

Lymphedema

What is Lymphedema?

Lymphedema (or Lymphodema) is caused by a build-up of protein-rich fluid within the body. This build-up of fluid is caused by damage or obstruction to the lymphatic system resulting in impaired lymph flow and reduced regional lymphatic damage.

Lymph fluid is colourless liquid which carries white blood cells (WBCs) whilst transporting bacteria to the lymph nodes, where the bacteria is destroyed and fluid returned into venous circulation.

Lymphedema can be either Primary or Secondary.¹⁻⁵

Role of Lymphatic System

The lymphatic systems plays an important role in maintaining and protecting our body's internal environment. It's responsible for transporting lymph fluid, draining excess fluid and protecting against bacteria invasion.

The lymphatic system works closely with the venous and arterial systems to ensure removal of bacteria products and adequate fluid transportation.¹

Primary & Secondary Lymphedema

Lymphedema is classified as either primary or secondary.

Primary Lymphedema

- Hereditary/Congenital Condition
- Developmental abnormalities
 - Lack of lymphatic valves, abnormal lymph nodes/vessels
- Congenital – developed in infancy
- Praecox – Puberty
- Tarda – Late-Onset

Secondary Lymphedema







- Obstruction, damage or injury to one or more components of the lymphatic system
- Commonly post-surgery or cancer treatment (i.e. breast or prostate cancer)^{1,3}

Signs & Symptoms

Individuals with Lymphedema may experience any of the following signs and symptoms (depending on the origin of their lymphedema):

- Swelling in one extremity (sometimes both arms and/or legs)
- Smooth Pitting Edema (can progress into Non-Pitting Edema) – identified with the following indicators:
 - Stemmers Sign
 - Tree Trunk
 - Buffalo Hump
- Numbness/tingling, heaviness, pressure/tightness
- Fatigue
- Loss of range of motion
- Impaired wound healing¹

RISK FACTORS

-  Older Age
-  Higher BMI
-  Chemotherapy/Radiation
-  Cardiac Failure
-  Obesity
-  Breast Cancer (25–33%)¹

Diagnosis of Lymphedema

Lymphedema is diagnosed using battery of tests including:

- Imaging Studies
 - Lymphoscintigraphy, CT scan, doppler ultrasounds
- Blood Tests
- Physical Assessment Testing
 - BMI, girth measurements, functional and joint mobility
- Skin assessment
 - Inspection and palpitation

The aim of diagnostic tests is to determine the origin of the lymphedema so treatment can be appropriately administered.

Diagnostic tests will further determine the stage of lymphedema (Stage 0-3) on the International Society of Lymphology Scale.^{1,3}

Exercising with Lymphedema

Exercise is completely safe for individuals with lymphedema (*under the direction of an allied health professional*). Individuals with lymphedema will find benefits from all forms of exercise in particular – resistance, aerobic, aquatic and yoga.

Exercise should be prescribed at a moderate intensity, high frequency (depending on the individual) targeting major muscle groups to ensure maximum benefits including:

- Reduction in arm volume
 - Especially when completing hydrotherapy or aquatic exercise
- Improvement of shoulder range of motion
- Decreased risk of developing future lymphedema
- Improvement of physical and emotional quality of life
- Reduction in fatigue and pain levels.

Deep breathing exercises should be performed to encourage clearance of central lymphatics. Functional mobility and balance exercises should also be performed (particularly in lower limb lymphedema) to aid in reduction of falls risk and improvement of balance.^{1,8-10}

Treatment Options

Complex Decongestive Therapy (CDT):

- Goal: Improve drainage of blocked areas and move fluids into unblocked areas
 - Phase 1 – AIM: Reduce Limb Size
 - Manual Lymphatic Drainage
 - Compression Bandaging
 - Phase 2 – AIM: Maintenance of Limb Size
 - Self-Massage
 - Exercise
 - Skin Care
 - Compression Garment

Surgical Treatment:

- Used as last-line treatment, often not as successful
 - AIM: improve lymph node drainage
 - Removal of subcutaneous tissue^{1,6,7}

