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Improving the Methodology for Increasing the Physical Fitness of Handball Players

Yarasheva Dilnoza Ismoil qizi
Asia International University of Department of Physical Culture, Uzbekistan

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Abstract

This thesis covers the theoretical and practical aspects of improving the methodology for increasing the physical fitness of female handball players. Within the framework of the study, an approach was developed that focuses on the differential distribution of training loads, the integration of technical and tactical components in the development of physical qualities, and the balancing of load-recovery processes, taking into account the physiological characteristics of the female body. Experimental observations were conducted in three regions, and significant positive changes were noted in the experimental groups compared to the control groups ($p<0.05$). The results obtained confirm the effectiveness of individualized methodological approaches in women's sports.

Keywords: Handball, women's sport, physical training, differential approach, loading, endurance, strength, recovery.

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1. Introduction

Achieving high results in the modern sports training system largely depends on the scientific, systematic and goal-oriented organization of the training process. An individual approach to planning sports training, optimal distribution of loads and effective management of recovery processes are recognized as the main factors ensuring the sustainable growth of sports results.

In women's sports, especially handball, training is often carried out based on traditional models designed for male athletes. This leads to insufficient consideration of the specific morpho-functional, psychophysiological and hormonal characteristics of the female body. As a result, there may be a decrease in training efficiency, overexertion, impaired recovery processes and instability of sports results.

Scientific studies show that female athletes have significantly different mechanisms of adaptation to physical loads, energy metabolism, muscle activity and recovery rates than male athletes. Also, the variability of the hormonal background requires a special approach to planning the volume and intensity of training loads. Therefore, individualization of the training process, organization based on a differential approach and optimization of the load-recovery ratio on a scientific basis are one of the priority areas of modern sports theory and practice.

The development of physical education and sports in the Republic of Uzbekistan is one of the important directions of state policy. In particular, Decree No. PF-5924 and Resolution No. PQ-4877 , adopted at the initiative of Shavkat Mirziyoyev , set the development of women's sports, training athletes on a scientific basis, and the introduction of modern methodologies as a priority task. These regulatory and legal documents further strengthen the need to modernize the sports training system, in particular, to develop training methodologies adapted for female athletes.

Research objective

Improving methodological approaches aimed at increasing the physical fitness of female handball players and evaluating their effectiveness on an experimental basis.

Research tasks

Within the framework of this study, a number of interrelated scientific and practical tasks were identified to improve methodological approaches aimed at increasing the physical fitness of female handball players.

First of all, there is a need for a theoretical and in-depth analysis of the main factors affecting the level of physical fitness of female handball players. This involves a comprehensive study of existing scientific views in modern sports theory and practice, research on the training system of female athletes, and internal and external factors affecting the development of physical qualities.

The next stage is the task of differentially classifying training loads, taking into account the functional state, level of physical development and individual characteristics of female athletes. In this process, scientific foundations are developed for adjusting the volume and intensity of the load in accordance with the level of preparation of athletes, the adaptive capabilities of the body and the physiological state.

Also, one of the important tasks in the process of developing physical qualities is to determine the interrelationship of the main components such as strength, speed and endurance. This will scientifically substantiate the interaction of these qualities with each other and how their complex development affects sports performance.

Territorial coverage:

- Bukhara
- Karakalpakstan
- Urgench

During the research, general physical fitness, special physical qualities, and functional indicators were comprehensively assessed.

Experimental approach (element of scientific innovation)

The study used a differentiated approach based on the individual level of training and physiological state of the athletes:

1- Table

Group	Feature	Approach
1	High preparation	High-intensity exercise
2	Intermediate level	Moderate intensity exercise
3	Low level	Gradual increase in load
4	Physiological period	Customized recovery-oriented mode

The detailed algorithmic structure of the methodology will not be disclosed until the research is completed.

3. Results

The results of the study showed positive dynamics in all main physical indicators in the experimental groups:

2- Table

Indicator	Control group	Experiment group	Difference
30m run	+1–2%	+8–10%	noticeable
Throwing a ball	+3–5%	+12–18%	high
Jump	+2–4%	+10–15%	high
1000 m run	+3%	+10–12%	noticeable
Strength training	+5%	Up to +20%	very high

In all regions, the results of the experimental group were superior to the control group ($p<0.05$).

4. Discussion

The results show that individualizing the training process allows for a significant increase in the level of physical fitness of athletes. In particular, combining strength qualities with technical elements has been shown to be an important factor in increasing effectiveness.

Also, maintaining a balance between the loading and recovery processes is important in preventing overexertion and sustainably improving sports results. This approach is distinguished by its adaptation to the physiological characteristics of the female body.

5. Conclusion

The results of the study showed that the use of a methodology based on a differential approach in the process of improving the physical fitness of female handball players is highly effective. The approach developed during the study is characterized by its focus on taking into account the individual characteristics, functional state, and level of physical development of athletes.

According to the results of the analysis, a significant positive increase was noted in the experimental groups in the main indicators of physical fitness - speed, strength, endurance and jumping qualities. These changes are explained by the scientific distribution of training loads and the coordinated implementation of physical and technical training.

In addition, it was found that the effectiveness of the training process increased, and the overall performance of athletes, the level of adaptation to training, and their effectiveness improved. In particular, it was found that ensuring a balance between the loading and recovery processes helped prevent overexertion, maintain the health of athletes, and ensure sustainable development.

The results of the study also showed that the functional state of athletes stabilized, that is, the adaptive capabilities of the cardiovascular and respiratory systems improved. This confirms the importance of the developed methodology not only in terms of increasing sports performance, but also in terms of protecting the health of athletes.

In general, the results of the study scientifically substantiated the fact that the methodology based on an individualized and differentiated approach is an effective tool for improving the physical fitness of female handball players and showed that there are prospects for its implementation in practice.

Practical recommendations

Based on the results of the research, the following practical recommendations were developed to more effectively organize the process of improving the physical fitness of female handball players.

First of all, it is important to organize the training process on the basis of the principle of individualization. This should take into account the level of physical fitness, functional state, age characteristics and adaptive capabilities of each athlete. An individual approach serves to optimally distribute training loads, prevent overstrain and increase efficiency.

Regular monitoring of the physiological state of athletes is also an important tool for managing training effectiveness. This process creates the opportunity to timely adjust training loads by monitoring heart rate,

general fatigue level, recovery indicators, and the overall functional state of the body.

When improving physical fitness, special attention is paid to combining strength qualities with technical training. That is, by directly integrating exercises aimed at developing strength with elements of game technique, it is possible to increase the efficiency of athletes' movements and game performance.

In addition, maintaining an optimal ratio between load and recovery during training is an important methodological factor. Excessive loads can increase the risk of overexertion and injury in athletes, therefore, it is necessary to pay sufficient attention to recovery processes. This will ensure the long-term sustainable development of athletes.

In general, implementing these recommendations will help improve the physical fitness of female handball players, improve training efficiency, and sustainably develop sports results.

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