®

Dr Chikly's
LYMPH DRAINAGE THERAPY™

Bruno Chikly, M.D., Laureat of the Medical Faculty of Paris, Member of the International Society of Lymphology (I.S.L.) is a graduate of the medical school at Saint Antoine Hospital in France, where his internship in general medicine included training in endocrinology, surgery, neurology and psychiatry. Dr. Chikly also holds a degree in psychology at the master's level. Further areas of training and education consist of 10-years of study in Oriental medicine, including acupuncture and osteopathy, including CranioSacral Therapy, Visceral Manipulation, Spinal release, Mechanical link, Muscle energy among others.

His doctoral thesis addressing the lymphatic system, its historical evolution and the manual lymphatic drainage technique was awarded the Medal of the Medical Faculty of Paris, VI, a prestigious acknowledgment for in-depth work and scientific presentation.

Lymph Drainage Therapy workshops on the body and face, along with self-drainage techniques, currently are taught in France, Belgium, Switzerland, Sweden, Israel, Tunisia, Canada, Brazil and the United States. For more information on workshops, Upledger Institute at 1-800-233-5880.

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INTRODUCTION
LYMPH DRAINAGE THERAPY ™
A NEW CONCEPTION OF LYMPHATIC DRAINAGE

Lymphatic Drainage is a specialized massage technique designed to activate and cleanse the human fluid system. Because the lymphatic system itself is responsible for optimum functioning of the water circulation and immune system, Lymphatic & Energetic Drainage is a key to maximizing our ability to rejuvenate and to establish resistance to stress and disease. (Also see "Lymphatic Detoxification," www.arthritistrust.org.)

Lymphatic drainage was initially developed in Europe in 1932 by Dr. E . Vodder. By the late 60's it established the credibility necessary to be taken seriously by the medical profession. Dr. Johannes Askonk, a prominent German physician, then successfully tested 20,000 patients in hospitals in order to verify its credibility, measure its efficiency and find its indications and counter-indications.

Today this technique is widely spread throughout Europe and is so highly recognized in the medical field that doctors now commonly prescribe these treatments which are used in hospitals and reimbursed by Social Security. This work is facilitated by physiotherapists, chiropractors, nurses and bodyworkers.

Concisely we can say that the three main actions of lymphatic drainage are:

1) Stimulation of body fluid circulation. It activates lymph function and lymph circulation. Indirectly stimulate the blood circulation of the Body (enhance blood capillaries resorption, increase pulsation of capillaries, activate venous circulation, . . .).

2) Stimulation of the immune system: the passage of lymph in the lymph nodes stimulate the immune system (the humoral as much as well as the cellular immunity). The stimulation of lymph circulation activate antigen/antibody presentation and immune reactions.

3) Nervous sytem: stimulate the parasympathetic nervous system (relaxation effect, antispastic effects -- muscle tonus -- , etc). The constant stimulation of the C-fiber mechanoreceptors has inhibitory effects (analgesic -anti-pain-action).

Lymphatic & Energetic Drainage is an original method of Lymphatic Drainage developed by a French physician, Dr. Bruno Chikly. Today, lymphatic drainage has reached a new level of effectiveness and efficiency. The enhancements we have made to the original Vodder technique is by incorporating the most advanced scientific data on lymphology with whole-body healing values and direct listening techniques. As in CranioSacral Therapy, we can easily develop and teach the skills to identify the very specific rhythm, then direction and quality of the lymphatic flow. Dr. Chikly was the first in the world to make this breakthrough. The method, Lymph Drainage Therapy (LDT), offers patients a myriad of benefits. Advance practitioner can really assess their patients (lymphatic mapping), monitor their work and check the result of their work at the end of the session. If needed (lymphedema, surgery, obstruction), they can finally find the best alternate pathways to reroute the lymph flow to a healthy area of the body.

The manual manoeuvres employed are very subtle (e.g. cranio-sacral movements). The work is done with flat hands using all fingers to simulate aquatic, wave-like movements, which enables the practitioner to deeply listen to the rhythm of the body fluids. A heightened awareness opens one's ability to attune to the exact pressure and rhythm necessary to enter into the flow of the lympathic system.

The Lymph : an "Elixir of Life"

Lymph in its flow actually takes away the toxins, the germs, and the large molecules that the venous system can't regain. It can, in particular, remove "trapped proteins" and fat molecules in the tissues.

Finally as it passes through the lymphatic nodes, small centers of filtration, it also manages our immune defenses. Lymph leaves the waste and germs in the lymphatic nodes, and transports lymphocytes, specialized white corpuscles that produce antibodies.

It is easy to understand, therefore, its importance for the strength of our immune system, the state of our tissues and our general well-being.

However, the lymphatic flow can stagnate or even stop for many reasons such as fatigue, stress, emotional shock, lack of physical activity, certain food additives, etc. . . If the lymphatic circulation slows down, the supplying and regeneration of cells is poorly carried out. Consequently, toxins accumulate, hastening the aging process and opening the gates to various physical problems.

We use our hands to aid in Nature's work assisting the recirculation of the lymphatic flow.The wave-like movements of the fingers restimulate the contractile movements of the lympatic channels.

HISTORY OF LYMPH DISCOVERY AND LYMPHATIC DRAINAGE

It is most likely that throughout history the medical field

was unable to recognize the lymphatic system because of the transparency of the lymph and the difficulty to even see the lymphatic vessels when dissections were done. The ancient peoples of China, Sumeria, Babylon, Egypt, and India may have had vague ideas of the lymph circulation of the body. As we know it today, they were far from understanding the lymphatic system as a specific entity.

The Greeks witnessed some lymph vessels, primarily the ones in the intestines because they carry a more visible milky-like lymph (chyliferous vessels) and probably the "thoracic duct", the largest lymphatic vessel. Even though Hippocrates (460-377 B.C.), describes a lymphatic temperament, we really have to wait until the anatomists of the l7th century before the first substantial scientific discoveries concerning the lymphatic system were made.

• In 1622, Gaspard Asselli (1581-1626), an Italian physician, discovered the "milky veins" of a dog after digestion. This is documented as the first historical discovery of the lymphatic vessels.

We can note that shortly afterwards in England, 1628, William Harvey published his discoveries about the systemic blood circulation.

• In 1650-51, John Pecquet (1622-1674) from Dieppe, France, described, the lymphatic duct, the largest lymphatic vessel of the body," and its unique beginning in the "Cysterna Chyli" or "Pecquet's cystern".

• Olauf Rudbeck (1630-1708) was a scientific genius from Sweden (Uppsala). He was the first anatomist to see and consider the lymphatic as a complete and specific system in the human body that could be compared to the venous circulation. He can be referred to as the first man who truly discovered the lymphatic system, and understood it as a whole system.

• Alexander of Winiwarter (1848-1910), a surgeon from Belgium, was the first physician to introduce an effective protocol using manual techniques (heavy pressure) in hospitals for draining lymphedemas.

• F.P. Millard, Canadian osteopath, founder and president of the International Lymphatic Society, editor of a quarterly journal published by the Lymphatic Research Society, proposed a new osteopathic technique of "diagnosing various diesease by palpating lymphatic glands." In *Applied Anatomy of the Lymphatics*, 1922, he used the term "lymphatic drainage," and suggested different lymphatic drainage techniques to affect the lymphatic flow.

• Emil Vodder (1896-1986), a Danish massage practitioner, and doctor in philosophy (1928), had further intuition, an inspired insight, to drain the lymph of one of his patients that suffered from chronic sinusitis and diffuse acne. This took place between 1932 and 1936 in Cannes, French Riviera, in his physiotherapeutical institute. He further developed, for the first time, a precise manual technique for lymph drainage.

Initially, he began to reveal and demonstrate this technique in cosmetogical congresses throughout Europe (beginning with Paris, 1936). Emil and Astrid Vodder, his wife, gave the denomination Manual Lymph Drainage to the technique: it is like "draining the marsh" (of chronic sinusitis).

Because he was not an M.D. or a physical therapist, but a massage therapist, he had a difficult time to authenticate his new technique. At that time his work was not accepted by the scientists because they were afraid that the bacteria and toxins would spread from the lymph nodes and vessels throughout the body.

It was not until1967 that the German physician, Johannes Asdonk, scientifically tested the technique in his clinic on 20,000 patients and established its medical effects, its indications and its countra-indications. Today in Europe, the technique is commonly used in hospitals, this work is prescribed by M.D.'s and is reimbursed by national insurance.

Bruno Chikly, M.D., France, was the first to recognize the specific rhythm of the lymphatic flow and teach how to attune with it manually (Lymph Drainage Therapy).

THE WATER ELEMENT AND THE LIQUIDS IN THE BODY

I) THE LIQUID ENVIRONMENT OF THE ORGANISM

LIFE IS UNTHINKABLE WITHOUT WATER. It is the most abundant element of living beings. We have learned that through evolution animals left the water to become mammals. They developed a respiratory tract, and from there it seems we became a "dry" species. Yet the gasses that we breath are transported in water, and communication throughout the cells is also done through water. It is then interesting to realize that OUR OWN CELLS IN FACT NEVER LEFT THE WATER!

Coming in contact with lymph is to connect with the liquid dimension of the organism. Many civilizations have symbolically associated the water element with different aspects of life: the subconscious, the moon, woman, emotion, the inner child, purity, love. Like our own subconscious or our inner child, we can easily deny or overlook our own water element. Our society specifically doesn't acknowledge the water element nor does it encourage awareness of the more subtle aspects of ourselves. Through Lymph Drainage Therapy we will try to come in contact again with these dimensions of our body and look towards integrating more sides of ourselves.

CIRCULATION, BLOOD AND LYMPHATIC VESSELS

The lymphatic system belongs to the circulatory apparatus which provides one way for the blood to leave the heart, the arterial system, and two ways for it to return: the venous and lymphatic pathways. THE LYMPHATIC SYSTEM IS THEREFORE ANOTHER PATHWAY BACK TO THE HEART, PARALLEL TO THE VEINAL SYSTEM.

Lymph is an intermediary liquid, between the blood and tissues. It is, therefore, the real interior environment in which the cells are immersed. This is where these cells both receive their nutritive substances and reject any damaging toxins.

Part of the constituents of the blood will go out of the blood capillaries to join the surrounding tissues, passing through the interstitial environment (interstitium), the "interstices between each cell". The liquid that is filtered from the blood capillaries, will further be reabsorbed accordingly:

• From 80 to 98% by the small veins emerging from the blood capillaries.

• From 2 to approximately 20% by the small initial lymphatic capillaries.

If the body did not "reuse" the 2 to 20% of the liquid, a large part of which the venous system cannot recover, the body would probably develop systemic edemas (swellings) because of the protein loss, and ultimately the organism would probably die in 24 to 48 hours.

In effect the lymphatic system fine tunes the drainage of the interstitium (connective tissue) and thus constitutes a sort of "overflow," which evacuates the water and excess substances in the interstitial environment.

The initial lymph capillaries which originates in almost every tissue of the organism, are at their beginning "feather fine". They will slowly increase in size moving into big lymphatic collectors, and will eventually join the major venous circulation, just before reaching the heart, behind the clavicles. SO REMEMBER THE LYMPH CIRCULATION ENDS IN THE SYSTEMIC BLOOD CIRCULATION JUST BEFORE THE HEART.

The lymphatic system meanwhile transports large proteins, foreign bodies and pathogenic agents (germs, toxins etc.) in its pathway through the lymphatic nodes which acts as an active purification center. The nodes break down and destroy those particles, so they can eventually be flushed out of the body through the eliminatory tract.

LYMPH VESSELS, LYMPH NODES.

I) Location of the lymphatic system:

The lymphatic system is present everywhere in the organism except where there is no vascularisation:

- The epithelial tissues (spleen, bone marrow, epidermis etc.).
- The cartilaginous tissues
- The cornea and the lens of the eye

Further exceptions include the following tissues that are drained indirectly:

- The placenta
- The labyrinth of the inner ear
- The central nervous system (?)

II) Organisation of the Lymphatic pathways:

Lymph is the liquid contained in the lymphatic vessels. Remember that before entering the initial lymph capillaries, this liquid is called the "interstitial liquid" (in the "interstice" between the cells) or the pre-lymphatic liquid.

1. The Pre-lymphatic pathways:

The interstitial liquid flows in the interstitium (interstitial tissue) through non-organized pathways, sometimes called the "tissue canals". They are like the spontaneous waterways that water naturally carves out in a field in rainy weather. They are unorganized and unstructured pathways, that are different from real vessels which are closed units. This interstitial liquid is slowly "draining" to the lymphatic capillaries. The state of the connective tissue can be jelly-like (jel.) or more liquid, in a soluble state (sol.).The property of the connective to become more jel. or sol. is called thyxotrophy. It determines the amount of fluid trapped in the ground substance (Jel.) or free to circulate (sol.). L.D.T. specific manoeuvres will help the natural drainage of the pre-lymphatic pathways and slowly transform the "jel." constitution of the loose connective tissue in a more "sol." state.

2. Lymphatic capillaries (or initial lymphatics):

Lymphatic capillaries, made of a single layer of flat cells, are 4 to 6 times bigger than the blood capillaries. They are fragile vessels, one cell thick, with collagen fibers connecting them to the surrounding environment. They form a tight "spider net" covering most of the body organs.

Unlike the closed-loop of the blood circulation the lymphatic circulation is a one-way structure beginning with the lymph capillaries.

In the embryo, the lymphatic capillaries develop within the pre-lymphatic pathways.

The lymph vessels "grow" specifically within the surrounding interstitial tissue and inherently stay firmly connected by its many microfibrils called the "anchoring filaments" (Leak fibers, or Casley-Smith fibers, first observed in 1935 by Pullinger and Florey). These fibers are attached from the tissue to the lymph capillary cells. They help the lymph capillaries to widely open if there is too much fluid pressure in the connective tissue, or, for example, when we move the tissue manually with the external manoeuvres of Lymph Drainage Therapy.

After the pre lymphatic liquid enters the lymph capillary the flat cells of the wall of the lymph capillary close, working as flap valves, and the liquid becomes lymph.

As the connections between the lymph capillary cells are very loose, some fluid (mainly water and small molecular weight solutes) can usually escape through the minuscule spaces between the cells. Proteins (macro molecules) on the contrary, never get out of the lymph vessels, they are too large. In this way proteins eventually become more and more concentrated as they travel through the lymphatic apparatus. The concentration of the interstitial liquid and the lymph is therefore slightly different at the beginning.

The initial capillaries form a very tight, web-like network without valves everywhere under the dermo-epidermic junction. The lymph collected in these capillaries gathers in the pre-collectors. We can note that at the main lines between territories, where the lymph circulation divides into two opposite directions (medial center line, "belt" line), we can find a specific network of vessels or minute "anastomosis" ("watersheds"). This structure will be used in advance levels to drain the lymph flow in a specific direction or another.

3. Pre-collectors:

They have the same structure as the lymph capillaries, but are larger vessels that have additionally, conjunctive and elastic layers. They slowly acquire valves to help them carry the lymph to the big collectors. These valves consist of two parts ("bicuspid" valves) and are located between two lymphangions (or muscular units). Lymphangions and valves give the lymphatic vessels the characteristic appearance of a pearl necklace, sometime called "monoliform" shape.

4. Lymph collectors:

These are large vessels that carry the lymph to the lymph nodes. The superficial collectors, above the fascias, drain about 70% of the lymph of the body. They are very often located throughout fatty tissues. The biggest collector of the body is the "thoracic duct" that usually terminates in the left brachio-cephalic vein.

5. Lymph trunks/lymph ducts (thoracic duct):

They are the biggest lymph collectors of the body.

6. Lymph Nodes:

LYMPH PASSES THROUGH THE LYMPHATIC NODES WHICH ARE LINKED TO THE IMMUNE SYSTEM.

The Greek word "ganglion" (node) means little tumor. For a longer time, this word referred to different anatomical structures of the lymphatic system or to the nervous system. The first precise microscopic studies of the nodes were not done until the 19th Century.

Nodes are covered by a dense connective tissue, the capsule. These densifications extend into the nodes and are called trabeculae.

The collectors conjunct in large numbers in the convex region of the nodes. We call these vessels the "afferent" lymph vessels. Lymph usually leaves the node through one, sometimes two or three vessels, from the concave region of the node. They are the "efferent" vessels. This region of the node contains a slight depression and is called "the hilum" of the node.

Nodes usually have the shape of a bean (kidney-shape), but may have all kinds of different shapes, some being round, oval, oblong. A normal, healthy size can range from 1 to 25 mm (from the head of a pin to the size of a cherry pit).

The nodes are formed in the embryo during the second month of the intra-uterine life. They grow and achieve maturity in puberty.

We can count from 400 up to 1,000 nodes in the human body. More than one-half are located in the abdomen alone. Many nodes are also located in the region of the neck (the cervical region). The main groups of nodes can be found in the major articulation folds of the body, excluding the crease of the wrists. By putting yourself in the embryo position you are able to protect them, except for the ones in the malleolar region, the mythologic weak point of Achilles.

Lymph nodes are part of the lymphoid system. This system is comprised of the various organs that are part of the immune system. We separate the primary and secondary lymphoid organs. The primary lymphoid organs include bone marrow and thymus. The secondary lymphoid organs include lymph nodes, spleen, appendix, tonsils, adenoids, M.A.L.T. (mucosals associated lymphoid tissue present in the small and large intestines, the oral cavities. . . .). Their function is to defend the body against aggressive agents entering the body or to destroy accumulated wastes.

Lymph nodes have various specific functions:

- They are filtration and purification stations for the lymph circulation.
- They capture and destroy toxins of the body. During inflammation the lymph nodes can become enlarged and painful. When they trap cancer cells in order to destroy nodes can be sources of secondary growth localization (metastasis) for the cancer

• They concentrate the lymph, reabsorbing about 40% of the liquids present in the lymph.

• They produce lymphocytes and monocytes. The production of lymphocytes is increased when the flow of lymph is increased through the nodes. It indicates manual techniques like L.D.T. increase the production of lymphocytes.

Lymph nodes "offer 100 times more resistance to lymph flow than the whole rest of the system put together" (Casley-Smith).

LYMPH CIRCULATION

There are approximately 6 to 10 liters of lymph in the body, compared to 3.5 to 5 liters of blood.
About 1.5 to 2 liters of lymph per day circulate throughout the whole body. Efficient activation of the lymphatic circulation can increase this number to 10-30 liters per day.

The lymphatic muscular units contract in humans at a rate of about 10 cm/min or 3 in/min (Olszewski & Engeset 1979). The overall pulse rate in lymph can be 1 to 30/min.

We usually separate two lymphatic circulations:

• The superficial lymphatic circulation, just under the dermo-epidermic junction (about 70% of lymph flow). This circulation is not directly stimulated by exercise.

• The deep circulation of the muscles, below the fascia, and the very deep circulation of the viscera (Grupp 1984), which is activated by muscles contractions.

COMPOSITION OF LYMPH

The lymph is a transparent, alkaline liquid, usually viscous. It can be whitish and gelatinous in the intestinal tract when lymph is filled with the fat assimilated in the digestion. The lymph in the intestines has a specific milky aspect and has been called by the Greeks the "Chyle". These abdominal vessels are easier to observe, and permitted the first discoveries of the lymphatic vessels. That is why they were primarily referred to as the "milky veins" or the "white vessels" of the body.

The composition of the lymph is called the "lymphatic "load". The lymphatic load varies depending on which tissue you measure and when you take it (before or after digestion).

The lymphatic load can comprise: lipids (fat), glucids, proteins, enzymes, urea, minerals, hormones, some dissolved gases (nitrogen, carbon dioxide), cells (lymphocytes, macrophage), toxins, bacteria, viruses, very few extruded red corpuscles, body waste, pieces of cell debris, maybe some cancerous cells, etc.).

LYMPH CAN BE DIAGRAMMATICALLY COMPARED TO BLOOD, WITHOUT ITS RED CORPUSCLES AND WITHOUT ITS PLATELETS.

Its protein content is lower and its osmotic pressure is slightly higher than in plasma, its viscosity a little less.

1) Water and colloid:

Lymph contains more water than blood (plasma). There is 96% water in lymph compared to just over 90% in the plasma. But lymph contains less water than the cerebro-spinal-fluid (CSF) surrounding the brain (98.5% of water).

This water is filtered from the plasma of the blood and has almost the same composition as the interstitial liquid.

2) Proteins:

Lymph has variable composition of proteins (albumin, globulin, fibrinogen), from 10 to 60 grams per liter.

The lymphatic system has a very important function. It can help recirculate proteins. The large proteins are not supposed to leak from the blood circulation, but actually, 0.1% of them do leak from the blood circulation every hour. At the end of the day that makes about 100 grams of lost protein in the tissue, almost half of the quantity of protein circulating in the blood (Witte, 1977). As we said, if not recovered massive swelling and death could occur within 24 hours.

The lymphatic system is the only system of the body that can recuperate these proteins and help them to come back to the heart through the lymphatic system. This is what we call the "anti-swelling function" of the lymph. This effect is possible because of the very special structure of the lymph capillaries. The very broad space between lymph capillary cells, prompts the sucking effect of the lymphatic contractions.

COMPARISON LYMPH / BLOOD SYSTEM:

LYMPH - LYMPH CAPILLARIES	BLOOD - BLOOD CAPILLARIES
Embryology (development): within the surrounding tissues	Embryology: formed with all the circulatory apparatus.
One-way vessels	Closed loop circulation system
Superficial circulation (70%)	Deep circulation, under fascia (about 60%)
Transparent, white liquid, no red corpuscles	Red liquid: red corpuscles
Slow rhythm (1.5-4 liter/day) When drained circulation increases up to 10-20 liters/day	Quick rhythm (80,000 liter/day)
Big spaces between capillaries, 5-6 times bigger than vein openings	Small opening ("windows")
Can recuperate proteins, "toxic-trapped proteins", fat, etc., on a greater scale than blood	Can't recuperate "trapped-proteins".
Muscles help to circulate: lymphangions are controlled by sympathetic and parasympathetic reflex system	Heart pump for circulation
400-1000 nodes filter the liquid	No nodes (the spleen an equivalent?)
85% of lymphocytes	20-40% of lymphocytes
Can be activated with light touch	Deeper touch to activate veins
Connects to surrounding tissue through "anchoring filaments". Sliding the skin helps to open lymph cell junctions	

The lymph is the only system of the organism that can recuperate "trapped proteins" accumulated around the cells sourcing from poor physical activity, oxygenation and diet, excess of toxicity, stress, aging, etc.

3) Lipids of lymph

Lymph recuperates the fat absorbed during digestion in the intestinal tract. On the average we find 10 grams of lipids per liter after meals. They are mainly free fatty acids and lipoproteins.

4) Cells:

The number of free cells in the lymphatic flow can vary considerably and multiply when they go through lymph nodes or when infectious tissues are present in the body.

In lymph we can find the following cells:

• A) Lymphocytes (85%): They comprise 85% of the cells in the lymph versus 20 - 40% of the cells in the "red blood". Altogether, the human body holds trillions of lymphocytes in the blood, lymph, and tissues.

We can describe two kinds of lymphocytes:

• 1) *B lymphocytes:* They produce anti-bodies and are responsible for the circulating immune response ("Humoral immunity"). When an aggressor ("antigen") enters and circulates through the body, B-lymphocytes protect the body and respond by producing specific "antibodies" (immunoglobulin chains) that are produced in modified B lymphocytes that are called "plasma cells" ("plasmocytes"). A specific "memory" for this microbe (memory cell) stays in the body 6 to 20 years after the first immune contact.

• 2) *T lymphocytes:* They are responsible for the "cellular" immune response. When the "antigen" (aggressor) has entered a cell ("infected cell") the T lymphocytes are activated to destroy the foreign agent. T-lymphocytes stay about 30 minutes in the blood circulation, about 5-6 hours in the spleen and 20 hours in the lymphatic system..

• B) Macrophage (13 -15%):

Issued from Monocytes cells, they manage the defense of body tissues. Contrary to lymphocytes, they attack any agent considered an aggressor to the body ("the Self") without discrimination and without any specific memory.

• C) Other cells : we can find in the lymph:

1) Dead cells, migrative cells (from cancer), foreign waste cells...

2) In case of body inflammation cells from different parts of the body come in the lymph: mastocytes, granulocytes, few red globules, platelets...

5) Other substances:

Fibrinogen permits the lymph to lightly coagulate. There is less fibrinogen in lymph (0.55 g/l) than in the blood, (1 - 2.5 g/l).

Substances like toxic agents, colorant, dust, food preservatives, etc.

THE LYMPHOID ORGANS AND THE IMMUNE SYSTEM

The immune system is the system that protects the body from substances that are foreign or interpreted as foreign substances (antigen), no longer identified as "Self".

The lymphoid organs are organs mainly responsible for thr immune response. They produce or contain a large number of lymphocyte cells in a specialized form of reticular connective tissue.

The lymphoid organs are separated in "primary lymphoid organs" and "secondary lymphoid organs".

The primary lymphoid organs are the bone marrow and the thymus.

The bone marrow produces and further help mature ("differentiate") the B lymphocytes.

The thymus is the place where migrates undifferentiated lymphocytes to mature T lymphocytes.

Lymphocytes are primarily formed in the bone marrow and get to mature in the marrow for the B. lymphocytes and in the thymus for the T. lymphocytes. Later on they leave the venous circulation and circulate throughout the arteries, veins, body tissues, lymph vessels and nodes, lymphoid organs. While they circulate, lymphocytes make contact with antigen in order to destroy or eliminate them from the body.

The secondary lymphoid organs are organs that comprise a large number of lymphocytes that have migrated from the primary lymphoid organs. They are:

Lymph nodes

Spleen

Tonsils (the paired palatine tonsils, lingual tonsil, tubal tonsil, nasal tonsils)/Adenoids (pharyngeal tonsil or Luschka's tonsil).

Appendix vermiform

M.A.L.T. (Mucosal Associated Lymphoid Tissue): Peter's patches (in the submucosa of the distal ileum)

MAIN DOCUMENTED FUNCTIONS OF THE LYMPHATIC SYSTEM

1) Absorbs excess fluid, macromolecules (proteins), electrolytes, toxins, foreign substances (debris..) from the interstitial compartments (tissue space around the cells). This role is of a regular cleansing of tissue, and also of removal of waste and cells after acute conditions (injury, necrosis . . .). Through this process the lymphatic system maintains optimal functioning and retains the integrity of the connective tissue,

2) Recovers back to the blood, substances that have escaped from the blood compartment to the tissues.

3) Removes and carries these substances back to the blood circulation, usually after passing through one or more lymph nodes.

Helps process these substances in the little filtration units that are the lymphatic nodes.

4) Regulates the fluid volume and pressure in a tissue.

5) Helps transport immuno-competent cells (lymphocytes . .) and other substances (hormones. . .) throughout the body. May play an important role in the localization of infection in the body.

6) By this means helps generate more immuno-competent cells in the lymph nodes.

7) Carries food components (fatty acids) absorbed from the small intestines to the blood circulation.

MAIN ACTIONS OF LYMPHATIC DRAINAGE

1) Liquid/blood: Activates lymph function and lymph circulation. Indirectly stimulates the liquid circulation of the body (enhance blood capillaries resorption, increase pulsation of capillaries, activate venous circulation, . . .).

2) Immune system: the passage of lymph in the lymph nodes stimulates the immune system (the humoral as much as well as the cellular immunity). The stimulation of lymph circulation activates antigen/antibody reactions.

3) Nervous system: stimulates the parasympathetic nervous system (relaxation effect) inhibits various (analgesic action -- anti-pain --, antispastic effects -- muscle tonus -- , etc).

INDICATIONS AND APPLICATIONS OF LYMPH DRAINAGE THERAPY

DON'T FORGET THAT BY LAW ANY DISEASE MUST BE DIAGNOSED BY AN M.D.

All the necessary studies have not been done yet, nor have all applications of Lymphatic Drainage been discovered. There is an unending list of indications that still need to be explored. The following are the most common disorders treated, and some are various ailments that showed response in therapists' daily practice. They are not all scientifically proven indications of lymphatic drainage. They are only reference points for those that don't have experiences of the lymph drainage. Every case has to be considered specifically.

Angiology (Blood vessels)/Cardiology/Phlebology (veins)/Lymphology:

• Edema (swelling or "dropsy") is an excessive accumulation of fluid (hydro-colloid) in the interstitium. Lymphedema is

an edema that is a result of impaired removal of lymph from the interstitium. It is an accumulation of protein-rich fluid in the tissues that may develop into fibrosis. Yet it is a poorly understood disease in medicine.

a) Lymphostatic edema (high protein edemas): is one of the main medical indications of lymphatic drainage.

Lymphostatic edema = deficit in lymphatic transport capacity. In lymphostatic edemas the lymphatic vessels themself are not properly working. It is a decreased ability to remove fluid from the extracellular compartment. These edemas are also described as Low Output Failure or low volume mechanical insufficiency).

There are various lymphostatic edemas:

Primary lymphedema (congenital origin)

Secondary lymphedema (anatomical obliteration):

- Post-surgery lymphedema: post-mastectomy lymphedema, post-hysterectomy lymphedema, post-prostatectomy, post-biopsy, etc.
- Metastatic lymphedema
- Post-infectious, (parasites/filariasis, tuberculosis, etc.)
- Post-radiations lymphedemas
- Post-trauma, burns
- Post-medications, silica dust, etc.
- CVI: post-phlebitic, etc.

b) Lymphodynamic edema = overproduction of lymph or High Output Failure, is when normal or increase in capacity of normal lymphatics is overwhelmed by an excessive burden of intercellular fluid. The lymph vessels are functionning correctly (are still "dynamic") but they can't handle the excessive stagnant liquid in the connective tissue. The excess fluid present in the connective tissue is a burden beyond the transportation capacity of the lymphatic system. For example: defective kidney or heart function, blockage in the venous system, low protein edema, etc.

Edemas of different origins can be also treated, for example: "dermatologic" edemas, e.g. chronic eczema; pediatric edemas; Traumatic edemas: torn muscles, sprain articulation, joint dislocations, knee edemas after meniscus and ligament lesions, tendinitis, tendinosynovitis, fracture (before, in and after the cast), haematomas, "ski thumb" injury. . . . Reduction of edema helps an early, less painful mobilization or prepares the patient's tissue before applying plaster; post-infectious edemas (ORL, odontologic ,etc.); pre-menstrual edemas, cyclic-idiopathic edema; gynecologic edemas; "neurologic" edemas (neuralgia, facial paresia, multiple sclerosis, etc.)

Edemas associated with Rhumatism or Auto-Immune diseases: arthrosis, polyarthric, PSH, etc.: Nephrologic edema (nephrotic edema), Lipedema

Edemas of veno-lymphatic conditions: we can drain from the first early stages of venous diseases to varicose veins, post thrombotic leg edema, hypodermitis to the late chronicle complications like venous ulcer. Always keep in mind the terrible contra-indication of acute phlebitis; arteritic ulcer, and other type of ulcer (diabetes mellitus ulcer); arterial hypertension (high blood pressure); arteritis, intermittent claudication (intermittent limping); Raynaud's disease

Dentistry, orthodontic: tooth pain; post-tooth extraction (for the pain, the edema, the haematoma, the scar, etc.); tooth realignment; root canal, orthodontic surgery; gingivopathy (gum disease); parodontitis

Dermatology (skin): acne vulgaris; rosacea; seborrhea; chronic and allergic eczema (avoid the area at the beginning to avoid inflammatory or allergic reactions); Peri-oral dermatitis (from cortisone treatments); chloasma; some pigmentation spots.

Esthetic: wrinkles (lymph drainage hydrates the skin, nurtures wrinkles, removes toxins, regenerates skin tissue, tonifies skin, relaxes facial muscles. . . .); skin complexion; erythrosis; telangiectasia; hematosis; "bags" under the eyes; hair loss; adiposis, cellulite; breasts ptosis (sagging breasts.)

Gastro-enterology (Stomach): chronic constipation; irritable bowel syndrome, chronic colitis; ulcerative colitis, Crohn's disease; enteropathy, coeliac disease; diverticulosis; food intoxication; chronic gastritis, stress ulcers; chronic pancreatic insufficiency, chronic pancreatitis

General: stress; fatigue; chronic fatigue syndrome (CFS), Epstein Barr syndrome; chronic fatigue syndrome (CFS).

A very common disorder, yet not clearly defined. It has worn various names: HHV6 syndrome (Human Herpes Virus 6); epidemic neuromyasthenia, Iceland disease, chronic mononucleosis, chronic teast syndrome, myalgic encephalomyelitis, etc.; autonomic dystonia; chronic pain; sleeping disorders; snoring; detoxification (fasting, dieting, tobacco, substance dependency); toxic chemical poisoning; jetlag (pressure in airplane), edemas within the plane; alcohol hangover

Gerontology (older people): L.D.T. is a very good technique to use with elderly people, because of its profound effects on tissue regeneration and oxygenation, deep cleansing of the body, as well as its immune system stimulation, stress release, and health maintenance. You can apply L.D.T. for almost every indication with elderly people because of its gentleness and harmlessness. L.D.T. be used as a home family practice. Just be careful of the reaction of your patient in the 3-4 initial treatments. Give shorter sessions and evaluate; cerebral degeneration, memory loss...

Gynecology: Menstruation; PMS, painful or haemorragic menstruation; breast pain or swollen breasts (from menstruation, oestroprogestatif pill, pregnancy); pregnancy; "stretch marks (belly, breasts): "striata gravidarium" "cutis striata lymphostatica". About 50% of them can usually be alleviated. It is a very long process and the results will be better if the drainage begins in early stages; swollen legs; varicose veins; breast feeding; breasts' soreness, cracks or fissures in the puerperal period (prevention or treatment; help scaring process, anti-infectious); fibrocystic mastopathy (cysts formation in the breast); Infertility

Infectious disease:

(also check Dermatology, General, Ophtalmology, Pneumology)

You can apply it to Pediatric (children) or Gerontology (elderly people). (Be cautious to do short sessions first to avoid inflammatory reactions); chronic amygdalitis, pharyngitis, tonsillitis, laryngitis, rhinitis, otitis, syringitis; chronic sinusitis frontalis: do neck, face, especially nose and cheeks, you can finish with Intra-oral treatment if there is no sign of fever at all (be careful of meningitis with fever. Don't work with lymph drainage, and especially not inside the mouth); chronic sinusitis maxillaris; allergic nasal catarrh; HIV positive, AIDS: Be very careful, check with an M.D. The reactions can be different depending of the state of the disease. Improve quality of life, can stimulate immune system in previous states. Recent studies suggest that as many as 2 billions of lymphocytes (CD 4) are produced every day to replace the losses induced by the virus.

Neurology (Nerves): headaches; migraine; post trauma symptoms: headaches, vertigo. . . .; cerebrovascular accident (stroke), hemiplegia, chronic ischemic syndrome, apoplexia, various encephalopathies. . . . concussion (commotio cerebri, commotio spinalis); spinal injuries; cerebral spastic infantile (cerebral palsy, Little's disease); neuralgia facial, intercostal neuralgia, herpes zoster neuralgia, etc.; trigeminal neuralgia; facial paralysis; Parkinson disease, choreic disorders: sometime diminution of the trembling. . .; multiple sclerosis (MS): If the disease cannot be cured with Lymph Drainage, some patients really appreciate the results of the technique especially for their legs. It seems after some studies that the crisis becomes shorter and the remissions of M.S. longer with Lymph Drainage. The action of the drainage might work on the auto-aggressive T lymphocytes that cross the blood-brain barrier in M.S.; vertigo; memory disorder; peripheral nerve disorders/cranial nerve disorders: facial nerve paralysis, trigeminal neuralgia, Bell's Palsy. . . ; myopathy, muscular dystrophy or atrophy; spinal poliomyelitis (edemas); epilepsy

Ophtalmology: Visual acuity: many clients said their sight became much better after the sessions; scotoma; chronic dacryocystitis (infection of the lachrymal sac), blepharitis (inflammation of the eyelid margins); chronic glaucoma; chronic edema of the eyelids; retina detachment

Orthopedy (Bones-Surgery): trauma; hematoma; sprain; dislocation, luxation; ligaments and meniscus pathologies; fracture; post fracture or post-sprain symptoms: pain, discomfort etc.

Osteopathic/Chiropractic: (Also check Orthopedy, Rheumatology, Sport); neck pain, whiplash; lower back pain, lumbago, lumbalgia. . . ; sciatica: there are many different etiologies (origins) of sciatica. It is not the best indication of Lymphatic Drainage, but in some cases it really helped patients. Maybe it is the anti-edematous action around the "nerve" and the anti-pain action that makes it work.

Otorhinolaringology - ORL (Nose-Throat-Ear): peridontal disease; tinnitis: tinkling, ringing or buzzing in the ear; vertigo; Meniere's disease; asialie-hyposialie; Sjrogren's syndrome (dry eyes and mouth syndrome): tremor

Pediatrics (Children): All quoted diseases can be applied to children. Be especially careful not to enhance fever in a child.

Pneumology (Lungs) Allergology: chronic bronchitis, emphysemal bronchitis; bronchial asthma; emphysema; post-pleuritic disorders; silicosis: pneumoconiosis resulting from inhalation of silica (quartz) dust; cystic fibrosis: (mucoviscidosis); hay fever

Rheumatology (Bones-Articulation), musculoskeletal and connective tissue disorder: Lymph drainage can effectively alleviate the edemas of many rheumatologic ailments after signs of acute inflammation have disappeared; arthrosis (neck, shoulders, hips, knees. . . .), polyarthrosis deformans; rheumatoid arthritis, juvenile rheumatoid arthritis, polyarthritis; ankylosing spondylitis (ankylopoietic spondylarthritis); gout, chondrocalcinosis (pseudogout); psoriasic arthritis: psoriasis associated with arthritis; allergic arthropathies, endocrine arthropathies, diabetic arthropathies, etc; lupus erythematosus; scleroderma; polymyositis and dermatomyositis; osteoporosis; lumbago, lumbalgia; Sudeck's atrophy (traumatic osteoporosis, algoneurodystrophy or "shoulder-arm" syndrome); fibrositis syndrome: bursitis, tendinitis, tenosynovitis, tendoperiostosis, etc; tennis elbow (lateral humeral epicondylitis), etc.; carpal tunnel syndrome; Dupuytren's contracture; spasmodic torticollis; noctural paraesthetic brachialgia; fibromyalgia syndrome (FS): it is today maybe the third most common rheumatic disease.

Sport: To improve the conditions of muscles before and after a sport event (waste and acid lactic in the tissue); muscle spasms; Sport trauma: any edemas, haematomas (be sure that any bleeding has stopped); sprains, dislocations, etc.; muscle cramps or pain; ligament and meniscal lesions; fractures (under cast, after the cast); scars/fibrosis

Surgery: Pre-surgery: prepare the tissue for the intervention, drain the tissue clear the lymph ways before the post-surgery edema; post-surgery: scars-fibrosis (help scaring process, anti-pain, anti-infectious, etc. . .) Some effects against hypertrophic or keloides scars; for any surgery taking off major lymph nodes (post-mastectomy, post-prostatectomy, post-hysterectomy, post-ovariectomy, post-nephrectomy, ORL surgery, tumor removal. . .); post-plebitis and post thrombotic surgery; post-trauma surgery; limb amputation; prosthetic surgery; skin transplant; burns; oral surgery, face surgery, face-lifting, ear lifting. . .; vein stripping

Veterinarian

Lymph drainage can also be applied to animals.