Introduction to Manual Lymphatic Drainage

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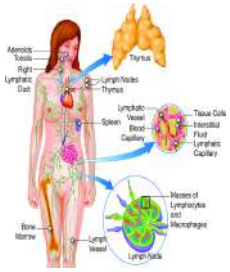
Klose Training
MLD Certification

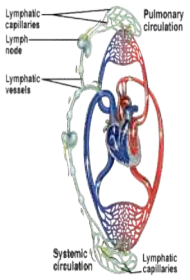
Lymphatic System



- Lymph Nodes
- Lymph vessels
- Thymus gland
- Spleen
- Tonsils
- Payer's Patches
- Lymphocytes

Functions of the Lymphatic System

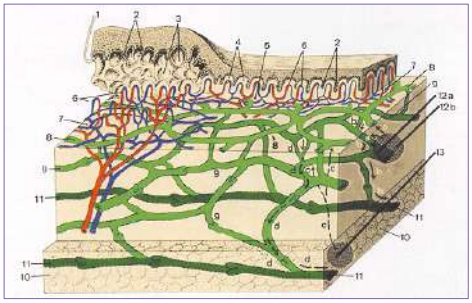
- Prevents edema by returning protein and capillary filtrate (water) to the systemic circulation.
- Absorbs fat and fat-soluble vitamins from the small intestine
- Provides immune surveillance by recognizing and responding to foreign cells, microbes, viruses and cancer cells



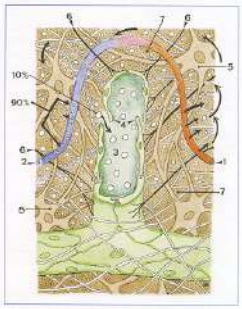
Lymph Vessels

Superficial lymph nodes of the axilla and inguinal region and the collecting lymphatics and lymph vessels that lead to them.

Lymphatic Vessels of the Skin

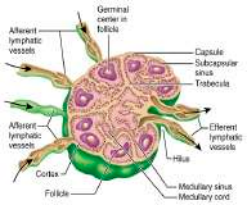


Lymph Capillaries



- Flat endothelium cells with anchoring filaments.
- Larger diameter than blood capillaries.
- Absorb interstitial fluid including water, protein.
- No valves.

Lymph Nodes

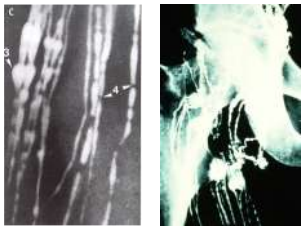


Lymph node with afferent and efferent vessels.

- Serve as filtering stations
- Absorb water
- Regulate protein concentration
- Produce lymphocytes
- 600 – 700 in number
- Size ranges from .2 – 3 cm
- Various shapes

Venogram vs Lymph-angiogram

Venogram



Lymph-angiogram

Lymphatic Watersheds

A lymphatic watershed
separates
lymphatic tributary regions

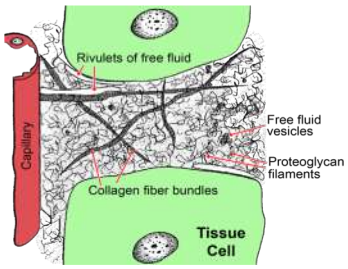
Thoracic Duct

The thoracic duct is the largest lymph vessel in the human body, located anteriorly of spinal column. It starts with the cisterna chyli at L2 and ends at the left venous angle. It receives lymph fluid from ¾ of the body: both lower extremities, the abdomen, the left upper quadrant, the left upper extremity, and the left side of the head and neck

Head and Neck Tributary Regions

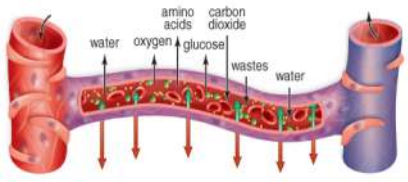
Lymph Node	Location	Tributary Area	Drainage
Submental LN	2-3 nodes below chin	Lower lip, gums, tip of tongue, chin	Deep cervical lymph nodes
Submandibular LN	5-8 nodes in the area of the submandibular glands	Lips, external cheeks, medial eye lids, teeth, gums, tongue, floor of mouth, cheek mucosa	Deep cervical lymph nodes
Preauricular LN	2-4 nodes in front of ear at the parotid gland	Front of the auricle, nasal root, lateral eye lids, parotis	Deep cervical lymph nodes
Retroauricular LN	1-2 nodes behind the ear	Auricle, chiefly posterior surface, neighboring scalp, middle ear	Deep cervical lymph nodes
Occipital LN	2-3 nodes above insertion of the trapezius muscle	Skin of posterior head, base of head	Deep cervical lymph nodes
Cervical LN	Area of the sternocleidomastoid muscle near the jaw angle, along the internal jugular vein, supraclavicular fossa	Ear, parotid gland, jaw angle, neck, back of head, tonsils	Deep cervical lymph nodes, jugular trunk

Components of the Interstitium



DIFFUSION

Diffusion is the most important process in cell nourishment!



(Amount out = Amount in)

Active Hyperemia

Dilation of the pre-capillary arterioles leads to more blood volume in the capillaries which in turn increases BCP. Filtration and lymphatic water load will **increase!**

Active hyperemia occurs through:

- Application of heat
- Inflammation due to infection
- Exercise
- Vigorous/deep tissue massage

History of MLD

- Emil Vodder, Ph.D., M.T, Copenhagen Denmark (1896-1986) Estrid Vodder, M.T, (1898-1996)
- Most well known and widely used worldwide
- Developed the technique using precise movements which scientists recognize as stimulating lymph flow

DEFINITION OF MLD

- Designed to increase the movement of lymph and interstitial fluid
- Hand techniques are adapted to follow the A&P of the lymphatic system
- Four basic techniques which are all gentle, predominately circular stretching of the skin.
- Each technique has a pressure and a pressure free/relaxation phase

DEFINITION OF MLD

- Applied at a rate of 1/sec, 5-7 reps per area
- Proximal regions are cleared prior to working distal
- As a rule, no reddening of the skin should appear
- MLD should not be painful

Basic Strokes of MLD

- Stationary circles
- Pump Technique
- Scoop Technique
- Rotary Technique

Basic Strokes of MLD

Stationary Circle

Can be used on all areas of the body using the whole hand/fingers/thumb

Pump Technique

Mainly used at extremities and/or round areas of the body such as upper and lower extremities

Basic Strokes of MLD

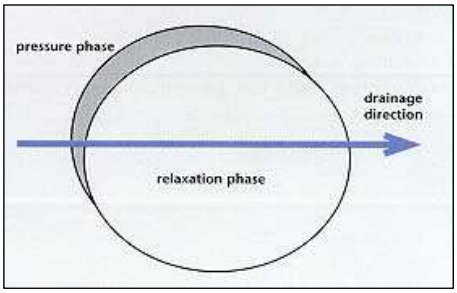


Fig. 1 Stationary Circle

Basic Strokes of MLD

Rotary Technique

Can be used on all areas of the body using the whole hand/fingers/thumb

Scoop Technique

Mainly used at extremities and/or round areas of the body such as upper and lower extremities

Effects of MLD

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

Indications for MLD

- A profound technique to help increase lymph flow
- Supportive and healing following injury, surgery, inflammation – supports the removal of tissue waste and so encourage healing
- Important technique for edema/lymphedema management

Indications for MLD

- Analgesic effects are promoted with MLD due to the accelerated drainage of nociceptive (pain-causing) substances from treated areas.
- In addition, the light pressure used in MLD provides a stimulus for the “gate-control.” (Gate Control Theory: A medical notion in which one's nerves are stimulated in a way that they close the "gates" which send pain signals to the brain.)

Indications for MLD

- The light pressure used in MLD, as well as the gentle, rhythmic application of the strokes, decreases the body's sympathetic mode and promotes a parasympathetic response.
- Frequency of treatment will depend on a clients medical history and tolerance to other bodywork
- REMEMBER – Sessions may need to be shorter as we are moving fluid around the body
- Always check in with client at least 24 hours post treatment to help you decide on an appropriate treatment session in the future

Contraindications for MLD

- MLD not indicated for all persons
- Therapists are advised to rule out potential problems under the guidance of a physician who is familiar with the effects of MLD wherever possible.
- Common contraindications are listed – If in doubt, do less

Contraindications for MLD

General Contraindication (Whole Body)

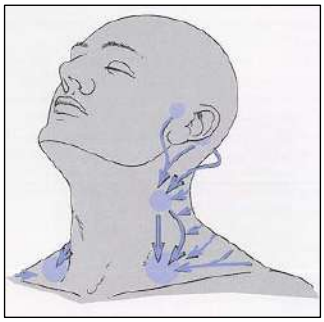
Local Contraindication (concerning a body region)

Contraindications can be either **absolute** (treatment strictly prohibited) or **relative** (Physicians approval)

Contraindications for MLD

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

Lymphatic Flow of Head and Neck



Contraindications for MLD on the Neck

All of the general contraindications plus

- 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

Short Neck MLD Sequence

- Effleurage, 2-3 times from the sternum to the acromion.
- Stationary circles with the fingers laying flatly in the supraclavicular fossa.
- Treatment of the cervical lymph nodes. Stationary circles from the ear lobe to the supraclavicular fossa.
- Stationary circles in the area of the shoulder collectors
- Follow-up moves according to findings.
- Final effleurage.

Breathing and the Lymphatic System

- Diaphragmatic breathing, abdominal breathing, belly breathing or deep breathing is breathing that is done by contracting the diaphragm, a muscle located horizontally between the chest cavity and stomach cavity. Air enters the lungs and the belly expands during this type of breathing.
- This deep breathing is marked by expansion of the abdomen rather than the chest when breathing

Breathing and the Lymphatic System

- According the National Center of Complementary Medicine, deep breathing involves slow and deep inhalation through the nose, usually to a count of 10, followed by slow and complete exhalation for a similar count. The process may be repeated 5 to 10 times, several times a day.
- Diaphragmatic breathing can stimulate the cleansing of the deeper lymph nodes by creating a negative pressure pulling the lymph through the lymphatic system.

Indications for MLD

Inflammation

Inflammation is the body's attempt at self-protection and start of a healing process

: a local response to cellular injury that is marked by capillary dilatation, leukocytic infiltration, redness, heat, pain, swelling, and often loss of function and that serves as a mechanism initiating the elimination of noxious agents and of damaged tissue

http://www.merriam-webster.com/medlineplus/inflammation

Inflammation

By stimulating and encouraging the lymph flow proximal to the inflammatory site, MLD can effectively reduce and remove the inflammatory substances that may be causing pain and irritation to the area. This will also help reduce protein load in the interstitial space and re-establish homeostasis

Not in acute inflammation as could spread viral, bacterial or toxic agents

Post Deep Tissue Massage??

Sprains

Definition: An injury to a ligament that occurs when the joint is carried through a greater range of motion (ROM) than is normal but without causing dislocation or fracture.

Symptoms:

- Edema
- Localized warmth
- Pain
- Restricted ROM
- Muscle spasm and bruising

In severe sprains, there is clicking and popping of the involved joint and excessive movement once muscle spasm and edema have resolved.

MLD for Sprains

Objectives: Reduce swelling and bruising, decrease pain, promote normal ROM, prevent fibrosis, and reduce recovery and healing time.

Sequence:

- Short neck
- Abdominal treatment
- Preparation of nodes that drain the affected limb
- Sequence for involved extremity, working proximal to injury in the acute phase, then more distally as pain allows

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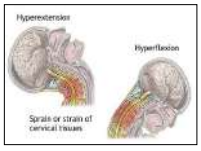
Whiplash

Definition: Hyperextension injury to the neck. A moderate to severe strain affects the bones, discs, muscles, nerves, and/or tendons of the neck.

Symptoms:



- Headache
- "Heavy head," dizziness
- Muscle spasms
- Blurry vision
- Ringing of the ears
- Neck pain and edema of the neck
- Painful position changes, pain behind the eyes and ears

Whiplash

Objectives: Decrease swelling and reduce pain, promote normal ROM, inhibit fibrosis and scar formation, and reduce overall recovery and healing time.

Sequence:

- Neck treatment with emphasis on clearing the cervical chain.
- Posterior neck with emphasis on the occipital region.
- Deep paraspinal techniques on the cervical area, when appropriate.
- Follow-up neck treatment.

Post Surgical Edema

Definition: Swelling after any surgical procedure.

Symptoms:

- Edema
- Pain
- Restricted range of motion
- With or without bruising

Post Surgical Edema

Objectives: Decrease swelling and reduce pain, promote normal ROM, inhibit fibrosis and scar formation, and reduce overall recovery and healing time.

Sequence:

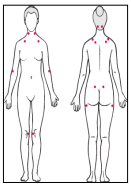
- Short-neck treatment.
- Abdominal treatment where appropriate.
- Regional nodes.
- Collectors draining from the surgical edema to regional lymph nodes.
- MLD at the periphery and directly over the surgical area within pain tolerance

Fibromyalgia

Definition: A central nervous system disorder caused by neurobiological abnormalities which act to produce physiological pain and cognitive impairments as well as psychological symptoms.

Symptoms:

- Increased sensitivity to pain
- Sleep disturbance, fatigue
- Headaches and facial pain
- Irritable bowel syndrome (IBS)
- Difficulty concentrating
- Numbness and tingling



Fibromyalgia

Objectives: Decrease hypersensitivity and reduce pain, promote restful sleep, encourage normal range of motion, and reduce tissue congestion.

Sequence:

- Focus on systemic treatment unless individual is experiencing localized symptoms that require management.
- Shorten initial treatment session.
- Evaluate post-treatment response.
- Re-evaluate treatment as symptoms fluctuate.

Chronic Fatigue Syndrome

Definition: Complex disorder characterized by profound fatigue of six months or longer that is not improved by bed rest and may be worsened by physical or mental activity.

Symptoms:

- Impairment in short-term memory or concentration
- Sore throat; tender lymph nodes
- Muscle pain; multi-joint pain without swelling or redness
- Headaches of a new type, pattern or severity
- Un-refreshing sleep
- Post-exertional malaise lasting more than 24 hours

Chronic Fatigue Syndrome

Objectives: Pain relief, promotion of restful sleep, general detoxification of tissues, and possible immunity enhancement.

Sequence:

- Focus on general work unless individual is experiencing localized symptoms
- Start with shorter initial treatment session
- Evaluate post-treatment response.
- Re-evaluate treatment as symptoms fluctuate.

Chronic Rheumatoid Arthritis

Definition: Systemic inflammation leading to the erosion of cartilage and bone in multiple joints of the body.

Symptoms:

- Pain and swelling in joints
- Generalized aching or stiffness
- Loss of range of motion
- Loss of strength in muscles
- Fatigue, malaise
- Low-grade fever
- Deformity of joints over time
- Periods of exacerbation and remission

Chronic Rheumatoid Arthritis

Objectives: Reduce pain, decrease tissue congestion and inflammation, reduce swelling, and increase range of motion.

Sequence:

- Short-neck treatment.
- Abdominal treatment and abdominal with breathing.
- MLD sequencing corresponding to involved area(s).
- Follow-up according to findings.

Migraine Headache

Definition: A recurring headache characterized by unilateral onset, severe throbbing pain, photophobia, phonophobia, and autonomic disturbances during the acute phase which may last for hours or days.

Symptoms:

- May be predicted by visual disturbances and/or a variety of different physical sensations.
- May be accompanied by nausea, vomiting, chills, polyuria, sweating, facial edema, irritability, and extreme fatigue.
- Often followed by a dull head, neck pain, and a great need for sleep.

MLD for Migraines

Objectives: Reduce pain and hyper-sensitivity, shorten duration of an event, reduce frequency of occurrences, and attempt to pre-empt occurrences with early treatment.

Sequence:

- Neck treatment.
- Face treatment with focus on forehead and temples.
- Posterior neck.
- Follow-up neck treatment.
- Deep-breathing techniques may be incorporated.

Tinnitus

Definition: Ringing in the ears or other noise that seems to originate in the ears or head.

Symptoms:

- Ringing, humming buzzing or other noise"in the ear"
- Dizziness or vertigo
- Hearing loss

Tinnitus

Objectives: Reduce possible fluid pressure on the inner ear and Eustachian tubes and reduce dizziness.

Sequence:

- Neck treatment
- Face treatment
- Posterior neck
- Follow-up neck treatment

Pregnancy Edema

- **Definition:** During pregnancy, the body produces approximately 50% more blood and body fluids to meet the needs of the developing baby. Swelling is a normal part of pregnancy that is caused by this additional blood and fluid. In addition, the weight of the growing fetus can press on the pelvic veins which can cause venous edema in the lower extremities.
- **Signs and Symptoms:** Swelling is most often experienced in the hands, face, legs, ankles and feet

Pregnancy Edema

MLD Objectives: Provide relief from swelling and discomfort (tension in the tissues), improve sleep and anxiety, and support venous return.

MLD Sequence:

- Short neck treatment.
- Treatment of regional lymph nodes (axillary if focusing on upper extremities and breast; inguinal nodes for lower extremities).
- Treatment of affected extremity as outlined in MLD sequences.
- Focused treatment to area of involvement.
- Follow-up moves according to findings

Pregnancy Edema

- Good and Important indication for MLD treatment
- Does not involve an ailment, mostly physiological changes.
- MLD is permitted except for abdominal treatments
- Helpful for a number of symptoms – Sleep, anxiety, LE edema, support for the venous circulation
- Due to hormonal changes during each semester, tissues are generally more relaxed and contain more fluid

Pregnancy Edema

- Growing fetus exerts more pressure on the abdominal lymph nodes adding lymphostatic component to edema formation
- CAUTION – Rule out DVT, High Blood Pressure and risk of Preeclampsia
- Shorter sessions are advisible

MLD to Enhance Immunity

To Date, no research has been published that proves MLD can effectively enhance immune function of the human body. However, it is theorized that since the lymphatic system does possess immunological functions, promoting lymph formation and encouraging lymphatic drainage likely has a beneficial effect on overall immunity

Though detoxification and enhanced immunity are not proven results of the application of MLD, MLD is frequently utilized and promoted as such

MLD in the Oncology Setting

MLD can assist with:

- Post-surgical recovery,
- Edema reduction,
- Pain control,
- Infection prevention (particularly local infections),
- Hematoma reduction/resolution,
- Constipation relief,
- Relaxation,
- Stress reduction
- Improved sleep

MLD in the Oncology Setting

- MLD used more frequently in oncology setting
- Many side effects of an Oncology treatment many indications for the use of MLD
- Therapists treating oncology clients who are still in active chemotherapy should wear protective gloves when touching the client within 48 hours of the chemo infusion.
- Therapists should not touch any radiated areas of the client's body while radiation treatments are in progress.

MLD in the Oncology Setting

- Cancer treatment and care can be a very complex process.
- **WHENEVER POSSIBLE, ALWAYS CONSULT WITH YOUR CLIENT'S HEALTHCARE PROVIDERS, AND DO YOUR BEST TO STAY CURRENT WITH LAB AND TEST RESULTS WHEN PREPARING TREATMENT PROTOCOL.**
- Be aware of current and past medical treatments, surgical sites, tumor sites, current blood counts, and energy/fatigue levels

MLD in Palliative Care

Definition: Care of patient whose disease is incurable.
Objectives: Assist with pain management, reduce/control edema, increase mobility, reduce the risk of skin breakdown and infection, and increase overall client comfort and quality of life.

Sequence:

▪Dependent on client's physical needs and subjective complaints

Classes for MLD Certification

- 51/2 day classes at different locations throughout the USA
- During this course, students will be instructed in anatomy and physiology of the lymphatic system. Basic MLD treatment sequences as well as MLD treatment sequences for mild, medically-uncomplicated upper and lower extremity lymphedema will be demonstrated and practiced.
- Each day will be divided into two sections: theoretical and hands-on application.
- For more information please visit
- http://klosetraining.com/mld/

Thank You !

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