Patient Information
Lymphedema

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Who should read this booklet?
The information in this booklet is for patients with breast cancer, who are at risk for developing swelling of the arm. Swelling can also happen as a result of other cancers. If you have swelling in an area that is not your arm, the information in this booklet will still apply to you. However, your doctor or nurse will need to change some information and treatments to meet your needs.

The lymphatic system is complex and is not fully understood. The concepts presented in this pamphlet are simplified. If you want to learn more about lymphedema, please ask your health care provider about other resources.

What is lymphedema?
Lymphedema (Lim- Fuh- DEE- Ma) is an abnormal swelling that can happen in the arms, legs, genital areas, and the chest. It is caused by lymph fluid collecting in the tissues of the body. Lymphedema is a symptom common to breast cancer and its treatment. But, it can also happen with other cancers like malignant melanoma and cancers of the reproductive organs in both men and women.

Lymphedema can be mild. It is usually first noted as a feeling of tightness when wearing a watch or ring. Severe lymphedema can involve the swelling of the entire limb making it difficult to fit clothing.

That's Lymphedema!

How does the lymphatic system work?

The lymphatic system is a large system that moves fluid through ducts, vessels and thousands of bean shaped nodes in your body. The fluid is made up of water and proteins that feed the cells in your body. Lymph fluid is collected in the lymph vessels, filtered through the lymph nodes and it eventually drains into the bloodstream through large ducts in the chest (thoracic ducts). The proteins are recycled or leave the body as waste in the urine.

The Lymphatic System

- Right thoracic duct
- Left thoracic duct
- Axillary lymph node (armpit)
- Cubital lymph nodes (elbow)
- Inguinal lymph nodes (groin)
The lymphatic system works with your lungs, muscles and the vascular system called the circulatory system. This is the system that pumps blood and supplies oxygen to the cells. The lungs and muscles are also important in moving lymph fluid through the body. This is why you will see that aerobic exercise is helpful in treating lymphedema.

**What does the lymphatic system do?**

The lymphatic system has two functions. The main function is to help the circulatory system maintain a balance of fluid in the body. Fluids are needed to bring nutrients to, and remove waste products from cells. Every day about three litres of fluid is left behind in the tissue spaces of the body. The lymphatic system absorbs this fluid and returns it to the blood stream. This prevents swelling and balances the fluid in the body. Incredibly, your lymphatic system can handle up to ten times the normal amount of fluid in your body for a short period of time.

The other important function is to help defend the body from disease. When bacteria and viruses are detected in the fluid by the lymph node, it triggers special cells to remove them. This is why you might feel some swollen nodes in your neck or armpit (Axillary) when you have an infection or illness.

**What causes lymphedema?**

Lymphedema refers to anything that slows or stops the flow of lymph fluid. When the fluid stops flowing, it collects in a part of your body like the arm, and makes it swell.

Lymphedema is classified in two ways. Primary lymphedema refers to people born with parts of their lymphatic system

**Is therapeutic ultrasound an effective treatment for lymphedema?**

Applying ultrasound for therapeutic purposes is not recommended, because it has been shown to increase the growth of tumours in animals. Ultrasound used for diagnosis is safe.

**Does lymphedema ever go away?**

Swelling is normal right after surgery. For many, it decreases and never comes back. Most lymphedema develops within 2 to 4 years after treatment. There have been cases where it has occurred 30 years later. Lymphedema that develops later may come and go several times before it returns and lasts a long time. Fortunately, newer surgical techniques make lymphedema less likely.
Several small studies have shown that selenium has a positive effect on lymphedema linked with tumours of the head and neck. Some research using selenium for lymphedema of the arm in combination with manual lymphatic drainage (MLD) has also shown increased benefit over MLD alone. It is thought that selenium works by decreasing inflammation. Since there is no deficiency of selenium in the diet of most North Americans, selenium supplements are not needed and may even be toxic if taken in high doses.

Can I have breast reconstruction?
Many women want to have breast reconstruction. There are different types of breast reconstruction, including muscle flaps, tissue expanders and breast implants. Little research has been done on incidence of lymphedema after these types of surgery. One small study suggests using a flap from the stomach is preferred over tissue expanders and breast implants in women who have lymphedema.16 Talk to your surgeon about this question.

I need to have surgery on my affected limb. What effect will this have on lymphedema?
Any surgery on the affected limb has the potential to cause or increase lymphedema. At the present time there is no evidence on which to base recommendations. This is a question that should be discussed with your surgeon.

Is laser therapy an effective treatment for lymphedema?
Laser treatment, electrical stimulation, vacuum therapy, microwave, and heat therapy have not been shown to be effective. These treatments need further study.

missing. It also includes people who develop a blockage due to an infection.

Secondary lymphedema happens after cancer surgery or radiation therapy. This type of lymphedema is the focus of this booklet. Secondary lymphedema can result from many things, including:

- Surgery;
- Radiation therapy;
- Infection;
- Blood clots;
- Injury;
- Problems with your heart or liver;
- Cancer recurrence.

It is very important that your oncologist finds out the cause of the swelling before you start any treatment.

Why can lymphedema occur after cancer surgery?
The lymphatic system is one of the first places where cancer cells may spread. For this reason, cancer surgery often includes the removal and examination of lymph nodes.

Lymph nodes act like little nets and are able to remove cancer cells from the body. However, sometimes the cancer will enter the lymph node itself and begin to grow. Surgery may be needed to see if cancer has spread to the lymph nodes. This helps find the stage of cancer and the best treatment plan.
During surgery, tiny lymphatic vessels are cut which causes temporary swelling. Usually new connections are made and the swelling disappears within about three weeks.

Unlike the lymph vessels, lymph nodes that are removed do not regrow. The remaining lymph nodes are usually able to do the work of the removed nodes. However, some people

Many cancer centres in Ontario offer special clinics that help with the diagnosis and management of lymphedema.

It can be difficult to find information about lymphedema because this condition has largely been ignored. Fortunately, researchers are doing more studies on prevention and treatment. There are websites, pamphlets and booklets that provide advice about lymphedema. When reviewing this information, you should see if the sponsors come from reliable organizations. You should also see if the recommendations are backed up by scientific data. Good scientific studies will compare results from groups of patients. Generally, the larger the group, the better the study. Check for a reference list so that, if you choose, you can read the original research. Personal stories are interesting but may not apply to other people.

**Frequently asked questions:**

**Can lymphedema be cured?**
Lymphedema can be managed but at the present time it cannot be cured.

**Can diuretics or ‘water pills’ be used to treat lymphedema?**
Diuretics or ‘water pills’ should not be used to treat lymphedema. If used for lymphedema, water pills can worsen swelling by causing protein to build up in the limb. Water pills are best used for other conditions that cause swelling throughout the body, not just in one arm or leg.

**Are there any medications that can reduce lymphedema?**
Research into products such as ointments and oral medicines is ongoing. At the present time there are no medicines that reduce lymphedema.
Sometimes people feel guilty because they think they caused their lymphedema. This is especially true if the swelling occurs after doing an activity that is known to provoke lymphedema. The appearance of swelling can also cause fear that the cancer has returned.

Many people report a range of comments made by other people who notice their swollen arm or the form of compression treatment. Although these comments are usually made with good intentions they can cause embarrassment. Getting more information about your condition and talking about it can help you cope with lymphedema. Contact your family doctor or a Community Care Access Centre case manager for referral to professional counselling. If you are a patient of the London Regional Cancer Program, there are professionals available to help you cope with these emotions. You can refer yourself or ask a member of your care team to make the referral for you.

Where can I find more information about lymphedema?

Organizations such as The Lymphovenous Association of Ontario and Lymphovenous Canada provide online education and print materials. They also have a list of lymphedema management contacts and they hold an annual conference.

will develop swelling that does not go away. This may be a result of the number of nodes that are removed.

Surgeons are always improving the way they do breast cancer surgery and biopsy. One such method is the sentinel node biopsy. In this type of biopsy, the surgeon injects a special blue dye to find the “sentinel” or the closest lymph nodes to the tumor. If the sentinel nodes do not contain tumor cells, no further nodes are removed from the underarm area. This type of biopsy has reduced the need to remove large numbers of lymph nodes for many people with breast cancer. Although sentinel node biopsy removes fewer nodes, it is still possible for lymphedema to occur. This method is not appropriate for all women.
Why can lymphedema happen with radiation therapy?

Unlike chemotherapy, which kills tumor cells throughout the entire body, radiation therapy is used to kill tumor cells in a target area. It may be used as the first treatment or after surgery and chemotherapy to prevent the cancer from returning in the breast or surgical scar.

Radiation therapy may cause temporary irritation and inflammation (swelling) of the lymph vessels and nodes during or soon after treatment. This usually goes away over time. However, some patients develop chronic or long-term swelling. This is a result of decreased function of the lymph system in the area that was exposed to the radiation.

Who will get lymphedema?

It is not possible to predict who will develop lymphedema. Currently, much of the research reports data from older surgical and lymph node biopsy techniques. This research suggests that most lymphedema cases will appear in the first two to three years after treatment. Some people, however, may not get lymphedema until many years later.

What are the risks for developing lymphedema?

Lymphedema develops closest to the area treated for breast cancer such as the arm, chest wall or remaining breast tissue. Some risk factors have been identified. These risks usually involve things that:

a. Cause more fluid to be produced;
b. Fluid that is blocked from leaving the treated area.

Pain:

Pain is both an early warning sign of lymphedema and a complication. It is usually described as a deep, aching pain. Often it will come before the appearance of visible swelling or an infection. Acetaminophen (e.g., Tylenol®) or ibuprofen (e.g., Advil®, Motrin®) can be used temporarily to reduce the pain. Many patients report relief by applying compression. Always report any signs of pain to a member of your healthcare team.

Fibrosis:

Fibrosis happens when soft tissue becomes hard and feels woody. This is the result of dense scar tissue developing within the limb. Lymphedema can cause fibrosis when it is left untreated or becomes chronic over a long period of time. It is usually not reversible.

Angiosarcoma of the skin:

Angiosarcoma of the skin is a very rare type of cancer that is associated with chronic lymphedema. Any open sores and purple lumps (papules) in the swollen limb should be biopsied.

How can I cope with lymphedema?

Lymphedema is an unpleasant side effect of cancer treatment. It can seriously impact the psychological well-being of those who develop it. Living with lymphedema might make you feel frustrated, angry, sad and regretful. You may also feel embarrassed by comments made by people who notice your arm or compression garment. These are normal feelings in response to a change in your outward appearance. They become a problem when they cause isolation, depression and a reluctance to seek help for these symptoms.
What are the complications of lymphedema?

Infection:
Bacteria can infect the lymph fluid. It can enter your system through breaks in the skin. It is also possible to become infected if your immune system is weakened from something like chemotherapy.

An infection in the lymph fluid is called cellulitis. Cellulitis is easily treated with antibiotics. It is important to start treatment right away. If you have two or more episodes of cellulitis in the swollen limb in a year, your doctor may want to give you a prescription for you to carry and fill at the first signs of infection. Repeated infections that are not treated right away can worsen your lymphedema.

Signs of infection include:
• Deep red discoloration of the skin that spreads;
• Pain or tenderness in the area of the redness;
• Increased temperature of the skin in the area of the redness;
• Increased swelling often just in one area of the arm;
• Fever which may be felt as deep, uncontrolled shivering.

The risks are divided into four categories. It is important to note that it is unlikely that just one of these risks will cause lymphedema.

1. Disease related risks
   • Large tumor size;
   • Large number of lymph nodes with cancer cells at diagnosis;
   • Blood clots in the arm or shoulder area;
   • Recurrence of cancer.

2. Patient related risks
   • Age – older patients are at higher risk;
   • High blood pressure;
   • Abnormal lymphatic systems;
   • Obesity.

3. Treatment related risks
   • Wound infection after surgery;
   • Slanted, rather than horizontal surgical incision across the chest wall for patients who have a mastectomy, may slightly increase the risk of lymphedema;

DID YOU KNOW? Being overweight is one of the greatest risk factors for developing lymphedema. Many people think cancer causes weight loss but this is not the case with breast cancer. In fact, chemotherapy and hormone treatments often cause weight gain. The best way to prevent lymphedema is to reduce your weight to a healthy range when you finish your cancer treatment.
• Repeat removal of fluid from the surgical site even after the drains are removed;
• Number of lymph nodes removed during surgery:
  ⇒ If less than 20 lymph nodes are removed, the risk of developing lymphedema is 14.5%
  ⇒ If more than 30 lymph nodes are removed, the risk of developing lymphedema is 22.1%
• Radiation to the lymph nodes of the underarm.

4. Other risks
• Heat;
• Injury to the affected arm;
• Inflammation of a blood vessel without infection;
• Inflammation of a lymph vessel;
• Certain activities – see section on exercise for more information.

What are the signs of lymphedema?

It is important to notice the early signs of lymphedema. The reason is that the advanced symptoms of lymphedema are more difficult to control. **Swollen hands or feet during hot weather or first thing in the morning is usually not lymphedema.** Some of the early warning signs include:

• Indentation or “pitting” of the skin when pressure is applied that does not disappear right away when the skin is released;
• Pain, which is deep and aching;
• A feeling of heaviness in the limb;
• Clothing or jewelry that feels too tight without gaining weight;
• Gradual, but visible swelling of the arm, leg, chest wall, breast, or scrotum. It might appear and then disappear. It may become

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1. Begin with shoulders relaxed.
2. Slowly rotate shoulders backward.
3. Repeat rotating shoulders forward.
4. 5 repetitions, 4 times per day.

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1. Stand with feet 12 inches apart.
2. Raise up slowly onto your toes as high as you can.
3. Hold 10 to 20 seconds.
4. 5 repetitions, 4 times per day.
5. Rock back on your heels.

There are excellent videotapes showing good exercises that may be beneficial as well as those provided with this book.

Video ordering information may be obtained at:
http://www.lymphnotes.com/article.php/id/296/
(CHECKED NOVEMBER 16, 2007)
1. Begin with palm of your hand flat on table.
2. Keep palm on table but lift fingers up off table.
3. Hold 10 to 20 seconds.
4. 5 repetitions, 4 times per day.

1. Begin with shoulders relaxed.
2. Pinch shoulders upward toward ears.
3. Hold 10 seconds.
4. 5 repetitions, 4 times per day.

1. Sit or stand as shown.
2. Try to push your shoulders downward as far as you can.
3. Hold 10 seconds.
4. 5 repetitions, 4 times per day.

How do doctors prevent lymphedema?

Doctors who treat breast cancer try to avoid many of the risks that might cause lymphedema. Great care is taken to prevent infection during surgery. Drains are used to remove fluid from the surgical site. Newer surgical techniques reduce the need to remove large numbers of lymph nodes. Whenever possible, the radiation of lymph nodes is avoided.

Later signs can include massive swelling of the limb as shown in the photo.

- Infection in the skin. This is called cellulitis (see page 31);
- Sudden swelling after an injury, excessive physical exertion, or airplane travel;
- Small blisters that appear on the skin of the affected area;
- Fluid leaking through the skin;
- Reduced, or loss of movement in the arm or leg;
What can I do to prevent lymphedema?

You may be able to prevent or delay lymphedema if you follow these guidelines. Keep in mind they are only recommendations and there may be times when following them is not possible. Many of these guidelines are based on common sense rather than research.

Preventing lymphedema is based on two ideas:
1. Slowing down or stopping your body’s ability to make lymph fluid;
2. Help drain lymph fluid by keeping vessels unblocked.

Guidelines for slowing down or stopping lymph fluid from being made:

- Avoid injections in the affected arm, if possible.
  Note that this guideline, although widely promoted, is not based on research. See the ‘Fact’ box on page 12 for more information.

  Injections like the flu shot, vaccinations and intravenous drug therapy might increase the risk of inflammation or bruising. Inflammation naturally increases lymph flow. When a bruise forms, the lymph system reabsorbs the blood from the bruise. This can bother the lymphatics. At most times, however, inflammation will not occur.

  Long-term intravenous fluid infusions using a PICC line or Port-a-Cath® should also be avoided in the affected arm.

1. Hold your hands together as shown.
2. Bend the wrist until you feel a stretch.
3. Hold 10 to 20 seconds.
4. 5 repetitions, 4 times per day.

1. Open hand and fingers fully.
2. Close hand and fingers fully.
3. Repeat with arms in various positions as shown.
4. 5 repetitions, 4 times per day.
5. Get into the habit of doing this exercise routinely throughout the day.

1. Open hand and fingers fully.
2. Close hand and fingers fully.
3. 10 repetitions, 4 times per day.
4. Get into the habit of doing this exercise routinely throughout the day.
Which exercises can help me control my lymphedema?

An exercise program should include the following movements. Talk with your doctor or nurse about which ones will help control your lymphedema.

1. Hold affected wrist as shown.
2. Bend the wrist until you feel a stretch.
3. Hold 10 to 20 seconds.
4. 5 repetitions, 4 times per day.

**FACT**

Women who had surgery on both breasts did not show an increased risk of lymphedema. These women could not avoid the use of an affected arm for blood drawing and intravenous chemotherapy. Unfortunately, some sources of information about lymphedema tell patients never to use the affected arm. This has led to the refusal of important tests and life-saving treatments. There may be times when it is not possible to use the other arm. Don’t panic – chances are you will not develop lymphedema.

- **Avoid injury to the affected arm.**

  Use gloves for gardening and dish washing. Don’t clip your cuticles during manicures. Instead use a cuticle oil and good hand cream. Wear an insect repellent to prevent bites. If an injury happens, wash the site right away and apply an over-the-counter antibiotic ointment over the affected area. Check the skin regularly for signs of injury or infection.

- **Avoid heat to the affected arm.**

  The heat from sunbathing, hot tubs, hot baths and saunas dilates blood vessels. This allows more fluid than usual to seep into the tissues. This extra load on a struggling lymph system may cause swelling.

  Wear a minimum SPF 30 sunscreen when going outdoors. Sunburn causes inflammation, which can lead to swelling.
• Do aerobic activities like walking and swimming, but **monitor your arm for swelling.** Stop activities that seem to cause or increase swelling.

Exercise is an important part of a healthy lifestyle and helps in weight reduction and weight maintenance. In general, it appears that **aerobic** exercise is beneficial because the lungs play an important role in moving lymph fluid (see page 3). This may explain why some women have reported the swelling after **non-aerobic** activities such as knitting, vacuuming or hedge clipping.

Some sources of information might suggest that you avoid vigorous activity. Recent studies have shown that exercise can in fact reduce lymphedema by improving lymph flow.¹ Research data was collected from women who participated in dragon boat rowing, jogging and weight training. It was found that these activities did not cause or worsen lymphedema.⁶

• **Practice good skin care.**

The skin is one of the first lines of defense against infection. In general, you should practice good skin care. This includes keeping the hand, nails and arm clean.

Use a lot of moisturizing lotion at bedtime. Pay special attention to the arm on the side of your breast surgery. There is not one particular product that is suggested because most act in the same way. If you wear a compression garment, check with the fitter about products that are safe to use with these fabrics. Some lotions may contain an agent that breaks down the elastic component.

Some of the sports and exercises that are thought to be higher risk include tennis, bowling, golf and racquetball. These sports place a higher stress on your upper limbs. Jogging, stair climbing machines, downhill skiing and water skiing have a greater effect on the lower parts of your body.

This does not mean you should avoid the higher risk activities. If you were skilled at an activity before getting lymphedema, you will be at a lower risk of developing lymphedema than a beginner. Beginners need to build strength, flexibility and endurance in any new sport or exercise they start. They also need to carefully check their limbs for signs of lymphedema.

It is important to do a stretching and strengthening program to help you prepare for your exercise. One study showed that strenuous upper body exercise did not worsen lymphedema when done with stretching, strengthening and aerobic exercises.¹ You should also space your exercise throughout the week rather than doing everything on one day.

Many patients want to work out with weights. The key is to start with lighter weights and to do deep abdominal breathing. After the exercise, see how your arm reacts. The deep breathing enhances the pumping effect produced in the thoracic duct in your chest. The thoracic duct is the major lymphatic vessel draining lymph fluids from your lower body and the left upper trunk, arm and hand (see graphic on page 2).

Repetitive activities, such as sweeping, knitting, vacuuming or working at a computer keyboard for long periods of time, can also be a problem for some people. Wearing a compression garment and taking frequent breaks may be helpful – or you can ask another family member to do the vacuuming!
several days will give you a snapshot of your actual average intake. Reducing this by a minimum 500 calories per day while eating a balanced diet that includes protein, fruit and vegetables will result in a safe one-pound per week weight loss. There are no diet restrictions specific to lymphedema. You may wish to consult a diettitian through the public health unit for more details.

Increasing exercise can also prevent weight. If you don’t have a regular fitness routine, go out with friends for some fun activities such as dancing or skating. You can even use your family dog for some power walks!

**Exercise:**
Research shows that exercise is key to recovering from breast surgery and managing lymphedema. Your goal is to work up to a level that promotes fitness while not making the lymphedema worse. A slow progression allows you to monitor your arm. Sensations of aching or fullness might indicate stress of the lymphatic system.

Certain types of exercise are thought to be lower risk than others for developing lymphedema. It should be noted that the research into this is limited. Low risk exercises include swimming, yoga, tai chi, brisk walking and cycling.

Guidelines to help prevent the blocking of lymph vessels:
- **Ask for a lightweight breast prosthesis or make one yourself.**
  A heavy breast prosthesis can put too much pressure on the lymphatics of the chest wall. This can cause swelling or worsen existing lymphedema. Ask for a lightweight model or make one yourself. Some women have done this by unpicking the seams of their bra and inserting fiberfill padding.
- **Eat a balanced diet. Drink alcohol in moderation.**
  Alcohol dilates the blood vessels, which allows more fluid to leak out into the tissues. This may worsen lymphedema. Although lymphedema is a “high protein” swelling, eating a low protein diet will make it worse.
- **Avoid blood pressure monitoring on the affected side, if possible.**
  While this is widely recommended, there is no scientific evidence that it causes or worsens lymphedema.
- **Avoid blocking lymphatic drainage through the lymph node-rich areas of the shoulder area for breast cancer, or groin for genital area cancers.**
  Bra straps, shoulder bags, tight sleeves or jewelry can all cause blockage of lymphatic drainage. Similarly, tight bands on underwear can also reduce drainage. Try slipping a shoulder pad under a bra strap or purchase bras with wide, padded straps.
- **Tell your health care providers that you are at risk for developing lymphedema.**
  You may choose to wear medical alert bracelet or carry a health information card.
• Wear a compression garment during air travel only if you have or had swelling of the limb.

Aircraft cabins are pressurized to about 8000 feet (ft) above sea level even though they routinely fly well above 10,000 ft. This can lead to fluid seeping from blood vessels into the tissues even in people without lymphedema.

Compression garments can help control symptoms of lymphedema during air travel. It is not recommended for people who have never had lymphedema to wear compression garments.

What do I do if I think I have lymphedema?

If you find and treat lymphedema early, you can improve your results. Measuring the arm is one way that lymphedema is diagnosed.

Ideally, measurements should be done before breast surgery (e.g., lumpectomy, mastectomy or breast reconstruction). The arm should also be measured before and after radiation therapy. Measurements that are repeated over time are the most helpful. Before you measure, please note that your dominant arm, or the arm you throw and write with, is usually bigger than your other arm by as much as 1 cm in different places. If you gain weight, both arms should get bigger.

that can fit on either the arms or legs. The recommended type is a sequential pump. This pump inflates a series of chambers to produce a milking effect. Two hours of pumping is usually suggested. When finished, either a compression bandage or compression garment is applied to prevent fluid from flowing back into the limb. If too much pressure is applied or the session is too long, fluid may collect in the shoulder causing a hard cuff.

Compression pumps are very expensive and are only covered for patients with primary lymphedema by the Assistive Devices Program. Some physiotherapy programs and surgical supply houses have pumps available for rent. Never set the pump pressure above 40mHg or use for longer than 2 hours.

Weight management:
Keeping a healthy weight is one of the best things you can do to prevent and reduce the symptoms of lymphedema. Other benefits include heart health, joint health, and even reducing the risk of cancer returning. Many women with breast cancer are surprised that they gain weight during treatment. Weight gain can be caused by hormonal therapies prescribed to reduce the recurrence of cancer.

Weight reduction is based on a simple idea: the calories you eat must be less than what you need. Counting calories over
Massage therapy:
Manual lymphatic drainage (MLD) is a special type of massage therapy used in the treatment of lymphedema. It is especially helpful if you have chest wall or breast swelling. MLD sessions are about one hour long and are done daily from Monday to Friday. It is very different from a regular massage and it requires special training. In North America there are several recognized training programs including Vodder, Foldi, Harris, and Klose-Norton. If you are considering MLD, ask the massage therapist if they are trained from one of these programs.

The best results comes by combining MLD with compression therapy. At the end of the MLD session, the therapist will apply the compression bandages. This combination of treatment is called Complete Decongestive Therapy. The reduction phase of treatment usually lasts for 4 to 6 weeks. Patients are then fitted for a compression sleeve that is worn daily and, in some cases, nightly. Repeat sessions of MLD may be needed to maintain the size of the limb. The number of these sessions is based on individual needs. Some may need weekly sessions, others only once or twice a year.

The cost of MLD ranges from $30 to $70 per hour. The Province of Ontario does not cover this therapy. Some private plans may provide limited coverage. If you have insurance, check with your insurance provider to see how often they will pay for MLD treatments.

Compression pumps:
Compression pumps are sometimes used to treat lymphedema. They are most often used in primary lymphedema, especially of the legs. Compression pumps come with jacket-like attachments

How to measure:
You will need a ballpoint pen and a flexible, metric cloth measuring tape. These measuring tapes are used by people who sew, like tailors. If you can, find someone to help you measure your arms.

1. Bend your elbow. Mark the crease with a ballpoint pen. Repeat this step with your other arm.
2. Mark a spot 10 centimetres (cm) above the crease, towards your shoulder (see graphic below). Repeat this step with your other arm.
3. Mark a spot 10 cm below the elbow crease, towards your hand (see graphic below). Repeat this step with your other arm.
4. Place the measuring tape at the 10 cm mark above the elbow, keeping it straight and level. Do not pull tight. Let the case dangle to provide a little tension. Write down the measurement and repeat this step with the other arm.
5. Repeat step #4 for the elbow crease on both arms. Write down these measurements.
6. Repeat step #4 for the 10 cm mark below the elbow crease on both arms. Write down these measurements.
7. Inspect your hands and fingers. Tight rings, fingers that are always puffy and puffiness over the back of the hand can also be signs of lymphedema.
How is lymphedema treated?

At this time, lymphedema cannot be cured once it has developed. It may, however, be controlled. First, you will be checked to see if a tumor has grown under the arm or in your upper chest. You will also be checked for infections and blood clots in the veins of your arms and chest. All of these conditions need to be ruled out before treating lymphedema.

The next step is to determine the severity of the swelling. This is done through arm measurements and by calculating the ‘limb volume’. The extent of the swelling and limb function is done by physical examination of the arm and chest wall. A breast examination may also be done. Sometimes special tests will be ordered like a CT scan and an ultrasound of the arm. If necessary, you may be referred back to your oncologist.

The final step is to treat the lymphedema. Treatments are done to improve the flow of lymph fluid and remove it from the affected arm. Effective treatments for lymphedema usually include some of the following methods.

These garments can take 2 to 3 weeks to be delivered. During this time bandaging must be continued on a daily basis to prevent the build up of fluid. Once the garment arrives, you will put it on each morning and remove it at bedtime. If fluid comes back during the night, a lightweight sleeve or bandaging may be needed overnight.

Two sets of garments are ordered – one to wear and one to wash. These garments last 4 to 6 months depending on the manufacturer. After this time, the prescribed pressure lessens and swelling may come back. These garments only work if you wear them every day.

The ADP funds 75% of the cost and most insurance plans cover the balance. If you do not have private insurance, and are unable to afford the rest of the cost, you can apply to special programs to help pay for the garments. Please ask about these programs at LRCP.

Lightweight compression sleeves can also be bought from surgical supply companies. These are not covered by the ADP program. They may not fit properly, especially if you are overweight or short in height.

If you are concerned that you may have lymphedema, please contact your primary nurse or family doctor for further advice. Ask for a referral to the Lymphedema Clinic at the London Regional Cancer Program.
that are used for sprains. Bandaging is a little bulky, but it often provides relief from pain, heaviness and swelling. Wear the bandage day and night, removing the bandage only for bathing.

Self-bandaging is difficult for most people. A home care nurse is often asked to visit daily and, if possible, will teach a family member or friend the procedure for applying the bandaging. If this is not possible, a nurse will continue to visit. There is no charge for this service. Two sets of bandages are also supplied to you at no charge.

It can take 2 to 3 weeks to drain the lymph fluid from the arm. Once the arm is smaller, a compression sleeve is specially fitted for the limb. The arm will be measured by a certified fitter who orders a custom made sleeve. The fitter needs a prescription from a doctor. The prescription will state the amount of compression to be applied and the type of garment. Only a specialist like an oncologist or surgeon, can order your first compression garments that are funded under the Assistive Devices Program (ADP) program. Repeat prescriptions may be signed by your family doctor. Family doctors can also prescribe these garments if you have private insurance benefits or if you do not wish to use the publicly funded system.

Treating Mild Lymphedema

Breathing:
Chest movement, when you are breathing deeply, has a milking effect and helps the lymph fluid flow.

Muscular contraction:
Muscles act like pumps and have the biggest influence on lymph flow. Compression garments used in combination with exercise enhance the pumping action of the muscles. Evidence suggests that periodic compression and expansion is needed to move the lymph fluid.

Elevating the limb:
Lifting your arm or leg uses gravity to help drain lymph fluid from the limbs. This is only effective if the limb is raised above the level of the heart for 45 minutes, 2 to 3 times a day.

If lymphedema is present, compression using bandages or a garment must be applied afterwards to maintain the size of the limb.

Skin and nail care:
Your skin needs to be healthy to keep harmful bacteria from entering your body. Skin that is stretched from the swelling of lymphedema requires good care because it is fragile.
The following guidelines will help keep your skin healthy:

- Inspect your skin everyday. Clean and cover all cuts, scratches and cracks with a bandage and apply an antibiotic cream.
- Contact your doctor right away if you see signs of infection. This includes redness, tenderness and increased swelling.
- Wash with a mild soap with a low 5.5 pH such as Dove©. Harsher soaps can dry your skin.
- Dry your skin by gently patting. Take care to dry the folds in your skin.
- Moisturize your skin daily. If you wear a compression bandage, check with the fitter to make sure that the moisturizer you use will not weaken the garment.
- Use a sunscreen with an SPF 30 or more to protect your skin from the sun.

Massage:
A specialized stroking massage toward the heart pushes lymph fluid through the initial lymph ducts, which do not have valves. This stimulates a pulsing contraction, which happens when the hand stretches the skin. The movement of lymph fluid has been confirmed and measured by special dye studies.3

Treating Severe Lymphedema
Mild lymphedema may be managed by exercise and elevation. The appearance of more severe lymphedema needs more therapies. These therapies are split into two treatment phases. Reduction is the first phase where the goal is to reduce the amount of swelling. The second phase is maintenance. Its goal is to maintain the smaller size of the arm. The following therapies are currently the most effective for treating severe lymphedema.

Compression:
Compression is the main therapy for lymphedema. This is done by using special bandages and sleeves that put pressure on the limb. If there is a lot of swelling in your arm, you may be first treated with compression bandages. The goal is to move as much fluid as possible out of the limb. Short stretch bandages are the only type used for lymphedema. They only apply pressure with muscle movement, unlike bandages

Avoid artificial nails because of the increased risk of fungal infection and damage to the nail bed from filing.