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SCIENTIFIC AND METHODOLOGICAL BASIS OF ENDURANCE FORMATION IN YOUNG ATHLETES AGED 10-16

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Annotation: This article is devoted to the formation of the quality of endurance in young athletes, the distribution of training loads by intensity zones, the influence of aerobic, aerobic-anaerobic, mixed and anaerobic loads on the body of those involved, five components characterizing training loads when performing physical exercises, as well as the use of the following methods in the development of general endurance: method of continuous exercise with measured load, method of repeated and interval exercise, game method, competitive method and method of round-robin training.

Key words: training of young athletes, training feeding, aerobic, mixed, aerobic-anaerobic, game method, competitive method, method of round-robin training.

Relevance and requirement of the dissertation topic. In many countries of the world, great attention is paid to the formation of endurance in children, especially during their initial sports specialization. In various sports, the formation of endurance is a mandatory component of the training of young athletes. Each sport has its own requirements for the manifestation and development of endurance as an ability to maintain motor activity, despite the increase in fatigue. Therefore,

the rational organization of the training process will significantly increase the efficiency of the formation of one of the important physical qualities, like endurance.

In the leading countries of the world, scientific research is actively conducted on the development of endurance, especially in childhood, since this period is associated with the beginning of sports specialization and a favorable moment for the development of this physical quality. There is a need to optimize the training process and plan training loads aimed at forming the endurance of the child's body. There was a need to improve sports endurance in young athletes, which will increase the resistance to the increasing fatigue of those muscles of groups that participate in the motor act. In our country, great attention is paid to the development of various sports, "attracting young people to sports and the selection of talented athletes, the formation of national teams of Uzbekistan from among qualified athletes who will ensure high results in the international arena. To form a comprehensively mature and physically healthy person with a high culture in the country, it is necessary to prioritize improving the qualifications and knowledge of the population in the field of physical culture and sports, to introduce innovative forms and methods of selection and training of talented youth. " The issue of the most informative tests and criteria that should be used in the process of monitoring the effectiveness of the development of endurance in this sport is also closely related to the solution of the issue of factors determining the endurance of an athlete. High results and established records by our athletes in the Olympic Games indicate the implementation of systemic reforms in this area in the republic. Currently, in the theory of sports training, there is a need to carry out a targeted selection of training facilities at various stages and periods of the one-year cycle, develop mechanisms for adapting to training loads aimed at developing endurance, develop approximate training programs and bring athletes 10-16 years old to the main competitions without injuries. Taking this into account, every year the requirements for solving the issue of further improvement of scientific works aimed at training worthy competitive athletes in various sports are strengthened.

and the scientific construction of the training process with the development of optimal ratios of training loads aimed at developing the endurance of young athletes 10-16 years old. The problem of endurance formation is of interest to many scientists. A. Hill, studying the issues of improving the scientific and theoretical foundations of the development of endurance of young athletes in cyclical sports, based on ergometric analysis of data, for the first time divided the types of athletics into three groups, taking into account the energy supply of muscle groups. Short-distance running is carried out due to anaerobic power supply mechanisms, middle-distance running - due to aerobic and anaerobic reserves, and long-distance running is carried out mainly due to aerobic power supply mechanisms. Subsequently, this problem was dealt with by V.S. Farfel and he presented a graph of world records on a logarithmic scale and created the theory of the relative force zone.

The aim of the research is to theoretically substantiate and experimentally test the effectiveness of the use of means and methods for developing endurance in young athletes aged 10-16.

The tasks of the research are:

theoretically substantiate and develop structural-systemic models of endurance development in young athletes aged 10-16;

determine significant indicators affecting the level of endurance development and their model levels of the range of possible fluctuations at various stages of preparation;

develop a system for assessing the level of endurance development in young athletes in athletics sports, taking into account their level of physical fitness and physical development;

develop a classification of dosage varieties when performing physical exercises aimed at developing the endurance of young athletes in athletics sports;

identify the features of individual adaptation abilities according to the data of the long-term dynamics of the growth rate of the development of endurance in young athletes;

experimentally substantiate the use of pedagogical control of endurance development in young athletes in athletics sports using the individual-group method in organizing training sessions.

By following the above recommendations and knowing the features of the child's body, you can purposefully build a training process aimed at building endurance.

The classification of the intensity zone in the development of endurance in young athletes specializing in athletics sports is presented in Table 1. To develop endurance in young athletes, the rational use of training loads and their systematic pedagogical control are necessary. Training loads should be aimed at the development of various types of endurance, depending on the specifics of competitive activities. The classification of intensity zones developed by us passed an experimental test in the training process of young athletes (п = 180).

The first intensity zone consists of various exercises aimed at developing aerobic endurance. Exercises are characterized by relatively low intensity and large volume. This provides fat oxidation and mitochondrial biosynthesis. Performing these exercises in the specified mode contributes to significant recovery after high loads. These exercises are commonly used in the various and final parts of a training session. The pulse when performing exercises of the first zone usually does not exceed 130-b.m, and lactate - 1-2 mm/l.

The second intensity zone aims to use exercises to bias the anaerobic threshold. These exercises are performed in an interval mode at HR of 130-150 beat in a minute and lactate level does not exceed 2-4 mm/l. Rest intervals - up to 40 seconds and between series - up to 4 minutes. These exercises make up 40% of all exercises in the training process of young athletes 10-16 years old.

In the third intensity zone, endurance development exercises are used in a mixed aerobic-anaerobic mode at HR -150-170 beat in a minute and the lactate level is already 5-8 mm/l.

Exercises of this intensity zone stimulate the growth of aerobic power. These exercises in the training process account for up to 20% of the total volume.

Exercises performed at HR of 180-200 beat in a minute and lactate index of 8-10 mm/l are used in the fourth intensity zone. These exercises are significantly wagging on the body's cardiorespiratory and metabolic systems. In the educational and training process of children, the exercises of this intensity zone make up no more than 10% of the total annual load.

The fifth intensity zone will include high-intensity exercises with a duration of up to 10-15 seconds, where the mobilization of alactate energy sources is required. The HR is 160-180 bpm and with a small lactate 4-6 mm/l. Rest intervals shall ensure complete recovery between subsequent loads.

Thus, the purposeful development of endurance in young athletes should rely on the classification of 5 intensity zones, which describe various modes of training loads and, accordingly, physiological reactions of the child's body. Some features of the adaptation of the child's body to training endurance loads were revealed. In young athletes, the ability to hypoxic loads and withstand increasing fatigue are reduced. However, young athletes showed faster recovery from interval and short-term exercise.

With the development of general and special endurance in the process of physical training of athletes, the planning of training loads in terms of intensity gave a positive shift: for athletes of 10 aged, the indicators increased to 11%, 11 aged - 12%, 12 aged - 13%, 13 aged - 15% 14 aged - 16%, 15 aged - 17% and 16 aged - 18%. During training sessions, restorative means were used.

Table 1

Classification of intensity zone in the development of endurance in young athletes specializing in types of track and field athletics.

Intensity zones	Directivity	HR beat in minute	Lactate (mm/l)	Tasks of the training process	Intensity of exercise	Exercise dosage of implementation	Organizational and methodical instructions
1st zone	Total aerobic exposure	110-130	1-2	Recovery of the body Capillary density Synthesis of mitochondria fat oxidation	Low Low to Medium Medium Medium	The duration of the exercise is from 30-120 m	Focus on the exercise technique
2nd zone	Aerobic threshold	130-150	2-4	Aerobic capacity Economy of work	Medium	3x6, rest 2min 2-4 series 4x2 min, rest 1 min, 2-4 series 8-16c, rest	It is necessary to observe that the HR does not exceed the value of the 2nd zone
3rd zone	Aerobic-	150-170	5-8	Aerobic power	High	4x6 min, rest	Rest required

	anaerobic			Aerobic-anaerobic interactions		4 min 2-4 series 6x6 min, rest 2 min 2-4 series 8x40 sec, rest 30 sec 2-4 series 10x20 sec, rest 30 sec 2-4 series 10x50 sec, rest 6 min 2-4 series	between 8-10 min batches to 1st intensity zone HR
4th zone	Anaerobic-glycolytic	180-190 180-200	8-10 8-10	Anaerobic-glycolytic capacity anaerobic power	High submaximal Submaximal	6x2 min, rest 2 min 2-4 series 4x3 min rest 2 min 2-4 series 8x30 sec, rest 30 sec 6x30 sec, rest 2min 2-4 series 4x30 sec, rest 2 min 2-4 series 10x30 sec, rest 4 min 2-4	Exercises are performed with additional resistance It is advisable to control the speed capabilities of an athlete

						series	
5th zone	Anaerobic-alactate	160-180	4-6	Maximum sprint abilities	Maximal	4x10 sec, rest 2 min 2-4 series, 4x15 sec, rest 4 min 2-4 series 10x20 sec, rest 4 min 2-4 series	Exercises must be performed with maximum effort

CONCLUSIONS

Based on the analysis of practical recommendations, scientific and methodological literature, pedagogical observations and a generalization of the results of scientific research, the following conclusions were formed:

Analysis of the literature revealed that endurance is usually understood as the ability to resist fatigue during the exercise process. An indirect indicator of endurance is all biochemical and physiological indicators that are associated with a direct determination of the power, capacity and efficiency of power supply processes. As the analysis of the scientific literature showed, the sports result has a high relationship with the bionergetic parameters of the athlete's body. At the same time, specialists distinguish three main areas of adenosine triphosphate: anaerobic phosphogenic, anaerobic glycolytic and aerobic.

1. Currently, in the theory of sports, there is a tendency not to simply study individual bioenergy indicators, their changes in the process of physical exercise, but to use complex knowledge in the entire bioenergy of an athlete. In connection with the above, research is of particular importance, which is aimed at developing new methods for the formation of endurance in young athletes 10-16 aged.

2. Pedagogical control of aerobic and anaerobic energy supply is an important component in the training system for athletes and for the effective development of general and special endurance. To do this, it is necessary to form a set of pedagogical and biomedical tests assessing the development of endurance, and to diagnose the development of these abilities in young athletes. A purposeful, specially organized, systematic system for collecting data on the most significant qualitative characteristics of the physical development and physical fitness of young athletes, their processing, analysis and interpretation in order to obtain high-quality and timely information on the compliance of processes and results with regulatory requirements is necessary to predict the further development of athlete preparedness.

3. Conducting classes according to a generally accepted program,

carried out without pedagogical control of the physical development and physical fitness of young athletes, does not have a significant impact on the state of health and motor fitness. Stopping regression, stabilizing, and then improving the situation to increase sportsmen's sportsmanship and improve children's health is possible by introducing constant control technologies.

4. The formation of endurance is of great importance in the training system of athletes. The formation of endurance is divided into three stages: the phase of compensated fatigue, the phase of decompensated fatigue and the phase of complete fatigue, which is characterized by a high degree of fatigue, leading to a decrease in the power of the work up to its termination.

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