

THE IMPORTANCE OF VOLLEYBALL GAME IN PHYSICAL EDUCATION LESSONS AT GYMNASIUM LEVEL

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Abstract: Volleyball game can be a method for fulfilling the objectives of the physical education lesson, being fun and also doesn't require many materials and space. Our research studied the influence of volleyball game on a grup of 25 girls with age between 13-14 years from a gymnasium school. The methods used were experimental using some specific volleyball test like anthropometric measurments, speed running, endurance running, long jump, flexibility, abdominal strength, triple jump, 6 m x 5 m running. The results showed good improvements in every assessment comparing the results between the initial and final evaluation. Conclusions highlighted the idea that volleyball game can be a good method for fulfilling the objectives of every physical education class and also improve motor qualities and develop skills.

Key words: physical education, volleyball game, physical development, sports.

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INTRODUCTION

Volleyball game is one of the physical activities that is included in game and sports activities (Yudiana, 2015). Therefore, volleyball game becomes one of the sports that popular among the society.

Volleyball game is considered an intermittent sport with effort and rest (Marques, 2018). The actions during the match are of short duration (rally of 1 to 10 seconds) and with longer rest duration (11 to 30 seconds) (Padilla et al., 2018; Turpin et al., 2019).

Volleyball game, relatively simple, once, by training players and multilateral actions scroll speed of the game, get to enjoy a wide increasingly accepted by the audience (Cojocaru et al., 2018). The game of volleyball has a wide range of actions in the game, from the simplest to the most complex. This required the players to continue training and persevering, and staging the sequence of processing the learning and teaching for coaches, which gives a touch of increased

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subtlety of this game (Szabo, 2015a). Practicing intense dispute between the actions of attack and defense to win points, based on a thorough analysis of the structure and orientation in new directions, according to current and future needs, displays volleyball game in the first world affirmation plans with other sports performance (Ioniță, 2007).

The volleyball is a complex sport because the athlete needs of good technique and tactic, adequate psychological preparation and excellent physical preparation (Marques Jr., 2019). The volleyball match is practiced with six skills during the game (Marques Jr. et al., 2017). The serve, the attack and the block are the skills that the volleyball player practices point and the reception and the set are the skills of construction and offensive development (Padilla et al., 2018).

Volleyball has become one of the most practiced sports in the world. The game of volleyball requires expertise in several physical fitness and performance and often depends on an individual's ability to jump on very highlevel parameters (Szabo, 2015a; Petrovici, 2020; Szabo, 2015b, Szabo, 2016; Szabo, 2019).

Volleyball as a game, due to its peculiarities, has been able to win over the years an appreciation from all children and young people but also from adults. Having the opportunity to practice at all age levels, volleyball is perceived as a beautiful sports game and also an important means of physical education (Savu et al., 2018).

At the level of beginner groups, care for developing the above-mentioned motor skills should be a primary goal, especially knowing that at other stages of motor skills the speed and skill are very difficult or not at all perfectible (Savu, 2015).

The volleyball game, together with other sport games represent one of the means of achieving the objectives of physical education in school, framed in the general methodology of teaching and learning of this game. It is in a permanent evolution, adapting the instruction methods and the preparation means, respecting the general principles of applying them (Milcu, 2013).

Due to the multiple and complex aspects which must be solved in the framework of the learning process, we must appeal to principles, methods, organisation forms and adequate means which should ensure a maximum efficiency. This is why, the optimization of learning and consolidation of game actions in volleyball during the physical education class in gymnasium and the aware participation of the pupil become stringent requirements (Milcu, 2013).

Because of the many challenges in the learning and teaching process, various methods are required to teach sport skills (Da Silva et al., 2007). Modified games have become a useful pedagogical framework to teach different types of sports in physical education class (Arias et al., 2011). Simplifying, adapting and modifying physical education activities can be beneficial for student learning (Griffin et al., 2005). Modified volleyball game is a viable format to maximize beginners' participation and learning opportunities (Melendez et al., 2019).

Modified games have emerged as a pedagogical framework to teach different sports in the PE field (Nathan, 2015; Arias et al., 2011). Simplifying, adapting, and modifying PE activities and games can be beneficial for student learning (Griffin et al., 2005). Moreover, various studies have reported that modified games increase participation during playing time, improve decision making, and physical activity (Bělka et al., 2016; Clemente et al., 2015 Mahedero et al., 2015; Danielle et al., 2014; Van Acker et al., 2010)

However, because of the complexity of the learning and teaching process, various methods are required to initiate volleyball practitioners (da Silva et al., 2007). For that reason, the modified version of the context of volleyball could play a vital role in increasing student participation and physical activity levels (Szabo et al., 2020). The concept of volleyball on reduce space is a modified game from the sport that has been used worldwide as a framework for teaching (Sample et al., 2012; Kessel, 2009; Petrovici, 2020). Volleyball is a team sports game that has spread very rapidly on all continents since its appearance. In ourcountry, volleyball game is divided in both mass and performance competitions (Sopa et al., 2017).

PURPOSE

The purpose of the research was to analyze the importance of volleyball game in physical education lessons at gymnasium level and to highlight the characteristics that this game could develop being an important method in improving and developing motor qualities.

OBJECTIVES

The objective of our investigation was to evaluate the effects of implementing volleyball means through physical education classes and analyze their effects on body development.

HYPOTHESES

If the game of volleyball will be included in the content of the bilateral instructive-educational process, specific to the activity of physical education and sports in secondary education, the effects in terms of strengthening health, physical and mental development can be multiple and beneficial.

MATERIALS AND METHODS

Performance coefficient was developed by Coleman (2002) with the objective of determine the performance of the volleyball skills. Coleman (2002) practiced the following classification of the performance coefficient for the volleyball skills: 2,50 or more is an excellent performance of an international level volleyball team, 2,30 to 2,49 is a low performance of an international level volleyball team, 2,20 to 2,29 is a good performance of a club level volleyball team, 2 to 2,19 is a medium performance of a club level volleyball team and 1,99 or less is a bad performance of a club level volleyball team. In our experiment we used the specific motor evaluation grid provided by the Romanian Volleyball Federation for the age level corresponding to our research sample.

Sample of students, location of the research

In order to carry out the study in optimal conditions, we had the opportunity to attend the physical education and sports classes provided in the common core, the 7th C and 7th D classes of the Mircea cel Bătrân National College from Râmnicu Vâlcea.

The sample on which we performed the study consisted of a number of 25 students (girls) from the above mentioned classes, born in 2004-2005, in which we performed anthropometric measurements. As a result of anthropometric measurements I can conclude that the students tested have a normal development for this age level.

The arithmetic mean of body height is 164.6 cm in this group of students, and the average body weight is 54.7 kg.

To verify the general hypothesis and the working hypothesis, we applied on this sample of students, a battery of tests and control tests provided by the National Assessment System for the discipline of physical education and sports, as well as a battery of control tests specific to the game. volleyball.

This study was conducted during the school year 2017-2018, and to meet the objectives and tasks of the paper, as well as to verify the hypotheses of tests - tests and control rules were applied in two stages:

1. initial testing: October - November 2017;
2. final testing: April - May 2018.

Description of physical control samples

Waist - from the standing position with the heels close, back to the wall, height measurement.

Running speed over a distance of 50 m: It was performed on flat ground, starting from the starting position standing at the individual beep. Each subject has the sample on which the study was performed and performed this control test twice, at an interval of a few days both in the test

and in the final one. The best result was recorded, the expression being made in seconds and tenths of a second.

Endurance running: this control test was performed at a distance of 1000 m, on a properly arranged route. The results of this test were expressed in minutes and seconds.

Long jump on the spot: This test was performed on flat ground in a properly marked area, each subject being entitled to three trials. The best performance was recorded, its expression being made in meters and centimeters.

Vertical jump, with momentum, reaching the maximum point, with one hand - attack momentum, jumping and touching as high as possible with the arm outstretched.

Vertical jumping, from the spot, reaching the maximum point, with two hands - elan of arms, jumping and touching with both hands as high as possible.

Lateral movement on 4 m - from lateral bending with touching the line with the hand, movement with added or crossed steps on the distance of 4 m for 45 s. The touches of the lines with the hand are counted.

Frontal flexibility - from the standing position, on the edge of the gym bench, close toes and knees outstretched, bending the torso with outstretched arms.

Abdominal strength - from the supine position, with the knees bent, the arms free, raising the torso vertically with the chest touching the knees, returning with the touch of the shoulder blades on the ground. The correct repetitions are counted, performed in 2 series of 30 seconds each with a break of 15 seconds.

Triple jump from both legs - from the standing position with the legs apart at shoulder level, three jumps from squatting to squatting, without stopping between them.

6 m x 5 reps back and forth - from the starting position standing, free forward forward followed by backward movement

Table 1. Evaluation scale for motor assessment

Index	Evaluation tests				
	Lateral movement (45sec)	Triple jump (metri)	Flexibility (cm)	5x6m movement (sec)	Abdominal force (30/15/30)
1.00	40	10	30	6.51	76
0.95	39	9.75	29	6.67	74
0.90	38	9.5	27	6.83	72
0.85	37	9.25	26	6.99	70
0.80	36	9	24	7.15	68
0.75	35	8.75	23	7.31	67
0.70	34	8.5	21	7.47	66
0.65	33	8.25	20	7.63	64
0.60	32	8	18	7.79	62
0.55	31	7.75	17	7.95	60
0.50	30	7.5	15	8.11	59
0.45	29	7.25	14	8.27	58
0.40	28	7	12	8.43	56
0.35	27	6.75	11	8.59	54
0.30	26	6.5	9	8.75	53
0.25	25	6.25	8	8.91	51
0.20	24	6	6	9.07	49
0.15	23	5.75	5	9.23	47
0.10	22	5.5	3	9.39	45
0.05	21	5.25	2	9.55	44
0.01	20	5	0	9.71	43
0.00	19	4.99	-1	9.87	42

Jump index = [(Waist / net height) x (Jump on the spot with 2 hands - net height + Jump with one hand - net height)] / 100

General motor index = Jump index + Lateral displacement index + Triple jump index + Flexibility index + 5x6 displacement index + Abdominal index

Table 2. Motor evaluation table for women volleyball players with age between 14-16 years old

	Women			
	Hope (13-14 years old)		Cadets (15-16 years old)	
	National team	National championship	National team	National championship
Jumping index	0.80	0.50	0.60	0.40
Lateral movement index	0.50	0.35	0.40	0.30
Flexibility index	0.40		0.35	
Abdominal force index	0.50		0.40	
Triple jump index	0.35		0.25	
5x6 m movement index	0.45		0.40	
General motor index	3.00	2.15	2.40	1.65

The general motor index will be calculated by summing the values of all indices.

The full accomplishment of the tasks of this paper was not possible without the careful use of research methods, of real support being both the methods of data processing and those of drawing conclusions.

A basic condition in the realization of the paper was the documentation, the search for bibliographic sources that deal with the topic of the paper, the recording and selection of these resources, as well as the processing - interpretation of the data obtained. Among the investigation methods used, methods that allow direct contact with the instructive-educational phenomenon, the following were used: observation method, experiment method, statistical method, test method, etc.

The usual statistical-mathematical indicators in the analysis of the data obtained by measurement are: the parameters of the central tendency - whose indicators are: modulus, median and arithmetic mean.

RESULTS

Table 3. Anthropometric informations regarding the experiment group

Statistical informations (N = 25)	Age (years)	Height (cm)	Weight (kg)	Wing span (cm)	Biacromial diameter (cm)	Bitrohanterian diameter (cm)	BMI
Average	14.40	164.65	55.19	166.08	35.36	42.28	20.16
Coefficient of variability	0.25	21.51	9.10	18.33	1.74	3.54	0.43
Standard deviation	0.49	4.54	2.92	4.19	1.29	1.84	0.64
Val. Min	14.00	156.00	50.00	160.00	33.00	40.00	18.60
Val. Max	15.00	175.00	61.00	172.00	38.00	46.00	21.60
Skewness	0.43	0.21	0.01	0.06	0.45	0.50	-0.56
Kurtosis	-1.98	-0.32	-0.45	-1.43	-0.39	-0.95	1.41
Mode	14.00	160.00	55.00	165.00	35.00	42.00	20.50

Table 4. Results of the initial motor evaluation

Statistical informations (N = 25)	Speed running 50 m	Endurance running 1000 m	Long jump	Lateral movement	Triple jump	Flexibility	6x5 m movement	Abdominal force
Average	7.90	3.94	1.85	24.28	6.25	12.92	8.34	45.96
Coefficient of variability	0.10	0.15	0.01	2.38	0.00	6.74	0.17	31.04
Standard	0.31	0.38	0.11	1.51	0.04	2.54	0.40	5.46

deviation								
Val. Min	7.50	3.42	1.65	20.00	6.19	9.00	7.82	38.00
Val. Max	8.80	4.45	2.10	27.00	6.35	20.00	8.94	58.00
Skewness	1.07	-0.15	0.38	-0.81	0.93	0.79	0.23	0.46
Kurtosis	1.45	-1.93	-0.14	1.22	0.25	0.74	-1.67	-0.78
Mode	7.80	4.15	1.75	25.00	6.25	12.00	8.75	50.00

Table 5. Results of the final motor evaluation

Statistical informations (N = 25)	Speed running 50 m	Endurance running 1000 m	Long jump	Lateral movement	Triple jump	Flexibility	6x5 m movement	Abdominal force
Average	7.81	3.88	1.88	22.96	6.47	14.36	8.10	49.48
Coefficient of variability	0.08	0.14	0.01	2.29	0.07	6.57	0.07	34.84
Standard deviation	0.28	0.37	0.11	1.48	0.25	2.51	0.25	5.78
Val. Min	7.30	3.39	1.75	20.00	6.10	10.00	7.80	40.00
Val. Max	8.60	4.39	2.15	25.00	7.05	20.00	8.55	61.00
Skewness	0.79	-0.16	0.79	-0.40	0.91	0.34	0.46	0.29
Kurtosis	1.03	-1.90	0.55	-0.70	0.12	-0.65	-1.12	-0.68
Mode	7.60	3.50	1.75	24.00	6.30	12.00	7.80	50.00

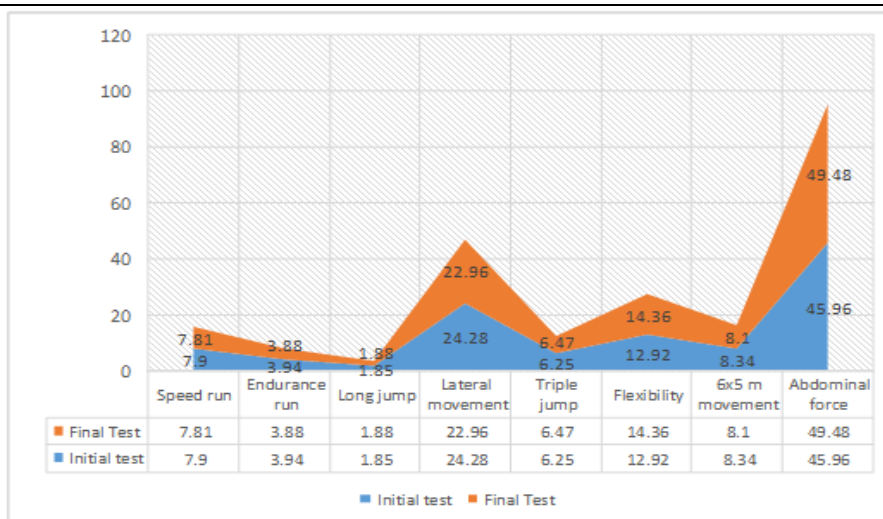


Figure 1. Differences between initial and final motor evaluation

DISCUSSIONS

In order to fulfill the objectives of the paper as well as to verify the general hypothesis and the working hypotheses, we aimed at two categories of control tests:

- control tests aimed at the effects of playing volleyball on some elements of the general motor capacity;
- specific control tests;

The results obtained from the measurements were analyzed in both the initial test and the final tests based on the arithmetic mean as the main parameter of comparing.

The correlations made based on this parameter highlight the following:

In the 50 m running test, the arithmetic mean of the final test (7.81 sec) is with 0.09 seconds better than the initial test (7.90 sec). The progress made can be considered normal for this age level and is an effect of the improvement of the indices of manifestation of reaction speed, movement

and repetition, at the same time and of the activities foreseen in the specific learning unit, with emphasis on strengthening the start technique, launch from start, speed step and finish.

In endurance running at a distance of 1000 m. The progress made by students between the two tests (initial test 3.94 and final test 3.88) was 0.06 seconds, a consequence of the contents used for the development of aerobic cardiovascular endurance and the improvement of the technique of performing this test.

At the jumping in length from the spot. This test was used to know the indices of force manifestation in speed regime, the progress between the two tests being 0.03 cm, due only to the improvement of force indices in speed regime but to the technique of execution of this test.

Regarding lateral movement it was registered a progress of 1.32 sec from the initial test (24.28 sec) to the final test (22.96 sec).

At the triple jump test was registered a 22 cm improvement from the initial test (6.25 m) to the final test (6.47 m).

At the flexibility test it was registered an initial value of 12.92 cm compared with the final test where we registered a 14.36 cm performance with a 1.44 cm improvement.

In the 5x6 m movement we obtained an improvement of 0.24 sec from the initial test (8.34 sec) to the final test (8.10 sec).

At the last test, the abdominal force test, we registered a value of 45.96 rep at the initial test compared with the final test where we registered a value of 49.48 rep with a progress of 4.48 rep.

CONCLUSIONS

The conclusions of our research highlighted the importance of introducing specific volleyball game means in the physical education lessons for developing motor qualities and also for fulfilling the lessons objectives and obtain a well developed body.

Also volleyball game can be a fun mean for childrens learning process, building cohesion, improving communication, developing body functions and motor qualities.

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