

Lymphatic system

Lymphatic system: is a closed system of lymph channels or lymph vessels, through which lymph flows. It is a **one-way system** and allows the lymph flow from tissue spaces toward the blood.

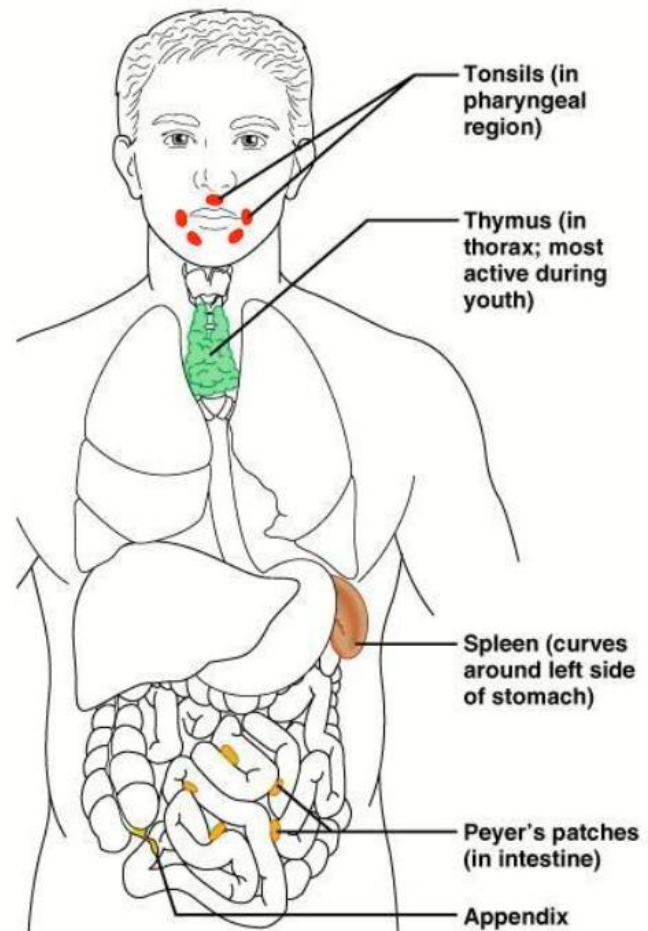
General Functions of Lymphatic System

- 1- **Returns Fluid from Tissues to Blood:** ~85% of fluids that leak out of blood returns to blood via blood capillaries. ~15% returns via lymph capillaries. If lymphatic system becomes blocked cause edema.
- 2- **Returns Large Molecules to Blood:** ~25-50% of blood proteins leak out of capillaries each day. They cannot get back into capillaries. Instead lymphatic capillaries pick them up and return them to the blood.
 - If lymphatics are blocked blood protein decreases.
- 3- **Absorb and Transport Fats:** special lymphatic capillaries in villi of small intestine absorb all lipids and fat-soluble vitamins from digested food bypasses liver much goes straight to adipose tissues.
- 4- **Hemopoiesis:** some WBC's (lymphocytes, monocytes) are made in lymphatic tissues (not bone marrow).
- 5- **Body Defense/Immunity:** lymphoid tissue is an important component of the immune system.
 - The major role of WBC's is in body defense.
 - Lymphatic system screens body fluids and removes pathogens and damaged cells.

Lymph: is a clear watery fluid that resembles blood plasma but: has fewer proteins. its composition varies depending on organs that it drains.

Major Accessory Lymphatic Organs

- 1- Spleen
- 2- Thymus
- 3- Tonsils
- 4- Appendix



Acquired Immunodeficiency Syndrome (AIDS)

Caused by the Human Immunodeficiency Virus (HIV) which infects lymphocytes and suppresses immunity.

- HIV infects lymphocytes (particularly helper T-cell) and some epithelial cells. The exact mechanism of pathogenesis is still unknown, but the most popular hypothesis is that HIV directly destroys T-cells, resulting in a strong suppression of the immune system.
- HIV can also infect macrophages or "hide" inside macrophages and monocytes for a long time.
- HIV is usually spread by blood, sexual contact, drug needle, or through pregnancy; and not by food, water, coughing, sneezing, kissing, hugging, utensils, shaking hands, or toilet seats.