Chapter 14 - Respiratory System

Functions of the respiratory system
Anatomy of the Respiratory system
  Upper Respiratory Tract
    Nose
    Sinuses
    Pharynx
    Tonsils
    Larynx
  Lower Respiratory Tract
    Trachea
    Bronchi and Bronchioles
    Alveoli
    Surfactant

Respiration
  Ventilation
    External respiration
    Gas Transport
    Internal respiration

Ventilation
  Dalton’s Law
  Boyle’s Law
  Inhalation (inspiration) & exhalation (expiration)
  Lung volumes

External/internal respiration & gas transport
  Oxygen & carbon dioxide
  Gas exchange at alveoli
  How are O₂ and CO₂ transported in the blood?
  Gas exchange at tissue level

Control of ventilation

Objectives:

1. What are the major functions of the respiratory system?
2. What structures are part of the upper and lower respiratory tracts?
3. Know the basic anatomy of the respiratory system and the function of each structure.
4. Describe the path of airflow into and out of the respiratory system.
5. Where does gas exchange occur in the respiratory system?
6. What are the cells found in the alveolar walls? What are their functions?
7. What are the four steps of respiration?
8. Know the mechanics of inspiration and expiration.
9. Be familiar with the lung volumes (full names and abbreviations) discussed in lecture.
10. How is gas exchanged between the alveoli and pulmonary capillaries and systemic capillaries and tissues? What is the driving force for this exchange? In which direction are oxygen and carbon dioxide exchanged in these locations?
11. How are O₂ and CO₂ transported in the blood?
12. Where is the major respiratory control center located? How does it work? How is respiratory rate controlled?
13. Know how O$_2$, CO$_2$, and H$^+$ are monitored and how ventilation is altered in response to changes in these variables.
14. Describe the Heimlich maneuver. Why would it be used?
15. What is Dalton’s law? What is Boyle’s law?
16. What is the function of a spirometer?
17. What is newborn respiratory distress syndrome? Why might it occur?