

RESPIRATORY ORGANS

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Annotation: This text describes the respiratory organs, their structure, functions, and importance in the human body. It explains the structure of the nasal cavity, pharynx, trachea, bronchi, and lungs, as well as the process of air exchange through them. The work also emphasizes the necessity of following hygiene rules for maintaining the healthy functioning of the respiratory system.

Key words: respiratory organs, lungs, bronchi, trachea, pharynx, nasal cavity, gas exchange, oxygen, carbon dioxide, respiratory system.

Introduction

One of the most vital processes for human life is breathing. Through breathing, the body receives oxygen and removes carbon dioxide produced during metabolism. The respiratory organs form a complex system that ensures air exchange, gas transport, and connects the human body with the external environment.

Structure of the Respiratory System

The respiratory system is divided into upper and lower respiratory tracts.

1. Upper Respiratory Tract

The upper respiratory tract includes the nasal cavity, pharynx, and larynx.

The nasal cavity is the entrance of the respiratory system. It cleans, warms, and moistens the air we breathe. Tiny hairs and mucus inside the nose trap dust and microbes, protecting the lungs.

The pharynx connects the nasal cavity with the larynx. It serves as a common passage for both air and food.

The larynx contains the vocal cords. It plays an important role not only in breathing but also in sound production and speech formation.

2. Lower Respiratory Tract

The lower respiratory tract includes the trachea, bronchi, and lungs.

The trachea (windpipe) starts from the larynx and extends into the chest. It is supported by C-shaped cartilage rings that prevent it from collapsing.

The bronchi are two branches of the trachea that lead into each lung. Inside the lungs, they divide into smaller tubes called bronchioles.

The lungs are the main organs of the respiratory system. They consist of millions of tiny air sacs called alveoli, where gas exchange occurs — oxygen passes into the blood and carbon dioxide is released.

Process of Breathing

Breathing consists of two main phases:

1. Inhalation (inspiration) – the diaphragm and intercostal muscles contract, expanding the chest cavity and allowing air to enter the lungs.
2. Exhalation (expiration) – the muscles relax, the chest cavity becomes smaller, and air leaves the lungs.

A healthy adult breathes about 16–18 times per minute, and the average lung capacity is about 3–4 liters.

Gas Exchange and Its Importance

Gas exchange occurs in two stages:

External respiration – between the alveoli and blood.

Internal respiration – between blood and body tissues.

Through this process, oxygen enters the bloodstream and reaches every cell, ensuring energy production necessary for life.

Hygiene of the Respiratory System

Since the respiratory system is directly connected with the external environment, it is important to keep it healthy. Clean air, regular exercise, balanced nutrition, and avoiding smoking help maintain proper lung function. Protection from dust, smoke, and toxic gases is also essential.

Respiratory diseases such as bronchitis, asthma, pneumonia, and tuberculosis can seriously harm the lungs, so preventive measures should always be taken.

Conclusion

The respiratory organs are among the most important systems of the human body. They ensure the continuous supply of oxygen necessary for life. Healthy lungs and clean air are key factors for a strong and active organism. Every person should take care of their respiratory system to live a long and healthy life.

References:

1. Sodiqov A., Rasulov A. Human Anatomy, Tashkent: O‘zbekiston Publishing House, 2019.
2. Tursunov N., Ismoilov B. Basics of Human Physiology, Tashkent: Science and Technology, 2021.
3. Abdullayev S. Medical Biology, Tashkent: Yangi Asr Avlodi, 2020.
4. Guyton A.C., Hall J.E. Textbook of Medical Physiology, Elsevier, 2020.
5. Tortora G.J., Derrickson B. Principles of Anatomy and Physiology, Wiley, 2018.
6. Shermuhamedova M., Karimova G. Human Anatomy and Physiology, Tashkent: Tibbiyot, 2022.
7. Ganong W.F. Review of Medical Physiology, McGraw-Hill, 2019.