Physical characteristics of cardiorespiratory indicators of young handball players during training

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Abstract

Purpose: the purpose of our research is to study and determine the influence of training loads on the cardiorespiratory system in young handball players. Improvement of the cardiorespiratory system through a developed set of exercises. Identification and study of age-related features of the cardiorespiratory system of young handball players with specific activity.

Methods: The study uses methods of analysis of scientific and methodological literature, questionnaires; pedagogi cal observations; biomedical methods, control tests char acterizing special preparedness, pedagogical experiment, mathematical and statistical data processing.

Results: by measuring the cardiorespiratory indicators of handball players, we can see the impact of the load on the children's body during training, thereby stimulating the proper development of the cardiorespiratory system in children and providing athletes with the opportunity to properly conduct training and prevent overload in children.

Conlcusion: The results of the study group in graphical form showed that the influence and change of the cardiorespiratory system on training loads in children, as well as the degree of their difference through graphical lines, were visible when comparing the first study with the second study. During the study, the complex of exercises applied to the training of young handball players had a positive effect on the cardiorespiratory system of young handball players and led to a high increase in the indicators of young handball players.

Keywords: Young handball players, training process, cardiorespiratory system, heart rate, respiratory rate, vital lung capacity, physical fitness, sports physiology, endurance.

Introduction

The Republic of Uzbekistan pays great attention to the development of physical culture and sports, adopting important resolutions and decrees in this direction. In particular, the Decree of the President of the Republic of Uzbekistan dated March 5, 2018 No. UP-5368 "On Measures for the Fundamental Improvement of the System of State Management in the Field of Physical Culture and Sports," dated January 24, 2020 No. UP-5924 "On Measures for Further Improvement and Popularization of Physical Culture and Sports in the Republic of Uzbekistan," the Resolution of the President of the Republic of Uzbekistan dated November 5, 2021 No. PP-5279 "On Measures to Further Improve the Quality of Formation of the Reserve of Athletes in Olympic and Paralympic Sports by Radically Improving the System of Sports Education" are aimed at popularizing sports, comprehensive support for young athletes, and improving their physical fitness.

In modern sports, the assessment of the physical fitness of young athletes and the development of an effective training system are of great importance. Especially in dynamic sports like handball, the functional state of the cardiorespiratory system directly affects the athlete's overall physical fitness. It is necessary to study changes in the cardiovascular and respiratory systems during training, determine their individual characteristics, and apply a scientifically based approach to improving sports results. This study is aimed at studying the dynamics of cardiorespiratory indicators of young handball players during training and determining their physical characteristics, the results of which serve to optimize the training methodology.

In many countries of the world, the issues of education of a healthy generation, development of physical culture and sports, as well as improving the health of the population is becoming one of the priorities. In improving people's health, the role of handball as one of the sports games is increasing. In the studies of specialists in the field of handball states that the issues of improving the technical and tactical actions of highly qualified athletes by increasing the mass of this sport is relevant. Of particular importance is to improve the planning of the training process taking into account the improvement of tactical skills, accuracy of shots on goal of corner players in the sovcompetitive stage, as well as factors affecting the results of the game in the organization of the training process.

In the world handball, the constant growth of competitive results, high competitiveness among international sports grounds require a continuous search for ways to effec-

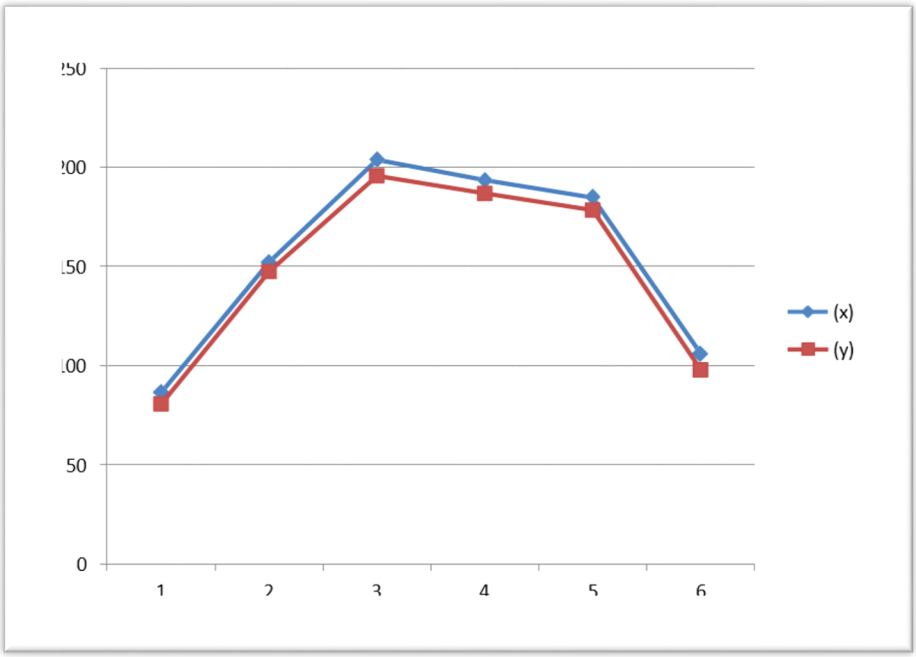
tively resolve the existing problems in the technical and tactical actions of athletes in the system of multi-year training. It is known that at present, one of the most important issues facing sports games is: firstly, the technical and tactical training of athletes, and secondly, the positive impact and improvement of the results of players by the development of their physical qualities. Leading scientists in the field of handball have carried out numerous scientific studies on improving the level of physical and technical fitness of players.

The great importance of control in sports and its theoretical justification are highlighted in many scientific works by V.M.Zatsiorskiy, M.N.Godik, V.A.Zaporjinova [2;5;8;] The management of the training process of highly qualified athletes is highlighted. Khasanov, [9;10;] analyzed the process of adaptation of the cardiovascular system of young athletes to physical loads and showed the importance of an individual approach corresponding to sports. At the same time, the analysis of literature sources and data on the exchange of experience indicates that this issue has been sufficiently developed in youth sports and, in particular, in handball. The development of a system of control and selection, as well as the experimental substantiation of its application in the training of

Table 1. Heart rate results of a group of handball players aged 14-16.

N	Results	1st Research	2nd Research	Change (%)
		(x)	(y)	[(y/x)-1]*100
1.	*Before training*	*86,5*	*80,8*	*-6,5%*
2.	*After the preparatory part*	*152,2*	*147,4*	*- 3,15%*
3.	*In the middle of main work*	*203,7*	*195,7*	*-3,92%*
4.	*At the end of the main work*	*193,5*	*186,8*	*-3,46%*
5.	*At the end of training*	*184,7*	*178,4*	*-3,41%*
6.	*After training*	*106,1*	*98,0*	*-7,63%*

Fig 1. Heart rate results of a group of handball players aged 14-16.



young handball players, is very relevant and serves to improve the training process.

Currently, studies of cardiorespiratory indicators of young handball players have been conducted little, therefore, it is currently difficult to accurately predict the resistance and impact of the cardiovascular and respiratory systems of young handball players on physical loads, therefore, it is assumed that the chosen topic will solve the most important problems today. At the same time, it can be said that for the younger generation to become a proper and mature athlete, it is necessary to deeply and accurately study the cardiorespiratory system.

The subject of the study was the determination of cardiorespiratory parameters in young handball players and the measurement of cardiorespiratory parameters at different periods of training using a stopwatch.

According to the conducted research, it was established that the cardiorespiratory system was well developed in the study group. Comparison of the first study with the second showed that the developed set of exercises had a positive effect and stimulated the development of the cardiorespiratory system in children.

Conclusion

The results of this study will help to identify functional changes in the cardiorespiratory system of young handball players during the training process. The dynamics of such important indicators as heart rate, respiratory rate, vital lung capacity, and maximum oxygen consumption were analyzed. The obtained data showed that regular and correctly organized training contributes to increasing the physical fitness of athletes, developing endurance, and increasing the effectiveness of the cardiorespiratory system. Based on the research results, scientific recommendations were developed for the formation of optimal loads and training methods for young handball players.

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