Numeric and Structural Differences in Motor Tests for Evaluation at Same Motor Abilities Implemented to the Children at 6 and 7 Age

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Numeric and Structural Differences in Motor Tests for Evaluation at Same Motor Abilities Implemented to the Children at 6 and 7 Age: *On exemplar of 100 investigated persons from male sex at 6 year age and 100 children at 7 year age, has been used 16 motor tests for evaluation of the coordination, speed of running , segmental speed, flexibility and balance. Goal of this investigation is to figure the differences in results in motor tests between children at 6 and 7 year age with implementation of T-test. With analyze of structural differences in motor tests has been notice that there is grouping on the better solved movements from the children at 6 and 7 year age. Children from 6 and 7 year age manage identical results while the performance of speed, coordinated movements with legs, arms and body straight and back without changing the direction of moving. While the children at 7 year age achieve better results in motor tests that in its structure consist fast, coordinated movement that are performed in sagital, frontal, and horizontal plain, as well as movements when is changing start direction at the movements.*

Key words: *pupils, male, female, 6 and 7 years, motor tests, t-test*

INTRODUCTION

In the period of growth and human development, happens changes in all sub-spaces from anthropological human status. Changes happen under influence of external and internal factors. All changes in different age periods differently manifested.

Motor abilities as generators of all movements in the human are located in latent space. Extent of development of motor abilities can be overlooked through quantitative and qualitative performance of the movements, or with performance of the movements from separate motor tests that as hypothetically designed for evaluation of the motor abilities.

With goal to be figured differences in achieved results and differences in successful manifestation of the movements , motor tests for evaluation of one motor abilities that is under control of mechanism for synergy regulation of muscle tonus, on two different exemplars investigated 100 children from 6 year age and 100 children at 7 year age(1 and 2 grade), has been used totally 16 motor tests. For estimation of the coordination has been used 4 motor tests, for evaluation of the speed of running 3, segmental speed 3 , flexibility 3, balance 3.

Received results from motor tests are statistically operated with basic descriptive statistical parameters, and differences from arithmetic middles are tested with T-test. With analyze of movement in used motor tests for evaluation of one motor abilities received are differences in overloaded particular movements in tests designed for evaluation of the same motor abilities.

RESULTS AND DISCUSSION

According to the results from the T-test (table 1), received are results that shows at existence of significant differences in achieved results from motor tests, as well as existence of differences in abilities for performing the same motor movements between children at 6 and 7 year age, in motor tests that has different structure in movements, and are intended for evaluation of one motor abilities.

Results from t-test to the motor tests for evaluation of coordination, in 2 motor tests (slalom with two balls and rolling with ball from side) children from 7 year age achieved significantly better results. Beside that in motor tests (coordination with baton and in test polygon forward) children at 6 and 7 year age achieved identical results.

Analyzing the movements in used motor tests can be noticed that in motor tests in which are achieved identical results (coordination with baton and in test polygon forward) movements are repeating are performed straight and back with legs, arms and body.

These movements children at 6 and 7 year age successfully performed on satisfactory level. Beside it movements in motor tests slalom with two balls and in test rolling with ball in one side are performed with legs, arms and body straight in side and circle, or in sagital, frontal and horizontal plain. These movements are more complex and children from 7 year age significantly more successfully performed in difference from the children from 6 year age. Based on received results can be conclude that children at 7 year age has coordination on higher level than the children at 6 year age. Ability in them for structuring the movements and regulation at the muscle tonus are on higher level and are able for more successful performance of the movements with legs, arms and body straight and the movement with changing the direction of movements in all three plains and axis.

Table 1

Differences in arithmetic mean at motor tests used in children from 6 and 7 year age[1]

	Age	$\bar{x}$	SD	Sx	t-test	p	Identical results	Significantly better in 7 years old children
KOPAL	6	7,55	2,70	0,27	1,22	0,22		
	7	7,09	2,65	0,27				
KOPON	6	28,47	7,50	0,75	1,84	0,07		
	7	26,46	8,00	0,80				
KOSL2	6	44,20	11,69	1,17	5,39	0,00		
	7	36,01	9,68	0,97				*
KOTPT	6	8,34	1,53	0,15	4,53	0,00		
	7	7,27	1,80	0,18				*
BT10LS	6	2,58	0,46	0,05	0,11	0,91		
	7	2,57	0,68	0,07				
BT4X10	6	15,15	1,78	0,18	3,01	0,00		
	7	14,46	1,44	0,14				*
BTZMT	6	15,20	1,64	0,16	5,66	0,00		
	7	13,04	3,43	0,34				*
BSTAR	6	11,87	1,99	0,20	-4,73	0,00		
	7	13,38	2,49	0,25				*
BSTAN	6	9,11	1,07	0,11	-2,12	0,04		
	7	9,46	1,26	0,13				*
BSTNZ	6	6,52	3,07	0,31	-1,82	0,07		
	7	7,33	3,23	0,32				
FLPRK	6	38,12	7,43	0,74	1,37	0,17		
	7	36,39	10,22	1,02				
FLRLG	6	99,53	14,23	1,42	-2,12	0,04		
	7	104,00	15,59	1,56				*
FLPRS	6	36,13	5,83	0,58	-3,75	0,00		
	7	39,57	7,10	0,71				*
RAOŠK	6	15,96	6,02	0,60	1,77	0,08		
	7	14,39	6,47	0,65				
RASKŠ	6	5,29	4,39	0,44	-0,45	0,65		
	7	5,59	5,13	0,51				
RASKD	6	12,26	10,61	1,06	-0,41	0,68		
	7	12,90	11,51	1,15				

[1] Values at t-test equal or bigger than 1.96 significantly are at level on 0,05. Equal or bigger than 2.58 significantly are at level from 0.01.Equal or bigger than 3.00 significantly are on level 0.001.

For evaluation of the segmental speed are used 3 motor tests. According to the values at T-test, children at 7 year age achieved better results in motor tests(taping with arm and taping with leg). In this two tests movements with arm and leg are performed in side(frontal plain), with maximal speed. In test taping with leg in wall, children from 6 and 7 year age achieved nearly same results. Movements from this tests are performed with legs a straight and back. But, these movement are performed in hardened conditions (after performed jump with two legs), has to be performed movements with one and another leg a straight and back and jump on both legs. These movements at 6 and 7 year age were equally hard and they achieve nearly same results. In this test, children at 6 and 7 year age achieved heterogenic results and distribution significantly differs from the normal distribution of the results. Heterogenic results and significant difference of the distribution is received from test taping with leg. In this test movement with leg is performed in side up and down through bay, so on that way hardened the performance at this test.[2] These both test (taping with leg and taping with legs in wall) are hard for children at 6 and 7 year age. Structure of the movement in this two tests is complex. For performance of this movements for short time, in hardened conditions, children have to own with strength and speed at higher level, but and with ability for re-structuring of the movements. For performance of more fast movements by changing the direction of movement, its necessary in Wright time including and excluding the necessary muscle groups. Ability for structuring the movement and for Wright time including and excluding the necessary agonists and antagonist in the children from this age, probably aren't developed yet on satisfactory level and children aren't ready for continuing successfully to perform this two tests. Heterogenic of the results probably is result at not enough development at this tests and other motor abilities that has influence while the performance at this tests.

For evaluation of the speed of running has been used 3 tests. Children at 7 year age significantly better results has achieved in motor tests: running 4x10 meters and snake-shape running . Movements in this tests are performed with fast overloading of the space with changing the direction of the movement. Children at 6 and 7 year age achieved nearly same results in motor tests running at 10 meters with fly start. In this test movements rapidly performed a straight.

It is noticed that while the performance of movement in tests for evaluation of the speed of running (10 meters fly start), children at 6 and 7 year age overload the movement that are repeating in sagital plain, but the movements with changing the direction of movements performed harder. For successful performance at this tests for evaluation of the speed of running, it's necessary the exemplar to own strength and speed. For changing the direction of the movements in motor tests(running x 10 meters and snake-shape running), beside this two abilities it's necessary and ability for Wright time including and excluding the muscle agonists and antagonists, as well as ability for coordinated performance at all movements with arms, legs and body. To change the direction of the moving, brunt of the body during the circling – changing the direction has to put lower, are excluded agonists and are included antagonists so on that way it's is lowering the speed and is changing the direction of the movement. In same time has to be done synchronization at the movements of the legs, arms and body and to maintain in labile balance position. All this activities has to be performed for short time with maximal speed. Probably this abilities in the children at 7 year age are on higher level and provided achieving better results in this two tests.

In tests for evaluation of the flexibility of the children at 7 year age are better in tests with separating the legs in sitting and lying position, where dominate flexibility in pelvis joint in frontal plain. Children at 6 and 7 year age own equal flexibility in sagital plain , or the muscles at back side of legs and body.

[2] Popeska, B.: Figuring and comparing of latent…… Master thesis . FFK.Skopje.2009.page 71.

Synchronized separating the legs with legs and in proper time regulation at the muscle tonus in motor tests(front affect separate legs in sitting position and separate legs in lying position) lead to achieving higher values in this two tests in the children at 7 year. Test front affect at desk is performed in sagital plain. Children at 6 and 7 year don't differ in achieved results while the performance of the tests for evaluation of the **balance.** Achieved different, but statistical non-important results in implemented tests. According to the until now investigations balance significantly is connected to the other motor abilities(strength, speed, coordination and e.c.t.) According to the received identical results in tests for balance, can be said that necessary motor abilities for performing the movement that are consisting part of the structure of this tests nearly at same level in the children at 6 to 7 year age.

CONCLUSION

In tests for evaluation of the coordination, segmental speed, frequency of movements and balance children at 6 and 7 year age achieved identical results while the performance of the fast, coordinated moving with legs, arms and body straight and back, or in sagital plain, with no changes in direction.

While children at 7 year age achieved better results in motor tests that in its structure consist fast, coordinated movements that are performing in sagital plain, frontal and horizontal, or movements that are changing start direction of moving. To the children at this age ability for re- structuring the movements and ability for proper-time including and excluding the muscle agonists and antagonists are at satisfactory level developed and provide performance of speed, coordinated movements with legs, arms and body straight and back, movement at one side, with proper time changing the direction of movement and overloading the bays, or performed movements in all three plains and axis. Based on the received differences in motor tests and difference in ability for performing the separate movement designed for evaluation of the same motor ability, can conclude that process of differentiation of the ability for structuring the movements and the ability for proper-time including and excluding the muscles agonists and antagonists, started in adult period at 6 and 7 year.

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