

## CONSTATATIVE STUDY REGARDING 12 YEARS OLD CHILDREN COORDINATIVE ABILITIES DEVELOPMENT LEVEL

*Petrariu Ileana*

*Miron Costin Secondary School of Suceava, Romania*

**Keywords:** *evaluation, coordinative abilities, physical fitness, children*

### Abstract:

The aim of this study is to identify the level of coordinative abilities development in 12 years old children. Coordinative abilities are a highly complex skill that have a psychomotor interrelationship which allows the subject to perform various movements with precision and full control [5]. Experts agree that coordination is suitable for developing and training in childhood period [7][2][3]. It is also proven that training coordinative abilities influences learning and performing new motor acts and their stability over time [8].

### Introduction

Coordinative abilities are based on the correlation between central neuronal system and skeletal muscle structure [1].

Many experts tried to order the coordinative abilities highlighting its components as it is presented in the following image (Image no.1) [6].

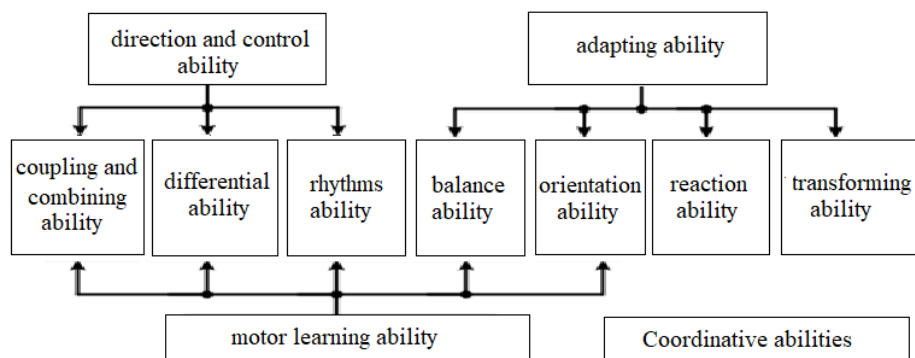


Image no.1. Coordinative abilities components

**The purpose of the research** is to evaluate coordinative abilities development level on 12 years old children. Totally 125 school children,

all boys, were included in this research by talking consent from their families. In order to assess coordinative abilities development level, we performed few tests, that were selected to evidence various components. Therefor, the ability of *maintaining balance* was tested through stork balance stand test, *spatial orientation* ability was tested through psychomotor coordination test, *movement coordination* ability through Matorin test, *hand – eye coordination ability* was tested through alternate-hand wall-toss test and ruler test. After applying the coordinative abilities tests, results were compared with the scoring scale of each test.

*Stork balance test* is a test that asses static balance and requires the person to stand on one leg as long as possible without loosing balance. It is similar with Flamingo test but it doesn't require a board. The stopwatch is stopped if the follow mistakes occur: the hand(s) come off the hips, the supporting foot swivels or moves (hops) in any direction, the non-supporting foot loses contact with the knee and if the heel of the supporting foot touches the floor [10].

*Psychomotor coordination test* asses subject spatial orientation abiliy and anticipation. It is performed blindfolded and it requires a 7-meter walk [9].

*Matorin test* asses movement coordination ability and it consists in a rotative high jump around the longitudinal axis of the body (left and right) [4].

*Alternate-hand wall-toss test* is a test of hand-eye coordination, where the participant throws a ball against a wall from one hand in an underarm action, and attempt to catch it with the opposite hand [10].

*Ruler test* is a hand-eye coordination test and it requires chatching a ruler as fast as possible. Tis test asses how long the brain can transform a visual information into a voluntary motor action [10].

In order to achieve the proposed goal, the following **objectives** were formulated:

1. Studying the theoretical conceptions and the practical experience of the physical education and sports specialists regarding development of coordinative abilities.

2. Assessing coordinative abilities development level for 12 years old boys.
3. Interpreting the results by comparing them with the standard within the scoring scale of each test.

### Running the experiment

In this study, 125 boys were tested, all of them from Miron Costin Elementary School. In table no. 1 are presented the subjects results for coordinative abilities tests and also the scoring scale of each test. The obtained results were compared with the data from the scoring scale of each test and graphical represented on the following charts.

No. crt.	Test name	Results/ Average	Scoring scale	
1	Stork balance stand test (seconds)	37,47 sec	excellent	>50''
			good	40''-50''
			<b>average</b>	<b>25''-39''</b>
			fair	10''-24''
			poor	<10''
2	Psychomotor coordination test (centimetre)	137,43cm	very good	0-10cm
			good	11-30cm
			fair	31-50
			<b>poor</b>	<b>&gt;50cm</b>
3	Ruler test (milliseconds)	225,37mls	ultra-fast	<50
			superb	50-130
			excellent	131-175
			good	176-200
			<b>average</b>	<b>201-240</b>
			fair	241-250
			slow	>251
4	Matorin test (degrees)	323,43° left 256,77° right	very good	>361°
			<b>good</b>	<b>271°-360°</b>
			fair	180°-270°
			poor	<180°

5	Alternate-hand wall-toss test (score)	26,17	excellent	>35
			good	30-35
			<b>average</b>	<b>20-29</b>
			fair	15-19
			poor	<15

Table no.1. Obtained results vs tests scoring scale

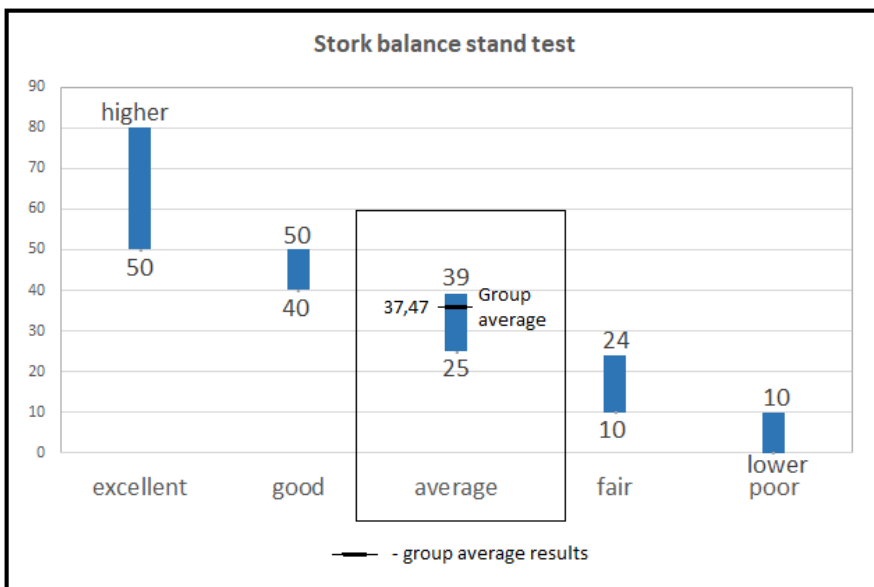


Chart no. 1. Representation of group average values for Stork balance stand test

In chart no. 1 shows the average values for the "Stork balance stand" test. Tested subjects obtained an average of 37,47 seconds, comparing the obtained results with the tests scoring scale it can be concluded that the result falls to average scale.

Chart no. 2 shows the average values for the "Pshychomotor coordination test". Boys average results are 137,43 cm wich situates them on the poor scale. The obtained results demonstrate that tested subjects have a pood ability of spatial orientation. Being performed blindfolded, tested subjects find it very difficult to anticipate the finish line.

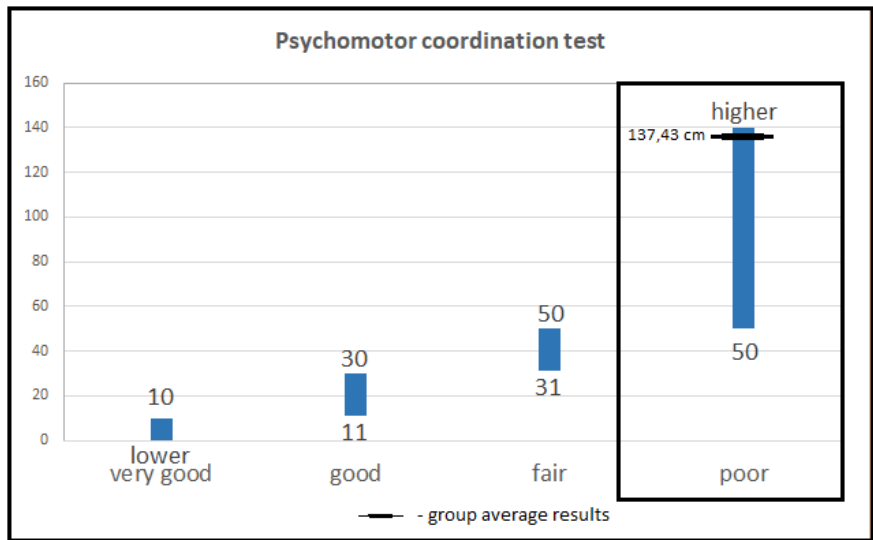


Chart no. 2. Representation of group average values for Psychomotor coordination test

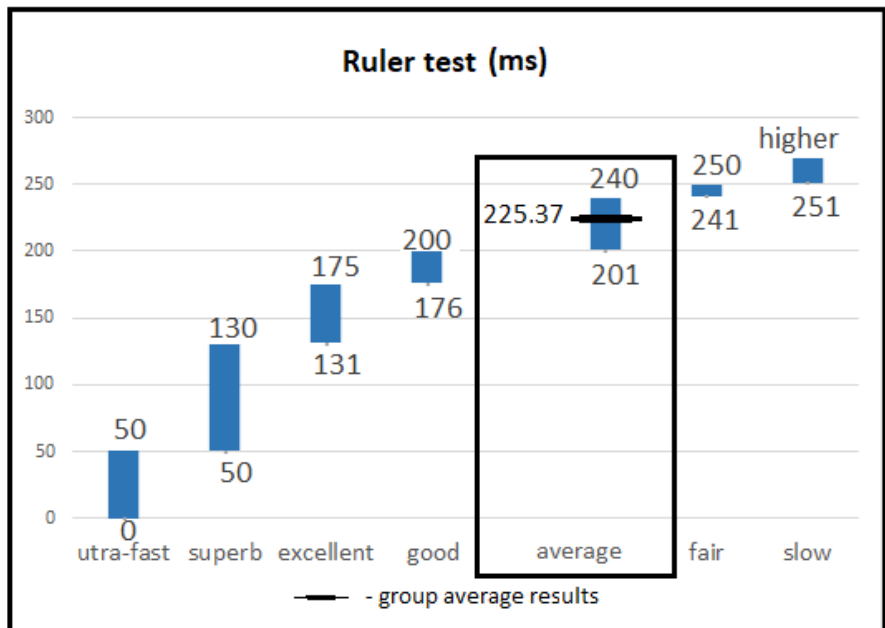


Chart no. 3. Representation of average values for Ruler test

Chart no. 3 shows the average values for the "Ruler test". Tested subjects obtained an average of 225.37 milliseconds, comparing

the tests scoring scale, they fit on the average scale. We can conclude that the result is quite disappointing.

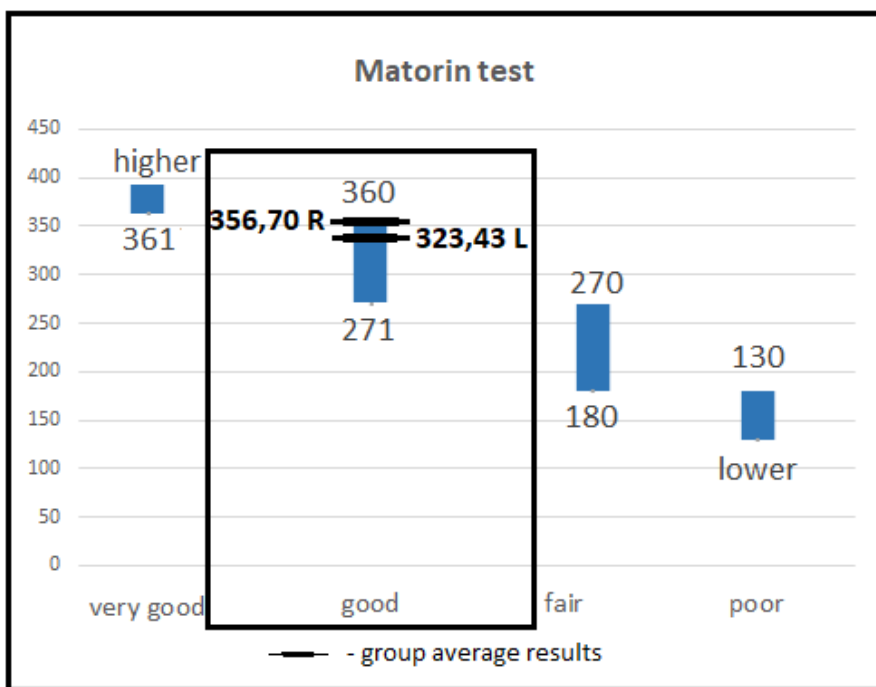


Chart no. 4. Representation of average values for Matorin test

Chart no. 4 represents the average values for the "Matorin test". Tested subjects obtained an average of 356,70° for the right side, which can be placed on the very top level of good scale. For the left side, tested subjects obtained an average of 323,43°, which can be evaluated also on a good scale.

Chart no. 5 represents the average values for the "Alternate-hand wall-toss test". Tested subjects obtained an average score of 26,17. Comparing the results with the scoring test scale we can evaluate it for the average scale.

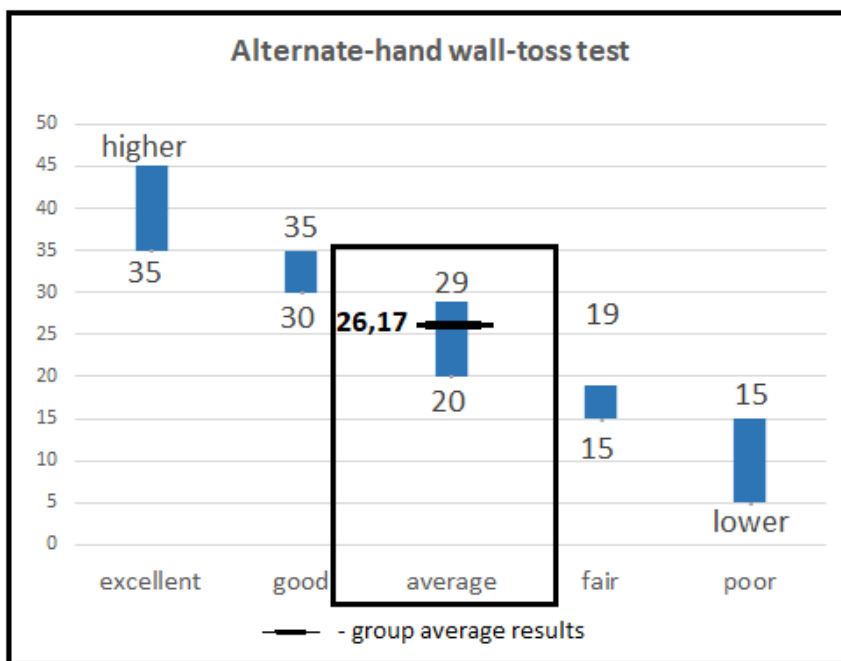


Chart no. 5. Representation of average values for Alternate-hand wall-toss test

### Conclusion and recommendation

Analysing the obtained data, we can conclude that for a single test, subjects performed good. It is the Matorin test that assess the movement coordination ability.

For three tests, the obtained data was placed at the average scale. It is the Stork balance stand test, Ruler test and Alternate-hand wall-toss test. Those assess static balance and hand-eye coordination.

Finally, for a single test, subjects results were included on the poor scale. It is the case of psychomotor coordination test that evaluates anticipation and spatial orientation ability.

It is advisable to practice exercises with a high coordination content, as it is known that coordinative abilities are very important in achieving a high level of motor skills.

We also recommend practicing regular physical exercise in both physical and leisure time and, last but not least, training and improving all basic motor skills.

### **Bibliography:**

- [1] Abalasei, B. & Manolache, G. (2014, 1 1). Study on the education of coordinative abilities. *Gymnasium Scientific Journal of Education, Sports, and Health*, 15(1), 204-211.
- [2] Alesi, M., Bianco, A., Lupina, G., Palma, A., & Pepi, A. (2016, 02). Improving Children's Coordinative Skills and Executive Functions: The Effects of a Football Exercise Program. *SAGE Journals, Perceptual and Motor Skills*, 122(1), 27-46.
- [3] Gangwar, N., Sharma, D., & Rawat, J.S. (2019). Effect of specific exercises on selected coordinative. (IJPNPE, Ed.) *International Journal of Physiology, Nutrition and Physical Education*, 1(4), 1534-1536.
- [4] Georgescu, A. (2018). Contribution of handball specific means to the development of coordination in Physical Education classes, in primary education. *Journal of Sport and Kinetic Movement*, 1(31), 46-49. Retrieved 12 15, 2020
- [5] Georgescu, A., Rizescu, C. & Cazan, F. (2017, 11). Coordinative qualities development in children. (O. U. Constanta, Ed.) *Ovidius University Annals, Series Physical Education and Sport/Science, Movement and Health*, 17(1), 33-38.
- [6] Juravle, I. (2013). Importance of the coordinative abilities development in optimizing the selection process for the elite athletes. *Sport & Society*, 13, 28-34.
- [7] Moiescu, P. (2010, 06 1). Determining the optimal period in developing the coordinative capacities in male elementary school pupils. *Annals of the University Dunarea de Jos of Galati: Fascicle XV: Physical Education & Sport Management*.
- [8] Smidu, N. (2014). The importance of Coordinative Abilities in Achieving Athletic Performance. *Marathon*, 6(1), 91-95.
- [9] Trip, A. (2019, 04). *SCRIBD*. Retrieved 12 15, 2020, from SCRIBD: <https://ro.scribd.com/>
- [10] Wood, R. (2001). *"Topend Sports | The Sports Fitness, Nutrition and Science Resource"*. Retrieved 12 15, 2020, from Topend Sports Website: <https://www.topendsports.com/>