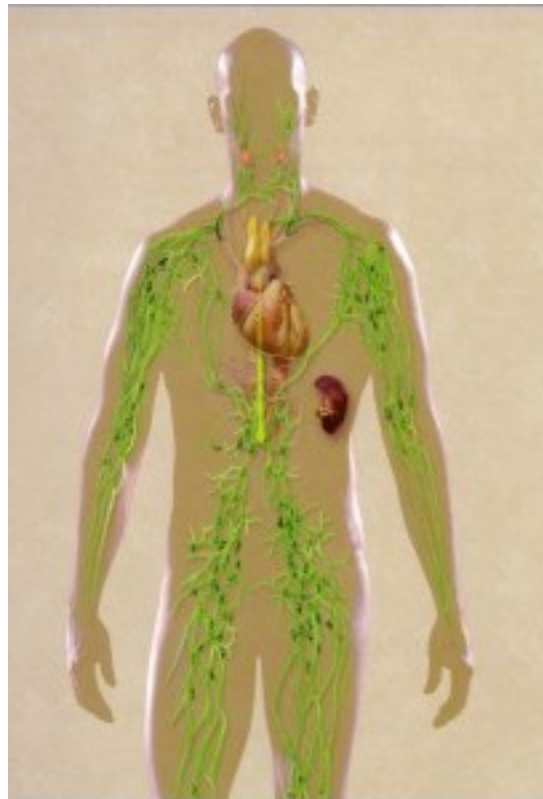


## **The Lymphatic System & Your Immunity**

Few of us ever think of our immune system, or the elaborate system of tubes, valves and filters that make up our Lymphatic System. Few of us, that is, until it doesn't function properly. Our immunity is working 24 hours a day, seven days a week, year in and year out. However, we don't pay attention to the little signs of low immunity or compromised immunity that we may get months before a more serious condition occurs.

Some studies show that although our lifespan is significantly longer than at any point in history, we actually are being assaulted daily by chemicals, toxins, drugs and stresses that would have killed even the strongest human at any other time. We believe that because we are so advanced, we should be able to live a long, healthy life. But the reality is very different. Studies show that infection and immune dysfunction are the strongest factors contributing to chronic disease and debilitation. Diseases that used to occur only in the elderly are occurring at alarming rates among teenagers and people in their 20's. We are sick more often and for longer periods of time. Many of us live with chronic illness. We use our immune system every day, not just to ward off bacteria, viruses and other pathogens, but also to eliminate dead cells, worn-out body tissue and toxins that we are exposed to every day of our lives. Even the use of antibiotics, oral contraceptives, antihistamines and aspirin on a daily basis can wreak havoc with our immune systems over time. Many of us are even adding to this strain by consuming exogenous hormones or antibiotics in the meat we eat.



### **Structure of the Lymphatic System**

The lymphatic system consists of a fluid [lymph] that flows through its own separate set of vessels [lymphatics] and involves several structures and organs that contain lymphatic tissue, including red bone marrow where lymphocytes are made. This complex system has a number of functions in addition to

immunity and resistance. Since lymph fluid is essentially interstitial fluid that leaves the interstitial spaces and enters the lymphatic system, it provides a channel to drain excess interstitial fluid. This means that the only difference between interstitial fluid and lymphatic fluid is location. So inflammation, edema or any body swelling is simply lymphatic fluid that is in the wrong place. Also, because interstitial fluid is thicker than blood, it can transport large lipid molecules from the gastrointestinal tract to blood via the subclavian vein. Lymph also is the avenue to restore lost elements to the blood that have leaked out of the circulatory system because of high blood pressure or weakened capillaries.

The lymphatic system of vessels is very different from circulatory vessels. They begin as closed-ended vessels called lymphatic capillaries in the spaces between cells. They join together to form larger tubes called lymphatic vessels. They have thinner walls than veins and many more valves. They also do not have muscular walls as the arteries, nor do they have the benefits of a pump like the heart. At various intervals along the vessels, lymph flows through lymphatic tissue structures called lymph nodes. In the skin, lymphatic vessels generally are in subcutaneous tissue and follow veins. In the core of the body, lymphatic vessels form plexuses around large arteries and follow their pathways. In this way they can take advantage of the pulsation of the artery to push lymphatic fluid along its vessels. It is believed that blockages to the lymph movement in the body are precipitated by a lack of potassium. In order to increase lymphatic movement, we provide **Manual Lymphatic Drainage Massage**, essential for sedentary people and those who have edema or swelling. You can also help your lymphatic system with **Skin Brushing** at home. See below for directions.

Your body contains large numbers of lymphatic tissue that are connected by the lymphatic vessel system. These are the red bone marrow, the thymus gland, the tonsils, the appendix and the spleen. (See the appendix does have a function!) All of these structures must be cleansed and able to communicate through the lymphatic fluid movement along the vessels. If any of these structures are compromised or the vessels are blocked or sluggish, then your immunity is reduced.

Other areas of lymphatic tissue are the lymph nodes. This is where most of our immune response occurs. The lymph nodes are oval bean-like structures situated along the length of lymphatic vessels, usually in groups. They are most heavily concentrated under the arms, throughout the chest and along the edges of the pubic area, although fully one third are located in the neck. Nodes are composed primarily of connective tissue which can rebuild, but not reproduce, which supports masses of densely packed lymphocytes and phagocytes. T Cells wait here for activation in immunity and B Cells multiply into antibody-secreting plasma cells.

Lymph flows through the node in one direction and is filtered for foreign substances that are then destroyed by the immune cells in the node. This detection then activates the immune response. Plasma cells and T cells will aid this process by leaving the lymph node and circulating through the lymph to other parts of the body. The T cells carry out recognition and memory of any direct contact with bacteria and viruses, a process known as cellular immunity. This allows them to recognize and respond more quickly in the future to destroy a pathogen directly on contact. T Cells are essential for immunity against fungi, parasites and viruses, some cancer cells and foreign tissue transplants. In fact, it is the T Cells that are most affected by AIDS, when the numbers of T Cells diminish rapidly reducing overall immunity.

B Cells from the lymph nodes become activated when antigens are carried into these areas via the lymph. They are stimulated to secrete specific antibodies [immunoglobulins], which then circulate in the lymph and blood to reach the infection site. There they bind to and deactivate the antigen with long-

living memory B Cells ready to respond more rapidly and forcefully should the same antigen reappear at a future time. This works mainly against antigens dissolved in body fluids [as opposed to within cells] and extracellular pathogens, primarily bacteria. This is the essence of what we think of as body immunity, where the body maintains memory of an antigen for a period of time, generally years. So without a free-flowing lymphatic system, our immunity is reduced and our ability to control fluid accumulation or to retrieve escaped particles from the blood system are unavailable.

## **So What Can We Do For Our Lymphatic System?**

First, **massage therapy and Manual Lymphatic Drainage** can help to increase lymphatic movement by gently pressing lymphatic fluid through the nodes and tissues of the body. Since natural lymphatic movement relies on muscular contraction, breathing and even the muscles of digestion, there can be many times when our lymphatics may not get pumped enough. Periods of illness when we are confined to bed, sedentary occupations, poor digestive function such as constipation and even dehydration when there is just not enough water to liquefy the lymph; everyone has experienced these situations at one time or another.

In cases of HIV infection, a 1995 study done by the University of Miami School of Medicine and the Educating Hands Institute showed that the effects of massage included a significant increase in the natural killer cell number, a significant decrease in anxiety and an increase in relaxation. They found that patients who practiced relaxation frequently had better immune functioning one year after receiving news of seropositive status, and slower disease progression two years after this news. (Ironson et. al., 1994, Antoni, et. al., 1991).

Secondly, we need to modulate and strengthen lymphatic drainage. This can be done with a number of wonderful **herbal preparations**. Cleavers, Burdock, Poke Root and Thymex are all essential to increasing lymphatic drainage ability. Thymex is a cytosol extract that promotes phagocytic and lymphatic activity, aiding in lymphatic drainage and stimulating healing and immunity. There are even formulas for the healthy nutrition of essential lymphatic tissues in the body such as the Thymus and the Spleen. The importance of the Thymus gland cannot be overemphasized. Research at the National Institute of Health has even shown that in the case of HIV, until atrophy of the thymus occurs, and CD-4 lymphocytes decline, HIV positive patients do not develop AIDS.

In addition, the Edgar Cayce readings have mentioned the effectiveness of castor oil packs which can not only increase lymphatic drainage, but also break down scar tissue as well, which increases circulation, flexibility and movement, all secondary components regulating lymphatic flow.

The third thing and one that can be done at home every day is **Skin Brushing**. Gentle dry brushing of the skin with a natural bristle back brush can sustain or reestablish the skin's functional integrity and youthful glow. The skin is as major an organ as the heart, lungs and kidneys. Its primary functions include: respiration, excretion, blood and lymph circulation, immunity and the conduction of vital chi.

Variations of skin-brushing have been practiced for thousands of years. For many centuries, the Japanese employed vigorous skin-brushing with loofah sponges as a prelude to their traditional hot bath. Prior to bathing (following a hard training session or physical competition) ancient Greek athletes used strigiles: specialized spoon-like skin scrapers to remove the grime of exertion and encourage circulation. Among the Cherokee Indians, skin-brushing with dried corn cobs to enhance skin beauty and durability was once a traditional practice. The Comanche Indians scrubbed their skin using sand from the Texas river bottoms.

The lymph vessels of the skin are fairly superficial and transport excess, waste-charged fluid away from the intercellular spaces and return it to the bloodstream. This superficial lymph is an essential transfer medium for vital materials to move from the blood to the cells, and for cellular debris to move away from the cellular environment into the blood. Thus, the blood feeds the lymph, and the lymph feeds the cells, making the drainage of intercellular lymph one of the most crucial of all bodily functions. The superficial lymph vessels terminate just below the outer layer of skin and interjoin freely with the deeper lymphatic vessels. Any blockage at the superficial lymphatic level will result in congestion throughout the whole lymphatic system. Skin-brushing is an excellent way to stimulate the activity of the entire lymphatic system.

### **Why Is Skin Brushing So Healthy?**

#### **Assists Exfoliation :**

The outermost layer of skin cells which serve to protect the underlying skin layers are not living cells, thus, they are continuously shed and replaced via the multiplication and upward movement of living skin cells. Inactive aging skin does not shed dead cells as easily as does youthful skin, so it is susceptible to cellular build-up which accounts, in part, for the dry, thick, leathery-look of older skin. The most obvious mechanical effect of skin-brushing is the detachment of dead skin cells.

#### **Stimulates Physiological Functions :**

Proper skin-brushing supports lymphatic drainage of the skin by: 1) accelerating filtration from the intercellular spaces into the lymph vessels; 2) the emptying of the smaller vessels into the larger lymph vessels; 3) assisting the flow of lymph through the lymph nodes.

Skin-brushing similarly increases venous blood-flow. The veins carry the blood back to the heart. Return blood-flow through the veins is not propelled as much by direct heart action as by muscular contraction and vein constriction. Skin-brushing excites and tonifies the muscles and nerves of the skin, thus, it improves venous circulation. These same mechanical effects directly enhance capillary circulation as evidenced by the skin-flush and feeling of warmth that skin-brushing imparts. The skin is filled with nerve endings which play an indispensable role in the activity of the nervous system. This explains the remarkable relaxing effect, including decreased muscular tension, elicited by skin-brushing. Relaxation of muscles affords better lung capacity, digestion, bowel movements, blood circulation, lymph drainage as well as clearer thinking.

#### **Strengthens the Bioenergy System:**

Unimpeded energy flow is essential to the prevention and cure of disease. Since the meridians course through the skin, they are readily accessible to the effects of skin-brushing. When these channels are massaged, the movement of energy along their length is stimulated and the delivery energy to their associated organs are greatly improved. Proper skin-brushing can also exert a profound influence upon our immune system, our thought processes and our emotional balance.

#### **Benefits For Mature Skin:**

Decreased sweat and oil gland functions are features of aging. The oil secreted by the sebaceous glands coats the surface of the skin and prevents excessive water-loss through evaporation. Proper skin-brushing stimulates both the sweat and oil glands, and in this way, contributes to the restoration of moist, supple skin. Also, it strengthens the pore structure through which the skin is moisturized and cleansed, and oxygen and CO<sub>2</sub> are exchanged. Aging and devitalization of the skin often results in pore-enlargement and flaccidity due to loss of skin tone.

### **Promotes Skin Beauty:**

Skin-brushing makes a strong impression upon the dermis (the skin layer that contains an abundance of blood and lymph vessels), nerves, glands and elastin and collagen fibers. The dermis provides nutrients and moisture to all the skin layers and lends contour and flexibility. When the dermis ages, its connective tissue fibers reduce, rigidify, lose resilience and even break into pieces, causing the skin's support muscles to lose tone and volume and the skin to dehydrate and collapse into sags, wrinkles and lines. Healthy connective tissue and muscles are products of efficient nutrient support and oxygenation, a waste-free milieu, optimal water balance and moderate exercise, all of which are promoted by regular skin-brushing. The gentle stretching of connective tissues, afforded by proper skin-brushing, helps to increase and regenerate the production of collagen and elastin fibers. Cellulite is a structural disturbance of fat tissue. The fat content of cellulite-containing tissue is normal, but fibrous nodules surrounding the fat cells give affected skin areas their typical orange-peel appearance. Cellulite formation is related, in part, to local vein and lymph congestion. Proper skin-brushing can help to alleviate this condition.

### **Skin Brushing for a Beautiful, Healthy Body**

In order for skin brushing to be maximally effective, you have to follow a pattern which allows for you to drain lymph along pathways to the appropriate duct areas. For instance, as the neck and head drains into the venous system in the upper chest, and to a small extent, into the axillary nodes, the chest and armpit regions should be brushed before neck and head regions. First, remember to brush lightly... it is not necessary to press down as the lymphatic system is a superficial system just under the skin. We also recommend that you do it following a shower, but after you have towel dried, and with a dry brush. You can then enhance the treatment by a sweat treatment after with essential oils.

First, be sure to brush each area 5 to 10 times for maximum drainage. Secondly, always brush towards the heart. Let's begin....

- 1) Armpits: Using circular strokes, brush each armpit in a clockwise and counter-clockwise direction.
- 2) Chest: Brush above the breast from the armpit towards the breastbone and then below the breast from the armpit towards the breastbone. Then with gentle strokes, brush each breast in a circular direction ending at the breastbone. Note: The two major lymphatic ducts empty into the venous system in the left and right chest just below the collar bone. Puffiness above or below the collarbone is indicative of congestion in these ducts. Reducing lymphatic tension in the chest enhances tissue drainage of the entire body.
- 3) Sides of the Body: Brush each side of the body from the waist to the armpit.
- 4) Upper Back: Brush from the armpits to the spine on each side of the upper back.
- 5) Neck and Throat: Brush with circular strokes, clockwise and counter-clockwise including below each ear, the back of the neck and the entire throat area. There are hundreds of lymph nodes throughout this area, so eliminating congestion is essential for the sinus area, the thyroid, the larynx and vision. Even chronic issues such as recurring strep throat can be simply a problem of lymphatic congestion in the throat area.
- 6) Face and Ears: Using a soft small brush, brush the entire face with small circular strokes and brush each ear with downward strokes, enhancing drainage towards the neck.

7) Scalp: Brush or use your fingertips from midline at the crown of the head, downward and all around the scalp.

8) Abdomen: Using circular strokes, brush the lymphatics of the groin in the fold between each leg and the pubic bone. Then brush above the navel from midline under the ribcage, down and toward the sides. Then brush the abdomen below the navel from midline down toward the groin lymphatics. Finally, starting at the navel, brush clockwise in a circular spiral, covering the whole abdomen and then slowly counterclockwise in concentric circles ending at the navel. This is known as "Bringing fire to the hearth".

9) Back: Brush the lower back from the sacrum upward, finishing by gently scrubbing the kidney area. Brush the entire gluteal region with strokes that start the cleft of the buttocks, go around the hip and end at the groin lymphatics on each side.

10) Feet and Legs: Brush the top, bottom and side of each foot and the toes with small, firm, circular strokes. Brush the leg upward from the knee to the top of the leg and all sides of the leg. Then brush from the ankle to the knee on all sides.

11) The Hands and Arms: Brush the palm and the back of each hand, fingers and wrist with small firm circular strokes. Brush the arm upward from the elbow to the shoulder on all sides. Then brush from the wrist to the elbow on all sides.

Follow up your treatment with aroma-hydrotherapy by oiling your body with a blend of lemon juice and 5-10 drops of essential oils. Choose oils such as peppermint to increase circulation, lavender for antibacterial activity and rosemary for muscular tension. Then steam for 15-20 minutes or soak in a strong epsom salt bath to enhance the action of the oils and your skin brushing session.