

An overview of manual lymphatic drainage

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Manual lymphatic drainage (MLD) is a technique whereby gentle pressure is applied to the lymphatic drainage system by a trained specialist. MLD is used in the treatment of patients with conditions such as lymphoedema or lipoedema, or following some surgical procedures (MLD UK, 2024a). Lymphoedema of any origin is usually treated with complex physical decongestive therapy, which comprises MLD and other methods, including compression therapy, exercise therapy, skincare and patient education (Kasseroller and Brenner, 2024).

The specialist practitioner will have been trained only at a recognised institution, where they are shown demonstrations, supervised in practice, learn theory and maintain ongoing clinical development. Courses require a minimum of 130 hours of tuition and study to meet the expectation to register as an MLD therapist (MLD UK, 2024a). The list of all the therapists trained in MLD can be found on the MLD UK website: <https://mlduk.org.uk/find-a-therapist/>.

What is the lymphatic drainage system and how does it work?

The lymphatic system is a network of vessels, tissues and organs that work together as part of the immune system to remove cellular waste and toxins. The lymphatic system helps to maintain body fluid levels and absorb fats from the digestive system. About 20 litres of plasma flows through the body on a daily basis, 17 litres of which return into blood circulation through veins following the delivery of nutrients and removal of waste from the body (Vallet, 2023). The remaining 3 litres transfer into the body's tissues for the lymphatic system to collect (Vallet, 2023). If the lymphatic system is not functioning as usual, this fluid is not adequately removed and seeps into the tissues, causing a buildup of fluid over time. This excess fluid is called 'lymph', and would normally be returned into the bloodstream as part of a

functioning lymphatic system. Lymph typically comprises proteins, minerals, fats, nutrients, cellular waste, bacteria and viruses (Vallet, 2023).

A human being has 600 lymph nodes located throughout the body (Vallet, 2023). These are glands that help to cleanse the lymph, aiding the process of filtering out toxins, such as damaged cells or cancer cells. Lymph nodes can exist independently or connect in a chain via lymphatic vessels. Lymph nodes are commonly found in the neck, armpits and groin (Vallet, 2023). When a person has a viral infection, lymph nodes may cause swelling in the infected areas while ridding excess toxins from the body.

Lymphatic vessels consist of capillaries and tubes in the body, which transport lymph from the tissues. Vallet (2023) noted that these networks of vessels function in a similar way to veins, and contain valves to prevent the backflow of fluid and aid the movement of fluid in one direction under low pressure. Lymph is emptied into the right and left lymphatic ducts by lymphatic vessels, then returned to the blood via the subclavian vein, which is connected to the collecting ducts (Vallet, 2023).

Maintenance of blood pressure and volume depend on effective lymphatic drainage, as each can be significantly affected by inadequate clearance of lymph (Vallet, 2023). Excess volume in areas of the body where lymph is not adequately cleared will cause swelling. Oedema is typically found in the ankles and legs, but can also occur in other areas of the body, such as the arms after breast cancer surgery. Organs involved in the lymphatic system include the spleen, thymus, tonsils, adenoid, bone marrow, appendix and Peyer's patches (areas of lymphatic tissues lining the mucous membrane of the small intestine) (Vallet, 2023). These organs produce white blood cells, which are used in the immune response to fight against infections and diseases. Lymphatic organs also work to trap pathogens, as well as monitor and destroy bacteria.

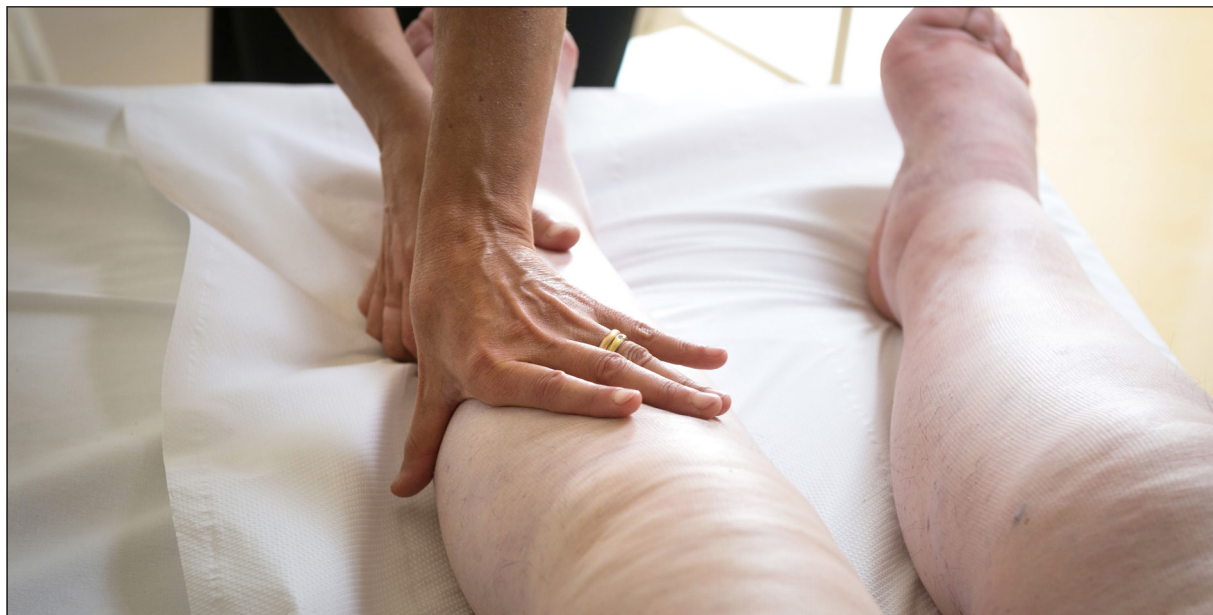
Abstract

Manual lymphatic drainage is an advanced therapy that enhances the movement of lymph via a gentle form of massage. In this article, Sarah Jane Palmer provides an overview of manual lymphatic drainage as a treatment for lymphoedema, and summarises the latest research in the area.

Keywords: manual lymphatic drainage • lymphoedema • specialist therapy

Types of MLD

There are multiple type of MLD, including Vodder, Földi, Casley-Smith and fluoroscopy guided MLD, which are generally similar but involve slightly different movements as part of the massage (Cancer Research UK (CRUK), 2023). MLD is not the same as simple lymphatic drainage or massage, which are easier to conduct and may not always require a specialist.



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Figure 1: MLD involves applying gentle massage techniques to help with the movement of lymph

How does MLD work?

MLD is a technique designed to move fluid away from areas with swelling to a place where there is normal function of the lymphatic system, in people with lymphoedema or other conditions as indicated (CRUK, 2023). It is a non-invasive technique involving a range of rhythmic movements that stimulate the lymphatic system (MLD UK, 2024a). The movements involve applying light pressure, as the lymphatic system is located in a shallow area in the dermis layer of the skin. For example, the massage may target the chest if aiming to remove fluid from the arm, given the location of the lymphatic vessels (CRUK, 2023). The specialist chooses the type of MLD and the number of sessions to conduct depending on the patient's condition.

MLD is an effective technique for many patients, achieving outcomes in lymphoedema, improving areas with venous insufficiency (eg leg ulcers), speeding up postoperative healing time, reducing fluid congestion (eg in pregnant women with swollen legs, for swollen ankles or puffy eyes) and promoting healing time following injuries such as fractures, sprains and torn ligaments (MLD UK, 2024b). Burns and other wounds may also benefit from MLD, as can chronic conditions such as sinusitis, scleroderma or rheumatoid arthritis (MLD UK, 2024b).

Contraindications

Despite the wide array of benefits offered by the therapy, there are contraindications for MLD in some cases. The Lymphoedema Framework (2006) lists the following general contraindications:

- Acute cellulitis/erysipelas
- Severe cardiac insufficiency
- Ascites
- Unstable hypertension
- Renal failure

- Untreated tuberculosis or malaria
- Superior vena cava obstruction.

Such conditions can put the person at a higher risk of mortality if they receive MLD, because blood pressure or renal pressure is increased, or the heart has poor cardiac output and cannot cope with additional fluid. MLD moves fluid from one part of the body to another, so it can be contraindicated for a patient whose diagnosis would leave their body unable to cope with the pressure of fluid being moved in this way. Other possible contraindications include untreated thyroid dysfunction, metastases and primary tumours (Lymphoedema Framework, 2006).

Recent research on MLD

Thompson et al (2021) conducted a systematic literature review of 17 studies exploring MLD treatment for lymphoedema. The analysed studies examined breast cancer-related lymphoedema, and included a total of 867 female and 2 male participants. The authors found that MLD was effective in achieving volume reduction, improved quality of life and symptom-related outcomes when compared to other treatments as part of a complex decongestive therapy treatment plan. MLD was also found to reduce lymphoedema incidence in some of the studies within the literature review (Thompson et al, 2021). MLD was found to be beneficial in cases of mild lymphoedema, but the treatment appeared to lack efficacy in more severe cases. There were conflicting findings and methodological limitations across the literature, prompting a call for further studies to evaluate the effectiveness of MLD for the management of lymphoedema.

Kasseroller and Brenner's (2024) retrospective study similarly explored the effectiveness of MLD in breast cancer-related lymphoedema. However, the authors focused on a more specific group of patients – those undergoing intensive phase I of complete decongestive therapy. The authors

analysed a previous study which covered a 3-week period of therapy. The study compared two types of compression bandaging in a group of 61 patients with unilateral breast cancer-related lymphoedema. The patients each received MLD as part of their treatment twice daily on weekdays. Measurements were taken of the affected arm on days 1, 5, 8, 12, 15, 19 and 22. The patients experienced significant volume reduction throughout the week and a slight increase on weekends when not undergoing MLD. The researchers concluded that an intensive period of treatment using MLD as part of a wider treatment plan was effective in achieving volume reduction in the study population (Kasseroller and Brenner, 2024).

Tsai et al (2022) analysed the effectiveness of MLD in a study population with oral cavity cancer. They examined the effect of the combination of MLD and rehabilitation exercise on pain, range of motion and lymphoedema as an early intervention. The researchers noted clinical inconsistencies regarding successes of the intervention. The randomised single-blind study analysed a cohort of 39 patients who underwent surgery for oral cavity cancer from 2014–18. Of these patients, 20 received only 30 minutes of rehabilitation per day, and 19 received 30 minutes of MLD with 30 minutes of rehabilitation daily.

To compare the effectiveness of the interventions, the researchers measured pain using the visual analog pain scale, range of motion of the neck and shoulder, ultrasonography, face measurements for lymphoedema and the Földi and Miller lymphoedema scales. All of these variables were measured before surgery, before the intervention and at discharge from hospital. The results demonstrated that in comparison to rehabilitation exercise alone, the pain score, neck range of motion and internal and external rotation of the right shoulder improved significantly following combined MLD and rehabilitation exercises. There was also significant improvement in right face distance and skin-to-bone distance in certain areas of the face.

Using MLD as an early intervention incorporated into a rehabilitation program was found to have good efficacy for improving range of motion of the neck and controlling lymphoedema in the acute phase of rehabilitation following surgery for oral cancer (Tsai et al, 2022).

Conclusions

The use of MLD is widely recommended for a range of conditions, but must only be conducted by a certified specialist. MLD can assist the lymphatic drainage system by helping to prevent fluid buildup and aiding fluid movement back into blood circulation. MLD can be used as part of a treatment plan involving other methods (eg rehabilitation exercise) for some patients. The specialist can decide on the type of MLD to conduct and the number of sessions needed based on the patient's condition and characteristics. Some research has shown that for certain patients (eg those with breast cancer post operatively), MLD is effective if given on an intensive basis (eg twice daily for 3 weeks). Other patients may benefit from a less intensive course of treatment. There are various contraindications relating to blood volume, pressure management and renal function. It is important to have an understanding of MLD, as many patients in the community are likely receiving this as part of their treatment plan. Always refer to a specialist with any queries about MLD.

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Declaration of interest: None

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