

**ICEST 2021****II International Conference on Economic and Social Trends for Sustainability of Modern Society****METHODS OF SPORTS SELECTION OF YOUNG ATHLETES**

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**Abstract**

In modern conditions, sports activities place the highest demands on athletes. First of all, this applies to the physical qualities, to the functional state of the athlete, as well as to his technical and tactical readiness in his chosen sport. Undoubtedly, the training and education of an athlete is a long complex process, the quality of which is determined by a number of factors. One of these factors is the selection of gifted children, their further sports orientation. The article summarizes the data of theoretical and experimental works on the problem of selecting children for playing sports. Tests and diagnostic methods are characterized, with the help of which it is possible to identify the level of development of certain abilities and qualities of young athletes. Special attention is paid to the method of reaction to a moving object (RDO) to assess the predisposition of young athletes to play sports. The results of the study allow us to conclude that the developed methodology can be used to select and identify the most gifted athletes for playing sports.

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*Keywords:* Sports selection, predisposition, RDO method, complex assessment

## **1. Introduction**

Purposeful long-term training and education of high-class athletes is a complex process, the quality of which is determined by a number of factors. One of these factors is the selection of gifted children and adolescents, their sports orientation. Since the 50s, coaches and employees of physical education and sports, speaking on the pages of sports publications, talk about the need to improve the selection system, improve its quality and efficiency, overcome the difficulties associated with the lack of methodological approaches to accounting for the acceleration process in the modern world.

## **2. Problem Statement**

For a long time, this issue was not subjected to detailed study, although, undoubtedly, there was a need for this. Despite the large number of proposed methods for determining abilities for various sports, it is not always possible to select the contingent that corresponds to a particular type. In this regard, in sports schools there is a large number and a long time dropout of students, caused by the lack of growth in their individual results. Therefore, knowledge of the requirements of a particular sport for young athletes is the most important condition for effective selection and forecasting of promising athletes.

## **3. Research Questions**

Despite the huge resources involved in the problem of sports selection, its relevance can be safely stated to this day. Unfortunately, neither in our country, nor in any other foreign country, researchers involved in the selection of sports related to the theory and methodology of youth sports, cannot give accurate answers. Experts are convinced that the complexity of this problem lies in its versatility. It is also safe to say that it is multidimensional, as it can be viewed from different points of view. Here there is a place to be both philosophy, and pedagogy, and economics. Metrological and socio-economic aspects cannot be excluded. But it would be wrong to blame only theory here, since there is a purely practical direction in this problem. Namely, the solution of issues: how and on the basis of which indicators, to make the selection and orientation so that their effectiveness would be maximum. And the most important thing is to create a compact, informative and accessible system of tests to diagnose the prospects and state of readiness of athletes. This is the main output of the pedagogical direction of research.

## **4. Purpose of the Study**

The purpose of the study is to identify and characterize the methods of sports selection of the most gifted children for playing sports. First of all, it is necessary to pay attention to the morphotype of the future athlete, his height, body type, weight, etc. Because in different sports, different parameters play a dominant role. For example, in sports such as basketball, rowing or track and field throwing, an important role is played by the high growth of the athlete, which gives him certain advantages. While in long-distance running (marathon running), it does not have a significant value.

## 5. Research Methods

In the methodology of sports selection, an important aspect is the interaction of biological and social, the heritability of sports talent, anatomical and physiological data, etc., taking into account medical and biological factors, detailed in the works of Barchukova (2001), Bauer (2003), Puni (2002). They not only characterize the state of health of athletes, the level of their physical fitness, but also reveal the morpho-functional features, duration and quality of recovery processes in the athlete's body after performing large training loads. This allows you to specify the list of therapeutic and preventive measures that athletes need.

For a competent selection of athletes, a coach needs to be able to use the data of sports medicine, take into account the factors of anthropology and physiology, the factor of heredity, which determines physical development, the formation of motor qualities, aerobic and anaerobic performance of the body, the amount of increase in functional capabilities in the training process.

It should be noted that the issue of comparing the passport and biological age of children in the organization of sports selection is extremely relevant at the moment. In general, in the scientific and sports literature, different terms are used in relation to the age of athletes: chronological, documentary, passport, calendar, biological, etc., most of which have not yet been disclosed in detail. The modern system of training a young athlete is based not on the basis of biological age, but on the basis of calendar age, which leads to the fact that a young athlete can be either underestimated or overestimated by the coach. Meanwhile, the passport age, especially in the puberty period, does not always reflect the true development of the teenager, and does not always correspond to his biological age. High sports results may be the result of a genetically earlier period of biological maturation, rather than a sporting talent.

For high-quality work in tandem, any coach should know well the sensitive, i.e. favorable, and critical periods of the body's development (Banu, 2020; Guba & Marinich, 2016; Landa, 2017), as well as the athlete, who should also know well when a persistent morphological or physiological shift occurs in his body. I would like to draw attention to one more point: the performance of control exercises and tests by children of the same age creates advantages for accelerators and restricts the way to sports for children with delayed development (retardants), who potentially have no less athletic abilities (Bauer, 2003). When selecting it is necessary to take into account that children with accelerated biological development in the future very quickly lose their advantages and leave sports quite early. Visible success, as a rule, in the subsequent stages of a sports career, is achieved by children with a normal course of maturation or with minor signs of delayed biological development. This knowledge is the basis for the research of Ilyin (2019) on the definition of biological selection criteria.

Psychophysiological research in the field of sports is also becoming increasingly popular. To obtain more accurate data, different indicators of the psychophysiological state are used: tremorometry, complexes for diagnosing different aspects of the psychological and physical health of athletes (Komanov, 2017).

Among the physical qualities and abilities that determine the achievement of high sports results, there are so-called conservative, genetically determined qualities and abilities that are very difficult to develop and improve in the training process. These physical qualities and abilities are important from the point of view of prognosis in the selection of adolescents in the training groups of sports schools. Such qualities include speed, relative strength, some anthropometric indicators (for example, the structure and

proportions of the body), the ability to maximize oxygen consumption, the efficiency of the functioning of the vegetative systems of the body, some mental characteristics of the athlete's personality.

In the system of sports selection, control tests should be carried out with the calculation of determining not so much what a novice athlete can already do, but what he can do in the future. In other words, to identify his ability to solve motor problems, the manifestation of motor creativity, the ability to control his movements (Semenova, 2015). Here it is necessary to understand that the potential result of a young tennis player depends primarily not on the initial level of physical qualities, but rather on the rate of growth of these qualities in the process of special training. After all, it is the growth rate that clearly demonstrates the ability or, conversely, the inability of a certain athlete to learn in a particular type of activity. In game sports, very often the situation requires a player to react quickly to the actions of an opponent or to the actions of a partner. Therefore, it is more important to identify special physical qualities: the ability to perform a complex combination of offensive and defensive actions at a strictly defined time limit (even time pressure), correctly and timely assess the behavior of the enemy. This is what determines the prospects of athletes in game sports (Ugolokova, 2020). When conducting sports selection, it is important to give control tasks in a competitive form (Bril, 2011). This will reveal the strong-willed qualities of a young athlete. So, to identify the intensity of the manifestation of volitional efforts, you should use exercises with short-term tension, and to identify perseverance - complex exercises in coordination for the development of special techniques.

During the selection, special attention should be paid to the manifestation of athletes' sports independence, motivation, purposefulness, ability to mobilize their strength and reserves, reaction to an unsuccessful performance at competitions, active participation in the fight, patience, perseverance.

## **6. Findings**

The coach needs to know and be able to use tests and diagnostic techniques, with the help of which it is possible to identify the level of development of certain abilities and qualities. At the same time, we should not forget that in science and practice there are new methods and methods of testing, including with the help of the latest computer technologies, which include the electronic version of the method of reaction to a moving object (RDO) to assess the predisposition of young athletes to playing sports (Ustymenko, 2017).

The RDO method is one of the most common indicators by definition:

- accuracy of perception of temporal and spatial characteristics;
- accuracy in reaction to a moving object.

The reaction to a moving object is a complex spatiotemporal reflex and is used as a test to determine the level of interaction between the processes of excitation and inhibition in the cerebral cortex (Familtnikova, 2016).

The task of the subject is to stop a moving object at the moment of its alignment with a fixed point. In this case, the value of the lead is determined, which depends on:

- from the speed of the object;
- from the distance between the fixed point and the place where the moving object stops;
- from the speed capabilities of the subject.

When solving this problem, the participant in the target tracking mode tries to minimize the distance between the fixed point and the place where the moving object stops after each subsequent attempt to stop the moving object. The human action in this situation corresponds to the control in tracking systems based on continuous corrections of current information. At the same time, the physiological mechanisms responsible for the accuracy of the work are activated, thanks to which a gradually higher level of coordination of many subsystems, including the visual and motor analyzers, is achieved. The RDO reveals the features of the plasticity of brain functions in the activity of perception of time and space. The RDO method is performed at different speeds of movement around the circumference of a moving object: 1 second; 1.5 seconds; 2 seconds. In this case, two methods were used to evaluate the accuracy criterion:

- 1-moving a moving object with a stop at the time of the attempt to align with the specified label;
- 2-moving the moving object without stopping at the time of the attempt to align with the specified placemark. This means that when you press the "Space" key, which performs the "Stop" function, at the moment when the moving object is supposed to align with the label on the monitor screen, the moving object does not stop, but continues to move. The moment of the alleged match is recorded by a computer program, and the participant himself does not see the result and can no longer correct his actions. To determine the effectiveness of the presented method, the results obtained in the course of the study were analyzed and the indicator of the ability to control motor actions was determined.

The RDO method allows you to use mathematical calculations to determine the variational range of mismatch errors of a point object and a placemark when testing the reaction to a moving object with or without stopping the moving object. The ratio of the two variation series allows you to calculate the indicator "C", the value of which can be judged on the ability to control motor actions, and therefore on the predisposition to gaming and sports. The higher the value of the indicator "C", the better the ability of the subject to control motor actions.

For example, let's present the results of three test subjects in terms of their ability to control motor actions:

- in the subject K. it is equal to 0.60 ms, which indicates that he has no ability to control them and a weak predisposition;
- in the subject L., it is equal to 1.43 ms, which indicates the presence of a predisposition;
- in the subject I. it is equal to 0.97 ms, which indicates a slight decrease in the accuracy of motor actions, not a pronounced predisposition.

So, the RDO method was used by us to select children who are predisposed to playing sports. This predisposition consists in the correct determination, timely change of body position and execution of movement in the right direction and is associated with the perception and processing of spatial and temporal information coming from the outside. The value of the indicator of the ability to control motor actions equal to one and higher is evidence of a clear predisposition to playing sports. The proposed method of selection was tested on the group of initial training of the first year of training from 40 subjects. According to the results of testing, five subjects had an indicator of the ability to control motor actions that exceeded one, and they were recommended to play sports.

After analyzing the scientific and methodological and special literature on the problem of sports selection, we can conclude that the problem of sports selection is one of the central ones in the theory and methodology of sports training. The scientifically based search for talented sports youth is a trend of modern times and the main task of sports selection. Its relevance is not only not decreasing, but increasing. This is primarily due to the fact that the current practice of selection in sports, according to leading experts, is currently not sufficiently effective and meets modern requirements. In addition, the coach needs to know and be able to use tests and diagnostic techniques, with the help of which it is possible to identify the level of development of certain abilities and qualities. At the same time, we should not forget that in science and practice there are more and more new methods and methods of testing, including with the help of the latest computer technologies, which include the electronic version of the method of reaction to a moving object (RDO).

## 7. Conclusion

The results of the study allow us to conclude that this technique can be used to select and identify the most gifted athletes for playing sports. However, the completed study does not exhaust the completeness of the entire problem under consideration. The process of selecting promising athletes is complex and multifaceted and requires further development.

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