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TEACHING BASKETBALL THROUGH DYNAMIC GAMES TO 11–12-YEAR-OLD PUPILS

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Abstract: *The purpose of this research is to determine whether there are differences in regards to basketball learning through dynamic games between the 11-12-year-old female and male middle schoolers. The subjects of the research were 40 pupils, of which 19 males and 21 females, aged 11-12, from the "Alexandru cel Bun" Middle School of Bacau. The Anova test showed that there are statistically significant differences between the average time recorded by the girls and boys in almost all the challenges. In conclusion, it can be said that basketball is learned differently by the 11-12-year-old pupils, according to their gender.*

Key words: *learning, basketball, pupils, dynamic games.*

1. Introduction

Basketball is a group sport, being one of the means that can accomplish the specific and associated tasks of physical education [3].

The games in which the role of movements is clearly expressed are generally called "dynamic games" [4].

A dynamic game is a version of a regular game [2]. Its basis is the active motor actions, motivated by a theme and partially regulated, having as goal the victory, under the always changing conditions of the game environment [13]. The purpose is also overcoming the various challenges or obstacles standing in front of the goal.

These games contribute to the correct execution of a fundamental technical or tactical component [15], both from a biomechanical standpoint [8], and as a succession of elements that compose the structure or action [3].

The simple game can be practiced anytime and anywhere, creating a state of well-being, health, developing a more vigorous, suppler, and more enduring body, a better sight, a better tactile sense, a more methodical and ingenious mind [1].

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Dynamic games represent the way through which group relationships are educated at the highest level [13], favoring independence and responsibility [7]. Collective discipline, following the competition rules, taking on several tasks inside the group, integration, competitiveness, are just a few characteristics of the game [9].

The dynamic games akin to basketball are a type of games that are aimed to teach the fundamental components of basketball (technical-tactical elements and procedures), their repetition being performed within individual and team competitions [11].

This way, by using these dynamic games during training, learning basketball is more pleasant and more attractive then by just using the technical elements of the game [12].

2. Objective

The purpose of this research is to determine whether there are differences in regards to basketball learning through dynamic games between the 11-12-year-old female and male middle schoolers.

3. Materials and Methods

3.1. Research Hypothesis

This research started from the following hypothesis: presumably, there are differences in the learning of basketball according to the pupils' gender, if dynamic games are used during training.

3.2. Organization of the research

The research was conducted during the extracurricular activities performed by the 11-12-year-old pupils at the MagicBall2018 Basketball School of Bacau.

The subjects of the research were 40 pupils, of which 19 males and 21 females, aged 11-12, from the “Alexandru cel Bun” Middle School of Bacau.

In order to learn basketball, pupils have practiced dynamic games during their extracurricular activities for 8 weeks, three times per week.

During this time, the following dynamic games were used, beside specific basketball drills: “who passes faster”, “circle pass”, “who holds the ball longer?”, “pass carefully”, “pass in the area”, “fight for the ball”, “dodge the balls”, “the best throwers”, “dodge two balls”, “ball at target”, “balanced hoops”, “the best marksmen”, “moving target”, “indirect target”, “value backboard”, “ball above the border”, “appears and disappears”, “who accumulates more points”, “shooting the floor”, “lasso”, “ball at the captain”, “who scores faster”, “champion”, “throw in two”, “who scores 10 points faster”, “two-ball game”, “followers”, “who plays longest”, and “splash”.

These dynamic games were used during the extracurricular activities to see whether by using them, the children can learn basketball faster.

This research used the following research methods: the bibliographical method, the observation method, the statistical-mathematical method, the testing method.

3.3. Assessment instruments

To assess the pupils in regards to their internalization of basketball, the following challenges were used: the set-shot, the pole dribbling drill, two-handed chest passes between two players in place, technical defense complex.

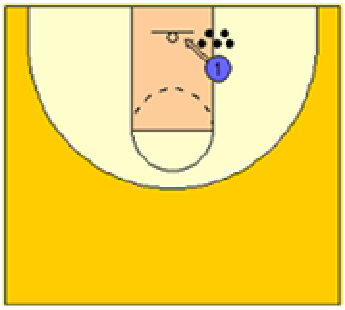

Fig. 1. *The set-shot*

The set-shot (fig. 1) - aims to assess the internalization of the overhead set-shot technique using one hand, and the precision of the shot. The materials are 5 basketballs and a timer. The pupils are on the right side of the court, at 1.5m from the hoop, at an angle of 45° in relation to the hoop. The pupils shoot 5 times at the goal each, the balls being beside them. The challenge is performed against time, the timer being started when the pupil takes the the first basketball and is stopped when the last ball is shot on the goal. Each scored goal decreases the time by 0.5 seconds.

The pole dribbling drill (fig. 2) - aims to assess the internalization of the dribbling technique using the dominant hand. The materials are basketballs, 4 poles and a timer. The pupils are in the continuation of the free-throw line, they start dribbling using their dominant hand, going between 4 poles up to the opposite free-throw line. The poles are set at 4 meters from each other and at 2.1 m from the continuation of the free-throw line. The challenge is performed against time, starting from the moment when the pupil starts dribbling and stopping when the pupil passes the opposite free-throw line.

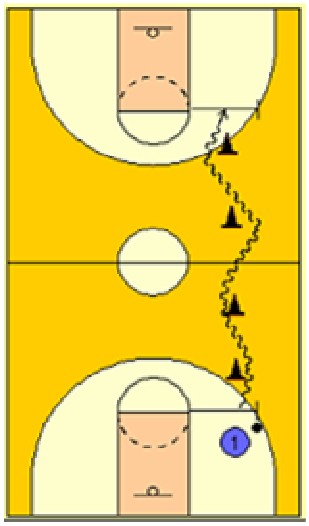

Fig. 2. *The pole dribbling drill*

Two-handed chest passes between two players in place (fig. 3) - aims to assess the internalization of the two-handed pass in place. Basketballs are used. The pupils are at 4 m from each other; they perform two-handed chest passes between them, in place, for 30 seconds.

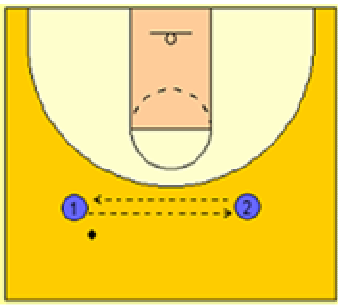

Fig. 3. *Passes between two players*

Technical defense complex (fig. 4) - this is a challenge performed against time, consisting in shuffle stepping on the indicated course. This challenge envisages the internalization of the shuffle step technique. The course is covered as follows: shuffle stepping forward, laterally to the left, backward, laterally to the right, on the indicated course. The challenge is timed.

These tests were conducted at the beginning of the research (initial testing), and after the 8 weeks of using dynamic games (final testing).

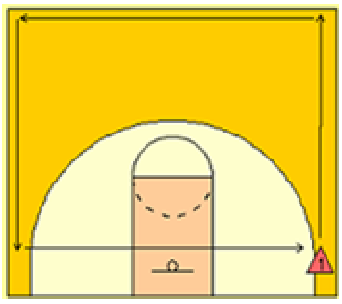

Fig. 4. *Technical defense complex*

4. Results and Discussions

4.1. Results of the research

In order to verify the research hypothesis, the data recorded during the two tests was analyzed statistically using the IBM SPSS Statistics 26.0 software. The following statistical markers were analyzed: the arithmetical mean, the standard deviation, the standard error of the mean, the minimum, the maximum, the Levene test and the Anova test.

Descriptive statistics of the pupils' results Table 1

		N	M	SD	SE	95% CI		Min.	Max.
						LB	UB		
Initial shot on goal	B	19	38.4737	2.98828	.68556	37.0334	39.9140	34.00	43.00
	F	21	41.8571	3.30584	.72139	40.3523	43.3619	34.00	46.00
	T	40	40.2500	3.55722	.56245	39.1123	41.3877	34.00	46.00
Final shot on goal	B	19	36.6842	3.38383	.77630	35.0533	38.3152	32.00	44.00
	F	21	39.2857	3.10069	.67663	37.8743	40.6971	35.00	47.00
	T	40	38.0500	3.45632	.54649	36.9446	39.1554	32.00	47.00
Initial dribbling	B	19	22.3684	2.92898	.67196	20.9567	23.7801	19.00	28.00
	F	21	25.1429	2.05635	.44873	24.2068	26.0789	19.00	28.00
	T	40	23.8250	2.84549	.44991	22.9150	24.7350	19.00	28.00
Final dribbling	B	19	21.1579	2.75405	.63182	19.8305	22.4853	17.00	27.00
	F	21	23.8571	1.95667	.42698	22.9665	24.7478	20.00	28.00
	T	40	22.5750	2.70695	.42801	21.7093	23.4407	17.00	28.00
Initial passing - two players	B	19	30.9474	3.53512	.81101	29.2435	32.6512	23.00	37.00
	F	21	29.0952	2.89663	.63210	27.7767	30.4138	24.00	35.00
	T	40	29.9750	3.30879	.52317	28.9168	31.0332	23.00	37.00
Final passing - two players	B	19	33.5789	2.83462	.65031	32.2127	34.9452	28.00	38.00
	F	21	30.8571	2.92037	.63728	29.5278	32.1865	26.00	37.00
	T	40	32.1500	3.15863	.49942	31.1398	33.1602	26.00	38.00
Initial technical complex	B	19	76.0526	4.04796	.92867	74.1016	78.0037	70.00	83.00
	F	21	81.6190	4.48861	.97949	79.5759	83.6622	71.00	90.00
	T	40	78.9750	5.08133	.80343	77.3499	80.6001	70.00	90.00
Final technical complex	B	19	74.3158	3.81594	.87544	72.4766	76.1550	70.00	82.00
	F	21	78.8571	4.21053	.91881	76.9405	80.7738	71.00	87.00
	T	40	76.7000	4.59208	.72607	75.2314	78.1686	70.00	87.00

Legend: B – Males; F – Females; T – Total; N – number of subjects; M – arithmetical mean; SD – standard deviation; SE – standard error of the mean; 95%CI – confidence interval for the arithmetical mean; LB – lower bound; UB – upper bound; Min. – Minimum; Max. – Maximum.

Variance homogeneity test Table 2

		Levene Statistics	df1	df2	Sig.
Initial shot on goal	Based on Mean	.204	1	38	.654
	Based on Median	.194	1	38	.662
	Based on Median and with adjusted df	.194	1	37.727	.662
	Based on trimmed mean	.170	1	38	.683
Final shot on goal	Based on Mean	.829	1	38	.368
	Based on Median	.845	1	38	.364
	Based on Median and with adjusted df	.845	1	37.028	.364
	Based on trimmed mean	.919	1	38	.344
Initial dribbling	Based on Mean	4.963	1	38	.032
	Based on Median	4.290	1	38	.045
	Based on Median and with adjusted df	4.290	1	37.528	.045
	Based on trimmed mean	4.766	1	38	.035
Final dribbling	Based on Mean	5.245	1	38	.028
	Based on Median	2.036	1	38	.162
	Based on Median and with adjusted df	2.036	1	32.049	.163
	Based on trimmed mean	4.924	1	38	.033
Initial passing - two players	Based on Mean	1.136	1	38	.293
	Based on Median	1.133	1	38	.294
	Based on Median and with adjusted df	1.133	1	37.519	.294
	Based on trimmed mean	1.139	1	38	.293
Final passing - two players	Based on Mean	.000	1	38	.982
	Based on Median	.002	1	38	.961
	Based on Median and with adjusted df	.002	1	37.952	.961
	Based on trimmed mean	.001	1	38	.973
Initial technical complex	Based on Mean	.191	1	38	.664
	Based on Median	.129	1	38	.721
	Based on Median and with adjusted df	.129	1	36.828	.721
	Based on trimmed mean	.192	1	38	.664
Final technical complex	Based on Mean	.022	1	38	.882
	Based on Median	.000	1	38	.996
	Based on Median and with adjusted df	.000	1	37.895	.996
	Based on trimmed mean	.006	1	38	.938

ANOVA Test Table 3

		Sum of Squares	df	Mean Square	F	Sig.
Initial shot on goal	Between Groups	114.192	1	114.192	11.440	.002
	Within Groups	379.308	38	9.982		
	Total	493.500	39			
Final shot on goal	Between Groups	67.509	1	67.509	6.439	.015
	Within Groups	398.391	38	10.484		
	Total	465.900	39			
Initial dribbling	Between Groups	76.783	1	76.783	12.208	.001
	Within Groups	238.992	38	6.289		
	Total	315.775	39			
Final dribbling	Between Groups	72.677	1	72.677	12.960	.001
	Within Groups	213.098	38	5.608		
	Total	285.775	39			
Initial passing - two players	Between Groups	34.218	1	34.218	3.311	.077
	Within Groups	392.757	38	10.336		
	Total	426.975	39			
Final passing - two players	Between Groups	73.897	1	73.897	8.909	.005
	Within Groups	315.203	38	8.295		
	Total	389.100	39			
Initial technical complex	Between Groups	309.075	1	309.075	16.829	.000
	Within Groups	697.900	38	18.366		
	Total	1006.975	39			
Final technical complex	Between Groups	205.723	1	205.723	12.677	.001
	Within Groups	616.677	38	16.228		
	Total	822.400	39			

Legend: $p < .05$

4.2. Discussions

The analysis of the subjects' results (table 1) shows that the males have recorded a lower time value than the average during the passing between two players challenge, both during the initial and the final testing. During the other challenges, the females have recorded lower time values than the males.

The internalization is faster and easier when dynamic games are used, and this is because the pupils each have a different training level [14].

In order to show the differences between the males and females, the Anova test was used (table 3), from which one can observe that there are statistically significant differences between the initial shot on goal ($F(1, 38) = [11.440]$, $p = 0.002$) and the final one ($F(1, 38) = [6.439]$, $p = 0.015$), a fact proven also by other authors [5], [6], [10].

The Anova test has shown that there is a statistically significant difference in regards to the average time recorded during the dribbling challenge between the females and males, both in the initial testing ($F(1, 38) = [12.208]$, $p = 0.001$), and in the final one ($F(1, 38) = [12.960]$, $p = 0.001$).

For the passing between two players challenge, the Anova test did not reveal any statistically significant differences between females and males in regards to the initial average time ($F(1, 38) = [3.311]$,

p = 0.077), however during the final testing, there were statistically significant differences (F(1, 38) = [8.909], p = 0.005).

For the technical defense complex challenge, the Anova test revealed that there are statistically significant differences between females and males, both during the initial testing (F(1, 38) = [16.829], p = 0.000), and during the final one (F(1, 38) = [12.667], p = 0.001).

5. Conclusions

The study and its results allowed the formulation of the following conclusions:

- there are differences between females and males in regards to learning basketball using dynamic games;
- the dynamic games used to teach basketball were introduced during the extracurricular activities and have proven that by using them, the pupils can learn basketball faster, but there is, however, a difference between males and females;
- the results show that dynamic games represent an important and effective means of teaching basketball, with a high applicability to 11-12-year-old pupils;
- the dynamic games that involve teams train the children for the real competition game;
- considering the results recorded in this study, the authors believe that this research can be extended to other age categories in the future.

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