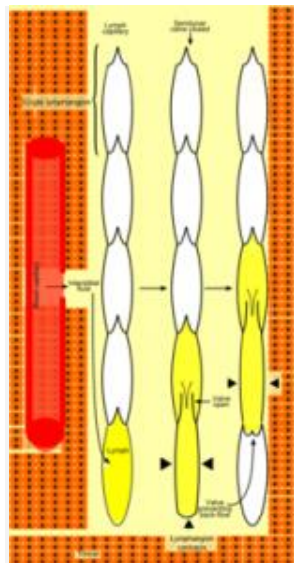


The Science behind Manual Lymph Drainage in the Treatment of Lymphedema

BY JOACHIM ZUTHER, ON APRIL 18TH, 2012



Manual lymph drainage (MLD) is a gentle manual treatment technique based on four basic strokes, which were initially developed in the 1930's by Dr. Emil Vodder, a PhD from Denmark. These basic strokes known as the “stationary circle”, “pump”, rotary” and “scoop” techniques are designed to manipulate lymph nodes and lymphatic vessels with the goal of increasing their activity and promote the flow of lymph.



Movement of Lymph Fluid in Lymph Vessels

The common denominator of all strokes is the resting and working phase. In the working phase of the stroke lymphatic structures located in subcutaneous tissues are stretched, resulting in an increase of their activity (lymphangiomotoricity). In addition to increased lymphatic activity, the light directional pressure in the working phase of the strokes causes lymphatic fluid to move in the desired direction, thus contributing to the reduction of the swelling.

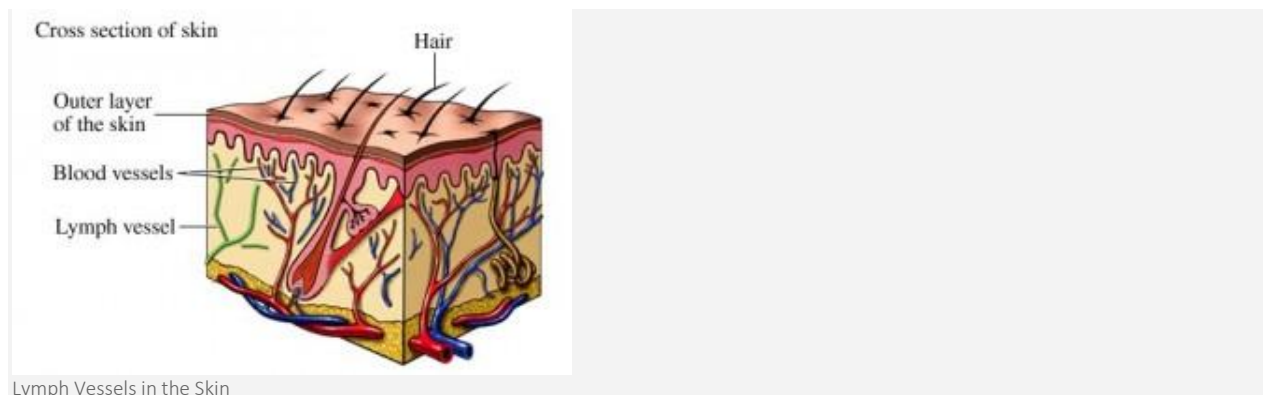
Certain MLD strokes are designed to manipulate lymph vessels located in the subcutaneous tissues of larger body surfaces, such as the trunk, other techniques are better suited to be applied on contoured surfaces, such as the extremities.

Stationary circle: This technique consists of an oval-shaped stretching of the skin with the palmar surfaces of the fingers or the entire hand. Stationary circles can be applied with one hand, or bimanually and are used on the entire surface of the body, but mainly on lymph node groups (axilla and groin), the neck and the face.

Pump technique: The entire palm and the proximal (upper) phalanges are used to apply a circle-shaped pressure on the skin, operating within almost the full range of motion in the wrist. Pumps are primarily used to manipulate lymph vessels located in the extremities and can be applied with one hand or bimanually.

Rotary technique: This stroke is used on large body surface areas, such as the trunk. The entire surface of the hand and fingers are used in an elliptical movement during the working phase. Like the scoop technique, rotaries are applied dynamically, meaning the working hand moves over the surface of the treated body part in a continuous fashion. If applied bimanually, the techniques are alternating.

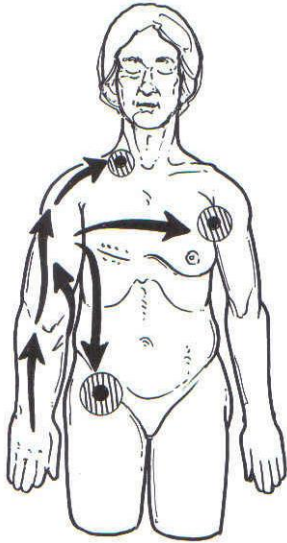
Scoop technique: Scoops are applied mainly on the lower parts of extremities and consist of a spiral-shaped movement. During the working phase, which can be applied with one or both hands, the palmar surface of the hand moves dynamically over the skin. The hand movement is facilitated by transitional movement in the wrist, combined with forearm pronation and supination.



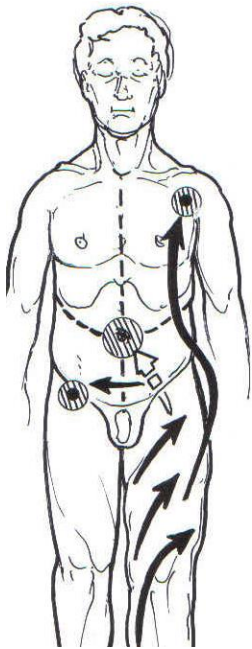
Compared to traditional massage, the pressure applied with manual lymph drainage is much lower in intensity. The goal of these techniques is to manipulate the lymphatic structures located in the subcutaneous tissues. In order to achieve the desired effect, the pressure in the working phase should be sufficient enough to stretch the subcutaneous tissues against the fascia (a structure separating the skin from the muscle layer) located underneath, but not to manipulate the underlying muscle tissue. The amount of pressure needed in MLD is sometimes described as the pressure applied stroking a newborn's head.

In the resting phase of the stroke the pressure is released, which supports the absorption of lymph fluid into lymph vessels. To achieve the maximum effect with each technique, the working phase with every stroke should last about one second and should be repeated five to seven times.

The overall goal of MLD in the treatment of lymphedema is to re-route the flow of stagnated lymphatic fluid around blocked areas into more centrally located healthy lymphatic vessels, which eventually drain into the venous system.



In the case of upper extremity lymphedema caused by breast cancer surgery, it is necessary to re-route the flow of stagnated lymph in the subcutaneous tissues of the arm around the blocked axillary area towards and into the axillary lymph nodes on the opposite side and the inguinal lymph nodes on the same side the surgery was performed. These groups of lymph nodes represent the drainage areas for the stagnant lymph fluid located in the affected upper extremity and need to be manipulated prior to initiating the treatment of the arm itself.



In the case of lower extremity lymphedema, the stagnated lymphatic fluid is generally re-routed around the blocked inguinal (groin) area towards and into the inguinal lymph nodes of the opposite side and the axillary lymph nodes on the same side of blockage. As with lymphedema affecting the upper extremity, these groups of lymph nodes represent the drainage area for the stagnated lymph fluid and need to be manipulated prior to starting treatment of the leg.

The manipulation of these drainage areas with MLD strokes creates a “suction effect” in the healthy lymph vessels located in the drainage areas, which enables accumulated lymph fluid to move from a region with insufficient lymphatic drainage into an area with normal lymphatic drainage, and eventually back into the venous system.

Following this preparation, the extremity itself is treated in segments; the proximal (upper) aspect of the affected extremity is decongested prior to expanding the treatment to the more distal (lower) aspect of the arm or leg. This segmented approach ensures that lymph vessels located in more proximal areas of the extremity are properly prepared to handle incoming lymphatic fluid from areas located more distally.

In order to prevent reaccumulation of the fluid evacuated from the extremity, it is necessary that the MLD treatment is followed up with compression, which depending on the stage of treatment, is applied either with specialized padded bandages or compression garments.

Manual lymph drainage presents a unique opportunity for health care professionals to specialize and opens the door to treat and manipulate a variety of conditions associated with dysfunctions of the lymphatic system. However, the unique techniques of manual lymph drainage deviate considerably from traditional manual techniques and therefore require specialized training.