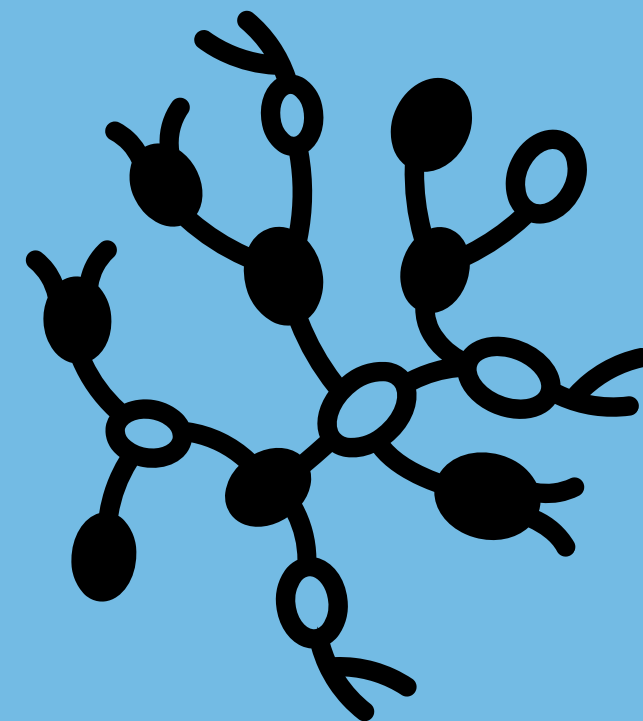


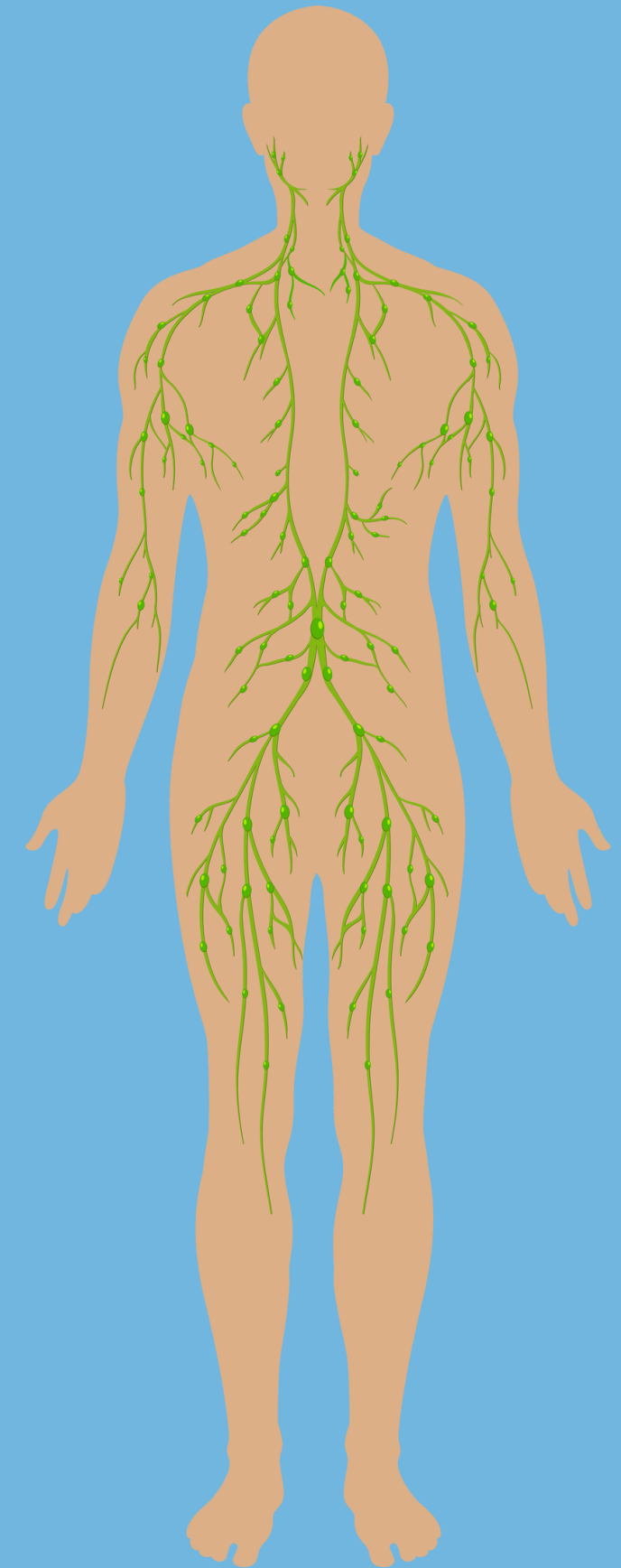
The Lymphatic System



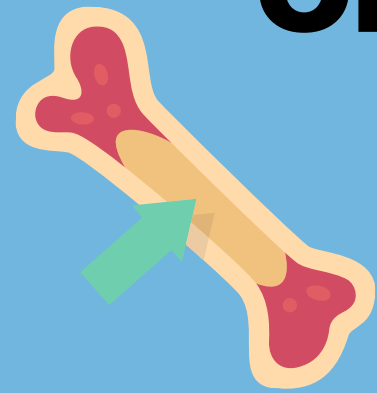
What is the lymphatic system & what does it do?



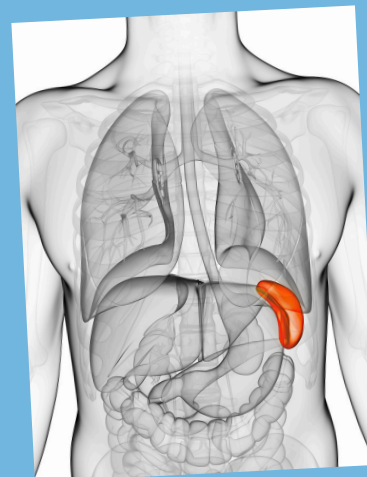
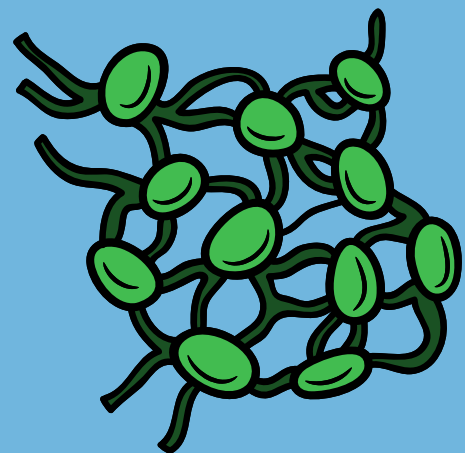
Your lymphatic system is part of your immune system. It produces and releases lymphocytes (a type of white blood cell) and other immune cells. These cells look for and destroy invaders — such as bacteria, viruses, parasites and fungi — that may enter your body.



Primary lymphoid organs:



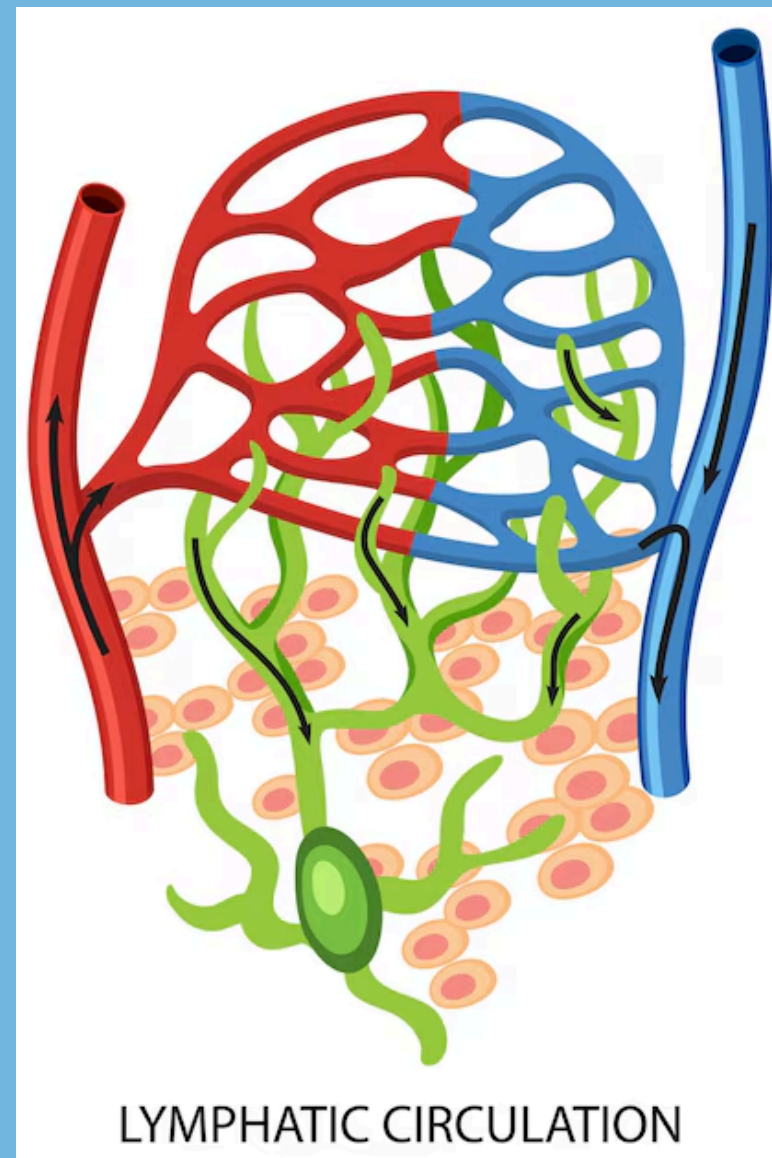
- Bone Marrow
- Thymus



secondary lymphoid organs:

- Lymph node
- Tonsils
- Spleen

Lymphatic system passageway



Lymphatic Capillaries

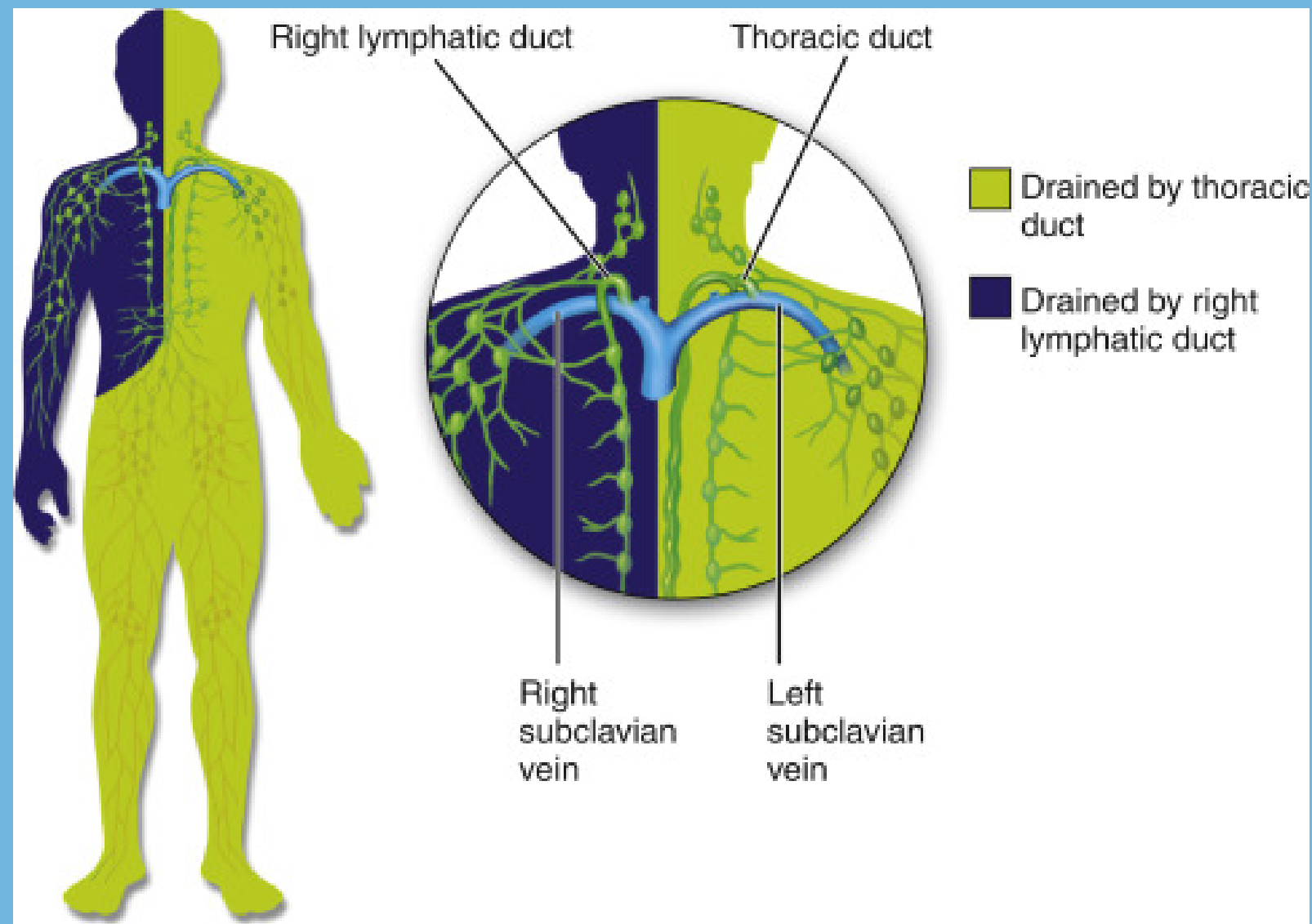


Lymphatic Vessels



Lymphatic Duct

Lymphatic Duct Drainage



The right lymphatic duct

The right lymphatic duct drains lymph from the upper right quadrant of the body into the right subclavian vein or the right internal jugular vein in the neck: Right side of the neck, Right side of the chest, Right side of the arm, and Right side of the head

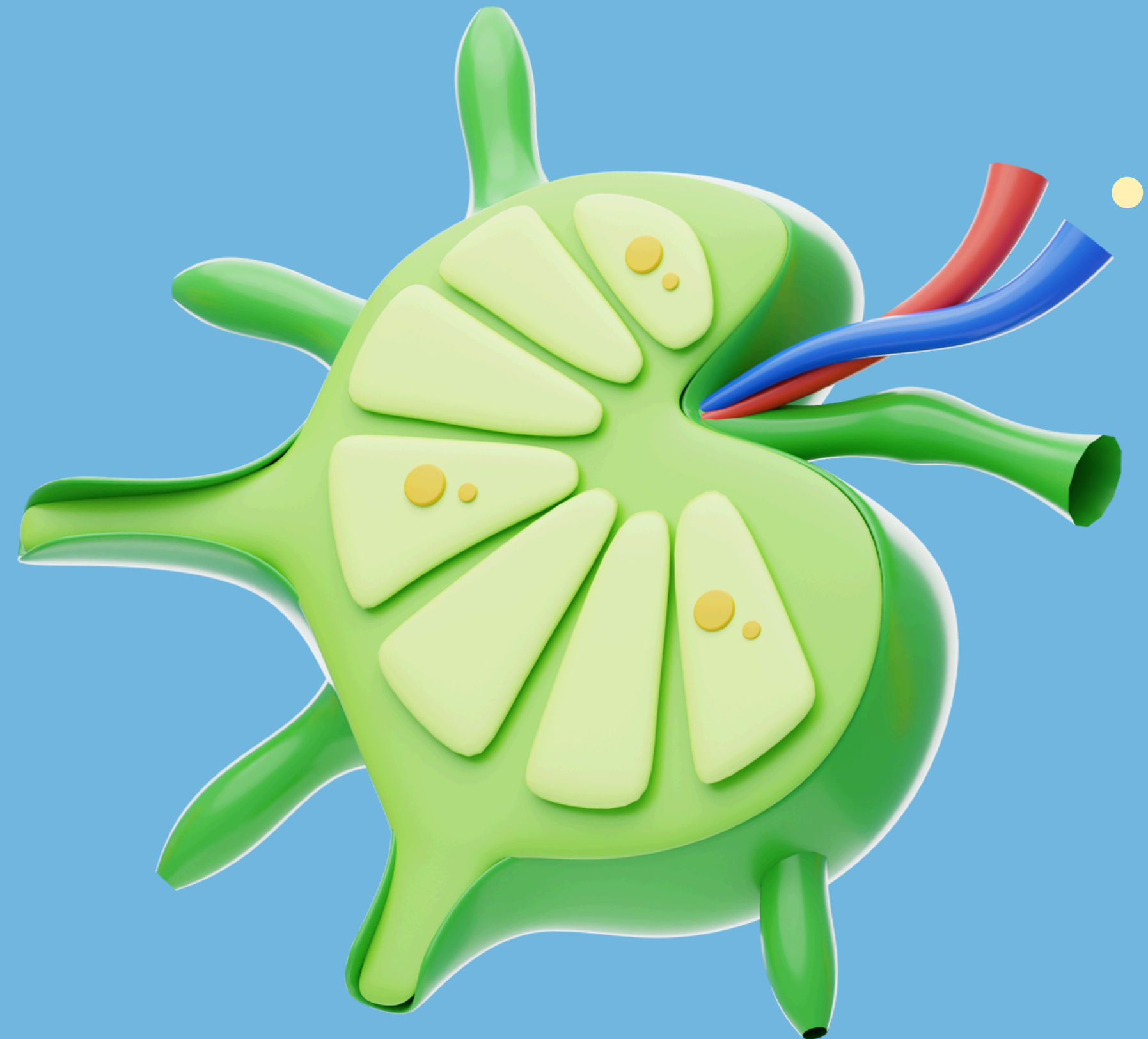
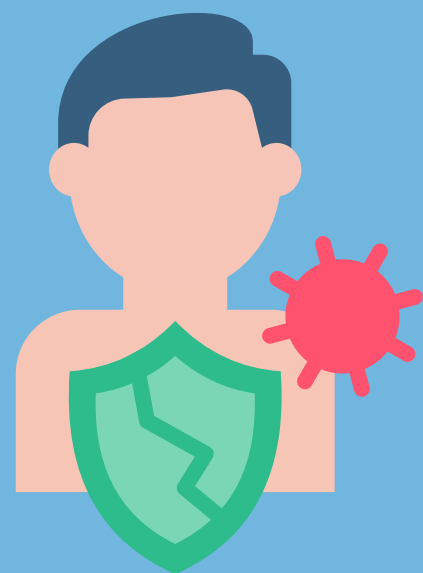
The Thoracic duct

The duct empties into the venous system via the left subclavian vein, or, more commonly, near the junction of the left subclavian and left internal jugular veins



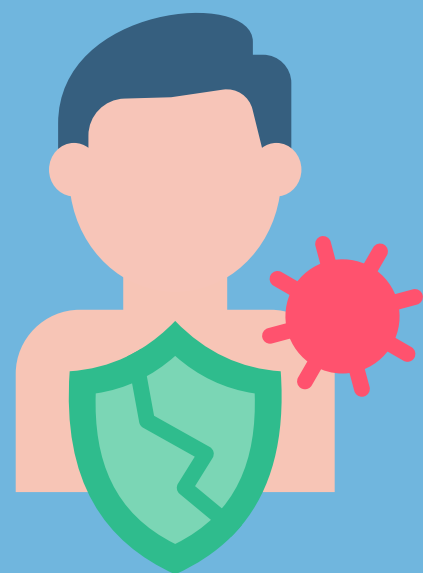
What is a lymph node?

- Lymph node has lymphocytes that are involved in your immune system that specifically targets pathogens. They include B & T cells. This is where many immune system occurs.



There are 3 basic lines of defense against pathogens

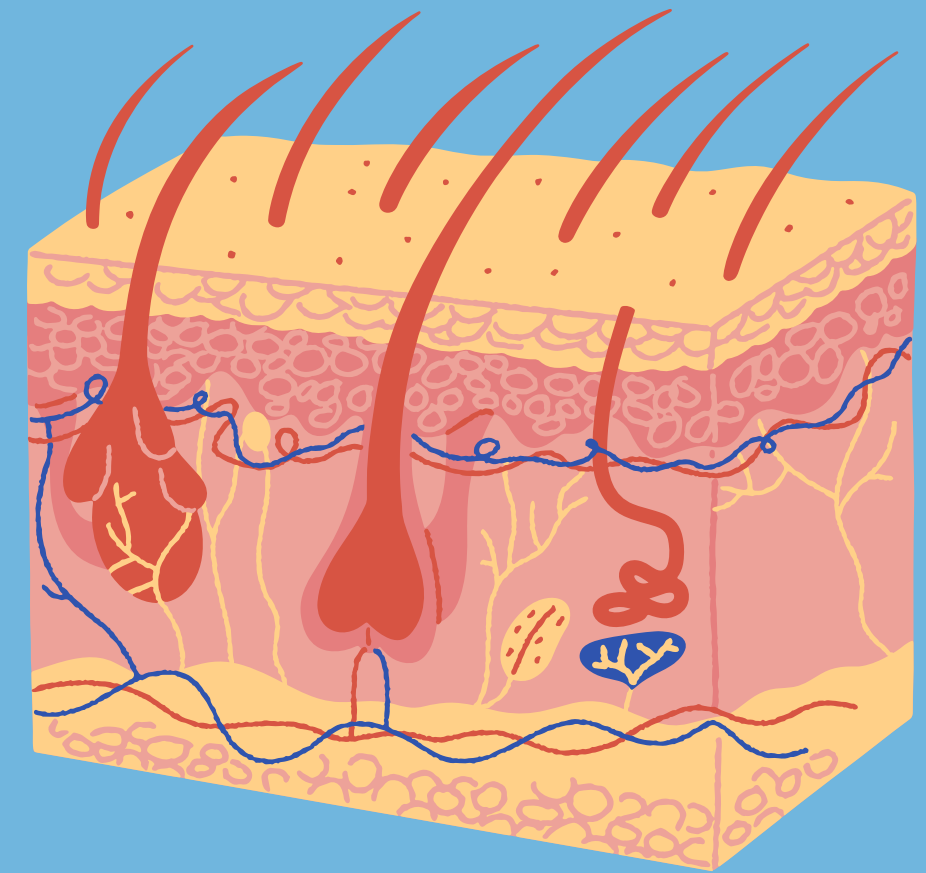
- External Barriers
- Inflammation, fever and other active attacks.
- Specific immunity



External Barriers

The skin acts as the first external barrier to pathogens for several reasons:

- Keratin is tough protein that bacteria cannot easily break through
- Skin is dry, with a few nutrients for bacteria and other pathogens.
- the skin has an acid mantle, which makes it inhospitable for bacteria and other pathogens.



Mucous Membranes also serve as an external barrier for the following reasons:

- Mucus traps microbes
- Mucus, tears and saliva contain lysozymes to destroy pathogens.
- Deep to the mucous membranes is loose areolar connective tissue with fibers to hamper the progress of pathogens.

Inflammation, antimicrobial proteins, fevers and other active attacks.

Inflammation

The functions of inflammation are threefold:

- To limit the spread of pathogens
- to remove debris and damaged tissues
- to initiate tissue repair.

Fever

- Most people view fever as a bad thing but it is another method of a nonspecific defense.
- Fever is initiated by the production of chemicals (pyrogens) from activated macrophages.
- These pyrogens travel to the hypothalamus which then raises the set point for body temperature.
- The body will respond by shivering to produce heat while the blood vessels in the skin constrict to preserve the heat that is being generated.
- Once the pathogen is defeated (fried) the hypothalamus will then reset the temperature to normal and the brain may initiate sweating to cool the body to homeostasis.



Forms of acquired immunity

Passive Immunity- the immunity was acquired through someone or something else (an animal such as a horse or pig). This occurs when an individual receives an injection of serum containing antibodies from another person or animal. Antibodies can be synthetically made or produced. This type of immunity is used for emergency treatment such as tetanus, rabies and snakebites.

Active Immunity- the body actively created its own immunity. This occurs when the body through everyday activities: the body responds by recognizing a specific pathogen as foreign and reacting to it by producing antibodies to destroy the pathogen. In doing so the body then remembers the specific pathogen so that it can fight the pathogen faster and stronger the next times it re appears.

Natural Immunity- the immunity was accomplished through naturally occurring means. This basically means the body has acquired specific immunity through natural means from someone else. Some antibodies can pass from mother to child through breast milk. The child has specific immunity to some pathogens because the child has acquired its mother's antibodies.

Artificial Immunity- the immunity was not acquired through naturally occurring means. This occurs when the body acquires a pathogen in an artificial way and then develops its own humoral or cellular immunity. For example-vaccinations.



Let's watch this awesome video about the lymphatic system!





Questions?

