

ON THE INFLUENCE OF MOTOR QUALITIES IN SECONDARY SCHOOL PUPILS' PERFORMANCE OF GYMNASTICS ACROBATIC ELEMENTS

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Abstract

The present paper starts from the assumption that introducing activity planning and rational motor structures for the development of motor qualities in the instruction of secondary school pupils also favours the development of the motor skills required for the performance of the basic acrobatic elements and increases the quality of the learning process.

Keywords: motor qualities, acrobatic elements, sports and physical education class

INTRODUCTION

Physical education, a compulsory discipline at all learning levels, is meant to ensure the development of students' bio-psycho-motor skills and to form their ability to act in view of maintaining the best physical health, of ensuring a balanced development and of proving motor skills which favour their present and future social and professional integration.

Physical education provides specific knowledge and motor skill and abilities, factors that determine the physical, technical and tactic qualities through the appropriation of the rules of various sports, methods, and means and organisation forms of practising sports.

Acting on the motor qualities development should start before the process of formation of basic motor skills, both applicative-utilitarian and specific. It is one of the most important ends of physical education in schools, from the point of view of balanced physical growth, as well as with regard to the control of the deficient physical attitudes.

OBJECTIVES

- to select and apply the most efficient means and methods for the development of motor qualities during the teaching process;
- to help secondary school students learn acrobatic elements;
- to develop the ability of coordinating their own bodies in various movements and positions.

ASSUMPTION

The grounds for the working hypothesis are as follows: considering that rational motor structures for motor qualities development are used during the physical education classes in secondary schools, the possibility for the students to learn basic acrobatic

elements increases. At the same time, the performers' motor ability for performing various tasks also increases.

MATERIALS AND METHODS

a. Research protocol

The research was conducted in the gym hall of 28 Secondary School, Galați from September 17, 2012 to March, 22, 2013 (a 6-month period); 2 classes a week; 50 minutes each.

b. Subjects

The tests were conducted on a sampling of 24 students (12 boys and 12 girls) in the 8th grade, aged 14-15.

c. Groups

The boys group (BG) and the girls group (GG) consisted of students in the 8th grade, under the same class circumstances and having access to similar equipment.

d. Evaluation tests

The motor indices that have been tested were as follows:

- *abdominal muscles strength 30"* (lying on the back, bent straddle, bent arms, hands on the backhead – body lifts for 30 seconds – repeats) (**A30"**);
- *back muscles strength 30"* (lying, face down, bent arms, hands on the backhead - body stretching for 30 seconds – repeats) (**E30"**);
- *arms muscles strength 30"* (propped, lying face down - boys / propped, lying face down, on knees with raised legs - girls – press-ups in arms – repeats) (**F30"**);
- *legs muscles strength 30"* (straddle standing, bent arms, hands on the backhead – squats 30 seconds – repeats) (**G30"**);
- *the acrobatic elements structure* provisioned in the secondary school curriculum (**SA**) – table 1.

Table 1 Acrobatic elements assessment grid

BOYS		GIRLS	
1	forward squat roll - 0,50 p	1	forward squat roll - 0,50 p
2	backwards squat roll - 0,50 p	2	backwards squat roll - 0,50 p
3	forward straddle roll - 1,00 p	3	forward straddle roll - 1,00 p
4	backwards straddle roll - 1,00 p	4	backwards straddle roll - 1,00 p
4	hang in balance (forward) - 1,00 p	4	hang in balance (forward)- 1,00 p
5	shoulder blade standing - 1,00 p	5	shoulder blade standing - 1,00 p
6	backwards roll with stretched body – cylinder - 2,00 p	6	bridge from the floor/from standing - 2,00 p
7	head stand - 1,00 p	7	head stand - 1,00 p
8	handstand - 2,00 p	8	handstand - 2,00 p
	TOTAL: 10 Points		TOTAL: 10 Points

e. Planning and types of exercises

Following the analysis of the results recorded in initial testing, more systems have been designed and applied for the development of students’ motor abilities, aiming, at the same time, at acquiring balanced physical growth, as well as formation and improvement of basic motor skills, both applicative and specific.

The experimental training programme for attaining the instruction and performance objectives has been designed for a 6-month period, in 4 weekly cycles, 2 classes a week (see Table 2).

Below, there are a few examples of the algorithms proposed for acquiring and improving performance in acrobatic elements by the 14-15 years old students:

- squat – forward roll in squat position;
- squat – backwards roll in squat position, rolling back with bent body, shoulder blade standing and back to squat position;
- torrent of 3-6 forward rolls in squat position,
- straddle sitting – forward straddle roll, head standing, forward roll in straddle sitting position;
- squat – forward roll in squat position, backwards roll in squat position, 180 degree spin jump, forward straddle roll, lying with face down, lateral roll with the body stretched to the left/ right, backwards straddle roll;
- sitting on a leg with the other leg propped, stretched, arms up – hand standing, roll in squat, backwards roll, cylinder/ bridge.

f. Statistical method

The results’ statistical processing has been conducted with the help of Microsoft Office Excel 2007 software.

RESULTS

The results recorded in final testing are superior to the ones recorded in initial testing. If in initial testing the boys had recorded an average of 18 repeats in determining abdominal muscles strength, in final testing the average was of 23.5 repeats, which represents an average increase of 5.5 repeats. Significant progress was recorded in other trials as well: 9.4 repeats in testing the back muscles strength; 9.3 repeats in testing arms muscles strength; and 5.7 repeats in testing legs muscles strength.

The girls group also recorded improvements, most significantly in the case of leg muscles strength testing, the average of the results increasing by 8.2 repeats.

As far as the results’ homogeneity degree is concerned, one may notice that there is a higher degree of results homogeneity in testing abdominal, back and legs muscles strength, both for boys and girls, and a medium homogeneity in testing arms muscles strength in the boys group and lack of homogeneity in the girls group – as shown in Table 3.

Table 2 6 months schedule for students (14-15 years old)

Learning units	Semester I		Semester II																								
	Month	September	October			November			December			January			February			March									
		1 24- 28	1 - 5	8 - 1	1 - 2	1 - 2	2 - 26	22 - 9	2 - 9	5 - 9	12 - 16	19 - 23	2 - 3	3 - 7	10 - 14	17 - 21	14 - 18	21 - 25	4 - 8	11 - 15	18 - 22						
Physical qualities	Lesson	1	2	3	4	5	6	7	8	9	10	1	1	2	1	13	14	15	16	1	18	19	2	2	2	24	
	Speed	x	x	x	x																						
	Handiness					x	x	x	x											x	x	x	x	x			
	Strength										x	x	x	x													
	Stamina	x	x	x	x																						
Mobility										x	x	x	x														
Motor skills and abilities specific to various sports	Speed running																										
	Resistance running																										
	Throwing the <i>oina</i> ball					x	x	x	x																		
	Acrobatics									x	x	x	x														
Motor skills and abilities specific to various sports	Jumps																			x	x	x	x	x	x	x	x
	Football (boys)	x	x	x	x	x	x	x	x																		
	Handball (girls)	x	x	x	x	x	x	x	x																		
Motor skills and abilities specific to various sports	Motor games																			x	x	x	x	x	x	x	x
	Assessment																										

Table 3 Initial and final results in motor testing

		Dynamics of motor indices for 14-15 years old students																							
Trial		A30"				E30"				G30"				F30"				SA							
Group/ p Nr. or t.	Test	Boys												Girls											
		IT	FT	IT	FT	IT	FT	IT	FT	IT	FT	IT	FT	IT	FT	IT	FT	IT	FT						
	1	17	23	26	38	22	28	3	9	5,25	7,50	17	22	23	30	16	22	1	6	5,50	7,85				
	2	16	21	24	37	20	27	6	11	6,00	8,50	18	23	20	29	20	28	3	8	5,85	8,50				
	3	22	25	27	33	18	26	4	9	5,45	8,50	17	22	26	33	20	25	0	5	5,50	6,80				
	4	21	25	27	36	20	29	2	8	5,50	6,70	19	24	24	34	18	24	4	9	6,55	9,35				
	5	14	20	20	28	20	30	5	11	6,25	8,65	16	20	24	33	21	26	2	7	5,35	7,90				
	6	20	25	28	34	21	29	8	12	6,50	9,20	16	21	30	37	17	24	3	8	6,55	8,75				
	7	15	22	24	34	19	30	4	10	6,45	8,40	17	19	27	35	18	26	0	5	5,75	6,80				
	8	19	23	25	38	20	30	7	12	6,35	8,70	17	22	24	30	19	26	1	6	5,15	7,70				
	9	18	24	28	36	20	29	3	9	6,40	8,35	24	25	30	34	18	30	4	8	6,65	9,05				
	10	20	26	24	35	18	28	6	11	5,85	8,50	22	23	29	33	16	28	2	7	5,75	8,45				
	11	17	23	22	32	19	30	2	9	5,75	5,95	18	20	30	35	17	29	0	5	5,75	8,00				
	12	17	25	27	34	20	32	7	14	6,05	8,50	18	23	24	30	20	30	3	9	6,60	9,00				
	Σ	216	282	302	415	237	348	57	125	71,8	97,4	219	264	311	393	220	318	23	83	70,9	98,1				
	x	18	23,5	25,1	34,5	19,7	29	4,7	10,4	5,9	8,1	18,2	22	25,9	32,7	18,3	26,5	1,9	6,9	5,9	8,1				
	σ	±2,4	±1,8	±2,4	±2,8	±4,8	±3,6	±2,5	±1,7	±0,7	±0,9	±2,4	±1,7	±3,2	±2,4	±6,8	±6,2	±1,1	±1,5	±1,0	±0,8				
	Cv%	13,6	7,8	9,8	8,1	8,4	5,3	43	16,6	10,3	11,5	13,2	7,9	12,6	7,6	8,6	4,6	58,6	21,7	14,0	10,1				

As far as the degree of learning the acrobatic elements is concerned, mention should be made that in initial testing the boys, as well as the girls, recorded low results in performing the compulsory elements, the average being of 5.9 for both groups. The improvement recorded in the final testing was significant, both groups attaining an average of 8.1., that is, a 2.2 points higher value, with a medium homogeneity of the results.

CONCLUSIONS

6. After processing and interpreting the data collected from the comparison of the two groups of 14-15 years old students, the assumption that motor qualities may influence the performance of the acrobatic elements provisioned by the secondary school curriculum has been proven valid.

7. The motor qualities development also contributes in the balanced physical growth of the performers and in the formation and development of motor skills. At the same time, learning and performing acrobatic elements help in increasing the performers' motor qualities, ensuring easiness in accomplishing various specific tasks.

8. Assigning actual motor tasks, in accordance with students' age, sex and learning level, careful activities planning, and using carefully selected means and acting systems contribute in acquiring and improving specific motor skills and in the accomplishment of the proposed aims.

4. The means of acrobatic gymnastics used in the technical-material conditions available in the school

in which the research has been conducted have contributed to an increase in the number of motor skills and abilities transposed in "acquisitions" and have led to the consolidation of students' physical and psychic balance.

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A STUDY ON THE LEVEL OF PHYSICAL, TECHNICAL AND ARTISTIC TRAINING OF JUNIOR GYMNASTS

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Abstract

The present paper aims at finding the opinions of the experts in the field of gymnastics with regard to the level of physical, technical and artistic training of junior female gymnasts by applying a survey.

Keywords: *gymnastics, trainers, technical, artistic, physical level*

INTRODUCTION

Describing the direction of the feminine gymnastics evolution, N. Vieru (1997) asserted that "it develops in the sense of constant increase in the difficulty of exercises, by introducing a large amount of difficult and extremely difficult elements, by increasing amplitude and dynamism in execution, and by the originality, complexity and momentousness of the movements" (Vieru N., 1997).

The group of experts questioned has consisted in a number of 83 professors and specialised trainers who carry out their activities in specialised centres in the country. The gender distribution is 60% female trainers, 40% male trainers.

The questionnaire contains 10 questions with 3, 4, 5 or 6 predetermined choices, the respondent opting for one single choice in relation to the issue's relevance and his/her personal opinions with regard to sport training in gymnastics – see Table 1.