# 158 - EVALUATION OF PUPILS MOTOR PERFORMANCE IN DEPENDENCE ON THEIR BODY HEIGHT AND BODY WEIGHT

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Motor performance is one of the goal categories of physical education lessons on primary and secondary schools in Slovakia. Motor performance in schools is evaluated on the basis of achieved results in motor tests. In the past there used to be published more works about this problem (Moravec-Havlíèek-Zapletalová 1990, Moravec-Sedláèek-Kampmiller 1996, Antala et al., 1997, Antala 2002, Filho 2003 etc.). There is used simplified battery of EUROFIT test - standing broad jump, 1 min sit-ups, shuttle run 4 x 10 m, 12 minutes endurance run or alternatively endurance shuttle run in gymnasium. By this test battery are tested pupils from 10 to 18 years in primary and secondary schools. Testing is performed once a school year, mostly at the end of school year (April, May or June).

Because of performance in motor tests depends from physical dispositions, there are disadvantaged individuals, who have not these assumptions. In order to equalize motor performance evaluation, there is need to look for possibilities of performance estimation in each motor test on the basis of physical dispositions, concretely on the basis of body height and body weight.

**Research goal**

Purpose of our research was to create evaluation methodology of pupils performance, which take in account their physical dispositions - body height and body weight and its verification in practice on secondary schools.

**Research methods**

1. Dependence of body height and body weight of each motor test performance is represented by regressive equations, according them there is possibility to calculate the adequate level of each pupil performance on the basis of his dispositions. We call it as an expected, or theoretical result. In order to approach evaluation of so called “relative motor performance” (with regard for body height and body weight) we constructed on the basis of regressive equations nomograms (fig. 1). Procedure of relative motor performance evaluation is following: on axes of body height and body weight must be found values of the pupil and connected by line (ruler). On axis of motor test we can read his result. Thus derived result in motor test represents expected (theoretical) performance, which the pupil should reach on the basis of his body height and body weight. If the pupil reaches this expected result, which correspond his physical dispositions, than is evaluated as average. If the pupil reaches higher result in motor test, than is evaluated like over average and vice versa. Scale of evaluation and classification is based on standard deviation of regression.

2. Work with nomograms was verified during two school years on three Bratislava grammar schools. There were involved 298 pupils (155 girls and 143 boys). On basis of motor performance tests results we divided them for research purpose in three different groups - pupils over average from the point of performance level (in 9 scale evaluation had values 7-9), average (values 4-6) and below average (values 1-3). We investigated the response of new way of evaluation at each pupil group.

3. During verification we used mostly method of questionnaire, in which at the end of two years application of evaluation method they were asked about their experience and opinion on evaluation method used. As an additional method we used method of talks with pupils and teachers, too.

**Research results**

After two years verification of relative evaluation method we found:

-System of motor performance evaluation in dependence on somatic dispositions was accepted by majority of pupils and PE teachers, too. 79,2% of pupils expressed, that evaluation by nomograms is better way comparing previous one that did not regard individual pupil dispositions.

-Especially positive approach towards it had girls. 85,1% of them expressed support of this evaluation system.

-Response of this evaluation system was more significant at below average groups (boys and girls, too), but over average as well (table 1).

Table 1: Did nomogram evaluation motivate you to further activities more like evaluation in the past?

| | Performance below average | | | | Performance over average | | | |
|---|---|---|---|---|---|---|---|---|
| | boys | | girls | | boys | | girls | |
| | F | % | F | % | F | % | F | % |
| Yes | 15 | 78,9 | 20 | 76,9 | 22 | 47,0 | 19 | 52,7 |
| No | 4 | 21,1 | 6 | 23,1 | 24 | 52,2 | 17 | 47,3 |

Values X- test : boys (physical performance: below average - over average) 5,311
girls (physical performance: below average.-over average) 3,722

-Majority pupils and even teachers recommended its use in pedagogical practice (table 2). With further use of nomograms in practice agreeded 87,7% of girls and 79,2% of boys.

Table 2: Would you recommend nomograms use in the future?

| | Performance below average | | | | Performance over average | | | |
|---|---|---|---|---|---|---|---|---|
| | boys | | girls | | boys | | girls | |
| | F | % | F | % | F | % | F | % |
| Yes | 17 | 89,4 | 24 | 92,3 | 28 | 60,8 | 25 | 69,5 |
| No | 2 | 10,6 | 2 | 7,7 | 18 | 39,2 | 11 | 30,5 |

Values X- test : boys (physical performance: below average - over average) 5,165
girls (physical performance: below average.- over average) 4,762

**Conclusion**

Relative motor performance evaluation by nomograms can be considered as a more objective and fair, for it does not prefere individuels physically disposed and accelerated and vice versa it does not disadvantage those, who do not dispose with those dispositions, resp. are physically backward. Importance of such an evaluation can be seen in bigger motivation effect that was proved mostly among pupils physically below average and among girls. On the basis of this research we recommend its more frequent use in Slovak secondary schools.

**Fig.1. Nomogram - standing broad jump - 15 years old boys and girls (graphical preparation : Antala Branislav - Lednický Anton)**




Legend: Hodnotenie výkonnosti - performance evaluation; výška - heigh; výkon - performance; hmotnos - weight; klasifikácia - mark evaluation; skok do dia¾ky z miesta - standing broad jump

**References:**

ANTALA, B. et al. (1997). Hodnotenie v školskej telesnej výchove - základy teórie a praxe (Evaluation in school physical education - bases of theory and practice). Bratislava, FTVŠ UK

ANTALA, B.: School Physical Education in Slovakia at the beginning of the New Millenium (problems and perspectives), FIEP Bulletin, 2002, è.1-2, s.15-24

FILHO, J.F.: A prática da avaliãçao física. Rio de Janero: Shape, 2003. 268p.

MORAVEC, R. - HAVLÍÈEK, I. - ZAPLETALOVÁ, L. (1990) : Korekcia hodnotenia úrovne pohybovej výkonnosti v závislosti od telesného rozvoja (Correction of level motor performance evaluation in dependence of physical development). In.: Moravec, R. et al. : Telesný, funkèný rozvoj a pohybová výkonnos 7-18 roènej populácie v ÈSFR (Physical, function development and motor performance 7-18 years old youths in Czechoslovakia). Bratislava, MŠMŠ SR, s.227 - 245

MORAVEC, R.- KAMPMILLER, T. - SEDLÁÈEK, J. et al. (1996) : Eurofit - telesný vývoj a pohybová výkonnos školskej populácie (Eurofit - physical development and motor performance of school population). Topo¾èianky, End , 198 s.