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STUDY ON THE ASSESSMENT OF THE LEVEL OF SKILL AND COORDINATION OF HIGHER EDUCATION STUDENTS

C. G. CĂTUNĂ[1] I. M. BUȚU[1] C. PLĂSTOI[2]
A. S. TEODORESCU[3] C. C. TEUȘDEA[1]

Abstract: *The research was conducted in the first semester of the academic year 2023-2024, the subjects tested were students of the Faculty of Physical Education and Sport of "Spiru Haret" University of Bucharest. They gave their consent to participate in tests on the evaluation of skills in handball, gymnastics and tennis classes. So in gymnastics they performed circle throws and fixed-point ball throws over time, with correct execution being appreciated. The throws with the two objects were made with both hands, starting with the handy hand, with a break between trials. In tennis, our subjects had 10 balls thrown to them by the teacher and had to perform the long forehand crosscourt shot in the hatched areas (as the first trial) and the long backhand crosscourt shot in the hatched areas (the second trial). For handball, we opted in this experimental study for two individual trials of moving with two balls in dribbling over a distance of 10m, dribbling simultaneously (trial 1) and alternately (trial 2) and a partner passing trial (distance 3-4m, 30seconds) simultaneously with (trial 3).*

Key words**:** *handball, gymnastics, tennis, skill, coordination.*

1. Introduction

Coordinating abilities also include dexterity, dexterity and dexterity and are determined by the processes of guiding and regulating gestures. They enable the athlete (individual) to coordinate his/her motor actions safely and economically in possible (stereotypical) and unpredictable (adaptive) situations and to learn sporting gestures relatively quickly.

Co-ordination skills are distinct from abilities: whereas abilities relate to consolidated, partly automated, concrete gesture acts, co-ordination skills represent the consolidated, i.e. fundamental,

[1] Department of EFS, *Spiru Haret* University of București.
[2] Department of EFS", Constantin Brâncuși University of Târgu Jiu.
[3] Director of the Department of Teacher Training, *Spiru Haret* University of București.

conditions of human performance in relation to a whole series of gesture acts (Hirtz, 1978).

Coordinatory ability can be defined as a psychomotor quality, which is based on the correlation between the central nervous system and the skeletal muscles during the performance of a movement.

General and special coordination skills are distinguished. General coordination skills are the result of polyvalent gestural training in different sports. They are therefore manifested in different areas of everyday life and in sport by the fact that any gestural problems can be solved creatively.

The special coordinative abilities are developed more in the sports disciplines considered and according to Ozolin: "characterized through the varied skills in sports technique: depending on the discipline or the various combinations".

Importance of coordination skills

In very general terms, coordination skills are necessary for mastering situations requiring rapid and rational action, and are of great value in preventing accidents. Coordinatory skills are the basis of good sensory-motor learning ability. Of course, an inherent economy, conditioned by the precision of the guidance of gestures, allows the execution of identical movements with a low expenditure of muscular force, which leads to energy savings.

The components of coordinative capacity:

To enable the training of the coordinative capacities, it seems important, on the one hand, to highlight their corresponding actions in the skill training process (Hirtz, 1978). The exact knowledge of the mentioned components is of particular importance in that it allows the suppression of possible partial weaknesses.

The coordinative capacities will be essentially improved if each of the components is as rationally developed as in the case of the conditional capacities.

Since there is as yet no research that can provide a definitive classification of the number, exact structure and correlations of the components, highlighting them should be no more than a valid guideline for training the coordinative capacities.

The following are accepted as components of coordinative ability:

- adaptive capacity;
- responsiveness;
- the ability to guide, to combine;
- the ability to balance;
- agility and dexterity.

These basic capabilities are closely interrelated. However, motor learning capacity is the highest step; without it movement, in fact any motor guidance or adaptation and readaptation capacity is meaningless.

1. Motor learning capacity is based first of all on the mechanisms of reception, processing and storage of information. First of all appear perceptual (analysis), cognitive and memory-related processes (relevant processes of memory and neuro-physiological operations of synthesis).
2. Motor guidance ability is based on the coordinative components of kinesthetic differentiation ability, spatial orientation ability and balance ability.
3. The ability to adapt and readapt motor skills is highly dependent not only on motor learning but also on motor guidance. Optimal adaptation appropriate to situational changes is only possible on the basis of sufficient

motor experience, with a consistent basis of comparison drawing on previous learning processes. In guiding the adaptation process, sufficient precision is also required to provide a satisfactory gestural solution.

According to A.Dragnea and A.Bota, the term skill, used by many authors in their works, seems restrictive in relation to the richness (complexity) of the manifestation of these capacities. The same authors define coordinative abilities as "a complex of predominantly psychomotor qualities, which involves the ability to learn new movements quickly, adapting quickly and effectively to varied conditions, specific to different types of activities, by restructuring the existing motor background".

Forms of manifestation of coordinative capacities:

Coordinatory skills take the following forms:

1. General coordination skills: necessary for the acquisition and performance of all acts and actions motor acts.
2. Specific coordinative capacities: highlighted in the practice of different branches and sports events.
3. Coordinating capacities in the other motor skills: (speed, endurance, strength) Factors conditioning the coordinating capacities. It is determined by the following categories of factors (A. Dragnea, 1993):

1. Biological:

- mobility of fundamental nervous processes excitation and inhibition;
- speed of transmission of nerve impulses along afferent and efferent pathways;
- the quality of the analysers involved in receiving information;
- the quality of muscle innervation that determines contraction and relaxation;
- the value of energy sources in the body;

2. Motor:

- The level of development of the other motor qualities (speed, strength, endurance, mobility and combinations thereof);
- number and complexity of motor skills mastered.

3. Psychological:

- ability to anticipate the development of the movement;
- anticipation of the future development of the conditions under which the movement is performed
- quality of cognitive processes (perceptions, representations);
- memory (short and long term):
- fast thinking with all its processes.

Methodical development-education procedures.

1. Performing motor acts and actions under constant conditions, obviously in a large number of repetitions and over a long period of time;
2. Performing motor acts and actions under complex conditions, in the sense of increasing the difficulty of execution compared to normal conditions - introduction of additional motor acts or actions,
   -increasing the working surface, etc.
3. Performing motor acts and actions under variable conditions, anticipating any possible future situation.
   -exercising in gyms of different sizes
   -exercising on different surfaces, etc.

Methodology of developing coordinative skills in physical education: The stages of growth and development of the body must be taken into account

(J. Weineck, 1994; A. Dragnea, 1993; V. Tudor, 1999):

- between the ages of 3 and 6, emphasis should be placed on acquiring as many simple motor skills as possible;
- between 6 and 10 years of age, the emphasis will be on improving segmental coordination skills; accuracy and spatial-temporal orientation will be addressed;
- the period 10-14 years is characterized by an improvement in motor learning ability, particularly in the information storage and differentiation indices temporal information and differentiation; accuracy and spatial-temporal orientation will be addressed;
- between 14 and 18 years of age, as a result of changes in proportions, growth of extremities, there is a decrease in segmental coordination ability, especially in the case of complex movements.

Requirements to be taken into account in the process of developing coordination skills:

1. The approach to co-ordination skills is carried out at the beginning of the physical education lesson, as in the case of speed, against a background of adequate rest and warm-up of the body;
2. It is not recommended to address coordination skills and speed in the same lesson;
3. Between exercises, optimal rest intervals should be scheduled to allow the body's major functions to return to values suitable for resuming exercise.

2. Objectives: After completing the 14 lessons for semester 1, is there an improvement in skill?

3. Material and Methods

The subjects of the tests were second-year students from the Physical Education and Sports Study Program of *Spiru Haret* University, the initial testing took place in the first week of the first semester of 2024, and the final testing took place in the last week of the same semester (after 14 weeks).

4. Results and Discussions

The same 22 students were tested in the three disciplines - Gymnastics, Handball and Tennis - which have a similar number of hours of Practical Work (14 LP).

Coordination / Handball tests carried out for the discipline Handball

- Test 1 consisted of a back and forth movement over a distance of 10 metres with simultaneous dribbling with two balls.

Fig. 1. *Trial 1 - simultaneous dribbling*

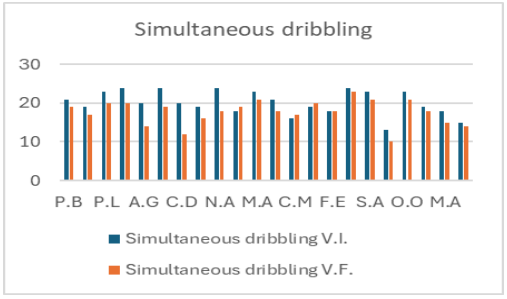

Fig. 2. *Simultaneous dribbling (V.I, V.T)*

- Challenge 2 was over the same distance of 10 metres round trip with alternating dribbling.

Fig. 3. *Trial 2 - alternating dribbling*

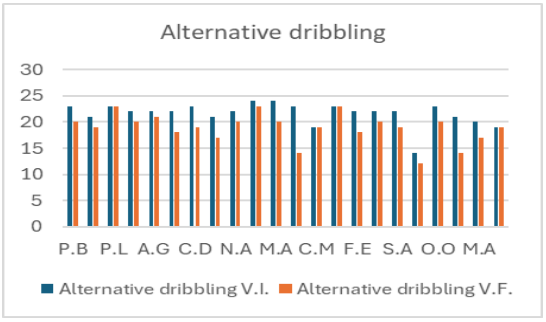

Fig. 4. *Alternating dribbling (V.I, V.T)*

- Trial number 3 consisted of passing as fast as possible with a partner 3-4m away, while performing multiple dribbling with the other hand within 30 seconds.

Fig. 5. *Trial 3 - passing with dribbling*

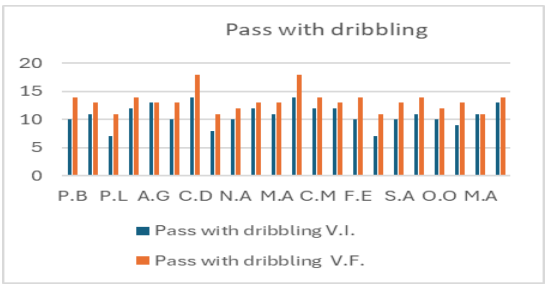

Fig. 6. *Passing with dribbling (V.I, V.T)*

Description of the tests in the discipline of Tennis

Right along the line -cross in the hatched areas from 10 balls thrown by the teacher.

Description of evidence

Test 1:

Executing the forehand shot down the line in the hatched areas from 10 balls released by the teacher.

Test 2:

Execution of the cross-country right shot in the hatched areas from 10 balls launched by the teacher.

Divide the court into two halves to mark the length of the line and the diagonal by extending the center line of the service box to the middle mark of the court at the service line. Dimensions of hatched areas 5.485 x 4.115 m.

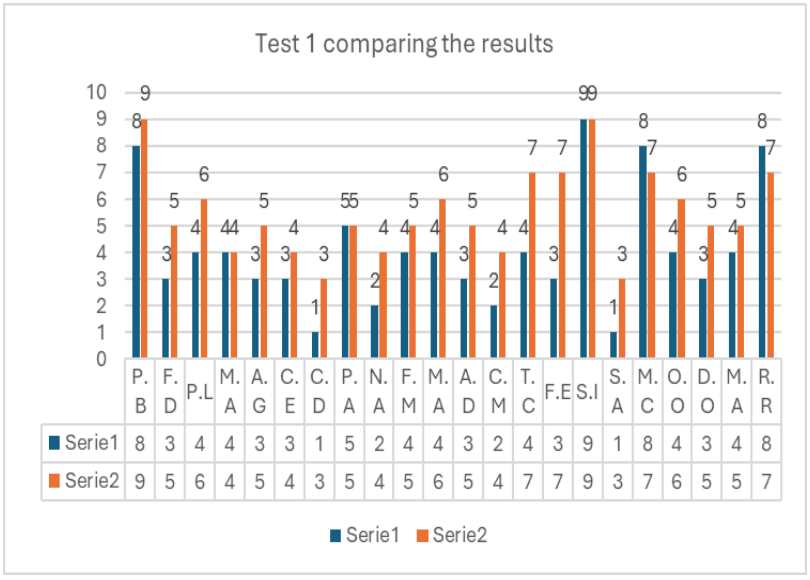

Fig. 7. *Forehand shot*

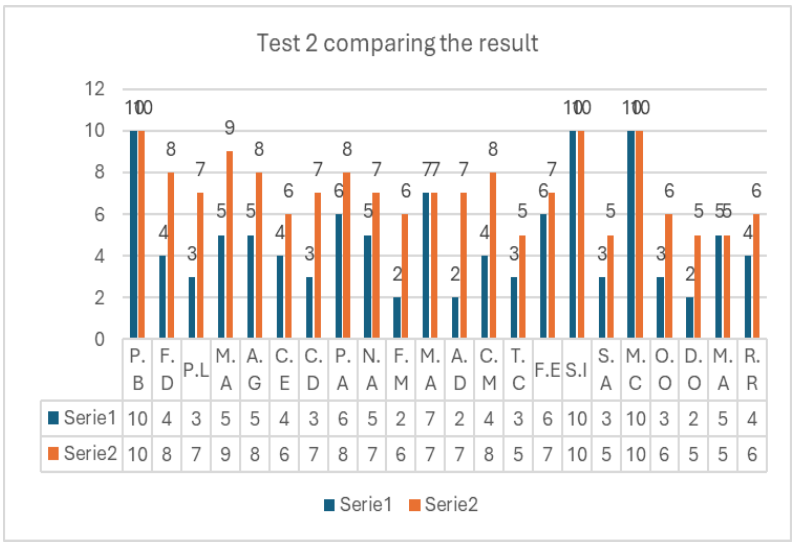

Fig. 8. *Cross-country right shot*

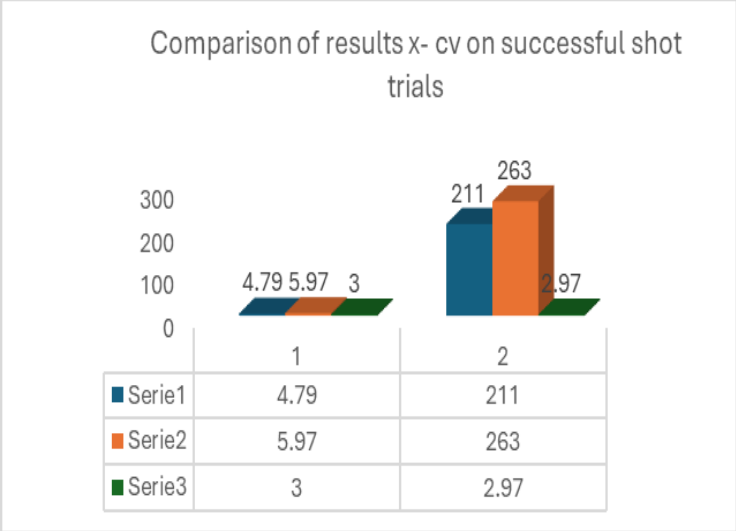

Fig. 9. *Comparison of result x-cv*

Gymnastics

Initial-final test (I.T, F.T) right/left-hand (R.H, L.H) ball throw test (table 1).

Description of the challenge: the student in a sitting position, with the gym ball in his right hand, performs the throw at a height of 3.5 m for 30 seconds. The correct executions will be recorded.

Initial-final test (I.T, F.T) right/left-hand hoop throw (table 2).

Description of the test: the student in a sitting position, with the circle in his right/left hand, performs the throw at a height of 4 m for 30 seconds. The correct executions will be recorded.

Table 1

Initial-final right/left-hand ball throw test

Name	R.H		L.H	
	I.T	F.T.	I.T	F.T.
P.B	17	18	15	15
F.D	16	18	11	12
P.L	16	17	17	18
M.A	16	19	16	17
A.G	18	20	18	19
C.E	16	17	15	15
C.D	11	13	15	16
P.A	17	18	17	18
N.A	16	19	13	14
F.M	17	19	17	18

Name	R.H		L.H	
	I.T	F.T.	I.T	F.T.
M.A	18	19	16	16
A.D	18	19	16	18
C.M	19	20	18	19
T.C	19	21	17	17
F.E	16	18	15	17
S.I	14	14	13	14
S.A	17	18	16	17
M.C	18	18	17	18
O.O	15	15	11	11
D.O	15	16	15	16
M.A	15	17	15	17
R.R	17	18	11	15
X	16,40909	17,77273	15,18182	16,22727

Table 2

Initial-final test right/left-hand hoop throw

Name	R.H		L.H	
	I.T	F.T.	I.T	F.T.
P.B	13	14	12	13
F.D	14	14	15	15
P.L	13	15	13	14
M.A	12	13	10	12
A.G	12	13	11	13
C.E	12	14	14	15
C.D	13	15	13	14
P.A	13	14	12	13
N.A	12	13	12	14
F.M	14	15	13	13
M.A	14	16	14	16
A.D	13	14	11	12
C.M	14	15	13	15
T.C	13	15	13	16
F.E	12	12	13	14
S.I	12	13	12	13

Name	R.H		L.H	
	I.T	F.T.	I.T	F.T.
S.A	12	14	10	15
M.C	13	15	14	16
O.O	13	14	10	10
D.O	13	15	13	15
M.A	14	16	14	15
R.R	14	14	10	13
X	12,95455	14,22727	12,36364	13,90909

5. Conclusions

For the disciplines of gymnastics and handball, our students obtained better values in the final test, which led us to the conclusion that the lessons carried out led to the development of skill and coordination.

Tennis discipline the small value of the coefficient of variability in both samples indicates high homogeneity of the group.

The value of the arithmetic mean and the number of successful hits is higher in sample 2 compared to sample 1.

Directing shots along the line is more difficult due to the lateral position of the body and the height of the net at the ends (1.06 m), compared to diagonal shots where the body position can be open and the height of the net is less (0.916 m).

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