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Original Article

Individualization of basketball players (girls) coordination preparation at the stage of preparation for the highest achievements

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Abstract:
Aim: to substantiate expediency and effectiveness of individualization of the process of basketball players (girls) coordination preparation at the stage of preparation for the highest achievements. Material: 12 basketball players at the age of 17-19 years old participated in the study. Results: relevance of the introduction of individualization into the training process, its principles and implementation directions were revealed. It was proved that individualization increases the rationality of using the athletes' functional reserves and prevents the early end of a career. Structure of coordination preparedness of basketball players (girls) at the age of 17-19 years was determined, in which four expressed factors were revealed based on the factor analysis: rapid reconstruction of motor actions, kinesthetic differentiation, complex reaction, spatial orientation. Algorithm of determination of coordination abilities individual features in the structure of basketball players (girls) coordination preparation at the stage of preparation for the highest achievements is presented. Stages of determination of the individual factor structure of the athlete coordination preparation are shown. It is noted that, the crucial point is to provide conditions in which the period of maximum athlete's inclination to achieve the highest results coincides with the period of the most intense and complex coordination training loads at the stage of preparation for higher achievements. Conclusions: Basketball players (girls) training at the stage of preparation for higher achievements is a complex process where much attention should be paid to their individual abilities. Correction of the training process shall involve the development of those functions of the athlete's body, which are the most expressed genetically and which are needed for the chosen sport. Technical preparedness of basketball players (girls) is determined by the level of various coordination abilities manifestation. In relation to the strategy of training the coordination abilities in basketball players (girls) in adolescence, it is necessary to know the sensitive periods for the development of these abilities, as well as age, gender and individual peculiarities of their formation.
Key words: individualization, basketball players (girls), preparation, coordination, abilities, technique, structure.

Introduction

Contemporary sport aimed at the highest achievements puts more and tougher demands on athletes every year, at each Olympic cycle (Matveev, 2010; Platonov, 2015; Korobeynikov, Korobeynikova, Iermakov, & Nosko, 2016). The main tendencies related to all sports games include the increasing complexity of technical and tactical actions, which requires an improvement in the level of coordination capabilities development in players (Zhelezniak, Portnov, & Savin, 2001; Boychuk, Iermakov, Nosko, & Kovtsun, 2017; Malikova, Doroshenko , Symonik, Tsarenko, & Veritov 2018).

The success of athletes training in modern conditions depends on the effectiveness of the organization, management and control methods. It is very important to use the modern technologies in the training process rationally and to take into account the individual, age and morphofunctional features of the athlete's body (Ivashchenko et al., 2016; Lazarenko et al., 2017; Podrigalo, Volodchenko, Rovnaya, Podavalenko, & Grynova, 2018). Therefore, the problem of determining and taking into account the individual peculiarities of athletes' motor skills is of great importance in the process of preparation for game sports.

Competitive activities structure of the basketball player contains a large number of components that are difficult to distinguish. They are related to the intellectual and mental activity of the athlete, level of its technical and tactical skills and physical fitness (Cazzola, Pavei, & Preatoni, 2016; Kozina, Iermakov, Cretu, Kadutskaya, & Sobyanin, 2017). Individualization is a necessary condition for modern sports training. In connection with the sports mastery development in young athletes, the requirements for the individualization of the training process

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get a higher level. An individual approach to sport involves knowledge of the individual characteristics of athletes, that is, their genetic predisposition to the development of motor abilities, peculiarities of morphological and physical development, availability of certain adaptive capabilities and expressed psychological peculiarities of the individual (Druz, Iermakov, Nosko, Shesterova, & Novitskaya, 2017; Nagovitsyn, Volkov , & Amp; Miroshnichenko, 2017; Shepelenko et al., 2018).

Significance of coordination preparation as a separate component in the structure of the training process has been repeatedly emphasized in many studies (Zimmerman, 1988; Liakh & Vitkovskij, 2010; BOYCHUK, Iermakov, Nosko, Kovtsun, & Nosko, 2017). According to Sadovskij (2003) and Botiaev (2010), coordination abilities occupy a separate position in the system of motor abilities of a person. They are multi-component, and extremely diverse in their manifestations. At the same time, each manifestation of these abilities relies on the mandatory inclusion of the central and peripheral nervous system in close interaction with the locomotor apparatus. Only the level of these systems inclusion varies, depending on the motor task that shall be solved (Bernshtejn, 1996; Bal'sevich, 2009; Baginska, 2017). Researchers note that the emphasized development of psychomotor and coordination skills that are most relevant to a particular sport greatly contributes to improving the learning process effectiveness. It allows to master the necessary skills more quickly and efficiently, and more effectively apply them in the process of motor tasks solving (Kolumbet, 2017; Kozina et al., 2017; Polevoy, 2017).

According to Liakh (2006) and Gorskaia (2010), the higher the sports qualifications are, the more important individual assessment of the movement coordination indicators of each athlete become. Researchers in particular note the high variability of indicators during the annual training cycle. It should be noted that the amplitude of fluctuations in the results of testing the different types of coordination abilities in the same athletes is not the same at different stages of the annual cycle. It is the highest in tests that measure responsiveness, balance, and kinesthetic abilities. Undoubtedly, such a large variation in the level of coordination abilities can also affect the outcome of competitive activities.

The modern process of training in sports games involves the combination of player versatility with their individuality and uniqueness. The future of sports games depends on the individualization of the training process of athletes. This is due to the specifics of sports games: athletes show different anthropometric, physiological and psychological preparedness indicators (Deprez, Fransen, Lenoir, Philippaerts, & Vayeens, 2015, Boychuk, 2015, Kozina, 2016). Therefore, the development and scientific substantiation of the individualization principles of the training process in sports games and based on them creation of adequate training methods for athletes is timely and relevant. Based on the literature data analysis (Matveev, 2010; Platonov, 2015), the implementation of the individualization principle in the preparation of athletes is ensured by the development of an optimal multi-year training system, definition of a rational structure of competitive activities and creation of a balanced system of athletes' performance recovery and stimulation.

Systematic studies of the individualization problem in youth sports have been started relatively recently and at this time they are in the stage of empirical data accumulation. Theoretical and methodological foundations to study the problem, principles and approaches of individual programming for the training of young athletes are being developed (Druz et al., 2017; Shepelenko et al., 2017).

According to Kamaev and Krivencov (2009), the system for improving the management of individual training of young athletes should be based on the systematization of congenital and acquired morphological and functional characteristics and individual typological features. It is also advisable to identify the dynamics of motor development of young athletes, peculiarities of the process of physical activity adaptation and mechanisms of specific performance energy efficiency in the corresponding motor mode. The higher sports qualifications are, the more important individual assessment of the coordination preparedness indicators of each athlete bocome.

According to Sadovskij (2003) and Gorskaia (2010), the mechanisms for ensuring the manifestation of coordination abilities are subjected to significant influence of external and internal factors. These factors include: fatigue, annual cycle stage, time of day, season, hormonal level, psychological state. This example points to the possibility of using tests that assess the level of coordination preparedness for primary diagnostics of overfatigue and over-training in volleyball (Boychuk, 2010; Popel et al., 2017). Liakh (2006) and Botiaev (2010) point out the need to take into account the sensitive periods of individual coordination abilities development, as well as the peculiarities of their manifestation in a particular athlete.

Study of the individualization problem in young athletes training (Sergienko, 2014) resulted in the three main objectives for its solution: individualization of training means, individualization of load and training process control and determination of individual sports talent and further orientation in sport. The author points out that training program correction shall first be directed at improving the weaker performance, and then at development of the athlete’s strengths as a leading factor in reaching the high sports results.

Shepelenko et al. (2017) recommends that 30% of the time in each microcycle shall be spent on the individual training of players. Groups of players for individual work, and individual tasks shall be determined based on the cluster analysis data. At the same time, the authors point to the need to devote 60-80% of time to the development of leading preparedness factors, and 20-40% of time – to the development of lagging factors. Individual training programs for players are developed based on the determination of leading and lagging factors

in the individual preparedness structure. The current contradictory situation developed between the need to individualize the coordination skills development process in preparation for higher achievements in basketball and insufficient scientific methodological support to solve this pedagogical task. This determines the practical and scientific relevance of the study problem.

Hypothesis. It is assumed that individualization of coordination training of basketball players (girls) at the age of 17-19 years will improve their physical and technical preparedness, as well increase the effectiveness of competitive activities based on the factor models.

Study purpose is to substantiate the expediency and effectiveness of the individualization of coordination preparation process in basketball players (girls) at the stage of preparation for the highest achievements.

Material and methods

Participants

The experiment involved the basketball players (girls), who are at the stage of preparation for the highest achievements (n=12, at the age of 17-19 years). The study protocol was approved by the Ethics Committee of Ivano-Frankivsk National Technical University of Oil and Gas.

Study management

To develop individual coordination training models, one shall rely on the mathematically detected peculiarities of the players' coordination abilities. We have used the previously developed (Kozina, 2011) algorithm for calculating the team and individual structure of players' preparedness. The first stage covered a complex comprehensive testing of the players' coordination abilities. To assess the athletes' coordination abilities, we used the indicators of ability to balance, rhythm, response, kinesthetic differentiations, spatial orientation, coordination of movements and rearrangement of motor activity. The second stage involved the general structure of athletes' coordination preparedness determination based on the factor analysis, determination of main factors and their characteristics. The individual factor parameters were determined and a hierarchical cluster analysis of the test indicators was conducted at the third stage. As a result, athletes were divided into groups according to the degree of similarity between them based on the studied indicators of coordination abilities. Based on the individual factor values and cluster analysis, individual characteristics of athletes were determined at the fourth stage.

Test 1: Assessment of the athlete's ability to kinesthetic differentiation was carried out using the test: "Throwing a ball directed at a target standing with one's back to it" (Liakh, 2006). Detailed testing procedure is described in the work by Boychuk, Iermakov, Nosko and Kovtsun (2017).

Determination of ability to coordinate the movements (test 2-3).

Test 2: "Ten eight figures (Sergiienko, 2001). Detailed testing procedure is described in the work by Boychuk et al. (2017).

Test 3: "Slalom with two balls" (Liakh & Vitkovskij, 2010). Equipment: 3 racks, measuring tape; stopwatch, basket-ball. Three racks are installed in a straight line at a distance of 10 m. The first of them – at a distance of 2.5 m from the start line, the other two - at the same distance between each other. The basketball player (girl) has overcome this distance on the signal, running between the racks and driving the ball. Then, she did the same, but with two balls simultaneously. Result: 1) time of slalom running between the racks with two balls (s); 2) difference between the time of running with two balls and the time of running with one ball (s); measurement accuracy up to 0.01 s. Instructions: Between individual attempts, a few minutes are taken to break.

Test 4: Subjects' abilities to alter the motor actions was determined using the test: "Running around the racks with bal

l driving" (Liakh, & Vitkovskij, 2010). Equipment: 3 racks, measuring tape; stopwatch, basket-ball. Three racks are installed in a straight line at a distance of 10 m. The first of them - at a distance of 2.5 m from the start line, the other two at the same distance from each other. On the signal the basketball player overcame this distance, running around three racks. She then performed the next attempt while simultaneously driving the ball.

Result: 1) time of running around the racks without the ball (s); 2) time of running around the racks with the ball (s); 3) difference between the time of running around the racks without the ball and time of running with the ball.

Test 6: Subjects' abilities to spatial orientation was assessed using the test: "Running to the numbered balls" (Liakh, & Vitkovskij, 2010). Detailed testing procedure is described in the work by Boychuk et al. (2017).

Test 7: Subjects' abilities to feel the rhythm was assessed using the test: "Running through the hoops" (Liakh, & Vitkovskij, 2010). Test equipment: 11 gymnastic hoops with a diameter of 80 cm, measuring tape, stopwatch. At first, the athlete runs 30 m with 11 hoops arranged on it at a maximum speed with an accuracy of 0.01 s. Then the athlete again runs this distance with the simultaneous basket-ball driving. Result: 1) time of running through the hoops without the ball; 2) time of running through the hoops with the ball; 3) difference between the time of running at the 1st and 2nd distances.

Test 8: Athlete's ability to static balance was assessed using the test: "Standing on one leg with eyes closed" (Sergiienko, 2001). Detailed testing procedure is described in the work by Boychuk et al. (2017).

Test 9: Subjects' abilities to dynamically balance was assessed using the test: "Turns on the gym bench" (Liakh & Vitkovskij, 2010). Detailed testing procedure is described in the work by Boychuk et al. (2017).

Determination of the ability to respond (test 10-12).

Test 10-12: Computer program "Psychodiagnostics" (Kozina et al., 2011) was used to determine the latent period of a simple and complex visual-motor reaction. Detailed testing procedure is described in the work by Boychuk et al. (2017).

Statistical analysis. The obtained data was processed using the statistical computer program SPSS 17.0. The method of factor and cluster analysis was used.

Results

4 factors were identified in the structure of coordination preparedness of basketball players (girls) at the age of 17-19 years, and their contribution to the overall sample variance was 86%. In the first factor (contribution to the total variance was 34.6%), 6 variables were the greatest factor load values: running with around the racks with the ball driving; difference between the time of running around the racks without the ball and time of running with the ball; time of running through the hoops with the ball driving; difference between the time of running through the hoops without the ball driving and time of running with the ball; the time of slalom running between the racks with two balls; time of the test "Running to the numbered balls". The factor is interpreted as the ability to quickly alter the motor activity and sense of rhythm. The second factor (20.5%) was characterized by six statistically significant indicators. This involves throwing a ball directed at a target when standing with ones back to it, turns on the gym bench, "ten eight figures" test score, time of slalom running between the racks with two balls, difference between the time of running with two balls and the time of running with one ball, difference between the time of running to the numbered stuffed balls and the time of shuttle running 5x3 m. The factor is called "ability to kinesthetic differentiations and movement coordination."

The third factor (contribution to the overall variance of the sample was 16.2%) with high factor loads included: two indicators of the choice reaction; indicator of the number of turns on the gymnastic bench for 20 s; difference between the time of two balls driving and the time one ball driving. The factor is interpreted as a complex reaction against the background of rapid coordination of movements.

The five variables were included in the fourth factor –time of standing on one leg with eyes closed, "ten eight figures" test score, time of the test "Running to the numbered balls", indicators of a simple and complex reaction. The factor is defined as the ability to spatial orientation.

Table 1. Factorial structure of coordination preparedness of volleyball players (girls) at the age of 15-17 years

Test name	Component			
	1	2	3	4
	36.4	20.5	16.2	14.7
Throwing a ball directed at a target when standing with ones back to it (differentiation of the movement parameters), number of hits	-.444	.802		
Standing on one leg with eyes closed (static equilibrium), s	.542			.648
Turns on the gym bench (dynamic equilibrium), number of turns		-.691	.527	
"Ten-eight figures" test (movement coordination), s		.559		.573
Slalom running with two balls (movement coordination), s	.649	.571		
Ratio of time of running with two balls and time of running with one ball		.712	-.518	
Running around the racks with ball driving (movement alteration), s	.939			
Ratio of time of running around the racks without the ball and time of running with the ball driving.	.904			
Running to the numbered balls (orientation), s	.612			.490
Time difference between running to the numbered balls and shuttle running 5× 3 m (orientation), s	.541	.752		
Running at a distance of 30 meters through the hoops with the ball driving, s	.932			
Difference in time of running at a distance of 30 m without the ball and time of running with the ball driving, s	.897			
SVMR, ms				-.848
RCh 1-3, ms			.795	-.529
RCh 2-3, ms			.907	

Note: SVMR – simple visually quick reaction, RCh1-3 – choice reaction of one signal from three, RCh2-3 – choice reaction of two signals from three.

Individual factor values were calculated to determine the structure of individual preparedness of volleyball players (girls) (Table.2). Each individual factor value (variable Fac_No.) can vary from -3 to +3 (Biuiul '& Tsefel, 2001). Factors No. 1, 3, 4 indicate that parameters characterizing the speed of the motor task performance show the highest factor loads. Therefore, a significant manifestation of these factors will be found those athletes with high negative factor values. Our study revealed the highest manifestation of the first factor (ability to quickly alter the movement action and rhythm) in athletes (girls) No.No. 4, 3, 9, and the lowest - players No.No. 10, 12. The second factor (ability to kinesthetic differentiations and movement coordination) is determined to be the highest in players No.No. 1, 6, 9. The highest manifestation of the third factor (complex reaction against the background of rapid movement coordination) is found in players No.No. 3, 7, 9. The fourth factor (ability to spatial orientation) is best seen in players No.No. 2, 9.

Table 2. Individual factor values determined in basketball players (girls)

Athlete No.	Factors			
	1	2	3	4
1	-0.57691	-0.15792	1.08426	-1.35650
2	0.14498	-0.02584	-0.82936	-1.78123
3	-0.63790	0.71531	-1.09813	0.66076
4	-0.96050	1.51473	1.15345	-0.06193
5	-0.54657	-0.08293	0.77068	1.93142
6	0.17432	-1.60530	0.11508	0.68358
7	-0.49011	1.18590	-1.02754	-0.28382
8	-0.15459	0.49680	-0.15953	0.35694
9	-0.61192	-1.50061	-1.52679	-0.16858
10	1.38416	-0.21360	1.25015	-0.79435
11	-0.24905	-1.05223	0.83455	0.13244
12	2.52409	0.72569	-0.56684	0.68127

A cluster analysis was conducted to identify the players that are the most similar in their coordination preparedness structure. Each individual case first forms its own cluster in the hierarchical cluster analysis. At each step, two separate clusters, closest to each other in their structure, are merged into one cluster. Table 3 shows the sequence of cluster formation. At the first step, players No.No. 3 and 7 were united into one cluster, then No.No.. 6 and 11, 3 and 8 joined them (Biuiul et al., 2001).

Table 3. Agglomeration steps to determine the similarity in the coordination structure of basketball players (girls)

Step	Cluster is combined with		Coefficients	Stage of the first cluster formation		Next stage
	Cluster 1	Cluster 2		Cluster 1	Cluster 2	
1	3	7	1.141	0	0	3
2	6	11	1.307	0	0	5
3	3	8	1.503	1	0	6
4	1	10	4.192	0	0	7
5	5	6	4.546	0	2	8
6	3	4	5.018	3	0	9
7	1	2	5.625	4	0	9
8	5	9	7.251	5	0	10
9	1	3	7.723	7	6	10
10	1	5	8.298	9	8	11
11	1	12	12.382	10	0	0

“Coefficient” is a key factor in determining the optimal number of clusters. This coefficient refers to the distance between two clusters, which is determined based on the chosen distance measure, taking into account the predicted conversion of values. If this distance measure increases at the stage by leaps, then the process of merging into new clusters shall be stopped. This is due to the fact that otherwise clusters that are relatively spaced apart will already be merged. In our case, this is a leap from 1.503 to 4.192. This indicates that after the formation of three clusters, we can not do any further combinations. In this case, the result with the three clusters is optimal.

Analysis of data presented in Table 4 (including a column with three clusters identified) indicates that most athletes belong to the first cluster. The second cluster includes players No.No. 5, 6, 9, 11. In training sessions, it is advisable to combine them into a separate group and to select a training tool, taking into account their leading and lagging factors. The third cluster included athlete No. 12. Her level of the selected factors

manifestation is significantly behind in comparison with that of the rest players and therefore an individual approach shall be applied to the development of her coordination abilities.

Table 4. Affiliation of basketball players (girls) to the clusters according to the coordination preparedness structure

Observation	5 clusters	4 clusters	3 clusters	2 clusters
1	1	1	1	1
2	1	1	1	1
3	2	2	1	1
4	2	2	1	1
5	3	3	2	1
6	3	3	2	1
7	2	2	1	1
8	2	2	1	1
9	4	3	2	1
10	1	1	1	1
11	3	3	2	1
12	5	4	3	2

Discussion.

Obviously, basketball coaches need to focus on the qualities, abilities and components of preparedness that are directly related to the effectiveness of the playing activity. Our analysis and data from other studies (Zhelezniak, Portnov, & Savin, 2001; Korobeynikov et al., 2016; Korobeynikov, Korobeynikova, Romanyuk, Dakal, & Danko, 2017) show that the effectiveness of competitive activity in sports games depends on a variety of factors at all the levels of sports mastery. The range of these factors is expanding as athletes grow older. However, the focus is on the fundamental factors that determine the performance of sports activities regardless of the age of players. They include the manifestation of various coordination abilities (Zimmerman, 1988; Boychuk, 2015; Podrigalo, Iermakov, Rovnaya, Zukow, & Nosko, 2016). The system of coordination training in sports games (Liakh & Vitkovskij, 2010; Boychuk et al., 2017) is one way to overcome a crisis situation caused by the achievement of the volume and intensity limit in training loads at the stage of realization of the athletes' individual capabilities. The authors state that the accentuated development of the most significant coordination abilities for sports games contributes to improving the effectiveness of the motor activities learning process. The high level of motor coordination allows to quickly master the necessary technical techniques and more effectively apply them in the process of competitive activities. We consider that the allocation of leading coordination abilities for a particular sport does not contradict the traditional judgments: they appear not alone, but in a complex interaction in training and competitive activity. However, in specific situations, one coordination abilities are leading, while others are auxiliary (Botiaev, 2010). At the same time, it is possible to instantly change the role of different abilities in connection with the external conditions that have changed.

Despite the importance of coordination preparedness in sports, data on ways to assess and improve this group of abilities are unsystematic. Sadovskij (2003) and Botiaev (2010) point to the expediency of taking into account the individual coordination profile of the athlete and need to apply the principle of coordination preparation individualization. In our opinion, the authors mostly only state the need for an individual approach to training the coordination abilities of the athletes. This leaves the unsolved issue – on what basis and in relation to which parameters it is necessary to select coordination exercises for individual classes? Besides, it is still unclear how to determine the leading and lagging components in the coordination preparedness of the athlete.

Our observations and data from other researchers (Zimmerman, 1988; Gorskaia, 2010) show that a large number of tests should be used for a comprehensive assessment of the athletes' preparedness in gaming sports. Taking into account 1-2 indicators in the process of coordination preparedness control allows obtaining only a limited picture of the development degree of its individual parts. And many important components of coordination abilities remain outside of such control. None of the highly informative tests can characterize the level of development of one or another type of coordination abilities. An integral estimation of each type of these abilities is required.

Our research and data from other authors (Kozina et al., 2016; Shepelenko et al., 2017) showed that the use of methods of factor and cluster analysis allows to accurately and quickly determine the individual factor structure of player's preparedness. The analysis of the interest rate of various factors in the structure of coordination abilities (36.4%, 20.5%, 16.2%, 14.7%) suggests a slightly higher contribution of the first factor to the overall sample variance. In our opinion, this indicates a stronger influence of the first factor "ability to

quickly alter the motor action" on the structure of the coordination abilities of basketball players (girls). This coincides with the results of studies by other authors (Zimmerman, 1988; Liakh, 2006), regarding the benefits of the ability to alter motor action in the structure of coordination preparedness of basketball players (girls) in comparison with other factors. According to the factor analysis as one of the leading factors in the coordination preparedness of basketball players (girls), attribution of abilities to kinesthetic differentiations, responsiveness and spatial orientation also coincides with the data of expert evaluation conducted (Liakh, 2006). In our opinion, this once again confirms the possibility of applying factor analysis to identify the leading factors of athlete's preparedness.

In accordance with the defined individual factor structure, the leading and underdeveloped indicators of coordination abilities for each player were identified. Based on hierarchical cluster analysis data, players are most closely identified in their coordination structure. These patterns need to be taken into account during this training and bring together players who are similar in individual groups. Another author also adheres to the opinion (Kozina, 2011). The author argues that players with the most similar their factor structure can be combined into training pairs. They can also replace each other in the games. The author adds that based on the cluster analysis, the gaming functions of players can be specified and individual recommendations for basketball players (girls) training can be developed.

Analysis of the cluster analysis results suggests that athletes show approximately the same structure of coordination abilities, and most of them belong to the first cluster. In our opinion, this is natural, because the players have passed the preliminary, intermediate and main stages of selection for the basketball. And training in this sport formed a certain coordination profile of the players. This is also confirmed in studies by other authors (Zhelezniak, Portnov, & Savin, 2001; Sadovskij, 2003). The authors argue that the level of coordination abilities depends on the sporttype. Each sport in different ways forms the athlete's coordination profile, depending on the duration of training, test coordination complexity, type of abilities.

Determination of the leading coordination abilities in the structure of the basketball players' (girls') preparedness encourages developing the theoretical and metrological substantiation of coordination tests in our further research. In our opinion, these tests will allow to more objectively evaluate and control the significant coordination abilities of basketball players (girls) at various stages of multi-year sport improvement. This is confirmed by the study of Gorskaia (2010). The author reports that the process of coordination preparedness control in a specific sport should be based on the evaluation of the most significant components of the coordination abilities for this sport type. According to the author, sport coordination control should include assessment of both general and special coordination abilities. Moreover, the share of the total component exceeds the special one significantly at the initial stages of preparation. And increase in the qualification level results in the redistribution of the ratio of coordination preparedness assessment means towards increase of the special component share. Therefore, it is necessary to develop a contensive evaluation of coordination preparedness taking into account the level of qualification.

Our observations and recommendations of other researchers (Gorskaia, 2010; Sergienko, 2014) confirm the expediency to develop several general-purpose tests that assess the main types of coordination preparedness. They should be standard for all types of sports and various stages of sports ontogenesis. This will allow the selection and orientation of young athletes to be properly selected at the initial stages of preparation. It will also make it possible to compare athletes from different sports with each other and will allow observing the long-term dynamics of changes in these parameters in various sports.

Conclusions

1. Training of basketball players (girls) at the stage of preparation for higher achievements is a complex process that takes into account the biological laws of the athlete's body development and pedagogical training principles. Great attention should be paid to the individual abilities of skilled basketball players (girls) in the training process.

2. Level of coordination preparedness is one of the leading factors in the effective competitive activities in basketball. During training of coordination abilities of basketball players (girls), it is necessary to take into account the sensitive periods of these abilities development, age, gender and individual peculiarities of their formation.

3. Analysis of the problem of coordination preparedness individualization of athletes has shown that individualization is one of the leading principles of learning and training. It is also one of the main areas for improving the system of athletes training in gaming sports.

4. Study conducted has shown the effectiveness of practical implementation of the determination of the team and individual factor structure of the athletes' coordination abilities for improving the individualization of the coordination training of basketball players (girls).

5. Determination of the team, individual and factor structure of the coordination preparedness of athletes involves: complex advanced testing of coordination abilities; determination of the general coordination structure of players' preparedness using the factor analysis; hierarchical cluster analysis of test indicators; determination of individual factor values; individual characteristics of the players.

Conflict of interests

The authors declare that there is no conflict of interests.

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