Movement Games, Relay Races And Application Paths - Means of Training in School Physical Education

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Abstract

Introduction: In order to achieve high efficiency, efficiency in preparing students for life, it is necessary to address the issue in terms of methods and techniques appropriate to achieving the objectives, assessment methods (attractive and interesting), the efficiency of the use of devices and materials. **Purpose:** Using in the experiment described in the paper permanently motion games, relay races, application paths, I wanted to check their effectiveness and confirm the hypothesis that the method I chose to improve the manifestation of motor skills and level of motor skills is higher compared to two tests, and the methods used were correctly chosen and applied. **Methodology:** I highlighted the means of school physical education provided in the training program, and in them I presented aspects specific to the three means targeted in the experiment: movement games, relay races and application paths, which we also described in detail, also visually, through kinograms. I considered a special aspect, the one related to the cooperation between teachers and students in the school training process, without which the physical education lesson cannot achieve its objectives . **Results:** The results materialized in the level of preparation of the students and the progress registered in the experiment period show that, through the use of complex exercises, the activation of the students on the basis of awareness was achieved and their motor and spiritual forces were mobilized. **Conclusion:** the hypothesis I started from was that by systematically using the chosen means, they will make progress in the tests administered in the experiment.

Introduction

Exercising is a joy, a necessity.
To teach children to discover and understand the beauty of the movement, to want to achieve perfection in its execution and to achieve what is beautiful and beneficial for them (Rață, 2002). The desire of children to imitate the adults creates the beauty and originality of the movements that lead to the education of the will and to the formation of the firm character (Dragu, 2002)

The personality of the teachers, the creative spirit, the desire to seek and promote the new, the interweaving in the teaching activity of all that is beneficial and beautiful, the memory of one's own childhood will bring the teachers closer and closer to the children, to their requirements (Cojocaru, 2002).

This makes a more obvious contribution to increasing the efficiency of school physical education, ensures the maintenance of optimal health and increases the ability to adapt to environmental factors, ensures the influence of the correct and harmonious evolution of the body, development of motor skills utilitarian - applied and basic sports skills and last but not least the independent practice of physical exercises and different sports along with the balanced manifestation of team spirit and competition according to an accepted system of rules (Dragomir, Scarlat, 2004).

General aspects regarding the complex structures of exercises: they develop skills, abilities and motor qualities, they allow the complex manifestation of the personality, they create positive emotional states, their specific activity is collective, which implies the assumption of responsibilities, critical and self-critical attitude (Colibaba-Evulet, Bota, 1998). It develops initiative, observation and the ability to anticipate and generalize. They have as a characteristic element the competitiveness, the competition increasing the students' interest, mobilizing and stimulating them (Todea, 2002)

In my career as a physical education teacher for 10 years, my permanent concern has been to make physical education lessons at Vinga Technological High School a pleasure for my students, to channel them towards the positive release of their energies in competitions organized in physical education lessons in the form of relays, application courses (obstacle courses) and movement games.

Also, in my capacity as a responsible teacher, of the Vinga area pedagogical circle and a physical education teacher at Vinga Technological High School, I noticed that too few colleagues use such pleasant means for students - movement games, relay races, application courses to lift the emotional condition of students and to guide them to move and train independently (outside of physical education classes).

For these reasons, I considered it appropriate to address such a topic in a scientific-methodological paper, which led me to choose the topic of this paper.

Methods

In the research I included a middle school class, from Vinga Technological High School, 7th grade A, experiment group, which had a staff of twenty students (10 girls and 10 boys). The class is homogeneous in age, intellectual and physical development. In terms of research, the experiment class conducted two hours of physical education per week during which motion games, relay races, and application courses were systematically used throughout the eight-month experiment, making obvious progress.

Along with the set of motion games, relay races and application courses, we also administered control tests in the experiment:
- running speed 50m;
- long jump from the spot;
- running (endurance) 800m girls, 1000m boys;

The research period was divided into two stages:
- Initial testing - 1 Oct. 2016 - 15 Oct. 2016: it was intended to record the performance of the experiment group;

- Final testing - June 1, 2017 - June 10, 2017. We followed the differences between the two stages of the experiment, comparatively monitoring the evolution of students, guided by the idea of confirming research hypotheses.

The objectives of the experiment are:
- development of the execution capacity with maximum correctness of the motor skills targeted in the games of movement, relay races and applied paths
- increasing the indices of manifestation of the motor qualities involved
- stimulating the interest for the constant practice of physical exercises
- forming a positive attitude towards oneself and others.

In order to outline with maximum precision the place and importance of movement games, relay races and applied courses in the physical education lesson, we designed questionnaires for students and physical education teachers in the Vinga area pedagogical circle.

From the answers given by the surveyed teachers, it appears that the movement game has a double aspect, one instructive and the other educational and can be present in any material conditions, in the classroom or outdoors.

From the students' answers it results that they love movement games because they are fun, they recreate, they are attractive, being aware of the educational value of movement games as well as other complex exercises such as relays or application courses.

The research methods used in the elaboration of the paper were: bibliographic study, observation method, test method, statistical method, conversation and survey method, graphic representation method, comparative method (Tudor, 2001).

Results

The results materialized in the level of preparation of the students and the progress registered in the experiment period show that, through the use of complex exercises, the activation of the

students on the basis of awareness was achieved and their motor and spiritual forces were mobilized.

In the assessment, the following were taken into account:
  - correct execution
  - following the rules
  - number of successful actions
  - total mistakes or penalties
  - the number of students eliminated from the game.

1 . The evolution of the subjects' executions during the experiment (relay races, application paths, movement games)

Students	Initial stage	Final stage	progress
correct execution			
20	68,75%	93,75%	+25%
following the rules			
20	56,25%	87,58%	+31,33%
successful actions			
20	62,50%	87,50%	+25%
mistakes (penalties)			
20	15,62%	6,25%	-9,37%
students eliminated from the game			
20	18,75%	12,50%	-6,25%

It was found that the progress made was superior as a result of the preparation process carried out during the planned period, demonstrating the efficiency of intensive use (hour by hour) of movement games, relay races and application courses.

Along with the set of motion games, relay races and application courses, we also administered control tests in the experiment:
  - running speed 50m;
  - long jump from the spot;
  - running (endurance) 800m girls, 1000m boys;

Table. 2. Dynamics of experimental performance in the 50m girls / boys speed test

| Subjects	Speed running - 50 m			
	Girls – The experiment group		Boys – The experiment group	
	Initial testing	Final testing	Initial testing	Final testing
1	8.8	8.5	8.2	7.8
2	8.5	8.7	8.4	7.9
3	8.9	8.3	8.1	7.6
4	8.7	8.4	8.5	7.8
5	8.9	8.7	8	8.1
6	9.0	8.8	8.5	7.4
7	8.6	8.2	7.8	7.5
8	9.1	8.6	7.9	7.9
9	8.6	8.3	7.9	8.0
10	8.9	8.4	8.6	8.2
Mean	8.8	8.5	8.2	7.8
Amplitude of variation	0.60	0.60	0.80	0.80
Coerfficient of variation	2%	2%	4%	3%
Standard deviation	0.19	0.20	0.29	0.26
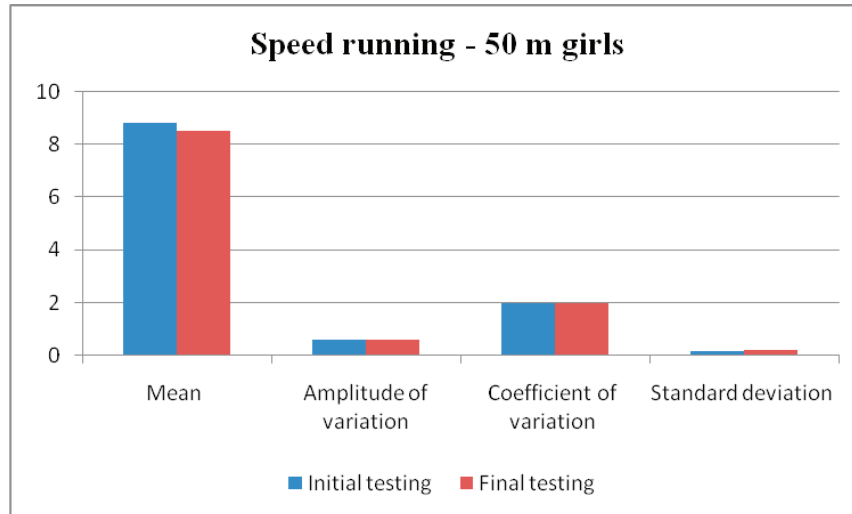
Fig. 1. Evolution of statistical indicators in the 50 m girls event

In the experiment class the arithmetic average in the speed test on the distance of 50 m girls, in the initial test the value of 8.8 „ was registered at girls, and in the final test it was registered the value of 8.5". For girls, the difference is 0.3 ".

From the analysis of the evolution of the statistical indicators in the 50m girls event, the following conclusions can be drawn:
- Within the observed values, by examining the statistical sequence can be identified a minimum and a maximum value. The difference between the maximum value (xmax) and the minimum value (xmin) is called the amplitude of variation of the statistical string, which, for the analyzed example, has the value of 0.6 for both the initial and the final test;
- and the indicator amplitude of variation indicates a relatively narrow range of variation, expressing the same conclusion as the statistical coefficient indicator of variation;
- under the ratio of the coefficient of variation all the primary data come from homogeneous sets both in relation to the initial test and the final test, (s% = 2%);
- the lower the standard deviation, the lower the degree of scattering of the values of the studied characteristic, for the initial testing this statistical indicator has the value of 0.19 and for the final testing it has the value of 0.20.
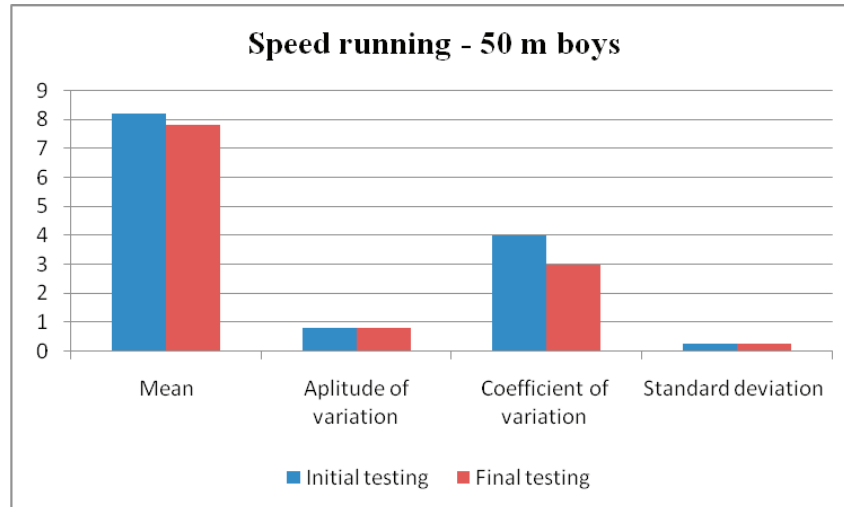
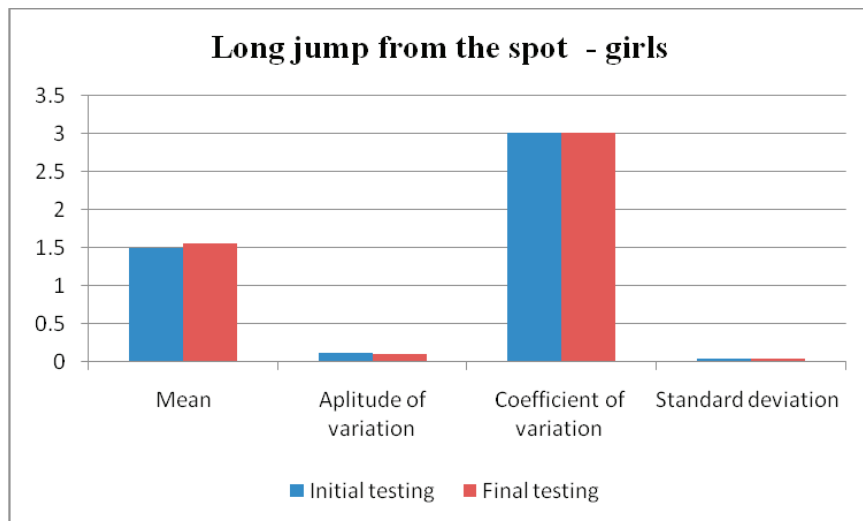**Fig. 2.** The evolution of statistical indicators in the 50m boys' event

At boys, at the initial test, the arithmetic average, in the speed test over a distance of 50 m, the value recorded by timing is 8.2 " and at the final test, the value is 7.8". The difference between the initial test and the final test is 0.4 ".

From the analysis of the evolution of the statistical indicators in the 50m boys test, the following conclusions can be formulated:

- The difference between the maximum value (xmax) and the minimum (xmin) is called the amplitude of variation of the statistical string, which for the analyzed example has the value of 0.8 for both the initial and the final test;
- in terms of coefficient of variation all primary data come from homogeneous sets both in relation to the initial test and the final test, (s% = 4% initial test and 3% final test);
- and the amplitude variation indicator indicates a relatively narrow range of variation, expressing the same conclusion as the statistical coefficient of variation indicator.
- the standard deviation, for the initial testing has the value of 0.29 and for the final testing has the value of 0.26.

Table. 3 . Dynamics of experimental performance in the long jump test on the spot

☐Subjects	Long jump from the spot			
	Girls – The experiment group		Boys – The experiment group	
	Initial testing	Final testing	Initial testing	Testarea finală
1	1.52	1.62	1.70	1.82
2	1.49	1.55	1.69	1.76
3	1.47	1.63	1.65	1.65
4	1.45	1.52	1.68	1.68
5	1.52	1.52	1.72	1.69
6	1.55	1.54	1.71	1.77
7	1.44	1.59	1.66	1.81
8	1.43	1.53	1.73	1.78
9	1.51	1.52	1.67	1.8
10	1.49	1.52	1.69	1.82
Mean	1.49	1.55	1.69	1.76
Amplitude of variation	0.12	0.11	0.08	0.17
Coerfficient of variation	3%	3%	2%	4%
Standard deviation	0.04	0.04	0.03	0.06

Fig. 3. Evolution of statistical indicators in the long jump test on the spot - girls

In the long jump test on the spot - girls, at the initial test, **the arithmetic average** is 149 cm, and at the final test, the performance value is 155 cm. The difference between the performances is 6 cm.

From the analysis of the evolution of the statistical indicators in the long jump test on the spot - girls, the following conclusions can be formulated:

- the amplitude of variation of the statistical string, for the analyzed example has the value of 0.12 for the initial testing and 0.11 for the final testing;
- the indicator amplitude of variation indicates a relatively narrow range of variation, expressing the same conclusion as the statistical coefficient indicator of variation;
- in terms of coefficient of variation all primary data come from homogeneous sets both in relation to the initial test and the final test, (s% = 3%);
- the lower the standard deviation, the lower the degree of scattering of the values of the studied characteristic, for the initial and final testing this statistical indicator has the value of 0.04.
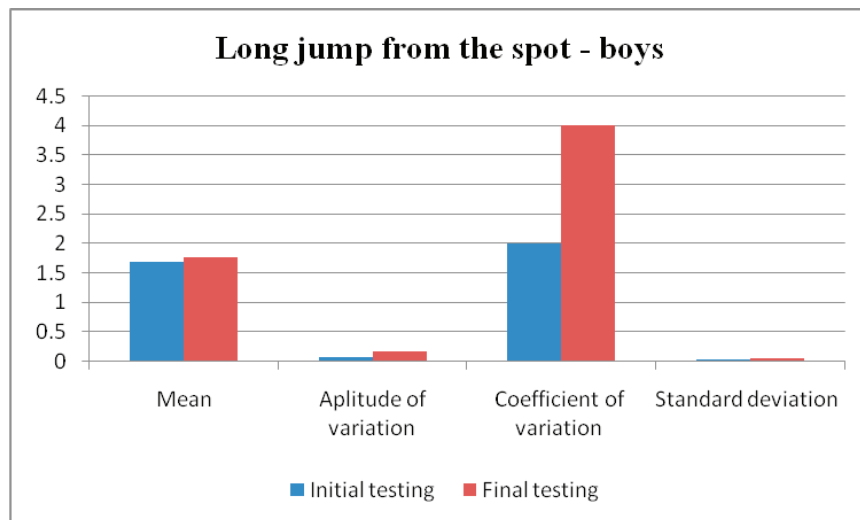

Fig. 4. Evolution of statistical indicators in the long jump test on the spot - boys

In the long jump test on the spot - boys, at the initial test, **the arithmetic average** is 169 cm, and at the final test the performance value is 176 cm. At boys, the difference is 7cm.

From the analysis of the evolution of the statistical indicators in the long jump test on the spot - boys, the following conclusions can be formulated:

- the difference between the maximum value (xmax) and the minimum (xmin) is called the amplitude of variation of the statistical string, which for the analyzed example has the value of 0.08 for the initial test and 0.17 for the final test;
- the coefficient of variation is used to make the comparative analysis between distributions with variability expressed in different units of measurement. It is equal to the percentage ratio between the standard deviation and the arithmetic average;
- in terms of coefficient of variation all primary data come from homogeneous sets both in relation to the initial test and the final test (s% = 2% initial test and 4% final test);
- and the amplitude variation indicator indicates a relatively narrow range of variation, expressing the same conclusion as the statistical coefficient of variation indicator.
- the standard deviation, for the initial testing has the value of 0.03 and for the final testing has the value of 0.06.

Table. 4. Dynamics of experimental performance in the endurance running test

800m girls / 1000m boys

Subjects	Endurance running			
	800m		1000m	
	Girls – The experiment group		Boys – The experiment group	
	Final testing	Initial testing	Final testing	Initial testing
1	4.3	4.28	4.2	4.2
2	4.4	4.35	4.4	4.3

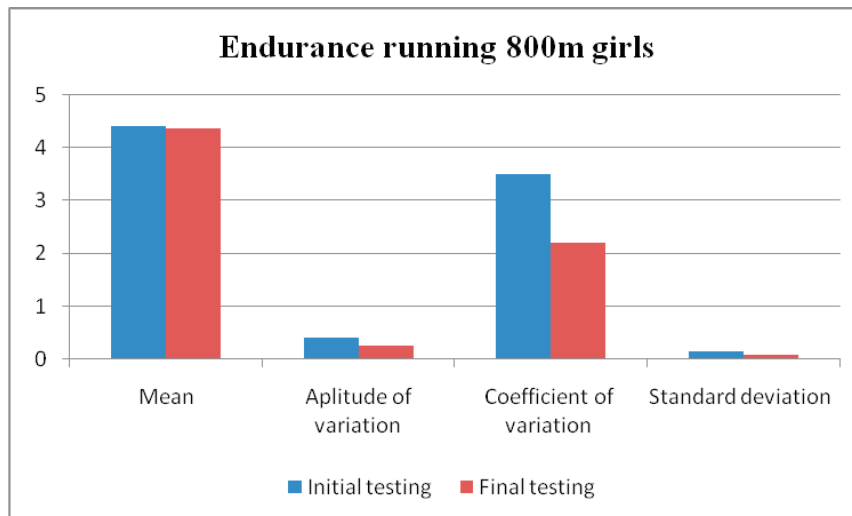|				
3	4.5	4.33	4.3	4.4
4	4.6	4.29	4.3	4.25
5	4.2	4.44	4.2	4.33
6	4.5	4.5	4.4	4.28
7	4.3	4.27	4.6	4.44
8	4.6	4.25	4.7	4.45
9	4.3	4.29	4.5	4.52
10	4.2	4.5	4.8	4.22
Mean	4.390	4.350	4.440	4.339
Amplitude of variation	0.400	0.250	0.600	0.320
Coerfficient of variation	3.5%	2.2%	4.7%	2.5%
Standard deviation	0.152	0.095	0.207	0.108

Fig. 5. Evolution of statistical indicators in the 800 m endurance running event - girls

In the 800 m girls' endurance running test, **the arithmetic average** was 4'40 „in the initial test, and the value was 4'35" in the final test.

From the analysis of the evolution of the statistical indicators in the 800m endurance running test - girls, the following conclusions can be formulated:

- the amplitude of variation of the statistical string, for the analyzed example has the value of 0.40 for the initial testing and 0.25 for the final testing;
- and the indicator amplitude of variation indicates a relatively narrow range of variation, expressing the same conclusion as the statistical coefficient indicator of variation;
- in terms of coefficient of variation all primary data come from homogeneous sets both in relation to the initial test and the final test, (s% = 3.5% for the initial test and 2.2% for the final test);
- the lower the coefficient of variation, the lower the variability of the characteristic, the more homogeneous the collectivity, and the higher the degree of representativeness of the arithmetic mean;
- the lower the standard deviation, the lower the degree of scattering of the values of the studied characteristic, for the initial testing this statistical indicator has the value of 0.152 and for the final testing the value of this indicator is 0.095.
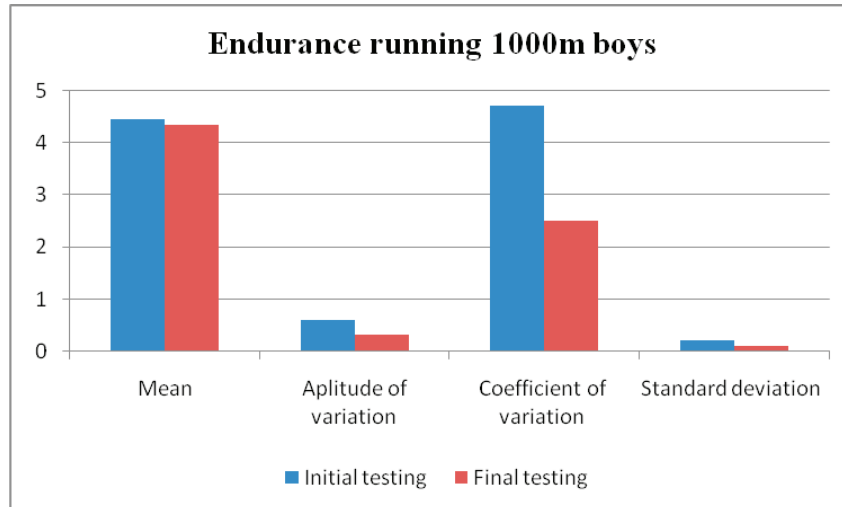
Fig. 6. Evolution of statistical indicators in the 1000 m
endurance running test – boys

In the endurance test 1000 m boys, at the initial test, the arithmetic average was 4'44 ", and at the final test the value of 4'33" was recorded.

From the analysis of the evolution of the statistical indicators in the 1000m endurance running test - boys, the following conclusions can be formulated:
- the difference between the maximum value (xmax) and the minimum (xmin) is called the amplitude of variation of the statistical string, which for the analyzed example has the value of 0.60 for the initial test and 0.32 for the final test;
- the coefficient of variation is used to make the comparative analysis between distributions with variability expressed in different units of measurement. It is equal to the percentage ratio between the standard deviation and the arithmetic mean;
- in terms of coefficient of variation all primary data come from homogeneous sets both in relation to the initial test and the final test (s% = 4.7% initial test and 2.5% final test);
- and the indicator amplitude of variation indicates a relative-

ly narrow range of variation, expressing the same conclusion as the statistical coefficient indicator of variation;
- the standard deviation, for the initial test has the value of 0.207 and for the final test has the value of 0.108.

So it is confirmed again, the hypothesis from which the experiment was started, namely that, using systematically and permanently the correctly chosen means, they determined progress in all 3 tests administered in the experiment.

Conclusions

The experiment led to the conclusion that by using the three specific means as complex exercises, the basic motor skills, application utilities, basic sports and some motor skills are strengthened and perfected.

We can say that students whose activity is based on a deep motivation get the best results and that physical exercise is the most frequently used operational model for achieving the proposed objectives (Carstea, 1993).

We are also talking about feedback for the teacher who is concerned and motivated.

It is worth mentioning the following statement by Professor Kieer Kegaard: „The learning process begins when you, the teacher, learn from the student, when you, standing in his place, understand what he understood and how he understood." (Bota, 2004),

The work I have prepared on the subject of "Motion Games, Relay races and Application Routes" is intended to be a warm encouragement to my colleagues, physical education teachers, to use this method in the lessons of their lords, to constantly create joy for students and an appropriate framework for the manifestation of personality and at the same time to highlight once again the educational values of these means of school physical education.

References

1. Birău, R., Birău, R. M., (2005). Methodology of school physical education, vol. I and II. Editura „Aurel Vlaicu" University, Arad;

2. Bota A. (2004). Leisure motor activities, course notes ANEFS, Bucharest;

3. Dragnea A., Bota A., (1999). Theory of motor activities. Didactic and Pedagogical Publishing House, Bucharest.

4. Cârstea G., (1993). Theory and methodology of physical education and sports. Universul Publishing House, Bucharest;

5. Cojocaru V.M., (2002). Theory and methodology of training, Didactic and Pedagogical Publishing House, Bucharest;

6. Colibaba-Evulet D., Bota I., (1998). Sports games - Theory and methodology. Aldin Publishing House, Bucharest;

7. Dragu, M. (2002). Motor games. «Dunărea de Jos» University Foundation Publishing House, Galaţi;

8. Dragomir P., Scarlat E., (2004). Physical education - new landmarks, necessary mutations, Didactic and Pedagogical Publishing House, Bucharest;

9. Mihăilescu, L., Mihăilescu, N., (2002). Instruirea programată în atletism. Editura Universităţii, Piteşti,

10. Raţă, G., (2002). Athletics Technical, Methodological, Regulation, Alma Mater Publishing House, Bacău;

11. Todea S.F., (2002). Motion games. Romania of Tomorrow Foundation Publishing House, Bucharest;

12. Tudor V., (2001). Assessment in school physical education. Printech Publishing House, Bucharest.