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Features of special strength training of young basketball players of training groups

Mambetzhumaev Timur Tazhetdinovich[1]
[1]Nukus Branch of The Uzbekistan state university of physical education and sport, Nukus, Uzbekistan

Abstract

Purpose: The paper discusses the features of the use of a special set of exercises for the development of strength training of young basketball players of training groups. to study the influence of a special set of exercises for the development of strength capabilities of young basketball players of training groups.

Methods: The author used a universal dynamo graphic stand as instrumental research methods in his work to monitor the development of the studied qualities.

Results: As a result of the analysis, it was revealed that at the beginning of the pedagogical experiment, young basketball players from the experimental groups did not have significant statistical differences between the studied parameters (P>0.05), although we observe high average values in two indicators (J and G) in young basketball players of the control group.

Conclusion: The data obtained made it possible to determine the parameters of the development of strength training of young basketball players of training groups.

Keywords: Strength and speed-strength training, basketball, a set of exercises.

Introduction

Modern basketball is characterized by the transience of technical and tactical actions that require maximum muscular effort from the athlete in conditions of time shortage. The analysis of trends in the development of basketball at the international level indicates an increase in the reliability of competitive activity and a high level of special strength training of basketball players. The importance of special strength training for qualified basketball players is beyond doubt, since the further growth of the level of technical and tactical skill is based on the high potential of his physical fitness. In the studies of many specialists, it is indicated that the level of general physical and special speed and strength training of athletes is raised at the expense of basketball itself, that is, using a large number of various training tasks in the process of technical and tactical training (Bondarchuk, 2019; Bompa, et al., 2016; Verhoshanskij, 2019; Verhoshanskij, 1988; Kerimov, et al., 2018; Platonov, 2019). But, using only these means of preparation, it is impossible, and probably impossible, to purposefully develop exactly those physical qualities that allow a basketball player to accelerate the process of mastering new technical actions. In this case, if you do not use concentrated in-depth training of a special strength orientation, then in the process of improving the technical and tactical skills of athletes, there will not be a significant increase in the level of development of speed and strength qualities.

The purposeful use of special strength training means, taking into account the specifics of the athlete's competitive activity, is one of the necessary conditions for building the training process of qualified young basketball players of training groups. The lack of scientifically-based recommendations for purposeful improvement of these abilities of basketball players determines the relevance of this study. Achieving high sports results in modern basketball is impossible without high-quality training of the young reserve. The success of any basketball team, including the youth team, is determined mainly by three factors: the technique of the players, tactics and the general condition of each player (physical, moral, volitional, psychological, etc.).

A highly technical and tactically competent player will never be able to fully demonstrate his skills if, due to poor physical fitness, he rarely masters the ball, moves slowly on the floor. The manifestation of muscular strength and speed in the game contribute to the full realization of the technical and tactical arsenal of the basketball player.

The study of literary sources and generalization of the experience of sports training of young basketball players of training groups indicates unresolved issues of managing their special strength training. In modern methodological and scientific literature, a method for the

development of speed and strength qualities in adult basketball players has been developed in more detail. At the same time, the available research results and methodological recommendations are of a general nature, without taking into account the differences between juvenile and adult organisms. Meanwhile, young basketball players are weaker than adults and the development of special strength qualities has its own characteristics. According to many basketball experts, the age of young men in training groups is the most optimal for the development of special strength abilities. That's why solving the problems of qualitative development of special strength qualities in young players of this age is of paramount importance.

Studies conducted in recent years by leading domestic and foreign specialists in the field of basketball players training show that skillfully applied exercises in the system of special strength training of young players in training groups significantly reduce the likelihood of injury and contribute to the growth of sports results in the future.

Currently, there are two positions regarding the use of funds in special strength training of young basketball players. A number of experts believe that special strength training of young basketball players should include only exercises with a ball, others believe that part of the work should be carried out without a ball. We support this last point of view, based on the fact that many young players in special strength training classes, especially when performing exercises to develop speed and maneuverability, focus on the ball and therefore cannot fully reveal their physical capabilities. All of the above determines the relevance and choice of the direction of our research.

Aim of research - to study the influence of a special set of exercises for the development of strength capabilities of young basketball players of training groups.

During our experiment, the following tasks were set: 1. To determine the dynamics of strength and speed-strength indicators of young basketball players of training groups. 2. To study the influence of a special set of exercises on the level of development of strength and speed-strength fitness of young basketball players of training groups.

Methods

A universal dynamo graphic stand was used as instrumental research methods. The study recorded the following characteristics of the level of development of power and speed-power indicators(5,6,7):

Fmax (kg) is the maximum value of the explosive force of the muscles in the explosive isometric mode.

J - the coefficient characterizing the explosive strength of muscles in the isometric mode, explosive force is the ability to use large quantities in the shortest time. When assessing the explosive force, you can use the speed-force index: J = Fmax/ tmax (kg/s);

Q - starting force is a characteristic of the ability of muscles to rapidly develop working effort at the initial moment of their tension. The coefficient characterizing the starting muscle strength in the isometric mode was determined by the formula: Q = 0,5 Fmax / t1 (kg/s); where 0,5 Fmax – half of the maximum explosive force (kg); t1 is the time to reach the starting force (s).

G-accelerating force is the ability of muscles to quickly increase the working effort in conditions of their beginning contraction. The coefficient characterizing the accelerating muscle strength in the isometric mode is determined by the formula: G = Fmax /tmax –t1 (kg/s);

Registration of efforts was carried out with the help of a specially developed computer program “Program for the analysis of athletes' strength indicators” registered with the Agency for Intellectual Property under the Ministry of Justice of the Republic of Uzbekistan № DGU 09227.

To study the development of strength qualities of young basketball players of training groups, we have developed the following exercises and compiled a program for the use of these exercises. The program represents a concentrated, highly effective load for improving “jumping ability” and requires good preliminary preparation. The program is designed for five weeks with three training sessions per week, a total of fifteen sessions (Table 1).

When using the above programs for the development of “jumping”, it is necessary to take into account the following:

1. The athlete must be well prepared for these programs, have previously performed a certain amount of jumping and barbell exercises, and have mastered the correct depth jump technique.

2. Separate training sessions for the development of “jumping” can be combined with

Table 1. A program with a concentrated highly effective load to improve "jumping ability".

1st day		squating with a barbell (30-35%) 2x3; jumping with a barbell (5-10%) 2x8;
2nd day		vertical depth jump (0,30 m) 4x10;
3rd day		vertical depth jump (0,40 m) 4x10;
4th day		squating with a barbell (30-35%) 1x3; jumping with a kettlebell (6 kg) 1x10; vertical depth jump (0,30 m) 2x10
5th day	*The series are repeated 2 times*	jumping with a kettlebell (8 kg) 2x10; vertical depth jump (0,30 m) 2x10
6th day	*The series are repeated 2 times*	vertical depth jump (0,40 m) 4x10;
7th day		squating with a barbell (30-35%) 2x2; jumping with a kettlebell (32 kg) 2x10
8th day	*The series are repeated 2 times*	squating with a barbell (30-35%) 2x2; jumping with a kettlebell (6 kg) 2x10; vertical depth jump (0,30 m) 2x10
9th day	*The series are repeated 2 times*	vertical depth jump (0,40 m) 4x10;
10th day		squating with a barbell (30-35%) 1x2; jumping with a barbell (5-10%) 2x10
11th day	*The series are repeated 3 times*	jumping with a kettlebell (8 kg) 2x10; vertical depth jump (0,30 m) 2x10
12th day	*The series are repeated 2 times*	vertical depth jump (0,40 m) 4x10;
13th day		squating with a barbell (30-35%) 1x2; jumping with a barbell (5-10%) 2x10
14th day	*The series are repeated 3 times*	jumping with a barbell (5-10%) 2x10; jumping with a kettlebell (6 kg) 2x10
15th day	*The series are repeated 2 times*	vertical depth jump (0,30 m) 2x10; vertical depth jump (0,40 m) 2x10

other work in one training session (imitation of technical elements, exercises for the trunk and shoulder girdle, etc.), but they should occupy the main place in it. In no case should this work be considered as an "addition" to some other work.

In the control group, during the pedagogical experiment, training sessions were conducted according to the approved annual plan.

Results and discussion

As a result of the analysis, it was revealed that at the beginning of the pedagogical experiment, young basketball players from the experimental groups did not have significant statistical differences between the studied parameters (P>0.05), although we observe high average values in two indicators (J and G) in young basketball players of the control group. The following data obtained from young basketball players of the experimental group Fmax -76.6±4.2; J - 80.6±18.9; Q – 77.3±14.5; G - 69.5±11.4, as well as from young basketball players in the control group Fmax - 77.2±4.1; J - 78.2±19.1; Q - 74.2±12.5; G – 68.2±11.5, indicate that at the beginning of the pedagogical experiment,

young basketball players in the experimental groups were selected with the same level physical fitness.

At the end of the pedagogical experiment, we conducted a comparative analysis of the parameters of strength and speed-strength readiness of the experimental groups. We found that as a result of the conducted pedagogical experiment, the following statistically significant differences were determined in young basketball players of the experimental group: Fmax - 93.3±5.4; J - 89.6±12.1; Q - 97.1±9.6; G - 74.4±13.1, as well as in young basketball players in the control group Fmax - 78.8±3.2; J - 79.6±11.7; Q - 76.2±13.4; G - 69.4±8.3. There were some changes in all parameters, and statistically significant differences were observed in all four studied indicators, with a significance level of $P<0.01$.

In order to test the effectiveness of the developed methodology, a pedagogical experiment is usually organized in such a way that it would be possible to compare the results of experimental groups with the data obtained in control groups. In this pedagogical experiment, we simultaneously observed young basketball players in training groups from the experimental and control groups. Thus, the statistical analysis of the material obtained in the pedagogical experiment testifies to the advantage of the methodology developed by us for the development of strength and speed-strength qualities of young basketball players of training groups, using specially selected exercises. We have revealed that the developed methodology that contributes to the improvement of strength and speed-strength qualities in young basketball players of the experimental group revealed a significant advantage over the traditional system of conducting training sessions among young basketball players of training groups. The research results have shown that the basic curriculum needs to be supplemented with special physical exercises that contribute to improving the effectiveness of the training process, and are the most effective means of increasing the level of strength and speed-strength training among young basketball players of training groups.

Conclusion

The results of the study allowed us to note the following conclusions:

1. The conducted research made it possible to determine the dynamics of strength and speed-strength indicators in young basketball players of training groups. Thus, during the experiment period, a significant increase in the studied indicators was detected. Statistically significant differences are observed in young basketball players of the experimental group for all studied indicators at a significance level of $P<0.01$.

2. During the experiment period, a slight increase in the studied indicators was found in the control group. However, there are no significant statistical differences in the performance of young basketball players from the control group. ($P>0.05$)

3. The results of the research have shown that the combination of the basic curriculum with the additional use of special physical exercises contributes to improving the effectiveness of the training process for young basketball players of training groups and is an effective means of increasing their level of technical and tactical training.

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AUTHOR BIOGRAPHY



Timur Tazhetdinovich MAMBETZHUMAEV

Employment

Scientific researcher at Nukus Branch of The Uzbekistan state university of physical education and sport.

Degree

MD

Research interests

Sport Science, Physical Education, Theory and methodology of basketball, Strength and speed-strength training.

E-mail: mambetjumaevt@bk.ru