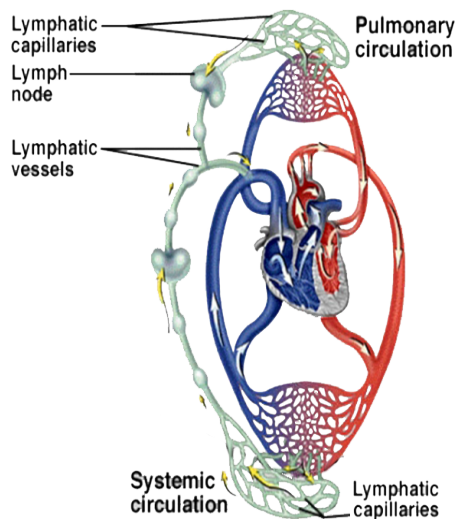




## Manual Lymphatic Drainage for the Face, Head and Neck for AMTA Convention 2019

**The Lymphatic System** is an essential system that is present throughout the human body and consists of lymph vessels and a number of organs including lymph nodes, all of which contain lymphatic tissue. The functions of the Lymphatic System are: it prevents edema by returning protein and capillary filtrate (water) to the systemic circulation; it absorbs fat and fat-soluble vitamins from the small intestine and provides immune surveillance by recognizing and responding to foreign cells, microbes, viruses, and cancer cells.



**Lymph fluid is produced** in small lymph capillaries as a result of net filtration through blood capillaries into the interstitium.

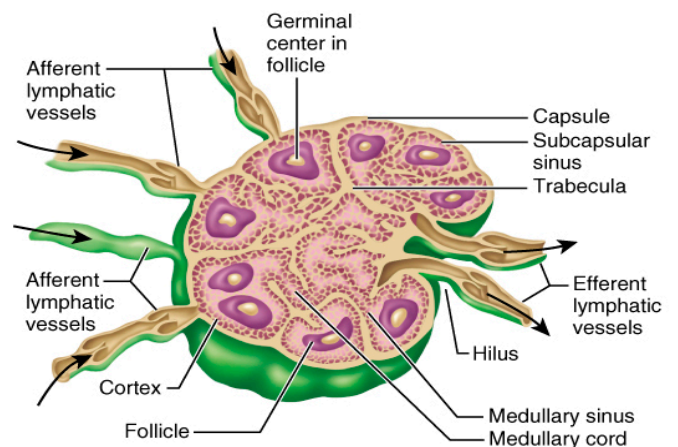
Once a lymph capillary is filled it is then transported to a larger lymph vessel called a collector which then directs lymph fluid towards lymph nodes where the fluid is filtered before continuing to even larger vessels (lymph trunks) and eventually back to the cardiovascular system. Lymphatic fluid, also known as Lymphatic Load, consists of protein, water, fat and cells.

**Lymph nodes serve as** filtering stations, absorption of water, they regulate protein concentration in the lymph, and produce lymphocytes. There are 600 – 700 lymph nodes in the human body; they range in size from .2 - .3cm.

**Fig. 1** Diagram of the relationship between the blood circulation and lymphatic systems.

**Lymphatic watersheds** delineate (separate) lymphatic tributary regions. When providing MLD, we can follow the direction of lymphatic collectors that lead to a particular group of lymph nodes.

The head and neck are separated from the trunk by the **clavicle** and **spine of the scapula watersheds**. Lymph fluid from the head, neck and face drain into regional lymph nodes then to deeper cervical lymph nodes, eventually leading into lymphatic jugular trunks, then into the left and right subclavian veins.



**Fig. 2** Lymph node with afferent and efferent vessels

## Lymph collectors and lymph nodes of the head, neck and face region.

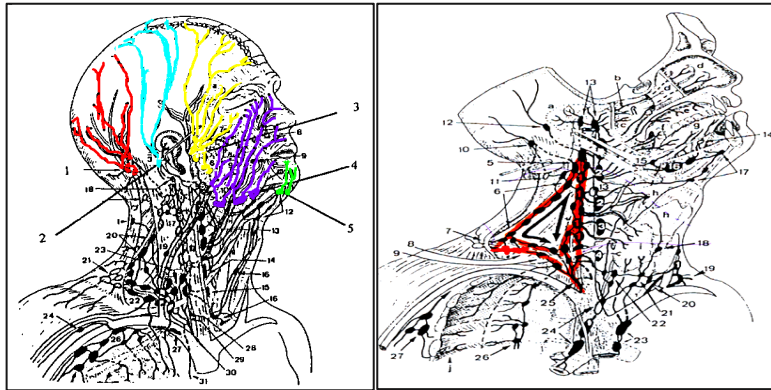


Fig. 3 Normal lymphatic drainage pathways. *Foeldi's Textbook of Lymphology*

### Edema verses Lymphedema

**Edema** occurs primarily when the fluid in the extracellular compartment (interstitium) builds up as a result of increased filtration of water from blood capillaries or from a failure of the lymphatic system to adequately return fluid from the interstitium to the cardiovascular system.

**Lymphedema** occurs when the lymphatic system has become damaged or compromised such as with lymph node removal/radiation, damage to vessels and scar tissue which can block lymphatic pathways.

### Manual Lymphatic Drainage and its benefits

The techniques of MLD are designed to increase the movement of lymph (lymphangio-activity) and interstitial fluid. The basic hand positions of MLD are adapted to follow the anatomy and physiology of the lymphatic system.

- Improves lymph capillary uptake
- Increases lymph-angio activity
- Soothing effect
- Analgesic effect
- Re-direct fluid around blocked areas

### Contraindications for MLD (General)

ABSOLUTE	RELATIVE
Acute Cellulitis	Malignant Disease (clients with active cancer)
Untreated Congestive Heart Failure (CHF/cardiac edema)	Renal Dysfunction
Acute Deep Vein Thrombosis (DVT)	
Fever	

Table 1 Contraindications for MLD (General and relative)

## Contraindications for MLD on the Neck

<b>All of the general contraindications (above) plus</b>
Cardiac Arrhythmia (A-V Block, vagal stimulus could cause cardiac arrest)
Hyperthyroidism
Hypersensitivity of carotid sinus
Caution in patients at risk for or with history of arteriosclerosis

**Table 2** Contraindications for MLD on the Neck

## Indications for MLD on Head, Neck and Face

**Whiplash** –hyperextension to the neck which can affect the bones, discs, muscles, nerves and/or tendons of the neck. Symptoms can include muscle spasms, headaches, affected vision, dizziness, neck edema.

**Migraines** – a recurring headache characterized by severe throbbing pain, photophobia, nausea that can last for long periods of time. **Sinus headaches/congestion** can also be helped using MLD, with the treatment focusing on the sinus regions of the face.

**Post-Surgical Edema** – swelling following any surgical procedure such as facelift/ trauma surgery, which can lead to pain, restricted range of motion and bruising.

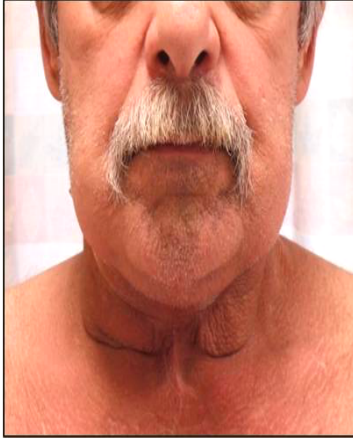
**Tinnitus/Vertigo** – Ringing in the ears that originates from the ears or head often caused by infections, stress, medications or allergies. Symptoms include ringing in the ears, vertigo and hearing loss.

**Dental Procedures** – Following any dental procedure where there is remaining edema and pain, MLD can be utilized to decrease pain and edema in the jaw and neck regions.

**MLD can also be utilized for trigeminal neuralgia, allergy symptoms, sinus congestion, acne rosacea, acne vulgaris.**

## Head and Neck Lymphedema - Overview

Please note that any client presenting with lymphedema should always be seen by a certified lymphedema therapist (CLT) as the treatment requires specialized training in all areas of lymphedema management including compression bandaging, skin care management and specific MLD techniques that address the individual's symptoms.



Head & neck cancers account for fewer than 5% of all cancers in the U.S. Cancers of the brain, eye, thyroid, scalp, skin, muscles, and bones are not grouped with cancers of the head & neck. The oral cavity and larynx are the sites most commonly affected. In this country, nasal and sinus cancers are rare.

The survival rate corresponds to tumor size. For tumors larger than 4cm, the survival rate is 8–10%. Head & neck cancer can spread to adjacent lymph nodes, especially if the tumor is 2cm or larger.

## Risk Factors

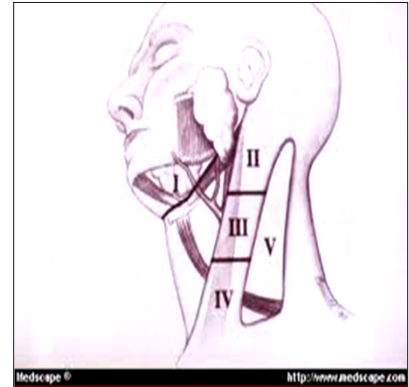
Most people associate head & neck cancer with the use of tobacco products and alcohol, but there are other risk factors too:

Products	Chemicals	Others
Smoking tobacco	Asbestos	Ionizing radiation
Chewing tobacco	Chromium	Human papilloma virus
Smoking marijuana	Nickel	Plummer-Vinson
Alcohol	Arsenic	Epstein-Barr virus
	Formaldehyde	
	Ethanol products	

**Table 3** Risk factors for head & neck cancers.

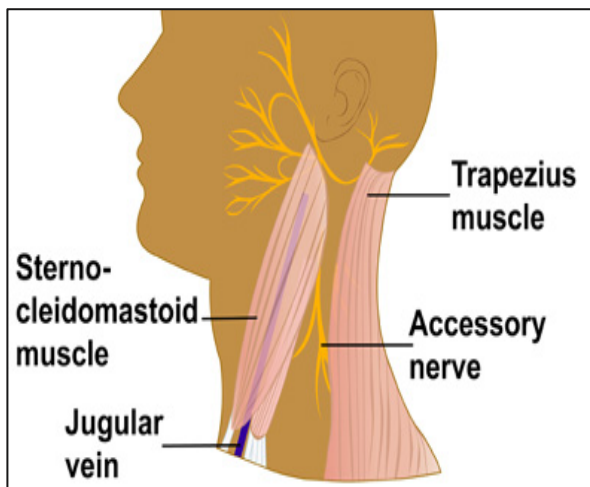
**Primary Lymphedema of the Head and Neck** is rare and is usually unilateral, affecting the cheek region, lips, and sometimes, the conjunctiva. It can be associated with congenital malformation of the lymphatic system of the extremities. It is important to rule out secondary causes such as myxedema (thyroid problem) or cyclic idiopathic edema (hormonal imbalance).

**Secondary Lymphedema of the Head and Neck** is more typically a result either of cancer obstructing the lymphatic pathways or damage caused by cancer treatments. In a surgical radical neck dissection (RND), first described in 1906 to treat metastatic disease, five levels of lymph nodes, the spinal accessory nerve, the external and internal jugular vein, the sternocleidomastoid, and the omohyoid muscle are all removed. In order to minimize dysfunction, a modified RND was introduced in 1960 that preserves some or all of the non-lymphatic structures. Selective neck dissection (SND) goes even further by preserving one or more groups of lymph nodes.



**The following therapeutic challenges exist:**

The spinal accessory nerve, CN XI, provides motor innervations to the sternocleidomastoid and trapezius muscles. Damage to this nerve caused by cancer interventions can negatively impact the sternocleidomastoid muscle and the upper, middle, and lower trapezius muscles resulting in weakness, paralysis, pain, and cosmetic disturbances.



In addition to muscular changes, speech and swallowing can be impaired, saliva can be reduced, the mucosa may become dry and irritated, and lymphedema can be present. The patient may suffer from trismus, which limits the aperture of the mouth (how far the mouth can open). Surgical scar tissue and radiation fibrosis can result in decreased range of motion of the neck and jaw and there is always the risk of lymphedema.

If the jaw is irradiated, the teeth may become necrotic. The mucosa becomes irritated and the saliva becomes thick and rope-like. Taste may be

**Fig. 4** The neck muscles and accessory nerve.

altered and infections in the mouth are common. These effects, along with difficulty in swallowing, often result in poor nutritional intake which can lead to malnutrition.

**Treatment**

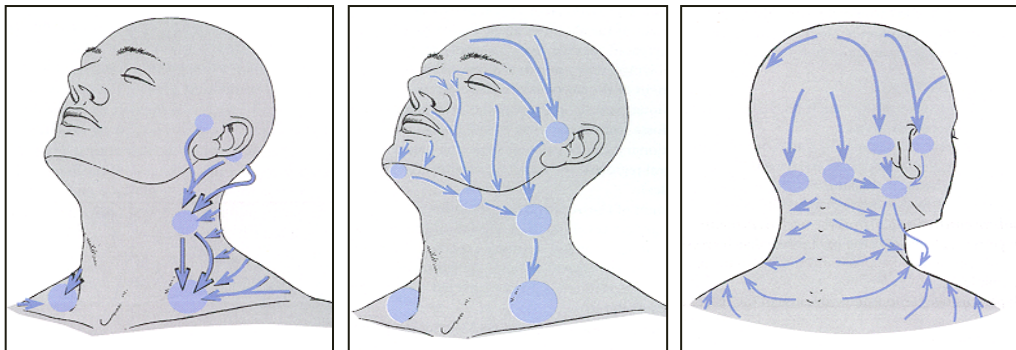
Post-surgical head & neck treatment should include scar and fibrosis management, MLD, compression, positioning while sleeping, and exercises, as well as education on oral hygiene and self-management for improved quality of life. Breathing, swallowing, and apnea must also be addressed by a Speech Language Pathologist (SLP).

Edema can be managed with MLD, though be aware that the collateral lymphatic (venous) pathways will be limited. Be careful applying MLD over irradiated skin.

Do not use thermal modalities on irradiated skin and observe graft precautions. Be sensitive to how radiation and chemotherapy can affect the patient. The patient is likely to be hypersensitive to touch or experience numbness in the affected area.

### Scar Management

In addition to diminished cosmesis, scars can cause physical disruption by obstructing lymphatic drainage and restricting cervical ROM. Thus, one of the key components of treatment must be scar management. Treatment should also facilitate the use of larger lymph-node groups for primary drainage. Scars or tissue with radiation induced fibrosis can be carefully manipulated after they are well healed. Scars can be made more mobile through the use of manual techniques such as scar mobilization, myofascial release.



**Fig. 5** Face, anterior neck, and posterior head/neck MLD sequence

## Application of Basic Sequences

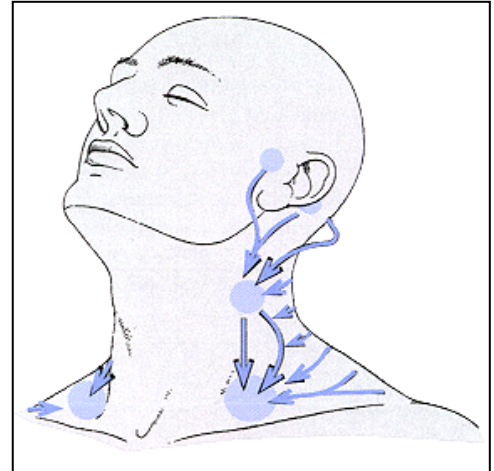


Note: Treatment sequences should only be performed in the following sequence where the lymphatic system is **intact**. (Not interrupted by scars, radiation fibrosis, after surgery, etc.)

### Neck (supine)

Pre-Treatment: Neck supine

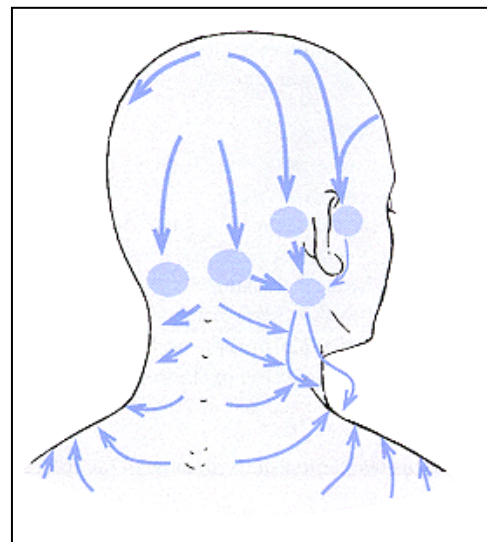
1. Effleurage, 2-3 times from the sternum to the acromion.
2. Stationary circles with the fingers laying flatly in the supraclavicular fossa.
3. Treatment of the cervical lymph nodes. Stationary circles from the ear lobe to the supraclavicular fossa.
4. Stationary circles with fingers in front of and behind the ear (pre-and retroauricular LN), then more stationary circles in the direction of the supraclavicular fossa.
5. Stationary circles with fingers from the occipital region (occipital LN) to the cervical lymph nodes, then more stationary circles in direction of the supraclavicular fossa.
6. Stationary circles in the area of the shoulder collectors. Four positions: 1) Acromion 2) Fingers covering the descending part of the trapezius muscle 3) Back to acromion 4) Supra-clavicular fossa. All sets are done with flatly lying fingers towards the supraclavicular fossa.
7. Follow-up moves according to findings.
8. Final effleurage.



### Posterior Neck (prone)

Pre-treatment: Neck (supine)

1. Effleurage, starting at the back of the head and working over the trapezius muscle to the acromion process.
2. Stationary circles starting at the angle of the jaw and working in the direction of the supraclavicular fossa.
3. Stationary circles in several tracks on the back of the head, working in the direction of the occipital and retroauricular lymph nodes, then again in the direction of the supraclavicular fossa.
4. Stationary circles paravertebrally with erected fingers, working deep.
5. Follow-up moves according to findings.
6. Final effleurage.







## Face

Pre-treatment: Neck, and if indicated, posterior neck

1. Effleurage along the lower jaw, the upper jaw, the cheek and the forehead, in the direction of the angle of the jaw.
2. Stationary circles with erected fingers in the submental and submandibular regions, working from the tip of the chin in the direction of the angle of the jaw, then in the direction of the supraclavicular fossa.
3. Stationary circles starting at the lower jaw and working towards the submental and submandibular lymph nodes (angle of the jaw) and then to the supraclavicular fossa.
4. Stationary circles starting at the upper jaw and working towards the submandibular lymph nodes, then to the angle of the jaw, and again to the supraclavicular fossa.
5. Stationary circles with the finger tips starting at the tip of the nose and moving towards the cheeks in several passes, each pass beginning one finger-width more superior until reaching the bridge of the nose.
6. Stationary circles starting on the cheek below the eye in several sets in the direction of the submandibular lymph nodes, to the angle of the jaw, and again to the supraclavicular fossa.
7. If indicated, working at the upper and lower lid and the eyebrows with stationary circles (one or more fingers) in the direction of the preauricular lymph nodes.
8. Stationary circles starting at the middle of the forehead to the temple, then towards the angle of the jaw.
9. Follow-up moves according to findings.
10. Final effleurage.

