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METHODOLOGICAL PECULIARITIES TO IMPROVE PHYSICAL TRAINING IN SCHOOL FOOTBALL

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Abstract

The purpose of the research is to contribute to the improvement of the results obtained by the students of the football school team regarding in their physical training, by elaborating, developing and confirming in training and competition the training programs based on small games.

To perform the data analysis of the we used the IBM SPSS statistics software package, version 26.

There are 32 subjects researched, divided into two groups of 16, all members of the football school teams. In order to evaluate, we used a set of physical tests: 50 m speed run; standing long jump; endurance running 2000 m.

From the point of view of the recorded results it can be observed that by using the games on small fields in order to improve the physical training of the students who make up the school football team in secondary school, the statistical analysis has shown higher performances of the experimental group compared to the students in the control witness group ($p < 0.05$), at all tests.

Introduction

If we consider the fact that the current game has become more dynamic than in the past, players being obliged to run permanently and to have numerous rhythm changes, that the fight has become more fierce and it requires greater energy consumption, that more technical procedures and a more tactical thinking are are required, all these aspects can give us an overview of the many qualities necessary for one person who practices it and about the very high demands. [1]

Therefore, the game in modern tempo demands from the players a high level of speed, strength, endurance, mental stability, shortcomings in this regard cannot be compensated by any kind of tactical or technical perfection. [2] Thus, football is a sport team game, the team members participating in the game and making the most of the physical, technical, tactical and mental capabilities, in order to create favorable situations to score. [3]

Due to the fact that football is a complex game comprising running, jumping, throws developing (basic motor) skills such as speed (reaction, execution, repetition, movement), strength (limbs, abdomen, back), endurance (as speed and strength) and

specific skill made us approach the improvement of preparation through games on small fields takes place. [4]

Anchored in the reality of education, the physical education teacher must adapt his specific activity on the sports fields, where the physical education and training lessons are carried out, on small fields, arranged for handball, basketball or volleyball; under these circumstances, the rational and methodical use of the reduced spaces can, however, be useful for the football training [5]

The training lessons of the football teams of schools are made according to the general structure adopted in sports training, of course at the level of pre - university education, according to the age and training of the students. [6]

One of the biggest changes in football for young people was accepting to play on small fields. [7]

In games on handball size fields, an individual's ability to make combinations with teammates is very important. The motor skills, especially the speed, are very important. The student who is very athletic will never lose those skills. But these skills must be trained through various games, and that young man has the opportunity to become an idol, because a great player is also a big athlete. [8]

The request for motor qualities and the technical requirements imposed on the students in these training lessons offer the possibility to further analyze their development. [9]

Material- Method

The purpose of the research is to contribute to the improvement of the results obtained by the students of the football school team regarding the physical training, by elaborating, developing and confirming in training and competition the training programs based on small games. The dimensions of the field on which the experimental group works refer to areas starting from 10m/5m; Up to a maximum of 20m/20m, and players work from 1VS1, up to a maximum of 3VS3. The control group worked according to its own training program, consisting in improving the physical training through specific running and by the global game method. The researched sample consists of 32 students, divided into two groups of 16. The experimental research took place on the field and in the gym of no. 11 School in Galati. The training program was applied in 2023, during modules 1-2-3, avoiding the holiday periods.

The research included the following stages: stage 1- initial evaluation; Stage 2- application of the training program; Stage 3- Final evaluation; Stage 4- Interpretation of results and conclusions.

For the evaluation of the subjects, we applied the following specific tests:

1. 50 meter speed run- the test takes place outdoors on artificial ground. Sufficient space has to be provided for stopping. Flat land; 2 lines are marked 50m away from

each other; 2 cones are placed on each side of the finish line. It is measured in seconds.

2. Standing long jump- a measuring roulette is placed on the ground. The start line must be marked with a line. This line must be perpendicular to the roulette and should not be touched by the players, neither before nor during the jump. The "zero" point of the roulette is fixed on the edge closest to the player of the line. The leap is measured in meters, from the outer edge of the departure line to the later point of the landing place.

3. Endurance running 2000 m. On command, the players stand near the start line, without touching it. They start at the acoustic signal. The stopwatch stops when the runner's chest passes the finish line. Time is measured in seconds, the fractions being rounded to the lower unit.

The research methods used are the following: the analysis of the specialized literature, the observation, the experiment, the methods of measurement and the test, the statistical-mathematical method, the graphical method and the methods of table representation. [10,11] For the statistical analysis we used IBM SPSS Statistics, version 26. The Levene test checks the equality of two independent groups and it is used to interpret the t test. The t test for two independent samples is used to test if the difference between the average value of two groups formed from different subjects is statistically significant. Thus, we can compare the results of the experimental group with the results of the control group. The significance level chosen for statistical tests is $\alpha = 0.05$.

Results

50 meter speed run

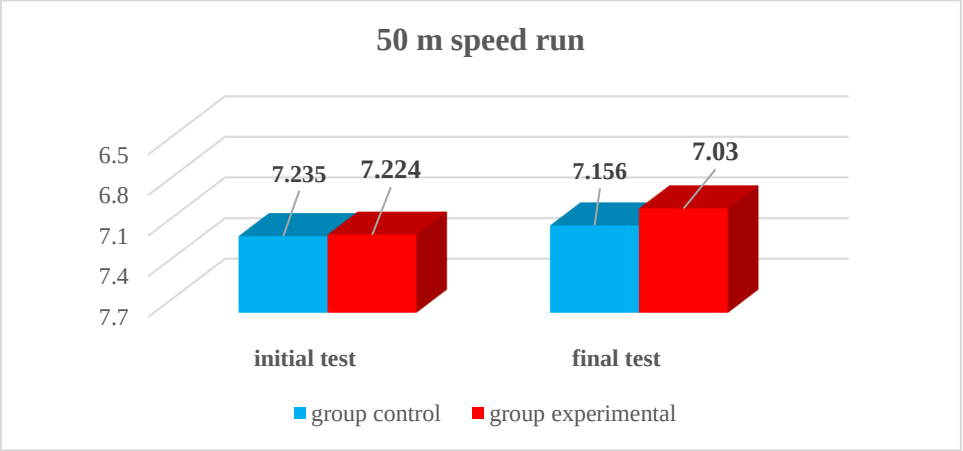
Tabel 1. Group Statistics

	Group	N	Mean	Std. Deviation	Std. Error Mean
50m speed run, initial testing	Contol	16	7,235	0,0332	0.314
	Experimental	16	7,224	0,0542	0.266
50m speed run, final testing	Control	16	7,156	0,0655	0.368
	Experimental	16	7,030	0,0629	0.355

Table 2. Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Diff.	Std. Error Diff.	95% Confidence Interval of the Difference	
									Lower	Upper
50m speed run, initial testing	Equal variances assumed	0.868	0.353	1.132	34	0.260	0.01500	0.01319	-0.0120	0.04088
	Equal variances not assumed			1.141	33.844	0.260	0.01500	0.01319	-0.0120	0.04088

50m speed run, final testing	Equal variances assumed	1.466	0.238	6.386	34	0.000	0.08446	0.01337	0.05778	0.11234
	Equal variances not assumed			6.386	31.064	0.000	0.08446	0.01337	0.05778	0.11234



Graph.1 Arithmetic mean for test 50m speed run, initial and final testing

The results obtained in the case of the initial test for the 50m distance speed test show an average value of 7,235s with a standard deviation of 0.0332s for the control group and an average value of 7,224s with a standard deviation of 0.0542s for the experimental group.

At the final test for the 50m speed run subjects in the control group obtained an average time of 7,156s with the standard deviation 0.0655s, which represents a progress compared to the initial test of 3.44%. In the case of the experimental group, at the final test we obtained an average time of 7,03s with the standard deviation of 0.0629s, a value that represents a progress of 5.82%.

We used the t test for independent samples to analyze the results obtained by the control group compared to the experimental group for the initial test and the final test.

In the case of the initial test for the distance of 50m, the Levene test confirms the equality of the variants of the two groups: f = 0.868 and p = 0.353> α = 0.05. Consequently, the result of the t test is read on the first line of the table (Equal Variaces Assumed). Because t = 1.132 and sig (2-tailed) or p = 0.238> α = 0.05 or taking into account that the limits of the trusted interval for the difference between the average groups (95% CI for the Mean Difference: (-0.01200, 0.04088)) contains the zero value it results that there are no significant differences between the average time obtained by the two groups.

In the case of final testing for the distance of 50m, the Levene test also shows the equality of the variants of the two groups: F = 1,466 and P = 0.238> α = 0.05. Because t = 6.386, p <0.001, and the limits of the trusted interval for the difference

between the averages of the two groups (0.05778, 0.11234) does not contain zero value, there are significant differences between the time obtained at the final testing on the 50m distance between the control group and the experimental group. The higher average value obtained by the experimental group at the final test shows that the training program was effective.

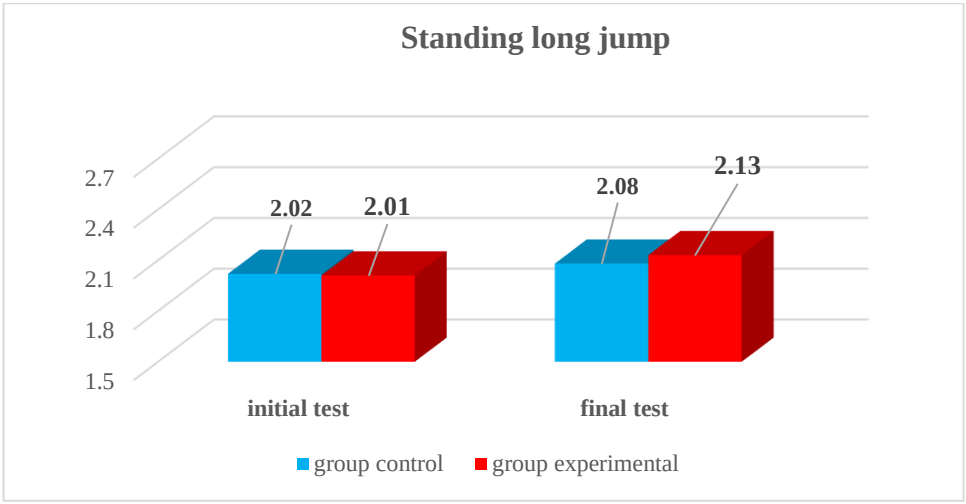
Standing long jump

Tabel 3. Group Statistics

	Group	N	Mean	Std. Deviation	Std. Error Mean
Standing long jump, initial testing	Contol	16	2,02	0,0336	0.322
	Experimental	16	2,01	0,0454	0.292
Standing long jump, final testing	Control	16	2,085	0,0387	0.388
	Experimental	16	2,13	0,0355	0.344

Table 4. Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Diff.	Std. Error Diff.	95% Confidence Interval of the Difference	
									Lower	Upper
Standing long jump, initial testing	Equal variances assumed	0.988	0.318	0.106	34	0.906	0.00164	0.01490	-0.02932	0.03222
	Equal variances not assumed			0.106	32.505	0.906	0.00164	0.01490	-0.02932	0.03222
Standing long jump, final testing	Equal variances assumed	12.299	0.002	-4.939	34	0.000	-0.08305	0.01722	-0.11711	-0.04986
	Equal variances not assumed			-4.939	24.178	0.000	-0.08305	0.01722	-0.11728	-0.04834



Graph.2 Arithmetic mean for test standing long jump, initial and final testing

In the case of the standing long jump, we obtained at the initial test for the control group an average value of 2.02m with the standard deviation of 0,0336m, and for the experimental group an average value of 2,01m with the standard deviation of 0.0454m.

After the final test the average value recorded by the control group was 2.08m with the standard deviation 0.0387m which represents a progress of 3.40% compared to the initial test. The experimental group obtained at the final test an average value of 2.13m with the standard deviation 0.0355m resulting in a progress of 6.45%.

Analyzing the results for the standing long we found the equality of the variants of the two groups for the initial test ($f = 0.988$, $p = 0.318 > \alpha = 0.05$). The t test for independent samples shows that there are no significant differences between the averages of the two groups at the initial test ($t = 0.106$, $p = 0.318$ $\alpha = 0.05$).

At the final test for the standing long jump we found that the variations of the groups were not equal ($f = 12.299$, $p = 0.002 < 0.05$). The t test confirmed the difference of the averages of the two groups in this sample ($t = -4.939$, $p < 0.001$, but for the Mean Difference: (-0.11728, -0.04834)). The higher values for the experimental group show the efficiency of the program applied to this group.

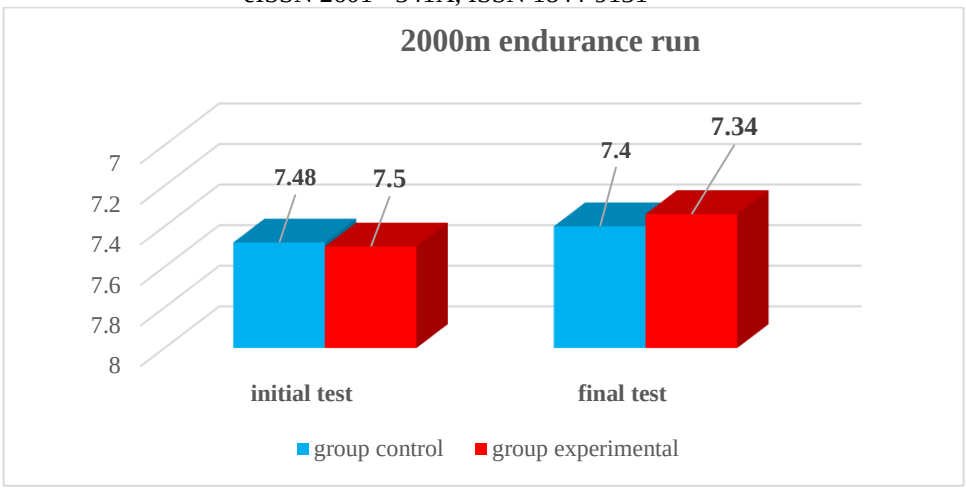
2000m endurance run

Tabel 5. Group Statistics

	Group	N	Mean	Std. Deviation	Std. Error Mean
2000m endurance run, initial testing	Contol	16	7,48	14,402	0.988
	Experimental	16	7,50	18,226	1.204
2000m endurance run, final testing	Control	16	7,40	12,288	1.040
	Experimental	16	7,34	10,664	0.844

Table 6. Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Diff.	Std. Error Diff.	95% Confidence Interval of the Difference	
									Lower	Upper
2000m endurance run, initial testing	Equal variances assumed	0.000	1.000	0.068	34	0.920	8.66668	110.424	-188.466	230.0442
	Equal variances not assumed			0.068	33.992	0.920	8.66668	110.424	-188.466	230.0442
2000m endurance run, final testing	Equal variances assumed	0.015	0.904	-0.566	34	0.550	-68.66668	114.066	-280.864	152.8754
	Equal variances not assumed			-0.566	33.992	0.550	-68.66668	114.066	-280.864	152.8754



Graph.3 Arithmetic mean for test 2000m endurance run, initial and final testing

After the initial test in the case of the 2000 m endurance run we obtained at the initial test of the control group an average value of 7,48m with the standard deviation14,40s and an average value for the experimental group of 7,50m with the standard deviation of 18,22s.

At the final test the control group had an average value of 7,40m with the standard deviation of 12,28, which represents a progress of 2.11% compared to the initial test. The experimental group obtained an average value of 7,34m with the standard deviation of 10,66, which meant a progress of 4,44% compared to the initial test.

In the case of the 2000 m endurance run test we found that the variations of the two groups were equal ($p > \alpha = 0.05$ after the Levene test). There were no statistical significant differences between the average values obtained by the control group, respectively the experimental group, at the initial test ($t = 0.068$, $p = 1 > \alpha = 0.05$).

In the case of the final test for 2000m endurance running, the Levene test also showed equality of the variants of the two groups ($f = 0.15$ and $p = 0.904 > \alpha = 0.05$). Because the value of the test is $t = -5,66$, and $p < 0.001$ and the limits of the trusted interval for the difference between the averages of the two groups (-280,864, 152,875) do not contain the value 0, there are significant differences for 2000m endurance running between the control group and the experimental group. The average value higher by 16.14% for the experimental group compared to the control group at the final test shows that the training program was well performed.

Discussions

The attempt to maximize the physical skills of the students is of main importance, which makes these games on small fields an attractive method. [12] The

use of games on small fields as a multifunctional training purpose could allow the development of key components in a limited period of time, however, additional research on the benefits of these games is required to maximize their application and allow students to develop at the highest possible level. [13]

The working teams with the largest efficiency are the individual ones, and the groups of two or three players. Exceeding the number of three executors cannot ensure a proper density of training. [14]

The inclusion in the training lesson of the exercise of games on small fields takes place according to its objectives. In most cases, especially when it is aimed at improving physical training, it is placed at the beginning of the main part.

Conclusion

During the sports training lesson, the improvement of physical training must be correlated with the technical methods and means, because the training aims not only at adapting to the physical requests of the game but also at forming technical skills. The small-size field games method effectively combines all factors at the highest levels. Thus, the use of games on small fields with the purpose of multifunctional training allows the development of all the components of the football game in a limited period of time. The attempt to maximize the technical, physical and tactical skills of the player is of great importance and makes this method an extremely attractive one.

The method of games played on small fields occupies an essential place in improving physical training, but it cannot be the only approaching solution. This method must be correlated in a dosing imposed by age, period, stage, lesson with analytical methods and all the others.

From the point of view of the recorded results, it can be observed that by using the games on small fields, the statistical analysis showed the higher performances of the students from the experimental group compared to the students of the control group ($p < 0.05$), at all the tests performed. As a result, teachers can be confident in using this training method to achieve the specific objective of training, namely improving physical training.

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