

# IMPROVING ATHLETIC PERFORMANCE OF BASKETBALL STUDENT TEAM WITH THE CLASSICAL YOGA EXERCISES

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**Annotation.** The results of the study of the effect of yoga exercises on the preparedness of the student basketball team. The study involved 25 athletes aged 17-20 years. The experimental group consisted of 13 players dealt in accordance with the proposed set of yoga exercises, which were used in the introductory, preparatory and final part. In the main part of the problem solved basketball directions. Classes in both groups were conducted 4 times a week for 2 hours for 9 months. Found that the use of exercises yoga pose direct impact on the physical indicators of preparedness players. Found an increase in the level of indicators: vertical jump, speed endurance, speed, retention of equilibrium (balance), free throw, with the movement, three-point shots, free throws, tactical execution.

**Keywords:** basketball, college students, yoga, training, physical.

## Introduction

In any kind of sports there is a lot of basic variants of sport training (physical, technical, tactic, integral and so on). There appears a question to what extent these kinds of sportsmen's of team's training can be effective with the help of yoga.

Yoga exercises and methods can directly influence on optimization of all kinds of sportsman's or team's training [1]. Distinctive feature of yoga, which is of great interest for sport specialists [1, 2, 6, 10], is detail development of sportsmen's perfection techniques for mastering of muscular relaxation art, techniques of reasonable breathing and concentration of attention.

It is important for sportsman and his coach to understand what is to be taken from ancient science about self development for increasing of sport results and improvement of training process's quality, because yoga exercises can be used in sport practice in rather different way.

As domestic and foreign specialists think [3, 7, 8, 10-12], yoga can give increasing of strength, endurance, pure consciousness, calmness and more sound sleep to basketball players. Some researches [1, 2, 6 ] specify, that regular practice of different yoga postures (asanas) as well as breathing exercises (pranayama) help to strengthen muscles, develop qualitatively new power and improve muscular elasticity and mass. As a result strength and endurance of organism in general are improved, but not only of separate muscular groups and it renders additional effectiveness in trainings and competitions.

For basketball players it is very important to control body. Owing to yoga practice, one can develop excellent balance, which facilitates better control of movements, its position in space and, in its turn, improves technique and coordination of movements [1].

One of the most known pluses of yoga is development of profound and steady flexibility that is very important for basketball. Good flexibility helps to avoid traumas, increases amplitude of movements (i.e. improves technique), makes muscular work more energy saving and effective owing to increased muscular elasticity [3, 7].

Thus, it is assumed that physical training for maintaining optimal physical condition, technical training for improvement of sportsmanship and tactic training, oriented on development of strategic and tactic skills can be improved with the help of yoga exercises, which, at the same time, harmoniously influence on mind and body.

The present work makes urgent the problem of yoga exercises' introduction in training process of student team's basketball players, while study of yoga influence on sport preparedness would help to solve this problem.

## Purpose, tasks of the work, material and methods

*The purpose of the research* is to determine influence of yoga exercise on preparedness of student team's basketball players.

*Methods and organization of the research.* In the research we used such methods as study,, analysis and generalization of literature and documentation, dealing with the problem of our research, pedagogic observation, testing of physical and technical-tactic preparedness.

The research was organized on the base of National University of bio-resources and nature utilization of Ukraine. The research involved 25 players of student's combined basketball team, of 17-20 years old age. For determination of preparedness level of the players we used commonly known test exercises (see table 1).

Table 1

Testing program for basketball players

№	Preparedness	Test exercises		Unit of measurement
1	Physical	T1	No-step Vertical Jump)	cm
		T2	Shuttle run 2x40 s	m
		T3	3/4 Court sprint, 20 m	sec

2	Technical-tactic	T4	Laneagility test)	sec
		T5	Curl	Quantity of repetitions
		T6	Flexibility (Sit and reach test)	cm
		T7	Standing Balance Test	sec
		T8	Free throws per 1 min.	Trials/hits
		T9	Throws in movements per 1 min.	Trials/hits
		T10	3 scores throws per 1 min.	Trials/hits
		T11	Penalty throws per 1 min.	Trials/hits
		T12	Fulfillment of tactic task in game (per 10 min)	Trials/ correct fulfillment

At first stage of our research we tested basketball players for their physical and technical-tactic preparedness. Results are presented in table 2.

By the results of preliminary study of basketball players' preparedness level we formed two identical groups (determined differences were not statistically significant  $P > 0.05$ ).

Table 2

*Indicators of basketball readiness for experiment*

Tests	Control group			Experimental group			P
	$\bar{x}$	S	Level	$\bar{x}$	S	Level	
Test №1, cm	61,4	0.6	Middle	62	0.7	Middle	>0.05
Test №2, cm	375.3	0.2	Low	377	0.5	Low	>0.05
Test №3, sec	3.32	0.2	Low	3.2	0.2	Low	>0.05
Test №4, sec	13.2	0.6	Low	13.5	0.4	Low	>0.05
Test №5, rpt	45.1	1.4	Middle	44.8	0.8	Middle	>0.05
Test №6, cm	15.3	0.3	Middle	15	0.4	Middle	>0.05
Test №7, sec	15.8	0.7	Low	16.3	0.7	Low	>0.05
Test №8, T/H	15/11	1.2	Middle	15/10	1.0	Middle	>0.05
Test №9, T/H	16/10	0.3	Middle	15/11	0.4	Middle	>0.05
Test №10, T/H	25/15	0.5	Low	25/14	0.7	Low	>0.05
Test №11, T/H	16/13	0.4	Middle	16/12	0.4	Middle	>0.05
Test №12, T/C f-t T/H	5/1	0.3	Low	4/1	0.2	Low	>0.05

Control group, 12 players, was trained as per requirements of classical training program for basketball team. Trainings consisted of introductory, main and final parts. There were used commonly known exercises, which corresponded to task of every part [4, 5, 9].

Experimental group, 13 players, was trained as per offered complex of yoga exercises, which were used in introductory and final parts. In main part tasks of basketball orientation were solved. Trainings in both groups were conducted 4 times a week, 2 hour every training, during 9 weeks.

Considering specificity of basketball there were proposed the following complexes of yoga exercises:

1. **Complex of yoga exercises for introductory and final parts;**

- Crossed-legged posture and meditation during 3-5 minutes;
- Forward bend from sitting position;
- "cobra", "locusts", "bow", "plough";
- Turn;
- Shoulder stand;
- "fish";
- Abdomen draw-in;
- Meditation in sitting position with breathing exercises, "immovable posture";
- Relaxation posture;
- Re-activation, including several deep inhales, straightening in sitting or standing position, arm exercises.

2. **Asanas postures of preparatory part for balance and concentration:**

- "Tree" posture;
- "dancing posture:
- "balance";
- "crow";
- "T" posture;
- Bending knees posture;
- Tip-toes posture;
- Legs' stretching standing;
- "eagle" posture;
- "triangle" posture;
- "Dog" posture with head downward;

- “Crescent” posture

With selection of yoga exercises, recommendations of A. Kolger were considered [1].

### Results of research and its discussion

The carried out research permitted to obtain substantial experimental data. Results of influence of classical basketball exercises on sport indicators of control group players are given in table 3.

Table 3

*Results of testing of control group basketball players*

Tests	Results of testing						P
	Before experiment			After experiment			
	$\bar{x}$	S	Level	$\bar{x}$	S	Level	
Test №1, cm	61.4	0.6	Middle	64	0.5	High	<0.05
Test №2, cm	375.3	0.2	Low	388	0.8	Middle	<0.05
Test №3, sec	3.32	0.2	Low	3.04	0.3	Middle	<0.05
Тест №4, sec	13.2	0.6	Low	13.0	0.4	Low	>0.05
Test №5, rpt	45.1	1.4	Middle	48	1.1	Middle	>0.05
Test №6, cm	15.3	0.3	Middle	16.1	0.6	Middle	>0.05
Test №7, sec	15.8	0.7	Low	21.3	0.4	Middle	<0.05
Test №8, T/H	15/11	1.2	Middle	15/13	0.9	Above middle	<0.05
Test №9, T/H	16/10	0.3	Middle	16/14	0.4	Above middle	<0.05
Test №10, T/H	25/15	0.5	Low	25/17	0.7	Middle	<0.05
Test №11, T/H	16/13	0.4	Middle	16/15	0.4	Above middle	<0.05
Test №12, T/C f-t T/H	5/1	0.3	Low	7/3	0.2	Middle	<0.05

Comparing results of testing initial and final stages of control group we noticed that from indicators of 12 test exercises, not all were changed. Indicators of vertical jump, speed endurance, quickness, balance, free throws, throws in movement, 3-scores throws, penalty throws and fulfillment of tactic task – improved ( $p < 0.05$ ). There were no changes in indicators, which characterize movements in defense, power endurance of abdomen muscles, flexibility. In this case we can conclude that using of traditional exercises at trainings does not solve all required tasks.

In experimental group all indicators of all test exercises improved (see table 4) ( $p < 0.05$ ).

Table 4

*Results of testing of control group basketball players*

Tests	Results of testing						P
	Before experiment			After experiment			
	$\bar{x}$	S	Level	$\bar{x}$	S	Level	
Test №1, cm	62	0.7	Middle	65	0.5	High	<0.05
Test №2, cm	377	0.5	Low	407	1.2	High	<0.05
Test №3, sec	3.2	0.2	Low	3.01	0.3	Middle	<0.05
Тест №4, sec	13.5	0.4	Low	10.9	0.4	Middle	<0.05
Test №5, rpt	44.8	0.8	Middle	54.7	0.9	High	<0.05
Test №6, cm	15	0.4	Middle	21.3	0.6	High	<0.05
Test №7, sec	16.3	0.7	Low	51.6	0.4	High	<0.05
Test №8, T/H	15/10	1.0	Middle	15/13	0.5	Above middle	<0.05
Test №9, T/H	15/11	0.4	Middle	17/15	0.7	High	<0.05
Test №10, T/H	25/14	0.7	Low	25/19	0.9	Middle	<0.05
Test №11, T/H	16/12	0.4	Middle	17/15	0.4	Above middle	<0.05
Test №12, T/C f-t T/H	4/1	0.2	Low	7/4	0.2	Middle	<0.05

Comparing results of control and experimental groups we can note positive changes of the studied indicators in both groups (see table 5). It proves effectiveness of traditional exercises in basketball (control group) and additional yoga exercises (experimental group). However, it should be noted that indicators, obtained in experimental group are higher to some extent than those, registered in control group, and results of such test exercises as speed endurance, movements in defense, raising from sitting position (power endurance of abdomen muscles), flexibility and balance are confidently different ( $p < 0.05$ ).

Table 5

*Indicators of basketball players' preparedness after experiment*

Tests	Control group			Experimental group			P
	$\bar{x}$	S	Level	$\bar{x}$	S	Level	
Test №1, cm	64	0.5	High	65	0.5	High	>0.05
Test №2, cm	388	0.8	Middle	407	1.2	High	<0.05
Test №3, sec	3.04	0.3	Middle	3.01	0.3	Middle	>0.05
Тест №4, sec	13.0	0.4	Low	10.9	0.4	Middle	<0.05
Test №5, rpt	48	1.1	Middle	54.7	0.9	High	<0.05
Test №6, cm	16.1	0.6	Middle	21,3	0.6	High	<0.05

Test №7, sec	21.3	0.4	Middle	51.6	0.4	High	<0.05
Test №8, T/H	15/13	0.9	Above middle	15/13	0.5	Above middle	>0.05
Test №9, T/H	16/14	0.4	Above middle	17/15	0.7	High	>0.05
Test №10, T/H	25/17	0.7	Middle	25/19	0.9	Middle	>0.05
Test №11, T/H	16/15	0.4	Вище серед.	17/15	0.4	Above middle	>0.05
Test №12, T/C f-t T/H	7/3	0.2	Middle	7/4	0.2	Middle	>0.05

### Conclusions:

Summarizing the above presented we may state that the used yoga exercises directly influence not on all indicators of basketball players' preparedness, but only on physical, especially on flexibility and balance. Alongside with it, we can say that yoga exercises can be widely used in training process of basketball players that was proved by improving of indicators of experimental group players in comparison with control group, where yoga exercises were not applied. However, for better effect it is necessary to select exercises, which would facilitate certain tasks of training process.

Thus, *perspective* direction of our researches is selection of yoga exercises, capable to improvement of ball throws from the spot and in movement, accuracy of passes, dribbling.

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