



# PATIENT INFORMATION ON LYMPHOEDEMA

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## What Is Lymphoedema?

Definition: Lymphoedema is the build-up of fluid in soft body tissues when the lymph system is damaged or blocked.

Lymphoedema occurs when the lymph system is damaged or blocked. Fluid builds up in

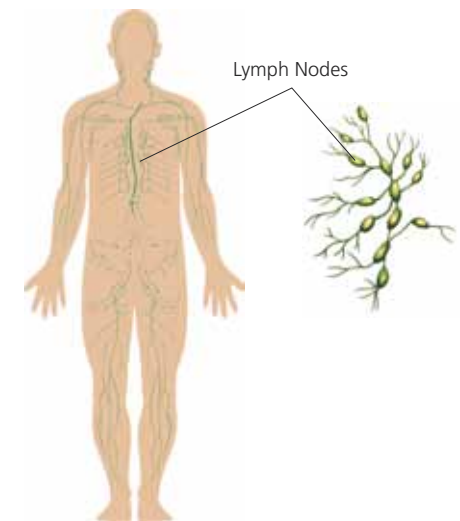
soft body tissues and causes swelling. It is a common problem that may be caused by cancer and cancer treatment. Lymphoedema usually affects an arm or a leg, but it can also affect other parts of the body.

## How Does Lymphoedema Occur?

The lymph system is a network of lymph vessels, tissues, and organs that carry lymph throughout the body. When the lymph system is working as it should, lymph flows through the body and is returned to the bloodstream.

- Fluid and plasma leak out of the capillaries (smallest blood vessels) and flow around body tissues so the cells can take up nutrients and oxygen.
- Some of this fluid goes back into the bloodstream. The rest of the fluid enters the lymph system through tiny lymph vessels. These lymph vessels pick up the lymph and move it towards the heart. The lymph is slowly moved through larger and larger lymph vessels and passed through lymph nodes where waste is filtered from the lymph.
- The lymph keeps moving through the lymph system and collects near the neck, then flows into one of two large ducts:
  - The right lymph duct collects lymph from the right arm and the right side of the head and chest.
  - The left lymph duct collects lymph from the legs, left arm, and the left side of the head and chest.

- These large ducts empty into veins under the collarbones, which carry the lymph to the heart, where it is returned to the bloodstream.
- When part of the lymph system is damaged or blocked, fluid cannot drain from nearby body tissues. Fluid builds up in the tissues and causes swelling.



## Who Is At Risk Of Developing Lymphoedema?

Lymphoedema may be either primary or secondary:

1. Primary lymphoedema is caused by the abnormal development of the lymph system. Symptoms may occur at birth or later in life.
2. Secondary lymphoedema is caused by damage to the lymph system. The lymph system may be damaged or blocked by infection, injury, cancer (especially gynaecological cancers or breast cancer), removal of lymph nodes, radiation to the affected area, or scar tissue from radiation therapy or surgery.

Lymphoedema can occur after any cancer or treatment that affects the flow of lymph through the lymph nodes, such as the removal of lymph nodes. It may develop within days or many years after treatment. Most lymphoedema develops within three years of surgery.

### Risk Factors

- Removal and/or radiation of lymph nodes in the underarm, groin, pelvis, or neck. The risk of lymphoedema increases with the

number of lymph nodes affected. There is less risk with the removal of only the sentinel lymph node (the first lymph node to receive lymphatic drainage from a tumour).

- Obesity / being overweight
- Slow healing of the skin after surgery
- A tumour that affects or blocks the left lymph duct, lymph nodes or vessels in the neck, chest, underarm, pelvis or abdomen.
- Scar tissue in the lymph ducts under the collarbones, caused by surgery or radiation therapy.

Lymphoedema in the leg may occur after pelvic lymph node surgery for gynaecological and pelvic cancers such as uterine, ovarian, cervical and prostate cancer or after surgery to the lymph nodes in the groin area for vulvar cancers.

Lymphoedema of the arm may occur in breast cancer patients who have all or part of their breast and axillary (underarm) lymph nodes removed.



## Can Lymphoedema Be Prevented? Some Dos And Don'ts!

### Dos

- Do moisturise your skin frequently and regularly. Use lotions to make your skin supple and prevent it from cracking especially at the heel or scar regions.
- Do keep your affected limb extra clean, but do not use harsh soaps.
- Do apply antibiotic ointment (for example: Bactroban) to any insect bites or torn cuticles (as long as you are not allergic to its contents).
- Do protect your limb from sunburn with sunscreen. Use a product with a minimum SPF of 15, although SPF 30 is encouraged.
- Do elevate the foot whenever possible while sitting. Do elevate the legs on two to three pillows when sleeping at night.
- Do change position frequently, at least after every 30 minutes.

### Don'ts

- Don't take unusually hot baths or showers.
- Don't go from extreme hot to cold water temperatures when you bathe.
- Don't go into high-heat hot tubs, saunas, or steam baths.
- Don't apply heating pads or hot compresses to the affected limb.
- Don't wear any jewellery on your affected limb.
- Don't use stockings with tight bands.
- Don't get pedicures that cut or overstress the skin around the toenails.
- Don't permit the skin of your affected limb to be pierced for any reason: injections, drawing blood, or vaccinations.
- Avoid drinking too much alcohol. Alcohol causes blood vessels to expand and leak extra fluid into the tissues.
- Avoid smoking as much as possible. Smoking narrows the small blood vessels, lessening the flow of fluid in the arm.



## What Are The Possible Signs Of Lymphoedema?

- Swelling of the leg, which may include toes.
- A full or heavy feeling in the leg.
- A tight feeling in the skin.
- Trouble moving a joint in the legs.
- Thickening of the skin, with or without skin changes such as blisters or warts.
- A feeling of tightness when wearing clothes and shoes.
- Itching of the legs or toes.

- A burning feeling in the legs.

These symptoms may occur very slowly over time or quickly if there is an infection or injury to the leg.



## How Does Lymphoedema Affect Me Emotionally And Psychologically?

Lymphoedema can affect your self image; interfere with your routine activities, what clothes you can wear, and remind you of the disease you thought you had overcome.

Sometimes, you may feel angry because lymphoedema is a chronic condition that you will need to manage in some way for the rest of your life. It is common to be frustrated with treatment, since it can require a large commitment of time, effort and money. Other emotional responses may include depression and feelings of helplessness.

Whatever your feelings are about lymphoedema, it is important to talk about them to your friends, family and even health professionals. It helps to know that you have a choice on managing lymphoedema. It takes a

lot of patience and trial and error. Not every treatment option works for every person.

Some people even report having insomnia due to lymphoedema. Daily activities such as working or engaging in your hobbies may also be affected by lymphoedema.



## How Can Lymphoedema Be Managed?

The National University Hospital (NUH) and National University Cancer Institute, Singapore (NCIS) provide a multi-disciplinary team approach at our Total Lymphoedema Clinic (TLC) which is staffed by our team comprising the following:

### Gynaecologic Oncologist

He/she specialises in Obstetrics and Gynaecology but has also received further subspecialty training in comprehensive management of patients with gynaecological cancer; this includes medical and/or surgical treatment of malignant diseases of the female genital tract. The gynaecologic oncologist also practises in an institutional setting where all effective forms of cancer therapy are available. This includes management of gynaecological cancer including screening, diagnosis, therapeutic procedures and follow up.

### Oncology Nurse Specialist

He/she is a registered nurse who has undergone specialised training in caring for patients with cancer. Oncology nurses play a vital role in cancer therapy and recovery by providing treatment, support and advice to patients and their families coping with this life-threatening disease.

### Physiotherapist (PT)

A healthcare professional who has undergone specialised training to be Vodder-certified in treating lymphoedema. He/she administers evidence-based Combined Decongestive Therapy, consisting of Manual Lymph Drainage (MLD), Compression (using bandages), advice in skin care and prescription of Exercise Therapy.

Physiotherapists perform specialised mechanical stimulation massage to redirect the lymphatic fluid away from the area of swelling. Compression bandages are used to provide variable working pressures to reduce swelling and maintain the effect of Manual Lymph Drainage. Skincare is essential in reducing the risk of infection. Physiotherapists also prescribe exercises specific to your needs to improve lymphatic drainage and reduce swelling.

### Occupational Therapist (OT)

A healthcare professional who aims to optimally maintain a person's functional and psychological capacity for performance in their daily activities (self-care, leisure and work) despite the effects of the disease or any disabilities.

OT management in lymphoedema includes assessment and management with customised compressive pressure garment of the upper limb (for patients with breast cancer) or lower limb (for patients with gynaecological conditions). The occupational therapist also educates the patient and his/her family on:

- Modification of tasks/activities to manage lymphoedema in the patient's daily life.
- Psycho-social support and coping mechanism in relation to lymphoedema.

### Reconstructive Surgery Specialist

The plastic surgeon is trained to deal with all aspects of surgical management of lymphoedema (microsurgical lymphaticovenous anastomoses, resection, vascularised lymph node transfers and lymphatic reconstruction).

### Individualised Multi-Disciplinary Therapy At TLC

At the beginning of the programme, the team discusses on tailoring a treatment programme with you to prevent and reduce the lymphoedema from developing. You will be actively involved in this programme as you need to continue the programme at home.

A major focus of our program is to educate and instruct the patient on self-help techniques so that the patient can independently manage his/her primary or secondary lymphoedema.

## What Can I Do At Each Stage Of Lymphoedema?



### Stage I - Spontaneously Reversible Lymphoedema

#### Signs and Symptoms

The limb (arm or leg) is swollen and feels heavy. Pressing on the swollen area leaves a pit (dent). Usually upon waking up in the morning, the swelling in the affected limb is reduced to almost normal. This stage of lymphoedema may go away without treatment.

#### What Can I Do?

Needs to actively self-monitor symptoms and start seeking help from healthcare professionals to prevent lymphoedema from getting worse.



### Stage II - Spontaneously Irreversible Lymphoedema

#### Signs and Symptoms

The limb is swollen and feels spongy. A condition called tissue fibrosis may develop and cause the limb to feel hard. Pressing on the swollen area may or may not leave a pit.

#### What Can I Do?

Needs to seek help from both the Physiotherapist and Occupational Therapist for co-management of lymphoedema.



### Stage III - Lymphostatic Elephantiasis

#### Signs and Symptoms

The swollen limb may be very large and begins to restrict movement.

#### What Can I Do?

Needs to seek help from the doctors, the Physiotherapist and Occupational Therapist to prevent frequent cellulitis. Some patients may need to consider surgical options.

## What Is The General Treatment Of Lymphoedema?

Damage to the lymph system cannot be repaired. Treatment is given to control the swelling caused by lymphoedema and keep other problems from developing or worsening. Treatment may be a combination of several methods.

The main objective of these treatments is to help patients continue with their daily activities comfortably, to reduce pain and to improve functional motion and abilities of the affected limbs.

### Pressure Garments

Pressure garments are made of fabric that exerts a controlled amount of pressure on different parts of the affected limb to help move fluid and prevent further accumulation. Some patients may need to have these garments custom-made for a correct fit and optimal comfort. Wearing a pressure garment during exercise may prevent more swelling in an affected limb. It is important to use pressure garments during air travel as lymphoedema can worsen at high altitudes.

### Exercise

During exercise, the working muscles pump and facilitate blood circulation to help the lymph vessels move lymph fluid out of the affected limb. Exercise also helps improve mobility, endurance and balance. The physiotherapist can prescribe the exercise regime specific to your needs.

*Do consult the physiotherapist before beginning exercises and the types of exercises to engage in.*

### Massage Therapy

Manual Lymphatic Drainage (MLD) is a specialised massage to be performed only by Vodder-Certified Physiotherapists who have undergone specialised Dr Vodder training. The MLD is a mechanical stimulation massage which uses light and variable pressure to redirect the lymphatic fluid away from the area of swelling.

*Do consult the physiotherapist before beginning massage.*

### Compression Bandaging

Multi-layer compression bandaging helps to prevent re-accumulation of lymph fluid between treatments. It helps to break down fibrosis and reshapes the limb. Compression bandaging should only be administered by a Vodder-trained therapist so as to prevent complications.

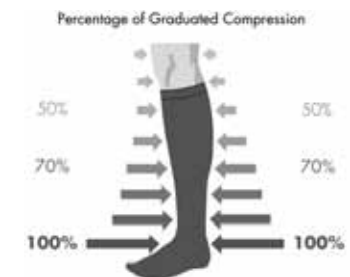
### Drug Therapy

Lymphoedema is not usually treated with drugs. Antibiotics may be used to treat and prevent infections.



Our Occupational Therapist will advise you on the appropriate type of pressure garment for your individual usage.

They can customise the pressure garments (pants, socks, sleeves, etc) to give you a good fit.



## Are There Any Surgical Treatments For Lymphoedema?

There have been many advances in surgical techniques and options for lymphoedema in the last ten years. The surgical procedures available at the National University Hospital can be divided into:

- Physiological
  - Shunting or lymphaticovenous anastomoses
- Excisional
  - Liposuction assisted resection/debulking
  - Perforator sparing resection with or without grafting
- Reconstruction
  - Lymphoadiposal flap
  - Vascularised lymph node transfer
- Combination of the above procedures

### Who Should Go For Surgery?

A lymphoscintigraphy is usually done to establish that the swelling is indeed due to blockage of the lymphatic channels at or around the surgical site. If there is any suspicion of tumour recurrence, a CT or PET scan will be done.

If there is lymphatic channel blockage and no tumour recurrence, the patient is a good candidate for shunting or lymphaticovenous anastomoses. The earlier this surgical intervention is done, the higher the chance of complete recovery because the lymphatic channels are still functional and not fibrotic.

On the other hand, in chronic lymphoedema, more complex surgical procedures or combined procedures may be necessary as the lymphatic channels are already destroyed by fibrosis and large amounts of fat have accumulated. In recurrent cases, some of the above surgical procedures can be safely repeated.

Prevention of lymphoedema is of great importance. Early detection and lymphoscintigraphy allows early surgical intervention to be done in the hope of complete recovery. The pressure garment is continued for variable periods of time after surgery, and in chronic lymphoedema with extensive fibrosis, pressure garments may have to be used for life.

## What If I Develop Skin Inflammation (Cellulitis)?

Some patients with lymphoedema experience attacks of a skin infection called "cellulitis". There is some evidence that this can be prevented by reducing oedema and taking good care of the skin on the lower leg (i.e. following these guidelines).

The symptoms of cellulitis include fever, chills, leg pain and evidence of inflammation in the skin, which usually looks like a fast-spreading red patch on one leg. It is

common for people with lymphoedema to have pinkish/red skin so it is imperative to note that not all red skin is "cellulitis".



If you do notice a red patch on your leg but are unsure about the cause, feel well with no fever or chills and the patch is not spreading up the leg, then it is reasonable to ask to see your doctor at a time of your convenience rather than in an emergency.

In any other situation, it is important that a doctor review your leg and decide whether to prescribe antibiotics. This could be your family doctor or polyclinic doctor if you are feeling well. When you are in doubt or symptoms are progressing quickly, it is encouraged for you to come to the emergency department in case you need antibiotics to be administered into a vein.

For people who have experienced two or more episodes of cellulitis, our infectious disease specialist may be contacted to discuss new ways to help you. In addition to optimising skin care and reducing oedema if possible, options may include prescribing an antibiotic every day for a long period of time (usually one or two years) to prevent repeated episodes, or giving you antibiotics to keep at home so that you can take it early during an attack.

## Contact Information

### NUH Medical Centre

National University Cancer Institute, Singapore (NCIS)

#### Level 08

Radiation Therapy Centre

Breast Care Centre

#### Level 09

Chemotherapy Centre

Stem Cell Therapy Centre

#### Level 10

Cancer Centre

Total Lymphoedema Clinic (TLC)

Opening Hours: 8:30am – 5:30pm (Mon – Fri: except on Public Holidays)

For appointments, please contact

Tel: (65) 6773 7888 | Email: [CancerApptLine@nuhs.edu.sg](mailto:CancerApptLine@nuhs.edu.sg)

### Physiotherapy & Occupational Therapy

NUH Medical Centre, Level 14A, Rehabilitation Centre

Tel: (65) 6772 5168 | Fax: (65)6779 7740 | Email: [Rehab\\_Appts@nuhs.edu.sg](mailto:Rehab_Appts@nuhs.edu.sg)

### For other general enquiries, please contact

National University Cancer Institute, Singapore (NCIS)

1E Kent Ridge Road, NUHS Tower Block, Level 7, Singapore 119228

Email: [ncis@nuhs.edu.sg](mailto:ncis@nuhs.edu.sg) | Website: [www.ncis.com.sg](http://www.ncis.com.sg)



### National University Hospital

5 Lower Kent Ridge Road, Singapore 119074

Tel: (65) 6779 5555 | Fax: (65) 6779 5678

Website: [www.nuh.com.sg](http://www.nuh.com.sg)

## Location



Nearest MRT Station: Kent Ridge Station (Circle Line)

Commuters can alight at Kent Ridge Station and exit the station via Exit C. NCIS is located on levels 8, 9 and 10 which are accessible via Lift Lobby B.

For more information on directions to NUH, please visit <https://www.nuh.com.sg/contact-us/getting-to-nuh.html>

For more information on directions to specific NCIS Clinics, please visit <http://www.ncis.com.sg/about-us/location-map.html>

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