

**STUDY REGARDING THE DETERMINATION OF THE LEVEL OF
SOMATIC INDICES AND THE MOTOR POTENTIAL OF THE
SECONDARY SCHOOL STUDENTS AT “AURELIAN STANCIU”
SCHOOL IN SALCEA, SUCEAVA COUNTY**

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Abstract

The paper deals with a constantly updated topic, namely the ability of physical and motor development of young people, especially the one regarding the potential of the school population in pre-university education. The aim of this study was to make a somatic and motor model of the secondary school student at „Aurelian Stanciu” Secondary School in Salcea, that can be used to form representative school teams in different sports, and to support teachers in sports clubs and high schools for a possible selection campaign for performance sports. The duty of the Physical Education teacher is to make students aware of the beneficial effect of the physical exercise in relation to the state of health, growth, development and evolution in the natural parameters of the body related to age and sex, being important as well the way he explains and makes himself clear in the group of students he works with.

Introduction

In the last decades, it has been noticed in children and young people in our country, and not only, an important phase of speeding up the growth and development of the body, a situation due mainly to the high standard of living. There is a more pronounced increase in weight and height of the new generations and this influences the appearance of early puberty. As a consequence of this, both girls and boys go through physical, cognitive and emotional changes, that in the specialized literature are described rather as belonging to adults. This growth and development is based on a good diet, a proper organization of the activity and rest, new methods of education and training, all leading to good health. The existence of this manifestation of the body growth and development is a concrete one, but it also has negative aspects such as: a decreasing of the general resistance and even a

weakening of the body caused by an exaggerated reactivity, physiological and psychological to the intense and complex demands of the current life. The dynamics it gives to the biomotor potential, requires a more careful examination in order to fix the totality of the elements, the average of the values, the features of the various stages, as well as the relations between them. There are similarities between the notion of biomotor potential and that of the capacity for physical effort or physical training, the final result being the efficiency that the human body gives after the neuromuscular demands. All the works in the field show special interests of the researchers to determine the particularities and content of young people's capacity for physical and motor development [1,2].

In Romania, national studies have been conducted on the somatic development of the students and their driving force performance: Adrian N. Ionescu and Virgil Mazilu (1968) [3], Alexe Nicu (1972) [4], Mazilu Virgil (1983) [2], the National Research Institute for Sports (1969-1996) [5] and the Biomotor Program [6] started in 2012 and continued in 2017-2018. Ionescu and Mazilu (1968) [3] obtained information on the height, weight and thoracic perimeter of students, making their averages by age.

For our study, the data obtained at the age level of 11 and 15 years, differentiated by sex (in rural areas) are important (tables 1 and 2).

Table 1. The age level of 11 and 15 years, differentiated by sex (in rural areas)

Age	Male			Female		
	Height (cm)	Weight (kg)	Thoracic perimeter (cm)	Height (cm)	Weight (kg)	Thoracic perimeter (cm)
11	133,9	28,7	64,3	134,1	28,5	62,8
12	138,2	31,3	66,1	139,5	32,0	65,3
13	143,3	34,6	68,3	144,9	36,2	68,6
14	148,4	38,3	70,8	149,8	40,9	72,0
15	153,2	42,6	73,9	152,8	44,8	74,9

Table 2. The Age level of 11 and 15 years, differentiated by sex (in urban areas)

Age	Male			Female		
	Height (cm)	Weight (kg)	Chest circumference (cm)	Height (cm)	Weight (kg)	Chest circumference (cm)
11	138.2	31.5	65.3	139.1	32.2	64.9

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12	143.1	34.3	67.4	145.1	36.1	68.0
13	148.6	38.1	69.9	150.5	40.8	71.4
14	155.9	43.8	73.7	155.0	45.4	74.6
15	162.1	49.4	77.5	157.4	48.6	76.7

The main remark in this study is the obvious difference both in terms of height and weight between children in rural and urban areas, higher values being obtained by those in urban areas.

Dragnea (1984) [7] obtains information on certain measurements of the pupils' motor skills, making their averages by age (tables 3 and 4).

Table 3. Table of motor measurements for boys (12-15 years old)

Age	Running Speed 50 m (sec)	Throwing the oina ball (m)	Standing long jump (m)	Lifting the torso from lying on your back (30 sec)	Running resistance 800-1000m (min)
12	8.63	24.04	142.9	21	3.58
13	8.43	30.88	156.3	23.18	3.58
14	8.04	31.5	166.2	23.53	3.71
15	7,48	35.64	178.8	21.28	4.15

Table 4. Table of motor measurements for girls (12-15 years old)

Age	Running Speed 50 m (sec)	Throwing the sheep ball (m)	Standing long jump (m)	Lifting the torso from the supine (30 sec)	Running resistance 800 - 1000m (min)
12	9.26	16.45	133.3	19.72	2.73
13	8.78	16.70	148.3	20.62	2.77
14	8.75	20.45	146.9	19.95	3.59
15	8.31	21.15	150.4	19.90	3.61

The physical fitness level for all population categories is essential for a good life quality and also for health status and for this reason is important to

monitor regularly the somatic and motorial parameters in order to achieve the physical education goals [8-11].

Material Methods

In order to achieve the purpose of the scientific research, we have researched, identified and selected from the specialized literature the relevant information specific to the topic, and for the analysis we have used the method of observation and that of tests and measurements. In the data analysis we've used mathematical statistical program.

The sample of students is represented by the students at “Aurelian Stanciu” Secondary School in Salcea, the gymnasium cycle, grades 5th –8th. The research has included a number of 149 students (girls and boys) from all the secondary school classes, except the students medically exempt to practise physical exercises. The students participated with interest in the anthropometric measurements and collaborated very well with the teacher for the motor assessment tests.

In order to carry out the research and to reach a more accurate content, we used the following anthropometric measurements:

- body height;
- weight;
- arm span;
- the perimeter of the rib cage;
- the perimeter of the pelvis.

The measurements were made in the first part of the school year 2020–2021, in the first semester, when, because of the weather, there weren't any outdoor physical education classes. The anthropometric measurements were performed in the school's gym, a room arranged for teachers and students to carry out the physical education activity during the winter, with the specification that the same devices were used for all students.

The study of the Evaluation System for Physical Education and Sports at national level for the gymnasium cycle, reveals that they can use as motor measurements, speed running over a distance of 50m, endurance running - 600 - 800 - 1000m, according to age and sex, throwing the oina ball and lifting the torso from dorsal lying. The students' assessment began with the first control tests, i.e., speed running, throwing the oina ball, developing the segmental strength by lifting the torso from the dorsal lying and standing long jump, tests performed in the first weeks of school in the first semester and the beginning of the second semester of the 2020–2021 school year. It ended at the end of the second semester, in May with the endurance running test.

The study was carried out at “Aurelian Stanciu” Secondary School in Salcea, Suceava County, with the students from the gymnasium classes. The sports base of the school has a football field with regular dimensions and a handball field

with bitumen surface, both being arranged outdoors. For the cold season, when the activity can't take place outside, we have a school corps (The Old School), which is prepared for the physical education activity inside. “Aurelian Stanciu” Secondary School in Salcea has a number of 454 students included in the following education cycles: 92 preschoolers, 210 primary school and 152 secondary school. In this paper, we assumed that the determination of the level of somatic indices and the motor potential of the secondary school students at "Aurelian Stanciu" Secondary School in Salcea will positively influence the training of students and will achieve the final goals of the specific content of Physical Education.

Results

The data obtained refer to the average figures or standard values, by age and sex, concerning anthropometric measurements and motor assessment (figures 1 and 2).

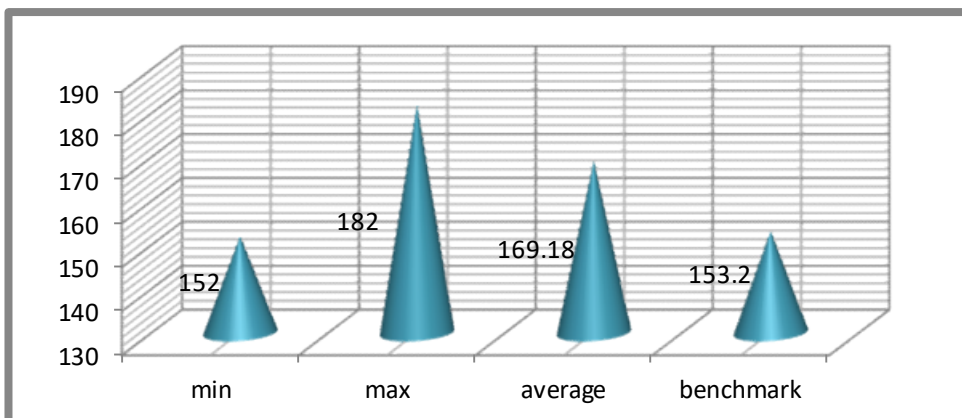


Figure 1 Distribution of results according to the size of the boys in the 8th grade (14-15 years old)

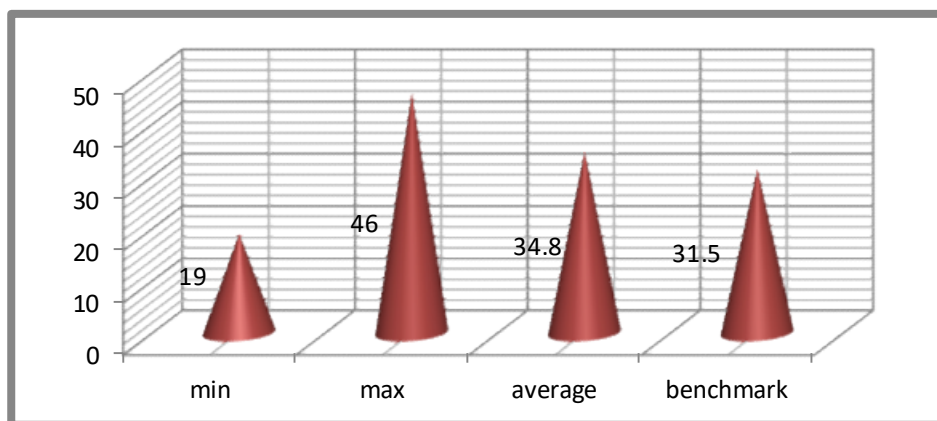


Figure 2 Distribution of results according to the throwing of the oina ball of the 7th grade boys (13-14 years old)

Discussion

They were performed at all the gymnasium classes at “Aurelian Stanciu” Secondary School in Salcea, and they are the following:

- In the 5th grade, the girls and boys have current values in height, weight and thoracic perimeter higher than those provided by the authors according to note (1).

- In the 6th grade, both girls and boys maintain the trend of current values at height, weight and chest circumference higher than those provided by the above-mentioned authors.

- In the 7th grade, the girls and boys have higher values in height, weight and chest circumference than those provided by the authors according to note (1), with the remark that the current weight in boys has a substantial difference (15.6 kg) greater, compared to the measurements in the mentioned paper.

- In the 8th grade – the girls and boys have current values in height, weight and thoracic perimeter is higher than those provided by the authors according to note (1) with the remark that the actual weight in boys has a substantial difference of 18.8 kg higher than the measurements in the paper.

- All measured parameters are increasing rapidly in both boys and girls, which is very worrying.

- For the other measurements performed: the armspan and the perimeter of the pelvis, we didn't have any reference values in the specialized literature. The measurements can be used by other teachers who will want to make a model of the secondary school student at county or national level.

They were performed at all the gymnasium classes at “Aurelian Stanciu” Secondary School in Salcea, and they are the following:

- In the 5th grade the girls have slightly higher values in the tests of: speed running, throwing the oina ball and standing long jump and slightly low values in the test of lifting the torso from dorsal lying and in the endurance running test over the distance of 600m.

- The 5th grade boys have results with slightly higher values in the tests of: throwing the oina ball and standing long jump and slightly low values in the speed running test, lifting the torso from dorsal lying and in the endurance running test over the distance of 800m. All the results are related to the reference values.

- In the 6th grade, the girls have results with slightly higher values only in the test of throwing the oina ball and slightly lower values in the speed running test, the standing long jump, the lifting of the torso from dorsal lying and the test of endurance running over a distance of 600m.

- The boys in the 6th grade have results with values approximately equal to the reference only in the endurance running test over the distance of 800m and slightly low values in the speed running test, lifting the torso from dorsal lying,

throwing the oina ball and standing long jump. All the results are related to the reference values.

- In the 7th grade, the girls have results with slightly higher values only in the test of lifting the torso from dorsal lying and slightly lower values in the speed running test, throwing the oina ball, standing long jump and the endurance running test over the distance of 800m.

- The 7th grade boys have results with slightly higher values in the test of throwing the ball and standing long jump and slightly low values in the test of speed running, lifting the torso from dorsal lying and endurance running over the distance 1000m. All the results are related to the reference values.

- In the 8th grade, the girls obtained results with values approximately equal to the reference in the speed running test, values slightly increased only in the test of lifting the torso from dorsal lying and values slightly lower in the test of throwing the oina ball, standing long jump and in the endurance running test over the distance of 800m. The boys in the 8th grade, have results with slightly higher values in the test of lifting the torso from dorsal lying, standing long jump and endurance running over a distance of 1000m and slightly lower values in the test of speed running and throwing the oina ball. All the results are related to the reference values.

Conclusions

The study of the specialized literature, the personal discussions with the colleagues in the field, but also the analysis of the results obtained by the students during the measurements carried out led to some conclusions.

All the tests and measurements put into practice to the participants in this study aimed at establishing the somatic indices and the motor potential of the secondary school students of “Aurelian Stanciu” Secondary School in Salcea, Suceava County.

The measurements were carried out along the period October 2020 - May 2021 in more than special conditions from a sanitary point of view. These measurements show a steady increase in somatic indices compared to the benchmarks in the reference paper, with the specification that the weight of 7th and 8th grade students is well above average, a situation that must be managed with great care and with measures that should be taken to prevent obesity.

An important role in weight gain is the lack of organized movement in various activities but also in free time, the students' nutrition which has an important component of "fast food" and even the modification of school activities, from school with physical presence to online school.

The duty of the Physical Education teacher is to make students aware of the beneficial effect of the physical exercise in relation to the state of health,

growth, development and evolution in the natural parameters of the body related to age and sex, being important as well the way he explains and makes himself clear in the group of students he works with.

The most important conclusion is the role of the teacher who has to do everything possible for students to love the movement and to practise it consciously and repetitively.

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