

IMPROVING BASKETBALL SKILLS THROUGH COORDINATION EXERCISES IN PAIR FOR MIDDLE SCHOOL STUDENTS

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ABSTRACT. This paper aims to present effective methods for teaching exercises during physical education and sports lessons by performing exercises in pairs. The presence of a partner and/or opponent not only adds a competitive element but also simulates adaptation to unpredictable changes, thus creating conditions similar to those encountered in a real basketball game and providing more realistic feedback on the applicability of technical procedures in basketball. **Materials and Methods:** The subjects included in the study were represented by two fifth-grade classes (one experimental class and one control class) from “Ion Agârbiceanu” Secondary School in Cluj-Napoca. Initial tests were applied to both groups involved in the research, then the experimental group was subjected to a variety of pair exercises, followed by the same tests being applied to both groups again at the end. **Results:** The results obtained from the two tests applied to both groups in the research show a more visible progress in the experimental group, especially in the second test, where a very large difference can be seen. In the experimental group, 18 out of 20 students improved their shooting percentage, while in the control group, only 5 achieved this. **Conclusions:** Based on the results obtained, we can confidently state that applying pair-specific basketball exercises improved the execution of procedures and technical elements.

Keywords: *procedure, pair, improvement*

REZUMAT. *Îmbunătățirea jocului de baschet prin intermediul exercițiilor de coordonare în perechi la elevii de gimnaziu.* Lucrarea își propune să prezinte modalități eficiente de predare a exercițiilor în cadrul lecțiilor de

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educație fizică și sport, prin efectuarea exercițiilor în perechi. Prezenta unui partener și/sau adversar, nu doar adaugă un element de competitivitate, dar și simulează adaptarea la schimbări imprevizibile, creând astfel condiții asemănătoare întâlnite într-un joc de real de baschet, și oferind astfel, un feedback mai real al nivelului de aplicabilitate a procedeele tehnice în jocul de baschet. **Materiale și metode:** Subiecții incluși în studiu au fost reprezentați de două clase de a V-a (o clasă experiment și una de control) de la Școala Gimnazială "Ion Agârbiceanu", din Cluj-Napoca. S-au aplicat teste inițiale ambelor grupe aflate în cercetare, apoi grupa experiment au fost supusă la o varietate de exerciții în perechi, urmând ca la final să se aplice din nou aceleași teste ambelor grupe. **Rezultate:** rezultatele obținute la cele două teste aplicate ambelor grupe aflate în cercetare arată un progres mai vizibil la grupa experiment, în special la al doilea test, unde se vede o diferență foarte mare. La grupa experiment, 18 din 20 de elevi și-au îmbunătățit procentajul la aruncări, în timp ce la grupa de control, doar 5 au reușit acest lucru. **Concluzii:** pe baza rezultatelor obținute, putem afirma cu certitudine că prin aplicarea exercițiilor în perechi, specifice jocului de baschet, s-a îmbunătățit execuția procedeele și a elementelor tehnice.

Cuvinte-cheie: procedeu, pereche, îmbunătățire

INTRODUCTION

The present work addresses physical education teachers who wish to introduce different methods than those commonly found in most thematic basketball books, specifically the execution of exercises in pairs. We believe that through this method, the class will be more creative, more enjoyable, promote teamwork, collaboration, and, why not, strengthen the relationship among students.

Coordination is defined as a complex form of expressing new movements and quickly adapting to varied situations, according to the specifics of each sport or other basic and applicative motor skills (Dragnea, 1996).

The same terms it defined as the capacity of the human body to perform motor acts and actions, under varied and unusual conditions, with maximum efficiency and minimal energy expenditure by the performer (Cârstea, 1997).

Coordinative capacities are also defined as a complex of predominantly psychomotor qualities that imply the ability to quickly learn new movements, adapt quickly and efficiently to varied conditions specific to different types of activities, by restructuring the existing motor fund (Bota, 1993).

Nicu Alexe (1993) distinguishes in sports practice general coordination motor qualities – developed as a result of polyvalent training and which manifest in various life, work, and sports situations – and specific coordination qualities for a certain event or sports discipline, structured and referred to as coordination accompanied by the term capacity.

Emphasizing the importance of coordination in life, Weinek J. Considers general coordination capacity as a result of “polyvalent motor learning that manifests in various areas of daily life and sports and is aimed at rational and intensive fulfilment of motor tasks of all kinds”, while specific coordination capacity is characterized by “the possibility of varying gesture combinations of sports techniques” (Weinek, 1997).

Zatorski (1968), cited by Bompa (2001), proposed the following classification criteria for coordination:

- by the degree of difficulty, motor skills are of low complexity, which includes cyclic movements, and high complexity skills, which include acyclic skills;
- by execution precision, a skill can be performed with difficulty, slowly and without fluidity when it is not well mastered, or it can be performed with precision, amplitude, speed, and harmony when it is well mastered;
- by the duration of accommodating a skill, which depends on complexity, the level of mastered motor skills, and the predispositions of the subjects. An athlete who master a large number of motor skills and has good coordination shortens the acquisition time of other skills and has a high capacity for adaptation to unpredictable situations.

Epuran (2005) presents the following scheme regarding the forms of manifestation of coordinative capacity and its components:

General Coordinative Capacity: a. adaptation and transformation capacity; b. leading capacity; c. learning capacity.

Coordinative Capacity: a. fine dexterity; b. balance; c. c. movement elasticity; d. combination capacity; e. movement creativity; f. other coordinative capacities.

The game of basketball has significant influences on psychological qualities, including the “fighting power”, where willpower is channeled towards achieving victory. This sport contributes to the development of thinking, a “practical thinking”. The activity in the game accustoms the student to analyze situations, compare them, and draw practical conclusions with maximum speed (Predescu, 2001, p 29). Thus, we consider that the technical complexes in physical education lessons with basketball themes, performed in pairs, greatly contribute to obtaining these qualities among students.

HYPOTHESIS

The research hypothesis we started from is that by using paired exercises, adapted to the age and skill level of students, performance in basketball can be improved during physical education lessons.

MATERIALS AND METHODS

The subjects and the research location

The subjects of the research were represented by two 5th grade classes (20 subjects each class), with class V. a serving as the experimental group and class V. B. as the control group, from the “Ion Agârbiceanu” Gymnasium School in Cluj-Napoca. The school has a very good material base necessary for learning and practicing this sport, which allowed us to conduct the study under good conditions.

Table 1. Subjects of the experimental class

Nr	Subjects	Grade	Gender	Age	Have you ever practiced any sport, if so, which one?
1	A. C.	V A	M	11	Yes. Tennis.
2	A. D.	V A	F	12	Yes. Volleyball.
3	B. A.	V A	F	11	No
4	B. E.	V A	M	12	No.
5	D. E.	V A	F	11	Yes. Basketball.
6	D. I.	V A	F	11	Yes. Football.
7	E. H.	V A	F	12	No.
8	F. G.	V A	M	11	No.
9	G. A.	V A	M	11	No.
10	G. E.	V A	M	12	No.
11	I. A.	V A	M	11	Yes. Football.
12	I. S.	V A	F	12	Yes. Volleyball.
13	P. A.	V A	F	11	Yes. Swimming.
14	P. A.	V A	M	12	Yes. Volleyball.
15	P. I.	V A	F	11	No.
16	P. R.	V A	F	12	No.
17	S. C.	V A	F	11	Yes. Wrestling.
18	S. I.	V A	F	12	Yes. Swimming.
19	S. H.	V A	M	11	Yes. Handball.
20	U. M.	V A	M	12	Yes. Basketball.

Table 2. Subjects of the control class

Nr	Subjects	Grade	Gender	Age	Have you ever practiced any sport, if so, which one?
1.	A. C.	V B	M	11	Yes. Rugby.
2.	A. C.	V B	F	12	Yes. Gymnastics.
3.	B. A.	V B	F	11	No
4.	C. C.	V B	M	12	No.
5.	C. D.	V B	F	11	Yes. Athletics.
6.	C. D.	V B	F	12	Yes. Badminton.
7.	F. A.	V B	F	11	No.
8.	F. A.	V B	M	12	No.
9.	G. S.	V B	M	11	No.
10.	G. B.	V B	M	11	No.
11.	H. R.	V B	M	12	Yes. Football.
12.	H. A.	V B	F	11	Yes. Football.
13.	K. C.	V B	F	12	Yes. Volleyball.
14.	K. E.	V B	M	11	Yes. Tennis.
15.	O. A.	V B	F	11	No.
16.	O. G.	V B	F	12	No.
17.	P. A.	V B	F	11	Yes. Football.
18.	P. C.	V B	F	12	Yes. Handball.
19.	P. T.	V B	M	11	Yes. Basketball.
20.	R. A.	V B	M	11	Yes. Football.

The stages of research

Stage 1: March 7, 2024: administering initial tests to both research groups (both the experimental and control classes).

Stage 2: March 15, 2024 – April 15, 2024: implementing a lot of basketball exercises (in pairs) only with the experimental group.

Stage 3: April 24, 2024: re-administering tests (same as the initial tests for both research groups).

The tests applied

Test 1 – Description of the exercise: completing and applied route that includes 4 bounce passes with the wall, 4 direct passes to the wall, dribbling with crossovers, dribbling and shooting from one foot (layup – he must score), retrieving own ball, dribbling through cones, high-speed dribbling and shooting from mid-range while jumping (must score).

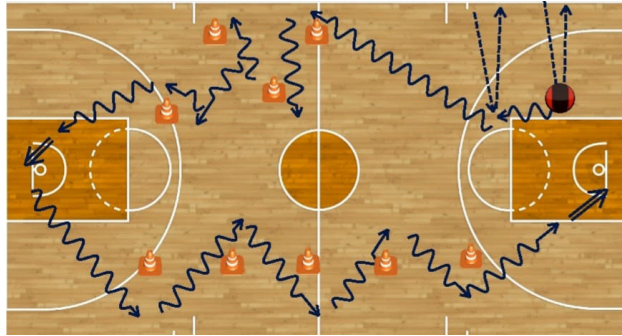


Figure 1. First test

Test 2 – Description of the exercise: each student will make a total of 15 min-range shots. Each successful shot will be scored with 0.5 points. If a shot is made using incorrect technique, even if it goes into the basket, it will not be scored. Shots will be taken from 3 different positions, each at a distance of 4 meters. The basketball balls will be retrieved by a rebounder. If the execution is very correct executed, the subject will receive 1 point.



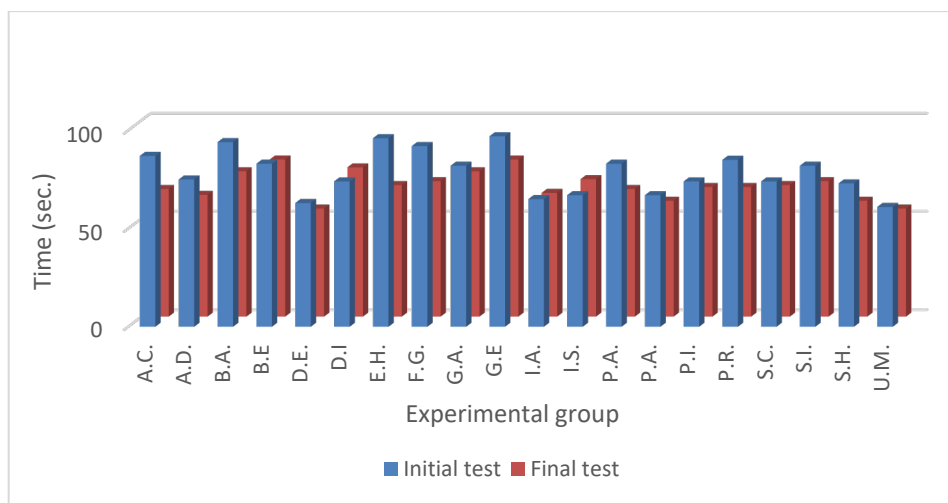
Figure 2. Second test

RESULTS

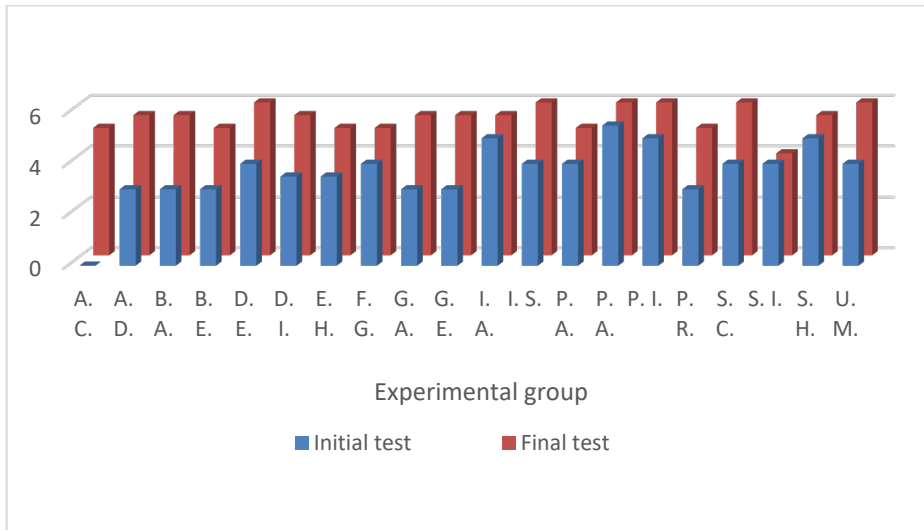
Next, we will present the results obtained by the groups (both the experimental and the control group) on both the initial and final tests.

Table 2. The results of the experimental group

Experimental group		Test 1 (sec)		Test 2 (points)	
Nr.	Subject	Initial test	Final test	Initial test	Final test
1	A. C.	87	65	4.0	5.0
2	A. D.	75	62	3.0	5.5
3	B. A.	94	74	3.0	5.5
4	B. E.	83	80	3.0	5.0
5	D. E.	63	55	4.0	6.0
6	D. I.	74	76	3.5	5.5
7	E. H.	96	67	3.5	5.0
8	F. G.	92	69	4.0	5.0
9	G. A.	82	74	3.0	5.5
10	G. E.	97	80	3.0	5.5
11	I. A.	65	63	5.0	5.5
12	I. S.	67	70	4.0	6.0
13	P. A.	83	65	4.0	5.0
14	P. A.	67	59	5.5	6.0
15	P. I.	74	66	5.0	6.0
16	P. R.	85	66	3.0	5.0
17	S. C.	74	67	4.0	6.0
18	S. I.	82	69	4.0	4.0
19	S. H.	73	59	5.0	5.5
20	U. M.	61	55	3.0	6.0



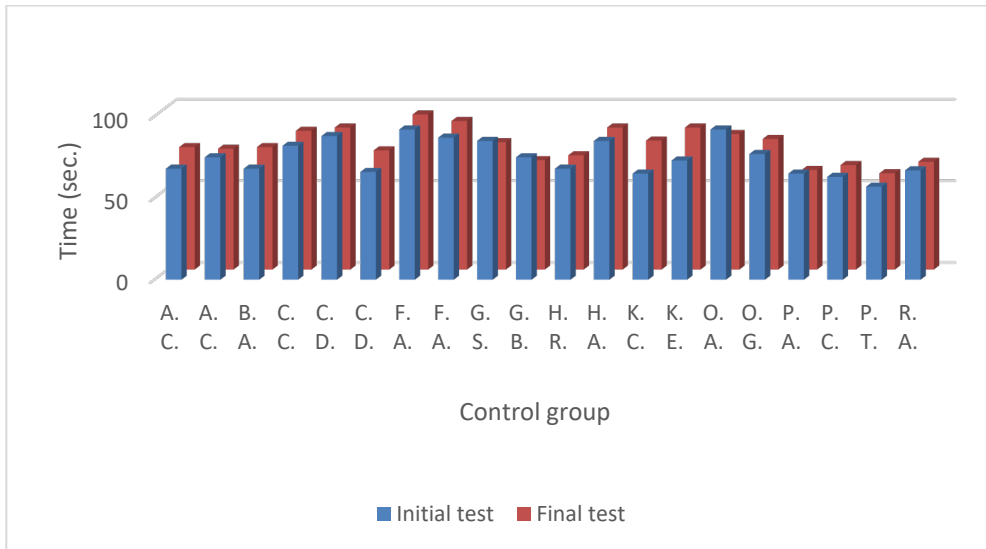
Graph 1. The results of test 1 (experimental group)



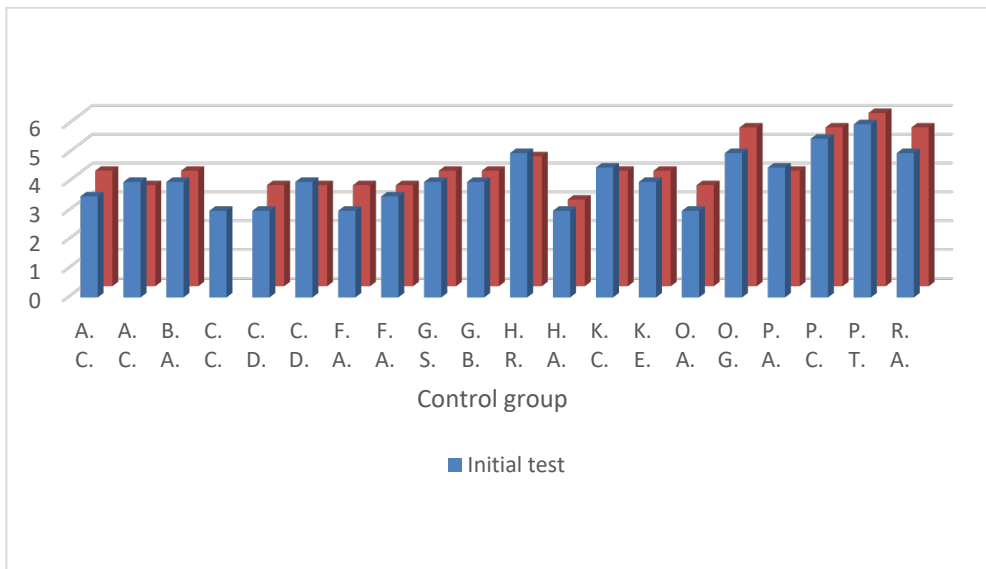
Graph 2. The results of test 2 (experimental group)

Table 3. The results of the control group

Nr.	Experimental group Subject	Test 1		Test 2	
		Initial test (sec)	Final test (sec)	Initial test (points)	Final test (points)
1.	A. C.	68	75	3.5	4.0
2.	A. C.	75	74	4.0	3.5
3.	B. A.	68	75	4.0	4.0
4.	C. C.	82	85	3.0	3.0
5.	C. D.	88	87	3.0	3.5
6.	C. D.	66	73	4.0	3.5
7.	F. A.	92	95	3.0	3.5
8.	F. A.	87	91	3.5	3.5
9.	G. S.	85	78	4.0	4.0
10.	G. B.	75	67	4.0	4.0
11.	H. R.	68	70	5.0	4.5
12.	H. A.	85	87	3.0	3.0
13.	K. C.	65	79	4.5	4.0
14.	K. E.	73	87	4.0	4.0
15.	O. A.	92	83	3.0	3.5
16.	O. G.	77	80	5.0	5.5
17.	P. A.	65	61	4.5	4.0
18.	P. C.	63	64	5.5	5.5
19.	P. T.	57	59	6.0	6.0
20.	R. A.	67	66	5.0	5.5



Graph 3. The results of test 1 (control group)



Graph 4. The results of test 2 (control group)

DISCUSSION

As observed in Graph 1, from the experimental group, 18 out of 20 students improved their time in the initial evaluation test. The most notable improvement was achieved by one student who completed the course 29 seconds faster. Technical procedures were visibly executed more accurately and with advanced coordination compared to the initial test.

Graph 2 shows that 18 students significantly improved their technical procedures, performing them more accurately and coordinated. Consequently, these students scored higher points in the final test, demonstrating their significant progress compared to the initial assessment. Many students improved their scores by up to 2 points.

Graph 3 illustrates that from the control group, only 7 out of 20 students improved their time in the initial evaluation test. These improvements were not very pronounced, and differences in technical execution and coordination in the final assessment were minor compared to the initial test. The most notable improvement was made by a student who completed the course 7 seconds faster.

As observed in Graph 4, in the control group during the final evaluation test, only 5 out of 20 students improved their time. This improvement was limited and did not reflect significant progress in technical execution compared to the initial test.

CONCLUSIONS

Analyzing the tables and graphs above, it is clear that the experimental group showed significant improvements in both evaluation tests, much larger compared to the control group.

We appreciated the effort and attention shown by both classes of students.

Both experimental and control groups demonstrated dedication and a desire to excel.

Fortunately, the students were highly engaged, and we believe that a primary reason for this is the fact that the exercises were conducted in pairs, a method with which the students were not familiar until then.

The students displayed a positive attitude towards learning and remained committed throughout the activity.

In conclusion, based on the results obtained, we can confidently affirm that the hypothesis has been confirmed, namely that by using paired exercises, adapted to the age and skill level of students, performance in basketball can be improved during physical education lessons.

REFERENCES

- Alexe, N. (1993). *Antrenamentul sportiv modern*. Bucuresti: Editis.
- Bompa, T. (2001). *Dezvoltarea calităților biomotrice – periodizarea*: EX PONTO.
- Bota, C. (1993). *Fiziologia educației fizice și sportului*: ANEFS.
- Cârstea, Gh., (1997) – *Educația fizică. Teoria și bazele metodicii*. Bucuresti: A.N.E.F.S.
- Dragnea, A., (1996) – *Antrenamentul sportiv*, București: P.R.A.
- Epuran, M. (2005). *Metodologia cercetării activităților corporale - Exerciții fizice - Sport - Fitness (Ed. 2)*: FEST.
- Predescu, T., (2001). *Baschetul in scoala*. Bucuresti: Semne.
- Weinek, J., (1997) – *Manuel d'entraînement, 4 edition*, Paris: Vigot.
- Zațiorski, V., (1968) – *Calitățile fizice ale sportului*, București: I.C.F.

