Module 15: Respiratory System — Keys to Success

Key Learning Objectives

1. Respiratory System Overview

- Describe the primary functions of the respiratory system
- Distinguish between external and internal respiration
- Explain the relationship between the respiratory and cardiovascular systems
- Understand the role of respiration in pH balance

2. Anatomy of the Respiratory System

- Identify the structures of the upper respiratory tract (nose, pharynx, larynx)
- Identify the structures of the lower respiratory tract (trachea, bronchi, bronchioles, alveoli)
- Describe the structure and function of the alveoli
- Explain the role of surfactant in lung function

3. Mechanics of Breathing

- Describe the process of inspiration and expiration
- Explain the role of the diaphragm and intercostal muscles
- Understand how pressure changes drive breathing
- Define respiratory volumes and capacities

4. Gas Exchange

- Explain how gases are exchanged in the alveoli
- Describe the factors that affect gas exchange
- Understand the diffusion of oxygen and carbon dioxide
- Explain the relationship between alveolar structure and gas exchange efficiency

5. Gas Transport in Blood

- Describe how oxygen is transported in the blood
- Explain the role of hemoglobin in oxygen transport
- Describe how carbon dioxide is transported in the blood
- Understand the relationship between oxygen-hemoglobin saturation and tissue needs

6. Control of Breathing

- Explain how the brain controls breathing rate
- Describe the role of chemoreceptors in regulating respiration
- Understand how CO_2 and O_2 levels affect breathing
- Describe common respiratory disorders

Study Tips

1. **Trace air flow** through the respiratory system
2. **Draw diagrams** of alveolar gas exchange
3. **Understand pressure-volume relationships** in breathing
4. **Create tables** comparing oxygen and carbon dioxide transport
5. **Connect concepts** to real-world breathing scenarios