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## Contribution of the game in the development of motor skills during the physical education class

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### Abstract

*Goal of this work* : checking the influence of the dynamic game (taught in physical education lessons) on the development of motor skills in VIth class middle school students. *Materials and methods*: The study was conducted over a period of six months, involving 30 students: boys (15) and girls (15), aged between 12 and 13. The evaluation of the athletes' physical capacity was done by performing the following tests: speed running 50 m, long jump on the spot, resistance running 800 m G / 1000 m B, trunk lifting from lying position to sitting. Given the nature of the study, it did not require the use of sophisticated equipments. *Conclusions*: Methodical practicing of physical exercises (dynamic games) proves itself more and more successful in terms of growth and normal, harmonical development of children and youth. In terms of motor skills, they have improved, which was revealed by the final testing results. Comparative analysis of the two test results across all samples showed that using dynamic games during the lessons had a positive effect on students. This drove to the effort capacity's improvement with the parameters that were statistically significant in all the tests.

**Key words:** *dynamic games, effort capacity, physical condition, physical education*

### Rezumat

*Scopul lucrării:* este de a verifica influența jocurilor motrice predate în cadrul lecțiilor de educație fizică asupra dezvoltării aptitudinilor motrice la elevii învățământului gimnazial din clasa a VI-a. *Material și metodă:* Studiul s-a desfășurat pe o perioadă de șase luni, la care au participat 30 de elevi (15) și eleve (15) cu vârsta cuprinsă între 12 și 13 ani. Evaluarea capacității fizice a sportivilor s-a făcut prin efectuarea următoarelor probe: alergare de viteză 50 m, săritura în lungime de pe loc, alergare de rezistență 800 F / 1000 B, ridicări de trunchi din culcat în sezând. Având în vedere natura studiului, acesta nu a impus utilizarea unei aparaturi de evaluare sofisticate.

*Concluzii* Practicarea metodică a exercițiilor fizice (jocurile motrice) își dovedește tot mai mult eficacitatea în ceea ce privește creșterea și dezvoltarea normală, armonioasă a copiilor și tinerilor. Din punct de vedere al calităților motrice acestea s-au îmbunătățit, lucru relevant de rezultatele obținute la testarea finală. Analiza comparativă a rezultatelor la cele două testări în cadrul tuturor probelor s-a constatat că utilizarea jocurilor motrice în lecție a avut un efect pozitiv asupra elevilor favorizând optimizarea capacității de efort cu parametrii ce au avut și semnificație statistică la toate probele testate.

**Cuvinte cheie:** *jocuri motrice, capacitate de efort, condiție fizică, educație fizică*

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## Introduction

"We can not imagine childhood without its laughs and games. Soul and intelligence evolve through games. About a child one can not say that he is only growing; we must say that he evolves through the game." All the literature highlight the benefits of dynamic games based on their characteristics. "Dynamic games make the execution of a large number of movements possible, they solicit in many aspects the students' bodies, they develop their physical qualities, they mobilize, engage all the participants' forces (dynamic, will, affective, cognitive and psychological)." Along with the dynamic benefits, games contribute to health improvement, they cause positive affective states and satisfactions, they are a great way to relax and they give their participants freedom of action. Based on these considerations, the study aims to select and to think out a set of dynamic games in order to develop motor skills. The structure and the complexity of the games were chosen based on the students' possibilities. The games' tasks and goals were created so that students wouldn't find it difficult to go through them.

## Materials and methods

The experiment was conducted in the National Banat College. The study was conducted in the school year 2012-2013 on 30 students (15 girls and 15 boys) from the sixth class. The sport basis is specific for a school in the Romanian education system: a handball court, a small gym, a course with jumping pit, a speed running course. The tests were done every six months and consisted of: 50 m speed running with upper start and timing at first move, long jump on the spot from a set point and measuring of landing place; resistance running 800 m girls and 1000 m boys, trunk liftings from lying into sitting, where the starting position is lying on the back, with hands behind the head, elbows on the mattress, knees bent, feet on the mattress, toes supported under a fixed scale. After the signal the

participant raises his trunk vertically in the sitting position, with the elbows touching his knees. Then he immediately returns to the original position in order to repeat the execution. The result is expressed in number of correct executions, successful within 30 seconds.

To develop motor skills, a series of games were chosen, which, based on their characteristics, address themselves to motor skills or a combination of skills. Therefore I had games for speed development (5 games), for the resistance development (3 games) and games for force development (5 games). These were put in practice in each class of physical education (2 per week), in combination of two or three, so that within the two weeks each game was performed at least twice. Depending on the ability that each game develops, they were integrated in the physical education lesson structure, thus respecting scientific and physiological rigors the physical education lesson is build on.

Continuous variables are presented as mean and standard deviation. Changes from baseline to follow-up within treatment groups was tested using Anova single factor test. The level of statistical significance was set at  $p \leq 0.05$ . The statistical analyses were performed with "GraphPad Prism v.5" for Windows.

## Results

The initial testing was performed at the beginning of the school year and had to determine the physical condition level of students in sixth grade. In the period between the two evaluations during physical education classes, the dynamic games were rigorously implemented from the proposed study protocol. These measurements were repeated after six months, respecting the evaluation conditions. (Table I, II and figures 1-4 ).

**Table I.** Initial and final testing values in girls group

Baseline-FT1*				End-FT2**			
50m	Long jump	800m	crunch	50m	Long jump	800m	crunch
9.8	1.47	3.48	21	9	1.66	3.4	23
9.1	1.36	5.21	25	8.6	1.58	5.1	27
9.9	1.21	5.15	18	9.0	1.4	4.5	23
9.7	1.41	3.45	20	9	1.71	3.39	24
9.5	1.51	3.43	22	8.7	1.7	3.37	24
9.6	1.74	3.52	17	8.8	1.9	3.45	23
9.8	1.36	3.48	18	9	1.55	3.41	22
9.1	1.49	4.02	20	8.7	1.74	3.5	23
9,6	1.57	3.58	22	8.8	1.65	3.51	24
9,6	1.42	3.54	19	9	1.63	3.48	21
9,4	1.5	4.43	19	8.7	1.68	4.37	21
9,6	1.23	4.48	20	8.9	1.5	4.3	23
9,9	1.15	5.05	15	9.1	1.4	4.5	18
9,6	1.32	3.5	17	8.8	1.59	3.43	21
9,2	1.23	4.03	22	8.6	1.46	3.57	24

\* Baseline-FT1\*- initial testing girls

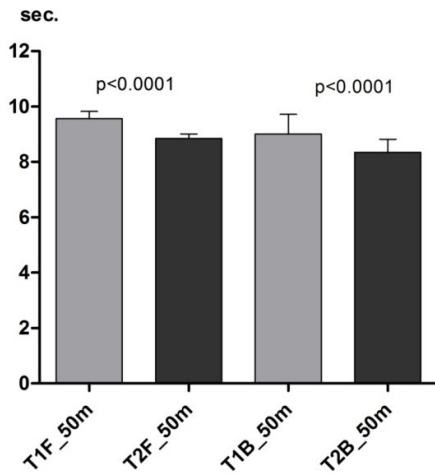
\*\* End-FT2\*\*- final testing girls

**Table II.** Initial and final testing values in boys group

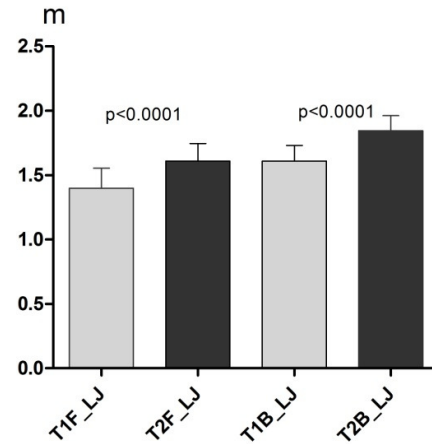
Baseline-BT1*				End-BT2**			
50m	Long jump	1000m	crunch	50m	Long jump	1000 m	crunch
7.8	1.8	4.16	23	7.5	2.1	4.06	27
9.2	1.62	4.19	15	8.5	1.82	4.09	19
9.2	1.78	4.36	20	8.4	1.97	4.26	25
8.8	1.6	4.2	24	8	1.83	4.11	27
9.7	1.62	3.58	20	9	1.84	3.48	22
9.9	1.42	4.31	12	9.1	1.73	4.23	20
10	1.49	4.47	20	8.7	1.74	4.37	25
9.6	1.6	4.35	21	8.8	1.86	3.25	27
8.6	1.61	4.31	25	8	1.87	4.2	30
9.3	1.67	4.45	17	8.5	1.91	4.38	22
9.4	1.51	4.07	10	8.4	1.7	4.03	20
8.9	1.65	4.58	27	8.3	1.88	4.49	32
7.9	1.5	4.15	34	7.7	1.73	4	34
7.9	1.81	3.57	32	7.8	2	3.48	33
9	1.45	4.32	16	8.5	1.7	4.22	20

\*Baseline-BT1\*- initial testing boys

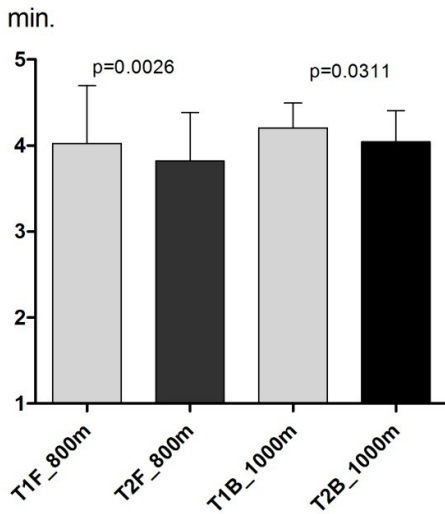
\*\* End-BT2\*\*- final testing boys



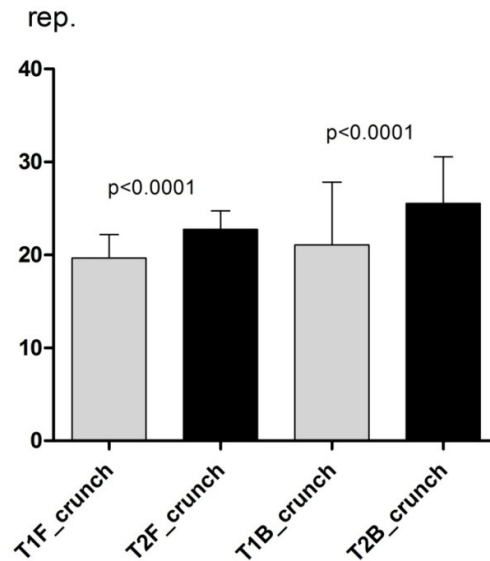
**Figure 1.** Evolution of speed parameters at 50m running sample  
 T1F\_50m Speed parameters at initial testing girls;  
 T2F\_50m Speed parameters at final testing girls;  
 T1B\_50m Speed parameters at initial testing boys;  
 T2B\_50m Speed parameters at final testing boys.



**Figure 3.** Evolution of resistance parameters at the long jump sample  
 T1F\_LJ Long jump parameters at initial testing - girls;  
 T2F\_LJ Long jump parameters at final testing - girls;  
 T1B\_LJ Long jump parameters at initial testing - boys;  
 T2B\_LJ Long jump parameters at final testing - boys.



**Figure 2.** Evolution of resistance parameters at 800m-girls and 1000m-boys running sample  
 T1F\_800m Resistance parameters at initial testing girls;  
 T2F\_800m Resistance parameters at final testing girls;  
 T1B\_1000m Resistance parameters at initial testing boys;  
 T2B\_1000m Resistance parameters at final testing boys.



**Figure 4.** Evolution of resistance parameters at the crunch sample  
 T1F\_crunch Crunch parameters at initial testing-girls;  
 T2F\_crunch Crunch parameters at final testing-girls;  
 T1B\_crunch Crunch parameters at initial testing-boys;  
 T2B\_crunch Crunch parameters at final testing-boys

**Discussions**

The advantages of using dynamic games in physical education lessons is to promote physical condition improving and to encourage group relations. The

efficiency of using dynamic games in physical education lessons can be noticed in the study we made. As shown in the tables and graphs of this study, students manage to improve their evolutions

in all the tested samples. Dynamic games, by their collective character of organization and development, produce a decrease of the differences between the physical gifted children and those less gifted. This is a qualitative decrease, through students' emulation to the group's objectives, due to the conscious and total involvement mechanism to the group's effort to achieve the target. The positive evolution of the parameters must not to be associated only to the study implementation strategy that we proposed. Obviously, the students' age, where there are major somatical and physiological changes, should be considered. The influence of accelerated development at this age, but especially the standard of living where young people evolve, led to an important biological phenomenon, called by some authors "secular trend", characterized by an accelerated growth of some development indices.

### Conclusions

Methodical practicing of physical exercise (dynamic games) proves itself more and more successful in terms of growth and normal development of children

and youth. In terms of motor skills, those have improved, which was revealed by the final testing results. Comparative analysis of the two test results across all samples showed that using dynamic games during the lessons had a positive effect on students. This drove to the effort capacity's improvement with the parameters that were statistically significant in all the tests.

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