



UNIVERSITY OF OTTAWA
HEART INSTITUTE
INSTITUT DE CARDIOLOGIE
DE L'UNIVERSITÉ D'OTTAWA

PULMONARY THROMBOENDARTERECTOMY

A Guide for Patients and Families



PLEASE BRING THIS BOOK WITH YOU TO THE HEART INSTITUTE

Patient Name _____

Please complete the following information:

Contact Person Name _____

Phone Number _____

Referring Doctor Name _____

Phone Number _____

Family Doctor Name _____

Phone Number _____

Pharmacy Name _____

Phone Number _____

Cardiac Surgeon Name Dr. Fraser Rubens

Phone Number 613-761-4720

Advanced Practice Nurse (APN) Name _____

Phone Number _____

Cardiologist Name _____

Phone Number _____

IMPORTANT

Nursing Coordinator: 613-761-4708

Please call the nursing coordinator if you have any symptoms or concerns throughout your early recovery period. The nursing coordinator can be reached at any time.

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Planning Your Trip and Stay in Ottawa

You have been referred to the team at the University of Ottawa Heart Institute to be assessed for a surgery called pulmonary thromboendarterectomy (PTE). The purpose of this guide is to help you and your family prepare for your trip to Ottawa, for surgery, if it is indicated, and for your recovery at home.

By the time you arrive at the Heart Institute, you have been through a long diagnostic and testing process. Some tests may be repeated while you are here while others will not. Cardiac surgeon Dr. Fraser Rubens will confirm the tests scheduled for you when you arrive in Ottawa.

You should expect to stay here for about 3 ½ to 4 weeks, but it may be longer than this. Please be aware that your plans for returning home need to be very flexible.

Oxygen

If you are coming by air, you must have oxygen on the airplane.

- **If you are not currently on oxygen**, you need oxygen delivered by nasal prongs at a rate of 3 litres/minute.
- **If you are on oxygen now**, your oxygen flow rate should be increased by 2 litres/minute for the duration of the flight.

Each airline company has its own policy about oxygen on the airplane. Some provide the oxygen for an extra cost, others request that you bring oxygen cylinders with you. Check with your airline about their policy.

Also, you will require oxygen continuously for between six weeks to three months after surgery. It is easier to arrange oxygen for your travel home and for the home oxygen if you use a nationally based company. We can assist you in planning for the oxygen needed at home.

It is possible you may be discharged from the Heart Institute after testing is complete, while you are awaiting surgery.

Medication

IMPORTANT

Bring all of the medicines you are taking with you when you come to Ottawa.

As noted on the previous page, it is possible you may be discharged from the Heart Institute after the tests are done if there is a time interval before the surgery date. You will need your medicines if this occurs.

If you are on Coumadin[®], you will be instructed when to stop taking it before you come to Ottawa. Contact Dr. Rubens' office when you have made your flight arrangements.

Accommodations

The most convenient place for you and your family to stay while in Ottawa is the Intern's Residence. It is a five-minute walk from the Heart Institute (there is also an underground tunnel connecting the buildings).

Several types of accommodations are available including studio and fully furnished apartments (one to three bedrooms). The cost depends on the size of the suite. The monthly rate is cheaper than the daily rate, so you will likely want to go with this option. There is a separate charge for parking.

Call 613-798-5555 x15400 or x15434 between 10:00 a.m. and 4:00 p.m. to book a place to stay as soon as you have your surgery date. Current rates and contact information can be found on the Heart Institute website at: www.ottawaheart.ca/visit_us/accommodation.htm

Make arrangements for a place to stay **before** you arrive in Ottawa. Hotels and bed and breakfast establishments are also available.

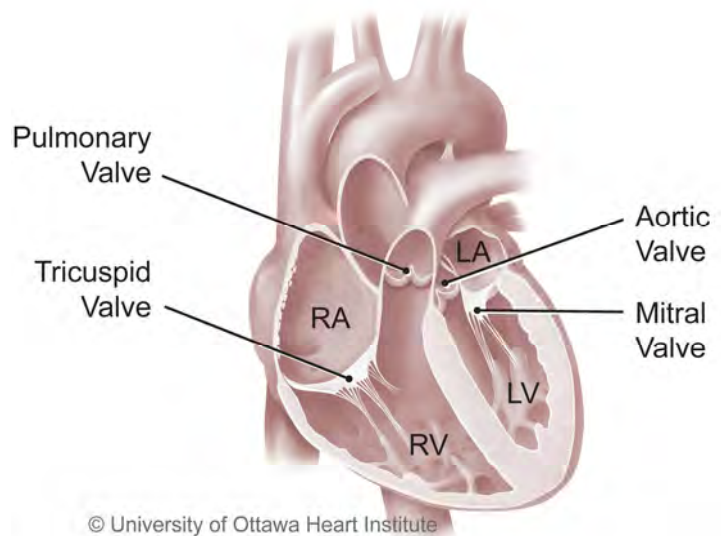
If you have any difficulty in making arrangements for accommodations, contact the social services department at 613-761-4708.

About Pulmonary Thromboendarterectomy

What Is PTE?

Pulmonary endarterectomy (PTE) is a surgical procedure for patients who have chronic thrombo-embolic disease (CTEPH), that is, scar tissue in the lining of the pulmonary arteries caused by blood clots. This scar tissue causes blockages in the pulmonary arteries, which are the blood vessels that carry blood from the heart to the lungs. The result is a partial or complete blockage of blood through parts of the lungs.

Normally the heart and lungs work together. All of the blood that has been used by the body is returned to the right atrium (RA) on the right side of the heart through a system of veins. From the right atrium, the blood travels through the tricuspid valve to the right ventricle (RV) or pumping chamber. The job of the right ventricle is to pump blood a very short distance to the lungs through the pulmonary artery.



The primary purpose of the lungs is to supply oxygen to the blood and to remove carbon dioxide. This function is carried out by a system of branching air tubes which bring air in and out of the lungs and a system of blood vessels (pulmonary arteries) which bring blood to the lungs. The pulmonary arteries divide many times into smaller and smaller arteries. The smallest branches (capillaries) surround the walls of the tiniest air sacs (alveoli) in the lungs. The exchange of oxygen and carbon dioxide happens between the alveoli and capillaries. There are about 300 million alveoli in each lung and 1 billion pulmonary capillaries.

The oxygen-rich blood flows from the lungs to the left atrium (LA) and then to the pumping chamber or left ventricle (LV). The left ventricle pumps the oxygen-rich blood to the whole body. In order for the human body to work

properly, it must have oxygen as a fuel source for all its functions. Oxygen cannot be stored in the body but must be continuously replenished.

About Blood Clots in Your Lungs

In certain conditions, blood clots form in the veins of the legs and pelvis. If they break loose from the veins, they are called emboli. The emboli are swept by the blood through the veins to the right side of the heart. The right side of the heart pumps blood to the lungs so the emboli get stuck in the branches of the pulmonary arteries. This can cause several problems:

- If enough of the arteries in the lungs are blocked, the amount of oxygen that can be delivered to the blood is decreased. The result is shortness of breath and more rapid breathing.
- The right ventricle must work harder to pump blood through partly blocked pulmonary arteries. The right ventricle gets stretched and weaker trying to do the extra work. It is not built to work so hard.
- If the right ventricle of the heart is stressed too much, heart failure can occur. When this occurs, blood backs up into the veins causing various parts of the body like the legs and the stomach to swell. As well, blood has trouble getting to the lungs.

Purpose of PTE Surgery

In most cases, when a pulmonary embolism happens, the body is able to digest the clots over time. In some patients, this does not occur. In the majority of cases, we do not know why the body fails to break these clots down. Over time, these residual blood clots form a thick rind of hardened material that is firmly stuck to the insides of arteries.

The purpose of PTE surgery is to remove the tough fibrous material that is blocking the pulmonary arteries in order to allow the right side of the heart to work properly. With this material out of the way, blood can get to all parts of the lungs and oxygen pick up is improved. When these clots are removed from the pulmonary arteries, the heart and the lungs begin to work together better.

The overall improvement after surgery may take some time as the small blood vessels throughout the lungs have developed changes in their muscular wall that generally get better after removing the major obstruction.

What to Expect During Your Stay

Before Surgery

Some diagnostic tests may be repeated. This depends on how recently the tests were done and the specifics of the test. These may include an echocardiogram, a pulmonary angiogram, a MRI (magnetic resonance image) and a CT (computed tomography) scan. You may need a coronary angiogram. Usually, Dr. Rubens asks that this be done before you come to Ottawa. It is better to have this done well in advance of surgery because some intravenous dye is used.

Assessments will be completed by your surgeon, the anesthesiologist, the nurse and the physiotherapist. You may also be seen by other specialists as requested by the team.

You will have a six-minute walk test before surgery. Also, a new medication to relax the blood vessels in the lungs may be added to your treatment plan if you are not currently on this type of medication.

Once the tests are completed, you may be discharged to the Intern's Residence (or other local accommodation) or given day passes until the surgery date.

Anxiety before surgery is a normal part of the process. We will do our best to help you prepare for this operation and keep you informed every step of the way.

The Day Before Surgery

On the day before your surgery, some blood tests may be repeated. In the evening, you will take a shower with special antibacterial soap.

Eating or drinking are not permitted after midnight. You will rinse your mouth several times using an antibacterial mouthwash.

The Day of Surgery

The surgical area will be prepared with clippers to remove hair. This will be followed by another shower with the antibacterial soap. You will receive medicine ordered by the anesthesia doctor to help you relax.

Sometime between 7:00 a.m. and 7:10 a.m., you will go to the operating room. Your family is welcome to come and stay with you any time after 6:30 a.m. until you go to the operating room. The operation will take between six and ten hours and possibly longer. This depends on many factors such as body weight, extent of disease and other surgical procedures that need to be done at the same time, for example, bypass or valve surgery.

While you are in surgery, your family is welcome to stay in the family lounge on the main floor of the Heart Institute. It is a very long day for families and many choose to go back to the Intern's Residence (or other local accommodation) and return in the afternoon.

The nursing coordinator will contact your family in the early afternoon (around 1:30 p.m.) to give them a progress report and let them know when to come back to the family lounge.

Dr. Rubens will meet your family in the lounge (main floor, behind the volunteer desk) or telephone them (your preference) when the operation is finished.

The volunteers who are at the front desk will arrange a visit for your family in the Cardiac Surgery Intensive Care Unit (CSICU) one to two hours after your arrive from the operating room.

The nurse who is caring for you will call your family between **9:00 and 10:30 p.m.** on the night of your surgery to give a condition report and again the following morning between **9:00 and 10:30 a.m.**

IMPORTANT

A nursing coordinator is available to you **24 hours a day** at **613-761-4708** if you have any questions or concerns.

In the Cardiac Surgery Intensive Care Unit

You will be transferred from the operating room directly to the Cardiac Surgery Intensive Care Unit (CSICU). The average time in CSICU is three to ten days but some patients stay longer because of medical problems.

You will have a nurse with you constantly until you are awake, breathing on your own and able to sit up.

When you first arrive in the CSICU, you will be asleep and breathing with the help of a ventilator or breathing machine. You are connected to this machine by a breathing tube which was put in by the anesthesiologist after you were asleep in the operating room.

The most important thing to remember is you cannot speak while the tube is in place. You can still communicate with your nurses by answering yes and no to questions or writing notes. The breathing tube stays in place until the oxygen levels in your blood are satisfactory. When your condition is stable, the breathing tube will be removed and your activity will be increased gradually.

You will also be connected to specialized equipment to monitor your heart rate, blood pressure and oxygen levels. You will have intravenous tubes in place. Also, you will have a small tube (called a catheter) placed in your bladder to take care of urine.

Your nurse and physiotherapist will help you with your activity and teach you how to support your breastbone incision.

You will receive several types of pain medicine regularly when you arrive in the CSICU. Once you are able to take fluids, the pain medicine will be changed to oral tablets. Work with your nurse to stay comfortable.

Most patients report feeling a generalized muscle weakness after the surgery. The longer the patient stays in CSICU and is not able to move about, the higher the incidence of this problem. It will take some time for you to build your strength up again.

Some patients report feeling disoriented after surgery. This is likely due to the nature of the surgery, the medicines used, and the stay in the CSICU. In most instances, as you get stronger and able to do more, this passes.

Some patients find their emotions are changeable for a few days or they occasionally see spots or lights or images. This is related to the nature of the surgery and generally goes away quickly.

Your family may visit with you at any time during the day by contacting the volunteers at the front desk. The volunteers will call the CSICU to make arrangements. Visitors should contact the volunteers each time they wish to visit.

Transfer to the Nursing Wards (H3/H4)

Take your medicine for pain regularly, especially at first, to stay comfortable. The work of recovery is walking, resting, eating and sleeping, and this work is difficult if you are not comfortable. Let your nurse know if you are having problems with pain.

You will start on a walking program with assistance from the physiotherapists and nurses. Each day, you will walk a little farther. Your oxygen levels and heart rate will be monitored very carefully. When you are able to walk at least 120 metres several times a day and maintain good oxygen levels, you can expect to go home in a few days. You can expect to climb stairs before discharge if you need to do this at home.

You may be taking Coumadin[®] after surgery again and blood studies will be done regularly to measure your INR (international normalized ratio). The INR indicates how long it takes for your blood to clot. Your dosage of Coumadin[®] will be adjusted until your INR is within a target range. This may take a few days or more to regulate. Some patients will be on blood thinners given as regular injections if Coumadin[®] is not indicated.

Additional diagnostic tests such as an echocardiogram, blood tests and X-rays will be done during your stay on H3/H4.

You will receive oxygen continuously while in the Heart Institute and at home for about six weeks, possibly more, after surgery. We will assist you in organizing the oxygen for your transfer home after surgery.

Once you are transferred from intensive care, you can start to plan for your return home. Discuss this with the nursing coordinator or the social worker before arranging your travel home.

Preparing for Discharge

Before you leave the Heart Institute, you will attend a physiotherapy class to learn how to do your exercise and walking program (p. 21).

The nursing coordinator will arrange a meeting for you and your family to help you understand all the things you need to know to care for yourself at home.

Expect to stay in Ottawa for a few days after discharge. Before you leave Ottawa, a clinic visit will be arranged with Dr. Rubens for a check up, especially if you live far away.

Following Your Procedure

Recovery after PTE

It will take many weeks to months before you start to feel like yourself again. Many patients find their breathing has significantly improved within the first weeks after surgery. There will be times when recovery seems to be slow, and you will have “good” and “bad” days both physically and mentally. This is normal after any major surgery.

During the first month at home, patients report a number of common concerns:

Fatigue

At first, whenever you try to do something new, you will tire easily. It is important to balance rest and activity. Your activity program will help increase your strength and confidence.

- Rest at least two times every day.
- Do your exercise and walking program after resting.

Pain

To reduce pain in your incisions, shoulders and back, it is important to take pain medicine regularly, as prescribed. Patients report that taking pain medicine in the morning and at bedtime, is especially helpful the first days at home.

As the pain eases, switch to acetaminophen (Tylenol[®] or Extra Strength Tylenol[®]). This will help you stay comfortable and decrease the problem of constipation which may occur with narcotic pain medicines.

IMPORTANT

If your pain gets worse, contact your doctor.

Difficulty Sleeping

Patients say they often fall asleep very easily but cannot stay asleep. Sometimes this is due to sleeping too much during the day, especially late in the day. Pain in the incisions can make the problem worse. Make sure your pain is under control. Occasionally, you may need to take medicine to help you sleep if prescribed by your doctor.

Nausea, Poor Appetite, Constipation

Some stomach upset after surgery is common. The medicines you are taking can also upset your stomach and may contribute to constipation. You may notice your sense of taste is decreased or absent. With time, this improves.

Other Concerns

During recovery, patients report other concerns, but not as often. These include:

- Numbness and tingling in some fingers
- Slight changes in vision
- Short attention span
- Sweats without fever
- Irregular heartbeat. **If this is new or your heart rate is very fast, call your doctor.**
- Mood swings

With time, you will be able to do a great deal more. Be patient. It just takes time.

Incision Care

It is normal for your chest incision to:

- Be slightly red and sore
- Be uneven or bumpy
- Be numb in some areas
- Feel tight, pull or itch
- Drain a small amount of clear yellow liquid
- Have a lump or swelling at the top of the chest incision

Call your doctor if your incision is:

- Warm to the touch
- Excessively red and sore
- Draining pus
- More painful than on discharge
- Also call if you develop a fever

Some discomfort/soreness in your incision is common in the early weeks after surgery. **However, if you continue to feel weak, have flu-like symptoms, a slight fever, pain when you take deep breaths or general aching of all body muscles, call your doctor.**

These could be signs of an inflammatory syndrome that happens sometimes after surgery. It is called post-pericardiotomy syndrome and may be treated with anti-inflammatory medicines. We are very cautious about using these medicines when you are taking Coumadin[®]. Discuss this with your doctor.

Daily Activities

Lifting

Do not lift more than **2 to 4 kilograms (5 to 10 pounds)** for the first six to eight weeks after surgery. Lifting heavy objects interferes with the healing of the breastbone. Your breastbone is broken and although it is wired together with special stitches made of surgical stainless steel, it has to mend just like any other broken bone. Activities such as pushing and pulling should be limited as well.

Bathing

Take showers rather than baths when you first get home. You may feel weak and tired after a shower. You may wish to use a chair to sit on while taking your shower. Use water that is comfortably warm, rather than hot. Ask someone to be close by in case you need help. You may need help washing your hair.

Wash your incision gently with mild soap (avoid perfumed or deodorant soap). Rinse well and pat dry with a clean towel. Lotions or creams on your incision are not recommended.

Once you are stronger and able to use your arms more (six to eight weeks), then you may resume bathing in the tub. Get up slowly and have help nearby when you start taking tub baths again.

Light Work

You can help with light work when you first get home. For example:

- Setting the table
- Making breakfast
- Doing handicrafts
- Trimming flowers
- Light dusting
- Folding clothes

Heavy Work

For the first eight to twelve weeks after surgery, you should avoid heavy work such as:

- Laundry
- Scrubbing floors
- Raking leaves
- Vacuuming
- Mowing the lawn
- Shoveling snow
- Chopping wood

Accept offers of help from your family and friends to do the heavy work.

Other Activities

After six to eight weeks, you can begin activities such as:

- Biking
- Swimming
- Golfing
- Fishing
- Gardening

Start gradually and listen to your body. Begin new activities with a family member or friend. If you are very tired after starting a new activity, it may still be too much for you.

Wearing a Bra

Some women are uncomfortable because the weight of their breasts seems to pull at the chest incision. In this case, wearing a bra may decrease the discomfort. Other women find wearing a bra uncomfortable for the breastbone incision. Putting some gauze over the incision where it is in contact with your bra may help.

Wearing a cotton sports bra may be more comfortable. Front closing bras are easier to get on. Wearing a bra one size larger than you normally wear may also be more comfortable for you. Another alternative is buying a bra extender so that you will be more comfortable.

Sexual Activity

Resuming sexual activity is an individual decision. It is normal during the early stage of recovery to be too tired to think about sex. Some medications may also interfere with your interest in sex. This is usually temporary. Generally the rule of thumb is that if you can climb two flights of stairs without becoming too short of breath, you will be able to resume sexual activity.

As you begin to feel better, plan to have sex at a time when you are feeling rested and comfortable. You should wait for several hours *after* you've had a large meal before having sex. Also, make sure your position during intercourse does not put pressure on your chest incision.

Driving

Check with your surgeon at your post-operative visit. Your surgeon will let you know how soon you can drive. The insurance industry follows the surgeon's guideline. Generally, this is about six weeks after discharge from the hospital.

You must wear your seatbelt. If it bothers your breastbone incision, use your "teddy" or a small towel under the belt.

Airbags: You should sit in the back seat of your car with your belt on. If it is difficult to get into the back seat of the car and you choose to sit in the front, make sure the seat is back as far as possible and wear your seat belt.

Post-Surgery Nutrition Tips

Top nutrition tips:

- Eat regular meals. Aim to eat every four to six hours. Include a healthy snack if you need to.
- Include vegetables or fruit at each meal.
- Include at least three food groups at each meal.
- Fresh is best—cook with fresh foods.
- Remove the salt shaker from the dining table.
- Choose healthy oils more often.

If you can't eat a full meal OR you are losing weight:

- Try to eat every two to three hours.
- Eat a small meal or snack when you feel hungry. Do not wait until a "meal time".
- Make every mouthful count.
- Choose foods which are high in calories and nutrients such as nuts, seeds, avocados.
- Use healthy fats liberally such as non-hydrogenated margarines, olive oil, canola oil, corn oil.
- Choose foods which are easy to eat such as yogurt, fish, soft meats, whole grain pasta, canned fruits.

- Consider eating regular fat dairy and meat products until your appetite improves.
- If you find that you are not able to eat, try a commercial nutritional supplement such as Boost®, Ensure®, or Carnation's Breakfast Anytime! ®

Protein helps your body heal. Good sources of protein include:

- Fish, poultry, and meats
- Dried beans, peas, lentils or other legumes
- Soya products—tofu, tofu puddings, and soya milk (found in the produce section of the grocery store)
- Nuts, seeds and natural peanut butter
- Dairy products—milk, yogurt, cheese, and puddings
- Eggs, egg whites or Naturegg Break Free™ products

If you are too tired to make meals, try the following:

- Have family or friends help prepare meals for you. You can even store meals in the freezer for later dates.
- Use services like *Meals on Wheels* until your strength returns.

Controlling your nausea:

- Nausea can be caused by an empty stomach so make sure to eat regularly.
- Try snacking on plain crackers as soon as you start to feel nauseated.
- If possible, stay away from the kitchen while foods are cooking.
- You may find cold foods easier to manage.

Appetite

If your appetite does not improve, be sure to speak with your doctor. Some changes to your medications may be needed to help reduce your symptoms. Once your appetite returns, it is important to follow a Heart Healthy Eating Plan as explained in the Heart Institute's *Heart Healthy Living Guide*.

Constipation

Make sure to eat regularly as constipation can be due to not eating enough. Choose foods high in fibre such as:

- Whole grain, whole wheat, multigrain and flax seed breads
- High fibre cereals such as All Bran™, All Bran Buds™, Fibre One™ and oatmeal
- Whole wheat pasta, brown rice and barley

Eat at least seven servings of vegetables and fruit per day:

- One serving = 125 ml (½ cup) vegetables or fruit.
 - 250 ml (1 cup) salad
 - One medium size fruit or vegetable
- For more information see Canada's Food Guide which can be obtained by calling 613-957-8329 or visiting the website at http://www.hc-sc.gc.ca/fn-an/food-guide-aliment/index_e.html

Drink at least 6-8 cups (1.5-2 l) of fluid per day (if you are on a fluid restriction follow your guidelines).

Food Preparation

Many communities have programs like *Meals on Wheels* and other supports that may be helpful in the early recovery period to decrease the burden of food preparation. Let family and friends know that meal preparation is one way they can help you in your recovery.

Kidney disease

If you have kidney disease, you might need a special diet. If you have not already met with a registered dietitian, ask to see one so that you can get help to build a healthy eating plan.

Diabetes

If you have diabetes, managing your blood sugars helps healing and recovery. Follow a Heart Healthy Nutrition Plan and refer to the additional diabetes information on pages 17 and 28 of the *Heart Healthy Living Guide*.

Blood Tests

If you need to have blood work done, many laboratories have a program where a technician will come to your home to take blood. There is a charge for this program but it may be more convenient for you. Get your blood work done early in the day so that the results can be called to your doctor's office by the afternoon.

Using a “Teddy” at Home

A “teddy” is a small rectangular pillow that helps you support your breastbone when you are changing positions or coughing.

Some patients prefer to use the support of a teddy at home. We will give you a teddy to take with you, compliments of our alumni organization. It is up to you whether or not you need this support. If you find you are having trouble restricting your arm work, a teddy may be a helpful reminder.



Medications

Before you leave the Heart Institute, you will receive a prescription for all the medications we want you to take from now on. Please take only what is prescribed. When you get home, please call the doctor who sent you to Ottawa for surgery (referring doctor) and arrange an appointment within the first one to two weeks. We telephone the referring doctor to let him/her know about your discharge and progress. All of the medical information will be sent to the referring doctor, including the medications you were discharged on. Your doctor will likely make adjustments in your medicines as you recover.

Please be very careful about taking any over the counter medicines. Because you are on Coumadin[®], check these with your pharmacist.

Do not take your medicines with juice, in particular, grapefruit juice. Some evidence suggests other juices may also cause problems with medicines. The best choice is to take your medicines with water.

Coumadin[®] is taken at supper time. Until you are settled, if you wish, we can help with your INR until your doctor takes over in your community. While you are in Ottawa and after you are discharged from the Heart Institute, we will give you requisitions for your blood work. There is a laboratory on the 2nd floor of the Heart Institute, open from 8:00 a.m to 4:00 p.m. We will help regulate your INR until you travel home.

Return to Work

This is very individualized. Discuss this with your surgeon or doctor when you have your follow-up appointment. We are very proud when our patients can go back to work. Most who do return to work do so within three to five months.

Suggestions for Family Members

IMPORTANT

Look after yourself while your family member is in the hospital.

When your family member returns home, he/she will need to have someone with them as much as possible for the first weeks after discharge. This takes a great deal of energy and if you are exhausted, it will be difficult for you.

Try to keep up as much of your normal routine as possible while the patient is in hospital. Do your best to get a lot of extra rest. This is a stressful time for you as well.

Your family member will have “good” and “bad” days. Although difficult, try not to feel guilty when the days are not going so well. Share in the exercise program and go for walks together.

Exercise and Walking Program

Getting Started

Before you leave the hospital, a physiotherapist will give you a home exercise program. The main purpose of this program is to improve your physical function. Other benefits of regular exercise include:

- Improved endurance, fitness and energy level
- Positive effect on blood sugar control
- Lowering or maintaining blood pressure
- Improving blood cholesterol
- Managing weight
- Managing stress
- Reducing joint and muscle stiffness
- Restoring sleeping pattern
- Reducing risk of depression

Your physiotherapist has developed a physical activity program of morning exercises and daily walking for you to complete during your first few weeks following surgery. The program has been designed to help your recovery and prepare you for cardiac rehabilitation.

The day you travel home from hospital, we ask that you rest and enjoy your return home. The next day (day one at home) begin the stretch/strength exercise program (see p. 24) that a therapist reviewed with you prior to your departure from hospital.

The following day (second full day at home) begin your walking program. The program is designed to build your endurance, and later build up your speed. It is designed for you based on your heart function, your recovery in hospital and your previous level of activity.

The goal is for you to exercise regularly for a positive lifestyle, as well as to help you return to the activities that you most enjoy, i.e., swimming, golf, gardening, etc.

In the longer term, your goal is to exercise five to seven times per week as prescribed.

This physical activity program will be changed and advanced when you start Cardiac Rehabilitation, according to your abilities and personal goals.

Expect to:

- Feel tired for the next few weeks
- Gradually increase your activity level
- Need frequent rest periods

Physical Activity Tips

Breathing: Breathe steadily and in a relaxed manner while you exercise. Avoid straining and *never hold your breath*.

Pace and Intensity: Exercise at a level that allows you to maintain light conversation during the activity.

Terrain: Walk on flat ground to start. If hills are unavoidable, walk more slowly when going uphill.

Eating: It is best to wait an hour or two after a meal before you exercise. This is because extra energy is required for digestion.

Weather: Avoid exercising in extreme temperatures. If it is very hot and humid, walk during the cooler part of the day such as in the morning and later at night. If it is extremely cold or windy, exercise indoors using stationary equipment such as a stationary bike or treadmill or walk in the hallways of your house/apartment or in a mall. If you do choose to exercise outdoors in colder weather, walk during warmer times of the day and cover your face with a scarf to help warm the air before it reaches your lungs.

Posture: It is important that you keep good posture. Try to keep your shoulders back and relaxed. Avoid slouching forward.

Legs: Do not cross your legs as this slows down circulation and will increase the risk of developing blood clots in your legs.

Stretching: After your walks, stretch your calf muscles. They are likely to get tight as you begin to increase your daily activity.

- Stand straight close to a solid surface on which you can use your hands for balance.
- Place one leg behind the other, with both your feet pointing forward.
- Bend the knee that is forward while keeping the back knee straight until you feel a stretch in the back of your calf.
- Hold for 15-30 seconds. Repeat with the other leg.



IMPORTANT

Abnormal responses to exercise may include **nausea, headaches, dizziness, chest pain or palpitations.**

If you notice any of these, stop and rest until the symptoms decrease. If these symptoms persist, **call 911 or go to your nearest emergency room.**

Call the nursing coordinator at the 24-hour access number **613-761-4708.**

Your Exercise Program

- The day you return home from the hospital, you should rest.
- The next day, do your morning exercise routine (see pages 29 to 32) and spend the day relaxing around the house.

Your second full day at home, start your walking program:

- Take two walks of equal duration each day:
 - The first day, walk _____ minutes in the morning and repeat the same in the afternoon.
 - Increase the duration of your walk by _____ minute(s) per day / every other day for _____ days.
 - At the end of _____ days, you will be walking _____ minutes twice a day, at a comfortable pace.
 - Once you can walk _____ minutes comfortably, start to increase your speed gradually over the next _____ weeks, until you can walk _____ miles or _____ kilometres in _____ minutes.
- Walk at a pace that is brisk but allows light conversation without becoming too short of breath.
- Continue this program until you begin cardiac rehabilitation.

If you have any questions about your exercise program please call the number below and leave a message for your physiotherapist.

613-798-5555 x13102

Physiotherapist: _____

Cardiac Rehabilitation

Cardiac rehabilitation is a program of exercise, education and counseling that will help you to make heart healthy living a part of your everyday life. Before you leave the hospital, please make sure you have information or an appointment with Cardiac Rehabilitation.

More information can be found on the Heart Institute website in the “For Patients & Family” section. For any questions about cardiac rehabilitation, please call 613-761-4572.

Keep track of your recovery and activity in the Personal Health and Activity Log on the next few pages. It will help both you and your health care team see how much you have improved.

Personal Health and Activity Log						
Date	Morning Exercises (see p. 29): ✓ when completed	Minutes recommended per walk	Walking Log (minutes) a.m. / p.m.		Calf Stretch: ✓ when completed	Comments or Problems
Day you go home	Rest Today					
	e.g. ✓	none	----	----	none	
	e.g. ✓	minutes			e.g. ✓	
		minutes				
		minutes				
		minutes				
		minutes				
		minutes				
		minutes				

Personal Health and Activity Log

Date	Morning Exercises (see p. 29): ✓ when completed	Minutes recommended per walk	Walking Log (minutes) a.m. / p.m.		Calf Stretch: ✓ when completed	Comments or Problems
		minutes				
		minutes				
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Morning Exercise Routine

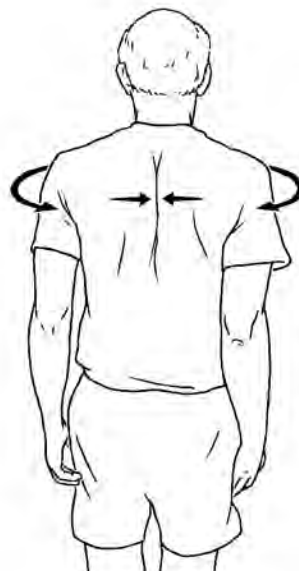
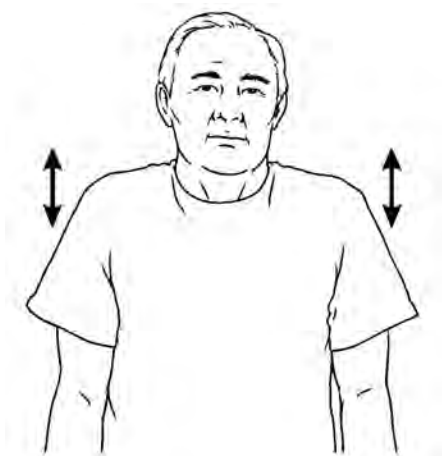
Breathing Exercises

1. Sit straight in your chair with your feet flat on the floor, back supported and shoulders down.
 - Take as deep a breath as you can through your nose and then breathe out through your mouth.
 - Maintain good posture.
 - Repeat 5 times.
 - You can try to cough after this exercise to help clear your lungs of mucus.



Shoulder Exercises

2. Lift both shoulders up as high as you can, and let them relax down.
 - Repeat 3 times.
3. Squeeze your shoulder blades together as far back as you can, until you feel a stretch across the front of your chest.
 - Repeat 3 times.



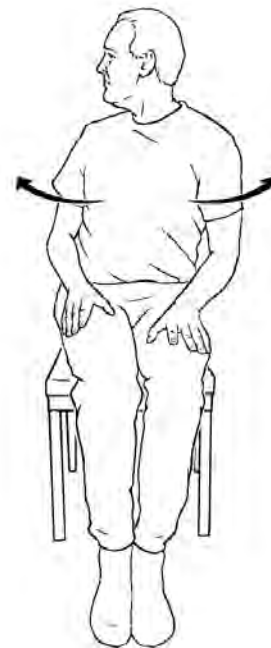
Neck Stretching Exercises

4. Looking straight ahead, turn your head slowly to look over one shoulder as far as you can.
 - Hold for 3 seconds.
 - Repeat to the other side.
 - Repeat 3 times.
5. Keeping your head facing forward and shoulders down:
 - Bring your ear towards your shoulder until you feel a stretch at the side of your neck.
 - Hold 3 seconds.
 - Repeat to the other side.
 - Repeat 3 times.



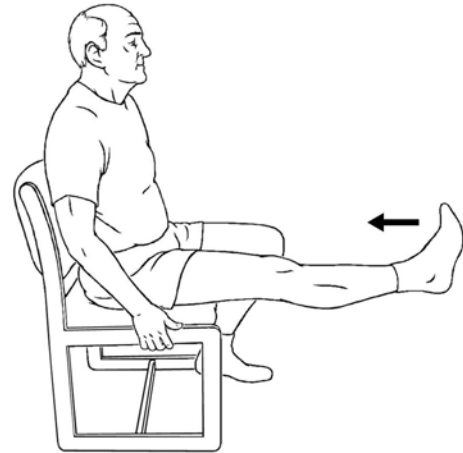
Trunk Rotation

6. Cross your arms in front of your chest.
 - Gently rotate your trunk to one side and hold for three seconds.
 - Repeat to the other side.
 - Repeat 3 times.



Ankle Exercises

7. Sit with your back straight and hands in your lap or at your sides.
- Straighten one knee, pulling your toes towards you.
 - You will feel pulling in your calf and the muscles in your thigh will tighten.
 - Move your ankle back and forth 3 times then lower your leg slowly.
 - Repeat 5 to 10 times with each leg.



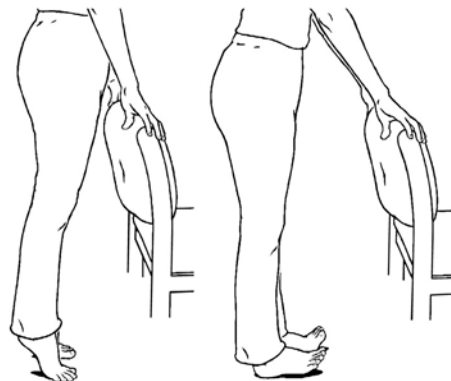
Trunk Bending

8. Stand straight with your arms at your sides and bend your upper body sideways.
- Breathe out as you bend sideways and breathe in as you return to upright. Pause at this point.
 - Repeat on the other side.
 - Repeat 3 times on each side.



Heel and Toe Rock

9. Stand holding onto a solid surface for support, with your feet slightly apart and knees straight.
- Go up onto your toes, then let your heels down slowly.
 - Lift your toes up high, rocking back onto your heels, then let your toes down slowly.
 - Repeat 5 to 10 times.



Mini-Squat

10. Holding a solid surface, place your feet shoulder width apart and keep your back straight.

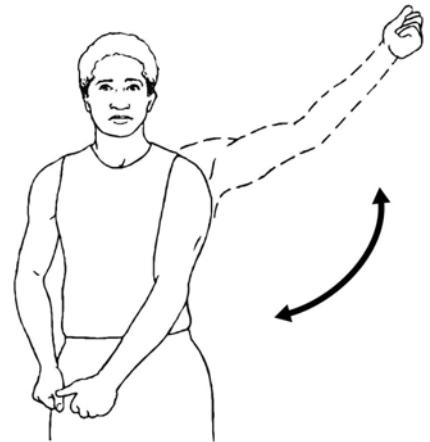
- Bend your knees and hips slightly, **keeping your heels on the ground.**
- Return to a standing position.
- Repeat 5 to 10 times.



Breathing Exercises in Standing

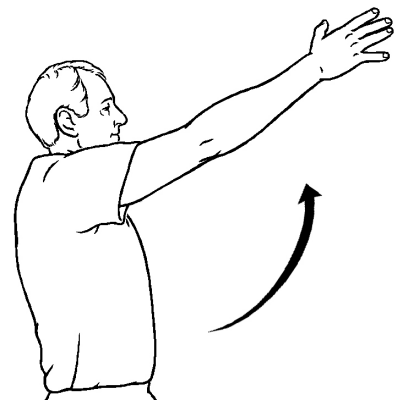
11. Stand straight and put both of your hands on your right hip.

- Lift your left arm up and out as high as it can go.
- Lower your arm and return your hand back to your right hip.
- Breathe in as you lift your arm up; breathe out as you lower it.
- Repeat 3 times.
- Do the same exercise with the other arm.



12. Stand straight with arms relaxed at your side.

- Breathe in as you lift your arm up forward as high as it will go.
- Breathe out while lowering your arm down.
- Repeat 3 times.
- Do the same exercise with the other arm.



Personal Medication Information

Fold this form & keep it in your wallet. It will help you:

- Reduce confusion and save time
- Improve communication
- Improve medical safety

Always keep this form (or an updated version) with you, and take an updated list with you to all doctor visits, all medical tests and all procedures. Update your list as changes are made to your medications.

When you are discharged from the hospital some of your medications may have been changed. These changes will be reviewed with you.

Pharmacy Name and Phone Number: _____

Your Name	Address
Birth Date	
Phone Number	

Allergic To	Describe Reaction

Immunization Record	
Please tick <input checked="" type="checkbox"/> if you have had the following vaccines and write the date, if possible.	
Vaccine	Date
<input type="checkbox"/> Flu	
<input type="checkbox"/> Pneumonia	
<input type="checkbox"/> Tetanus	
<input type="checkbox"/> Hepatitis	

List all prescription medications **that you are currently taking** and over-the-counter (non-prescription) medications, such as vitamins, Aspirin, Tylenol and herbals (such as Ginseng, Gingko Biloba, and St. John 's Wort).

Name of Medication	Dose	When Taken	Reason for Taking

