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THE INFLUENCE OF ANTHROPOMETRIC INDICATORS ON SPORTS RESULTS IN GIRLS' HANDBALL PLAYERS

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Abstract

This article studies the anthropometric indicators of female handball students and their impact on sports results. During the study, the relationship between anthropometric indicators such as height, body weight, body mass index, arm length and leg length and the level of physical and technical training of handball players was analyzed. The results showed that anthropometric parameters have a significant impact on sports performance. At the end of the study, practical recommendations were developed on the use of anthropometric indicators in the selection and training of female handball players.

Keywords: handball, female students, anthropometry, height, body weight, sports results, physical training, selection, monitoring.

Login

Achieving high results in modern sports depends on many factors, one of which is the anthropometric characteristics of athletes. Anthropometric indicators, reflecting the external morphological structure of the human body, are one of the important criteria determining the effectiveness of sports activities.

Handball is a sport of complex coordination and speed-strength, requiring a high level of physical fitness from players. In particular, height, arm and leg segment sizes, body mass, and body proportions have a significant impact on the effectiveness of offensive and defensive movements.

Scientific studies have shown that taller handball players have an advantage in hitting, ball possession, and defense. At the same time, optimal body mass and muscle development improve speed and jumping performance. Therefore, it is important to take into account anthropometric indicators in the selection and training system of athletes.

Currently, the anthropometric characteristics of girls participating in handball clubs in higher education institutions and their impact on sports results have not been sufficiently studied. This study aims to scientifically substantiate this problem.

Research objective

To determine the relationship between anthropometric indicators and sports results of female handball players.

Research object

Female students aged 18–22 who participate in handball clubs.

Research subject

Anthropometric indicators and sports performance of female handball players.

Research tasks

1. Determining anthropometric indicators of female students.
2. Assessment of physical fitness indicators.
3. To determine the relationship between anthropometric parameters and sports results.
4. Development of practical recommendations.

Research methods

- Analysis of scientific and methodological literature;
- Anthropometric measurements;

- Pedagogical observation;
- Tests;
- Mathematical and statistical analysis.

Research organization

24 female handball players participated in the study.

- Control group – 12 people
- Experimental group – 12 people

The following anthropometric parameters were measured:

- height;
- body weight;
- body mass index;
- arm length;
- leg length.

Results

Table 1

Anthropometric indicators of female handball players

Indicator	Average value
Height	168.4 ± 4.2 cm
Body weight	59.8 ± 5.1 kg
TMI	21.1 ± 1.4
Arm length	72.5 ± 3.2 cm
Leg length	88.4 ± 4.1 cm

Table 2

The relationship between anthropometric indicators and sports results

Indicator	Correlation coefficient (r)
Height and jumping ability	0.72
Arm length and stroke accuracy	0.69
Leg length and speed	0.65
TMI and durability	0.58

The results showed a moderate to high level of correlation between anthropometric indicators and sports results.

Discussion

The results of the study showed that the anthropometric characteristics of female handball players significantly affect their sports performance. In particular, height and arm segment size increase the effectiveness of attacking movements.

Taller athletes have an advantage when jumping, are more effective at receiving the ball from above and shooting at goal. Greater arm length increases the accuracy of passes and the effectiveness of defensive moves.

It has been found that a normal body mass index has a positive effect on the development of speed and endurance qualities. Excess body weight has a negative effect on the ability to move quickly and maintain high performance during the game.

The results revealed during the study confirm the scientific views of Platonov, Matveyev and other sports scientists. Their studies also show anthropometric indicators as one of the important factors in predicting sports results.

Conclusion

The results of the study confirmed that the anthropometric indicators of female handball players have a direct impact on their sports performance. Among the studied indicators, it was found that

height, arm length, development of leg segments, and body mass index at a normal level are closely related to the level of physical and technical training of athletes.

The analysis showed that female handball players with relatively favorable anthropometric indicators achieved high results in jumping, speed, hitting accuracy, and movement efficiency during the game. In particular, it was observed that height and the size of the arm segments create a significant advantage in performing offensive movements and limiting the opponent's movements in defense.

It was also found that maintaining optimal body weight and body mass index improves the functional capabilities of athletes, helps them effectively perform high loads, and ensures long-term preservation of performance in competitive activities. The correlation of anthropometric parameters with sports results indicates the need to use them as important criteria in the processes of selecting, qualifying, and predicting the future of athletes.

The results obtained confirm that the systematic use of the anthropometric monitoring system in planning the training of female handball players is one of the important factors in improving sports skills, improving individual approach and improving sports performance. The results of the study are of great importance for organizing training processes in higher educational institutions, sports schools and handball clubs on a scientific basis.

Practical recommendations

It is recommended to regularly monitor anthropometric indicators in the training of girls involved in handball. Assessing the height, body weight, body mass index, and body segment dimensions of athletes several times a year allows us to determine the dynamics of individual development.

It is advisable to take into account anthropometric characteristics when dividing athletes into groups and determining playing positions. In particular, directing athletes with tall stature and long arm lengths to the half-middle or linebacker positions can be effective.

When planning training loads, it is necessary to take into account the body structure and functional capabilities of athletes. This will prevent overload, optimize recovery processes, and ensure sustainable growth in sports results.

In handball clubs, it is recommended to maintain anthropometric control cards along with physical fitness tests. Such a monitoring system is important for determining the prospects of athletes, assessing the effectiveness of training, and developing individual development programs.

Coaches working in higher education institutions and sports schools are recommended to use modern anthropometric assessment methods in the process of selecting and training athletes. This will help improve the quality of the formation of the sports reserve and achieve high results.

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