STATISTICAL STUDY ON THE ANTHROPOMETRIC PROFILE OF THE 5TH GRADE PUPILS

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Abstract

This study represents the anthropometric evaluation of the 5th grade students from Liceul Tehnologic "Iorgu Vârnav Liteanu", Liteni, Suceava. Anthropometric evaluation is a means of estimating physical development centered on measurements of the human body, on certain segments or on the whole body. The main aspect of anthropometric evaluation is the comparison of results from a mathematical point of view, through figures, graphs.The purpose of this experimental study on the anthropometric profile of the fifth grade student is to identify the results of the two measurements, initial and final, comparing them and recommending means of somato-functional development in physical education to discover an ideal shape of the human body.

Introduction

Children development is one of the human biology problems of great theoretical and practical importance. As there are extremely numerous data in this domain, new research works are opening up, among which the acceleration phenomenon, so much disputed nowadays, emphasising the complexity of the problems.

After the growth period, children can be considered adults as they reach a somato-vegetative and psychological maturation and the body exhibits fundamental differences and significant neuro-hormonal lability. Irregular growth and development with temporary exacerbations of neuro-vegetative and psychological processes, the child's growing age is divided into several periods, with particular morpho-functional and psychical aspects [6]. All the growth and development periods are important; a special denotation has the prepubescent stage in which the child turns into an adult. [1],[2],[7].

Anthropometric evaluation is a means of estimating physical development centered on measurements of the human body, on certain segments or on the whole body. The main aspect of the anthropometric evaluation is the comparison of the results from the mathematical point

of view, through figures, graphs, activity that implies precision and correctness.

"All the actions aimed at a correspondence between the measured subject or phenomenon (skills, skills, motor qualities) and the unit of measure, by applying control samples, in order to gather results or data, in order to know as accurately as possible the effects of the practice physical exercises and, in general, the behavior of the subjects in the physical education or sports activity." [3]

Adrian Gagea [5] establishes the characteristics of the measurements as the following: accuracy, repeatability and fairness, these working independently or associated.

Between 1970 and 1980, the project "The Biomotric Potential of the School Population" was launched, with Alexandra Fosneanu, Virgil Mazilu, Virginia Paraschiv and Nicu Alexe (coordinator) taking part in the assessment of health status, waist evolution, children's weight and the development of motor skills in close connection with the biological and functional substrate.

Between 1969 and 1996,"The Comparative Study of the Biomotric Potential of School Population" was implemented during three periods (1969 -1972; 1980-1984; 1991-1996), including infants, primary school pupils, secondary school and high school students.

So far, for the school year 2016-2017, its pilot phase has been carried out to highlight the possibilities of applying anthropometric measurements and functional movement tests as well as data collection.

Material-method

To obtain the results on somatic indices, we used a battery of tests on height, weight, arm span, bust height, abdominal perimeter, sole length.

As research methods we used the bibliographic study method, the observation method, the anthropometric measurement method, the mathematical method and the graphical and tabular method.[4]

Analysis of the specialized literature / bibliographic documentation method - knowledge by studying the literature specialized in the field of somatic evaluation, examination of some scientific papers.

Observation is an organized and continuous process that allows us taking some results. The data obtained through observation allow us to form a rapid opinion about the individuals themselves.

Anthropometric Measurement Method. We used the following anthropometric measurements: height, weight, height of the bust, abdominal perimeter, arm span, foot length to assess the morphological type and the physical development degree of students.

The statistical - mathematical method meant the systematic collection of the parameters obtained on the subjects, leading to certain calculations for determining the results in order to analyze whether the subject under investigation is within the normal limits or below /above the normal limit.

The graphical method was designed to estimate in full graphical representations the data obtained by anthropometric measurements, to establish the results and differences between the subjects of the fifth grade research.

Results and discussions

The participant are 5th grade pupils from Liceul Tehnologic "Iorgu Vârnav Liteanu" Liteni , Suceava, in a total of 14 participants, 6 girls and 8 boys. The measurements used for the experiment were carried out in the high school gym.

No.	Name	Height	Body weight	Bust height	Abdominal perimeter	Arm span	Foot length
1.	**A.I.**	155	38	79	62	147	23
2.	**M.S.**	140	33	74	58	137	21
3.	**P.I.**	147	34	74	56	141	22
4.	**P.G.**	150	41	77	65	149	22
5.	**P.M.**	151	42	67	63	149	23
6.	**S.D.**	145	37	75	62	147	23
	A_a	**15**	**9**	**12**	**9**	**12**	**2**
	X	**148**	**37,5**	**74,33**	**61**	**145**	**22,33**
	+/-S	**5,21**	**3,61**	**4,08**	**3,34**	**4,89**	**0,81**
	Cv%	**3,52**	**9,62**	**5,48**	**5,47**	**3,37**	**3,62**

Table 1 - Initial measurement, girls, 5th grade, median age 11 years

No.	Name	Height	Body weight	Bust height	Abdominal perimeter	Arm span	Foot length

1.	A.P.	147	32	75	58	147	23
2.	C.M.	147	33	75	55	143	21
3.	D.M.	155	41	78	66	156	24
4.	N.E.	147	41	75	64	151	23
5.	P.D.	147	35	72	57	147	22
6.	P.A.	152	39	76	62	150	23
7.	P.A.	148	43	78	64	144	22
8.	S.C	148	43	76	70	154	23
	A_a	**8**	**11**	**6**	**15**	**13**	**3**
	X	**132,33**	**38,37**	**75,62**	**62**	**149**	**22,62**
	+/-S	**2,99**	**4,43**	**1,92**	**5,04**	**4,59**	**0,91**
	Cv%	**2,25**	**11,54**	**2,53**	**8,12**	**3,08**	**4,02**

Table 2 - Initial measurements, boys, 5th grade, median age 11 years

No.	Name	Height	Body weight	Bust height	Abdominal perimeter	Arm span	Foot length
1.	**A.I.**	156	41	79	62	147	23
2.	**M.S.**	150	50	75	64	160	24
3.	**P.I.**	154	36	74	57	146	22
4.	**P.G.**	153	43	77	71	149	23
5.	**P.M.**	153	45	70	70	150	23
6.	**S.D.**	149	38	75	66	147	23
	A_a	**7**	**14**	**9**	**14**	**14**	**2**
	X	**152,5**	**42,16**	**75**	**65**	**149,83**	**23**
	+/-S	**2,58**	**5,03**	**3,03**	**5,21**	**5,19**	**0,63**
	Cv%	**1,69**	**11,93**	**4,04**	**8,01**	**3,46**	**2,73**

Table 3 - Final measurement, girls, 5th grade, median age 11 years

No.	Name	Height	Body weight	Bust height	Abdominal perimeter	Arm span	Foot length
1.	**A.P.**	149	38	75	58	150	23
2.	**C.M.**	150	37	75	56	145	24
3.	**D.M.**	159	43	79	69	162	26
4.	**N.E.**	150	45	77	70	155	24
5.	**P.D.**	152	38	73	64	154	23

6.	**P.A.**	157	42	77	66	150	23
7.	**P.A.**	153	47	79	70	150	24
8.	**S.C**	156	46	76	73	160	24
	A_a	**10**	**10**	**6**	**14**	**17**	**3**
	X	**153,25**	**42**	**76,37**	**65,75**	**153,25**	**23,87**
	+/-S	**3,69**	**3,92**	**2,06**	**6,06**	**5,67**	**0,99**
	Cv%	**2,40**	**9,33**	**2,69**	**9,21**	**3,69**	**4,14**

Table 4 - Final measurement, boys, 5th grade, median age 11 years

	Height	**Body weight**	**Bust height**	**Abdominal perimeter**	**Arm span**	**Foot length**
A_a	11,5	10	9	12	12,5	2,5
X	140,16	37,93	74,97	61,5	147	22,47
+/-S	4,1	4,02	3	4,19	4,74	0,86
Cv%	2,88	10,58	4,00	6,79	3,22	3,82

Table 5 - Average class initial measurement

	Height	**Body weight**	**Bust height**	**Abdominal perimeter**	**Arm span**	**Foot length**
A_a	8,5	12	7,5	14	15,5	2,5
X	152,87	42,08	75,68	65,37	151,54	23,43
+/-S	3,13	4,47	2,54	5,63	5,43	0,81
Cv%	2,04	10,63	3,36	8,61	3,57	3,43

Table 6 - Average class final measurement

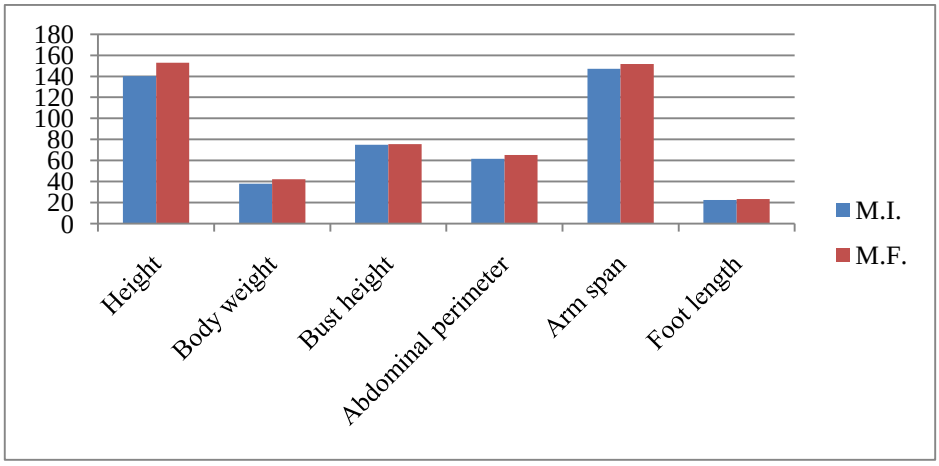

Figure 1 - Initial and final class average measurement

By comparing the results obtained at the initial measurement with the results from the final measurement it is observed in the above representation that the height has an increase of 12,71 cm, the weight increases by 4,15 kg, bust height increases by 0,71 cm, the abdominal perimeter increases 3,87 cm, the arm span increases by 4,54, and the foot length has an increase of 0,96 cm.

	F/M	**Height**	**Body weight**	**Bust height**	**Abdominal perimeter**	**Arm span**	**Foot length**
m^i	girls	148	37,5	74,33	61	145	22,33
m^f		152,5	42,16	75	65	149,83	23
m^i	boys	132,33	38,37	75,62	62	149	22,62
m^f		153,25	42	76,37	65,75	153,25	23,87

Table 7 - Mean initial and final measurement girls and boys

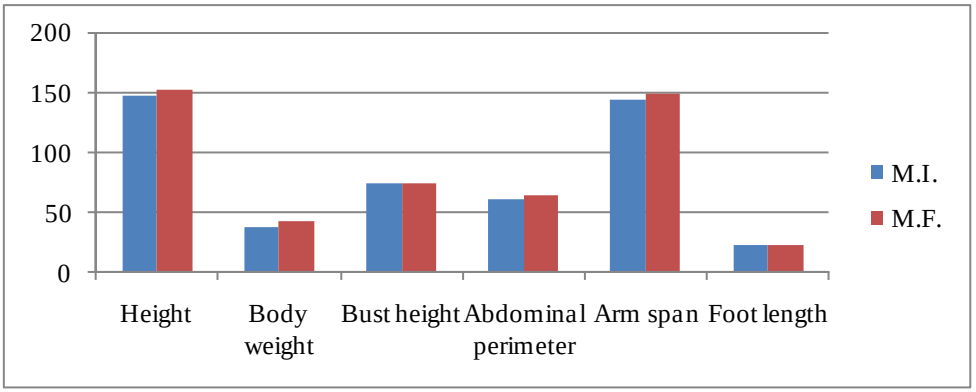

Figure 2 - Initial and final girls measurements

By comparing the results obtained at the initial measurement with the results from the final measurement it is observed in the above representation that the height has an increase of 4,8 cm, the weight increases by 4,66 kg, bust height increases by 0,67 cm, the abdominal perimeter increases 3, 87 cm, the arm span increases by 4,83, and the foot length has an increase of 1,33 cm.

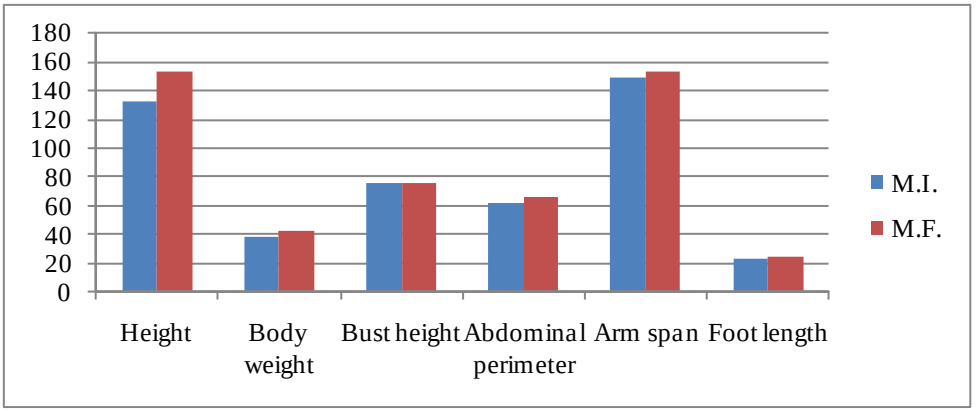

Figure 3 - Initial and final boys measurements

By comparing the results obtained at the initial measurement with the results from the final measurement it is observed in the above representation that the height has an increase of 20,99 cm, the weight increases by 3,63 kg, bust height increases by 0,75 cm, the abdominal perimeter increases 3,75 cm, the arm span increases by 1,25, and the foot length has an increase of 1,25 cm.

Conclusions

Following the research we found significant differences from the initial measurement to the final one, which is gratifying, children need to develop harmoniously. The students had a positive response in terms of anthropometric measurements and participated consciously and actively alike.

Considering the development of more pronounced psychomotor skills in the final test, it helps the students to obtain higher grades, sometimes maximum, the control samples by easily promoting them. This can be an incentive for students to practice physical activity in an organized setting, and those who want to move have the opportunity to put into practice what they have learned in school and in their free time. In order to combat sedentary lifestyle, poor physical development, weight gain, physical exercise must be practiced under all its forms of manifestation in both an organized and leisure time setting.

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