

CHAPTER TWENTY-FOUR

Answers to WHAT DID YOU LEARN?

1. An immune response is a systematic defense against antigens by lymphatic cells. Some lymphatic cells destroy the antigens, while others produce antibodies that bind to and immobilize the antigen. Other lymphatic cells become memory cells, which remember a past antigen and initiate a faster immune response if the antigen reappears.
2. The combination of interstitial fluid and dissolved solutes (and sometimes foreign material) is called lymph.
3. The vessels that are the smallest in diameter are the lymphatic capillaries, which merge to form lymphatic vessels. Lymphatic vessels form lymphatic trunks. Lymphatic trunks drain into the largest lymphatic vessels in the body, called the lymphatic ducts.
4. Among the types of lymphatic cells are macrophages, some epithelial cells, dendritic cells, and lymphocytes.
5. T-lymphocyte types include helper T-lymphocytes that initiate and oversee the immune response, cytotoxic T-lymphocytes that kill by secreting substances into foreign or abnormal cells, memory T-lymphocytes that mount an even faster immune response at the next encounter with the antigen, and suppressor T-lymphocytes that turn off the immune response. B-lymphocyte types include plasma cells that produce antibodies and memory B-lymphocytes that mount an even faster immune response at the next encounter with the antigen.
6. All lymphocytes originate from lymphoid stem cells in the red bone marrow. T-lymphocytes mature in the thymus while B-lymphocytes mature in the red bone marrow.
7. MALT is composed of large collections of lymphatic nodules located in the lamina propria of the mucosa of the GI tract, respiratory tract, and genitourinary tract.
8. The thymus functions as a site for T-lymphocyte maturation and differentiation. T-lymphocytes within the thymus do not participate in the immune response and are protected from antigens by a well-formed blood-thymus barrier around the blood vessels in the cortex.
9. Each lymph node is surrounded by a tough connective tissue capsule with internal extensions called trabeculae. The tissue deep to the lymph node capsule is subdivided into an outer cortex and an inner medulla.
10. The white pulp is associated with the arterial supply of the spleen and consists of circular clusters of lymphatic tissue (T-lymphocytes, B-lymphocytes, and macrophages). The red pulp is associated with the venous supply of the spleen. It consists of splenic cords (cords of Billoth) and splenic sinusoids. The white pulp mounts an immune response when necessary, while the red pulp serves as a reservoir for blood as well as phagocytizing and recycling aged erythrocytes and platelets.

11. The reduced number of lymphocytes in an elderly person means that the body's ability to acquire immunity and resist infection decreases. In addition, the lymphocytes that remain appear less able to target malignant cells, which may be one reason why the elderly are more prone to developing cancers.
12. The spleen begins to grow during the fifth week of embryonic development.