The Annals of the "Ştefan cel Mare" University of Suceava.
Physical Education and Sport Section. The Science and Art of Movement
eISSN 2601 - 341X, ISSN 1844-9131

STUDY ON THE ASSESSMENT OF SOMATIC DEVELOPMENT AND GROWTH OF THE 7th GRADE STUDENTS

Tatarcan Cătălin-Andrei
[1] Secondary School ,,Mitocu Dragomirnei" Suceava
[1] tatarcan.catalin91@gmail.com
Grosu Bogdan-Marius
[2],,Ștefan cel Mare University", Suceava
[2] grosu.bogdan@usm.ro

Keywords: development, measurements, height, weight, BMI.

Abstract:

The confirmatory study on the somatic development of 7th grade students aims to evaluate physical growth and identify variations related to demographic and environmental factors. It involves anthropometric measurements to determine students' height, weight and body mass index (BMI). The aim of the study is to identify the somatic development during one year.

The methodology involves selecting a representative sample of students (boys), obtaining informed consent, and taking measurements in a controlled setting. The results are presented graphically, highlighting the distribution of height, weight and BMI.

Discussions interpret these results in the context of existing literature, addressing influencing factors such as physical activity, diet and family environment.

The research methods used in the study were: the study of specialized literature, the observation method, the graphic and tabular method, as well as the method of anthropometric measurements.

Introduction:

Children's somatic development is a crucial indicator of health and general well-being. During preadolescence, approximately at the age of 12-13, children experience significant changes in their physical growth, which makes it essential to monitor these changes to identify and address potential health problems [1] . 7th graders are in a critical phase of development, marking the transition from childhood

to adolescence, with rapid growth in height and weight influenced by genetic, nutritional and environmental factors[7].

Anthropometric assessment refers to the measurement of the dimensions and proportions of the human body. In the context of the somatic development of children and adolescents, this assessment is essential for monitoring growth and identifying potential health problems. [1,5] Key anthropometric measurements include height, weight, and body mass index (BMI).[5]

Height is the measurement from the base of the feet to the top of the head and is an important indicator of physical growth. Height is usually measured using a stadiometer or height ruler.

- Measurement procedure :
    - The student must stand upright, barefoot, with a straight back and heels against the base of the stadiometer.
    - The head must be positioned in such a way that the imaginary line from the ear to the eye is parallel to the ground.
    - Height is read at the top of the head.

Weight is the measure of body mass and is an indicator of nutritional status and total body mass. Weight is measured using a digital or mechanical scale.

- Measurement procedure :
    - The student must stand on the scale with no shoes and minimal clothing.
    - He must remain still until the scale stabilizes.
    - The weight is read and recorded in kilograms (kg).

Body Mass Index (BMI) is an indirect measure of body composition used to assess whether a person is at an appropriate weight for their height. BMI is calculated using the formula:

$$BMI = \frac{Weight(kg)}{Height(m)^2}$$

The BMI calculator is a simple and effective tool for assessing a person's weight status in relation to their height. It helps identify potential weight-related health problems and guide interventions needed to maintain an optimal weight.
Height and weight are fundamental indicators of normal development.
The typical range for Body Mass Index (BMI) is used to classify a person's weight based on their height. These classifications are often used for health assessment and weight management purposes.

- Underweight : BMI below 18.5
- Normal weight : BMI between 18.5 and 24.9
- Overweight : BMI between 25 and 29.9
- Obesity : BMI of 30 or greater[3,5,6]

Through periodic measurements, it can be monitored whether children are growing according to the reference standards for their age and sex. Deviations from normal growth can indicate health problems such as hormonal disorders, malnutrition, or other medical conditions that require intervention. Anthropometric measurements can guide dietary and physical activity recommendations, ensuring balanced and healthy development. [10] A high BMI at this age may indicate an increased risk of obesity, which is associated with numerous long-term health problems, such as type 2 diabetes, cardiovascular disease, and other metabolic conditions.[2] Early identification of weight and growth problems can allow for prompt preventive and therapeutic interventions, minimizing future risks and complications. anthropometric splints allow the customization of physical education and nutrition programs in schools, ensuring that the individual needs of each child are met.[4] Information collected from anthropometric measurements can be used to develop and implement public health policies aimed at promoting healthy growth and preventing weight-related health problems.[9] Students can be educated about the importance of maintaining a healthy weight and an active lifestyle, helping to develop long-term healthy habits.[8]

Methods - materials:

The subjects who participated in the experiment are from the 7th grade from Mitocu Dragomirnei-Suceava Secondary School, 15 boys, and the measurements were carried out in the school's gym

The research methods used in the study are as follows:

Bibliographic study method – studying specialized literature and noting important and necessary information for the study.

Observation method- involves direct and systematic observation of students to make accurate and objective measurements of their body characteristics.

The method of anthropometric measurements - to assess the morphological type and degree of physical development of the students, we used the following anthropometric measurements: height, weight, body mass index

Graphical and tabular method - presentation of data after collection and measurement were presented in a form appropriate to the stage and needs of the research.

Results:

The confirmatory study was carried out during the 2023-2024 school year, where two measurements were made (Ti., Tf.)

The indicators used to evaluate somatic parameters were height (cm), body weight (kg), body mass index (BMI)

The initial testing was carried out at the beginning of the year in September 2023, and the final testing in June 2024.

The data obtained are centralized in table 1 and represented graphically for interpretation.

Table 1. Initial testing

Name	Height	Body weight	Body mass index
C.D.	1.62	50	19.05
A.A.	1.57	42	17.03
V.O.	1.62	40	15,24
I.O.	1.61	50	19,28

C.N.	1.67	64	22.94
A.D.	1.62	41	15.62
G.E.	1.71	79	27.01
D.V.	1.69	60	21.00
M.E.	1.62	52	19.81
E.E	1.62	44	16.76
R.T.	1.57	40	16,22
I.A.	1.67	56	20.07
Z.I.	1.57	47	19.06
Z.A.	1.76	78	25,18
T.C	1.53	44	18.79

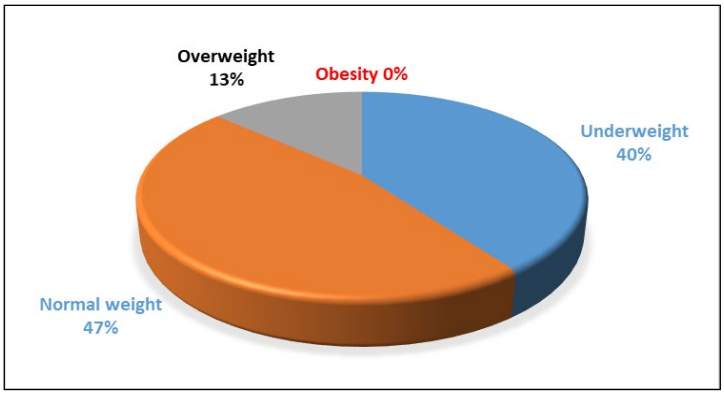

Fig. 1 Initial test

Table 2. Final testing

Name	Height	Body weight	Body mass index
C.D.	1.64	54	20.07
A.A.	1.59	43	17.00
V.O.	1.64	45	16.73
I.O.	1.62	50	19.05
C.N.	1.69	66	23.10
A.D.	1.63	44	16.56
G.E.	1.71	76	25.99
D.V.	1.70	61	21.10
M.E.	1.63	53	19.94
E.E	1.62	44	16.76
R.T.	1.59	41	16,21
I.A.	1.69	56	19.60
Z.I.	1.57	48	19.47
Z.A.	1.77	77	24.57
T.C	1.55	46	19,14

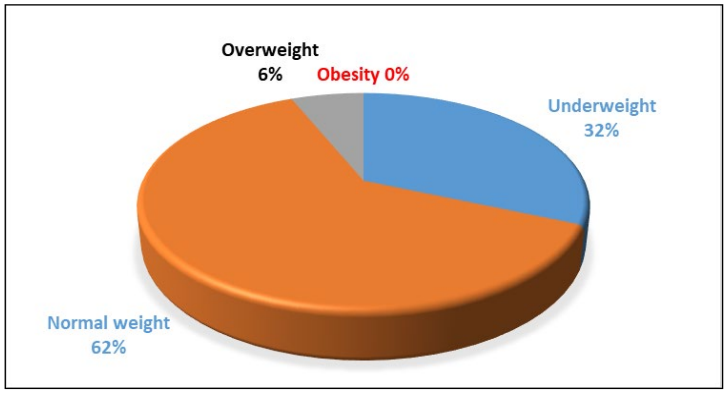

Fig. 2 Final test

Conclusion:

Seventh graders' somatic development is a crucial aspect of their overall health and well-being, as this period coincides with the onset and progression of puberty. This is a phase of accelerated growth and significant physical changes, influenced by a combination of genetic, hormonal, nutritional and environmental factors.

A normal weight helps prevent long-term health problems such as diabetes, cardiovascular disease and joint problems. It also gives them the energy to actively participate in physical education classes and other extracurricular activities, contributing to a balanced and successful school life.

In conclusion, maintaining a normal weight is vital for 7th graders because it provides them with a solid foundation for robust physical and mental health, thereby contributing to their academic success and overall well-being.

References:

[1] GROSU, E. F., & Suciu, S. M. (2014). Importanța măsurătorilor antropometrice la copii și adolescenți. Palestrica Mileniului III - Civilizație și Sport, 15(2), 150-155.
[2] BORZA, C. (2013). Nutriția și sănătatea adolescenților. București: Editura Medicală.
[3] POPA, C., & BUCUR, E. (2010). Antropologie și educație fizică. București: Editura Universitară.
[4] GHERGUȚ, A. (2007). Psihopedagogia persoanelor cu cerințe speciale: Strategii de educație integrată. Iași: Polirom.
[5] VĂLEANU, M. (2010). Antropometria și IMC-ul la copii și adolescenți. Revista de Pediatrie, 59(3-4), 121-128.
[6] DRĂGAN, I. (2002). Antropometrie şi fiziologia efortului. Editura Medicală.
[7] OȚELEA, M. R., & ENACHE, I. (2008). Ghid de evaluare a dezvoltării pubertare la copii şi adolescenţi. Editura Universitară Carol Davila.
[8] POPESCU, R., & TUDOR, V. (2013). Evaluarea stării de nutriţie a copiilor şi adolescenţilor din România. Ed. Universitaria.
[9] HAULICĂ, IOAN. (2007)."Antropometrie: Tehnici și metode de evaluare."Ediura Universitară. p(150-160).
[10] LAZĂR, ȘTEFAN și AURELIA CHIRIAC(2010) "Teste și măsurători în activitatea fizică."Editura Printech p(85-95).