# STUDY REGARDING MOTRICAL POTENTIAL OF HIGH SCHOOL STUDENTS

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**Abstract**
In the ninth grade, because students come from many schools with different levels of training one of the objectives to be attained in physical education classes is homogenizing the level of training of the collective of the students. The hypothesis of this paper is to determine the motrical potential of the students form the ninth grades from high school to determine the level of the high school cycle is started, as the basis for the preparation of this cycle and appropriate targeting sports these indices.

*Keywords: assessment, motricity, students, high school*

## 1. Introduction

The motricity during the high school level improves indices of development rate of the speed, resistance, strength caused by maturation of the muscular system, ligament and bone and central nervous system (Scarlat E., Scarlat M.B., 2003).

Functional mobility of nervous processes is very large, leading to increased speed workout and recovery of the working capacity after physical exercise (Raţă G., Raţă G., 2008).

Joint mobility is lower among boys compared to girls, as they are faster and have greater strength than girls. Increasing performances in this period is significant for boys from year to year and insignificant for girls (Cârstea G., 2000).

Strength, speed, strength and skill indices are actually quantitative and qualitative indices of the motrical activity. Speed develops better in the puberty period. Strength increases easiest between 18 to 30 years, and can be developed and at the old age. Resistance can be increased in all stages of life, but the most favorable period is between 15-30 years. Skills develops at early ages (Raţă G., Raţă G., 2009).

## 2. Material method

The hypothesis of this paper is to determine the motrical potential of the students form the ninth grades from high school to determine the level of the high school cycle is started, as the basis for the preparation of this cycle and appropriate targeting sports these indices.

The main purpose of this paper is to assess the motrical indices and measures to be taken to optimize metrical capacity in physical education classes for increasing the level of performances.

In carrying out this work we have accomplished the following tasks:

- Studying special literature concerning in physical education classes.
- Establishment of the subjects group required for measurements.
- Measurement of the subjects for determining motrical potential.
- Analysis and interpretation of the data.
- Establishing research findings.

In this paper we used the following tests: standing long jump, 50m running speed, resistance running 800m girls / 1000m boys, oina ball throwing, trunk liftings, trunk extensions, push-ups, standing trunk flexibility.

The subjects of this research are ninth graders from the National College "Dimitrie Cantemir" Suceava (male - 78 subjects, female - 38 subjects). The tests were applied on the sport ground and on the sports gym of the college.

## 3. Results and discussions

The assessment of the motorical potential was done by performing a battery of tests included in the national evaluation system (table 1).

Table 1 The national evaluation tests for high school used in research

| Test | Gender | Performance and corresponding mark | | | | | | Additional points for attitude |
|---|---|---|---|---|---|---|---|---|
| | | 5 | 6 | 7 | 8 | 9 | 10 | |
| Standing long jump (m) | Female | 1.45 | 1.48 | 1.51 | 1.55 | 1.60 | 1.65 | ±1-2 points |
| | Male | 1.65 | 1.68 | 1.72 | 1.76 | 1.82 | 1.90 | ±1-2 points |
| 50m speed run (s) | Female | 9"2 | 9"0 | 8"8 | 8"7 | 8"6 | 8"5 | ±1-2 points |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 800m-female, 1000m-male resistance run (m,s) | Male | 8"2 | 8"0 | 7"8 | 7"6 | 7"4 | 7"2 | ±1-2 points |
| | Female | 4'50" | 4'45" | 4'40" | 4'35" | 4'25" | 4'15" | ±1-2 points |
| | Male | 4'50" | 4'45" | 4'35" | 4'25" | 4'15" | 4'05" | ±1-2 points |
| Oina ball throwing (m) | Female | 15 | 17 | 19 | 21 | 24 | 28 | ±1-2 points |
| | Male | 24 | 26 | 28 | 30 | 32 | 34 | ±1-2 points |
| Push-ups (number of repetitions) | Female | 5 | 6 | 7 | 8 | 10 | 12 | ±1-2 points |
| | Male | 7 | 8 | 9 | 10 | 12 | 14 | ±1-2 points |
| Trunk lifting in 30 seconds (number of repetitions) | Female | 17 | 18 | 19 | 20 | 22 | 24 | ±1-2 points |
| | Male | 18 | 19 | 20 | 21 | 23 | 25 | ±1-2 points |
| Trunk extensions in 30 seconds (number of repetitions) | Female | 18 | 19 | 20 | 21 | 22 | 23 | ±1-2 points |
| | Male | 19 | 20 | 21 | 22 | 23 | 24 | ±1-2 points |

For male, by applying statistical method gave the following values (table 2).

Table 2 Average values obtained at tests (male)

| **Statistical parameters / Tests** | 50m speed run (s) | Push-ups (number of repetition) | Oina ball throwing (m) | Standing long jump (m) | Trunk lifting in 30 seconds (number of repetitions) | Trunk extensions in 30 seconds (number of repetitions) | 1000m-male resistance run (m,s) | Standing trunck flexibility (cm) |
|---|---|---|---|---|---|---|---|---|
| **X** | 7.33 | 18.62 | 36.16 | 185.87 | 42.74 | 30.76 | 3.57 | 1.88 |
| **S** | 0.45 | 10.86 | 7.47 | 24.99 | 26.11 | 20.16 | 0.43 | 6.81 |
| **CV(%)** | 6.17 | 58.32 | 20.65 | 13.45 | 61.09 | 65.54 | 11.27 | 361.6 |

The analysis of the results of motricity tests for male indicate the following: 50m speed run - the results were between 6.5 seconds and 9 seconds, the average performance - 7.33 seconds - is the higher then item for mark of 10 (figure 1).

Standing long jump - the results were between 129 cm and 240 cm, the average obtained (185.84 cm) corresponding to mark of 9 (figure 2).

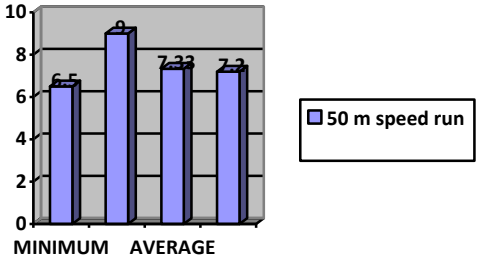


Figure 1. 50 m speed run results

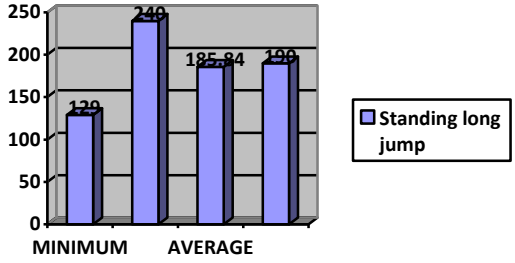


Figure 2. Standing long jump results

1000m resistance runn - the results obtained from this test ranged between 3.10 and 5 minutes, the average being 3.46 minutes and it's mean a better resuls than benchmark (figure 3).

Oina ball throwing - the results were between 12 and 52 m, with an average of 36.16 m. For mark of 10 subjects had to throw at least 34 m (Figure 4).

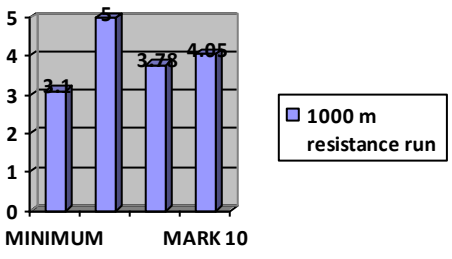


Figure 3. 1000 m resistance run results

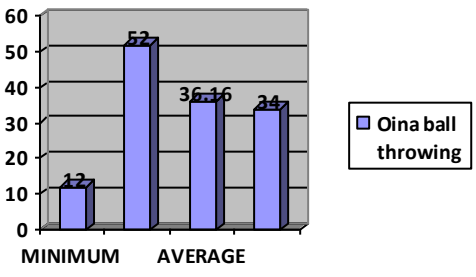


Figure 4. Oina ball throwing results

Push ups - the results were between 0 and 60, however the average obtained is superior the item for 10 (figure 5).

Trunk lifting - the average obtained (42.74) is higher than the item for mark of 10 (figure 6).

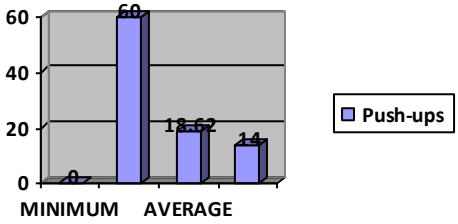


Figure 5. Push-ups results

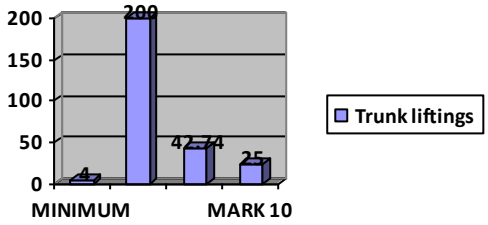


Figure 6. Trunk liftings results

Trunk extensions - the results were between 0 and 113, the average is obtained by 30.76, which is higher than the average the item for 10 (figure 7).

Standing trunk flexibility - the results obtained were in the range of -14 to +20, with a mean of 1.88 (figure 8).

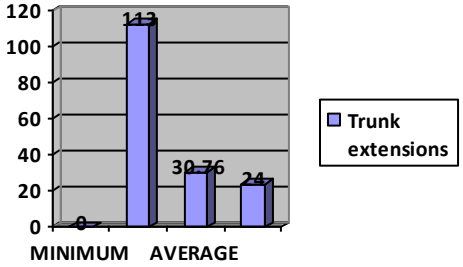


Figure 7. Trunk extensions results

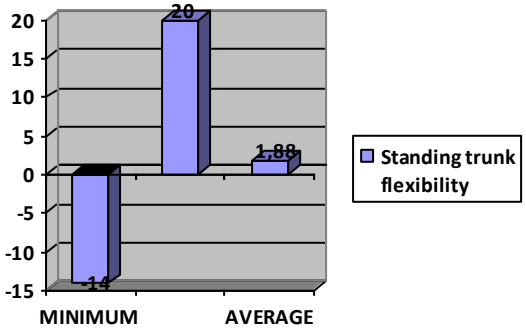


Figure 8. Standing trunk flexibility results

For women following values were obtained after statistical and mathematical processing (table 3):

Tabel 3 Average values obtained at tests (female)

| **Statistical parameters / Tests** | 50m speed run (s) | Push-ups (number of repetition) | Oina ball throwing (m) | Standing long jump (m) | Trunk lifting in 30 seconds (number of repetitions) | Trunk extensions in 30 seconds (number of repetitions) | 800m-male resistance run (m,s) | Standing trunck flexibility (cm) |
|---|---|---|---|---|---|---|---|---|
| **X** | 8.95 | 5.45 | 20.94 | 159.12 | 33.67 | 20.06 | 3.46 | 5.03 |
| **S** | 2.61 | 4.64 | 4.28 | 18.74 | 13.71 | 10.21 | 0.32 | 6.47 |
| **CV(%)** | 29.16 | 85.14 | 20.43 | 11.77 | 40.72 | 50.90 | 9.12 | 128.69 |

For the women's overall result was as follows:

50 m speed run - the results were between 7.1 and 20.1 seconds; average of 8.95 seconds was optimal for mark of 10 (figure 9).

Standing long jump - the results were within the range 128 cm - 205 cm, the average was 159.12 cm below the item for mark of 10 (figure 10).

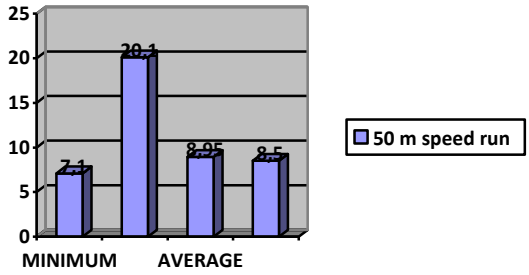


Figure 9. 50 m speed run results

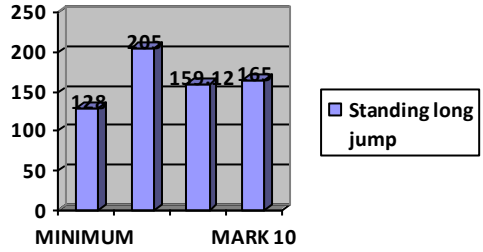


Figure 10. Standing long jump results

800 m resistance run - the results obtained from this sample were in the range 3.03 to 4.13 minutes, the average being about 1 minute obtained as benchmark for mark of 10 (figure 11).

Oina ball thrrowing - results from these test ranged from 13 to 31 m, the lower the average obtained the item for 10, the item corresponding to mark of 7 (figure 12).

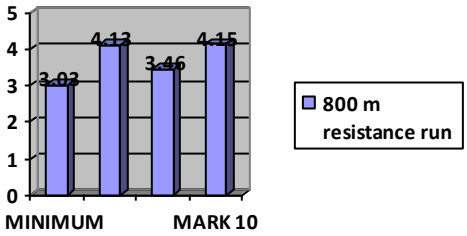


Figure 11. 800 m resistance run results

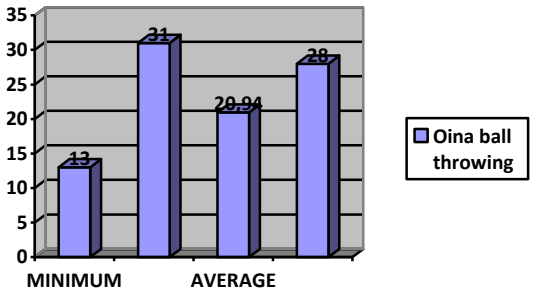


Figure 12. Oina ball throwing results

Push ups - results ranged between 0 and 20, the item corresponding to the average of 5.45 for mark of 5 (figure 13).
Trunk lifting- the results were between 12 and 60, resulting in a higher average for the item for mark of 10 (figure 14).

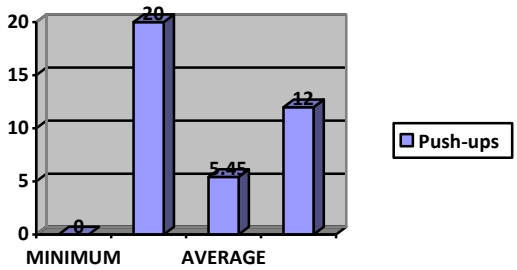


Figure 13. Push-ups results

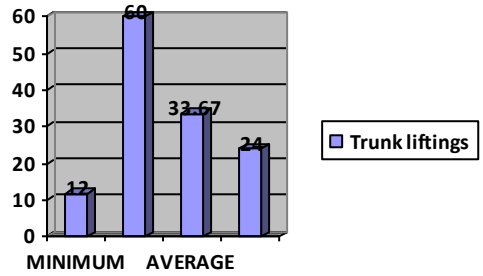


Figure 14. Trunk liftings results

Trunk extension - the results were between 2 and 40, the average obtained is sufficient just for mark of 7 (figure 15).

Standing trunk flexibility - the results were between -14 and +20. The average obtained was 5.03, reflecting an optimal mobility for students of 9$^{th}$ grade (figure 16).

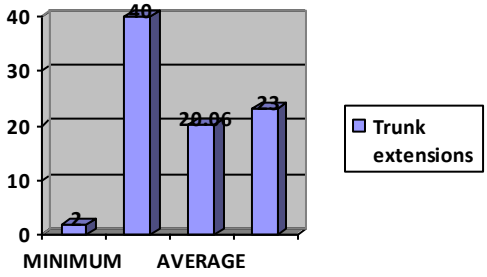


Figure 15. Trunk extensions results

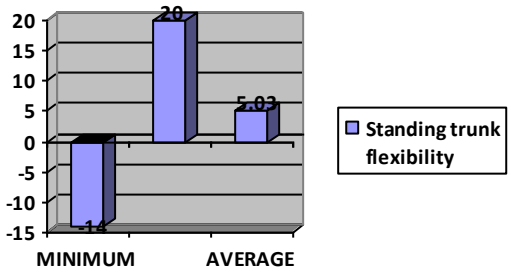


Figure 16. Standing trunk flexibility results

## 4. Conclussions

The research was conducted over a period of two months in March-April 2014.

The evolutions were different for boys compared to girls.

For boys were obtained in all tests indicated at least equal or even higher than the reference value for the applied tests.

Instead girls performed very poorly on upper limb segmentary strength - expressed through pushups, trunck lifting, trunk extension and oina ball throwing. Unsatisfactory results obtained by girls at strength tests is explained by a low workout capacity.

To increase the strength level of the the upper body must act through specific physical education method - short circuits and pathways that have included exercises for the strength of arms.

The results can not be generalized due to the limited number of participants in the study, but there are ways to improve the motrical capacity.

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# ATHLETICS SPECIFIC SAMPLES FOR ASSESSING THE STUDENTS' MOTOR SKILLS – RUNNING

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**Abstract**
The paper presents two athletic specific samples used for assessing the motor skills of students from the seventh grade. A pedagogical experiment was conducted in order to see if the running samples are relevant to assess the skills development. From the large number of running samples the 50m time trial and endurance race have been chosen, according to the requirements in gymnasium. Using the running exercises different objectives of training can be achieved, in relation to the planned themes: such as strengthen the short burst of speed, consolidation of start, start launching, improving the run-up at long jump or above hurdles, the development of endurance by cross country race on certain distances or periods of time, etc.

*Keywords: athletics, motor skills, running sample*

## 1. Introduction

The physical education lesson has a certain typology, certain content and a particular structure, which make the difference from all other lessons [1]. Also the themes of lessons are, naturally, different: there are themes for motor skills, for specific utility and application in different branches of sport (athletics, gymnastics, jumping, sports games) and themes that secures the development of motor qualities like speed, skill, resistance and force or combined [4], [5].

The exercises contained in the practice of athletics, varied and numerous, make an important contribution to the achievement of the physical education tasks [2].