

## A Guided Study of the Lymphatic System

(Reference Photos, Text and Videos for answers)

1. The Lymphatic System is a network of vessels that carry lymph in one direction away from the heart. True/False  
Answer: False. Towards the heart.
2. What two systems are directly connected to the lymphatic system?  
Circle all that apply.  
a) Circulatory & Immune  
b) Reproductive & Endocrine  
c) Nervous & Immune  
d) Immune & Endocrine
3. How many liters of plasma are left behind each day in the interstitial fluid?  
a) 16  
b) 20  
c) 3  
d) 7
4. Because lymph originally derived from blood plasma, its composition is much the same. True/False
5. Lymphatic vessels contain valves that allow lymphatic fluid to flow in and out of the interstitial fluid (ISF). True/False  
Answer: False. Lymphatic vessels contain one-way valves to prevent backflow.
6. Lymphatic fluid moves through the body on its own. T/False  
Answer: False. It does not. It is moved through bodily rhythmic contractions.
7. Cervical lymph nodes are located in which of the following?  
a) Neck  
b) Spine  
c) Armpit  
d) Groin

8. Inguinal lymph nodes are located in which of the following?
- a) Neck
  - b) Spine
  - c) Armpit
  - d) Groin
9. Axillary lymph nodes are located in which of the following?
- a) Neck
  - b) Spine
  - c) Armpit
  - d) Groin
10. The lumbar trunk receives lymph from the stomach, intestines, pancreas, and spleen. T/False  
Answer: False. The lumbar trunk receives lymph from the lower limbs, pelvis, kidneys, adrenal glands, deep lymph of abdominal wall
11. The lumbar trunk drains into the \_\_\_\_\_.
- a) Cisterna Chyli
  - b) Axillary Lymph Nodes
  - c) Inguinal Lymph Nodes
  - d) Thoracic Lymph Trunk
12. The intestinal trunk receives lymph from the stomach, intestines, pancreas, spleen and liver. True/False
13. The intestinal trunk drains into the \_\_\_\_\_.
- a) Cisterna Chyli
  - b) Axillary Lymph Nodes
  - c) Inguinal Lymph Nodes
  - d) Thoracic Lymph Trunk
14. Chyle is a milky, bodily fluid consisting of lymph, emulsified fats and/or free fatty acids. True/False

15. The cisterna chyli is the largest lymph vessel of the lymphatic system.  
T/False  
Answer: False. Thoracic Duct
16. Approximately how long is the thoracic duct in an adult?  
a) 12 ft.  
b) 16 in  
c) 14 in  
d) 10 ft.
17. The following are considered organs of the lymphatic system. Circle all that apply.  
a. Pancreas, Spleen, and Tonsils  
b. Thymus, Tonsils, and Spleen  
c. Tonsils, Liver, and Gallbladder  
d. Spleen, Appendix, and Liver
18. Tonsils filter and protect the body from pathogens that may enter the oral and nasal cavity, by forming a protective barrier of tissue around the pharynx. True/F
19. Which lymphatic organ holds a reserve of blood in case of hemorrhagic shock?  
a) Spleen  
b) Pancreas  
c) Liver  
d) Thymus
20. If the spleen is removed, the gallbladder and pancreas take on many functions of the spleen. T/False  
Answer: False. Liver, Bone Marrow, and Lymph Nodes
21. Which lymphatic organ atrophies as a person ages?  
a) Gallbladder  
b) Thymus  
c) Pancreas  
d) Spleen

22. Lymph vessels are found in the lining of what to transport fats to the blood circulation?

- a) Respiratory Tract
- b) Gastrointestinal Tract
- c) Urinary Tract
- d) Reproductive Tract

23. Lymphadenopathy occurs when one or more lymph nodes become enlarged and are reactive in response to infection or inflammation.

True/F

24. Lymphedema occurs when damaged or a deformed lymphatic system accumulates too much lymph and starts to swell. True/F

25. Lymphangiomas are cancer of the lymphatic system and can be either primary or secondary. T/False

Answer: False. It is a disease involving multiple cysts or lesions formed from lymphatic vessels. It is a malformation of congenital errors of lymphatic development that occurs before the 20<sup>th</sup> week of gestation.

26. Lymphoma is a disease involving multiple cysts or lesions formed from lymphatic vessels. It is a malformation of congenital errors of lymphatic development that occurs before the 20<sup>th</sup> week of gestation. T/False

Answer: False. It is a cancer of the lymphatic system and can be either primary or secondary.

## A Guided Study of the Immune System

(Reference text, photos, and videos for answers)

1. The immune system is our first defense against pathogens and unsterile environments. **True/False**
2. Name the two sub-systems of the immune system.
  - a) **Innate & Adaptive/Acquired**
  - b) Physical & Chemical Barriers
  - c) Active & Passive
  - d) White Blood Cells & Red Blood Cells
3. Plasma accounts for what percentage of the body's blood?
  - a) 45%
  - b) **55%**
  - c) > 1 %
  - d) 8 %
4. Red blood cells are also known as what?
  - a) **Erythrocytes**
  - b) Platelets
  - c) Leukocytes
  - d) Granulocytes
5. Platelets help in preventing the loss of blood. **True/False**
6. Leukocytes are white blood cells. **True/False**
7. Name the most common type of white blood cell.
  - a) **Neutrophils**
  - b) Basophil
  - c) Monocytes
  - d) Eosinophils

8. Which types of white blood cells have a bi-lobed nucleus? Circle all that apply.
- a) Neutrophils
  - b) Basophils
  - c) Eosinophils
  - d) Lymphocytes
9. A high monocyte count is a good sign. True/False  
Answer: False. Low Monocyte Count
10. T cells originate and mature in the thymus. T/False  
Answer: False. T cells originate in the bone marrow and mature in the thymus
11. Skin, unbroken mucous membranes, respiratory tract, gastrointestinal tract, reproductive tract, and urinary tract would be considered physical barriers of the Immune System. True/False
12. Sweat, saliva, tears, stomach acids, urine, vaginal secretions, and oils on skin and hair would all be considered chemical barriers of the Immune System. True/False
13. Oils contain anti-microbial fatty acids that protect pathogens from growing. True/False
14. Inflammation is part of the adaptive/acquired immune system. True/False  
Answer: False. Inflammation is part of the innate immune system
15. Complement immunity is a physical barrier in the innate immune system. True/False  
Answer: False. Complement immunity is a chemical barrier
16. Identify the part of immunity that deals with preventing viruses.
- a) Adaptive/Acquired Immune System
  - b) Interferons
  - c) Lymphocytes
  - d) Chemical Barriers

17. The five classes of antibodies are IgA, IgB, IgC, IgD, IgE. True/False  
Answer: False. IgM, IgG, IgA, IgE, IgD
18. A killed or weakened pathogen or its components is known as what?
- a) Vaccine
  - b) Macrophage
  - c) Phagocytosis
  - d) Virus
19. Hormones have no impact on the immune system. True/False  
Answer: False. Hormones have great impact on the immune system