

Sports training of middle distance runners taking into account the peculiarities of the energy supply of their muscle activity

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Abstract

Objective of the study was to identify the main pedagogical conditions necessary to improve the effectiveness of the competitive activity of middle-distance runners, taking into account the peculiarities of the energy supply of their muscular activity.

Methods and structure of the study. A survey of coaches and qualified runners was conducted. In total, 19 coaches of the highest category and 19 runners with the sports qualification "Master of Sports of Russia" were interviewed. A correlation analysis was carried out to assess the degree of influence of the level of development of physical qualities on the effectiveness of the competitive activity of runners at medium distances.

Results and conclusions. It was revealed that the efficiency of middle-distance runners training can be increased by rationalizing the training process methodology, taking into account their individual characteristics of energy supply for their muscular activity, while maintaining the proportions of loads for improving physical qualities. The main physical quality that has the greatest impact on the effectiveness of the competitive activity of middle-distance runners is speed endurance.

Keywords: *training, distance, energy supply, muscle activity, athletics*

Introduction. Recently, there has been an increase in speed training among middle-distance runners. Such an approach to the organization of the training process of middle-distance runners leads to an increase in running speed, its efficiency, and an improvement in the functioning of the neuromuscular apparatus [2, 5].

In the course of research, it was found that the development of an individual training program that combines the motor actions of a runner with the features of the energy supply of their muscle activity is the most significant condition [2]. The trend towards the development of middle-distance running is such that the importance of anaerobic capabilities for competitive struggle increases every year. This requires middle-distance runners to complicate the preparation process while looking for additional reserves to improve athletic performance. Therefore,

training must be built in such a way as to bring it as close as possible to the conditions of competitive wrestling. For this, it is necessary to develop an individual training program that combines the motor actions of runners with the features of the energy supply of their muscular activity against the background of great physical exertion. This approach to training middle-distance runners greatly simplifies the solution of the problem associated with increasing the efficiency of the training process [3].

Coaches in their work with middle-distance runners are little focused on the individualization of the organization of the training process. The peculiarities of the energy supply of muscular activity in the training process with middle-distance runners are not taken into account, which does not allow to effectively increase the effectiveness of their competitive activity.



A number of studies conducted in recent years have established that the application of an approach to the preparation of middle-distance runners, taking into account the peculiarities of the energy supply of their muscular activity, allows us to consider the organization of the training process from the standpoint of its individualization [1, 4].

Objective of the study was to identify the main pedagogical conditions necessary to improve the effectiveness of the competitive activity of middle-distance runners, taking into account the peculiarities of the energy supply of their muscular activity.

Methods and structure of the study. A survey of 19 coaches of the highest category and 19 qualified runners with the sports title “Master of Sports of Russia” was conducted. A correlation analysis was carried out to assess the degree of influence of the level of development of physical qualities on the effectiveness of the competitive activity of middle-distance runners.

Results of the study and their discussion. The survey made it possible to identify the most significant pedagogical conditions necessary for better training of middle-distance runners:

- development of an individual training program that combines the motor actions of a runner with the type of metabolism;
- the use of individual training regimens, in accordance with the type of metabolism;

– ensuring a rhythmic transition from aerobic to speed-strength load (Table 1).

Effective management of the training process is possible only with the idea of what energy processes should be developed and improved at different stages of training. To assess the degree of influence of the level of development of physical qualities on the effectiveness of the competitive activity of middle-distance runners, a correlation analysis was carried out (Table 2). In the course of the study, it was found that the main physical quality that has the greatest impact on the effectiveness of the competitive activity of middle-distance runners is speed endurance.

As can be seen from Table 1, the development of an individual training program that combines the runner’s motor actions with the type of metabolism is the most significant pedagogical condition. It was also determined that the main physical quality that has the greatest impact on the effectiveness of the competitive activity of middle-distance runners is speed endurance. The trend towards the development of middle-distance running is such that the importance of anaerobic capabilities for competitive struggle increases every year. This requires middle-distance runners to complicate the preparation process while looking for additional reserves to improve athletic performance. Therefore, training must be built in such a way as to bring it as close as possible to the conditions of competitive wrestling. This approach to

Table 1. Rank structure of the pedagogical conditions necessary for the training of middle-distance runners, taking into account the peculiarities of the energy supply of their muscular activity

Significance (rank place)	Pedagogical conditions	Rank indicator %
1	Development of an individual training program that combines the motor actions of a runner with the type of metabolism	27,2
2	Application of individual training regimens, in accordance with the type of metabolism	22,8
3	Ensuring a rhythmic transition from aerobic to speed-strength load	17,3
4	Application of exercises to increase the anaerobic capacity of runners	12,7
5	Inclusion in the training of exercises to combine the motor and vegetative functions of athletes into a single system	11,1
6	The use of special indicators that ensure the uniformity of running over the distance	8,9

Table 2. Correlation analysis for assessing the degree of influence of the level of development of physical qualities on the effectiveness of the competitive activity of middle-distance runners

Rank	Physical Qualities	r	Degree of influence
1	Speed endurance	0,83	Very high
2	General endurance	0,68	High
3	Rapidity	0,53	Medium
4	Strength endurance	0,51	Medium
5	Agility	0,37	Below average



training middle-distance runners greatly simplifies the solution of the problem associated with increasing the efficiency of the training process.

Conclusions. In the course of the study, it was found that the effectiveness of training middle-distance runners can be increased by rationalizing the methodology of the training process, taking into account their individual characteristics of energy supply for their muscular activity, while observing the proportions of loads for improving physical qualities. The main physical quality that has the greatest impact on the effectiveness of the competitive activity of middle-distance runners is speed endurance.

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