

CONTRIBUTION OF HANDBALL SPECIFIC MEANS TO THE DEVELOPMENT OF COORDINATION IN PHYSICAL EDUCATION CLASSES, IN PRIMARY EDUCATION

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Abstract: The development of coordination capacities at a higher level in physical education lessons, influences, to a great extent, the acquisition, consolidation, improvement and stability of new motor acts in time. It is also conducive to the efficient and varied performance of previously acquired motor acts and actions. They allow the restructuring and re-adaptation of the execution of acts and actions in order to make them more efficient. Exercises used in lessons to develop coordination should be of increased difficulty, requiring students a high level of general and segmental coordination, balance, sense of rhythm and tempo, spontaneity and creativity. It is necessary to avoid the exercises that cause pupils to be sharpened and to approach those who demand and capitalize on the other motor skills.

Keywords: *handball, coordination, physical education*

Introduction

In physical education classes, the development of coordination capacities at a higher level influences, to a great extent, the acquisition, consolidation, improvement and stability of new motor acts in time. It is also conducive to the efficient and varied performance of previously acquired motor acts and actions [1]. They favour the restructuring and re-adaptation of the execution of motor acts and actions in order to make them more efficient. Exercises used in classes to develop coordination need to be more challenging, requiring students a high level of general and segmental coordination, balance, rhythm and tempo, spontaneity and creativity, but it is necessary to avoid those that cause students to be grasped and to demand the superior capitalization of other motor skills [2].

Sports games, due to their many positive valences, have made them one of the main means of school physical education, making important contributions to the achievement of the objectives of this educational discipline.

Taking advantage of the favoured framework offered by sports games, the teacher has to prove a high level of inventiveness in designing the activity so that it incorporates the most attractive drive systems in the intended content, in order to increase the efficiency of physical education lessons.

Therefore, there are often situations in which the teacher uses the elements and the technical procedures specific to the various sports games (volleyball, handball, basketball) in order to develop the motor qualities [3].

Material and method

Purpose of the work

The increase in the level of development of the motor qualities (in terms of value) depends, in addition to genetic-hereditary availability / skills, on the way the body of pupils of both gender matures, and also on the frequency of applying the specific methods and means for the development of perfect motor skills on different age categories.

Research assumptions

It is known that all motor skills are important attributes of the human body, which, to a greater or lesser extent, ensures the possibility of achieving acts and actions with varying degrees of difficulty [4]. For these reasons, the development of motor skills is a present teaching objective with different degrees of approach and content priorities in all curricula.

Action on the development of motor skills takes place before and during the process of training motor skills of different categories, thus constituting one of the most important goals of school physical education.

Research protocol

The research activity was carried out at the Secondary school no. 38 ('Dimitrie Cantemir'), from the municipality of Constanta, during the school year 2017-2018 which had the following structure:

- 1st semester: 11 September 2017 – 2 February 2018, which included the Christmas holiday, between 23 December 2017 – 14 January 2018;
- 2nd semester: 12 February 2017 – 15 June 2018, which included the week 'Knowing more to be

better' (26 – 30 March 2018) and the Easter holiday (31 March – 10 April 2018).

The following sporting materials were used: 15 handballs, 20 cones, a stopwatch, a roulette, 10 medicine balls (2 kg), 10 oina balls, ropes, balls of different sizes (volleyball, basketball, soccer), 40 disc cones.

The teaching-learning-evaluation activity (didactic approach) was carried out according to the annual thematic plan and quarterly calendar plans, as well as to the learning units specially designed for the development of the coordination capacities by means of handball game. [5]

During the experiment, the content and means used were based on the requirements of the specialized curriculum and the methodical requirements and physical education.

Tests to assess general coordination

Distance estimation test (determination of sensory-motor coordination). The subject, blindfold, at the end of a straight 7 m line drawn on the ground. He runs the length of the line (blindfold) and stops when he thinks he has reached the end of the line. The spot where the performer stopped will be marked with (x) between the soles. (Fig. no. 1)

Assessment:

- if the subject overrun the length of the line, it is considered overrating and is marked with (+) or if he did not reach at the end of the line it is considered underrating and is marked with (-), the number of centimetres in absolute value is recorded, this being the subject's rank of **kinaesthetic coordination**;
- the left or right deviation is the subject's rank of **vestibular-motor coordination**.

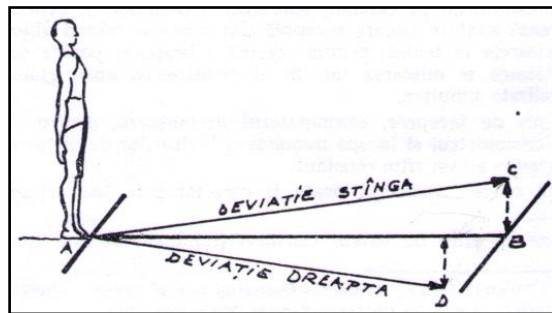


Figure no. 1 – Distance estimation test

'Matorin' test (identification of general coordination). From the initial position, with legs on either side of a line drawn on the ground, and the hands closed to the body. A turn around the longitudinal axis is performed by jumping at a maximum angle. There are performed 3 turns to the left and 3 to the right, by jumping (ribbon with a compass to the end or a large geometry protractor, or beyond the protractor, a circle drawn on the floor - measured every 5 degrees) and the best value shall be recorded (Fig. no. 2).

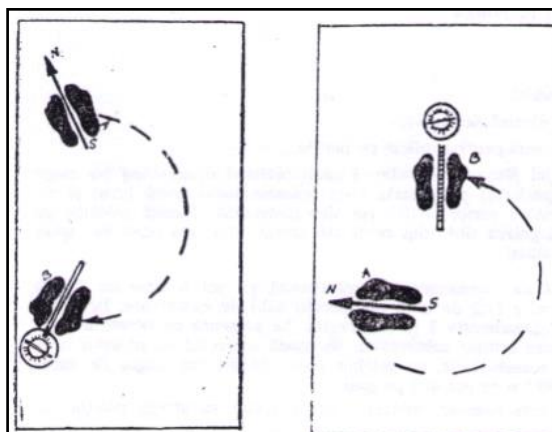


Figure no. 2 – 'Matorin' test (identification of general coordination)

Results

Table no. 1
Results of statistical and mathematical calculations after ‘Matorin’ test – on the right

Grade		2 nd grade A (exp.)				2 nd grade B (control)			
Sex		Boys		Girls		Boys		Girls	
Testing		I.T.	F.T.	I.T.	F.T.	I.T.	F.T.	I.T.	F.T.
Statistical indicators	Σ	2820	2945	3490	3650	2760	2885	2870	3060
	\bar{x}	282.00	294.50	268.46	280.76	276.00	288.50	220.76	235.38
	W	45	50	65	50	45	50	120	125
	A _m	12.00	13.60	13.19	10.05	13.00	13.80	40.94	38.16
	±S	±14.56	±16.23	±17.48	±13.66	±15.42	±16.50	±51.79	±49.05
	C _v	5.16	5.51	6.51	4.86	5.58	5.72	23.46	20.83
	„t”	4.79		8.45		9.30		5.11	
p	> 0.01		> 0.01		> 0.01		> 0.01		

Table no. 2
Results of statistical and mathematical calculations after ‘Matorin’ test – on the left

Grade		2 nd grade A (exp.)				2 nd grade B (control)			
Sex		Boys		Girls		Boys		Girls	
Testing		I.T.	F.T.	I.T.	F.T.	I.T.	F.T.	I.T.	F.T.
Statistical indicators	Σ	2875	3120	3395	3625	2850	3050	2880	3045
	\bar{x}	287.50	312.00	261.15	278.84	285.00	305.00	221.53	234.23
	W	70	100	125	110	60	95	155	130
	A _m	17.50	28.40	27.21	17.57	17.00	27.00	37.04	36.74
	±S	±21.76	±33.09	±35.06	±28.07	±19.72	±31.71	±49.51	±48.55
	C _v	7.56	10.60	13.42	10.06	6.91	10.39	22.34	20.73
	„t”	4.77		4.73		3.87		4.34	
p	> 0.01		> 0.01		> 0.01		> 0.01		

Discussions

‘Matorin’ test

- **On the right.** Arithmetic means values: in boys 282.00⁰ (I.T.) with 294.50⁰ (F.T.) in experimental group and 276.00⁰ (I.T.) with 288.00⁰ (F.T.) in control group; in girls: 268.46⁰ (I.T.) with 280.76⁰ (T.F) in experimental group and 220.76⁰ (I.T.) with 235,38⁰ (F.T.) in control group. (Table no. 21, Chart no. 7).

The ranges of the series are high, the mean deviation reveals that, on average, the differences in the individual values do not deviate much from the central value of each row of results, indicating relatively average dispersions, and the standard deviation evolved with average values. The coefficient of variability is below 10%, indicating high homogeneity of the results except those from

the control group of girls where they are not homogeneous (over 20%).

‘t’ values show the following:

- in experimental group: in boys ‘t’ = 4.79 > 3.250 (Fischer Table, at the threshold of 0.01), the differences are significant with 99% confidence and the risk is 1%; in girls ‘t’ = 8.45 > 3.055 (Fischer Table, at the threshold of 0.01), the differences are significant with 99% confidence and the risk is 1%;

- in control group: in boys ‘t’ = 9.30 > 3.250 (Fischer Table, at the threshold of 0.01), the differences are significant with 99% confidence and the risk is 1%; in girls ‘t’ = 5.11 > 3.055 (Fischer Table, at the threshold of 0.01), the differences are significant with 99% confidence and the risk is 1%.

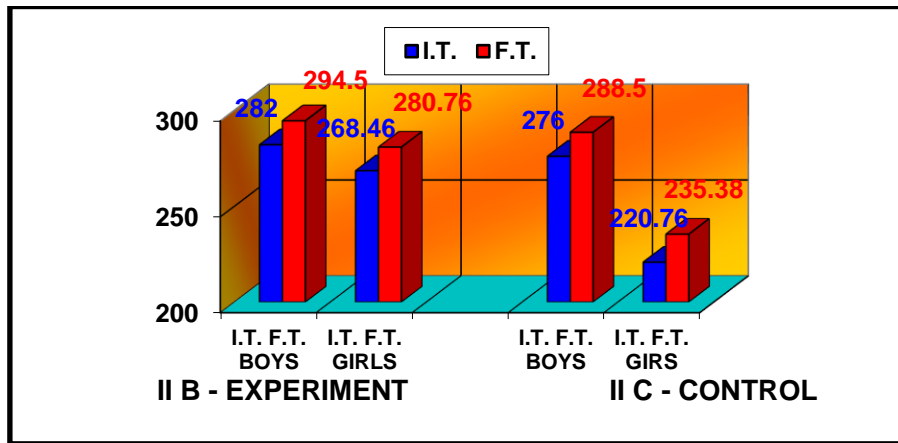


Figure no. 3 - Evolution of the mean values at 'Matorin' test – on the right

Conclusions

1. Coordination can be defined as a set of coordinating capacities that generically designate a complex psycho-motor skill that imply the ability to quickly learn new movements, adapting quickly and efficiently to various conditions specific to different types of activities, by restructuring the existing motor background.
2. Handball requires considerable motor coordination [6]. The most important qualities of coordination in the handball game are the following: the ability to assess and adjust the dynamic, spatial-temporal parameters of the motor act, the ability to maintain balance, the sense of rhythm, the spatial orientation and the ability to coordinate movements.
3. The handball game, a particularly spectacular and easy-to-reach sports game, enjoys a wide popularity among children when they are in touch with it, but requires special training on technical and tactical plans, and especially on coordination.
4. It is a constant fact that there is no lower age limit for the start of actions to develop the motor skills, and for the one that we were interested in (coordination), the onset can take place at the age

of 5-6 years, and the favourable development age is between 11-12 years.

5. In the sense that this motor ability (coordination) can be educated through specific handball games, we also must record the results obtained by the students of the experimental class in the control tests, but also in accordance with their age, sex and their level of training, which validates the assumptions of the research.

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