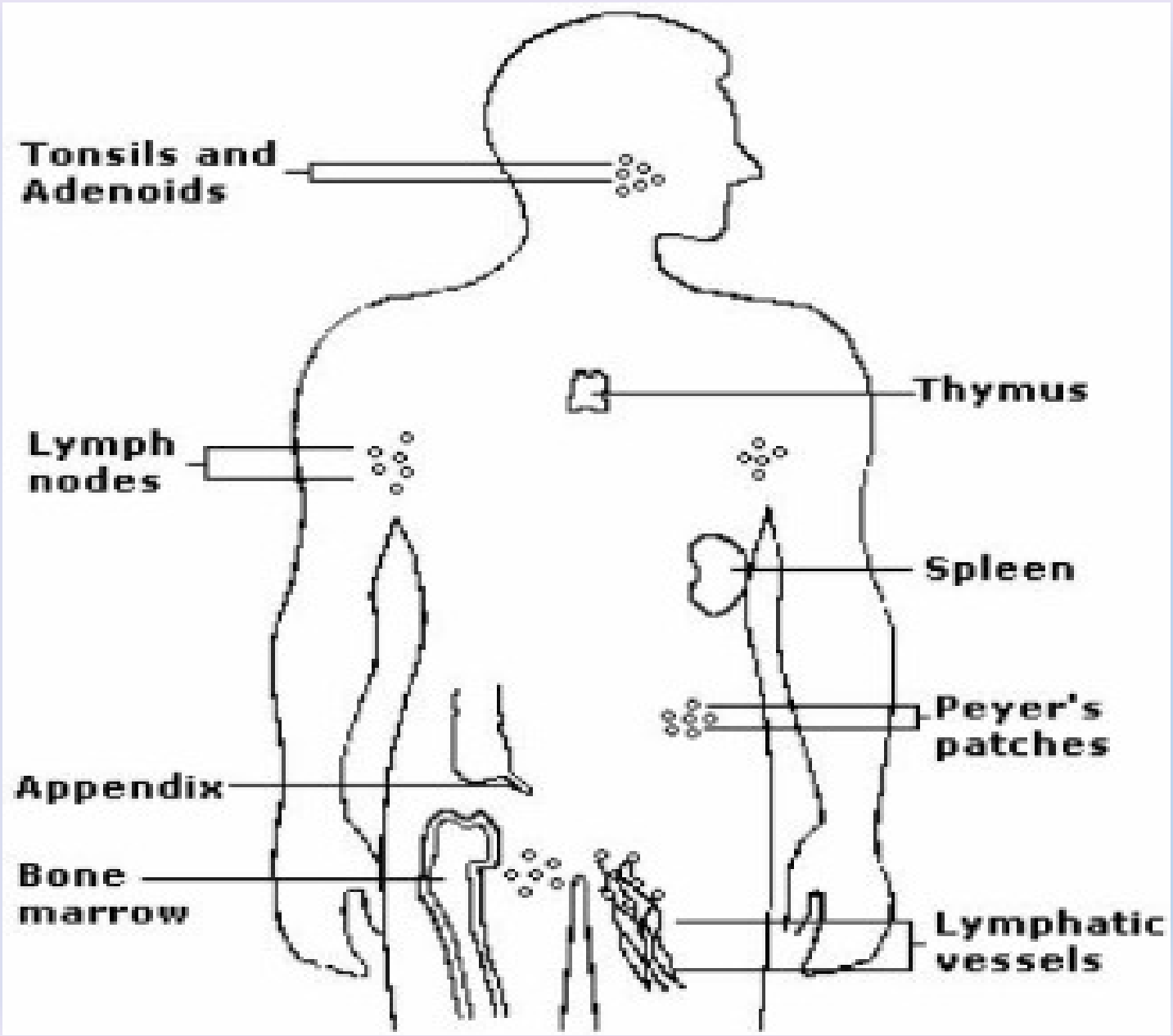
Immune Organs - organs of the immune system

- There are several different systems in the human body – nervous system, blood system, immune system, digestive system and so on.
- The immune system is composed of different immune organs, cells and tissues.

- The lymphatic system is portion of the body's defense mechanisms. It takes on a important role within the body's protection from an infection plus some other disease, like cancer.
- Because the lymphatic system is portion of the body's defense mechanisms, it is actually safe to make reference to one or another yet still stay on pathway and make sense of what we mean.
- The lymphatic system (just like the blood system), is portion of the circulatory system and yes it exists in similar with the blood system, but has a fluid known as lymph, instead of blood.
- It generates and assists to handle materials - cellular material, protein, nutrition, waste material


Tonsils and Adenoids
Thymus
Lymph nodes
Spleen
Peyer's patches
Appendix
Bone marrow
Lymphatic vessels

- We find two groups of immune organs (or lymphoid organs as it is also part of the lymphoid System):
- **"Primary organs"** - These are immune organs concerned with production and maturation of lymphoid cells and including bone marrow and thymus gland.
- **"Secondary organs"** - these immune organs are spots or sites in which the lymphocytes localize, identify foreign antigens and reaction to it. It Contains tonsils , lymph nodes, Spleen, Peyer's patches (in the small intestines), appendix and liver.
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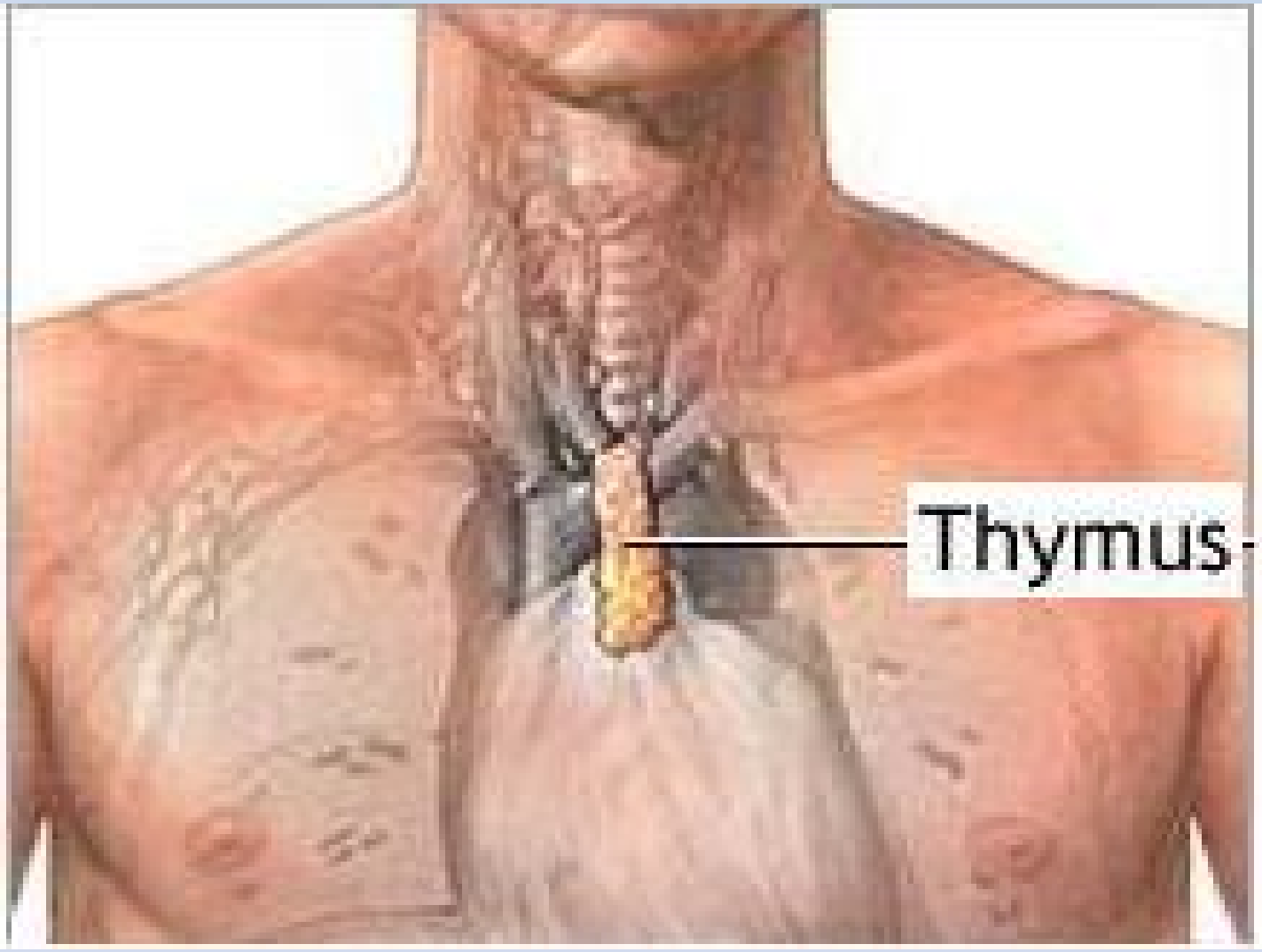
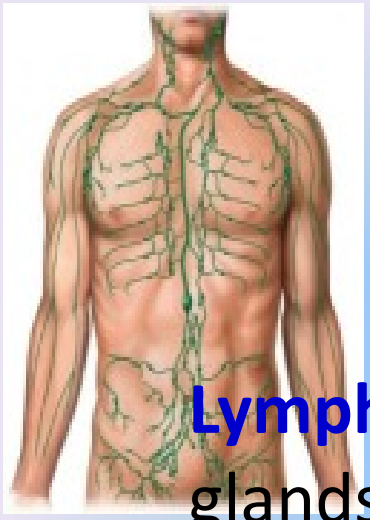
Note: you may find bone marrow, thymus gland, spleen and lymph nodes in the same group (primary organs)- it depends on the author, the book and the importance of the role an specific organ plays in the immune system in that given context

- **Primary Organs:**
- **Thymus-** located beneath the breast bone. Those two lobes! It functions at its peak during youth producing specialized lymphocytes-T-cells and dispatching them through lymph vessels to secondary organs. In very simple words, we can say its purpose is to initiate antibody formation
- Immature thymocytes, also called prothymocytes, throw out bone marrow to move in to the thymus. By way of an extraordinary maturation process at times called thymic education, T cells which are good for the body's defense mechanisms are spared, but other T cells which may stimulate a harmful autoimmune reaction are eliminated. The Release of Mature T cells into the bloodstream takes place next.


Thymus

Bone Marrow - I cannot stress enough how important the bone marrow is since All Of The CELLS from the immune system, before anything else, are originally produced by the bderived one marrow. They are formed via a process named hematopoiesis. Throughout hematopoiesis, the stem cells from the bone marrow separate

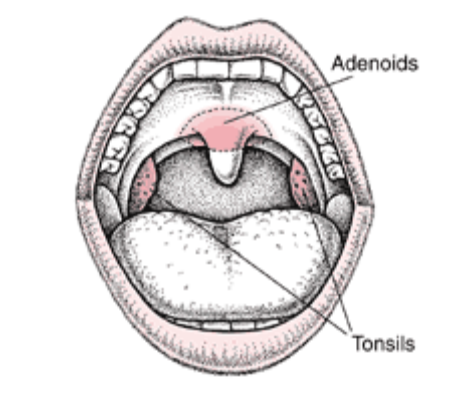
and travel from the bone marrow to carry on their growth somewhere else or into mature cells. Bone marrow generates B cellular material, granulocytes, natural killer cells, and also immature thymocytes, as well as red blood cells.



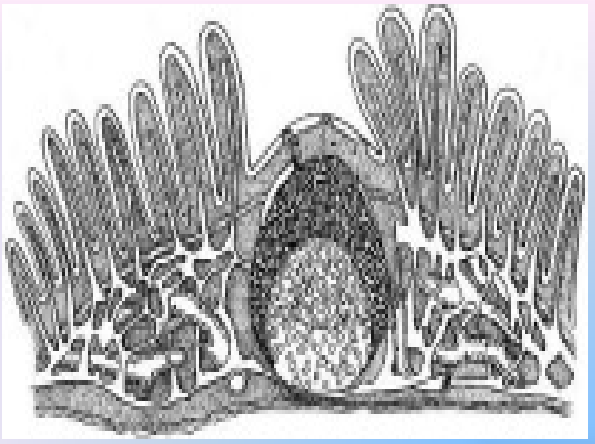
Secondary Organs:

Lymph nodes- Also at times termed as lymph glands, they are little spherical or bean-shaped clusters of lymphatic tissues enclosed by a capsule made of connective tissue. There are about 500-700 lymph nodes spread all through our bodies. Lymph nodes separate out the lymphatic fluid the store specific cellular material that will capture most cancers cells or bacteria which are travelling throughout the human body within the lymph fluid.

Spleen - just about one of the most essential of the immune organs, it works as an immunologic filtration system in the bloodstream. It consists of B cells, dendritic cells, T cells, red blood cells, macrophages and natural killer cells . Together with antigens from your bloodstream that goes by dendritic cells, spleen, macrophages and deliver antigens on the spleen through the blood stream. An immune response is started once the dendritic cells or macrophage offer the antigen towards the proper T or B cells. This organ could be regarded as a conference center in the immunological sense . Within the spleen, Then follows the activation of the B cells and the production of antibody. Also, older red blood cells, at that time, are eliminated within the spleen.



Tonsils and adenoids - They are two lumps of tissues, on either sides in the throat, inserted in a pocket beside the palate (that's the roof of the mouth). Even though adenoids and tonsils have comparable purpose, i.e. trapping viruses and bacteria, they're entirely independent immune organs



Peyer's patches - the nodules of lymphatic cells that combine to make patches or bundles and appear generally only within the lowest part of small intestine.

Appendix - It's a thin, dead-end tube about three-to-four inches in length which is end in the large intestine.
During the past, the appendix was regarded as not having any purpose in the body or as not currently being among the immune organs. Today, it is stated, often, that this takes on a task in the body's defense mechanisms because its surfaces aggregated lymphoid tissues. researchers say the appendix assists in supporting the immunity process in 2 ways. It will help tell the lymphocytes exactly where they have to head over to attack infection and it also enhances the massive intestine's defenses to a range of drugs and foods.