

Supporting the Lymphatic System with Yoga

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Functions of the Lymphatic System

Fluid Regulation~ 10-15% of fluids in the body are returned back to the bloodstream by way of the lymph. Approx 20 liters of fluid move from the heart to body tissues via arterial flow, only 17 liters return via venous flow. The other 3 liters that have entered tissues and interstitial space are reabsorbed by lymph capillaries. Lymph is a conduit for travel between the tissues and the bloodstream.

Immune Function~ The lymphatic system is part of the broader immune system. White blood cells that fight infection are produced and released in the lymphatic system which can destroy pathogens that enter the body. Many types of white blood cells are formed in the bone marrow and mature in the spleen, thymus and lymph nodes.

Fat Absorption~ Lymph contains fats that are absorbed from lacteals in the villi of the small intestine, producing chyle, lymph with a milky consistency which return back to the bloodstream

Waste Removal~ Cellular debris is filtered and removed via the lymph

The Lymphatic System

Lymph~ clear to milky fluid that moves through the lymph vessels transporting plasma, white blood cells, fats and other essential nutrients, pathogens, and debris from tissues back to the bloodstream.

Lymphatic vessels~ Lymphatic drainage moves in one direction, starting as small capillaries in body tissues and moving from the extremities and trunk to the collection ducts that return fluid back to the bloodstream. The R lymphatic duct drains the R upper quadrant of the body, and the thoracic duct drains the L upper quadrant and L and R lower quadrants of the body. The collection ducts empty into the subclavian veins just below the clavicles. Lymph vessels have valves to prevent backflow and work under very low pressure supplied by movement of the body.

Lymph nodes~ Approx 600 nodes are located throughout the lymph vessels in the body, superficial and deep, singular and nestled in groups. Nodes cluster in the pits of the body~ especially in the armpits, head and neck, and groin. Nodes filter cellular debris from the lymph, such as damaged cells and cancer cells. Nodes produce and store lymphocytes to destroy pathogens. Immune cells found in nodes “taste” lymph from all over the body, allowing communication that can activate specialized immune cells such as T and B lymphocytes that can destroy and remember pathogens. Nodes have blood supply, supporting the rapid travel and communication of immune cells throughout the body.

The Lymphatic System

- **Cisterna Chyli**~ located approx near L1, L2 behind aorta, retroperitoneal dilated reservoir that receives lymph from trunk and legs, it is the beginning of the thoracic duct
- **Spleen**~ located in left upper abdomen, filters blood and produces white blood cells that fight pathogens
- **Thymus**~ located beneath sternum, matures T cells to fight pathogens
- **Tonsils and Adenoids**~ lymphoid organs that trap pathogens in the oral/nasal cavities
- **Peyer's Patches**~ lymphatic tissue that destroy pathogens in the small intestinal tract.
- **Appendix**~ lymphoid tissue that destroy pathogens in the GI tract.
- **Bone Marrow**~ birthplace of white blood cells, red blood cells, platelets

A few examples of challenges

Lymphadenopathy~ enlarged lymph nodes due to infection, inflammation, trauma, autoimmune conditions, or cancer

Lymphedema~ accumulation of fluids due to a blockage in the lymph flow, caused by damage to nodes or vessels. Radiation and surgery to remove nodes during cancer treatment is a common cause.

Cancer of the Lymphatic system~

Lymphomas

Metastatic cancers that spread to lymph nodes

How can yoga help?

Lymph flows well under these conditions:

Warmth

Movement~ the pump that moves lymph

Gently rhythmic movements, pressure, stretch, vibration

Open chest deep breathing

Open and close the “pits” of the body (armpits, groin, back of knees, elbows, clavicles, face, head and neck)

Gentle skin brushing from extremities toward heart

Yoga for healthy flow of lymph

Pranayama~ Ujjayi, Kapalabhati (caution with high or low BP, Heart Disease, Glaucoma)

Gentle Vinyasa, rhythmic opening and closing of pits

Garudasana

Tadasana~ holding strap under heels to help open chest, clavicles

Virasana

Marichyasana

Salabhasana~ stimulate cisterna chyli, also thoracic backbends over bolster

Setu Bandha Sarvangasana (bridge pose) and Salamba Sarvangasana (shoulder stand)

Inversions~ including Prasarita Padottanasana, Adho Mukha Svanasana, Viparita Karani

Supine twist, hips on bolster, shin on block

Savasana with sandbags or a weighted blanket, don't forget to stay warm.