EduVision: Journal of Innovations in Pedagogy and Educational Advancements
Volume 01, Issue 05, May, 2025
brightmindpublishing.com
ISSN (E): 3061-6972

THE ROLE OF RUNNING IN STRENGTHENING THE RESPIRATORY AND CARDIOVASCULAR SYSTEMS

Dusuyarov Turaboy Bekmazarovich
Termez State University Lecturer, Department of Sports Management
E-mail: turabojdusterov@gmail.com

Abstract
This article analyzes the physiological changes that occur in the human respiratory and cardiovascular systems as a result of running exercises. Regular running scientifically highlights the importance of strengthening the respiratory heart muscles, increasing blood circulation efficiency, stabilizing blood pressure, and preventing heart diseases.

Keywords: Running, respiratory system, lung volume, respiratory rate, alveoli, oxygen exchange, respiratory muscles, pulmonary ventilation, diaphragmatic activity, respiratory adaptation, cardiovascular system, stroke volume, bradycardia, capillary, blood pressure.

Introduction

Running is one of the simplest and most effective physical exercises that plays an important role in strengthening human health. In particular, the role of running in maintaining the health of the cardiovascular system and preventing diseases is incomparable. Scientific studies show that regular and properly planned running exercises lead to positive changes in the functioning of the heart and blood vessels. Interest in physical education and sports, attention, and engaging in any type of sport sharpens logical thinking, memory, and attention, improves joint mobility, and develops strength, speed, endurance, and agility. In addition, for girls, the upper shoulder girdle, muscles of the limbs are activated, and all organs and systems of the body are stimulated. It is advisable to interest children in sports, which provide such invaluable opportunities for a person, and to engage them in sports, first of all, starting with the family. Physical activity, especially running, causes significant changes in the functioning of the respiratory system. Regular running increases the

EduVision: Journal of Innovations in Pedagogy and Educational Advancements
Volume 01, Issue 05, May, 2025
brightmindpublishing.com
ISSN (E): 3061-6972

functional capabilities of the respiratory organs, activates gas exchange processes, and improves lung health.

During running, the body's need for oxygen increases. In response, the rate and depth of breathing increase. This increases the efficiency of gas exchange in the alveoli of the lungs. This process leads to an automatic increase in respiratory reflexes in an athlete or an active person.

Increase in vital capacity of the lungs. Running leads to the strengthening of the respiratory muscles - the diaphragm and intercostal muscles. These muscles actively contribute to the expansion and contraction of the lungs. Their strengthening increases the vital capacity of the lungs (Vital Capacity), which ensures greater air exchange in the lungs (McArdle, Katch, & Katch, 2015).

During running, gas exchange in the alveoli is more active. Ventilation of the pulmonary alveoli improves, as a result of which the transfer of oxygen into the blood and the removal of carbon dioxide accelerates. This process maintains a stable oxygen content in the arterial blood and increases the athlete's performance.

Development of respiratory muscles. The muscles that play a key role in breathing - the diaphragm, internal and external intercostal muscles - strengthen as a result of constant work. Strengthening these muscles increases the depth of breathing, improves respiratory efficiency, and prevents rapid respiratory fatigue (Shephard, 1992).

Strengthening the heart muscles. During running, the heart works intensively, which leads to the strengthening of the heart muscle - the myocardium. As a result, the heart can pump more blood with each contraction, that is, the stroke volume increases. This allows the body to be more efficiently supplied with oxygen and nutrients.

A decrease in the heart rate is observed in well-trained athletes at rest. This condition is called physiological bradycardia and indicates that the heart is working more economically. A strong heart can pump more blood with fewer beats, which reduces the strain on the heart muscle.

Efficiency of the circulatory system. Running activates the circulatory system. The delivery of oxygen to organs and tissues is accelerated, blood viscosity decreases, and rheological properties improve. Also, the mechanism of venous blood return to the heart is strengthened, which balances the load on the heart.

EduVision: Journal of Innovations in Pedagogy and Educational Advancements
Volume 01, Issue 05, May, 2025
brightmindpublishing.com
ISSN (E): 3061-6972

Normalization of blood pressure. Running increases the elasticity of blood vessels, which stabilizes arterial blood pressure. Among those who regularly run, arterial hypertension is less common. In addition, running increases the activity and number of capillaries.

Development of the capillary network. An increase in the number of capillaries in muscle tissue and the heart improves microcirculation. This accelerates the delivery of oxygen and nutrients to tissues, creating the basis for more active metabolic processes.

Conclusion: Running exercises improve the function of the respiratory system: lung capacity increases, oxygen absorption and carbon dioxide excretion are activated, respiratory muscles are strengthened. These changes, along with increasing physical fitness, also have a positive effect on the health of the cardiovascular and metabolic systems. Running has a positive effect on the functioning of the cardiovascular system in many ways. As a result, the heart muscle is strengthened, blood circulation and oxygen supply are improved, blood pressure is stabilized, and heart disease is prevented. Therefore, running should be implemented into the life of every person as an important component of a healthy lifestyle.

REFERENCES

1. T. Raxmonov, A. Ibragimov. *Sport fiziologiyasi va gigiyenasi* Yugurishning inson fiziologiyasi va nafas olish tizimidagi o‘rni.Toshkent: “O‘zbekiston milliy ensiklopediyasi” nashriyoti, 2020
2. A. I. Karimov.*Yugurish va sog‘liq* Nafas olishni to‘g‘ri nazorat qilish orqali jismoniy tayyorgarlikni oshirish.Toshkent, 2022
3. "Running and Cardiovascular Health: A Review"*Sports Medicine Journal*, 2023 Yuguruvchilarda yurak-qon tomir holatining mustahkamlanishi haqida sistematik tahlil.
4. "The Impact of Jogging on Cardiovascular Endurance in Adults"*Journal of Human Kinetics*, 2022 Yurak chiqishi hajmi, puls va qon bosimidagi o‘zgarishlar statistik tahlili.
5. "Marathon Running and Pulmonary Health: Benefits and Risks"
6. *Sports Medicine - Open*, 2024 Nafas olish tizimidagi ijobiy va ba’zan salbiy ta’sirlar.

EduVision: Journal of Innovations in Pedagogy and Educational Advancements
Volume 01, Issue 05, May, 2025
brightmindpublishing.com
ISSN (E): 3061-6972

7. Wilmore J.H., Costill D.L., Kenney W.L.*Physiology of Sport and Exercise* Inson fiziologiyasi, nafas olish va yurak-qon tomir tizimi faoliyati, yugurish mashqlarining ta’siri.Human Kinetics, 2022
8. *Medical Physiology* Yurak-qon tomir tizimi, o‘pkalarning gaz almashinuvidagi o‘rni va aerobik yuklamalarning ta’siri. Elsevier, 2020
9. Powers S.K., Howley E.T. *Exercise Physiology: Theory and Application to Fitness and Performance* Yugurish orqali yurak va o‘pka funksiyalarini rivojlantirish. McGraw-Hill Education, 2021
10. Eshkobilov Elmurad. (2023). System of Development of Professional and Pedagogical Creativity of Future Physical Education Teachers on the Base of a Competent Approach. American Journal of Public Diplomacy and International Studies (2993-2157), 1(10), ˇ261–264.
11. ESHQOBILOV, E. (2023). SCIENTIFIC AND THEORETICAL ASPECTS OF THE COMPETENT APPROACH IN THE DEVELOPMENT OF CREATIVITY IN THE FUTURE PROFESSIONAL PEDAGOGICAL ACTIVITY OF PHYSICAL CULTURE EDUCATION STUDENTS. International Bulletin of Applied Science and Technology, 3(3), 530-533.