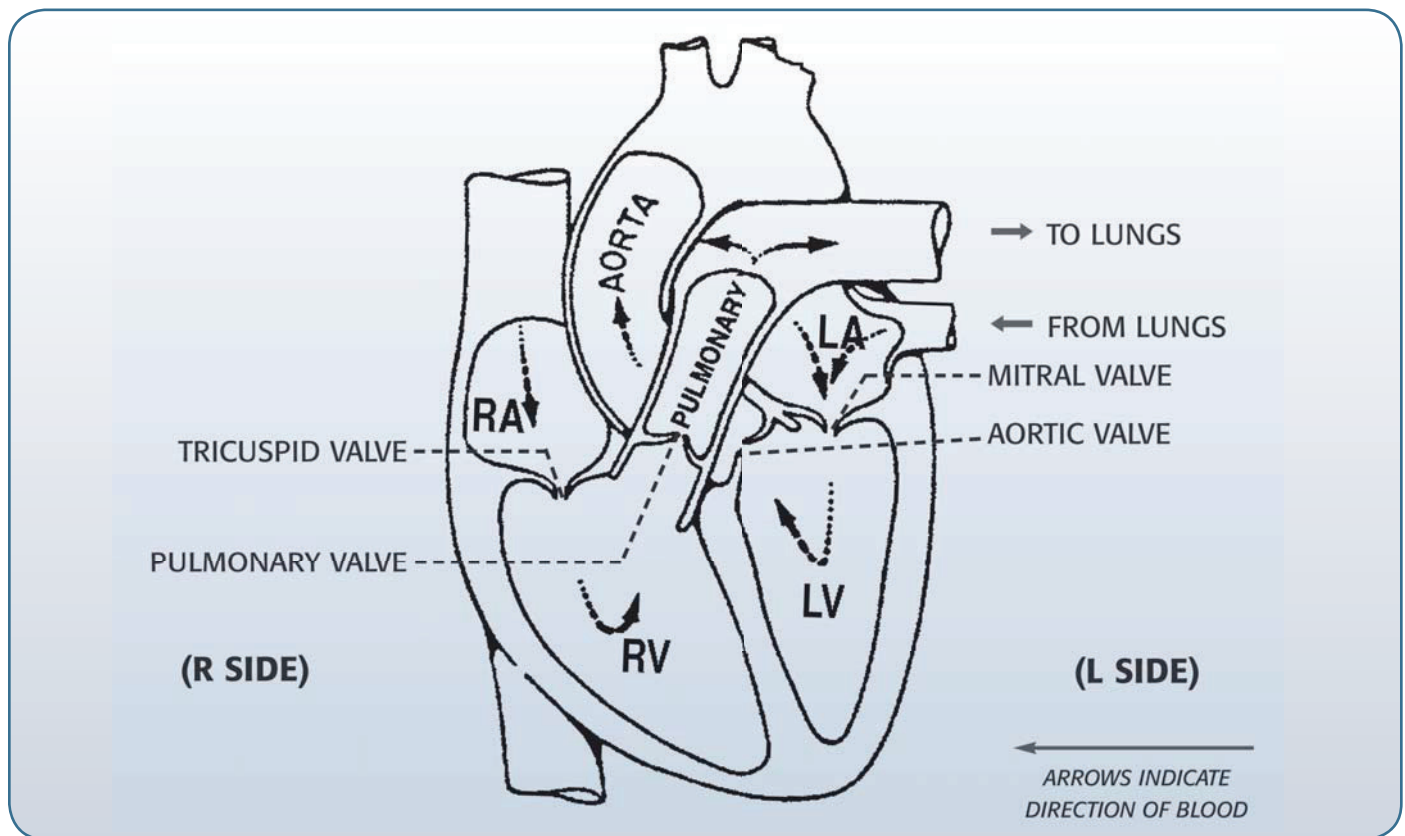
Your heart is located in the centre of your chest just behind your breast bone (sternum). It is a very strong muscle about the size of a fist.

Your heart works as a pump to deliver blood to your body. Normally, your heart beats about 60-90 times a minute. When you are resting your heart beat slows; when you exercise or become stressed it speeds up.

Blood carries the oxygen and nutrients which your body needs. Without enough oxygen and nutrients, you may feel tired or run down, and you may experience shortness of breath or pain.



Circulation Of Blood: The Path It Takes



Your heart has a right and a left side. Each side functions as a pump. The right side receives oxygen poor blood from the body and pumps it to the lungs. The left side receives oxygen rich blood from the lungs and pumps it through the body.

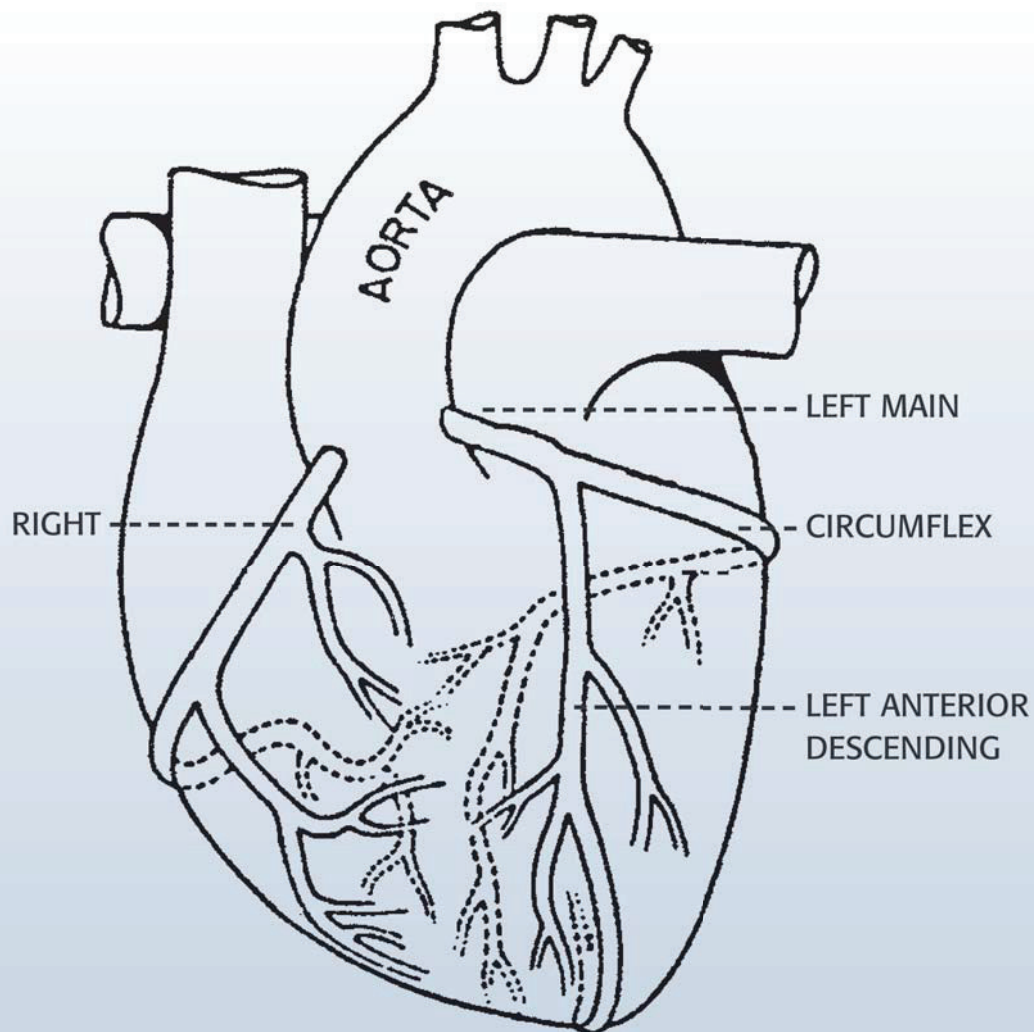
The right side has an upper chamber, the right atrium (RA) and a lower chamber, the right ventricle (RV). Blood which has circulated through the body enters the right atrium and passes through the tricuspid valve to the right ventricle. The right ventricle pumps the blood through the pulmonary valve to the lungs where it will receive oxygen.

The left side has an upper chamber, the left atrium (LA) and a lower chamber, the left ventricle (LV). Oxygen rich blood from the lungs enters the heart in the left atrium and passes through the mitral valve into the left ventricle. The left ventricle pumps the oxygen rich blood through the aortic valve to the aorta which delivers it to the rest of the body.

There are four valves in your heart; the mitral, aortic, tricuspid, and pulmonary valves. These valves ensure that the blood flows in one direction only, by allowing forward flow and preventing back flow of blood through the heart.

Valves may be abnormally formed at birth, or can become damaged later in life due to infections, rheumatic fever, heart attacks, or the normal aging process that causes calcium build up. Any of these conditions can result in failure of the valve to open freely (stenosis) or to close completely (regurgitation or insufficiency). The aortic and mitral valves are most frequently affected.

Coronary Circulation



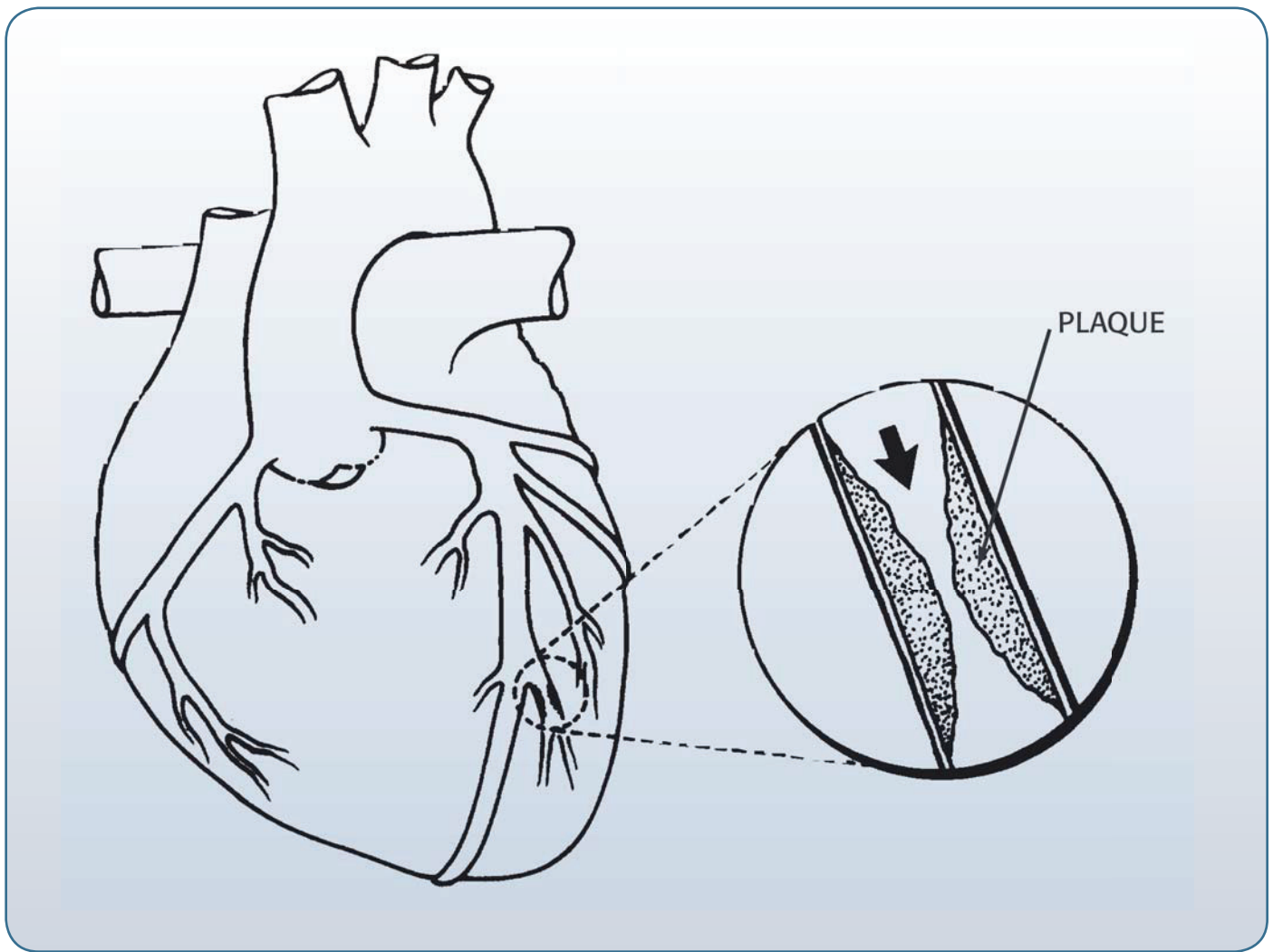
Your heart receives the oxygen and nutrients it needs in the blood from blood vessels called coronary arteries. The coronary arteries run along the outer surface of the heart. There are two main arteries, the left and the right, which originate at the base of the aorta as it leaves the heart.

The left main coronary artery divides into two branches. The left anterior descending artery runs down the front (anterior) surface of the heart and supplies blood to a major portion of the left ventricle. The second branch, the circumflex artery, circles around to the left and feeds the side wall of the heart.

The right coronary artery supplies the right ventricle, branches of the electrical system and the undersurface of the heart.

The internal diameter of the arteries is about the size of a soda straw.

Coronary Artery Disease



The heart must have a steady supply of blood. The supply of blood can be reduced by narrowing of the coronary arteries caused by atherosclerosis, which is the build up of fatty deposits called plaque. This causes narrowing and reduces the blood flow through the artery. In the heart this is known as coronary artery disease (CAD).

The process of atherosclerosis is gradual and occurs over many years. The arteries eventually may become so narrow that the heart is not able to get the oxygen it needs resulting in chest discomfort (angina) and/or shortness of breath.

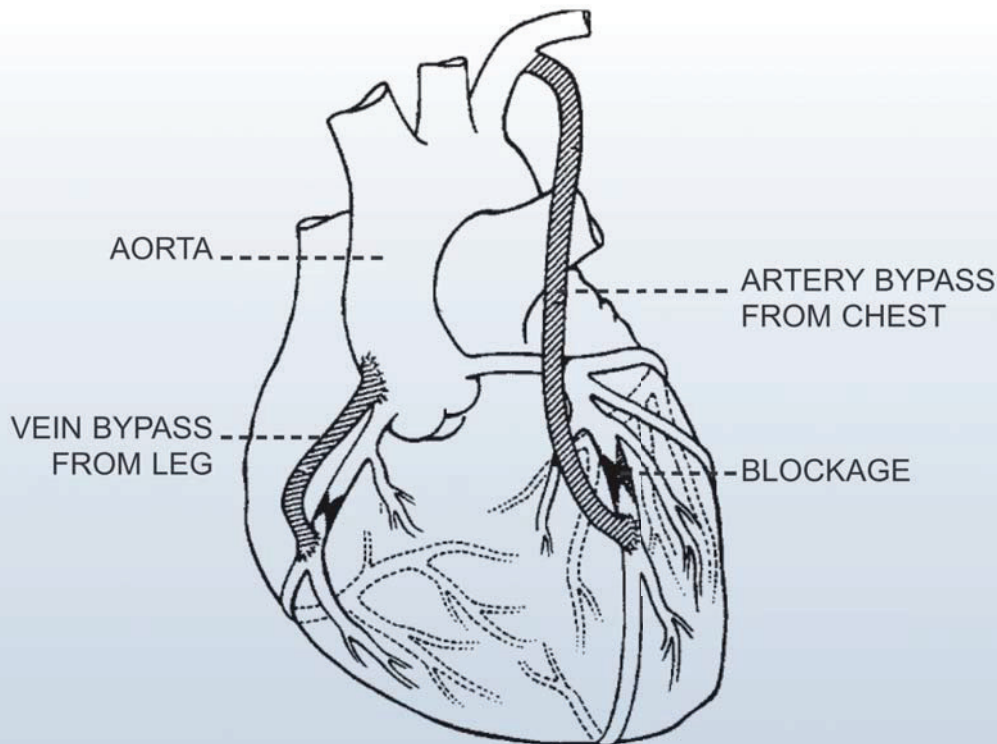
Atherosclerosis is affected by many different risk factors. (See section on risk factors, pg. 31.)

Different Types of Heart Surgery

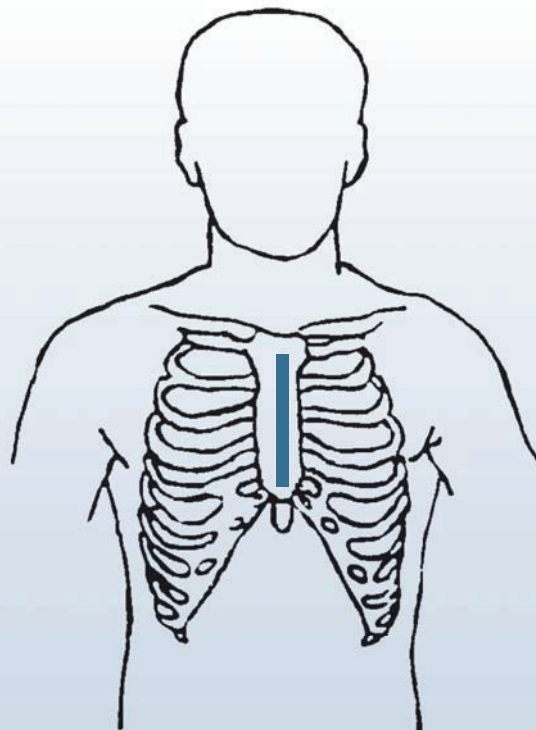
Coronary Artery Bypass Graft Surgery (CABG)

In coronary artery bypass graft surgery, an artery or vein is used to bypass the area that is blocking blood flow to your heart. The blood flow then detours or 'bypasses' the plaques and the heart muscle has a good supply of oxygen rich blood again. **This procedure is performed to prolong and improve your quality of life. It is not a cure for your heart disease.** Therefore, it is very important for you to also make lifestyle changes to improve your heart health.

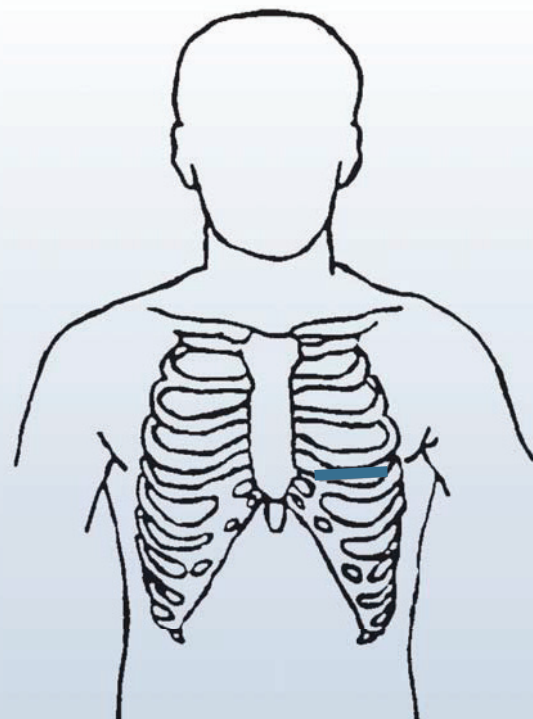
Conventional Coronary Artery Bypass Surgery is performed through an incision in the middle of the chest by cutting the breastbone. Arteries from within your chest, from your arm and/or a vein from your leg can be used to bypass the blockages. This surgery can be done in different ways, with the most suitable and safest way for you determined by your surgeon.



The surgery can be done using the heart lung machine with the heart stopped (On-pump). The on-pump method is determined based on the number and location of the grafts needed. If your arteries are found to be buried within the heart muscle, then most likely on-pump would be the method of choice. The surgery can also be done without the use of the heart lung machine with the heart beating (Off-Pump). This method would be used when the arteries requiring bypasses are more easily accessible and not buried in the heart muscle, and the surgeon determines this method to be safer for you.



Sternal Incision



Thoracotomy Incision

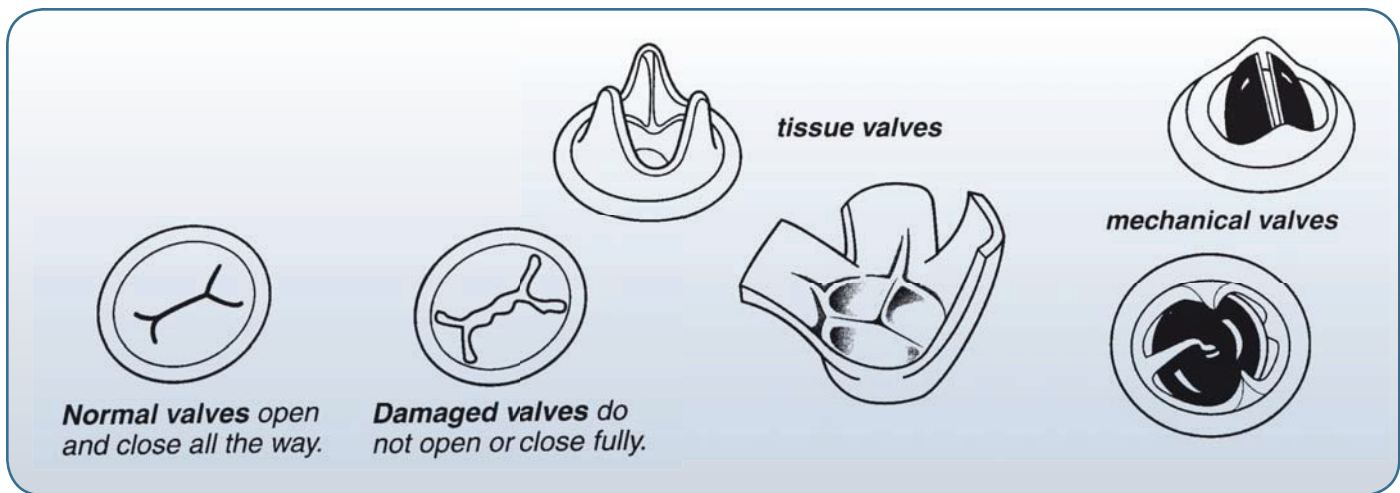
Minimally Invasive Coronary Artery Bypass Surgery with Robotic-Assistance

This method of bypass surgery is usually done on the beating heart, without the use of the heart lung machine. It has been proven to be highly successful and allows you to recover more quickly than conventional heart bypass surgery. Incisions are made between the ribs, and a camera and instruments are inserted into the incisions. An artery within your chest (internal thoracic artery) is harvested with the help of a camera and if a second artery is needed, one from your arm (radial artery) is used. Another method of opening up blocked arteries called stenting, can be combined with this surgery.

Valve Surgery

Valves in your heart control the direction the blood flows through your heart. Sometimes valves may become too narrow (stenosis) or they may leak (regurgitation). This extra work, over time, can cause the heart to enlarge and weaken, causing you to possibly feel tired, short of breath, experience chest pain, fainting or dizziness, and swelling of your feet and ankles.

Valve surgery is open heart surgery since the work is done inside the heart. It has to be performed using the heart lung machine with the heart stopped (on-pump). The valve is either repaired or replaced. If replaced, it can be replaced by a biological tissue valve (from pig or cow tissue), or a mechanical valve (man made). Your surgeon will discuss which type is best for you based on age, lifestyle and other health conditions. A mechanical valve will last longer. **However, it will require you to take a medication for the rest of your life to reduce the risk of blood clots forming, which could result in a stroke.** One of these medications is called Coumadin. If you need to take Coumadin, you will need a regular blood test called INR(International Normalized Ratio) to check the Coumadin level in your blood. Your family doctor will monitor this with you and will tell you if your dose needs changing.



The aortic valve can be repaired or replaced based on what is wrong with it. The valve problem usually is valve narrowing from calcium deposits. Less frequently it is a leaking valve. The surgery is done through an incision in the middle of the chest and cutting of the breastbone. The Mitral valve can be more easily repaired compared to the aortic valve. Mitral valve replacement may be required based on the valve problem. The most common problem with the mitral valve is usually a leaking valve, and less often a narrowed valve. The surgery can be done based on the most suitable and safest approach determined for you. It can be done conventionally, through the middle of the chest by cutting the breastbone or it can be done through a small incision between the ribs with the help of a camera and robotic assistance on the right side of the chest. In the latter approach, a small incision is needed in the groin to connect the artery and the vein in the groin to the heart lung machine.

If you have faulty valves or have had valve surgery you are more prone to infection of the heart valve. Bacteria from anywhere in the body can enter the blood stream, reach the heart and cause an infection.

You can reduce the risk of infection:

1. Avoid activities that lead to cuts and skin abrasions.
2. Take precautions during dental treatment or surgeries. Tell your family doctor or dentist before you schedule any dental work or other minor surgery. Antibiotics may be required before and after treatment.
3. If you are female, an IUD puts you at risk for infection. Discuss an alternate form of birth control with your doctor.
4. Injection of street drugs is a serious risk for infection.

Atrial or Ventricular Septal Defects

The septum is the wall of the heart that divides the left and right chambers. Sometimes areas in this wall fail to close during development before birth, leaving an opening called a septal defect. It can be in the top part of the heart, called an atrial septal defect, or in the bottom part of the heart, called a ventricular septal defect.

This opening may increase the work of the heart, resulting in the need for surgical repair. During surgery, the opening is covered with a patch or is sewn together.

What to Expect Before and After Surgery

Pre-Operative Phase

Waiting For Surgery

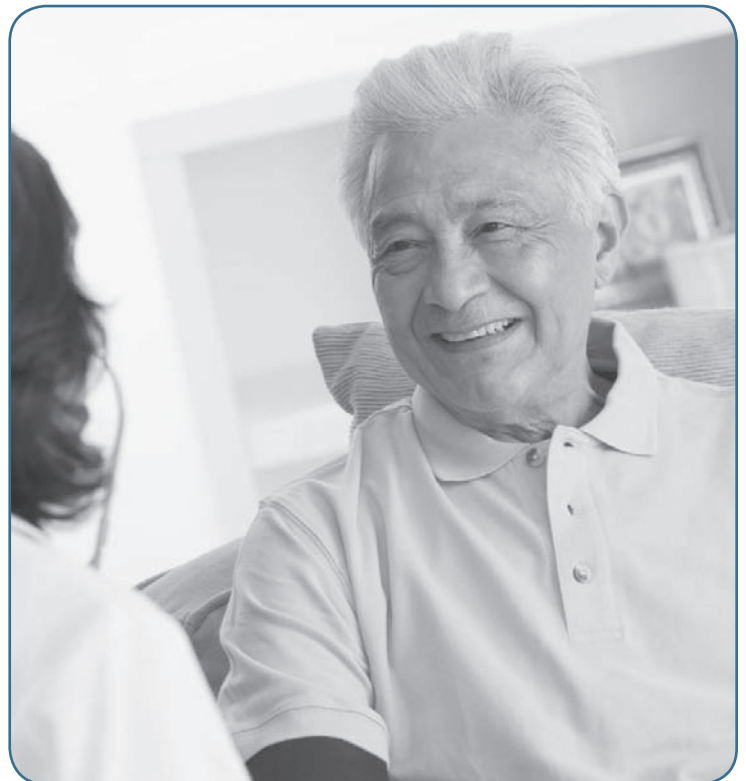
If you have any questions about the wait time, please call your surgeon's office. When you are told you have been accepted for surgery please give the surgeon's office your home phone number, work number and an alternate number. The surgeon's office will call and book an appointment in the Pre-Admission Clinic for you when the time of your surgery is getting closer. **While you are waiting, we ask that you and your family access our London Health Sciences Centre website at <http://www.lhsc.on.ca/index.htm> to review information on coming to the hospital. This information is found under the heading 'Patients, Families and Visitors'. When looking over the information, please ensure you watch the video titled 'Infection Control video for families and visitors'. We need your help and support in our fight against infections.**

Pre-Admission Clinic (PAC)

The goals of your visit in the Pre-Admission Clinic are to answer any questions you may have about the surgery and the hospitalization and assess your readiness for surgery. Please remember that you and your family are not to wear any scented products when you come to LHSC, as they can cause allergic reactions and breathing difficulties for other patients, visitors and staff.

Be prepared to spend up to six hours in the Pre Admission Clinic. You are welcome to bring a lunch or snacks. You may eat before coming to the clinic. Please bring all the medications you are currently taking, or a list of the medications and your Pharmacy's phone number. This includes any over-the-counter and herbal products. The clinic staff also need to know of any drugs that you have stopped taking recently. Also, please tell them about any allergies to medications, foods, latex or any other reactions you may have.

We encourage you to bring a family member or friend to also learn about your surgery and help answer questions. This is very important if English is not your language of origin.



The following is a checklist of the steps you will go through during your Pre-Admission visit:

Meet the Pre-Admission staff who will organize your clinic visit, complete a nursing history, and review the specific details of what to expect and do prior to your surgery.

Meet the advanced practice nurse, or physician or resident, who works with the surgeon. This person may complete a medical history, physical exam, and write your pre-operative orders. They can answer questions you have about the surgery.

You may meet the anesthetist either on the day of your surgery or in the Pre-Admission Clinic. He/she will do an assessment and discuss your anesthetic with you.

You will have blood work, an electrocardiogram and a chest x-ray. Depending on your condition, other tests are sometimes needed.

You may be asked to participate in a Research Study. This is entirely voluntary and refusal will not affect your care.

You will be instructed to wash with special soap in the day/days before your surgery. The nurse in the Pre Admission Clinic will tell you how to buy the special soap and how and when to do the washes.

Your current medications and any allergies will be reviewed. The medications to take on the day of surgery will be discussed at your Pre-Admission visit. Please take only those indicated.

MEDICATIONS TO TAKE:

Medications, such as plavix, anti inflammatory medications or Coumadin (warfarin) may need to be stopped prior to surgery. Specific instructions about when to stop them before your surgery will be given to you by your surgeon's office during your Pre-Admission visit.

MEDICATIONS TO STOP:

STOP DATE:

You should have a clear understanding of what to expect throughout your hospital stay when you have finished in the Pre-Admission Clinic. **If your expectations are different from information you receive, please do not hesitate to ask questions. It is important that we all understand and agree with the plan of care for your surgery.**

What happens if my condition changes before surgery?

Please contact the surgeon's office if there is a change in your health before your surgery, especially if your angina increases significantly or you develop a cold, fever, a cough, or any infection including a tooth infection. Please call as soon as any changes occur, as it may be necessary to change the date of your surgery. If your angina increases significantly and is not relieved with nitroglycerin, you should go directly to the nearest emergency room.

In the Days Before Surgery

While you are waiting for surgery go to all scheduled appointments with your doctor and continue to take your medications as you have been instructed. Remember you will need to have arrangements made for when you return home after surgery. You may need to have someone stay with you for a while, and you will need help with jobs around the house and errands (groceries, driving, heavy housework, yard work).

Remain as active as possible without doing activities that cause angina or worsen your shortness of breath. Taking nitroglycerin before these activities may help prevent angina. You may continue to work on the advice of your physician if you are able to limit the activities that cause angina, extreme tiredness or shortness of breath. If you smoke, make every effort to quit smoking. Your physician can assist you in meeting your goal to quit smoking by implementing various treatment options and connecting you to community resources available to help you with this. More information is provided on page 32 regarding smoking cessation. Continue to follow a low sodium, low fat and no added salt diet, and limit your alcohol intake. More information on a heart healthy diet is provided on page 34.

In the Pre-Admission clinic, the nurse calculated your BMI and instructed you on the number of washes you were to do before your surgery, with the special soap. If you were required to wash 2 times prior to your surgery, you will need to wash the night before surgery and the morning of surgery. If you were required to wash 5 times prior to having your surgery, you will need to start 2 days prior to surgery, washing each morning and night, with the last wash being the morning of surgery. Remember to put on clean clothing after your wash each time. These special washes are important to help reduce the risk of infection related to surgery.

The Night before Surgery

- Remove any nail polish from your fingers or toes
- Remove all piercings and jewelry
- Wash with the special soap before going to bed and put on clean pyjamas
- Do not have anything to eat or drink after midnight the night before surgery
- Do not chew gum, have candy or smoke after midnight the night before surgery
- Pack a small overnight bag with nightclothes, underwear, bathrobe (front opening), slippers and personal care items (toothbrush, toothpaste, mouthwash, soap, lotion, razor, comb, deodorant, tissues, feminine hygiene products). The bag should be left in a family member's car until the day after your surgery, or until you are transferred out of the Cardiac Surgery Recovery Unit (CSRU).

The hospital will not be responsible for the storing or safekeeping of your belongings.

Day of Surgery

- Wash again the morning of surgery with the special soap and put on clean clothing/pyjamas.
- Bring all of your prescribed medications in the original containers. Please take only the medications that you were told to take in your Pre Admission visit with a small sip of water.
- You may brush your teeth the morning of surgery, but do not swallow any water.
- You may wear dentures, glasses or hearing aids to the hospital but they will all need to be removed before surgery. Bring the appropriate containers to store them.
- Do not wear make-up, deodorant, lotion, perfume, contact lenses, or tampons.
- Do not bring money, jewelry or valuables. Ensure all rings are removed.

The hospital cannot be responsible for valuables.

REMEMBER, NOTHING TO EAT OR DRINK (INCLUDING CANDY, GUM), OR SMOKING AFTER MIDNIGHT THE NIGHT BEFORE YOUR OPERATION. THIS CAN CAUSE VOMITING DURING ANAESTHESIA. IF YOU DO EAT OR DRINK AFTER MIDNIGHT YOUR OPERATION MAY BE CANCELLED.

Arriving at the Hospital

Please be on time to avoid cancellations or postponements. Go to the Pre-Admission Clinic on the first floor. You will then be taken to the Surgical Preparation Unit on the second floor.



You will be asked to get dressed in a hospital gown and to remove underwear, glasses and dentures. Your blood pressure, temperature and weight will be taken. You will have an intravenous started, blood work drawn, and may be given medication to prevent infection and help you relax for surgery.

During Your Surgery

You will be taken to the operating room and transferred onto the operating table. The nurse will ask you to verify your name and the surgery you're having. The doctors and nurses involved in your surgery will be wearing masks, hats, gowns and gloves. The anesthesiologist will then give you some medication to put you to sleep, and the operation will begin. Please know that you are being carefully monitored by the operating room team from this point on. Your family members can wait in the designated waiting area. They can ask the staff where this is located on second floor. Once the surgery is over, the surgeon or a member of the team will be speaking with your family regarding the surgery.

Post-Operative Phase

Day of Surgery

Your surgery is completed! Prior to surgery you may have been identified as being a patient that may return directly to 6th floor after waking up in the recovery room. If you are **fast-tracked**, your surgeon will tell you this in advance. In the recovery room your breathing tube will be removed. You may still have other tubes in place, but they will typically be removed over the first day or two. Your procedure will have been more straightforward, and therefore you will be up and moving with the help of the nurses and physiotherapist the day of surgery. If you have had **conventional cardiac surgery** you will be moved to the Cardiac Surgery Recovery Unit (CSRU), in the Intensive Care Unit, where the team will settle you in your room. A chest x-ray and blood work is done, and the CSRU doctor examines you. At this point, you'll still be sedated, but gradually you'll begin to wake up.

Deep Breathing and Coughing Exercises

During the operation, your lungs won't be fully working. Deep breathing and coughing exercises, every hour while you're awake, help you expand and clear your lungs so that you don't run into complications.

- hold your pillow firmly over your incision
- take a deep breath in through your nose, as if smelling roses.
- blow out now through your mouth, like you are blowing out candles.

These exercises need to be repeated 3 times and then, on the 4th time, breathe in deeply, and cough. Remember, you need to do deep breathing and coughing exercises every hour while you are awake.

Leg Exercises

Leg exercises need to be done every hour while you're awake to keep your legs from developing blood clots or getting too weak.

- Point your toes away from you, then toward you.
- Then make circles with your ankles.
- Next, draw your knees up and then down.
- Tighten the muscles in your legs and then relax them.

Pain medication will be available to help control your pain. It is better to stay on top of the pain so that deep breathing and coughing exercises can be done. Talk to your nurse if you are having pain despite taking your medications.

What To Expect After Your Surgery

Day of Surgery	Fast track Surgery	Conventional Surgery
Day of Surgery	<ul style="list-style-type: none"> You will go to 6IP directly from the recovery room after your surgery Your breathing tube is removed in the operating room 	<ul style="list-style-type: none"> You will go to the CSRU directly from the operating room. Your breathing tube will be removed as soon as you are awake enough to breathe on your own. The length of time you need help with breathing is individual and depends on the type of surgery that you had and many other factors.
	<ul style="list-style-type: none"> You will have intravenous lines for fluid and medications. These will be removed once you are able to drink and do not require any intravenous medications. 	<ul style="list-style-type: none"> You will have intravenous lines for fluid, medications and to draw your blood. These will be removed once you are able to drink and do not require any intravenous medications.
	<ul style="list-style-type: none"> You will have a catheter or tube draining your bladder, which is usually removed one or two days after your surgery. 	<ul style="list-style-type: none"> You will have a catheter or tube draining your bladder, which is usually removed two days after your surgery.
	<ul style="list-style-type: none"> You will have tubes in your chest, which are inserted during surgery to drain fluid from the chest cavity. Once the tubes have stopped draining they will be removed. This is usually one to two days after surgery 	<ul style="list-style-type: none"> You will have tubes in your chest, which are inserted during surgery to drain fluid from the chest cavity. Once the tubes have stopped draining they will be removed. This is usually one to two days after surgery
	<ul style="list-style-type: none"> You will be sitting up at your bedside that night and will be expected to be able to walk around your room or in the hallway with assistance from your nurse. 	<ul style="list-style-type: none"> The nurse will assist you to move in bed and sit up at the bedside as soon as you are able to do so
	<ul style="list-style-type: none"> Your family will be able to visit with you as soon as you are settled in your room and an initial assessment has been done. 	<ul style="list-style-type: none"> Family will be able to visit you in the CSRU for 15 minutes every hour after your initial assessment.
	<ul style="list-style-type: none"> You will be attached to a small electronic box (telemetry unit) that allows the team to monitor your heart rate 	<ul style="list-style-type: none"> You will be attached to a machine that continuously monitors your heart rate
	<ul style="list-style-type: none"> You will be connected to a pump that will deliver pain medication to control your pain as you require it 	<ul style="list-style-type: none"> You can expect to be given pain medication on a regular basis by the nurses to control your pain.

What To Expect After Your Surgery Continued

Day of Surgery	Fast track Surgery	Conventional Surgery
First day after surgery	<ul style="list-style-type: none"> You may still require oxygen by mask or nasal prongs. Your oxygen level will be measured regularly and changed depending on your needs. 	<ul style="list-style-type: none"> The breathing tube will be removed and you will be given oxygen by mask or nasal prongs. Your oxygen level will be measured regularly and changed depending on your needs.
		<ul style="list-style-type: none"> If you have been stable you will be transferred out of the CSRU to the 6th floor Cardiovascular Unit.
	<ul style="list-style-type: none"> You will start on a fluid diet and this will be increased to solids as you progress. 	<ul style="list-style-type: none"> You will start on a fluid diet and this will be increased to solids as you progress.
	<ul style="list-style-type: none"> You will be up walking short distances. 	<ul style="list-style-type: none"> You will be sitting at the bedside and up in a chair. It is important that you don't strain your chest muscles doing this as it can cause strain on your breast bone incision and can delay healing.
	<ul style="list-style-type: none"> The physiotherapist and nurse will help to ensure that you know how to do deep breathing and coughing exercises properly as these exercises have proven helpful in decreasing postoperative complications and help you to recover faster. 	<ul style="list-style-type: none"> The physiotherapist and nurse will help you with moving to ensure you use the right method to get out of bed. They will teach you how to do deep breathing and coughing exercises and leg exercises properly. These have proven helpful in decreasing postoperative complications and help you to recover faster.
	<ul style="list-style-type: none"> Blood work and electrocardiogram will be done in the morning. 	<ul style="list-style-type: none"> Blood work and electrocardiogram will be done in the morning.
	<ul style="list-style-type: none"> Blood sugar levels will be monitored closely by picking your finger and testing the blood sample frequently for the first 24 hours. If you are diabetic, this will continue to be closely monitored. 	<ul style="list-style-type: none"> Blood sugar levels will be monitored closely by picking your finger and testing the blood sample frequently for the first 24 hours. If you are diabetic, this will continue to be closely monitored.
	<ul style="list-style-type: none"> The catheter tube into your bladder may be removed. 	<ul style="list-style-type: none"> The catheter tube will remain in your bladder.
	<ul style="list-style-type: none"> Chest tubes may be discontinued depending on the amount of drainage. A chest x-ray will be taken after the chest tubes are removed. 	<ul style="list-style-type: none"> Chest tubes may be discontinued depending on the amount of drainage. A chest x-ray will be taken after the chest tubes are removed.

What To Expect After Your Surgery Continued

Day of Surgery	Fast track Surgery	Conventional Surgery
First day after surgery	<ul style="list-style-type: none"> Dressings will cover your incisions. A dressing will be left over the incision on your breastbone as long as you need to be attached to equipment to monitor your heart rhythm. 	<ul style="list-style-type: none"> Dressings will cover your incisions. A dressing will be left over the incision on your breastbone as long as you need to be attached to equipment to monitor your heart rhythm.
	<ul style="list-style-type: none"> Your temperature, blood pressure and pulse will be taken frequently to monitor your progress. 	<ul style="list-style-type: none"> Your temperature, blood pressure and pulse will be taken frequently to monitor your progress.
	<ul style="list-style-type: none"> The pump delivering medication to control your pain may be stopped. Other pain medication will be available and should be used about every four hours the first day. It is better to stay on top of the pain so that deep breathing and coughing exercises can be done. Talk to your nurse if you are having pain despite taking your medications every four hours. 	<ul style="list-style-type: none"> Pain medication will be available and should be used about every four hours the first day. It is better to stay on top of the pain so that deep breathing and coughing exercises can be done. Talk to your nurse if you are having pain despite taking your medications every four hours.
	<ul style="list-style-type: none"> You will still be attached to the telemetry unit to allow the team to monitor your heart rate 	<ul style="list-style-type: none"> You will be attached to a machine that continuously monitors your heart rate. If you move to 6th floor, you will be attached to a small electronic box (telemetry unit) to allow the team to continue to monitor your heart rate.



What To Expect After Your Surgery Continued

Day of Surgery	Fast track Surgery	Conventional Surgery
Second day after surgery	<ul style="list-style-type: none"> The telemetry unit is generally discontinued. 	<ul style="list-style-type: none"> The telemetry unit is generally discontinued.
	<ul style="list-style-type: none"> You can eat solid food as tolerated. It is important to rest after meals. 	<ul style="list-style-type: none"> You can eat solid food as tolerated. It is important to rest after meals.
	<ul style="list-style-type: none"> You will be up walking in the halls. 	<ul style="list-style-type: none"> You will sit in a chair for meals and remember to rest after activity as you will be walking short distances.
	<ul style="list-style-type: none"> You will be able to shower. 	<ul style="list-style-type: none"> You can wash at the bedside with some assistance.
	<ul style="list-style-type: none"> You will probably no longer require oxygen. 	<ul style="list-style-type: none"> You will have your oxygen slowly decreased and possibly stopped.
	<ul style="list-style-type: none"> Your incisional pain should be well controlled with medication. If you are having pain please let your nurse know. 	<ul style="list-style-type: none"> Your incisional pain should be well controlled with medication. If you are having pain please let your nurse know.
	<ul style="list-style-type: none"> You should try to have a bowel movement without straining. Medication is available to assist you with this. 	<ul style="list-style-type: none"> You should try to have a bowel movement without straining. Medication is available to assist you with this.
	<ul style="list-style-type: none"> You may be ready to go home today or tomorrow. You should have your ride home arranged a day before discharge and plan to have them pick you up by 10:00 a.m. 	



What To Expect After Your Surgery Continued

Day of Surgery	Fast track Surgery	Conventional Surgery
Third day after surgery	<ul style="list-style-type: none"> You will be feeling stronger and up and about on your own. Remember to rest after meals. 	<ul style="list-style-type: none"> You should be feeling stronger each day and progressively become more mobile.
		<ul style="list-style-type: none"> You should be up walking in the halls. Remember to rest after meals.
	<ul style="list-style-type: none"> You should be eating a low fat, low cholesterol, low salt diet. 	<ul style="list-style-type: none"> You should be eating a low fat, low cholesterol, low salt diet.
	<ul style="list-style-type: none"> You will be showering. 	<ul style="list-style-type: none"> You should be able to wash on your own or have a shower with help from the nurse.
		<ul style="list-style-type: none"> If your heart rhythm has been stable and you have temporary pacemaker wires, these will be discontinued. These are tiny wires inserted during the surgery which lie on the outside of your heart. These wires are brought out to the skin so that if your heart slows down or speeds up too fast after surgery the health care team can control your heart beat with the use of a temporary pacemaker.
	<ul style="list-style-type: none"> Blood work and an electrocardiogram will be done to assess your readiness for discharge. 	<ul style="list-style-type: none"> Blood work and an electrocardiogram will be done to assess your readiness for discharge.
	<ul style="list-style-type: none"> You should be ready to go home! Your ride needs to pick you up by 10:00 a.m. 	<ul style="list-style-type: none"> You may be ready to go home. You should have your ride home arranged a day before discharge and plan to have them pick you up by 10:00 a.m.
Fourth & Fifth day after surgery		<ul style="list-style-type: none"> You should be ready to go home today or tomorrow! You should be able to walk on your own in the hallway. You may walk on the stairs with the physiotherapist or the nurse. You should be able to shower on your own. On the day you are going home, your ride needs to pick you up by 10:00 a.m.

Post Operative Problems

As explained to you before surgery, at times you can develop problems that must be dealt with by the health care team, which may delay your progress. Some of these may be irregular heart rhythms, controlling your blood sugar, getting your bowel habits regular, dealing with fluid in your lungs, or infections. Irregular heart rhythms occur in 40% of patients after surgery, with the most common one being atrial fibrillation. This is usually managed with medications which help to restore your normal rhythm. Sometimes blood thinning medication is also started to help reduce the risk of blood clots forming. Your health care team will review this with you if it happens.

Is this how you expected your recovery in hospital to progress? Do you have any questions?

Discharge Day!

You will be able to go home if:

- You are up walking independently.
- You have a stable heart rate, blood pressure, and a normal temperature.
- You have an adequate oxygen level.
- Your pain is under good control.
- You have had a bowel movement.
- Your incisions are healthy.
- If required a nurse from the Community Care Access Centre (CCAC) will do an assessment about your needs at home, including any additional incisional care.
- You should be ready to leave by 10:00 AM. Please arrange your ride as soon as possible. Ensure your ride is at the hospital no later than 10:00 AM.

Discharge Preparations

BEFORE YOU LEAVE, PLEASE ENSURE THAT YOU HAVE THE FOLLOWING:

1. Prescription for your medications.
2. A list of the medications you are to take and when to take them. Have the list filled out by your nurse. Continue to take these medications until your return appointment, unless your family doctor tells you to stop them. Your medications will be reviewed by the surgeon during the follow-up appointment. Please bring your list of medications with you.
3. Follow-up appointment card to see the surgeon in 4 to 8 weeks.
4. A discharge summary to take to your family doctor. You should see your family doctor within a week of your discharge from the hospital. If you need special blood work or staples to be removed after discharge the staff may give you specific instructions on when to see your family doctor.
5. Information about your Cardiac Rehabilitation Referral, as appropriate.

Medications

Most patients need some medications after heart surgery. At the time of discharge, you will be given a prescription which can be filled by the pharmacy at the hospital or by your own pharmacist.

Your nurse will discuss your medications with you. Information sheets are available for you to take home. Continue to take your medications until either your family doctor or your cardiologist instructs you to stop.

Financial assistance related to the cost of medications may be available. If you need assistance feel free to ask to speak to a social worker.

Below is a list of common medications that you either may receive when you are in hospital and/or may be asked to take when you go home. You will not be asked to take all of the medications on this list, only selected ones.

Please ask for the list of medications you will be taking before you are discharged.

1. Beta Blockers

Beta blockers reduce the heart's demand for oxygen by decreasing heart rate (pulse) and blood pressure. Some common names for beta blockers are atenolol, metoprolol and acebutolol.

2. ACE Inhibitors

ACE inhibitors dilate blood vessels and are often used to treat high blood pressure and heart failure. These medications help the heart pump more efficiently. Common examples are ramipril, enalapril and perindopril.

3. Platelet Inhibitors

Platelet inhibitors prevent blood clots from forming by preventing blood platelets from sticking together. This reduces the risk of heart attack and cardiac death. Aspirin and Clopidogrel (Plavix) are common examples. Aspirin should be enteric coated to prevent stomach difficulties.

4. Cholesterol Lowering Agents

These medications work in conjunction with a low cholesterol/low fat diet and moderate physical activity to help lower cholesterol levels as well as reduce the risk of future heart attack and stroke. They help to stabilize cholesterol plaques, making them less likely to rupture and contribute to blood vessel narrowing. Many of these agents interact with grapefruit juice and may increase the risk of side effects. Simvastatin, Atorvastatin and Rosuvastatin are common types used.

5. Calcium Channel Blockers

Calcium channel blockers work by relaxing the arteries and increasing the oxygen supply to the heart. They can also help to prevent coronary artery spasm. Diltiazem, nifedipine, verapamil and amlodipine are some common names.

6. Digoxin

Improves heart pumping abilities and controls heart rhythm.

7. Diuretics

Helps to reduce excessive fluid in the body by increasing urine production. A common example is furosemide.

8. Anticoagulants

These medications help prevent the formation of blood clots and work in a different way than platelet inhibitors. Some anticoagulants may not prevent formation of blood clots when you have a mechanical heart valve, making Coumadin the anticoagulant of choice in this circumstance. Your anticoagulant medication should not be changed without talking with your surgeon. If you are prescribed Coumadin, you will need a regular blood test called an INR (International Normalized Ratio) to check the Coumadin level in your blood. Your family doctor will monitor this with you and will advise you if your dose needs changing. You should wear a medical alert bracelet in case of emergency. Your nurse can provide you with information on this. You will receive more information about this medication before leaving the hospital if it has been prescribed for you.

9. Potassium Supplements

Diuretics may increase potassium loss from your body. A potassium supplement may be prescribed with a diuretic, to keep your potassium level in the normal range.

10. Antiarrhythmic Agents

Controls irregular or abnormal heart rhythms. A common example is amiodarone.

11. Stool Softeners

Help to soften the stool to prevent constipation. A common example is docusate sodium.

12. Proton Pump Inhibitors (PPI)

Proton Pump Inhibitors reduce acid production in the stomach. They are used to prevent stomach ulcers and to treat gastroesophageal reflux disease (GERD/heartburn). Examples: lansoprazole, pantoprazole, rabeprazole.

Medication Guidelines

- Take the medications only as prescribed. They may be different from what you were taking before surgery. Do not take other people's medications. Learn the names of your medications, the amount to take, their purpose, and when to take them.
- If you forget a pill, do not take 2 the next time.
- Do not change or stop your medications, unless told to do so by your doctor.
- Keep medication in its own container and out of reach of children.
- Always carry a record of your medications with you. Your pharmacy can help you maintain an up to date record.
- Refill your prescriptions before they run out.
- Ask your pharmacist before taking any new prescription, non- prescription medications or herbal/complementary agents to help prevent any potential interactions with your current medications.
- Consider the use of a dosette box or blister packing to help keep your medications organized and help you remember to take your medication every day. Ask your regular pharmacy about this service.

Occasionally medications may produce an allergic reaction or unanticipated reaction. Rash, fever, jaundice, bruising, vomiting and diarrhea are some of the possible reactions. Contact your physician if you develop any of these side effects after starting new medications.



Emotions

Going through a heart operation can be emotionally draining for you and your family. This is natural. Common emotions are:

Fear/Anxiety

Most common, especially in the first few weeks. If you are like most people, you have probably had thoughts such as “Am I going to die?” “Will my chest pain come back?”. Thoughts like these are troubling, but as time passes your worries will diminish. Physical symptoms may set fear in motion. Now the tiniest twinge in your chest may worry you. It is normal to feel aches and pains in the incisional area and across your chest, upper back, shoulders and neck as you heal.

Anger/Denial

“Why did this happen to me?” You may become angry, either at yourself or at everybody. This is a normal initial response.

Depression

You may feel sad or blue. You may experience feelings of withdrawal, loss of interest or sadness. You may experience sleep disturbance and/or poor appetite. If these feelings persist ask for assistance from your doctor or nurse.

Remember your moods may change from day to day. Tell someone you trust how you feel instead of pretending nothing is wrong. You are not abnormal for feeling this way. Be patient. It is nearly impossible after an operation not to be scared, irritable or depressed at times. Time will cure many of your feelings.

Also remember that the heart surgery experience has had a big emotional impact on your family. Members were probably frightened when you were in the CSRU. Families may also have guilt as they may feel that they are somehow responsible. Sharing your feelings is an effective way to deal with the worries that you may experience.

With a gradual increase in activities while in hospital and at home, your strength and confidence will be restored. Choose a positive approach. This allows you and your family to look at your situation and slowly make the necessary changes. Take one step at a time.

What Families Can Do

1. Be reasonably cheerful and optimistic.
2. Be honest with your concerns and feelings.
3. Be a listener. Encourage him/her to share feelings.
4. Handle as many business and family concerns as you can.
5. Try to keep your visits short. Remember he/she must rest. Arrange a system for relatives and friends to receive updates.
6. You will also find it helpful to talk to someone. The nurses, doctors, social worker, pastoral care worker are willing to listen. Take advantage of this help.

What to Expect After Discharge

General Post-Operative Guidelines

All patients will require some help at home following surgery. Your family and friends should be planning for your return home. You should arrange to get help with housework, shopping and other errands for the first few weeks. It is important not to lift anything greater than 5-10 pounds for the first 6 weeks. You may help with light housework only, such as dusting, simple cooking, table setting, dishes and handcrafts. Avoid very hot or cold water and activity in extreme weather for the first 5-6 weeks. Some patients will require health care services at home following their discharge. If you need such assistance, the appropriate arrangements will be made before you go home.

Spouses

The recovery process is also very stressful for the supporting partner, as they have added responsibilities and pressure.

Tips for spouses are:

- Conserve your energy. Housework and other projects can wait.
- Rest when your partner rests.
- Arrange time for yourself, such as a walk, or a trip to the store.
- Get plenty of rest at night.
- Above all, relax and enjoy your time together.

Incisions

It is common to have aches and pains from your incision for several weeks. You should take the pain reliever prescribed during your hospital stay on a regular basis initially when you get home. During the first week at home you should slowly decrease the number of the stronger pain pills and start taking milder pain pills such as acetaminophen (Tylenol).

Your incision may be:

- Slightly red and sore
- Uneven or bumpy
- Itchy
- Bruised or slightly puffy
- Numb or tingly in some areas (you may have numbness along your thumb with a radial artery incision)
- Draining a small amount of clear yellow fluid

These symptoms will gradually disappear.

Sternotomy Incision

If you have a sternotomy incision (Refer to pg. 6) you will not be able to drive for approximately 4 weeks, or lift anything greater than 5-10 pounds for 6 weeks. The breastbone was cut during the surgery and securely wired together, but it takes at least six weeks for the bone to completely heal. You should limit your upper body activities during this time. Avoid lifting and carrying groceries, suitcases, children, pets, heavy laundry, or washing floors, vacuuming, raking, mowing the lawn, golfing, shoveling snow, or chopping wood. You may find that you tend to slump because of the discomfort, so remember to keep your shoulders straight to avoid stiff muscles.

Thoracotomy Incision

This incision is at the side of your chest (Refer to pg. 6). With this type of incision the surgeon operates through the rib cage but does not cut any bones. You can start to drive approximately 2 weeks after going home and should not put too much strain on the incision line for 2 weeks, such as lifting things greater than 5-10 pounds. All other activities mentioned above under sternotomy incision should be started immediately but cautiously.

Leg Incision

You may have incisions in several areas on your legs. These incisions will take several weeks to heal. You may notice swelling of the leg that has the incision. This is common after surgery. To decrease the swelling in your legs, you should rest lying down with your foot elevated at the level of the heart. Do not cross your legs when sitting or lying. Rest lying down, with your feet elevated, after walking and after eating. It is not necessary to wear elastic stockings at home, although some patients do for their own comfort.

Arm Incision

You may be instructed to take a medication (calcium channel blocker) that prevents spasm of the radial artery bypass graft. The length of time you will be on this medication will be reviewed at your follow-up appointment. This medication may also lower your blood pressure. The thumb area may feel numb but this will gradually disappear.

General Care of Your Incisions

- Keep them clean and dry.
- You may shower using mild soap to wash with. Do not take tub baths until the incisions are completely healed.
- Do not swim for 4 weeks. Avoid the back and breast stroke for at least 6 weeks.
- Avoid powders and lotions, including lotions containing vitamin E, until the incision has healed completely. This is usually about 6 weeks.
- If you have steri-strips, peel them off incisions 4 to 5 days after you go home. They may fall off sooner. This is not a concern.

When To Call The Doctor

If your family doctor is not available contact the surgeon, or advanced practice nurse.

Call your family doctor if you develop:

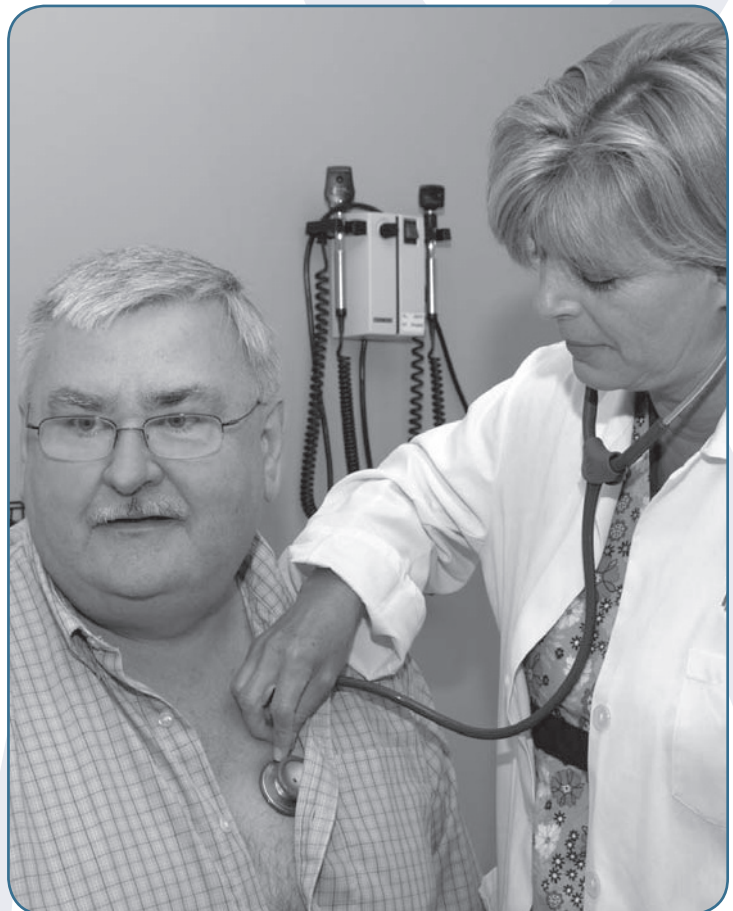
- Increased swelling, tenderness, redness, drainage from your incision.
- A persistent temperature above 38°C (101 F).
- Chest pain that does not go away, does not seem to come from your incision, or which feels like your previous angina.
- Persistent rapid pulse rate, palpitations, or an irregular heart beat.
- Shortness of breath at rest.
- Weakness or tiredness that is unusually severe and interferes with your ability to carry out your daily routines.
- Any new symptoms or concerns.

Your surgeon also needs to be made aware if you develop any of the above, so you also need to call his or her office.

Follow-Up Appointment

The follow-up appointment is important to check your progress, inspect your wounds and to address any of your concerns related to your recovery.

Your appointment to see the surgeon is usually 4 to 8 weeks after surgery. Bring your current medications (or a list) to your appointment and a list of any questions you may have for the nurse or doctor. You will have an ECG; possibly some blood work and other tests with this visit. Some adjustments in your medications may be made.



POST OPERATIVE EXERCISES

To prevent stiffness and soreness, the physiotherapist has outlined an exercise program which you will go over while in the hospital and continue for 4 to 6 weeks after your surgery. Rest briefly between each exercise, and do them within your comfort level. Start with doing each exercise 5 times, and increase to 10 times as you are able. The entire routine is to be done 2 to 3 times daily. Perform exercises sitting in a chair with your feet resting on the floor.

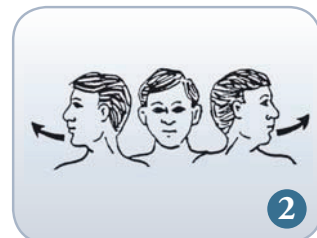
1. Neck Tilts

While looking straight ahead, slowly side-bend your neck so your left ear moves toward your left shoulder. Repeat to your right side.



2. Neck Rotation

Turn your head slowly and look over your left shoulder. Repeat for the right side.



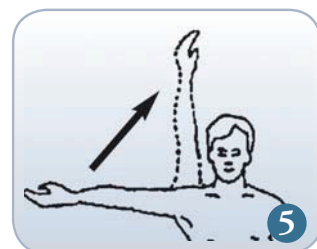
3. Elbow Circles

Touch your right shoulder with your right hand. Raise your elbow to shoulder level. Draw a large circle slowly with your elbow, first forwards and then backwards. Repeat with your left arm.



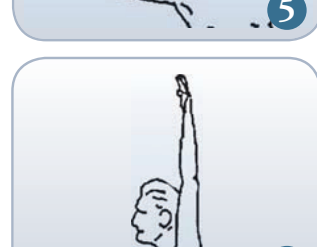
4. Trunk Twist Sitting

Put your hands on your hips. Twist at the waist to look over your right shoulder, then over your left shoulder.



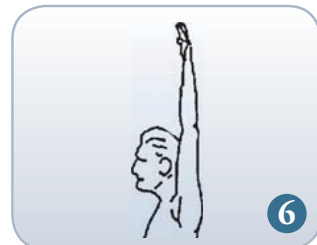
5. Sideways Arm Lifts

Raise your arm out to your side and then above your head. Breathe in as you raise your arm and breathe out as you lower it. Repeat with other arm.



6. Forward Arm Lifts

Raise your arm forward and above your head, then bring it back down to your side. Repeat with other arm.



7. Trunk Side Bends

Stand up with your feet shoulder width apart. Slowly slide your right hand down the outside of your right leg, keeping your back straight. Return to your starting position and repeat, bending towards your left.



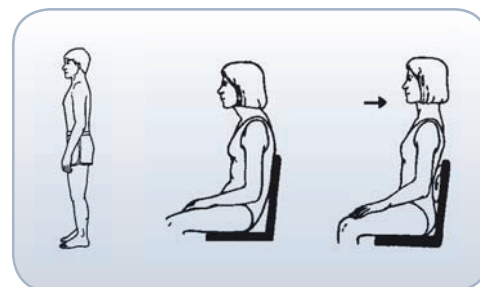
KEY POINTS TO REMEMBER

- No pushing, pulling or lifting more than 5-10 pounds
- Do the above exercises 2-3 times daily, do each exercise 5 times and progress to 10 by the third week
- Walk 2-3 times every day and increase the length of your walk as you can tolerate. Refer to the activity guidelines.
- The physiotherapist will assess your need for further exercises when you are in the hospital, and will give you instructions as needed.

Posture

It's important to maintain good posture at all times.

Keep your head over your shoulders when sitting or standing and don't slump.



Physical Activity

Physical activity is essential to your recovery. Start with the activity level you were at in the hospital and gradually increase it each day (see Activity Guidelines, pg. 28-30). Use common sense and set realistic goals for yourself. Listen to your body. If you are tired, rest. We strongly recommend that you join a Cardiac Rehabilitation Program in your community when you go home. The focus of these programs is to restore, maintain, and improve your fitness level. Most will offer counseling and assistance with other cardiac risk factors as well. Contact your family doctor or local hospital for information in your area.

Return to Work

Talk with your surgeon at your return appointment about returning to work. When you go back to work will depend on your type of work, the demands of your job, your level of physical stamina and other medical facts obtained from your check-up.

STOP EXERCISING IF YOU DEVELOP ANY OF THE FOLLOWING:

- ANGINA
- UNUSUAL PALPITATIONS OR IRREGULAR HEART BEAT
- UNCOMFORTABLE SHORTNESS OF BREATH
- LIGHT HEADEDNESS OR DIZZINESS OR NAUSEA
- ANY NEW CLICKING IN YOUR STERNUM

Seek medical attention if these symptoms are not relieved by rest or medication.

Do you have any questions about your recovery at home? If you do, remember to write them down and get them answered before you go home.

ACTIVITY GUIDELINES

Beginning Level Activities (First 1 to 2 weeks at home)

ACTIVITY	MAY DO	AVOID
Bathing	<ul style="list-style-type: none"> • Shower • Use mild unscented soap 	<ul style="list-style-type: none"> • Very hot or cold water • Soaking in a bath, swimming pool or hot tub • Perfumed, strongly scented soaps
Household Activities	<ul style="list-style-type: none"> • Do only light duties such as: dusting, setting table, simple meal preparation 	<ul style="list-style-type: none"> • Lifting greater than 5-10 pounds • Strenuous arm activities and pushing and pulling activities such as: vacuuming, mowing lawn, mopping floor, ironing • Heated discussions or arguments
Recreational Activities	<ul style="list-style-type: none"> • Visit for short periods • Enjoy sedentary activities such as: handcrafts, reading, TV, movies, cards 	<ul style="list-style-type: none"> • Long visits • Too many visitors - limit them to 1 or 2 a day
Rest	<ul style="list-style-type: none"> • A balance between physical activity and rest is essential • Plan two 30-60 minute rest periods each day • Rest after meals and after activities 	<ul style="list-style-type: none"> • Visitors or distractions when you should be resting
Driving and Travelling	<ul style="list-style-type: none"> • You may ride in a car on discharge. For trips longer than 1 hour, get up and stretch your legs every 1 to 2 hours • Wear seatbelt 	<ul style="list-style-type: none"> • Driving • Out of country travel
Deep Breathing and Coughing	<ul style="list-style-type: none"> • 4 times a day, or as otherwise instructed 	
Post-operative Exercises, Walking and Stairs	<ul style="list-style-type: none"> • 5 repetitions of each exercise 2 to 3 times a day • Walk in a shopping mall during bad weather • May climb stairs. Plan your day so you do not go up and down the stairs unnecessarily • Take your time and rest when needed • Walk 5-10 min. 2-3 times/day 	<ul style="list-style-type: none"> • Visitors or distractions when you should be resting

Intermediate Level Activities (Weeks 3 and 4 at home)

ACTIVITY	MAY DO	AVOID
Bathing	<ul style="list-style-type: none"> • Shower • Bath 	<ul style="list-style-type: none"> • Soaking in the bath longer than 20 minutes • Swimming and hot tubs • Tub bathing if incisions are open or draining
Household Activities	<ul style="list-style-type: none"> • Some household activities such as: making the bed, dusting, preparing meals 	<ul style="list-style-type: none"> • Lifting greater than 5-10 pounds if you have a sternotomy incision
Recreational Activities	<ul style="list-style-type: none"> • If you had a thoracotomy incision you may resume all activities • Visit friends • Take brief shopping trips and short outings • Putting a golf ball 	<ul style="list-style-type: none"> • If you have a sternotomy avoid tasks requiring strenuous arm activity such as: hammering, vacuuming, heavy scrubbing, washing windows, golfing, raking, bowling
Rest, Driving and Travelling	<ul style="list-style-type: none"> • Gradually shorten your rest periods • Rest after meals and activities • Thoracotomy patients may drive short distances after 2 weeks • May travel out of country as long as your insurance will cover you 	<ul style="list-style-type: none"> • No driving for sternotomy patients until end of 4 weeks
Postoperative Exercises, Walking	<ul style="list-style-type: none"> • Do 10 repetitions 2 to 3 times a day • Continue to progress your walking program. Walk 2 to 3 times a day 15 to 20 minutes • Walk in a shopping mall or indoors during bad weather 	<ul style="list-style-type: none"> • Do not exercise when you are feeling ill or very tired • Do not exercise outside during extreme weather conditions, such as extreme cold, wind, or high humidity • Slow your pace if you are walking up a hill or against the wind • Avoid hot showers or a sauna before or just after your exercise • Avoid heavy meals within one hour of exercising
Sexual Activity	<ul style="list-style-type: none"> • May resume when you can comfortably walk up 2 flights of stairs. Report the following symptoms to your doctor: chest pain during or after intercourse, palpitations, increased heart rate or shortness of breath lasting longer than 15 minutes after intercourse 	<ul style="list-style-type: none"> • Avoid if tired or tense

Upper Level Activities (5 to 6 weeks at home)

ACTIVITY	MAY DO	AVOID
Bathing	<ul style="list-style-type: none"> • Shower or bath 	<ul style="list-style-type: none"> • Avoid bathing if incisions open and draining
Household Activities	<ul style="list-style-type: none"> • Gradually resume all household activities • Alternate strenuous and light tasks 	<ul style="list-style-type: none"> • Lifting greater than 5-10 pounds if you have a sternotomy incision
Recreational Activities	<ul style="list-style-type: none"> • May resume swimming if incisions are well healed 	<ul style="list-style-type: none"> • Avoid prolonged activity in extreme weather conditions
Driving and Travelling	<ul style="list-style-type: none"> • May drive short distances • May travel out of country as long as your insurance will cover you 	
Postoperative Exercises	<ul style="list-style-type: none"> • Do 10 repetitions 2 to 3 times a day 	<ul style="list-style-type: none"> • Avoid hot showers or a sauna before or just after your exercise. • Avoid heavy meals within one hour of exercising.
Walking	<ul style="list-style-type: none"> • Continue to progress your walking program. Walk 1 to 2 times a day for 25 to 30 minutes • Slow your pace if you are walking up a hill or against the wind • Walk in a shopping mall or indoors during bad weather 	
Sexual Activity	<ul style="list-style-type: none"> • May resume when you can comfortably walk up 2 flights of stairs. Report the following symptoms to your doctor: chest pain during or after intercourse, palpitations, increased heart rate or shortness of breath lasting longer than 15 minutes after intercourse 	<ul style="list-style-type: none"> • Avoid if tired or tense • Avoid putting strain on upper body if you have a sternotomy incision.
Return to Work	<ul style="list-style-type: none"> • Discuss an appropriate time to start back to work full-time with your physician. Generally it is after 6 weeks if you had a sternotomy incision. 	<ul style="list-style-type: none"> • Avoid putting strain on upper body if you have a sternotomy incision

Risk Factors For Heart Disease

Research has proven that certain habits (lifestyle) have contributed to the development of your coronary artery disease. Changing these risk factors will help you to reduce the occurrence or reoccurrence of angina and heart attack. Risk factors can be divided into two groups.

Unchangeable Risk Factors

While there may be little you can do to change your age, gender or family history, having an understanding and knowledge of your own family history is important information to share with your family doctor/cardiologist.

Heredity: A strong family history of heart attack, especially before age 50 increases your risk of heart attack.

Age: Atherosclerosis begins to develop at an early age but the risk for a heart attack increases with age.

Gender: Heart attack is more common in men than pre-menopausal women. After menopause, women and men have a similar risk for developing heart disease.

Changeable Risk Factors

It is especially important to change the risk factors you can control.

- Smoking
- High Blood Pressure
- Elevated Blood Cholesterol
- Stress
- Depression
- Management of Diabetes
- Lack of Regular Exercise
- Overweight

Use the chart below to check off which risk factors apply to you.

Unchangeable Risk Factors	Yes	No
Heredity		
Age (over 50 years)		
Gender (male or menopausal female)		
Changeable Risk Factors	Yes	No
Smoking		
High Blood Pressure (hypertension)		
High Cholesterol		
Stress		
Depression		
Diabetes		
Lack of Regular Exercise		
Overweight		

Lifestyle Changes Following Cardiac Surgery

Although surgery dramatically increases blood flow to the heart muscle it does not prevent the progression of atherosclerosis. Atherosclerosis may gradually narrow your grafts and cause further blockages in your coronary arteries beyond the sites of grafting. Modification of risk factors will help promote good long-term results from your surgery.

Smoking

Research shows smoking increases your risk for the development of CAD. The chemicals in cigarettes (nicotine and carbon monoxide) can increase your heart rate and blood pressure, and constrict and narrow your arteries.

Nicotine increases your cardiac workload. This can increase the frequency and duration of your angina episodes. Nicotine can also increase the irritability of heart muscle and lead to disturbances in heart rhythm. Sudden cardiac death is more common in heavy cigarette smokers.

Part of the red blood cell called hemoglobin transports the oxygen to all cells and tissues of the body. Carbon monoxide attaches to hemoglobin 200 times more easily than oxygen. Therefore tissues, including heart muscle, are deprived of oxygen when you smoke. This is particularly important if cells already lack oxygen due to CAD.

Smoking is a powerful physical and psychological addiction. It is in your best interest to quit immediately. Regardless of the number of years you have smoked your heart and lungs will benefit when you quit. After quitting smoking you lower your risk of death by 36%.

While in hospital you will be offered aids such as nicotine patches to help you quit. Ask your nurse or doctor for assistance.



Aids To Help Quit Smoking

- You have already had to stop smoking since you have been in the hospital. Keep it up!
- Attend a stop smoking clinic.
- Behaviour modification counselling.
- Nicotine Gum (available without a prescription).
- Nicotine Inhaler (available without a prescription).
- Nicotine Patch (available without a prescription).
- Varenicline (Champix—available with prescription).
- Bupropion (Zyban—available with a prescription).
- Try to replace your smoking habits with other healthy habits – like walking.
- Ask your family/friends not to smoke around you.
- Set realistic goals. Not everyone can quit cold turkey. Set a date to stop.
- Join a support group or ask your family doctor to help.

To contact a self help or group program see the Community Resources section (pg. 51).

High Blood Pressure (Hypertension)

Blood pressure is the force that circulating blood puts on the artery walls. Blood pressure is expressed as two numbers when the heart contracts (systolic pressure) and when the heart relaxes (diastolic pressure). Example 120/70. The first number is the systolic pressure and the second number is the diastolic pressure.

Hypertension usually causes no symptoms but can increase your risk 2-4 times leading to stroke, heart attack, heart failure or kidney damage.

Hypertension is an important cause of atherosclerosis. Hypertension damages the lining of the arteries by drawing cholesterol (fatty deposits) into the injured tissues, which speeds up the atherosclerotic process.

Hypertension is defined as a pressure greater than 140/90. If you have diabetes the target value for blood pressure is less than 130/80.

How To Control Blood Pressure

- Have your blood pressure checked regularly by your family doctor.
- STOP SMOKING - help your arteries relax.
- Reduce your salt intake.
- Even if you are feeling well take your medications regularly and follow all instructions.
- Lose weight - when you are overweight your heart has to work harder.
- Reduce the stress in your life - learn to relax.
- Regular exercise.
- Limit your alcohol consumption.



Healthy Eating For Your Heart

Eating healthy and nutritious food choices within your diet can be one of the most important changes you can make to decrease your risk of heart disease.

Nutritious, balanced meals that fit into your lifestyle, while incorporating your favorite foods, will give you long term results. This pattern of eating will help you manage your weight, lower your cholesterol, and keep blood pressure and blood sugar levels under control.

Understanding the Fats: What is Cholesterol?

When it comes to cholesterol, it's the amount that is in your blood that matters. Too much cholesterol in your blood builds up inside your arteries forming plaques. These plaques narrow and harden your arteries (atherosclerosis) resulting in a restriction of blood flow. Over time, these plaques can cause blood clots to form. These clots block the flow of blood in your arteries, which can lead to a heart attack or stroke.

The trick is to ensure that you have the right balance of cholesterol in your blood.
There are two main types of cholesterol in your body:

High-density lipoproteins (HDL) – “healthy” cholesterol. Carries cholesterol away from your cells, and may also take away plaque deposits.

Low-density lipoproteins (LDL) – “less healthy” cholesterol. Delivers cholesterol to cells in your body, which can leave plaque deposits in your arteries.

Given that it is impossible to completely remove LDL, it is the amounts of HDL and LDL in your body that counts. Simply put, high levels of HDL and low levels of LDL are desirable.

Target Range For Patients With Heart Disease		
Test	Target	My Level Is
Total Cholesterol	Below 4.0 mmol/L	
LDL Cholesterol	Below 2.0 mmol/L	
HDL Cholesterol	Above 1.0 mmol/L	
Total Cholesterol/HDL ratio	Below 4.0 mmol/L	
Triglycerides	Below 1.7 mmol/L	

Food Sources of Cholesterol

Only foods from animal sources (meat, dairy, etc) contain dietary cholesterol. Foods from plant sources (fruits, vegetables, grains) have no cholesterol. The major food sources of cholesterol and their relative cholesterol content are listed below:

Food	Cholesterol Content (MG)
1 egg yolk	180-225
3 1/2 oz shrimp	190-200
Organ Meats: • 3 1/2 oz liver	350-390
High-fat Meats: • 3 1/2 oz beef steak or lamb • 3 1/2 oz chicken with skin	70-80 100-120
High-fat Dairy Products: • 1 tbsp whipping cream • 1/2 cup vanilla ice cream • 1 oz cheddar cheese	17-21 40-80 30

** Eating less than 200mg of cholesterol per day (the amount found in one egg yolk) can be an important component of helping you reduce high blood cholesterol.*

Foods Sources of Saturated Fat

Saturated fat is mainly found in high fat dairy products and high-fat meats. Many commercial snack foods and fast foods also contain saturated fat. Listed below are food sources of saturated fat

- High-fat dairy products (full-fat cheese, cream, whole milk, and 2% milk)
- High-fat meats (regular ground beef, bologna, hot dogs, sausage, bacon, poultry with skin)
- Cream sauces
- Butter, shortening and lard
- Coconut, palm and palm kernel oil
- Fast foods (hamburger, fries) and many commercial snack foods (chocolate, chips, cookies, doughnuts, muffins)



Foods Containing Trans Fats

Trans fats are liquid fats that have been physically altered. These fats act like saturated fats when consumed and therefore increase LDL cholesterol. Trans fats are mainly found in:

- Processed snacks and baked goods (cookies, muffins, cakes, crackers, chips)
- Shortening
- Many fried foods (doughnuts, French fries)

If you see the words partially hydrogenated or hydrogenated listed as one of the ingredients on a food label, then this food choice contains trans fats. Although a product may be listed as “trans fat free” that does not necessarily mean it is fat free. It could still be high in saturated fat or total fat.

Unsaturated Fats

Some fats are actually helpful in reducing your risk of heart disease. Unsaturated fats are fats that help lower blood cholesterol by lowering LDL and/or increasing HDL. The two main types of unsaturated fats are monounsaturated fats and polyunsaturated fat, which can be found in the following foods:

- Vegetable oils (olive, canola)
- Nuts and seeds (almonds, cashews, pecans, pumpkin, sunflower)
- Non-hydrogenated margarines (soft-tub)

Omega-3 fats are a type of polyunsaturated fat. Omega-3 fats not only reduce LDL cholesterol but they also reduce your risk of coronary artery disease. Sources of Omega-3 include:

- Fatty, cold-water fish (salmon, herring, mackerel)
- Ground flaxseed and flax oil
- Walnuts

How much fat do you need?

Healthy eating includes 20-35% of your day's calories coming from fat

- For a woman this is about 45-75 grams of fat a day • For a man this is about 60-105 grams of fat a day

Triglycerides

Triglycerides are another type of fat found in the body. Like high cholesterol, high triglycerides can also lead to atherosclerosis, increasing your risk of heart disease.

The triglyceride level in your blood will increase with excessive fat, sugar and alcohol intake.

Strategies for lowering triglycerides:

- Maintain a healthy body weight
- Consume three meals each day
- Avoid or reduce alcohol intake
- Limit simple sugars
- Increase consumption of unsaturated fats
- Exercise regularly
- If diabetic, maintain good blood glucose control

Understanding Salt

Sodium is a major component of salt. Although your body needs a little bit of sodium to maintain water balance, too much of it can lead to hypertension (high blood pressure) fluid retention and worsen symptoms of heart failure.

Sodium is naturally present in many foods. However, the majority of sodium we eat comes from packaged, processed and restaurant foods and by adding salt when cooking or at the table. In fact, **1 tsp of salt = 2300mg of sodium.**

Sodium comes from more than your salt shaker. Consistently avoiding and limiting higher sodium foods in your daily food intake will help you meet your lower sodium goals.

Foods with higher sodium content include:

- Processed meat and fish, such as ham, bologna, hotdogs, sausage, corned beef, bacon, luncheon meat, sardines, and pickled herring
- Processed cheese
- Salted canned vegetables, pickles, olives and sauerkraut
- Bouillon cubes, dried soup mixes, regular canned soup
- Condiments such as ketchup, mustard, salad dressings, soy sauce, Worcestershire and steak sauces



Aiming for a diet of less than 2000mg sodium per day from all food sources, can help you control high blood pressure and help manage your symptoms of heart failure.

When choosing a 'salt substitute' to season your food – choose a salt free seasoning blend without any added sodium or potassium. Choices such as Ms. Dash or McCormicks No Added Salt blends are commercially available, though you may wish to make your own from a variety of herbs and spices. Avoid use of potassium based salt substitutes - these products look like and taste like salt – and remain inappropriate for individuals with cardiac and renal dysfunction.

Fibre

Aside from helping to keep you regular, fibre, especially soluble fibre, helps lower blood cholesterol. Additionally, as your body cannot digest insoluble fibre, it helps you feel fuller longer which helps you maintain a healthy weight. In general, fruits, vegetables, whole grains and legumes are good sources of fibre.

How much fibre do you need in a day?

- **Women:** 25g or more **Men:** 35g or more
- **Label Tip:** Look for items with 2 or more grams of fibre per serving.

Food Labels

Check serving size.
Compare this to how
much you are eating.

Saturated fat and trans
fat are the “**bad**” fats
for your heart.

Use the mg to compare
products to make low
sodium choices.

Nutrition Facts

Serving 1/3 cup (28 g)

Amount per serving

Calories 130

% Daily Value

Fat 0.5 g 1 %

Saturated 0 g 0 %
+ Trans 0 g

Cholesterol 0 mg 0 %

Sodium 190 mg 8 %

Potassium 250 mg 7 %

Carbohydrate 23 g 8 %

Fibre 12 g 48 %

Sugars 8 g

Starch 3 g

Protein 3 g

Vitamin A 0 % Vitamin C 0 %

Calcium 2 % Iron 25 %

INGREDIENTS: WHEAT BRAN, SUGAR, GLUCOSE-FRUCTOSE,
PSYLLIUM SEED HUSK, CORN BRAN, SALT, BAKING SODA
NATURAL COLOUR, VITAMINS (THIAMIN HYDROCHLORIDE,
d-CALCIUM PANTOTHENATE, PYRIDOXINE HYDROCHLORIDE,
FOLIC ACID), IRON, BHT

The table below lists the main food groups. Foods under the “choose often” category are heart healthy choices.

FOOD GROUP	CHOOSE OFTEN	CHOOSE LESS OFTEN
Vegetables and Fruit <i>(7-10 servings per day)</i> One serving of fruit: = 1 medium sized fruit (tennis ball) = 1/2 cup of fresh, frozen, cooked or canned fruit = 1/2 cup fruit juice One serving of vegetables: = 1 medium sized vegetable = 1 cup salad or vegetable juice = 1/2 cup fresh, frozen, cooked or low sodium canned vegetables	<ul style="list-style-type: none"> • Dark green leafy vegetables (broccoli, kale and spinach) • Dark orange and red vegetables (carrots, red peppers, sweet potato) • Cabbage, cauliflower • Fresh or frozen fruit and vegetables • Apples, pears, oranges, berries, peaches 	<ul style="list-style-type: none"> • Vegetables prepared with cream sauces or butter • Deep-fried vegetables (onion rings, french fries) • Fruit juice and fruit drinks/cocktails • Canned fruit in syrup
Grain Products <i>(6-8 servings per day)</i> One serving of grains: = 1 thin slice of bread = 1 cup cold cereal = 3/4 cup hot cereal = 1/2 cup rice or pasta	<ul style="list-style-type: none"> • Whole grain breads and pastas • Brown rice • Oatmeal • Psyllium (i.e. All Bran – Bran buds with Psyllium) • Unbuttered air-popped popcorn 	<ul style="list-style-type: none"> • Granola cereals and bars • Cakes, pies, pastries and doughnuts • Commercial muffins and scones • Regular microwave, cheese or buttered popcorn • White bread, bagels
Milk and Alternatives <i>(2-3 servings per day)</i> One serving: = 1 cup milk or fortified milk alternative = 3/4 cup yogurt = 50g cheese (two dice)	<ul style="list-style-type: none"> • 1% or skim milk • Fortified Soy beverages • Plain or fruit yogurt (1% M.F. or less) • Cottage cheese (2% M.F. or less) • Lower-fat cheeses (20% M.F. or less) • Ice milk, frozen yogurt • Low-fat sour cream 	<ul style="list-style-type: none"> • Whole or 2% milk • Regular yogurt • High-fat cheese (greater than 20% M.F.) • Full-fat cream cheese • Cream • Ice Cream • Regular sour cream
Meat and Alternatives <i>(2-3 servings per day)</i> One serving: = 3 - 4oz meat, poultry or fish (deck of cards) = 1 large egg (max of 2/wk) = 1/2-1 cup beans/lentils = 2 tbsp nut butter (golf ball)	<ul style="list-style-type: none"> • Tofu • Dried peas, beans, lentils • Natural nut butters • Nuts and seeds • Fresh & canned fish (salmon, mackerel, herring) • Poultry (without skin) 	<ul style="list-style-type: none"> • Honey-roasted or salted nuts and seeds • Poultry with skin • Regular ground beef, bologna, hot dogs, sausage, bacon, pork and spareribs • Canned fish in broth or oil
Other foods <i>(use in moderation)</i> One serving: = 1 tsp oil, margarine, butter = 1/8 avocado	<ul style="list-style-type: none"> • Non-hydrogenated margarine • Oils (olive, canola, sunflower) • Avocado • Jams and jellies with no sugar added 	<ul style="list-style-type: none"> • Butter, lard and shortening • Cream substitutes and flavoured coffee creamers • Regular jams and jellies • High-sodium spreads and sauces (soy and teriyaki sauce, mustard, ketchup and relish)

Alcohol Intake

If you consume alcohol, aim to reduce intake to no more than one alcoholic beverage per day. One beverage equals: 1 1/2 ounces of liquor or 5 ounces of wine or 1 bottle of beer per day.

Caffeine Intake

Caffeine, if consumed, should be taken in moderation. Aim for no more than 2 cups of regular coffee or alternate caffeine sources each day. Remember that tea, chocolate, colas and many 'energy' drinks are sources of caffeine within your diet. Substitute caffeine sources with herbal teas, decaffeinated coffee, decaffeinated colas or sodas, or water.

Healthy Weight

Achieving and maintaining a healthy body weight is an important aspect of heart health. There are many reasons why you may have excess body weight. It is important not to use these factors to prevent or limit you from achieving your healthy weight goals.

My BMI is: _____

To calculate my BMI = $\text{wt [kg]} / \text{ht}^2 \text{ [m]}$

Body Mass Index or BMI is a tool used to determine both your health risk associated with weight, but also can assist you with setting a healthy weight goal. This moves away from the idea that there is one single perfect weight specific to your height. The higher your BMI, the more your health is at risk.

CLASSIFICATION	BMI CATEGORY	RISK OF DEVELOPING HEALTH PROBLEMS
Underweight	less than 18.5	Increased
Normal Weight	18.5 - 24.9	Least
Overweight	25.0 - 29.9	Increased
Obese	30.0 +	High

Waist Circumference

Your waist circumference can also be a strong predictor for health risk. It can help in determining where you are carrying your extra weight and if too much of it is abdominal fat. Your measurement should be taken halfway between your lowest rib and the top of your pelvic bone, the measuring tape should remain flat and shouldn't be squeezing any of the soft tissue beneath it.

A waist measurement of 102 cm (40 in.) or greater for males, and 88 cm (35 in.) or greater in females indicates an increased risk of developing health problems.

Tips to Help with Weight Loss

Losing weight is hard because it involves making long-term lifestyle changes - and that is challenging! But with realistic goals, gradual and on-going changes and positive support you are capable of making it happen!

- Set realistic goals - 1 pound per week / 5 pounds per month
- Get Positive Support - from a registered dietitian, family doctor, friend, colleague or support group
- Enjoy three meals a day - including starting each day with a healthy breakfast
- Drink water regularly
- Follow an exercise program
- Include a serving of vegetables and fruit at each meal.
- Use portion control - sometimes it isn't the choices we are making - but how much of those choices we are consuming.
- Avoid drinking your calories - pop, fruit drinks, alcohol, flavoured water, energy drinks and sweetened ice tea can add many extra calories to your day

Small Changes Add Up!

You may not need to make a huge overhaul to your life to see positive weight loss results. Small simple changes like; using 1% milk in your coffee instead of cream, drinking a bottle of water instead of a can of pop, saving desserts only for special occasions, or having plain air-popped popcorn in the evening instead of chips will all add up to making a positive impact on your healthy weight goal.

Need the numbers?

Here is an example: One can of regular pop equals 150 calories. If you were to reduce your daily intake by just one can of regular pop [or 150 calories] each day for a whole year you would save 54,570 calories! Breaking it down further, one pound of extra weight [fat] is made up of 3500 excess calories - by this one simple change you have just saved yourself 15 1/2 pounds over the course of the year.



Stress

Stress...what is it? Stress is how the mind and body react to challenges or “stressors”. Stress is a normal fact of life for everyone. But when stress is prolonged or repeated, it can damage your emotional and physical well-being, including your heart health.

Most stressors of daily life, like irritations, worries and hassles, do not threaten our lives. Our lives can be full of recurring stressors, like having too much responsibility without enough control at work, relationship problems with your partner, parents, or children, loneliness, or worries about finances or health. But in the long term, repeated or prolonged stress reactions can take a toll on health and well-being. Stress increases heart rate and blood pressure, promotes blood clot formation, and can affect heart rhythms. You may already be aware that emotional stress can trigger angina, just like physical exertion. Excessive, prolonged stress can increase your risk of developing coronary artery disease or having a heart attack.

How do I recognize my stress? Everybody has stress: that’s just normal. The real problem is too much stress, over an extended period of time. It may seem strange, but we do not always realize when we have too much stress. Often, we just keep our noses to the grindstone! The effects of stress can show up in our thinking, emotional feelings, body, and behaviour. Here are some examples.

Thinking

- trouble concentrating or remembering details, racing thoughts
- negative thinking, hostile thinking
- dwelling on “what ifs” and “worst case scenarios”

Body

- muscle tension: headaches, neck aches, back aches, clenched jaws
- shakiness, sweating, dry mouth
- fatigue, low energy, trouble sleeping
- heart racing or pounding
- frequent urination, indigestion, diarrhea, constipation

Emotions

- irritability, anger, hostility
- worry, anxiety or fear
- overwhelmed
- sad, blue, depressed, or “flat”

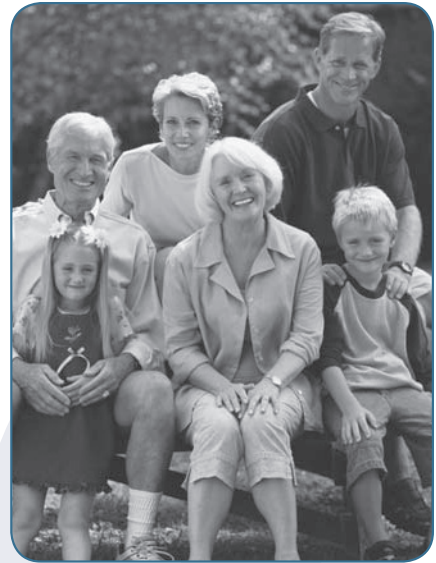
Behaviour

- agitation or withdrawal
- increased temper with others
- disorganization
- increased use of addictive chemicals or drugs to cope: alcohol (beer, wine, liquor), nicotine (tobacco), caffeine (coffee, tea), tranquilizers or sleeping pills, illegal drugs

It is important to realize that each person experiences stress differently. One person may be typically aware of anxiety and muscle tension, while another may experience low energy and low mood. What are your stress symptoms?

How do I reduce stress in my life? Stress is highly personal, so it is important to find ways of coping that fit you and your stressors. Probably a combination approach, not just one technique, will be most helpful. Here are some ideas:

- get regular aerobic exercise (discuss this first with your doctor or cardiologist)
- eat a heart-healthy, balanced diet
 - avoid excess alcohol and caffeine
 - eliminate other chemical “fixes”: tobacco, tranquilizers, illegal drugs
- pinpoint your sources of stress
- identify those stressors which can be eliminated or reduced
- question and evaluate your stressors and thinking (for example, if there’s a problem, is it really always “my” problem?...who is the “rightful” owner?)
- reframe: “Can I look at this situation from a different angle? If I can think of the worst case, what about things that make me feel safer?”
- constructive & assertive communication: instead of bottling up feelings or blowing up, practice direct but diplomatic expression of your feelings, concerns, wishes
- maintain an active spiritual life; practice meditation or prayer
- work to develop or maintain healthy relationships
- find supportive, non-judgemental people with whom you can talk about your concerns and feelings
- learn and practice deep breathing exercises
- learn and practice progressive muscle relaxation
- read a relaxation and stress management self-help workbook
- find a stress management program
- speak with a clinical psychologist or social worker
- seek out humour and comedy in everyday life
- have fun - make time to do the things you love to do.



If you find yourself constantly worrying about things or feeling overwhelmed, perhaps you would benefit from some help in learning how to control your stress. It might be helpful for you to talk to your doctor or nurse about a referral to a social worker or psychologist.

Clinical Depression

Clinical depression is a common reaction to heart surgery. However, depression can also increase the risk of a future heart attack. This is true even when depression is mild and especially if you have had depression in the past. Please talk to your doctor or nurse so appropriate help can be provided.

Diabetes

Diabetes is very common and does increase the risk of heart disease, hypertension and stroke, particularly if your glucose levels are not well controlled. Since some patients are not aware they have diabetes, your blood glucose level (blood test) will be done in hospital. To reduce your risk:

- Monitor your blood glucose levels regularly. Talk to your doctor if you are having difficulty maintaining normal readings.
- Attend diabetic education classes - ask for a referral
- Achieve and maintain a healthy body weight
- Exercise on a regular basis
- Follow your diabetic diet - ask for a referral
- Take your prescribed medications

My fasting blood glucose level is _____

Exercise

Regular exercise has been shown to improve functional capacity, help reduce risk factors that contribute to heart disease and decrease the risk of another cardiac event. Psychological benefits of exercise may help to improve mental outlook, so you are better able to deal with stress. Daily exercise is preferred. When we refer to “Exercise”, we are referring to any aerobic exercise at a moderate intensity. Aerobic exercise is defined as steady, continuous physical activity using your large muscle groups. The following are good examples of exercise: outdoor walking, treadmill walking, outdoor biking, stationary biking, elliptical machine, swimming laps, water aerobics, tennis, etc.

Consult with your doctor before starting an exercise program after surgery that has not been outlined in the Activity Guidelines section of this booklet(pg. 28).

You should think of your heart like any other muscle in your body. When you exercise a muscle it becomes stronger, more efficient and able to do a larger workload with less effort. The same is true for your heart. With regular consistent exercise you can also have a positive affect on your cholesterol levels, triglycerides, blood pressure and mental outlook. Exercise increases your HDL “healthy” cholesterol. Exercise also helps your body absorb and use the sugar in your blood. If you are diabetic this is extremely beneficial in maintaining healthy blood sugar levels. Exercise also improves blood flow. It helps your arteries’ ability to open wider when there is a larger demand for oxygenated blood. This widening of the arteries lowers your blood pressure. This affect can take place after even just one bout of exercise. Regular consistent exercise will have a more dramatic affect on lowering your blood pressure over time.

After leaving the hospital, you need to slowly increase your activity at home as outlined in the Activity Guidelines section (pg. 28). Otherwise, consult your doctor before starting an exercise program. The FITT Principle is an excellent tool to guide you through your exercise program at home. FITT is an acronym describing:

F - Frequency of exercise (how often)

I - Intensity of exercise (how hard should I work)

T - Time (how long should I exercise)

T - Type (what kinds of exercises should I do)

Frequency: Perform aerobic exercise 4-5 times a week to achieve and maintain a desirable level of cardiovascular fitness.

Intensity: Exercise at a comfortable rate. You should always have enough breath to hold a conversation. If you find you are too short of breath when you try to talk, you simply need to slow down. However, if you feel like you could sing a song with ease while you are exercising it probably means you aren't working hard enough.

Time: It is very important that you listen to your body while you are recovering. If you are tired, you should rest. The goal is to work up to 30-40 minutes most days of the week by 6-8 weeks. Start out slow and use common sense. Most people can walk around their house to start, and then graduate to walking to the end of the driveway and back and so forth.

Type: Choose an activity that you like, and one that requires a steady, continuous effort.... like walking, swimming, or cycling.



Important Tips about your Exercise Sessions At Home

Warming Up

The purpose of the warm-up phase is to prepare the body for cardiovascular exercise. A proper warm-up results in a gradual increase in heart rate, body temperature, and blood flow to the muscles. You need to gradually ease into the exercise rather than start abruptly at a moderate intensity. Perform 5-10 minutes of easy low-intensity exercise. Walking is a great choice for a whole body warm-up. During your warm-up you should have enough breath to sing if you wanted to.

Cooling Down

After performing cardiovascular exercise, a proper cool-down session is also necessary. To cool down effectively, spend 5 minutes performing low-level activity such as slow walking or cycle pedaling with minimal effort. After cooling down, your heart rate should decrease to almost pre-exercise levels.

Remember

- Pace yourself. Start with one change at a time and start with a change that you are most comfortable with.
- Do not participate in competitive sports without consulting with your physician.
- If you are feeling unwell, do less.
- Focus on activities you enjoy.
- Stay positive.
- Get back into the swing of things. Get out and enjoy yourself.

Sexual Relations

Sex is a normal and healthy part of our lives. It is possible for you and your partner to resume sexual activity after heart surgery.

Commonly Asked Questions:

1. Will resuming sex provoke another cardiac event?

Often both partners fear that resuming sexual activity will cause another cardiac event. This is not true. If there are no significant medical problems after the heart surgery you are physically capable of resuming sex. Your worries and concerns will resolve with time, experience and open communication with your partner.

2. When can I resume sex?

The energy used during sexual activity is comparable to that used to climb two flights of stairs or taking a brisk 3 block walk. A common method of assessing your readiness is to climb 2 flights of stairs at a brisk rate, taking at least 20 steps in 10 seconds (2 steps per second). If climbing the stairs at this rate is comfortable and does not cause chest pain you are ready to resume sex. Remember if you have had a sternotomy incision with your surgery, it will take 6 to 8 weeks for the bone to heal. You should avoid strenuous arm and upper body activities.

3. When is the best time of day?

There is no right or wrong time, however you may want to consider the following suggestions - avoid sexual activity after a heavy meal or alcohol.

4. Will my medications affect my performance?

Some drugs may decrease your desire for sex and some drugs may decrease your ability to perform. Do not stop your medications but talk to your doctor if you are having a problem.

5. Can I use Performance Enhancing Drugs?

It is unsafe to use these drugs (common drugs to be avoided are Viagra and Cialis) if you are taking nitrates. Talk to your doctor for advice if you are considering using these drugs.

It is normal to be anxious and a little afraid. Talk about your concerns with your partner. Be relaxed and ready-physically and emotionally.

Make the temperature in the room comfortable. Start with hugging and progress as you feel comfortable. This is a time of caring and sharing and you both need lots of tender loving care. If you experience chest pain during or after intercourse, palpitations, increased heart rate or shortness of breath lasting longer than 15 minutes after intercourse, stop and report it to your doctor.



Cardiac Rehabilitation

What is Cardiac Rehabilitation?

Cardiac rehabilitation is a very important step to recovery from a heart attack, heart surgery, or other heart-related problems. It is a six-month outpatient program which typically begins a few weeks after you leave the hospital. Cardiac rehabilitation is designed to help you establish and maintain an active lifestyle, to gain strength and confidence, and to take charge of your health and life. Along with heart surgery, angioplasty or other treatments you may receive while in the hospital, cardiac rehabilitation afterward is an important part of your overall cardiac care.

Managing your Risk Factors

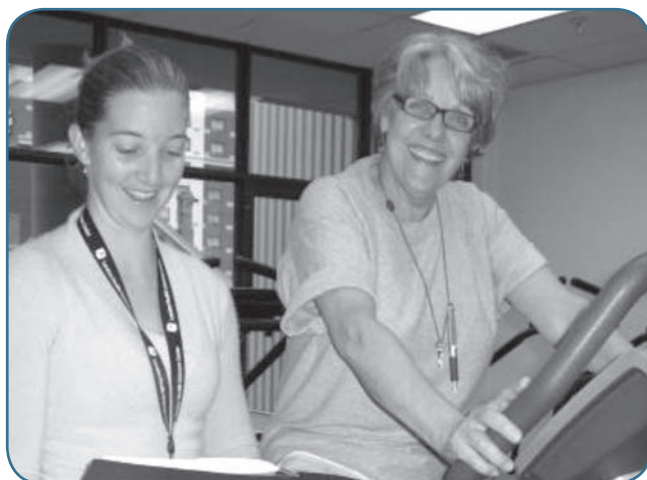
You have read about changeable risk factors for coronary artery disease: smoking, high blood pressure, high cholesterol, stress, depression, diabetes, lack of exercise, and being overweight. These increase the chances that you will develop a heart condition, that your heart condition will progress, or that you will have another cardiac event. Effective management of these risk factors is the key to heart health.

The cardiac rehabilitation program is designed to help you manage your risk factors. The program has two main goals. The first is rehabilitation, to assist your recovery and improve your quality of life after a cardiac event or procedure, such as unstable angina, a heart attack, angioplasty or heart surgery. The second goal is secondary prevention, to reduce the chances that you will have another cardiac event in the future. These two goals fit very well together, because you can achieve both by controlling your risk factors. Cardiac rehabilitation focuses on both heart-healthy lifestyle and medications, because research shows that both are essential for recovery and for reducing the chances of developing more heart trouble.

Effective management of a chronic or long-term condition such as coronary artery disease depends upon your own active involvement, in collaboration with your health-care professionals. You have a crucial role to play in the active, life-long management of your own health and heart condition. Cardiac rehabilitation is important because it can provide you with the knowledge, skills and confidence you need to play this vital role.

Programs may provide:

- Medical Assessment
- Exercise Program
- Nutrition & Weight Management Counseling
- Heart Health Education
- Psychological Services
 - Smoking Cessation Therapy
 - Women's Support Group
 - Individual Counseling or Psychotherapy
 - Group Stress Management



Benefits of a Cardiac Rehab Program

- Improvement of your physical function
- Improvements in your quality of life
- Increased self-confidence and well-being
- Improvements in emotional distress such as anger, fear and depression
- A better understanding of your condition
- Knowledge, skills and confidence to play an active role in the management of your own health
- The support of people like you
- Improved risk factor profile
- Decreased chance of another heart attack or death

Please check with your health care provider about a Cardiac Rehabilitation Program in your area. There are no costs to most programs.

Going Home

What comes next? Well, in large part, now it depends on you. But you're not alone in your commitment. Thousands of people, just like you, have had heart surgery and have gone on to lead productive and fulfilling lives. There are also numerous organizations dedicated to helping you find ways to change your lifestyle and to cope. You have a community to rely on, should you need it. Following is a list of organizations available to help you with any issues you may have. As we said at the outset, having heart surgery is a significant event in your life. Though it may mean the end of some things you did before, for you, this can be a new beginning.



Community Resources

For Community Resources in your area contact the Heart and Stroke Foundation or contact your family doctor.

1. Heart and Stroke Foundation:

Free information is available on a variety of topics.

633 Colborne St., Suite 150,

London, Ontario N6B 2V3

519-679-0641 1-888-HSF-INFO

www.heartandstroke.ca

2. Cardiac Rehabilitation - (Physician referral required)

A: Cardiac Rehabilitation Secondary Prevention Program (CRSP),

St. Joseph's Hospital

Room B3-030 (central outpatient registration desk)

268 Grosvenor St., London, Ontario N6A 4V2

519-667-6704

The Cardiac Rehabilitation Secondary Prevention Program provides comprehensive risk factor modification and exercise training. Other Cardiac Rehab sites include: Ingersoll, Leamington, Windsor, Sarnia, Owen Sound, Chatham, and Kitchener-Waterloo.

B: Cardiac Fitness Institute: Victoria Hospital

800 Commissioners Road E. London, Ontario N6A 5W9

519-685-8372.

3. Financial Assistance

A: Trillium Drug Program, Ministry of Health - Provides benefits to persons whose drug costs are high in relation to their income and who are not covered under private insurance or the Ontario Drug Benefit plan. Pick up an application at your local pharmacy or call the Trillium Drug Program at 1-416-642-3038 or toll free at 1-800-575-5386. Forms also available online at <http://www.health.gov.on.ca>. (Go to 'Forms Online' and click on 'ODB').

B: Employment Insurance Sick Benefits - Financial assistance to persons who are unable to work due to sickness and have worked 600 insured hours in the last 52 weeks or since their last claim. Apply at the nearest Service Canada Centre or online at www.servicecanada.gc.ca.

Call 1-800-206-7218 for information and office locations.

London Office: Dominion Public Building 457 Richmond St.

C: Canada Pension Disability Benefits - Financial assistance related to permanent and severe disability. It is available to people who contributed recently to the Canada Pension Plan while they worked, and then became unable to work at any job on a regular basis because of a disability. Apply online www.canadabenefits.gc.ca or call 1-800-277-9914 to have an application sent to you.

D: Credit Counselling Thames Valley - For information and counselling related to debts.
125 Woodward Ave London, Ontario 519-433-0159 ext. 8401 www.creditcounsellingthamesvalley.ca

E: Social Assistance - Emergency financial assistance.

i. Ontario Works - Basic financial assistance to those in immediate need who have no other potential sources of income or assets to rely on.

Ministry of Community and Social Services website at:

<http://www.mcscs.gov.on.ca/en/mcscs/index.aspx> . Apply online, in person or by phone.

London Office: 519-661-4520

ii. Ontario Disability Support Program - Eligibility based on financial need and having a disability expected to last one year or more. Apply through your local Ministry of Community and Social Services.

London: 217 York Street Box 5217, Suite 203

519-438-5111 1-800-265-4197

4. Medic Alert Bracelet:

Canadian Medic Alert. 2005 Sheppard Ave. East Toronto, ON M2J 5B4

1-800-668-1507

www.medicalert.ca

Medical problem cards and ID bracelets are supplied, as well as a 24-hour a day file on members for use by doctors and hospitals. Recommended for patients to identify medication allergies, long-term anticoagulation, etc.

5. Smoking Cessation Resources

A: The Lung Association - Offers information and phone counselling about smoking and how to quit. 1-888-566-5864

B: Middlesex-London Health Unit - Offers individual and group counselling, telephone help, and resources.

50 King St. London,

ON 519-663-5317 ext. 2220

www.healthunit.com

C: Smoker's Helpline - Canadian Cancer Society - 1-877-513-5333 www.smokershelpline.ca

6. Community Care Access Centre

Helps you access government funded home care and long-term care.

- London and Middlesex County
– 356 Oxford St. West London, Ontario
519-473-2222 or 1-800-811-5146
www.ccac-ont.ca

- 395 Carrie Street, Suite 311 Strathroy,
Ontario N7G 3C9
519-245-3233 or 1-800-265-6235
www.ccaclm.on.ca

- Chatham/Kent: 519-436-2222, 1-888-447-4468

- Elgin: 519-631-9907, 1-888-563-3098
- Grey-Bruce: 519-371-2112, 1-888-371-2112
- Huron: 519-527-0000, 1-800-267-0535
- Perth: 519-273-2222, 1-800-269-3683
- Oxford: 519-539-1284, 1-800-561-5490
- Sarnia-Lambton: 519-337-1000,
1-888-447-4468
- Windsor-Essex: 519-258-8211,
1-888-447-4468

7. **ConnectCare** - Personal Response Service

St. Joseph's Health Care London - Parkwood Hospital.

801 Commissioners Road East, London, ON N6C 5J1

Tel: 519-685-4550 Fax: 519-685-6845 Toll Free: 1-888-298-6116

www.connectcare.ca

8. **Lab Services**

- Canadian Medical Labs London: 124 Barker St. 519-455-2190
- Gamma DynaCare
 - London: 245 Pall Mall St. 519-679-1630, 690 Hale St. 519-453-0960
595 Bradley St. 519-668-6195
 - Strathroy: 74 Front St. E 519-245-3130
- Life Labs
 - London: 746 Baseline Rd. East, 450 Central Ave., 279 Wharncliffe Rd., 140 Oxford St. E ,
1225 Wonderland Rd. N
 - Other: 1-877-849-3637 Call to find out location nearest you.

9. **Accommodations**

Inquire at the nursing station of your inpatient unit or ask the social worker for a printed list of possible accommodations. You can also view online listings at www.london.ca.

10. **Community Counselling**

A: Canadian Mental Health Association - Information about mental illness and many related resources.

London: 648 Huron St.

519-434-9191

www.london.cmha.ca

Other: 1-866-531-2600 www.ontario.cmha.ca

B: Family Services Thames Valley - Provides individual and group counselling for adults.

125 Woodward Ave. London, ON

519-433-0183

C: Daya Counselling Service

141 Dundas St. 6th Floor,

519-434-0077

Glossary

Angina Pectoris – Discomfort which generally occurs in the chest when the heart temporarily does not get enough blood to meet its oxygen needs. This is due to narrowing in the coronary arteries.

Aorta – The main artery of the body which carries blood from the left ventricle of the heart to all the other arteries of the body.

Arrhythmia – A disturbance of the heart rhythm causing the heart to beat too slowly (bradycardia), too quickly (tachycardia) or irregularly (atrial fibrillation).

Artery – A blood vessel (thick walled tube) which carries oxygen-rich blood from the heart to the rest of body.

Atherosclerosis – Fatty deposits inside the artery causing narrowing of the artery. Cholesterol - A fatty substance found in foods of animal origin and manufactured by the body. It can accumulate in the arteries and cause narrowing.

Collateral Circulation – The rerouting of blood through small branches of a coronary artery to improve blood supply to an area that has a blocked or narrowed artery.

Coronary Arteries – The blood vessels that carry blood to the heart muscle.

Coronary Artery Disease – Atherosclerosis of the coronary arteries.

Edema – Swelling of the body tissues caused by the accumulation of fluids.

Heart Failure – Inability of the heart to supply adequate blood to meet the demands of the body. It can cause symptoms like shortness of breath and swelling and can cause you to feel run down.

Hypertension – High blood pressure.

Ischemia – Lack of adequate blood supply to an organ.

Myocardial Infarction – Also called heart attack. Permanent damage of the heart muscle due to blockage in a coronary artery.

Plaque – A deposit of fatty material found in a blood vessel wall.

Stenosis – Narrowing of a blood vessel or a heart valve.

Triglyceride – A type of fat in the blood which may contribute to atherosclerosis.

Vein – A blood vessel that carries blood back to the heart.

Ventricle – The chambers of the heart that provide the action to pump blood out of the heart. The right ventricle pumps blood to the lungs and the left ventricle pumps blood to the body.

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London Health Sciences Centre