MOTOR PERFORMANCE OF 11 AND 14 YEARS OLD PUPILS FROM DIFFERENT TERRITORIAL ENTITIES

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Abstract:
The aim of this research was to extend knowledge of a motor performance of 11 and 14 years old youth from different types of territorial entities of Prešov region at the beginning and end of the pubertal age. 215 primary school pupils from countryside, smaller town and region's capital were tested. To determine the level of motor performance we used a battery of tests recommended in the curriculum of State Education Program ISCED 2, thematic unit - Testing. We have not found significant differences in the level of motor performance in 11 and 14 years old probands from these territorial entities. However, in certain tests we have recorded a significant difference in running speed within these territorial entities. The study is a part of the KEGA project No. 036PU-4/2016 searched at the Faculty of Sport, University of Prešov in cooperation with Faculty of Physical Education and Sport, Commenius University in Bratislava.

INTRODUCTION

The aim of the research was to expand knowledge of the levels of physical performance of 11 and 14 years old pupils in three different territorial units – primary school of countryside town with total of 1340 inhabitants, primary school of a smaller town with total of 6,454 inhabitants, primary school of regional capital with total of 87,288 inhabitants, all in Prešov region [Wikipedia, 2015 http://egov.presov.sk]. We chose the 11- 14 years old as this age is considered to be important for the development of motor skills as it is characterized by the finalization of the onset of pubertal age. According to Mein [Laczo et al, 2013, p 52] the best phase of kinetic performance in childhood occurs in boys from 09/10 to 12.6 / 13.6 years, for girls at 9/10 - 11/12 years. Next phase of reconstruction of the structure of motor abilities and skills in boys is at 12.6 / 13.6 - 14.6 to 15 years, girls 11/12 to 13/14 years. It is generally considered that the differences in motor performance in children and young people is in large extent related to biological age. But empirical evidence are not definite. Individual and social development conditions vary and affect the boundaries of individual developmental stages and motor development, depending on the social environment. Motor tests are regarded as the most important instrument to obtain basic information about the level of development of young people motor skills. [Moravec, Kampmiller, Sedláček et al., 2002, Perečinská, Majherová, 2012, Kasa, 2004]. Battery of tests allow tracking of changes in motor performance of pupils, monitor and evaluate the effectiveness of applied physical activities. Control activity, recording and evaluation of the results of the educational process is closely related to the implementation of the objectives and tasks of physical education and sports. Test results, among other things, can be used to compare levels of motor performance among the groups of school population (classes, schools, territorial entities) and can thus create a

valuable database for systematic monitoring and comparison of motor performance and youth development. We have compiled a standardized guide where we relied on a previous cross-sectional studies conducted on a representative selection of the school population [Moravec, Kampmiller, Sedláček, 2002, Belej, 1996]. In the curricula of Physical Education and Sport, for evaluation and control of motor performance, testing of pupils' performance standards is recommended and used to assess the current status of students at intermediate level of primary schools (the State Educational Program - Physical and Sports Education, ISCED 2, 2009).

THE AIM OF THE WORK

The aim of the research was to identify and expand the knowledge of general motor performance of 11 and 14 years old population from different types of territorial entities in the context of the theme norm - Testing, recommended in the subject of Physical and Sports Education in the State Educational Program ISCED 2.

MATERIAL AND METHODICS

We tested total of 215 students, of which 101 were boys and 114 were girls at three primary schools of Prešov region. Physical performance testing was conducted according to the modified 5-item battery of tests recommended by the State Education Program for Primary School at Intermediate level, which includes: T1 Shuttle run 10x5 m - running speed factor, T2 Broad jump - lower limbs explosive strength, T3 Sit-ups in 30 seconds - dynamic power of direct abdominal muscle factor and hip-thigh muscles, T4 Under grip chin up hold with - static muscle strength of upper limbs factor T5 20 m Endurance shuttle run - running endurance capacity (cardio-respiratory endurance). Performance of individual tests and total motor performance skill results are assessed per performance standards of the State Education Program for Primary Schools at Intermediate level (SEP, physical and sports education, ISCED 2, 2009). The testing was carried out in June 2015. Given the limited number of pages for the article and smaller file groups, presentation of performance differences of each of the statistical characteristics of central tendency is in the tables. To evaluate the significance of the difference in the measured quantity of the test we applied an unpaired t - test, which interprets the statistical significance level of $p \leq 0.05$.

RESULTS

By comparing the test results we have evaluated students' kinetic levels of different territorial entities. Five physical performance evaluation summary tests were based on cross-sectional studies carried out on a representative selection of the school population in Slovakia [Moravec, Kampmiller, Sedlacek et al., 2002, Belej, 1996].

Motor performance of 11 and 14 years old boys of territorial entities

11 years old of all three territorial unit groups conformed same poor motor performance level which corresponds with the third level of a 9-point scale in empirical evaluation exercises in five tests. Probands who were devoted to after school extra-curricular sport activities achieved excellent - 8, very good - 7, above average - 6 of kinetic level. In summary assessment, the rest of the students tested as with weak motor skills - 3 to inadequate - 1. According to the standards, performance standards in the shuttle run 10 x 5 m and broad jump performances were at minimum standard level. None of 11 years old reached the minimum basic standard in endurance shuttle run, pull-ups and sit -up test. Measurements for 14 year olds in all tests were at higher level than 11 years old probands, except for chin up hold where 14 years old probands did not meet the average nor minimum basic standard. This reflects low static arms force level. In other tests 14 years old probands achieved minimum to average power standard (A - B). Our research corresponds with other vocational studies that suggest

that motor skill gain occurs at this time due to the increase in body height. By Laczo et al. (2013) stature is reflected in some motor performance tests (eg. broad jump, running test), because bigger stature usually increases performance. All growing inequalities in adolescent body affect motor skills [Selingerová, Moravec, 1993, Mekota, Novosad, 2005]. In terms of differences of territorial entities, 14 years old from regional town school and countryside school had the same level of physical performance, average - 5, small town primary school boys were up to two degrees weaker in performance. Again, excellent - level 9 to very well - 7, achieved students who regularly performed after school extracurricular activities. Individual insufficient motor levels were found with some probands in every file, table 1.

Table 1. Elementary school boys motor performance, territorial entities of Prešov region

Population		**T1** (s)	**T2** (cm)	**T3** (N)	**T4** (s)	**T5** (N)	**Degree level**
11 years							
ES countryside n - 12	**x**	21,99	149,00	23,11	11,90	35,00	**3 weak**
	s	1,71	18,21	2,08	9,50	12,14	
ES smaller town n - 15	**x**	22,35	155,22	22,91	10,72	34,18	**3 weak**
	s	*1,02*	*26,03*	*5,70*	*8,14*	*9,65*	
ES regional capital n - 25	**x**	22,06	150,97	24,14	10,98	35,81	**3 weak**
	s	2,18	28,33	6,17	10,51	13,22	
14 years							
ES countryside n - 12	**x**	19,90	184,73	27,67	20,55	50,67	**5 average**
	s	3,12	27,75	4,40	15,86	16,88	
ES smaller town n – 16	**x**	20,78	180,63	26,40	16,53	46,10	**3 weak**
	s	1,50	22,16	3,75	13,21	15,69	
ES regional capital n - 21	**x**	19,87	185,90	27,88	19,61	51,16	**5 average**
	s	2,27	20,67	3,59	10,78	20,46	

The legend: T1 - Shuttle run 10x 5 m; T2 – Standing broad jump;
T3 – Sit-ups, 30 sec.; T4 – Bent arm hand; T5 - Endurance shuttle run.
ES – Elementary school; MP - Motor Performance.
(Source: own research, 2016)

Motor performance 11 and 14 year old girls of territorial entities

11 years old girls from countryside school and regional capital school conformed same level 4 - below the average level of physical performance, schoolgirls of smaller town level was 1 degree lower - low level. Overall individual performance varied across the rating scale from excellent - 9 to inadequate - 1 level. In general, performance standards of 11 years old girls show higher motor performance than their peers boys. Best motor performance of 14 years old girls was measured with girls from countryside school - average - 5, smaller town and the regional capital were one degree lower 4 - below the average level. As well as in this

group there were schoolgirls with 9 - excellent, 8 - great to inadequate motor performance level - 1, table 2.

Tab. 2 Elementary school girls motor performance, territorial entities of Prešov region

Population		**T1 (s)**	**T2 (cm)**	**T3 (N)**	**T4 (s)**	**T5 (N)**	**Degree Level**
11 years							
ES countryside n - 11	x	22,57	142,65	24,00	10,96	29,00	**4 below average**
	s	2,05	17,13	2,65	5,90	11,49	
ES smaller town n - 20	x	24,98	139,85	21,69	10,52	31,69	**3 weak**
	s	2,22	20,47	2,75	7,42	10,80	
ES regional capital n - 27	x	22,75	148,21	23,79	10,21	28,33	**4 below average**
	s	1,76	18,55	4,47	7,05	6,96	
14 years							
ES countryside n - 12	x	22,34	155,95	21,64	13,56	29,27	**5 average**
	s	1,96	16,24	2,84	8,17	10,33	
ES smaller town n - 16	x	22,28	159,86	21,63	11,06	29,44	**4 below average**
	s	1,62	14,82	3,92	8,36	8,09	
ES regional capital n - 21	x	22,62	156,74	21,28	10,97	28,60	**4 below average**
	s	1,50	15,25	4,41	9,64	8,63	

(Source: own processing, 2016)

In conclusion, minimum differences to almost same results in motor performance skills were recorded for same age groups in different territorial entities. The comparison of the summary of motor performance skills of primary schools of different territorial entities very statistically unimportant ($p \leq 0.05$). Boys proved almost same results in the performance for every unit.

Countryside primary school girls showed objectively the best performance, followed by schoolgirls from the regional capital followed by a small town. In the test, the shuttle run 10 x 5 m showed a statistically significant difference at $p \leq 0.05$ to the advantage of students from countryside primary schools and the regional capital, compared to pupils of a smaller town. There were no statistically significant differences recorded in evaluation summary and battery tests when comparing probands' performance from countryside primary schools, smaller town and regional capital.

CONCLUSIONS

1. We did not find statistically significant differences in the summary evaluation of physical performance form at these three primary schools. Individual differences in physical performance are probably caused by different genetic components of the individual, the quantity and quality of the implementation of physical activities. For 14 years old boys, gains in all motor tests were recorded. It is confirmed that increases in body height positively

determine power-speed indicators of older boys. It turns out that the differences are more affected by congenital assumptions and relationship to physical activity of the environment in which pupils grow up. 14 years old girls had increased performance in endurance test, the shuttle run and sit up for 30 seconds, which require endurance ability and strength of the abdominal and hip-thigh muscle. Our findings correspond with those of Perečinská, Majherová (2012), Laczo et al. (2013), that biological acceleration is generally associated with higher performance in speed-strength and power indicators.

2. In most of the indicators of physical performance there was a tendency towards divergence of performance of above average, average and below-average individuals. Besides the genetics factor, level of motor performance factor is influenced also by physical activity. Therefore, pupils' motivation to exercise and to practice sports depend on the offer of physical activities and social environment in which pupils live.

3. Today's youth is physically more mature than before but the level of physical performance is inconsistent with the empirical results in "Negative opening of scissors" between physical and motor development of school population. Insufficient physical activity in young people is leading to hypokinetic degradation. Above average amount of theoretical subjects in the curriculum with only one practical physical activity subject leads to negative health effects at young people.

4. It would be appropriate to consider increased promotion of new aerobic activities in a curriculum of educational standards for primary and secondary schools, for example - sports aerobics, step aerobics, dance aerobics, and other aerobic-gymnastic sports, which include not only movement, but also aesthetic - educational side.

5. Given the small populations this research is to be for orientation purposes only.

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