

## **THE RELIABILITY OF TEST DIAGNOSING MOTOR LEARNING IN YOUTH**

by

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### *Introduction*

Researching motor learning abilities Szopa and Wątroba (1992) used two sets of exercises joined into unknown to the subjects sequence. In Szopa and Latinek (1995) the individual tests the number of remembered and performed sequences of exercises was evaluated and 250 students were tested. The aim of the research was to evaluate coordination, speed, accuracy and movement memory – the basic elements of motor learning abilities. In order to measure the mentioned elements authors constructed a special test. The reliability of the tests has been proved in basic tests. These tests included the measurements of speed and the memory of sequence consisting of several exercises replayed on a VCR until the examined students repeated the sequence perfectly. The final, perfect repetition was performed twice, to avoid the accidental repetition. The results of the researches proved that motor learning abilities are a separate group of predispositions barely connected with other coordination abilities.

The research made in Cracow included only the adults so the main aim of this study was to prove the reliability of idea of testing motor learning abilities of young people, using the new, unknown sequence of movements.

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### *Material and methods*

The material consisted of 40 boys – pupils attending elementary school in Szczecin (Poland) born in 1989. The average body height of the subjects was 159,1 cm and the average body mass was 49,38 kg.

The research method was based on a test created by Szopa and Latinek(1995). The evaluations were carried out twice during the PE classes. All measurements were done by the author under identical conditions. The new sequence of 12 exercises was created and replayed many times until the examined subject made a perfect repetition. The sequence included the following movements:

- Basic position, arms down
- Raise your knee-bent right leg and clap your hands under the knee.
- Return to the basic position, the arms go to the side.
- Raise your knee-bent left leg and clap your hands under the knee
- Return to the basic position, spread your legs , arms along the trunk
- Raise your arms sideways
- Return to the basic position by bounding your legs and lower your arms sideways
- Supported knee bending with bounded legs
- Straight your legs into forward trunk bending
- Raise your trunk into forward trunk fall.
- Straight your trunk and rise you're your arms above your head
- Return to the basic position

Studying the reliability of motor tests the most popular is the test-retest method. This method consists of double usage of the same test in a relatively short time (1-2 week).

### *Results and discussion*

According to many authors, the reliability of the test informs about the level of measurement errors. Speaking about the reliability of the measurements, one understands the stability of the results obtained by the subject in repeated tests. In other words, the repeated measurements in the same

conditions should give similar results. According to Szopa et al. (1996) only the highest level of reliability allows to think that the used test is the right research tool.

Table 2. The statistic characteristics of the researches

Variable	The results of the first test	The results of the second test
Arithmetic mean	5,825	3,175
The standard error	0,333	0,245
Standard deviation	2,110	1,550
Variance	4,455	2,404
The lowest result	3	1
The highest result	10	7
Correlation coefficient – 0,777*		

\* $p < 0,01$

In the first test the average number of repetitions needed for the perfect performance of the sequence was 5,825, while in the second test it was equal to 3,175. In both tests the dispersion was sufficient and the differences in average outcomes of results from the learning trend. On the ground of the first and the second tests, the level of the reliability was defined. For this purpose the Pearson's line correlation coefficient was calculated and it was equal 0,777.

However Szopa et al. (1996) stressed that most of the tests used for measurements of motor effects and their predispositions show a low ratio of the repeatability (0,5-0,8), it does not mean that those tests are useless. It only suggests a careful interpretation of the results and incline to look for a new research tools. Raczek and Mynarski (1992) have similar opinions about the level of repeatability. According to them the results between 0,9-0,7 represent a good and sufficient level of the repeatability. On the ground of the mentioned

opinions one can state that the result of 0,777 obtained in the researches of youth is sufficient.

#### *Conclusion*

- 1) The repeatability sequence of movements unknown to examined person has a sufficient level of reliability and can be recommended as a good tool for testing motor learning in youth.

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