

## Dr. Vodder's Manual Lymph Drainage

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### 국문 요약

#### Vodder의 엠엘디

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김주상

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마사지 치료는 한국에서 가장 일반적인 치료 도구의 하나로써 물리치료에서 적용되고 있으며 방법도 빠르게 변하고 있다. 지금까지 여러 형태의 마사지 방법들이 국내 물리치료사에게 소개 되어왔지만 림프흡수 마사지는 임상결과가 이전의 연구에서 제시되어 왔음에도 제대로 소개되지 않아서 일반적인 치료적 마사지 방법의 하나로 사용되고 있는 않았다. 이에 본 연구자들은 현재 국제 림프학회에서 공인된 보더 스쿨의 엠엘디 코스를 임상 물리치료사들에게 소개함으로 해서, 국내에서의 치료의 질을 한 층 더 높이는 기회가 되고자 한다. 공식적으로 공인된 보더 방법의 엠엘디 치료사가 되기 위해서는 보더 스쿨에서 교육하고 있는 모든 교육과정들(기초, 치료 I, 치료 II+III) 치료를 이수해야만 한다. 이수 후 지속적으로 자격을 인정받기 위해서는 2년에 한 번씩 재이수 과정을 마쳐야 하며 이런 과정을 통해 만성 부비동염, 부종, 화상, 관절염, 림프부종 등의 다양한 종류의 질환을 엠엘디를 이용하여 치료할 수 있게 된다. 결과적으로, 이 연구를 통해 보더의 엠엘디 과정을 소개함으로 해서 앞으로 국내 물리치료 분야에서 더 많은 림프와 암에 관련된 전문 엠엘디 치료사가 배출되기를 바라며 그러므로 한 층 국내 물리치료 분야의 질을 올릴 수 있는 기회가 되었으면 한다.

**핵심단어:** 보더 방법; 엠엘디(Manual Lymph Drainage).

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## Introduction

Massage is the systematic and scientific manipulation of the soft tissues of the body (Tappan, 1986). Modern theories and systems can be arranged into three categories. The first category, autonomic or reflexive approaches, are those that exert their therapeutic effect on the autonomic and somatic nervous system. The second, mechanical approaches are those that actually attempt mechanical changes in the soft tissue by direct application of force. The third, movement approach are those that attempt to change abnormal movement patterns and establish more optimal ones (Fritz, 1995). Although massage can be applied by electrical equipment such as vibrators, rollers, or hydrotherapeutic turbines, because of the unique characteristics of humans. Through massage, Massage techniques which can be applied by use of the hands is preferred to devices working with electricity or substitutes for hands. Massage is a healing art. It is a unique way of communicating without words. We may communicate the fact that we care and want to share our energy with a patient (Tappan, 1986).

Touch as one of the most common treatment modalities appears to have developed from multiple cultural origins and scientific basis. Massage therapy has strong roots in Chinese folk medicine (Fritz, 1995) and is changing rapidly in the history of physical therapy according

to properties of problems. At present, massage is being used by not only health professions in hospitals, but also therapists in private massage centers, esthetic salons, sports centers, etc in Korea.

Manual lymph drainage (MLD) began around 1950s in France and spilled over into medicine and allied health facilities in Europe at an early stage. There it was developed and spread around world including the U.S.A., Canada, Austria and even Japan. However, although it was introduced to the physical therapy field only a few years ago in Korea (Kim and Hwang, 1999). It has not replaced clinical physical therapy. MLD can be used in a wide variety of applications. Treatments range from sinusitis to acne, edema to burns, and scars to arthritis, but the main categories are inflammation, various types of edema (including lymphedema) and neuropathies. Therefore this study could be a motivation to produce numerous Manual Lymph Drainage therapists by introducing Vodder's MLD which is the most widely recognized in the field of lymphology.

## Historical background

A Swedish instructor of gymnastics around the late 17th century developed the system of heavy massage and movement called the "Ling system" or the "Sweden Movement Treatment" (Chikly, 2001). This laid the groundwork for types of massage with relatively heavy pressure,



**Figure 1.** Estrid Vodder and Emil Vodder

now called "Swedish Massage" to be developed by the middle 18th century in Europe. von Winiwarter, a surgeon from Belgium was one of the first physicians to introduce in hospitals the use of manual techniques for draining lymphatic edemas. He also proposed the use of heavy manual techniques with other "conservative" modalities including skin care, hygiene, external compression, remedial exercises and the treatment of any associated conditions. He recommended massage methods such as draining the limbs in a retrograde manner from proximal to distal so it became the root and trunk of lymph massage. However this method fell out of use. Why is uncertain, especially since techniques of lymphatic drainage were improved in the 1930's by Emil Vodder who was physical therapist and doctor of philosophy (Burt and White, 1999; Casley-Smith et al, 1998; Cavezzi and Michelini, 1998; Swirsky and Nannery, 1998).

Vodder and his wife (Emil and Estrid Vodder) were working in Cannes, France, between 1932 and 1936 in his physical therapy institute (Figure 1). Some of his patients suffered from chronic sinusitis, pharyngitis, tonsillitis. And he wondered if the blockage in the lymph nodes could be the underlying cause of the nose and throat infections. By draining these areas toward the neck he later realized he was working with lymphatic pathways. Encouraged by these successes, he developed the MLD methods that we teach and apply today (Cavezzi and Michelini, 1998; Chikly 2001; Kasseroller, 1998; Wittlinger, 1998).

Vodders lived for six years in Paris. They continued their research using the studies of Professor Roviére (Anatomy of the Lymph Vessels in Man) and the anatomical atlas of Sappey (Description and Iconography of the Lymph Vessels in Man and the Vertebrates). By 1936, they were ready to present their findings at a health and beauty congress in Paris.

Thereafter, their techniques were described as a revolutionary skin treatment (Cavezzi and Michelini, 1998; Chikly 2001).

At the outbreak of war in Europe, the Vodders returned to their native Denmark and founded the MLD Institution Copenhagen where they began training European therapists. By 1967 a society for Dr. Vodder's MLD had formed which now holds biennial conferences in Germany and promotes research into the technique at various universities and clinics in Europe (Kasseroller, 1998).

As the Vodders got older they passed on their techniques to Hildergard and Gunther Wittlinger, who founded a school and clinic in Walchee, Austria in 1972 which is now a leading center for this technique. Gradually, MLD has gained a strong foothold in Europe, mostly in Germany, Austria, France and the Scandinavian countries. In 1976, therapeutic lymph drainage was officially recognized by the German Society of Lymphology (Cavezzi and Michelini, 1998; Swirsky and Nannery, 1998; Wittlinger, 1998).

A lymphedema clinic opened in S. Medical Center for in Korea by Lee who is a vascular specialist. At that time, there was no one who knew the treatment methods for lymphedema in Korea. Kim who was a Physical therapist working in the S. medical center went to take courses which were held by the Academy of Lymphatic Study in Florida, U.S.A. in 1996 the director was Joachim E. Zuther

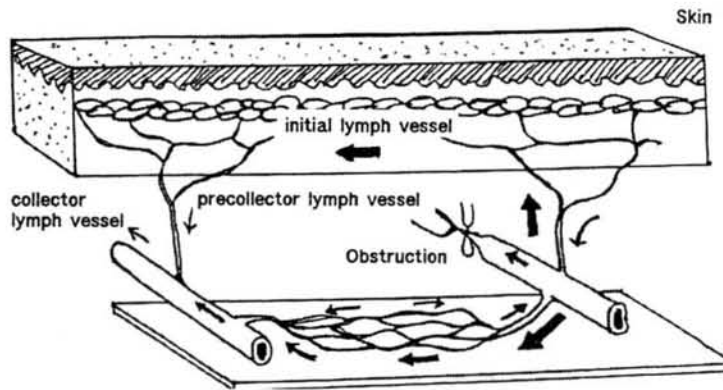
after that. MLD was officially introduced to Korean physical therapist by him (Kim, 2002).

### Overview of the lymph system

For our bodies to function well in homeostasis, we need a lymph system to carry off wastes, toxins, proteins, viruses, bacteria, excess water etc. From the connective tissue. The lymph system is obliged to remove these substances which cannot be carried by the venous capillaries, so we describe them as lymph-obligatory-load (LOL)

Collection of the LOL is a vital function, just as the blood circulation, nervous system, etc. (Kasseroller, 1998c). The most important function of the lymph system, according to Professor Guy ton, is the removal of proteins from the connective tissue by the lymphatics. Blockage or damage to the lymph vessels or nodes quickly results in swelling (edema), congestion and eventually pathology. The congestion may not be obvious or palpable. Professor Curri describes disturbances in the micro-circulations in the connective tissue resulting in small edemas and congestion which eventually lead to cyst formation. He has shown that by relieving the edema and congestion, the pathology can be prevented (Kasseroller, 1998c; Wittlinger, 1998).

The LOL is picked up by thin-walled, initial lymph vessels that originate in the connective tissue and funnel LOL into

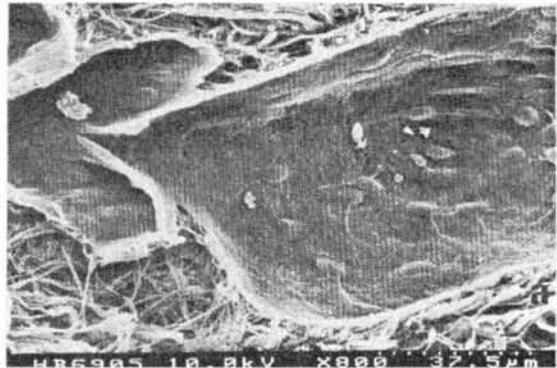


**Figure 2.** Lymph-obligatory-load (LOL)

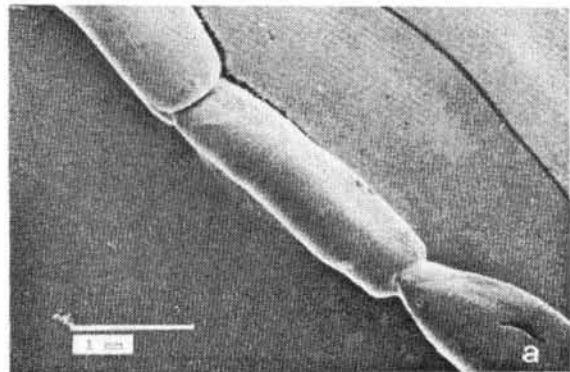
collector lymph vessels. If damage of collector lymph vessels occurs, the lymph move to initial lymph vessels or others collector lymph vessels in the adjacent area (Figure 2). The lymph vessels are fine, silk-like structures made of connective units called lymph angions. These onion-shaped units can function independently and shift lymph from one unit to the next through one-way valves. The larger angions have smooth muscle in their walls which contracts and squeezes the lymph on to the next unit.

The lymph angion that appear like a string of pearls is joined to the lymph capillary. Each angion extends from one lobed valve to the next and is a functional unit. The lymph angions strung together produce the lymph vessel. The muscle bellies out and then is constricted at the valves so it's called 'tiny pump' (Figure 3, 4)

The external compression forces of nearby muscles contracting, pulsating



**Figure 3.** This scanning electron micrographs demonstrate valve structures



**Figure 4.** Valve segment of lymph angion at higher magnification

blood vessels, and body movements all help to shunt lymph forward from one angion to the next. Eventually the lymph is funnelled into one of more than six hundred lymph nodes throughout the body, where it is cleansed and concentrated. It is then passed on to either the thoracic duct, the largest lymph vessel in the body, or the right lymphatic duct. At the venous angle these two vessels join the large veins entering the heart, thus pouring about two liters of lymph every twenty four hours back into the venous system (Wittlinger, 1998)(Figure 5).

### The Effects of MLD

In the past 20 years, A variety of educational facilities have been trained in this

special technique and the effects of MLD has been proven by many lymphologist through a great deal of scientific research and experimentation. Because of many studies, clinician and health related professionals are starting to accept MLD on a firm foundation as a important therapeutic tool (Cavezzi and Michelini, 1998).

MLD enhances the action of the angions by applying a specific, directional pumping force over them and by exerting a torquing stretch force. Most of the techniques involve a rotary motion that torques the lymf vessels in such a way that the stretch receptors in the angion walls are stimulated. Through a sensory-motor, stretch reflex, the receptors initiate contraction of the smooth muscle

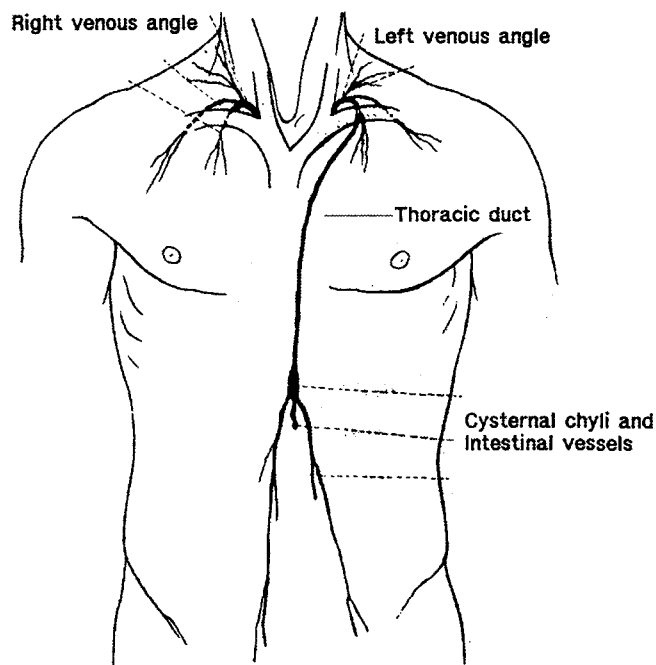


Figure 5. Venous angle and thoracic duct

walls, squeezing the lymph on to the next angion. MLD applies both a longitudinal and lateral stretch to the lymph vessel and the positive effects of such a stretch on lymph flow have been confirmed by a Swiss scientist, Professor Mislin (Wittlinger, 1998).

Research by another professor, Dr. Hutzshenreuter at the department of experimental surgery, University of Ulm Germany, has shown that MLD stimulates the speed of lymph flow in venous capillaries without increasing local blood pressure (Kasseroller, 1998). To summarize, MLD affects lymph flow through direct action on the lymph vessels and stimulates drainage of the connective tissue by increasing resorption into the venous capillaries (Wittlinger, 1998)(Figure 6).

Other effects include pain inhibition through stimulation of the pressure receptors (mechanoreceptors) in the skin, using an alternating pressure. Constant stimulation of the C-fiber mechanoreceptors (which respond to light touch) has an inhibitory effect on impulses arriving from the nociceptors (pain receptors) and the result is a decreased sensation of pain. MLD works so well in this way that it can be used right after injury (for non-infected wounds) such as a sprained ankle. It not only reduces the pain but also the swelling, so much so that athletes may often re-injure themselves without adequate taping or support. The pain-reducing effect of MLD is often the first result we have noticed in patients who have developed a secondary lymph-

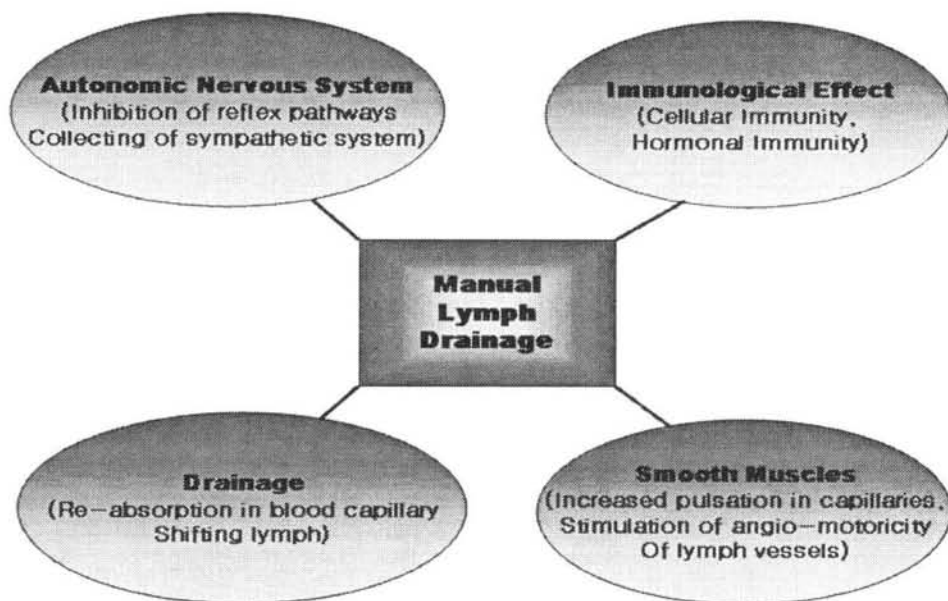


Figure 6. Major effects of MLD

dema after mastectomy operations. Apart from these effects, MLD has a deep calming and relaxing effect. Its gentle, repetitive rhythm enables the patient to relax fully, often feeling energized at the end of a session.

### Applications of MLD

To get good results, the four basic techniques of Dr. Vodder's MLD must be mastered with a few basic principles in mind, i.e., prescribed direction (following lymph flow), correct pressure (intermittent light adapted to local tissue conditions) and a rhythmic quality. When massaging on the skin, creams, ointment, or lubricants are not be needed. Only the skin is moved, as 40% of the body's lymph lies in the superficial layers (Casley-Smith et al, 1998; Swirsky and Nannery, 1998). The best results do not only come from rubbing the skin, but also by making the skin fully stretched. Occasionally deeper pressure is required, eg. in abdominal treatment. (Casley-Smith et al, 1998; Kasseroller, 1998; Leduc et al, 1998; Wittlinger, 1998).

The four basic techniques are:

**Stationary circles:** The fingers are placed flat on the skin and it is moved either in the same places or in continuous spirals. The manipulations are used primarily for treating the neck, face and lymph nodes. The stationary circles are varied on the body and extremities by

making circles-5 circles in one spot-hand-on hand or with eight fingers placed next to each other. In the latter case the fingers turn together in the same direction to move the skin in circles or alternating. The direction of pressure is determined by the lymph drainage. The fingers or sometimes the whole hand lie flat. Each of these circles is performed with a smooth increase of pressure into the tissue and a smooth decrease of pressure.

**Pump technique:** With this technique the palms are faced downward. The thumb and fingers move together in the same directions, moving the skin in oval circles. This movement of thumb and fingers is controlled by the exaggerated movements of the wrist. The fingers are outstretched; the fingertips have no function in this technique. The wrist moves like a hinge. The forward motion of the fingers is carried out with pressure (as the wrist drops), while the forward motion of the wrist is without pressure.

**Scoop technique:** In contrast to the pump technique with the scoop technique, the palm is facing upward. Vodder describes the movement as a giving motion. The rotating wrist creates a corkscrew movement of the wrist-hand unit. The fingers are outstretched and swing towards the body during the pressure phase. Pressure is on the inward part of the stroke with no pressure on the outward stroke. The pivot point is the metacarpal-carpal joint of the index finger, whereby all the metacarpo-phalangeal



joints are in contact with the skin during the pressure phase.

**Rotary technique:** This technique is used on relatively flat areas of the body and consists of various individual movements. The wrist moves up and down. As it moves down it swings from the outside toward the inside. The whole palm lies on the skin and turns it on an inward spiral. The thumb also makes circular movements in the direction of the lymph drainage of the skin. These motions are performed during the pressure phase. In the pressureless phase the wrist is raised and the four outstretched fingers move on and the thumb slides inward. Wrist moves down, the whole hand touches the skin (pressureless) and it begins to reapply pressure (Wittlinger, 1998)

These are applied in a specific way, following the lymph pathways exactly unless there is a blockage. If so, then the lymph is shunted around the damaged area, stimulating collateral pathways to work harder (Wittlinger, 1998). Fluid can thus be moved from one "territory" of lymph vessels to another where the vessels might be working normally. Treatment times can vary between thirty to sixty minutes but a full body treatment may require ninety minutes (Casley-Smith et al, 1998; Kasseroller, 1998). The neck treatment is always performed at the beginning of a session to clear out the main pathways because the lymph system ends close to the jugular/subclavian vein junction at the base

of the neck (Foldi and Foldi, 1991).

MLD is quite pathology-oriented but aims to treat the underlying causes rather than just the symptoms. Treatment is usually intensive initially and varies according to the condition, often daily at the start then tapering off as the condition improves. It doesn't make sense to treat a patient once a week for a year and get some results. When patients could be treated five times a week for three weeks, they showed excellent results.

### Indications and contraindications

MLD can be used on most healthy patients, barring any contraindications and is often used, for example as part of a cleansing program, helping the body rid itself of accumulated toxins and poisons (Wittlinger, 1998). Because it stimulates a natural cleansing system in the body, and brings tissue to a healthier state. MLD can be used in a wide variety of applications. Kasseroller (1988) describes the treatment of many different pathologies with MLD. These range from sinusitis to acne, edema to burns, scars to arthritis but the main categories are inflammation, edema and neurophathies. The treatment of migraines with MLD has been documented (Cavezzi and Michelini, 1998; Wittlinger, 1998)(Table 1).

Lymphedema is one of the major indications for MLD which can be used in many different types of edema (Figure 7). Some typical examples are primary lym-

**Table 1.** Indications and contraindications

Indications	Contraindications
Lymphedema	Major cardiac or renal insufficiency
Phlebolympoedema	Pyodermitis or other cutaneous infection
Post-traumatic edema	Systemic infection( bacterial-viral)
Post-operative edema (plastic or venous surgery)	Lymphangitis and/or acute erysipelas
Dermohypodermitis (non-infectious)	Suspected neoplasm
Phlebolympopathic ulcer	Bronchial asthma in the acute/subacute phase
Lipedema	Etc
Hemiplegia	
Dental and maxillofacial surgery	
RSD(Reflex Symphathethic Dystrophy)	
Acne, Cellulite, Adiposis, Sinusitis, Pimple, Burn scar	
Etc	

phedema, which is often a congenital conditions causes by a deficiency of lymph vessels, and secondary lymphedema which may be caused after injury to the lymph system.

The effectiveness of MLD is exemplified in many previous articles which have published for past several decades. In particular, temporary diseases showed a very rapid recovery after a series of MLD treatments, but the chronic diseases may require treatment for the rest of the patient's life. The first phase may be repeated intermittently by a MLD therapist. MLD therapists in Korea are needed for patients with chronic disease which result from the damage of the lymphatic system.

### **Dr. Vodder school program**

The key to the effectiveness of this work is correct training and the Dr. Voder School has maintained the original method, stressing a high standard. A lot of emphasis is placed on handson learning (80% of course content) with a lot of one contact between student and instructor. the training is divided into four parts: A basic course and three therapy courses (Wittlinger, 1998).

#### **Basic**

This teaches the four basic movements and applications to each body part. Relevant anatomy, physiology and some pathology are included along with effects and contraindications.

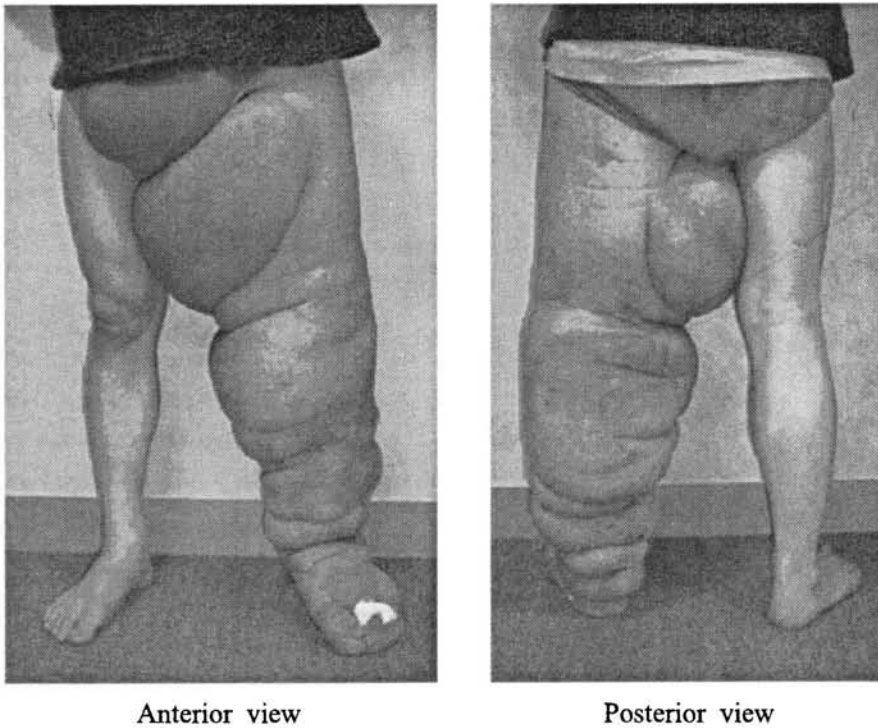


Figure 7. Lymphedema

### *Therapy I*

Once Basic students have a feel for the techniques and time to integrate them, they can continue on to this next level, usually within a few months to a year. This covers special techniques for working on joints, in the mouth and abdomen and additional theory is given with current research. A small exam covering basic techniques and theory tests the competence level of the student to continue on to the next two levels

### *Therapy II + III*

These courses are taught together and cover the various applications of MLD and Combined Decongestive Therapy, tap-

ing techniques for edemas and extensive theory on pathologies. The theory is taught by a medical doctor. After another exam the successful students may then describe themselves as a Vodder certified MLD therapist. Many people claim to do lymph drainage and with the emerging popularity and success of the Vodder technique, it is important for therapists to seek out qualified instructors. Massage therapist, physical therapist, medical doctor, nurses, estheticians throughout the world want to be a Vodder certified MLD therapist. and many MLD therapist take an active part in treating their patient with MLD (Kasseroller, 1998; Lerner R, 1998). There are two Vodder certified

MLDT in Korea.

### Conclusion

Dr. Vodder, who was physical therapist, spread his new types of massage techniques to Europe, North America including U.S.A. and Canada, to Asia as a one of the good treatment methods in medical and esthetic fields. Although MLD is emerging as an important tool for Physical therapist, because of poor propagation and fixation in Korea, most Physical therapists don't use MLD when they treat patients. Because the effectiveness and applications methods of MLD are proved and introduce CDT gradually in Korea. MLD can be an essential tool of the treatments. The purpose of this study was to introduce Dr. Vodder's course of study to Korean physical therapists and to be a chance to increase the use of MLDT in future.

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