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EFFECT OF FATIGUE ON THE TARGET ACCURACY OF TECHNIQUES IN SPORTS GAMES

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Abstract: The paper presents the results of a study of factors affecting the target accuracy of shots in basketball and handball. The effect of fatigue on the effectiveness of throws after heavy glycolytic loads has been studied, data on the rate of recovery of the functional systems of the body of young athletes are presented. The results of the study can be used by specialists working with young athletes in sports games.

Keywords: Sports games, target accuracy of game techniques, fatigue, functional state, young athletes.

Relevance. In sports games at the present stage, in conditions of fierce competition, increasing the intensity of the game, ever higher requirements are imposed on athletes. This is expressed in the fact that many technical and tactical techniques have to be carried out under conditions of time and space shortages, and tight guardianship by the enemy. In connection with this circumstance, great importance is given to the ability of an athlete to quickly, reliably and accurately perform game techniques.

In turn, this requires athletes to have versatile general and special physical training, high technical and tactical skills, mental stability in conditions of sports

situational struggle, conscious motivation to achieve short-term and long-term sports goals.

Analysis and generalization of previous studies have shown that the ability to visually and spatio-temporally orientation is an important and often determining factor in successful sports specialization in various sports. It consists in precise determination, timely change of body position and implementation of movement in the right direction, associated with the perception and processing of spatial and temporal information coming from the external environment [1].

In sports games, the target accuracy is considered as an integral indicator of the level of technical and tactical skill and as the main criterion
effectiveness of competitive activity. Therefore, special attention is paid to the study of the factors and conditions under which the target accuracy of game techniques is improved.

As S.V. Golomazov, the conditions under which athletes improve their techniques in sports games, and the conditions under which they have to perform these techniques in competitive games, may differ, including those requirements that apply to the technical execution of actions with the ball, which is reflected on the kinematic and dynamic characteristics of the players' movements [1].

It has been established that the target accuracy of actions with the ball in sports games is determined by three main factors [2,3,4,5,6,7,8,9,10].

- the level of development of sensitive systems, in the first place
motor sensitivity;
- the degree of mastery of the rational structure of movements by the players
when performing various technical methods;
- the level of development of motor qualities, if their significant
manifestation is a prerequisite for performing actions with
ball.

A lot of work has been devoted to the study of factors affecting the target accuracy of game techniques in sports games. However, in our opinion, it is no less

important to study the effect of fatigue on the target accuracy of technical techniques in sports games. By controlling the level of the functional state and having objective data on the duration of recovery of various body systems of athletes after performing physical activity of various directions, it is possible to increase the efficiency of the process of improving the target accuracy of game techniques. Therefore, in our opinion, the relevance of studying this problem is beyond doubt and its solution is due to an objective necessity.

Purpose: to study the effect of fatigue on the target accuracy of techniques in sports games.

Methods and organization of the study. The study involved 71 basketball players and 65 handball players of youth schools in Tashkent aged 16-17 years.

To assess the functional state of the cardiovascular, vegetative, respiratory systems, the computer program "Cardi" was used, with the help of which, before the training session, the degree of fatigue of the body of young athletes was established by the method of intervalocardiography. The magnitude and direction of training loads were studied using the "Catapult" system, which recorded 5 zones of power and intensity of physical activity and indicators of jerk-braking actions of athletes.

To assess the target accuracy of basketball players, pedagogical tests were used - "Throw into the ring from 5 points from an average distance", "Throw free throw (out of 10 throws)", "Throw into the ring from 5 points (3 point line)". The target accuracy of handball players was also assessed in special tests - "Throws on goal for accuracy (quantity)", "Throws of the ball for accuracy from a place from 9 m (12 throws of 3 throws at 4 targets 60X60 cm, located on the left and right in the upper and in lower corners of the goal)", the same standard, but "Throwing the ball for accuracy immediately in 3 steps from 9 m", "Throwing the ball at the target (into the wall) 30s".

The research program included the study of the influence of a large glycolytic load, which causes significant fatigue of various body systems, on the target accuracy of throws in young basketball and handball players.

Discussion of the research results. Before and after the training load, the athletes of both groups tested the target accuracy *(Table 1).*

Target Accuracy Indicators for Young Basketball Players
before and after performing a large training load
(n=71)

№	Statistical indicators	Throw into the ring from 5 points from an average distance		Free throw (10 throws)		Throw into the ring from 5 points of the 3-point line	
		Before loading	After loading	Before loading	After loading	Before loading	After loading
1	Xcp.	6,19	3,81	5,38	4,62	6,76	3,24
2	σ	1,10	1,60	2,04	2,05	1,87	1,86
3	V %	25,8	42,0	37,8	44,09	27,6	57,7

Comparative analysis of target accuracy in young basketball players had interindividual and intergroup differences. In the state of relative rest before the training load in the test "Throwing into the ring from 5 points from an average distance", the average value of the target accuracy for the group was 6.19, the standard deviation was 1.10 and the coefficient of variation was 25.8%. On the 10 free throws, the average target accuracy was 5.38, the standard deviation was 2.05, and the coefficient of variation was 37.8%. In the test "Throwing the ball into the ring from 5 points of the 3-point line"

After a training load of greater magnitude and glycolytic in direction, the indicators of target accuracy changed significantly. The analysis of the data showed noticeable differences in the accuracy of the test exercises. So, among

young basketball players, the indicators in the standard “Throw into the ring from 5 points from an average distance” have significantly changed - the value of Xav. decreased to 3.81 (P≥0.05). When performing "10 free throws" Xsr. was 4.62 (P≥0.05). In the norm “Throwing the ball into the ring from 5 points of the 3-point line”, the average indicator became equal to 3.24 (P≥0.05).

Young handball players also tested the target accuracy of techniques *(Table 2).*

Indicators of target accuracy among young handball players before and after performing a large training load (n=65)

№	Statistical indicators	Shots on goal for accuracy (number)		Throwing the ball for accuracy from a place from 9 m		Throwing the ball for accuracy (immediately in 3 steps) from 9 m		Throwing the ball at the target 30s	
		Before	After	Before	After	Before	After	Before	After
1	Xcp.	5,56	4,27	4,35	1,31	3,46	1,45	23,9	20,9
2	σ	0,43	1,34	1,47	0,06	1,65	0,09	2,87	3,15
3	V %	7,8	31,4	33,7	4,94	47,8	6,19	11,9	15,0

It was established that before the training load, young handball players in the standard "Throws on goal for accuracy" Xav. for young handball players it was 5.56, the standard deviation was 0.43 and the coefficient of variation was 7.8%. After a training load of a large value, the indicators of target accuracy changed significantly. Yes, Khsr. was 4.27 (P≥0.05), σ = 1.34 and V% = 31.4%.

In the standard "Throwing the ball for accuracy from a place from 9 m" to the training load Xav. was equal to 4.35, σ = 1.47 and V% 4.94%. After the training load, the indicators of target accuracy have changed significantly - Xav. was 1.31 (P≥0.05), σ = 0.06 and V% = 4.94%.

In the standard "Throwing the ball for accuracy from 9 m (immediately in 3 steps)" to the training load Xav. was equal to 3.46, σ = 0.09 and V% = 6.19%. After the load, the indicators changed markedly - X cf. was 1.45, σ = 0.09 and V% = 6.19%.

In the control exercise "Throwing the ball at the target for 30 seconds" before training, the average values of the target accuracy were equal to 23.9, σ = 2.87 and V% = 11.9%. After the load, there were significant changes in the studied parameters - Xav. was 2.09, σ = 3.15 and V% = 15.0%.

If we trace the dynamics of changes in the accuracy of throws, we can see that young basketball and handball players also experience a noticeable decrease in performance after performing a large training load of a glycolytic orientation. This trend was also observed on the second day of recovery. As the intervalocardiometry data showed, the restoration of the functional state of the body of young athletes after a large load of glycolytic orientation had a large variation. In the group of basketball players on the second day of recovery, only 19 (26.7%) athletes had an adequate response to the standard load, timely restoration of functional systems and readiness to perform training work in the intensity zone of 160-170 bpm. In 21 (29.5%) athletes, the level of the functional state of the cardiovascular system at rest was below average, in addition, there was an inadequate response to a standard load, a slowdown in the recovery and adaptation processes, and readiness to perform work in the intensity zone of 140-159 beats / min. In the third group of athletes, numbering 31 (43.6%) people, an inadequate response to a standard load, a violation of adaptation and recovery processes, and a readiness to work in the intensity zone of 120-139 bpm were noted.

The indicators of the "Catapult" system also recorded a violation of the processes of restoration of the cardiovascular system. So, with a heart rate over 180 beats/min, the recovery rate to a pulse of 120 beats/min was up to 4-5 minutes in 73.1% of athletes. This indicates an insufficiently high level of special physical fitness, which is a limiting factor in the effectiveness of performing techniques.

Analysis of the functional state of young handball players showed that a large load causes fatigue in the body, the degree of which is largely due to the level of special physical fitness. So, according to the Cardi system, on the next day after a heavy load, only 15 handball players (23.0%) had an adequate response to a standard load, timely restoration of functional systems and readiness to perform training work in the intensity zone over 170 bpm. 21 (32.3%) athletes at rest had an average level of the functional state of the cardiovascular system, a satisfactory response to a standard load, an average level of adaptation and readiness to work in the intensity zone of 150-160 bpm. The most numerous group - 29 (44 ,6%) were athletes whose level of the functional state of the cardiovascular system at rest was below average, there was an inadequate response to the standard load, impaired recovery and reduced adaptive capabilities.These athletes are recommended to perform the load in the heart rate zone of 130-140 bpm.

Thus, the conducted research allows us to conclude that in the training process in sports games, when improving the target accuracy of techniques, it is necessary to take into account the fatigue factor, which violates the structure of motor activity and adversely affects the performance of complex coordination movements, which include throws into the ring and into the goal. Fatigue that builds up over the course of a match interferes with the exact reproduction of movement and is a major factor influencing the effectiveness of shots.

Conclusions. To improve the target accuracy of techniques in sports games, it is necessary to:

- in sports games, it is necessary to take into account the degree of fatigue of the body of athletes after loads of great magnitude and intensity, as one of the main

factors affecting the effectiveness of improving the target accuracy of game techniques;

- to introduce into the training process the methods of operational control of the functional state of the body of athletes, according to the results of which it is possible to more purposefully manage the improvement of the target accuracy of technical methods;

- when conducting training sessions, it is necessary to use methods,

allowing to evaluate the magnitude and physiological orientation of the performed load in order to take into account its delayed training effect and the rate of recovery of the body's functional systems;

- Considering that the target accuracy improves with repeated repetition of a technique, it is necessary to vary the load of training exercises and create conditions under which work on the target accuracy of game elements will take place in a state of increasing fatigue.

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