

Comparison of indicators of physical and technical preparedness of basketball players 12th and 13th years old

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Purpose: the establishment of differences in the physical and technical preparedness of basketball players of 12 and 13 years, taking into account motor asymmetry. The differences in the physical and technical preparedness of basketball players of 12 and 13 years, taking into account the motor asymmetry, are established.

Material & Methods: physical preparedness was determined by standard test exercises, and technical preparedness – by test exercises in the transmission, throws and driving with the execution of movements with both hands. The basketball players of the 12th and 13th years of the basketball club "Cherkasy Monkeys".

Results: a comparative analysis of physical preparedness indicators has shown a significant advantage of 13-year-old basketball players in the manifestation of speed, explosive strength and speed-strength qualities. A significant difference in the technical preparedness of basketball players of 12 and 13 years is revealed, in particular, the transmissions of dominant and subdominant hands and complex exercises.

Conclusion: established a clear lateralization of motor functions of the hands with the prevalence of the accuracy of the movements of the dominant hand of basketball players of 12–13 years, and the motor asymmetry in the course of the ball in 12-year-olds to 13 years acquires the signs of symmetry.

Keywords: factors, features, physical readiness, basketball technique, young basketball players, motor asymmetry.

Introduction

The analysis of the investigated problems in basketball showed that the study of physical qualities in connection with the technique of playing young basketball players is updated from time to time. In accordance with the statements of B. Zavalova [2], the problem of a differentiated approach to the physical training of young basketball players in the preliminary basic training phase is urgent, when the foundations of technical mastery are laid. Some scientists consider actual the problems of the influence of physical qualities on the technical preparedness of young basketball players. Thus, Yu. A. Kochubey, E. A. Strikalenko, A. G. Shalar [5], N. A. Nesterenko [9] determined speed and speed-strength abilities as factors in the effective solution of technical problems on the site of qualified basketball players. Al Khatib Ahmad [1] noted the importance of high-speed and power components when teaching young basketball players to gears, ball control and throws. In turn, B. G. Manshin [7], A. K. Moiseenko, I. V. Shiryaeva [8] considered the actual problem of the effectiveness of teaching the technique, which, according to their data, depends on the level of development of speed abilities and the accuracy of reproduction of movements in space. Along with this, A. Yu. Chizhov [11] focused attention in scientific searches on the accuracy of the motor part of the technical movement, which will enhance the mastery of technical skills. A number of problems related to the specifics of technical readiness are the works of L. A. Kolesnikova [3], R. V. Kuchina, I. V. Aksarin [6] on the study of the influence of the motor asymmetry of basketball players of 10–12 years on technical preparedness. However, the studies of R. V. Kuchin, I. V. Aksarin [6] were carried out using techniques that are not related to basketball technique, and L. A. Kolesnikov [3] believes that smoothing the motor

asymmetry contributes to the increase in technical preparedness. Among a significant number of works, it is not enough to study the specifics and factors of the technical preparedness of basketball players for preliminary basic training taking into account the motor asymmetry.

So, different views on the problem of technical preparedness of young basketball players indicate that it is relevant and insufficiently studied. A certain contradiction has arisen between the need to improve the quality of technical training for young basketball players and the inadequacy of studying it from the specifics in the 12–13 age intervals that contributes to the formation of tactical preparedness of athletes.

Relationship of research with scientific programs, plans, themes. The research was carried out in accordance with the theme of the research work of the Cherkassy National University named after Bogdan Khmelnytsky "Theoretical and methodological bases of mobilization readiness of athletes of different qualifications", state registration number 0116U003858.

Purpose of the study: the establishment of factors and features of technical preparedness of basketball players of 12–13 years taking into account the motor asymmetry.

Objectives of the study:

1. To study the manifestation of physical qualities of basketball players of 12 and 13 years.
2. To investigate the technical preparedness of basketball players of 12 and 13 years taking into account the motor asymmetry.

Material and Methods of the research

The basketball players of the 12th and 13th years of the basketball club "Cherkassky Monkeys" were studied in the number of 35 people. For the study, the following methods were used: analysis of scientific and methodological literature, pedagogical testing of physical fitness (long jumps from the place, flexing and extension of the arms in the lying position, shuttle running 3x10 m, running 30 m) and technical preparedness (transmission in pairs by two grams. "Balls in the number of accurate transfers of right and left hands complex exercise with a stroke of chips and throws on the time of execution and accuracy of hits in the ring with right and left hands, keeping the ball right and left hands at a distance of 15 m turn), methods of mathematical statistics.

Results of the research and their discussion

A significant component of the sports success of basketball players is their physical fitness. From the standpoint of basketball theory, the physical fitness of basketball players has a significant effect on the technical skills of players [10]. This is especially important, as B. Zavyalov [2] points out, at the stage of preliminary basic training of basketball players, that is, at the age of 11–14 years. All physical qualities are important for the training of athletes, but basketball is the most significant for effective action on the site. Yu. A. Kochubei, E. A. Strickalenko, A. G. Shalaru, Al Khatib Ahmad [1], B. G. Manshin [7] consider speed and speed-strength abilities as significant, and A. K. Moiseenko, I. V. Shiryayeva [8] add to them also dexterity. According to the data of V. M. Koryagin [4], at the age of 12, the speed factor is significant, and at the age of 13 it is a speed-force factor of a jumping character. This influenced the choice of test exercises to determine the physical fitness of young basketball players.

Comparison of the indicators of physical fitness of young basketball players of 12 and 13 years showed that a group of senior athletes have a high level of development of speed, speed-strength qualities and explosive strength (Table 1).

Table 1
Comparison of physical fitness indicators of young basketball players 12 and 13 years old (M±m)

Test exercises	Young basketball players 12 years old (n=18)	Young basketball players 13 years old (n=17)
Standing long jump (cm)	178,39±3,87	197,65±3,24*
Flexion and extension of the arms in the supine position (times)	37,22±2,58	46,24±1,61*
Shuttle run 3x10 m (s)	7,92±0,12	7,75±0,12
Running 30 m (s)	5,23±0,07	5,00±0,08*

Remark. * $p < 0,05$ – compared with the performance of 12-year-old basketball players.

The greatest difference in the physical preparedness of the young basketball players studied was recorded in the exercise indices of flexion and extension of the arms in the supine position, where 13-year-olds demonstrated a high level of explosive force manifestation by 24% compared to 12-year-olds ($p < 0.05$). Also, 13-year-old basketball players differed significantly from 12-year-olds in the manifestation of speed-

strength qualities (long jump) – by 10% ($p < 0.05$) and speed (30 m) by 4% ($p < 0.05$). At the same time, the level of dexterity development (shuttle run of 3x10 m) of the studied groups of basketball players was almost the same ($p > 0,05$).

Comparison of indicators of technical preparedness of basketball players of 12 and 13 years showed that the results of older athletes in only four of the eight selected exercises significantly prevail in the younger (Table 2).

13-year-old basketball players showed a high level of pre-

Table 2
Comparison of indicators of technical preparedness of young basketball players 12 and 13 years old (M±m)

Test exercises	Young basketball players 12 years old (n=18)	Young basketball players 13 years old (n=17)
Transfers by dominant hand (times)	31,28±1,94*	38,88±1,69**
Subdominant hand transfers (times)	27,50±1,80	33,82±1,36*
Complex exercise with a dominant hand (s)	26,90±0,52	25,20±0,49*
Getting into the ring by the dominant hand (times)	2,89±0,28*	3,47±0,31*
Comprehensive exercise with a subdominant hand (s)	27,79±0,66	26,04±0,58*
Getting into the ring with a subdominant hand (times)	2,17±0,34	2,59±0,42
Dribble dominant hand (s)	4,18±0,05*	4,17±0,06
Dribble subdominant hand (s)	4,39±0,06	4,29±0,09

Remark. * – $p < 0,05$ compared with the performance of 12-year-old basketball players; ** – $p < 0,05$ by comparison with the performance of the exercise by the subdominant hand.

paredness in the transfers by dominant and subdominant hands, on average by 24% in each exercise ($p < 0,05$). Also the advantage of older basketball players was also observed when performing a complex exercise by the dominant and subdominant hands over the time of crossing the distance by an average of 6% in each exercise ($p < 0,05$). However, the accuracy of throws in the ring, as well as the speed of the ball, the dominant and subdominant hands in the groups under study did not differ significantly ($p > 0,05$).

The data of M. Koryagin [4] on the factors of physical and technical preparedness indicate that from the age of 13 the technical readiness becomes significant. These data and the significant advantage we have received from 13-year-old basketball players over 12-year-old athletes with the accuracy of transmission and complex exercise suggests that in the age range under study, a qualitative leap in mastering basketball technology is being implemented..

In accordance with the data of R. V. Kuchin, I. V. Aksarin [6], the basic technical base necessary for competitive activity should be formed among basketball players up to 15 years of age. An important role in the formation of preparedness is played by the individual characteristics of athletes, in particular, the profiles of motor asymmetry [6].

Comparison of the performance indicators of the technical readiness exercises for the manifestation of motor asymmetry

showed that young basketball players of both groups perform more accurate transfers and throws with the dominant hand, respectively, on average 13% ($p < 0,05$) and 25% ($p < 0,05$) (see Table 2). However, when performing the ball-holding exercise with a dominant hand, only 12-year-old basketball players had better scores compared to performing a subdominant hand – on 5% ($p < 0,05$). In the group of 13-year-old basketball players, there was no significant difference in the performance dribble the ball with dominant and subdominant hands ($p > 0,05$). That is, studies have shown that in the performance of programs and throws in basketball players of both 12 and 13 years there is a lateralization of the motor functions of the hands with the predominance of the accuracy of movements by the dominant hand. At the same time, a comparison of the parameters of the ball control showed a smoothing of the asymmetry from 12 to 13 years. That is, the existing advantage in the performance of the ball by the dominant hand over the subdominant 12-year-old basketball players, at the age of 13 years acquires the signs of symmetry.

Conclusions

A significantly higher level of physical fitness of basketball players was established 13 years compared to 12-year-olds in the manifestation of speed, explosive force and speed-strength abilities. The difference in indices for 12-year-old athletes was in the right run of 30 m – 4% ($p < 0,05$), long jump

from place – 11% ($p < 0,05$), flexion and extension of arms – 24% ($p < 0,05$).

Against the backdrop of the substantial advantage of 13-year-old basketball players over 12-year-old physical fitness, there was much better performing skills in the programs and the complex right of dominant and subdominant hands. At the same time, the difference in the indices of basketball players of 12 and 13 years when performing transfers with the dominant hand was 7,6 ($p < 0,05$), which is 1.3 transfers greater than the subdominant hand. In the performance of the complex exercise, the advantage of the dominant hand was not traced ($p < 0,05$).

It is established that in young basketball players, both 12 and 13 years, the accuracy of the gears and shots is higher when performed by the dominant hand, in comparison with the subdominant, which indicates a clear lateralization of the motor functions of the hands. At the same time, there is a motor asymmetry in the course of running a ball of 12-year-old athletes at age 13 acquires the signs of symmetry.

Prospects for further research. In the future, it is planned to establish interrelationships between physical and technical preparedness taking into account motor asymmetry, as well as differences in the technical preparedness of young basketball players with a different profile of brain asymmetry.

Conflict of interests. The author declares that no conflict of interest.

Financing sources. This article didn't get the financial support from the state, public or commercial organization.

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Received: 09.01.2018.

Published: 28.02.2018.

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