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PHYSICAL ACTIVITY AND EATING HABITS FOR A GROUP OF ADOLESCENTS FROM IASI

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Abstract

The physical development of adolescents is dependent on some external factors, among which nutrition and physical activity play a particularly important role. Physical activity contributes to the harmonious development of the body and the control of body weight. Also, the practice of systematic physical exercise leads to the increase of energy consumption for the body, the regulation of appetite, the harmonious development of the musculoskeletal system, the maintenance of the circulatory and respiratory systems. Practically speaking, children and young people cannot go on weight loss diets because the main risk affects their normal growth and development process. What they need to do instead is to increase the time spent on systematic physical exercise under the supervision of specialists in the field. Young girls are interested in identifying with the ideal of beauty (the slim woman), but do not resort to systematic physical exercise to achieve the desired result. The study was carried out using a group of 218 teenagers from two high schools in Iasi and Pascani. Concerning these young people, we analysed their physical development, exercise and eating habits. Physical development of adolescents in the study group reveals the existence of only 14.67% of overweight people, the time allotted for physical activity being modest (under 15 minutes in 22.8% of cases). Conclusion: Adolescents do not resort to increased exercise time when they are interested in controlling body weight.

Keywords: Body weight, weight control, sport.

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1. Introduction

Growth and development are two processes that take place in the early years of a person's life. A series of general principles of these two processes have been developed: the growth rate is uneven over time; the pace is not uniform (periods of intense growth and development alternate with periods of slower growth and development); the growth rate for different tissues and organs is different for the same period of time; the development of each organ is closely related to that of others; the development of the two sexes is different (Albu, Indrei, & Cărăușu, 2018). Particular attention should be paid to the principle of the different growth rates for the same time period. The increase in length (height) and thickness (weight) alternates; more precisely, the accelerated periods of growth in thickness are followed by growth spurts in length. In this context, the frequency of disharmonious development in children is quite high (Gavăt, Albu, & Petrariu, 2006).

Even if successive examinations place a diagnosis of overweight, therapeutic intervention should be carefully considered and formed, since a diet for a child or adolescent is not an appropriate recommendation. It is best to choose to increase the time allocated to physical activity, as to increase the body's energy consumption.

There are situations where the physical development of teenagers, and in particular teenage girls, is appropriate, but they consider themselves too fat. During adolescence, young people fixate on particular elements of their figure, a phenomenon dependent on the structuring of the modern body image (Neagu, 2015). Girls always consider themselves too robust, and boys, too weak. These are transient aspects of the evolution of the human body, but they can become obsessive, getting very close to what is considered pathological (Clerget, 2012).

2. Problem Statement

The main problem is the evaluation of the time given by the students for daily exercise and finding out the eating habits of the young people in the study. Maintaining a normal growth/development is only achieved by ensuring adequate physical activity associated with a balanced diet.

3. Research Questions

Are there differences in physical development between students in the two studied groups? What is the time spent by students doing physical exercise and what are the differences in terms of high school and especially gender? Are there differences in the eating habits of students in the two studied groups?

4. Purpose of the Study

The assessment of the physical development of students in the studied group; assessing the physical development diagnosis by community and gender; knowing the time spent doing physical activity and the differences between high schools and genders; investigating the eating habits of adolescents in the studied group.

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5. Research Methods

The studied group consists of 218 pupils from the "Mihail Sadoveanu" National College in Pascani (108 teenagers) and "Garabet Ibraileanu" National College in Iasi (110 young people). Students are in grades 10 and 11 and are aged 15-18. These individuals were assessed for physical development, exercise time and eating habits.

5.1. Physical development

Physical development is assessed based on reference values known as national standards. Reference values are obtained by measuring the height and weight of a statistically significant group of children and young people in our country. Measurement is based on gender, age and family background. Average values and standard deviations are calculated, which allows the delineation of sigma intervals. The range between the average +sigma and the average -sigma is called average. The range between the average -sigma and the average -2 sigma is called small. The interval between the average -2 sigma and the average -3 sigma is called very small. The same idea applies for the ranges higher than the average value (average +2 sigma and average +3 sigma), those being called big and very big. Values higher than that of the average +3 sigma and lower than the average -3 sigma are pathological (Bardov, 2009). The diagnosis of physical development allows for an assessment of the correlation between height and body weight. If the height and body weight are placed in the same sigma range, the development is harmonious. If the two indicators are placed in different sigma intervals, the development is disharmonious with increased/decreased weight in relation to height.

5.2. Physical exercise

The time allotted for physical activity is assessed using a personal questionnaire. Students were asked to answer the question: During the day, how much time do you spend playing sports or doing other physical activities? (in minutes): under 15; 15-60; over 60.

5.3. Eating habits

Eating habits were studied using a weekly frequency questionnaire on food consumption. Weekly intake of milk, eggs, potatoes and sweets are evaluated. The possible responses are: zero; once; 2-3 times; 4-7 times.

The statistical processing of the results is based on Pearson's chi-squared test.

6. Findings

The physical development of students in the studied group is assessed based on height and body weight, which allows us to establish the diagnosis of physical development.

The values obtained must be compared to the national standards, which highlight the two population phenomena represented by accelerated growth (the secular trend) and different development rates based on the family's background (Stănescu, Stoicescu, & Bejan, 2018, p. 3).

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The height of the students examined is average (69.72%), with statistically insignificant differences between the two high schools ($p>0.05$, $f=2$, $\chi^2=1.188$). There are no pupils with pathological values for height, which is a positive element. (Table 01)

Table 01. Student height values in the study group

High school	Very small/ Small	Average	Very big/ Big	Total
Pascani	7	79	22	108
Iasi	9	73	28	110
Total	16	152	50	218
%	7.33	69.72	22.93	

Body weight values are average in 76.14% of cases. Our attention is drawn to the 1.83% of young people with pathological values for body weight, but it is not an alarming percentage. (Table 02)

Table 02. Framing body weight in sigma intervals

High school	Pascani	Iasi	Total
Very small/ Small	7	12	19 – 8.71%
Average	88	78	166 – 76.14%
Very big/ Big	11	18	29 – 13.30%
Pathological	2	2	4 – 1.83%

Differences calculated for the two groups are statistically insignificant ($p>0.05$, $f=3$, $\chi^2=3.615$), an element which shows a similar evolution of weight in the questioned students.

The most important element is the diagnosis of physical development, which allows us to determine the correlation between the height and body weight of the examined students. Harmonious development is only present in 60.55% of young people, which is a problem.

Differences between high schools are obviously insignificant statistically ($p>0.05$, $f=3$, $\chi^2=1.718$), which leads to a regular result rather than to a phenomenon related to particular group. (Table 03)

Table 03. Diagnosis of physical development (by high school and gender)

High school	Harmonious	Disharmonious with increased weight	Disharmonious with decreased weight	Pathological
	Distribution of cases by high school			
Pascani	70	14	22	2
Iasi	62	18	28	2
Total	132	32	50	4
%	60.55	14.67	22.93	1.83
	Distribution of cases by gender			
Masculine	42	12	19	3
Feminine	90	20	31	1

According to a study carried out in our country, the percentage of obese young people reaches 6.77% in the 13-14 age group (Bacalearos et al., 2017). In a study conducted on urban students in Mexico, the prevalence of overweight pupils reaches 25% and is more common in male students (Galvan et al., 2017, p. 364). In another study in Egypt, the prevalence of overweight pupils is 33.6% (Emara, Mehanna, Ashour,

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Koura, & Shatat, 2018, p. 9). The diagnosis of physical development in the studied group highlights 14.67% of young people with disharmonious development with increased weight. By gender, the results are similar between boys and girls, the calculated differences being statistically insignificant ($p>0.05$, $f=3$, $\chi^2=3.666$).

The second aspect that was taken into consideration is the time spent by students doing physical exercise. Concerning the two groups, our attention is drawn to the 20.18% of young people who are not interested in practicing physical exercise, choosing the option 'under 15 minutes'. The calculated differences are statistically insignificant ($p>0.05$, $f=2$, $\chi^2=0.806$) and show the existence of a similar situation in the two high schools. (Table 04)

Table 04. Time allotted for daily exercise (by high school, gender and physical development)

High school	**Under 15 minutes**	**15-60 minutes**	**Over 60 minutes**	**Total**
	Distribution of cases by high school			
Pascani	23	61	24	108
Iasi	21	67	22	110
Total	44	128	46	218
%	20.18	58.71	21.10	
	Distribution of cases by gender			
Masculine	7	39	30	76
Feminine	37	89	16	142
	Correlation between the diagnosis of physical development and physical activity			
Harmonious	23	79	30	132
Disharmonious with increased weight	9	16	7	32
Disharmonious with decreased weight	10	31	9	50
Pathological	2	2	0	4

For children and adolescents, moderate exercise is recommended for at least one hour a day (Galvan et al., 2017, p. 364). Such answers appear in 21.10% of cases (20.00% in Iasi students).

In a study conducted in 2014 on a group of students from "Garabet Ibraileanu" High School in Iasi, only 15.8% of students practice sports over 60 minutes per day (Albu, Onose, Negrea, Crăcană, & Hodorcă, 2016, p. 275). The result is interesting when considering gender, because 39.47% of boys practice sports over 60 minutes daily, whereas in girls such answers occur only in 11.26% cases, the calculated differences being statistically significant for $p<0.0001$ ($f=2$, $\chi^2=26.691$). In the study conducted in 2014 at "Garabet Ibraileanu" High School, 32.4% of boys and 9.4% of girls practice sports over one hour (Albu et al., 2016, p. 275). The statistically significant differences in both studies draw attention to the modest concerns of girls about exercise.

The correlation between the diagnosis of physical development and the amount of physical activity highlights two aspects that we must insist on. The calculated differences are statistically insignificant ($p>0.05$, $f=6$, $\chi^2=5.104$) and underline the lack of concern for sports of young people with disharmonious development with increased weight. The second aspect that needs to be underlined is that of young people with disharmonious development with decreased weight, who do the same amount of physical activity as

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students with harmonious development. This is an important issue, because it can lead towards excessive body weight control.

Obviously, it is also important to assess the eating habits of students, because the concern about body image can lead them to undergo inadequate weight-loss diets.

A balanced milk intake is 4-7 times per week, which is only recognized by 23.39% of young people. We must not overlook the 18.80% of students who choose the 'zero' option and the 28.44% of adolescents who chose the 'once' option. The calculated differences are statistically insignificant ($p>0.05$, $f=3$, $\chi^2=6.736$) and show similar eating habits between the two groups. (Table 05)

Table 05. The frequency of milk in students' menus

High school	Weekly milk intake			
	Zero	**Once**	**2-3 times**	**4-7 times**
Pascani	24	35	31	18
Iasi	17	27	33	33
Total	41	62	64	51
%	18.80	28.44	29.35	23.39

In a Bucharest adolescent study, there were 13.71% negative female responses and 12.18% negative male responses. Basically, the percentage of pupils who choose the 'zero' option is slightly higher than the results obtained from adolescents in Bucharest (Milici & Neagu, 2014, p. 106).

With regard to eggs, the situation is even worse, because the balanced consumption (4-7 times a week) is present in only 17.88% of cases. Eggs have a special nutritional value and are rich in quality proteins, lipids, minerals and vitamins. At the same time, the caloric intake is modest. Our attention is drawn to the 9.17% of 'zero' answers, which is a big problem. (Table 06)

Table 06. Weekly consumption of eggs

High school	Weekly egg intake			
	Zero	**Once**	**2-3 times**	**4-7 times**
Pascani	12	25	50	21
Iasi	8	31	53	18
Total	20	56	103	39
%	9.17	25.68	47.24	17.88

Students have the same eating habits and the same nutritional mistakes, so the calculated differences are statistically insignificant ($p>0.05$, $f=3$, $\chi^2=1.735$).

Potatoes are vegetables consumed in large quantities in our country, so they are presented separately in the country's rational food norms. They provide a modest intake of proteins and lipids (1-5%), a situation in which a diet based too much on these products does not cover the nutritional needs of growing organisms (Martin & Tarcea, 2015).

Dominant potato intake is 2-3 times (43.11%) or 4-7 times (34.40%) per week, which is a somewhat balanced result (Table 07).

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Table 07. The presence of potatoes in menus

High school	Weekly potato intake			
	Zero	**Once**	**2-3 times**	**4-7 times**
Pascani	7	14	43	44
Iasi	7	21	51	31
Total	14	35	94	75
%	6.42	16.05	43.11	34.40

Differences calculated for the two groups are obviously insignificant statistically ($p>0.05$, $f=3$, $\chi^2=4.263$) and indicate the existence of similar eating habits in the students' families.

Sweets are constantly present in student menus. Dominant intake is 4-7 times (60.09%) or 2-3 times (27.98%) per week. The calculated differences are statistically insignificant ($p>0.05$, $f=3$, $\chi^2=1.293$). (Table 08)

Table 08. Weekly intake of sweets

High school	Weekly intake of sweets			
	Zero	**Once**	**2-3 times**	**4-7 times**
Pascani	3	8	35	62
Iasi	6	9	26	69
Total	9	17	61	131
%	4.12	7.79	27.98	60.09
	The correlation between sweets intake and physical activity			
Under 15 minutes	1	3	9	31
15-60 minutes	6	7	42	73
Over 60 minutes	2	7	10	27

We must pay attention to 7.79% of students who only consume them once a week. It is a much better result compared to the teens in Alexandria, where the consumption of sweets once a week is present in 26.7% of cases (Emara et al., 2018, p. 13).

The high intake of sweets is present both in young people doing physical activity and in those who do not do sports. There is no positive correlation between the intake of sweets (which gives the body energy) and physical activity (which consumes the energy obtained from sweets), so the calculated differences are statistically insignificant ($p>0.05$, $f=6$, $\chi^2=8.178$).

7. Conclusion

The physical development of students is mostly at an average level. The diagnosis of physical development allows highlighting an increased percentage of disharmoniously developed students, but interpretation of these results should be done carefully, because they are still in the growth and development phase of life. The time allocated to daily physical activity is low, especially in young women. There is no positive link between the time allocated to physical activity and the diagnosis of physical development. Food is particularly deficient in the intake of animal-based products. Sweets intake is high for young people who spend little time doing physical activities, which can increase the risk of obesity.

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Such studies are important, because they allow specialists in the field to know the real situation and to intervene through education in the directions where it is needed (orientation towards sports activity and a balanced diet).

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