

INITIAL MEASUREMENT OF MEDICALLY ORIENTATED EFFICIENCY AND CORRECT POSTURE OF STUDENTS OF FIRST DEGREE ON PRIMARY SCHOOLS

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Abstract: *The goal of the report is to introduce the results of initial measurement of medically orientated efficiency and correct posture of student of first degree on primary schools. As the research methods, we used motoric tests of medically orientated efficiency, tests for orientation assessment of excessive weight and examination of correct posture of student. Measurement was performed on selective group of 412 students of 1st – 5th grade of Brno primary schools. The report shows the possibilities of influence and monitoring of healthy life-style of student of first degree on primary schools.*

Key words: *motoric tests, medically orientated efficiency*

Introduction

The report connect to presentation from the Second conference “School and health 21, Brno 2006” (change in approach to assessment of fitness, information Suchomela 2003), conception of so-called medically orientated physical training on first degree of primary schools (Mužík, Krejčí, 1997, Mužík, 1999 and others). On the basis of the above mentioned findings, we used selected test from the test battery Fitnessgram (Vrbas, 2007) to test the medically orientated efficiency of students of first degree on primary schools. The main goal was to verify the selected tests of medically orientated efficiency in praxis. The testing took place on three selected schools in Brno. The research problem demands a constantly growing team of people. This team is composed of teachers on the first degree on primary schools. Thanks to this, as one of the main goals we discovered that we need a Manual for teachers of first degree on primary schools which may help the teachers to perform the tests independently, only through using utilities and this Manual.

Goals

On of the goals of this message is to verify the functionality of motoric tests used in the Manual and gaining the initial results according to the working version of the Manual. Next goal is to verify the functionality of given “target zones” of medically orientated efficiency for the Czech Republic for used motoric tests from the test battery Fitnessgram according to the gained results.

Methods

For testing, we used selected motoric tests from the test battery Fitnessgram for the first degree on primary schools. A detailed description was already published in the Czech Republic (Suchomel, 2003, Vrbas, 2007).

Used motoric tests correspond with the fundamental components of the medically orientated efficiency according to the terminology used in the USA (Suchomel, 2006).

Used tests: Flexibility - „*Back Saver Sit and Reach*“. Strength and moveability of body extensors – „*Trunk Lift*“. Power persistence of abdominal muscles „*Curl-up*“. Strength and persistence of upper part of the body muscles – *-90° push-ups*, in our literature, we can see a different description of individual variations of the tests. This variation was verified by Massicote (1990). Testing the aerobic efficiency – *Endurance navicular run or the „PACER*“.

Assessment of medically orientated efficiency through selected tests from the test battery Fitnessgram is based on observing so-called *target* zones. In the Table 1 and Table 2, there is an overview of these zones for the first degree.

Table 1 – Target zones of motoric tests - boys

Age	<i>Back Saver Sit and Reach</i>	<i>Trunk Lift</i>		Chest bend from rest		Push-ups		Endurance navicular run	
	(cm)	(cm)		(amount of repeats)		90°		(sweeps)	
						(amount of repeats)			
5	20	15	30	2	10	3	8	Participation on test (sweeps are not set)	
6	20	15	30	2	10	3	8		
7	20	15	30	4	14	4	10		
8	20	15	30	6	20	5	13		
9	20	15	30	9	24	6	15		
10	20	23	30	12	24	7	20	23	61
11	20	23	30	15	28	8	20	23	72
12	20	23	30	18	36	10	20	32	72

Notes: On the left side by each item is set the lower limit and on the right side the top limit of target zones; the flexibility test is binary evaluated (done – not done). Inches were transferred onto centimeters. Modified according to the Cooper Institute (1999, 2003).

Table 2 – Target zones of motoric tests - girls

Age	Back Saver Sit and Reach	Trunk Lift		Chest bend from rest		Push-ups		Endurance navicular run	
	(cm)	(cm)		(amount of repeats)		(amount of repeats)		(sweeps)	
5	23	15	30	2	10	3	8	Participation on test (sweeps are not set)	
6	23	15	30	2	10	3	8		
7	23	15	30	4	14	4	10		
8	23	15	30	6	20	5	13		
9	23	15	30	9	22	6	15		
10	23	23	30	12	26	7	15	15	41
11	25	23	30	15	29	7	15	15	41
12	25	23	30	18	32	7	15	23	41

Notes: On the left side by each item is set the lower limit and on the right side the top limit of target zones; the flexibility test is binary evaluated (done – not done). Inches were transferred onto centimeters. Modified according to the Cooper Institute (1999, 2003).

Research group

Selected group is composed of students of first degree on primary school Vedlejší and primary school Bakalovo nábřeží. There was a total of 373 children tested (163 boys and 210 girls). Testing took place during the first term of 2007. At the beginning of testing, each individual always stretched and warmed up his / her body. Half of children participated in the motoric tests of medically orientated efficiency. Second half of children was viewed in the area of excessive weight and correct posture

We divided the tested group of children into two parts, where one was tested in the area of flexibility (test: back saver sit and reach) and the other part was tested in the area of strength and moveability of body extensors (test: trunk lift).

After these tests were completed, children made pairs. Then followed these tests: chest bends from rest and 90° push-ups. There are CD records for these two tests which determine the speed of performed movement – for now, these records are available only in English language and therefore we explained meanings of each word to the students

(up, down). Counting showed as very important to explain (starting and ending phase of exercise). Also, we performed a practical illustration (performed by the teacher or selected student) to explain how the exercise must be performed correctly. One child from the pair performs the exercise (i.e. is tested) and the second child is counting how many times the tested child performs the exercise. Final results are recorded and after the last test has been performed, the children swap.

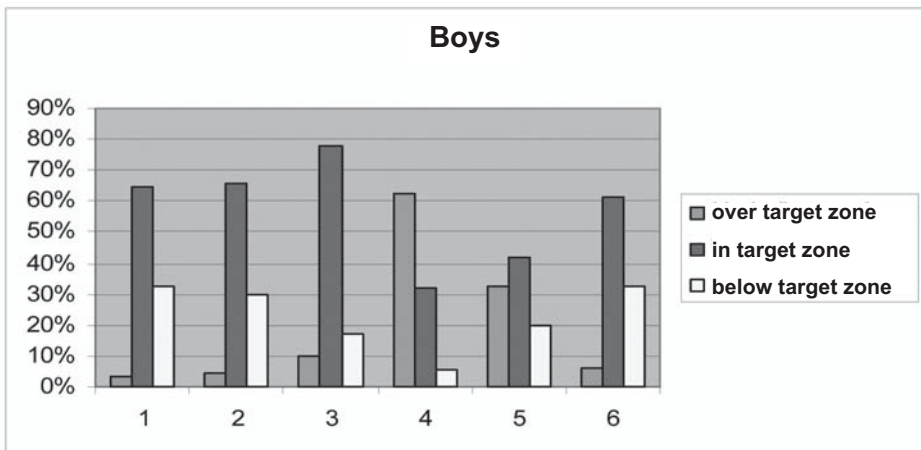
We placed the 20m endurance navicular run in the last part of the testing. This test is performed in pairs again where the child not tested is counting sweeps of the tested child. After the test is finished, the children swap again.

Limiting factors of testing objectivity

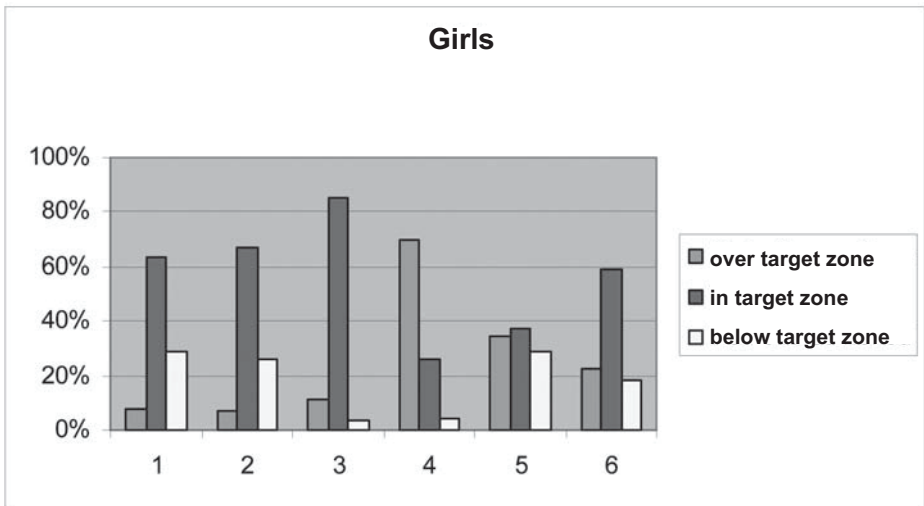
Testing itself may be influenced by many factors which must be taken into account. The main element before testing could even start was to gain the approval of the school and family. Before the data collecting we needed to gain the approval of parents. A right motivation of children is also an important part of the testing. Using the same utilities and environment for testing (gymnasium with required parameters) and evoking the same conditions increases the validity of tested groups of given pools. We also have to apprehend whether the tested individuals maintain a drinking and feeding regime. A certain rate of dependency may be determined There is a difference whether the testing takes place on first class or right before lunch. On the limiting factors may be the organization itself during the testing. It is necessary to differentiate testing in first and fifth grade. We tried to minimize the influence of limiting factors so the results gained by measuring correspond with reality as much as possible.

Selected results

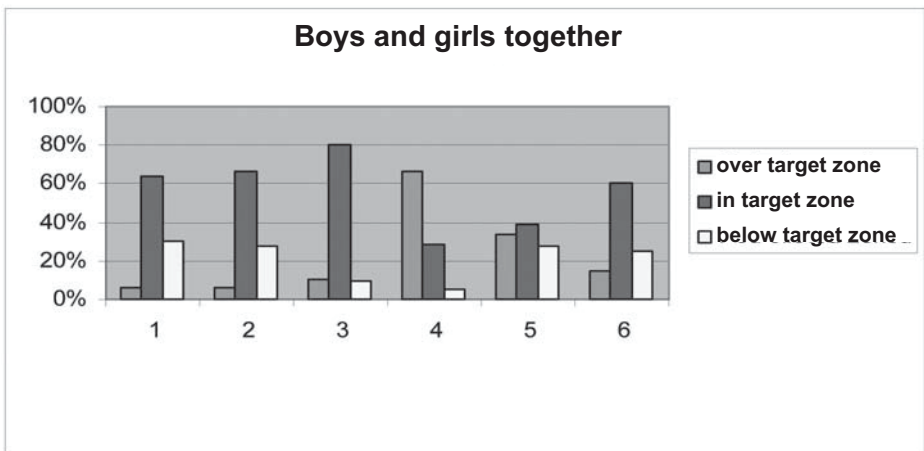
Graph 1. – Boys



Graph 2. – Girls.



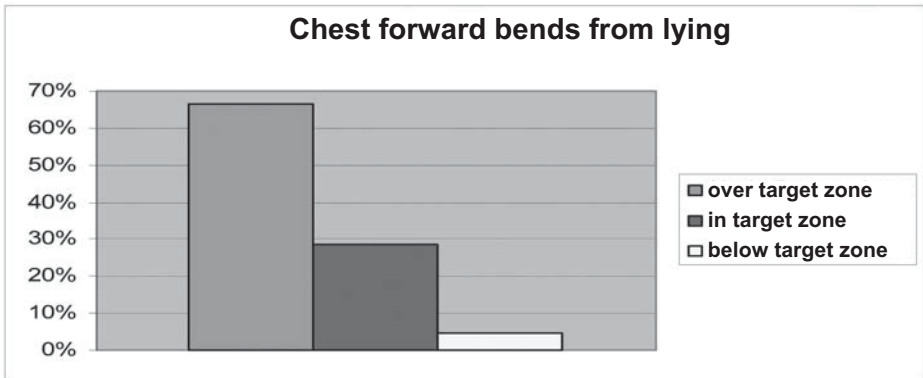
Graph 3. – Boys and girls together.



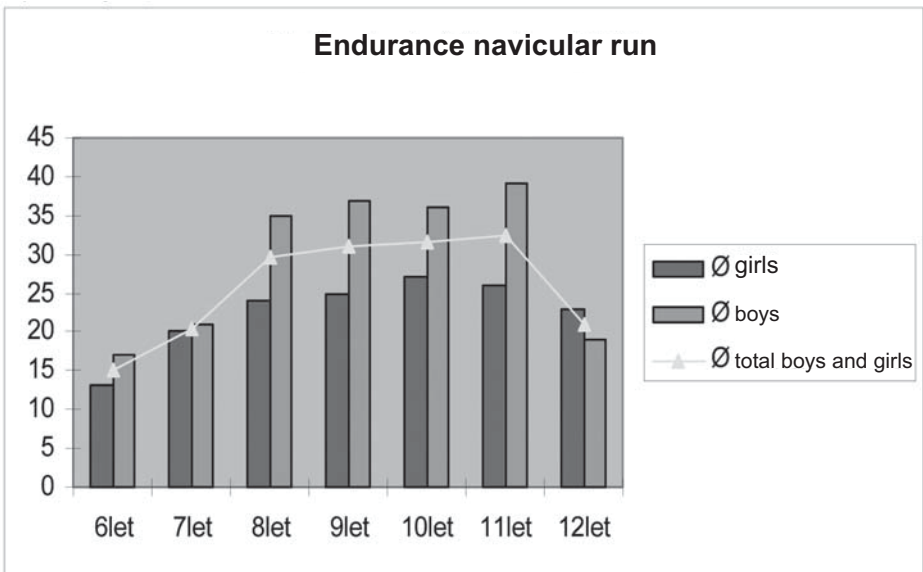
Notes to graphs 1, 2 and 3:

- 1. Forward bend from sitting right leg forward**
- 2. Forward bend from sitting left leg forward**
- 3. Backward bend from lying on belly**
- 4. Chest forward bend from lying**
- 5. 90° push-ups**
- 6. Endurance navicular run**

Graph 4. Boys and Girls – chest forward bends from lying.



Graph 5. Boys and Girls – endurance navicular run.



In the graphs 1, 2 and 3, there is a summary of results of individual motoric tests on the basis of CZ. Graph 1 shows the results for boys, graph 2 the results for girls and graph 3 the results for both boys and girls. In graph 4, there are results of chest forward bends from lying tests which exceed CZ for 65 %. Graph 5 illustrates the total decrease of aerobic efficiency measured by the endurance navicular run test for twelve-year old students.

Conclusion

- Testing the student from first degree on primary schools helped us to verify the functionality of motoric tests in the working version of the Manual.
- Testing also showed us that the target zones of the medically orientated efficiency correspond to our conditions with the exception of Chest forward bends from lying test.
- We considered the selected tests as suitable tests for the first degree on primary schools.
- On the basis of initial measurement, many tasks connected with the Manual creation have arisen. Outcomes of this and other following measurements will be lectured on following conferences and published in technical and other magazines and media.

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PRVOTNÍ MĚŘENÍ ZDRAVOTNĚ ORIENTOVANÉ ZDATNOSTI A SPRÁVNÉHO DRŽENÍ TĚLA ŽÁKŮ 1. STUPNĚ ZŠ

Souhrn: Cílem příspěvku je seznámit s výsledky prvotního měření zdravotně orientované zdatnosti (ZOZ) a správného držení těla dětí na 1. stupni ZŠ. Výzkumnými metodami jsou motorické testy zdravotně orientované zdatnosti, testy pro orientační posouzení nadměrné hmotnosti a vyšetření správného držení těla žáků. Měření bylo provedeno na výběrovém souboru 412 žáků 1. – 5. ročníku brněnských základních škol. Příspěvek poukazuje na možnosti ovlivnění a monitoring zdravého životního stylu žáků na 1. stupni ZŠ.

Klíčová slova: motorické testy, zdravotně orientovaná zdatnost