

**STUDY ON THE IMPORTANCE OF THE FUTSAL GAME IN THE
EXTRACURRICULAR ACTIVITIES TO IMPROVE THE TECHNICAL
ELEMENTS AND PROCEDURES OF DRIVING AND KICKING THE
BALL WITH THE STUDENTS OF THE FACULTY OF PHYSICAL
EDUCATION AND SPORTS**

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Abstract

Aim. The purpose of this research is to demonstrate the importance of the futsal game, as a means of extracurricular activities, in improving the technical elements and procedures of driving and kicking the ball with the first year students the Faculty of Physical Education and Sports in Galați.

Method. There are 32 researched subjects, divided into two groups of 16 each, all students in the 1st year. In order to assess we have used to a set of technical tests in which we targeted some of the elements and technical procedures of driving and kicking the ball: frequency, pass-precision; driving-dribbling; shot on goal - precision. For the data analysis we used the IBM SPSS statistics software package, version 26.

Results. The research provided us with concrete data on the results obtained, highlighted that the students under research were relatively close as performance level and highlighted the importance of the futsal game in improving the technical elements and procedures for driving and kicking the ball.

Conclusion. The game of futsal is a pleasant and useful means in reaching certain objectives imposed by the teacher considering that students can touch the ball several times, and the intensity is higher. The results of the individual values obtained by the students at the two tests, with a significant improvement in the final test compared to the initial test, confirms the working hypothesis.

Introduction

The purpose of the extracurricular sports activities is the development/improvement of special skills, training students in the most varied and rich content, providing support for success as a whole, attainment of personal talents

and correlation of skills with character traits. Like any approach oriented towards an end, the extracurricular sports activity involves a certain structure and organization, ensured by the correlation of the design, implementation and evaluation activities. [1]

Contemporary football is continuously developing. In the early stages of football, the technical training was more analytical, and thus, using the repetition and methodological progression, the training passed from the simple to the complex, allowing the player to assimilate those patterns or motor skills that would later solve complex situations in football. [2] Now, the analytical and technical training is decreasing as a percentage in favor of more comprehensive training sessions and more complex exercises and, as a result of this evolution, the number of stimuli is increased, the decision making becomes more difficult and there is a higher cognitive demand. Briefly, training is more complex and the repetition and mechanization of actions are becoming more prominent. [3] This means that the training models must constantly adapt to the requirements of the competition, although the principles of the game remain the same. The training models, therefore, must change according to coaches and categories and, above all, the capacity of the players. [4]

Playing with the ball is not the same as knowing what to do with it. [5] The technical implementation by the players is governed and defined by the games they regulate and it is responsible for all the technical actions in the game.

The better the technical ability, the better the footballer's resources to find solutions to the tactical situations in. [6]

During training we must arouse the ability and ingenuity of the player. The technical execution should be progressive and integrate the opposition. We should always remember that football is played against an opponent. [7] Indoor football or futsal develops these technical qualities, which have a very high value and which are manifested by the basic technique, which refers to man- ball, as well as to the applied technique, which refers to handling the ball according to the player's possibilities in various game situations. [8] The more efficiently the teacher trains the technique and abilities while using the futsal game, the better they are for the progress and development of our students.

Material- Method

The purpose of the research is to demonstrate the importance of the futsal game, as a means of extracurricular activities, in improving the technical elements and procedures of driving and kicking the ball at the students in the first year of the Faculty of Physical Education and Sports. This-experimental study aims to apply a training program based on the means of the Futsal game in the experimental group, with a maximum of four players regardless of the exercise or game provided, while the control group is applied a training program based on global work.

The investigated sample consists of 32 students, divided equally into two groups. The conduct of the experimental research took place on the university's sports field. The training program was applied in 2023, during the second semester, February -June. For the statistical analysis we used IBM SPSS Statistics, version 26.

The assessment of the students was carried out by applying the following specific tests approved by the Romanian Football Federation. [9]

1. Frequency, pass-precision. Marking: a 5m /10m rectangle is drawn. On a side of 10 m, an overturned gym bench is placed (you can also work on the wall). Execution: The player must send the ball (for 30 seconds) in the gymnastics bench (wall), successively with the side of his foot. Rules:

- It is not mandatory for the ball to be kicked directly. It can be picked up, cushioned. Result: The exercise lasts for 30 seconds, while we measure how many times the ball touches the bench.

2. Driving-Dribbling. Marking: draw a square with a side of 14m, according to the drawing. Execution: the player leaves the first cone, leads the ball around the cones placed 3m away from each other, shoots in the 30 cm bench, takes the ball that returns, leads it around the two cones (2m), leads it to the line drawn 2m away of the gate made of 2 cones placed 1m away from each other. There he executes a self-pass between the two cones, the player gets around the gate, takes the ball and speeds between the two penalty areas. Rules: The timer starts when the player touches the ball at the start and stops when he goes beyond the lock line with the ball.

3. Shot on goal - precision. The player performs 6 shots from a distance of 9 meters. The ball enters the gate through direct air trajectory. Result: the sum of the points.

Results

To perform the analysis of the data we used the IBM SPSS statistics software package, version 26. The t test for paired samples compares the average of a variable for the same group analyzed at different times. This is necessary to compare the results obtained by the athletes to the initial test with the results obtained to the final test.

To determine whether or not there is a dependence connection between two phenomena, as well as the degree of correlation we used the Pearson correlation coefficient (r).

The t test for two independent samples checks whether the difference between the average of two groups made up of different subjects is statistically significant. Thus, we can compare the results of the experimental group with the results of the control group. The equality of variations for two groups, which is necessary for the

interpretation of the t test for independent samples, was done with the Levene test.
 The materiality threshold chosen for the statistical tests is $\alpha = 0.05$. [10]

Control group

Table 1. Descriptive Statistics

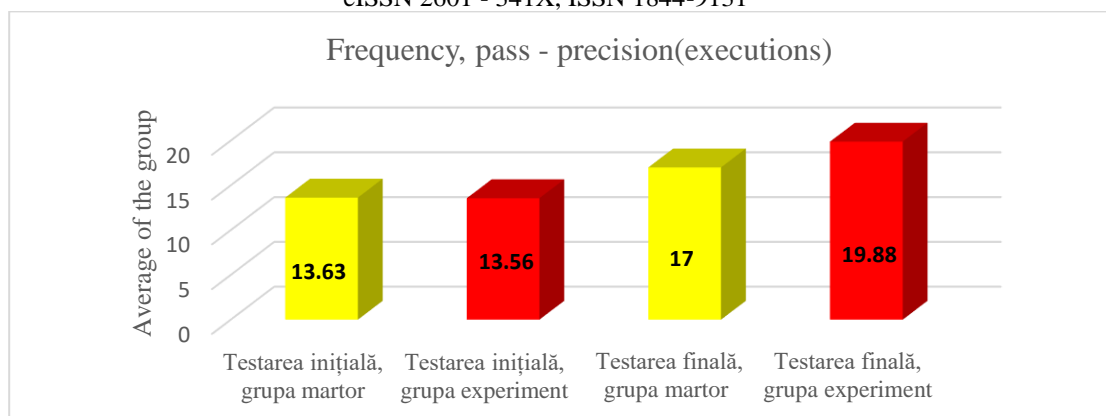
	Minimum		Maximum		Mean		Std. Deviation		Variance	
	Initial test	Final test	Initial test	Final test	Initial test	Final test	Initial test	Final test	Initial test	Final test
Frequency, pass- precision (executions)	12	15	16	19	13.63	17.00	1.258	1.265	1.583	1.6
Driving - dribbling (seconds)	21.75	19.8	25.7	24.22	23.858	22.086	1.228	1.424	1.509	2.029
Shot on goa - precision (points)	28	40	38	55	34.06	47.69	3.568	3.945	12.729	15.562

Experimental group

Table 2. Descriptive Statistics

	Minimum		Maximum		Mean		Std. Deviation		Variance	
	Initial test	Final test	Initial test	Final test	Initial test	Final test	Initial test	Final test	Initial test	Final test
Frequency, pass- precision (executions)	11	18	15	21	13.56	19.88	1.094	0.885	1.196	0.783
Driving - dribbling (seconds)	22.14	17.66	25.72	22.15	23.664	19.874	1.1138	1.406	1.241	1.976
Shot on goa - precision (points)	25	45	38	60	32.44	51.44	4.412	3.705	19.462	13.729

Test – Frequency, pass-precision



Graph 1. Arithmetic mean for test one, initial and final testing

The t test for paired samples

Table 3. Paired Samples Statistics

		Mean	Std. Deviation	Std. Error Mean
Pair 1	Frequency, pass - precision (executions), initial test, control group	13.63	1.258	0.315
	Frequency, pass - precision (executions), final test, control group	17.00	1.265	0.316
Pair 2	Frequency, pass - precision (executions), initial test, experimental group	13.56	1.094	0.273
	Frequency, pass - precision (executions), final test, experimental group	19.88	0.885	0.221

Table 4. Paired Samples Correlations

	Correlation	Sig.
Pair 1 Frequency, pass - precision (executions), initial test, control group & Frequency, pass – precision(executions), final test, control group	0.838	0.000
Pair 2 Frequency, pass - precision (executions), initial test, experimental group & Frequency, pass – precision(executions), final test, experimental group	0.904	0.000

Table 5. Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Frequency, pass - precision (executions), initial test, control group -	-3.375	0.719	0.180	-3.758	-2.992	-18.781	15	0.000
	Frequency, pass – precision(executions), final test, control group								
Pair 2	Frequency, pass - precision (executions), initial test, experimental group -	-6.313	0.479	0.120	-6.568	-6.057	-52.746	15	0.000
	Frequency, pass – precision(executions), final test, experimental group								

The average value calculated in the case of the initial test for "pass - precision frequency" is 13.63 with a standard deviation of 1.258 for the control group and 17.00 with a standard deviation of 1.265 for the experimental group.

At the final test for the number of executions for the frequency pass - precision, the subjects in the control group obtained an average value of 13.56 with the standard deviation 1.094, which represents a progress of 24.76% compared to the initial test. The athletes in the experimental group achieved at the final test an average value of 19.88 with the standard deviation of 0.885, resulting in a progress of 46.56%.

The results of the t test for analyzing the difference between the average of the two paired samples in the case of the values obtained by the control group at the initial test, respectively at the final test, indicate the value $t = -18.781$ which, compared to the value corresponding to the number of cases in Fisher's table for the threshold significance $p < 0.001$, shows that there are significant statistical differences between the values obtained at the initial test, respectively at the final test for the control group. Also, there are significant differences from a statistical point of view and between the number of executions for the frequency pass -precision between the initial test compared to the final test and for the experimental group ($t = -52.746$, $p < 0.001$).

The Pearson test for the frequency pass - precision drill shows that there is a very strong positive correlation, between the values of the initial test and the ones of

the final test, both for the control group ($r = 0.838$, $p < 0.001$) and for the experimental group ($r = 0.904$, $p < 0.001$).

The t test for independent samples

Table 6. Group Statistics

	Group	N	Mean	Std. Deviation	Std. Error Mean
Frequency, pass-precision (executions) – initial test	Control	16	13.630	1.258	0.315
	Experimental	16	13.560	1.094	0.273
Frecvență, pas-precizie (execuții) - testarea finală	Control	16	17.000	1.265	0.316
	Experimental	16	19.880	0.885	0.221

Table 7. Independent Samples Test

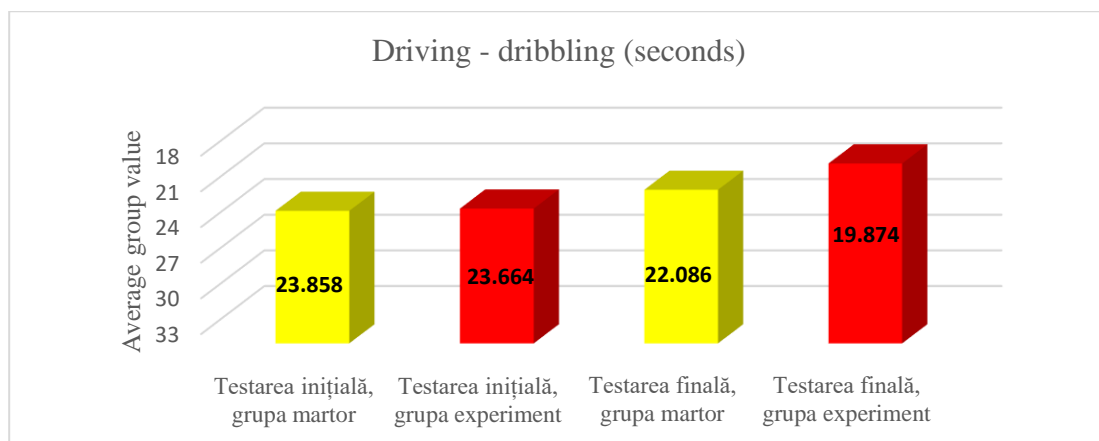
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Frequency, pass - precision (executions) – initial test	Equal variances assumed	0.249	0.621	0.150	30	0.882	0.063	0.417	-0.789	0.914
	Equal variances not assumed			0.150	29.428	0.882	0.063	0.417	-0.789	0.914
frequency, pass - precision (executions) – final test	Equal variances assumed	0.608	0.442	-7.449	30	0.000	-2.875	0.386	-3.663	-2.087
	Equal variances not assumed			-7.449	26.848	0.000	-2.875	0.386	-3.667	-2.083

For the data from the initial test for frequency, pass - precision, the Levene test confirms the equality of the variants in the two groups: $f = 0.249$ and $p = 0.621 > \alpha = 0.05$. For this reason, the result of the t test is read on the first line of the table (Equal Variances Assumed). Because $t = 0.150$ and $p = 0.882 > \alpha = 0.05$ and taking into account the fact that the limits of the confidence interval for the difference between the averages of the two groups (-0.789, 0.914) contain the zero value, it results that there are no significant differences between the average values recorded for the two groups (control and experimental) for the initial test.

In the case of the final test for frequency, pass - precision, the Levene test also shows the equality of the variants of the two groups ($f = 0.608$ and $p = 0.442 > \alpha = 0.05$). As the value of the test is $t = -7.449$, and $p < 0.001$ and the limits of the confidence interval for the difference between the averages of the two groups (-3,663, -2.087) do not contain the value 0, there are significant differences for

frequency, pass -precision between the control group and the experimental group. The average value higher by 21.20% for the experimental group compared to the control group at the final test shows that the training program was well done.

Test – Driving-dribbling



Graph.2 Arithmetic mean for test two, initial and final testing

The t test for paired samples

Table 8. Paired Samples Statistics

		Mean	Std. Deviation	Std. Error Mean
Pair 1	Driving - dribbling (seconds), initial test, control group	23.858	1.228	0.307
	Driving - dribbling (seconds), final test, control group	22.086	1.424	0.356
Pair 2	Driving - dribbling (seconds), initial test, experimental group	23.664	1.114	0.278
	Driving - dribbling (seconds), final test, experimental group	19.874	1.406	0.351

Table 9. Paired Samples Correlations

	Correlation	Sig.
Pair 1 Driving - dribbling (seconds), initial test, control group & final test, control group	0.967	0.000

Pair 2	Driving - dribbling (seconds), initial test, experimental group &	0.929	0.000
	Driving - dribbling (seconds), final test, experimental group		

Table 10. Paired Samples Test
Paired Differences

	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
				Lower	Upper			
Pair 1 Driving - dribbling (seconds), initial test, control group - Driving - dribbling (seconds), final test, control group	1.770	0.391	0.098	1.563	1.979	18.143	15	0.000
Pair 2 Driving - dribbling (seconds), initial test, experimental group - Driving - dribbling (seconds), final test, experimental group	3.790	0.554	0.139	3.495	4.085	27.355	15	0.000

Testul Pearson arată că există corelații pozitive foarte puternice între valorile de la testarea inițială pentru conducere – dribling și valorile de la testarea finală în cazul grupei martor ($r = 0.967$, $p < 0.001$), dar și în cazul grupei experiment ($r = 0.929$, $p < 0.001$).

In the case of the driving - dribbling drill the students have achieved at the initial test an average value of 23.858s with the standard deviation of 1.228 in the control group, and an average value of 23.664s with the standard deviation of 1.114 in the experimental group.

At the final test the average value for the control group was 22.086s with the standard deviation of 1.424 which represents a decrease by 7.42% compared to the initial test. The experimental group obtained at the final test an average value of 19.874s with a standard deviation 1.406 resulting in a decrease in the average number of seconds by 16.02% compared to the initial average.

After performing the t test for samples for paired samples in the driving - Dribbling drill we found that there were statistically significant differences between the initial test and the final test for the control group ($t = 18.143$, $p < 0.001$), but also for the experimental group ($t = 27.355$, $p < 0.001$).

The Pearson test shows that there are very strong positive correlations between the initial test values for driving - dribbling and the final test values in the case of the control group ($r = 0.967$, $p < 0.001$), but also in the case of the experimental group ($r = 0.929$, $p < 0.001$).

The t test for independent samples

Table 11. Group Statistics

	Group	N	Mean	Std. Deviation	Std. Error Mean
Driving - dribbling (seconds) – initial test	Control	16	23.858	1.228	0.307
	Experimental	16	23.664	1.11379	0.278
Driving - dribbling (seconds) – final test	Control	16	22.086	1.424	0.356
	Experimental	16	19.874	1.406	0.351

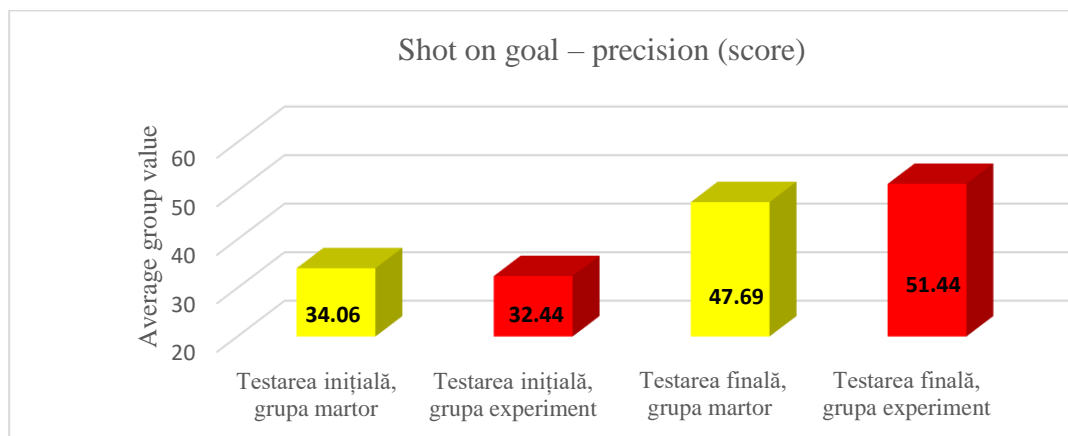
Table 12. Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Driving the ball around cones back and forth(seconds) – initial test	Equal variances assumed	0.142	0.709	0.466	30	0.645	0.193	0.415	-0.653	1.040
	Equal variances not assumed			0.466	29.717	0.645	0.193	0.415	-0.653	1.040
Driving the ball around cones back and forth(seconds) – final test	Equal variances assumed	0.090	0.766	4.421	30	0.000	2.212	0.500	1.190	3.234
	Equal variances not assumed			4.421	29.995	0.000	2.212	0.500	1.190	3.234

For the "driving - dribbling" drill, it turned out that the variances of the two groups (control and experimental) are equal in the case of the initial test ($f = 0.142$, $p = 0.709 > \alpha = 0.05$) and in the case of final final test ($f = 0.090$, $p = 0.766 > \alpha = 0.05$). The t test for two independent samples has shown that there is no statistical significant difference between the average number of seconds obtained in the driving - dribbling test by the control group, respectively by the experimental group for the initial test ($t = 0.466$, $p = 0.645 > \alpha = 0.05$, CI for the Mean Difference: (-0.653, 1,040)). There are statistically significant differences between the control group and the experimental group for the final test ($t = 4.421$, $p < 0.001$, but for the Mean Difference: (1.190, 3.234)). The average number of seconds obtained at the final test

of the experimental group is by 10.02% smaller compared to the control group, which shows a greater progress of the students in the experimental group.

Test – Shot on goal – precision



Graph.3 Arithmetic mean for test three, initial and final testing

The t test for paired samples

Table 13. Paired Samples Statistics

		Mean	Std. Deviation	Std. Error Mean
Pair 1	Shot on goal - precision (score), initial test, control group	34.060	3.568	0.892
	Shot on goal - precision (score), final test, control group	47.690	3.945	0.986
Pair 2	Shot on goal - precision (score), initial test, experimental group	32.440	4.412	1.103
	Shot on goal - precision (score), final test, experimental group	51.440	3.705	0.926

Table 14. Paired Samples Correlations

	Correlation	Sig.
Pair 1 Shot on goal - precision (score), initial test, control group & Shot on goal - precision (score), final test, control group	0.172	0.524

Pair 2	Shot on goal - precision (score), initial test, experimental group &	0.648	0.007
	Shot on goal - precision (score), final test, experimental group		

Table 15. Paired Samples Test
Paired Differences

	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
				Lower	Upper			
Pair 1 Shot on goal - precision (score), initial test, control group - Shot on goal - precision (score), final test, control group	-13.625	4.843	1.211	-16.205	-11.045	-11.254	15	0.000
Pair 2 Shot on goal - precision (score), initial test, experimental group - Shot on goal - precision (score), final test, experimental group	-19.000	3.464	0.866	-20.846	-17.154	-21.939	15	0.000

To the shot on goal - precision (score) test the students obtained at the initial test an average value of 34.060 with a standard deviation of 3.568 in the case of the control group, and an average value of 32.440 with a standard deviation of 4.412 in the case of the experimental group.

At the final test, the control group registered an average number of points of 47.690 with the standard deviation of 3.945 which represents the increase of the average number by 40.00% compared to the initial test. For the experimental group, the final value of 51.440 with the standard deviation 3.705 resulting in an increase in the average number of points by 58.57% compared to the initial average was obtained.

The t test for paired samples in the case of the shot on goal - precision (score) test showed that there are statistically significant differences between the initial test and the final test for the control group ($t = -11.254$, $p < 0.001$), but also for the experimental group ($t = -21.939$, $p < 0.001$).

For the shot on goal - precision (score) test we noticed that the values of the initial test were not correlated with those from the final test in the case of the control group ($r = 0.172$, $p = 0.524 > 0.05$). In the case of the experimental group there was a strong positive correlation between the values of the initial test and those of the final test ($r = 0.648$, $p = 0.007 < 0.05$).

The t test for independent samples

Table 16. Group Statistics

	Group	N	Mean	Std. Deviation	Std. Error Mean
Shot on goal - precision (score) – initial test	Control	16	34.060	3.568	0.892
	Experimental	16	32.440	4.412	1.103
Shot on goal - precision (score) – final test	Control	16	47.690	3.945	0.986
	Experimental	16	51.440	3.705	0.926

Table 17. Independent Samples Test

Levene's Test
for Equality of
Variances

t-test for Equality of Means

		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Shot on goal - precision (score) – initial test	Equal variances assumed	1.138	0.295	1.146	30	0.261	1.625	1.418	-1.272	4.522
	Equal variances not assumed			1.146	28.743	0.261	1.625	1.418	-1.277	4.527
Shot on goal - precision (score) – final test	Equal variances assumed	0.038	0.846	-2.772	30	0.009	-3.750	1.353	-6.513	-0.987
	Equal variances not assumed			-2.772	29.883	0.010	-3.750	1.353	-6.514	-0.986

For the shot on goal - precision (score) test, the equality of the variants of the two groups for the initial test ($f = 1.138$, $p = 0.295 > \alpha = 0.05$) was found. The t test for independent samples showed that there were no statistically significant differences between the averages of the two groups at the initial test ($t = 1.146$, $p = 0.261 > \alpha = 0.05$, but for the Mean Difference: (-1.272, 4.522)). At the final test for shot on goal - precision (score) it turned out that the variants of the groups (control and experimental) were equal ($f = 0.038$, $p = 0.846 > \alpha = 0.05$). The t test confirmed that there were significant differences between the averages of the two groups in this sample ($t = -2.772$, $p = 0.009 < 0.005$, but for the Mean Difference: (-6.513, -0.987). The higher average values 7.86% in the case of the experimental group compared to the control group showed that the training program was effective.

Discussions

This study evaluated the effects of fourteen weeks of training. In futsal, the technique is largely linked to handling the ball by foot, parts which are less skillful. Handling the ball with the foot has a great degree of difficulty and it is incomparably harder than handling by hand. This is also the main cause of the fact that the

acquisition and improvement of the game technique lasts longer than for other sports games. The fine and subtle executions, the large number of processes performed by foot under very varied and always changing conditions, greatly increase the spectacular aspect of the futsal game. [11]

From the point of view of the recorded results it can be observed that by using the futsal game the statistical analysis showed higher performances of the students in the experimental group compared to the students of the control group ($p < 0.05$), at all the tests performed. Thus, we can say that the use of the futsal game in order to improve the elements and technical procedures for driving and kicking the ball has maximized these technical skills of the students and made this means extremely attractive. It has been shown that the smaller the size of the field, the higher the ability to perform technical acts and actions. [12]

Conclusions

In the game of futsal or football on a reduced field, due to the time and space crisis, there is a frequent occurrence of the individual situations whose solution is based on the player's technique. The advantages of these games; a high number of contacts with the ball; the effort is intense; the active participation of all the players in the two phases of the game; unforeseen overturns of the score. Due to this fact, futsal is very efficient and beneficial in improving the elements and technical procedures of driving and kicking the ball, fact also demonstrated through the results obtained by the students of the experimental group compared to the students of the control group. From the beginning of the application of the training program and until the final testing, the level of improvement of the technique has obviously increased, approaching the performance requirements, although our work was performed during the students' extracurricular activities.

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