

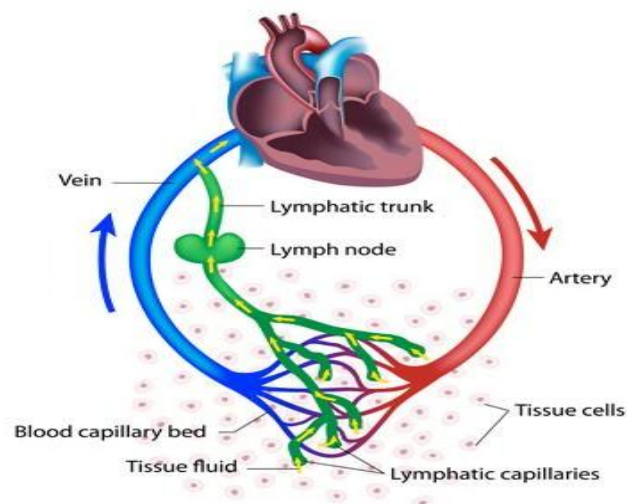
Lymphatic System:It protects body against **foreign material**, assists in **circulation** of body, fluids between cells and bloodstream and **transports dietary fats**.

Consists of:

- 1- lymph
- 2- network of vessels
- 3- lymph nodes and nodules
- 4- tonsils
- 5- spleen
- 6- thymus gland
- 7- bone marrow

Lymph (lymph = clear fluid)

It derived from tissue fluid, and contains more white blood cells than in plasma. It enters node through afferent lymphatic vessels. And flows through node in one direction.



Composition

1-Lymphatic vessels :Lymphatic capillary, Lymph vessels, Lymphatic trunks, Lymphatic ducts

2-Lymphatic organs: Lymph nodes ,spleen ,thymus ,tonsil

3- Lymphatic tissues: Lymphatic vessels ,Lymphatic capillaries.

Lymphatic vessels :

A.Lymphatic capillary

Features of structure are blind end, single layer of overlapping endothelial cells, more permeable than that of blood capillary.

B.Lymph vessels

Features of structure are three layered wall similar to, but thinner than vein, more numerous valves than in vein, interposed by lymph node at interval along the course, arranged in superficial and deep sets.

C.Lymphatic trunks

-right and left **jugular trunks**

-right and left **subclavian trunks**

-right and left **bronchomediastinal trunks**

-right and left **lumbar trunks**

-**intestinal trunk**

D.Lymphatic ducts:

1.Right lymphatic duct

-Formed by union of **right jugular, subclavian, and bronchomediastinal trunks**

-Receives lymph from right half of head, neck, thorax and right upper limb

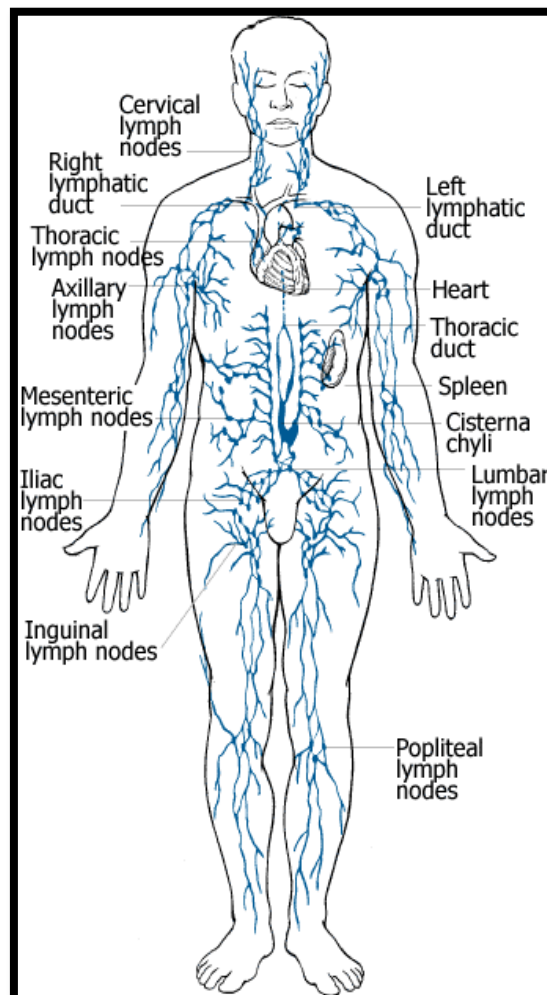
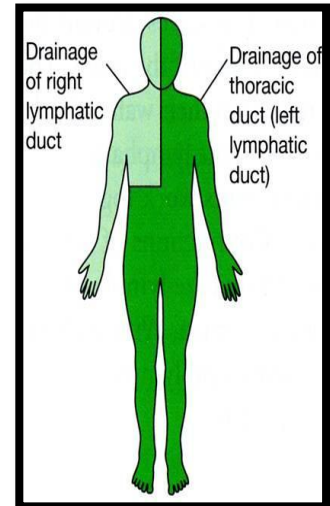
2.Thoracic duct

-Enter thoracic cavity by passing through the aortic hiatus of the diaphragm and ascends along on the front of the vertebral column, between thoracic aorta and azygos vein.

Lymph node

The features of lymph nodes included:

- Bean-shaped bodies.
- Arranged in groups, along the blood vessels
- Divided into superficial and deep groups.



Lymph nodes of the neck and head

