

DO TODAY'S PUPILS FALL BEHIND THEIR PEERS FROM 15 YEARS AGO?

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ABSTRACT. *Introduction.* Authors in their contribution deal with the issue of testing physical abilities of children at schools. The aim of the survey was to find out the level of general motor abilities of pupils of 1st grade of elementary schools in the region of Nitra. *Material and method.* The sample of pupils consisted of 169 pupils (male = 96 and female = 73). The observed general motor performance was compared with the findings of other authors (Moravec, et al, 2002; Sedláček, 2009; Zapletalová, 2002). *Results.* Based on the comparison we came to the conclusion that the level of general motor performance of pupils of grade 1 of elementary school has decreased in both genders comparing to the previous decades. *Conclusion.* We expect that implementation of regular testing of elementary school pupils would contribute to the increase in the amount of physical activity of children and consecutively in the level of their motor abilities.

Keywords: *testing, pupils of 1st and 3rd grades, elementary school, physical abilities.*

Introduction

The Slovak government authorized the Conception of state policy on sport under the title "Slovak Sport 2020" in 2012. The main aim of this document was to improve the selection and preparation of sport talented youth. Attention of sport talented youth is currently executed in the organizations of talented youth in sport unions (clubs). The Conception states that the current status of extensive way of care of talented youth is not favourable, which is manifested by a decreasing number of athletes in Olympic sports, who are able

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to reach excellent results in the permanently growing world competition. The result is that more and more often sport preparation is attended by children without any talent. Indication of the kind of sport for which the child is talented, is thus very important. Talent selection in Slovakia is realized already in the early age (very often in pre-school age or younger school age). In this period up to 11-12 years children show physiological prerequisites for reaching elite performances, mainly in the so called "coordination sports". Central nervous system matures to the level of 95% of adulthood at this age and all coordination abilities are on a high qualitative level. Testing individual fitness factors (strength, speed, endurance and flexibility) at the age of 11-12 years feasibly does not reflect talent of children for individual sports, especially not for the ones belonging among "coordinative sports". When selecting talents for sport it is inevitable to find out "talent" of children using tests and test batteries reflecting the level of coordination abilities (rhythmic, reaction, balance, spatial orientation and kinaesthetic-differentiation). However, this is not carried out in practice based on different reasons. Teachers and coaches very often do not know the suitable motor tests for this reason. Similarly, the talent identification based on a cross-sectional single testing of motor abilities may not reveal the real talent of children. Such selection does not take into consideration further important factors, such as tempo motor learning – the so-called "docility", previous experience of children, and so on. Based on this it is clear that talent selection should be based on up-to-date scientific knowledge in the given field. In the top literature, as well as in practice (Botkin et al., 2015; Webborn et al, 2015; Williams et al., 2014) the method of selection of talents for sport based on genetic analysis is used. However, currently there are not enough financial means for that and we use mainly testing motor performance of children in the early ages.

The aim of the full-area testing of motor prerequisites of pupils attending 1st and 3rd grades of elementary schools in line with the new Act on Sport is not to search for most talented children, but to recommend children (and also their parents) those kinds of sport (events), in which children can be successful and performing the kind of sport will interest them. If sport will attract them, children will be motivated and will be willing to perform. Why are these tests planned to be executed at the age of 6-9 years? From the point of view of selection of talented children for sport, it is late to carry out testing for sport talent identification at the age of 9-11 years. At this age period, children are frequently involved in different sport clubs carrying out sport preparation. Initial testing of children in 1st grade (ages 6-7) is therefore intentionally integrated in this age category, since they have not started with the controlled sport preparation yet (or they have been involved in it only for a short time). This is the stage when the impact of social environment on the development of motor prerequisites is

minimal. Stability of revealed sport prerequisites or individual sport profiles in time is suitable to verify in 3rd grade of elementary school, when puberty in children has not started yet. **National testing of motor prerequisites of pupils for identification of sport talent will be executed in accordance with the law started from September 1, 2018.** Based on this all children attending 1st and 3rd grades of elementary school in Slovakia have to undergo testing of somatic parameters (body height and body weight, BMI), as well as motor abilities (8). Motor tests were selected and verified nationally in a two-year-long pilot study by a group of experts. Resulting methods of testing and evaluating the reached performances in tests were approved. Results of pupils in individual tests will be ranked in the national database and compared with the standards for common population elaborated by the members of the operating team based on testing of more than 1,000 children of the given age. Annual testing can contribute to reaching information by parents and coaches on the level of talent of children from the national point of view, but it also can show the way children improve or stagnate. This way coaches should not miss any talented child. Obviously, it is clear that talent identification is just a half of the success. Another chapter is the rate of success of working with the talent as well as interest of the child during his/her complete youth period. It is very frequent that talented children currently leave from sport before they reached elite performances. Some of the reasons are: inadequate interest in sport attracted by the coach, excessive strictness and impersonality of coaches, offer of other more attractive (and very often sedentary activities like computers, mobiles, etc.), or negative impact of partner and schoolmates.

Aim of the survey

In our survey, we focused on comparing the performances of pupils of 1st grades of elementary schools in Nitra with the standards for common population. This aim has been chosen because we can find very repugnant information about the trends in motor development of children in literature.

Limits of the survey

We are fully aware that our sample ($n=169$) represents only a marginal available selection of the population year and we cannot do any far-reaching conclusion out of it. Among other limits is the use of population norms from the year 2002. However, we can presume that certain trends in the motor development of children can be seen from this survey.

Material and Method

Quantitative cross-sectional research was used to fulfil the aims of the research.

Participants: 169 pupils (96 male and 73 female) attending grade 1 of three randomly selected elementary schools in the town of Nitra, Slovakia were objects of testing. The age of tested pupils was 6-8 years (mean age=7.36; SD=0.69). Basic characteristics of the group is presented in table 1.

Table 1. Basic characteristics of the tested group

Tested group (n=169)	Decimal age (y.)	Body height (cm)	Body weight (kg)	BMI (i)
Boys (n=96)	7.39	126.91	26.75	16.52
Girls (n=73)	7.34	125.34	25.24	15.98

Set of motor tests used to assess the level of motor performance of pupils

The following motor tests were used for the identification of motor abilities of first year pupils: Repeated Bar Exercise, Bent Arm Hang, Standing Broad Jump, 4x10 m Shuttle Run, Sit-Ups For 30 s, Seated Forward Bend, Rolling 3 balls, Multi-Stage Fitness Test (20 m) and 50 m Dash. The tests were selected and verified by the experts committee constituted by the Slovak Ministry of Education, Science, Research and Sport in 2016. Description of tests can be found in the guide to EUROFIT (Moravec, 1996) tests and in the book by Šimonek (2015).

Course of survey organization

Testing took place in the school year 2016/17 at selected elementary schools in the town of Nitra in the morning during lessons of physical education. 4 P.E. Teachers and 2 student-recorders were instructed in advance and used standard testing procedure. Material provision was ensured by the testing team in accordance with the requirements of individual tests.

Results

Results of testing and comparison of the school population with the measurements performed 15 years before are presented in tables 2 a 3.

Table 2. Comparison of the selected male pupils' results with other authors (Moravec, et al., 2002; Sedláček, 2009; Zapletalová, 2002)

BOYS	Mean age (y.)	Repeated Bar Exercise (s)	Bent Arm Hang (s)	Standing Broad Jump (cm)	4x10m (s)	Sit-Ups for 30 s (n)	Seated Forward Reach (cm)	Rolling 3 balls (s)	Multi-Stage Fitness 20m Test (n)	50m Dash (s)
Nitra (2017) (n=96)	7.39 (sd=0.46)	32.11	7.07	120.10	15.67	21,00	1.45	114.87	19.03	11.16
Moravec (2002) (n=73)	7.37 (sd=0.38)	-	9.90 (sd=10.3)	132.52 (sd=16.38)	-	19.01 (sd=5.09)	19.85 (sd=5.01)	-	31.70 (sd=11.11)	11.3
Zapletal- ová(2002) (n=153)	7.41 (sd=0.45)	-	-	130.10 (sd=17.48)	-	-	-	-	-	10.46 (sd=0.77)
Sedláček (2009)	7.52 (sd=0.61)	-	8.05	125.00	13.60	17.00	18.00	-	31.00	10.6
Compari- son	-	-								

Table 2 points to the fact that the selected population of boys from Nitra in comparison with the pupils from similar measurements carried out 15 years before (Moravec, et al., 2002; Sedláček, 2009; Zapletalová, 2002) falls behind in the tests Bent Arm Hang, Standing Broad Jump, 4x10 m, Seated Forward Reach and Multi-Stage Fitness Test (20 m). On the other hand, in 50 m Dash test (according to Moravec 2002) and Sit-Ups for 30 s the current 7-year-old pupils from Nitra reached better results. Results in the tests Repeated Bar Exercise and Rolling 3 balls could not have been compared with the Slovak population since in literature there were no previous measurements presented.

Table 3 shows that the selected population of pupils from Nitra in comparison with the peers measured 15 years before (Moravec, et al., 2002; Sedláček, 2009; Zapletalová, 2002) falls behind in the tests Bent Arm Hang, Standing Broad Jump, 4x10 m, Multi-Stage Fitness Test (20 m) and 50 m Dash. On the other hand, in the test Sit-Ups for 30 s today's population of 7-year-old female pupils from Nitra recorded better results. Similarly as in boys, results in the tests Repeated Bar Exercise and Rolling 3 balls could not have been compared with the Slovak population due to the same reasons.

Table 3. Comparison of the selected female pupils' results with other authors (Moravec, et al., 2002; Sedláček, 2009; Zapletalová, 2002)

GIRLS	Mean age (y.)	Repeated Bar Exercise (s)	Bent Arm Hang (s)	Standing Broad Jump (cm)	4x10m for 30 s (n)	Sit-Ups Seated Forward Reach (cm)	Rolling 3 balls (s)	Multi-Stage Fitness 20m Test (n)	50m Dash (s)	
Nitra (2017) (n=73)	7.34 (sd=0.52)	30.52	6.92	110.67	16.23	23.00	3.73	114.42	18.30	11.38
Moravec (2002) (n=71)	7.29 (sd=0.39)	-	8.92 (sd=6.87)	123.46 (sd=15.76)	-	17.61 (sd=5.86)	20.83 (sd=5.78)	-	27.31 (sd=8.50)	11.25
Zapletalová (2002) (n=153)	7.11 (sd=0.31)	-	11.38 (sd=10.82)	124.90 (sd=16.28)	-	-	-	-	10.89 (sd=0.93)	
Sedláček (2009)	7.58 (sd=0.76)	-	8.50	120.50	14.10	16.00	19.00	-	26.00	11.0
Compari- son	-	-								

Conclusions

Results of testing motor prerequisites of pupils of 1st grade of elementary schools in Nitra showed that in the majority of motor tests today's pupils (both male and female) from Nitra fall behind their peers from years 2002 and 2009. By implementing obligatory testing of motor abilities of pupils of 1st and 3rd grades of elementary schools of all Slovak schools (about 50.000 children) we shall obtain a database of performances of pupils in tests. These results will be classified according to the particular groups as to qualitative standard and the best talented pupils will be identified and recommended for sport. However, motor testing is only half of success, sport clubs and coaches will have responsibility for the content of training and only then the talent of pupils will be developed to the required level. Parents will have the chance to ask for genetic analysis, which will assess the degree of talent of children for a certain group of sports (Horváth, et al., 2010; Horváth, et al., 2016). We thus facilitate effectiveness of selection of talents for sport. However, it is questionable whether the nationally obtained results in individual tests will be available to the P.E. teachers and coaches in sport clubs. In case it will be possible, it is not sure that the results of tests will be used by the coaches upon selecting the athletes to the teams.

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