

Class 9 - Physical Education and Well Being

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Cardiorespiratory System

CBSE NOTES

Cardiorespiratory System - Revision Guide

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1. Define Breathing vs. Respiration.

Breathing is the intake of oxygen and expulsion of carbon dioxide, while respiration is the cellular process that uses oxygen to release energy from glucose.

2. Explain External Respiration.

External respiration occurs in the lungs, where oxygen diffuses into the blood and carbon dioxide diffuses out, maintaining gas exchange.

3. Explain Internal Respiration.

During internal respiration, oxygen moves from blood into cells, while carbon dioxide moves from cells into blood, critical for energy production.

4. Describe Cellular Respiration.

Cellular respiration is the chemical process in mitochondria converting oxygen and glucose into ATP, releasing carbon dioxide and water as waste.

5. Know the Heart's Structure.

The heart consists of two atria and two ventricles. The right heart pumps deoxygenated blood to the lungs, and the left heart pumps oxygenated blood to the body.



6. What is Cardiac Output?

Cardiac output is the volume of blood the heart pumps per minute, averaging about 5 liters in adults and is vital for meeting body tissue needs.

7. Identify Circulatory System Types.

The circulatory system has two parts: pulmonary (to lungs) and systemic (to body), ensuring efficient separation of oxygenated and deoxygenated blood.

8. Understand Blood Pressure.

Blood pressure measures force exerted by blood in arteries. Systolic pressure is during heart contraction, while diastolic is during relaxation.

9. List Cardiac Rhythm Sounds.

The heart's sounds ('lub-dub') arise from valve closures. 'Lub' refers to AV valves, and 'dub' refers to semilunar valves closing.

10. Know Breathing Mechanics.

Normal breathing is mainly by diaphragm contraction and relaxation. Intercostal muscles assist during deeper breaths.



11. Explain Pulmonary Circulation.

Pulmonary circulation involves blood flow from the right heart to lungs for oxygenation and back to the left heart for systemic distribution.

12. Outline Systemic Circulation.

Systemic circulation distributes oxygen-rich blood from the left heart to body tissues, returning oxygen-poor blood to the right heart.

13. Describe Ventilation Changes.

Ventilation increases with physical activity due to higher oxygen demand. Faster breathing leads to increased gas exchange in alveoli.

14. Identify Key Heart Valves.

The heart has four primary valves: mitral, tricuspid, aortic, and pulmonary, ensuring one-way blood flow and preventing backflow.

15. Know the Role of Arteries.

Arteries carry oxygenated blood away from the heart under high pressure, crucial for transporting nutrients and oxygen to tissues.



16. Understand Capillary Functions.

Capillaries facilitate the exchange of gases, nutrients, and waste between blood and tissues due to their thin walls and extensive network.

17. State Arterial Pressure Metrics.

Blood pressure is typically recorded as systolic over diastolic (e.g., 120/80 mmHg), indicating cardiovascular health.

18. Demonstrate Pulse Measurement.

Pulse rate, counted as heartbeats per minute, provides insights into cardiovascular health and response to exercise.

19. Know Exercise Effects on Cardiorespiratory System.

Vigorous exercise leads to increased heart rate and ventilation to meet metabolic demands, highlighting the body's adaptive mechanisms.

20. Differentiate Anatomy of Blood Vessels.

Arteries, veins, and capillaries have unique structures suited for their functions in the circulatory system, affecting blood flow dynamics.



21. Define a Heart Murmur.

A heart murmur is an abnormal sound caused by turbulent blood flow, often indicating underlying heart valve issues or dysfunction.



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