

The Immune System: Anatomy Review

1. Name the two major anatomical parts of the immune system:

- _____
- _____

2. Cells of the immune system originate in _____. These cells are called _____ when traveling in the blood and are classified according to the shape of their nucleus and colors of their granules when stained.

3-4. List the leukocytes in order of frequency from most to least common. In the second column put their distinct characteristics.

Name of Leukocyte	Description

5. Specialized immune cells: Leukocytes are normally found in the blood, while non-leukocytes are found in tissue. Fill in the cells classified under the following headings and note if they are found in blood or tissue.

- Phagocytes: _____
- Antigen-presenting cells: _____
- Effector cells of adaptive immunity: _____
- Other: _____

6. Primary lymphoid organs, where B and T cells originate and mature, are the bone marrow and thymus.

Fill in the following:

Both B and T cells originate from _____.

The B cells mature in the _____.

The T cells mature in the _____.

(Hint: This is how they came to be called B and T cells.)

7. Secondary lymphoid organs, where lymphocytes become activated, include the following structures:

- _____
- _____
- _____
- _____
- _____

8. The lymphatic system consists of the following three parts:

- _____
- _____
- _____

9. The lymphatic vessels collect excess interstitial fluid that leaves the capillaries and returns it to the cardiovascular system.

How many liters per day are collected? ___ L/day

10. If lymphatic vessels do not function properly, there will be a buildup of fluid in the tissues. This condition is known as _____.

11. The lymphatic capillaries have _____ valves to collect the excess interstitial fluid and any leaked proteins.

12. The lymph is filtered through the _____, where antigens and pathogens are removed and the immune system can be activated.

13. Special lymphatic capillaries in the intestines, called _____, transport absorbed _____ from the intestines into the blood.

14. Name two functions of the lymph nodes:

- _____

- _____

15. While _____ lymphatic vessels carry lymph from the tissues to the lymph nodes, _____ vessels carry cleansed lymph away from the lymph nodes.

16. ____ cells are found in the germinal centers of the lymphoid follicles, and ____ cells wander through the deep _____, searching dendritic cells for their special antigen.

17. The _____ cleanses the blood like the lymph nodes cleanse the lymph.

18. Functions of the spleen include:

- Removes _____
- Stores _____
- Site for activation of the _____

19. Collections of secondary lymphoid tissue (called _____ for short) are distributed throughout the mucosal surfaces of the digestive, respiratory, and genitourinary system. Aside from the diffuse cells in respiratory and other mucosa, this includes the following specific structures:

- _____ (protection of oral and nasal cavities)
- _____ (first part of the large intestine)
- _____ (distal portion of the small intestine)

20. The _____, a primary lymphoid organ, is the site for differentiation of lymphocytes into mature T cells. What happens to this organ as we age?
