

Theoretical Aspects of Modeling the Coordination Training of Football Players at the Initial Training Stage

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Abstract: The research purpose is to substantiate and develop a structural model of coordination preparedness for football players (10-11 years old) based on the use of advanced modeling. The following methods were used in the study: analyzing scientific and methodological literature, pedagogical testing, expert assessment, modeling, methods of mathematical statistics (including correlation analysis). The article presents a theoretical justification of the structural model of the coordination training of young football players, developed with the aim of increasing the efficiency of the training process, as well as determining clear scientifically based guidelines in the framework of improving various manifestations of kinesthetic coordination abilities. In the presented material, the degree of significance of the various components of kinesthetic coordination abilities to achieve a high sports result (on the model of football players of the 1st category) was determined. On the basis of the results obtained in this study, the similarity of the structural models of the 1st category players and young athletes was confirmed. Consequently, we also confirmed the possibility and importance of improving kinesthetic coordination abilities at the stage of initial sports training.

1. Introduction

In any sport, there are intermediate and final characteristics of the model. The first group is formed by data containing information in relation to intermediate results of competitions (for example, results corresponding to the 2nd category or norms of the master of sports, etc.). The final model characteristics are data that are informative with respect to the results at the level of sports of the highest achievements [1].

A special category is represented by promising models that are created on the basis of characteristics whose level the athlete will have to achieve in the near (or more distant) perspective. The components that contain information of such a model (qualitative and quantitative), as a rule, are information on the significance of the various components of sports training, obtained on the basis of studies with the activity of highly qualified athletes. The content of the development of a promising model is to obtain a guideline according to which it is rational to build sports training taking into account the athlete's initial level of preparedness (that is, how much the athlete is ready at the present time).

Experts note that, in the sports schools for children and youth in Russia, 75-80% of children admitted to playing football at the age of 10 years stop training by the time graduating from the sports school and the specialized children and youth school of the Olympic reserve. Only 20-25% of trainees retain their place in sports when moving into the adult category [2, 3]. This trend indicates the need for constant specification and revision of the model characteristics of different sides of the football player's preparedness at the present stage.

Coordination training is one of the essential components of sports training in football; on its basis, the level of technical and physical readiness of a young football player is being improved. In situational and technically complex sports, coordination training is considered a separate section, which requires thorough study and support. In football, kinesthetic coordination abilities (KCA) are of particular importance; they

constitute a group of accurate indicators of differentiation, measuring accurate repetition, and evaluation of spatial, power, and temporal parameters of movement. Also, it should be borne in mind that the model characteristics of the most highly qualified athletes can serve as a kind of "ideal" for football players at the initial stage of sports training. At the same time, it should be borne in mind that in their development, age-related features of the development of coordination abilities are also important, which are based on consistent morphological, physiological, and biochemical transformations undergoing by the body involved.

2. Materials and Methods

The study was conducted on the basis of the Siberian State University of Physical Culture and Sports (Russia). The study involved 36 players aged 10-11 years. The following methods were used in the study: analysis of scientific and methodological literature, pedagogical testing, expert assessment method, modeling, methods of mathematical statistics.

To assess the level of development of kinesthetic coordination abilities of football players 10-11 years old, a testing program was used (which included 30 tests). The test program includes an assessment of the level of development of basic (18 tests) and football-specific (12 tests) kinesthetic coordination abilities. Evaluation of the level of technical and physical readiness was carried out with those tests that are used in the specialized children and youth school of the Olympic football reserve.

After statistical processing of the obtained results, a correlation matrix was constructed, which reflected the nature and degree of crowding, as well as the quantitative relationships of indicators of general and specific kinesthetic abilities with technical and physical readiness.

3. Results

To develop a promising model of coordination training for football players 10-11 years old, it was necessary to determine what level of achievement can be the standard at this stage of training. Obviously, the goal is to achieve the highest results is the basis of various sports. However, the targeted use of such long-term prospects and the orientation of young athletes on them in the training process is an almost impossible task, due to the need to take into account the age-related features of development and the risk of "forcing" training due to a decrease in the level of physical condition and health [4].

In the course of the study (based on the opinions of coaches and football specialists), a hypothesis was put forward on the rationality of using the characteristics of the different sides of the preparedness of 1st-level football players as the closest prospective level corresponding to the standard of football players aged 10-11 years. To test this hypothesis, a correlation was made between the structural model of the relationship between coordination readiness indicators and technical and physical readiness indicators for 10-11-year-old players and 1st category players. It was supposed to determine the degree of importance of the KKC components for the physical and technical types of readiness in the age range of 10-11 years (i.e., to clarify the suitability of the structural model of 1st-level football players for young athletes).

For this, a correlation analysis of indicators was carried out that determined the level of development of technical and physical readiness and kinesthetic coordination abilities. The selection of technical and physical training is not accidental and is based on data acquired during the analysis of the structural model of 1st-level football players, where a large number of correlations of the studied coordination abilities were found with these types of sports readiness. At the same time, the distribution of training hours for primary training groups of the 3rd year of study was considered in the approximate annual schedule of a sports school and specialized children and youth school of the Olympic reserve in football (in the process of training football players 10-11 years old, a large number of hours are devoted to improving physical and technical readiness).

4. Discussion

Analyzing the nature and degree of tightness of relationships between the considered parameters, the author finds that all elements of kinesthetic coordination abilities are associated with indicators of technical and physical readiness (correlation coefficients range from 0.3 to 0.6, indicating a lower than average and

average degree of connection). This condition is the main confirmation of the need to improve the KKC at this stage of training football players in order to achieve the highest sports result in the future.

When analyzing the comparison of structural models of football players of different ages and qualifications (Table 1) determined in the study, it was found that the degree of validity of indicators of general and specific kinesthetic abilities on the success of professional activities of 1st-level football players and young football players is approximately identical. In the 1st-football model, the number of correlations of technical and physical readiness types with indicators of basic kinesthetic coordination abilities is 57.1% of the total number, and it is 54.5% among football players 10-11 years old).

TABLE 1. COMPARATIVE ANALYSIS OF THE NUMBER OF RELATIONSHIPS BETWEEN INDICATORS OF KINESTHETIC COORDINATION ABILITIES WITH THE PARAMETERS OF TECHNICAL AND PHYSICAL READINESS OF FOOTBALL PLAYERS 10-11 YEARS OLD AND 1ST CATEGORY

Types of preparedness		Temporal parameters		Power parameters		Spatial parameters		Total
		basic	specific	basic	specific	basic	specific	
Technical readiness	10-11 years	2	2	3	3	3	3	16
	1st category	5	1	4	2	3	5	20
Physical readiness	10-11 years	7	4	4	5	5	3	28
	1st category	3	1	4	3	1	3	15
in all		17	8	15	13	12	14	
in total		25		28		26		79

5. Conclusion

Thus, despite a slight difference in the number of connections, the structural model of the relationship of coordination abilities with the parameters of technical, physical, and competitive preparedness of 1st-level football players and young athletes is similar. Therefore, the perspective structural model of coordination training of football players of 10-11 years developed during research can be used in the training process for the productive improvement of kinesthetic coordination abilities. The main elements of the developed prospective model are the ability to evaluate, measure, and differentiate the power and spatial parameters of motion. During the training process aimed at coordinating the preparation of a sports reserve, it is precisely on these elements that the main emphasis should be made by selecting the most favorable ratio of funds of different directions. In particular, based on the results obtained in the course of the study, it can be concluded that 70% of the total amount of funds used in the coordination preparation of young football players should be directed to the elements of the KKC presented above. At the same time, the percentage of special tools can vary in proportion to the level of preparedness of athletes. However, taking into account that the age range of 10-11 years corresponds to the training phase of the long-term preparation, the volume of special means of coordination orientation should mostly prevail over the base in the ratio of 80% to 20%, respectively.

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