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FORMATION OF HIGH-SPEED MOVING ATHLETES-SPRINTERS IN ATHLETICS AT THE STAGE OF SPECIAL TRAINING

Introduction. One of the most important physical qualities of a sportsman is speed - ability of a person to perform motor action in a minimum period of time for these conditions. Optimally specified physical activity develops and maintains functional reserves of the body, which in turn affects the level of skill achievement. However, as many scientists note, the definition of optimal load as before remains one of the difficult problems in theory and practice of physical culture and sports [2,9].

Speed, agility and endurance of speed are decisive abilities that can affect performance. Running fast means owning while running your body, unlocking the flyweight movements.

Training programs are designed to improve sports results with appropriate technical training, which is aimed at mastering motor qualities. Implementation of step-by-step technical training by sportsmen is to automatism during trainings [6]. Sportsmen of high qualification need systemic unified training both technical and special, which takes into account improvement elements of motor exercises of adversarial nature. Athletics exercises, which are used in the period preparing for competitions, affect individual components of speed abilities: reaction speed, starting "explosive" reaction, speed of individual movements, speed of individual amplitude movements, increase of movement frequency, and increase of starting speed [7].

Analysis of scientific and methodological literature allows to state the fact that recently domestic and foreign authors in their works increasingly consider the use of athletics programs of special running exercises in training models, which are used for learning of running movements, correct foot setting, position of body and work of hands [1,8].

Using the special exercises of sportsmen are considered in researches of scientists: special preparatory exercises of Дух, Вовчук V. Kostyukevich 2007 [3,5,9]; preliminary exercises that promote the learning of form, movement techniques; simulation exercises that correspond to the coordination and kinematic structure of the performance of the chosen sport O. Gogin, 2010, G. Akhmetov, G. Maksimenko, T. Kutek, 2013 [1,4].

Determining the optimal load remains one of the difficult problems in the theory and practice of physical culture and sports. The optimal amount of load determines everything that the body's interaction with the environment should have in all its diversity. Physical exercises of submaximal power are movements that are performed from 22-25 seconds to 3-4 minutes out of about the maximum intensity for the corresponding duration [8].

Using the dosed optimal load in our research caused by significant individual and temporary variations of a sportsman's condition, as a result of which use of the same training load can lead to different body response and in turn to different training effect. Taking into account the factor that each sportsman is inclined to constantly change the corresponding reaction to physical load depending on the degree of resumption after the previous training influence, the corresponding reaction of the musculoskeletal system of a sportsman, the degree of awareness, features of psyche motional condition, and so on therefore a coach individually determines the degree of application of methods and means of influence on the athlete's body.

The aim of the study: to determine the complex motor quality in the structure of motor actions of training activity at men sprinters in athletics. Purpose of this study was to determine the focus of trainings on the comprehensive application of running exercises aimed at the variable influence of motor quality.

Research methods: test trainings are aimed at variable influence of motor quality from speed development. Control and experimental groups used in training exercises that ensured speed development at intensity of 80-90% of maximum.

Objects: sportsmen of high qualification, men (age 18 ± 0.5 years), sprinters. The participants of the research were divided into the experimental group (EG - 8 persons) and the control group (CG - 8 persons).

Intervention: Trainings were held on repeated running on different distances, as well as a complex of preliminary and special exercises on speed to gradually increase speed abilities of runners by 100 meters of



control and experimental groups. In the experimental group the method of repeated running on different length segments with submaximal intensity 81-90% of own achievement in the race on 100 meters was used. Duration of one exercise is 2-8 s. Number of repeats in one series is 3-4 times. Rest between repeats in one series is 2-4 min. Quantity of series is 2-4. Rest between series of repeats is 8-10 min.

Statistics. The statistical analysis was carried out using the software package Statistica 10 (USA) and MS Excel 2016 (USA). We counted: visionary of the data research to the normal law (using the criterion of Kolmogorov-Smirnov); arithmetic average value; standard arithmetic mean error; validity of difference between average values (according to the Student's criterion).

Results of the research.

The results of indicators of speed abilities development at sprinters are presented in Table 1.

Table 1

Indicators of the development level of speed abilities at sprinters during the study period (n = 8)

Criteria, speed indicators	Groups	Before experiment	After experiment	Reliability assessment
		$\bar{x}_1 \pm m_1$	$\bar{x}_2 \pm m_2$	t; p
Motor quality of training activity				
Optimum speed				
Running 30 m from crouch start (s).	EG	4,15±0,02	4,05±0,03	t=7,56; p<0,001
	CG	4,18±0,01	4,15±0,01	t=3,95; p<0,01
		t=1,78; p>0,05	t=3,06; p<0,05	
Running 60 m from crouch start (s).	EG	7,08±0,03	6,92±0,03	t=10,96; p<0,001
	CG	7,15±0,01	7,12±0,01	t=8,22; p<0,001
		t=1,90; p>0,05	t=1,89; p>0,05	
Motor quality of adversarial activity				
Maximum speed				
Running 100 m from crouch start (s).	EG	10,95±0,03	10,67±0,03	t=7,36; p<0,001
	CG	10,98±0,02	10,91±0,02	t=9,70; p<0,001
		t=0,96 p>0,05	t=7,61 p<0,001	

Notes:

EG - experimental group

CG - control group

As a result of the analysis of the researched indicators, statistically significant changes were found in all results (p < 0.01-0.001), which indicates the effective impact of the applied training programs in both groups. At the same time, statistically significant differences between the secondary results of the control and experimental groups are in the tests: running on 30 m from crouch start p < 0.05, run on 100 m from crouch start p < 0.001- gives reason to claim the more effective impact of the experimental training program to increase the development level of speed abilities.

Thus, the method of conducting trainings on speed development, which was introduced in the experiment, indicates that overcoming short segments at the optimal speed at a given rate makes it possible to focus attention on the technique of running movements. Introduction of special running exercises at the preparatory part makes it possible to adjust the muscle apparatus for effective operability when overcoming running segments at maximum speed.

Discussion. The obtained data confirmed the influence of coordination abilities of the athlete and preparation of muscle apparatus to fulfill maximum intensity.

Data on speed development of the sportsman is supplemented by a complex of special preliminary exercises, which contribute to learning of form and technique of movements [2].

Scientific data are supplemented on peculiarities of using the special exercises of sportsmen in the preparatory part of training. Carrying out trainings in the basic period with the use of unconventional means to