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PEDAGOGICAL FUNDAMENTALS OF THE PROCESS OF DEVELOPING SPECIAL PHYSICAL SKILLS OF ATHLETES IN ATHLETICS

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Abstract: The article presents the results of the pedagogical experiment and their discussion on the indicators of the muscles of the left and right legs and paws in the development of special physical abilities of 10-16-year-old adolescent athletes .

Keywords: athletics, special physical ability, pedagogical principles, quality of endurance,movement, activity, training .

ПЕДАГОГИЧЕСКИЕ ОСНОВЫ ПРОЦЕССА РАЗВИТИЯ СПЕЦИАЛЬНЫХ ФИЗИЧЕСКИХ КАЧЕСТВ СПОРТСМЕНОВ В ЛЕГКОЙ АТЛЕТИКЕ

Аннотация: В статье приведены данные по результатам педагогического эксперимента и их обсуждение по показателям ног, и разгибательных мышц левой и правой стопы в развитии специальных физических способностей легкоатлетов-подростков 10-16 лет.

Ключевые слова: Легкая атлетика, специальные физические способности, педагогические основы, качество выносливости, двигательная активность, учебная-тренировка.

RELEVANCE

In many countries of the world, in the effective organization of the training process, great attention is paid to the issues of developing the quality of endurance of teenagers working in the primary training group. Formation of endurance in all sports is a mandatory component of the training system of young athletes. Endurance requires the athlete's ability to maintain movement activity in sports practice and classification of loads according to aerobic-anaerobic intensity zones. Therefore, the rational organization of the training process makes it possible to achieve the effectiveness of forming endurance, which is one of the important physical qualities.

Research purpose:consists of theoretical justification and practical verification of the effectiveness of using means and methods of developing special physical abilities in young athletes.

Research tasks: Identifying and using special tools and methods used in athletics training;

- to determine the speed-strength indicators of sprinters aged 10-16 ;

- to determine and analyze the relationship between the indicators of the muscles recording the left and right legs and paws and the results .

RESEARCH RESULTS AND THEIR DISCUSSION

According to the educational and scientific-methodical literature, it is impossible to clearly separate runners of different distances at the stage of primary sports specialization. Their training takes place according to a single methodological principle. However, the conducted dynamometric studies show that it is appropriate to separate young athletes, whose quickness or endurance skills are primarily developed, by specialty from the age of 12. The method of polydynamometry is the

most informative method that allows determining the level of rapid strength training and predicting future improvement.

Table 1. Correlation analysis of speed-power indicators of 10-16-year-old sprinters and competitive activity

Dynamometer k indicators	Age						
	10	11	12	13	14	15	16
Left leg muscles							
Maximum power	0.401	0.420	0, 433	0, 479	0.49 0	0, 53 4	0, 5 69
Force gradient	0.305	0.315	0, 32 0	0, 39 4	0, 435	0, 48 9	0, 525
Starting power	0.404	0.410	0, 422	0, 437	0, 482	0, 527	0, 543
Quick power	0.305	0.345	0, 377	0, 424	0, 47 7	0, 482	0, 536
Muscles of the right leg							
Maximum power	0.325	0.355	0, 378	0, 3 9 2	0, 412	0, 429	0, 4 5 6
Force gradient	0.327	0.365	0.399 _	0.391 _	0.443 _	0.437 _ _	0.484 _
Starting power	0.314	0.328	0.344 _	0.377 _	0.383 _	0.392 _	0.461 _
Quick power	0.329	0.345	0.376 _	0.388 _	0.422 _	0, 437	0, 46 5
Muscles that contract ankle claws							
Maximum power	0.326	0.358	0, 3 8 4	0, 42 2	0, 43 7	0, 488	0, 534
Force gradient	0.316	0.345	0, 3 6 6	0, 36 2	0.394 _	0.4 14	0.437 _
Starting power	0.332	0.365	0.374 _	0.389 _	0.411 _	0.437 _ _	0.464 _
Quick power	0.345	0.368	0.3 8 2 _	0.390 _	0.427 _	0.469 _	0.525 _

In the main distances, the analysis of the relationship between the indicators of the muscles of the left leg and the right leg and paws and the results was carried out, as a result, the strength and quick-power training of the athletes and their influence on the sports results were determined (Table 1-2). In turn, the correlation analysis helped to determine the most informative dynamometric characteristics that allow to target in the control of the study of the effectiveness of the training process.

Table 2. Correlation between dynamometric indicators and main distance results in 10-16-year-old athletes specializing in middle and long-distance running.

Dynamometer k indicators	Age						
	10	11	12	13	14	15	16
Muscles of the right leg							
Maximum power	0.327	0.364	0, 378	0, 39 2	0.4 12	0, 4 2 9	0, 45 6
Force gradient	0.345	0.376	0, 3 9 9	0, 391	0, 443	0, 437	0, 4 8 4
Starting power	0.314	0.326	0, 344	0, 3 7 7	0, 38 3	0, 3 9 2	0.4 61
Quick power	0.325	0.355	0, 376	0, 388	0, 422	0, 43 7	0, 465
Muscles that record the paws							
Maximum power	0, 335	0.365	0.3 73	0, 37 9	0.4 12	0, 434	0.4 66
Force gradient	0.347	0.65	0, 3 8 1	0, 39 2	0, 411	0, 43 9	0, 429
Starting power	0.337	0.365	0, 3 9 8	0, 419	0, 427	0, 436	0, 46 9
Quick power	0.325	0, 341	0.364	0, 372	0, 393	0, 418	0, 436

Starting power, that is, the rate of increase of power in the first 0.1 seconds, is the most informative dynamometric indicator for sprinters. As the sports skill increases, the correlation between the starting power and the results of sprint running approaches the functional one. This evidence can be explained by the fact that during fast running, the duration of the stance-deceleration phase is about 0.1 seconds, and the time to reach the maximum force is 0.4-0.6 seconds. Therefore, in conditions of fast running, the athlete almost does not have time to demonstrate the maximum possible level of movement power. For the sprinter, it is important to develop a useful external force that is faster, maximally important, but less effective for sprinting.

High information was found in the strength gradient of muscles.

The rate of muscle relaxation is the most important dynamometric indicator. This size has a special effect on the performance of the results of middle and long distance running, reflecting the ability of the athlete to quickly release the muscles that are not involved in the movement. In sprinters, the correlation between athletic performance and relaxation rate is low, but its importance increases with increasing athletic skill.

The ability to relax the muscles reflects the interdependence of the level of coordination between the muscles and the level of activity in the muscle system. Therefore, the level of mutual tension of the muscles performing the main load at the minimum activity of the secondary muscles is the intermuscular coordination. Being able to perform at your best when there is less muscle tension certainly reflects much improved intermuscular coordination . It should also be noted that the ability to relax muscles is inextricably linked to having a free, stress-free running technique and achieving high levels of performance.

The rate of relaxation is the most important characteristic of the neuromuscular apparatus in movements. It may be genetically determined, and cycle sports may be considered the most predictive indicator at the stage of initial sports specialization. Exercises that train runners to relax freely are not used enough.

The strength component shows an interaction with sports results at the age of 15-16 years, and the influence of muscle strength on sprinter running speed at this age period is insignificant. At the age of 15-16, muscle strength increases very quickly, the dependence of running speed on the size of muscle strength is shown. Undoubtedly, the increase in the effect of power on the result in sprint running is explained by the dependence of the length of the running steps on the development of power qualities and the level of manifestation of horizontal tension in the phase of active deceleration, which determines the speed of running.

Despite the increase in braking power, only sprinters who can interact with the support to reduce the loss of front speed and develop it in the descent will be able to run well, that is, they will be able to show a good result. The criterion of the quality of the technique in the interaction with the support is related to the uniform growth of the characteristic "wave of force" with a smooth return to zero, which necessarily corresponds to the optimal type of depressing. A uniform description of the interaction of forces with the base, less vertical oscillation of the overall center of gravity, is typical of the running of skilled sprinters. The above-mentioned points out that as the runner's technique of movement activity improves, intermuscular communication is established, energy loss decreases due to the redistribution of external and internal work ratios, the percentage of the latter increases in the overall movement of the runner , and more orderly use of muscle power and quick-power capabilities is observed.

Qualitatively, the abilities evaluated by maximum, burst and starting strength are different and are considered relatively independent. Starting power reflects the development of a specific

motor apparatus by athletes during many years of high-speed running training. Therefore, the increase in starting power was reliably higher in sprint-specialized teenagers compared to middle- and long-distance runners. Therefore, it is appropriate to consider the growth rate of muscle starting force as a criterion for evaluating the special speed-strength training of sprinters. It should also be noted that in skilled athletes there is a correlation between the sports result and the given dynamometric characteristics. At the same time, there is no correlation, no reliable correlation, no parallel growth between the force and its time base.

Correlation analysis, including morphological and dynamometric characteristics, allows to determine the following patterns. In athletics, the maximum strength value has a reliable correlation ($r < 0.05$) with the somatic type of the examinee and the obvious expression of muscle weight in the lower body parts. With increasing age, there is an increase in the reliable correlation of strength indicators of individual muscle groups and somatic type.

In general, the value of muscle strength of athletes obtained in our research is much lower than similar results published in the scientific and methodical literature. We attribute this evidence to the fact that we measure isometric strength, which is used to determine the rate of contraction and relaxation of muscles. So we didn't get the full maximum. In addition, during the measurements, the possibility of acceleration of the body parts was not taken into account.

young teenage athletes is carried out on the basis of the analytical work of the coach and experts of the observation team and includes the following actions:

- analysis of sports results in the main round where the level of sports performance has been reached and its structural composition related to pre-competition preparation and elements of competition activity;
- analysis of the dynamics of sports results in mixed distances;
- analysis of data on competition and training loads;
- assessment of the level of general and special physical fitness on the basis of test data during control competitions and with the use of special trainers;
- for example, assessment of the functional status of athletes based on the results of training series of control exercises and loads with the use of pulsometry and biochemical controls;
- analysis of performance techniques of basic sports movements;
- assessment of athletes' mental condition ;
- determining the biological level of athletes.

The monitoring results obtained during the current control process significantly supplemented the data of the phase control. Current controls include:

- pedagogical monitoring of the dynamics of training and competition loads;
- pulsometry during low-responsibility exercises;
- visual and instrumental (current) analysis of sports competition equipment;
- physiological and biochemical control of the body's reaction to standard training loads;
- health monitoring of athletes by team doctors and support staff during training sessions, treatment-prophylactic and recovery activities.

Quick checkinvolves checking the implementation of the planned continuous training program. The following indicators are monitored:

- implementation of the main and intermediate goals of training. Here, sporting results are reviewed year-on-year and progress achieved in major competitions at the end of each period;

- implementation of specific standards, the fulfillment of which should ensure sports results. They include the description of competition activities, indicators describing physical, technical, tactical, functional and other types of preparation;
- implementation of the plan of training and competition loads (by year and periods). In-depth medical examinations (ChTT) conducted 1-2 times a year are the most important component of annual control.

The control of assessment of individual characteristics of young adolescent athletes should reflect the individual norm of indicators describing the complex of specific characteristics of the athlete's organism necessary for successful performance of the main competition exercises. Control of the studied parameters by quantitative and qualitative characteristics allows to determine the dynamics of individual characteristics of young athletes and serves as a basis for making adjustments to the training process.

Complex criteria reflecting the strength, efficiency and stability of the body's locomotor apparatus, cardiorespiratory systems and life support work are the most appropriate for evaluating the individual characteristics of young athletes. These criteria make it possible to determine the individual structure of functional training of the body of young athletes in relation to competition loads.

The analysis of special literature shows that the issues of determining the control of physical fitness of young athletes have not been sufficiently studied, therefore, the method of determining individual criteria of physical fitness and functional condition in children and young athletes has not been developed and tested. In it, the limits of individual norms are determined with the help of statistical measures . The indicators of the tests corresponding to the average result in the control exercises are accepted as the average standard. The procedure for determining individual criteria can be as follows:

- determination of training time and its duration;
- regular testing of participants on the most informative set of tests during a certain stage;
- determination of average size and standard deviation;
- X + 0.5 is the average value, and the remaining levels are low-high, very low-very highto accept as;
- considering the value of results greater than 2X in the test as a very high standard.

Improvement of the normative basis of the training of young athletes by the development of the methodology of individual standards requires special research in certain tests and sports.

Concepts of individual physiological, morphological and biochemical reactivity of body systems are the theoretical basis for the development of issues related to increasing the level of an athlete's training.

The extent to which indicators describing its leading functional systems, which ensure the body's ability to work, can change, serves as an individual criterion of the current functional state, which determines the level of activity of the athlete.

CONCLUSION

To sum up, the wider this area is, the higher the level of organization of functional systems, the level of adaptation to physical loads and, of course, the individual standards of the athlete's functional organism. Thus, on the basis of the method of determining the individual criteria of the functional state in young athletes , it is necessary to study the extent of functional systems that determine the success of the main exercises. The change of the studied parameters according to

the quantitative criteria represents the dynamics of the individual norm of the functional state of the organism and serves as a basis for making corrections to the training process.

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