Standard Process
WHOLE FOOD NUTRIENT SOLUTIONS

Nutritional Support Protocol

Support for Lymphatic System Health

Developed and reviewed by the clinical, chiropractic, and naturopathic members of the Standard Process team

Lymphatic System Physiology and Importance

The lymphatic system consists of a network of specialized vessels, lymphoid tissues like the appendix and tonsils, and organs including the spleen and thymus gland. An intricate network of lymphatic vessels found in nearly every tissue of the body supports extracellular fluid homeostasis, lipid transportation, removal of waste products, and immune surveillance. Lymphatic vessels transport lymph, which is a fluid consisting of white blood cells, triglycerides, protein, bacteria, cellular debris, and water.

Unlike the vascular system, lymphatic vessels lack a central pump to facilitate the circulation of lymph and both intrinsic and extrinsic forces support proper lymphatic flow. Intrinsic forces include rhythmic contractions of lymphatic muscle cells embedded in the vessel wall of collecting lymphatics that propel lymph movement. Extrinsic forces in surrounding tissue (vascular, musculoskeletal) also support lymph flow. Hydrostatic and oncotic pressures help maintain fluid balance within the lymphatic and interstitial spaces. Plasma proteins such as albumin are essential for maintaining fluid balance and proper lymphatic flow. Lymphatic vessels coalesce to form lymphatic trunks or ducts that eventually drain back into circulation at the subclavian veins.

Lymphatic organs play a key role in the production, storage, and activation of lymphocytes, a type of white blood cell. T cell lymphocytes, which are essential to the adaptive immune response, migrate from the bone marrow to mature in the thymus gland. The spleen acts as a blood filter and houses lymphocytes and monocytes that respond to and remove bacteria and other antigens within the blood.

Edema is a common problem that occurs when the lymphatic system cannot efficiently remove excess fluid from tissues. Inflammatory, infectious, and autoimmune processes can impair lymphatic system function.

Nutritional and lifestyle interventions can support proper lymphatic flow, lymph composition, and immune system function.

Supportive Lifestyle Practices

- Recommend diaphragmatic breathing exercises to support lymphatic circulation. This type of breathing creates a pressure gradient between the thoracic and abdominal cavities and acts to stimulate lymph flow toward the heart.[1]
- Consider manual lymph drainage, also known as lymphatic massage, for individuals with lymph stasis. This gentle technique stimulates lymph flow from distal to proximal using an effleurage technique which can be taught to the participant or performed by a specialist.[1]
- Encourage regular exercise to promote lymphatic flow and decrease fluid accumulation in the tissues via muscle contraction. There is a three-to-six-fold increase in lymph clearance during active exercise compared to resting levels.[2]

Whole Foods Nutritional Recommendations

- Ensure that patients obtain sufficient protein. Inadequate plasma protein can lead to the accumulation of fluid in the interstitial tissues. Excellent sources of protein include meat, eggs, fish, and dairy products. Good plant-based protein sources include tofu, lentils, peas, beans, and nut butter.
- Encourage consumption of foods rich in Vitamin A which supports the production and activity of lymphocytes.[3] Active, bioavailable vitamin A as retinol is found in beef liver, eggs, dairy, eggs, fish, and organ meats. Provitamin A comes from leafy greens, orange and yellow vegetables, tomatoes, and fruits.
- Recommend foods rich in vitamin C such as citrus fruits, strawberries, peppers, and broccoli. Lymphocytes have a 10 to 100-fold higher concentration of vitamin C intracellularly when compared to typical plasma levels.[4]

The product recommendations and information provided are based solely on research performed by Standard Process Inc. concerning its products and formulations. Health care practitioners should provide their own professional judgment concerning product recommendations based on a clinical examination of their patient/client. Standard Process is not responsible for patient care decisions or recommendations by health care practitioners based on this information.

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Dietary Supplement Regimen

A-C Carbamide®

Suggested Use: **3 capsules per day**

A-C Carbamide® supports:

- Healthy cellular fluid levels*
- Healthy urinary system function*
- It is also an excellent source of vitamin A and vitamin C

Cleavers 1:2

Suggested Use: **Dilute 5ml in water or juice once per day**

Cleavers 1:2 contains Cleavers herb traditionally used in herbal preparations to:

- Support healthy fluid levels*
- Support a healthy, normal urinary system*
- Promote normal elimination via the kidneys*

Spleen PMG™

Suggested Use: **1 tablet 3 times per day**

Spleen PMG™ contains bovine spleen PMG extract, a proprietary Protomorphogen™ blend.

- PMGs contain a unique profile of nucleotides and peptides from bovine spleen.

Cataplex® A-C-P

Suggested Use: **3 tablets per meal**

Cataplex® A-C-P supports the maintenance of cells and tissues and supports a healthy immune system response function.*

- Contains a combination of key ingredients from Cataplex® A , Cataplex® C , and Cyruta
- Excellent source of vitamin A
- Good source of vitamin C

Assessment of Lymphatic System

In Office/Physical Exam

- Lab studies: complete blood count (CBC), comprehensive metabolic panel (CMP), c-reactive protein (CRP)
- Physical Exam: Palpation of lymph nodes, assess skin health
- Signs/Symptoms such as edema, swollen lymph nodes, sensation of heaviness, skin discoloration, dryness, or itching, frequent infections

REFERENCES

1. Douglass, J., et al. (2019). Methods and protocols, 2(3), 77.
2. Li, Y., et al. (2023). Frontiers in cardiovascular medicine, 10, 1094805.
3. Huang, Z., et al. (2018). Journal of clinical medicine, 7(9), 258.
4. van Gorkom, G. N. Y., et al. (2018). Antioxidants, 7(3), 41.

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