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**EATING HABITS OF STUDENTS FROM A SPORTS HIGH
SCHOOL IN SUCEAVA**

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Abstract

Nutrition is an external factor that contributes to the normal growth and development of the body and to good results in performance sports. Research questions are: (a) Do the students who are enrolled in a sports curriculum class have a more balanced diet compared to the students in a theoretical curriculum class? (b) Does the nutrition of students in the sports program correspond to rational nutrition guidelines? Our goal is to find out the eating habits of students who practice performance sports. We will insist upon the imbalances that may appear. Comparative assessment using the two types of school programs allows for a better evaluation of the students' eating habits. The study was carried out on a group of 185 students from a Sports High School - 94 students from the sport profile (50.81%) and 91 from the theoretical profile (49.18%). The young people completed a weekly frequency questionnaire on food consumption and one related to the time allocated to sports every day. The processing of the results was done with the Pearson's chi-squared test. The time allotted to physical daily activity is in most cases over 90 minutes. Cheese is present in menus, especially once a week (39.45%), meat preparations 2-3 times (35.13%), potatoes 4-6 times per week (35.67%), pasta 2-3 times or 1 time (34.59%). There are cases of poor nutrition, especially with regard to animal products. In sports students, physical activity is intense, but it is not supported by adequate food intake. Nutritional intervention is required by a nutritionist specialized in sports.

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1. Introduction

Growth and development are physiological processes that define the first years of a person's life. They are influenced by the actions of internal and external factors. The internal factors are represented by genetics; the external factors are represented by geo-climatic conditions, the family environment (urban / rural), food, health, physical activity and socio-economic conditions.

In the category of internal factors, particular attention must be paid to height. There is genetic determinism of height, a very important element for the selection of the child when considering a certain sports branch (Albu, Indrei, & Cărăușu, 2017; Stoian, 2017).

The geo-climatic conditions must be carefully studied because in mountainous areas there is a level of torso elongation, while in warm areas we can see a marked development of the extremities. There is also a different level of development between rural and urban areas, an element that must be known in the selection of young people for certain sports (Stănescu, Stoicescu, & Bejan, 2018).

Balanced nutrition and daily physical activity are major contributors to the normal growth and development of young people. Presently there is a problem with balanced nutrition in Romania because there is a strong anchorage in family traditions, which is also reflected in the nutrition of students (Albu, Onose, Carausu, & Hodorca, 2017).

Systematic physical exercise is influenced by a number of factors such as family structure, time available, family background, racial and ethnic influences, school environment, and easy access to a gym (Gilman & Volpe, 2018).

Family influences are increasingly being studied, and there is a positive correlation between the time spent by parents doing physical activities and that allotted by the child to this type of activity. Many activities are carried out in the family, which helps build good relationships within the family (Bringolf-Isler et al., 2018).

In the case where a young person is guided towards a performance sport, nutrition becomes even more important. It is essential to provide a diet that offers adequate nutrient intake. In France, for male athletes who practice professional football (elite soccer player), the need for good nutritional principles include 14.6% proteins, 32.4% lipids and 52.5% carbohydrates, while for judo professional athletes proteins represent 16.3%, lipids 35.5% and carbohydrates 48% (Hima, Meenu, & Priti, 2017). Ensuring these rules is not possible solely under family supervision; it is necessary to have a nutritionist specializing in sports.

2. Problem Statement

Nutrition is an external factor that contributes to the normal growth and development of the body and to the optimization of results belonging to students who train in performance sports. Failure to adapt the diet to the increased needs of the body can have negative effects on adolescent health. The correct assessment of physical development is very important because growth is unequal, so it is necessary to correctly interpret the situations of disharmonious development with decreased or increased weight (Albu, Indrei, & Cărăușu, 2017). We may encounter self-sustaining growth periods which do not require specialist intervention.

3. Research Questions

Do the students who are enrolled in a sports curriculum class have a more balanced diet compared to the students in a theoretical curriculum class? Is the food intake provided to the sports student adapted to the rules of rational nutrition and does it cover all the needs of a person who practices intense daily physical activity? Is the development of young people from the sports curriculum more balanced compared to the students from the theoretical one? Are sports nutrition specialists involved in maintaining the health of these teens and helping their sports performance?

4. Purpose of the Study

We were concerned with the nutrition of students, especially those that follow a sports curriculum. Permanent physical activity of high intensity requires adequate food intake. The emergence of nutritional imbalances may be a risk factor for student's health and for their sports performance. A comparative study between the sports and theoretical profiles allows us to better assess the eating habits of young people and their families.

Evaluating the physical development of students in the studied group is very important because unbalanced eating can be associated with slow growth and development. Interpretation of the results should be done carefully because at the age of 14-17 years there is still growth, so disharmonious development with decreased or increased weight can occur. Growth is uneven; the growth periods in length (height gain) alternate physiologically with those of growth in thickness (weight gain). It is an issue that must be known by sports nutrition specialists because any mistake can have negative repercussions on sports performance.

5. Research Methods

The research was carried out at a Sports High School in Suceava, a community where teenagers can study under a sports curriculum (or "profile") or a theoretical curriculum. 185 adolescents from the 9th, 10th and 11th grades from the sports profile (94 students - 50.81%) and 91 young people (49.18%) from the theoretical profile were examined. Teenagers in the studied group are between the ages of 14 and 17. These young people have completed a questionnaire concerning their eating habits and time spent on physical activity. The anthropometric examination also allowed the assessment of their physical development.

The evaluation of the time allotted for daily physical activity was assessed using the question "During the day how much time do you spend practicing sports or other physical activities (in minutes)?: - Under 30 minutes; - 30-60 minutes; - 60-90 minutes; - Over 90 minutes.

Eating habits were assessed using a weekly frequency questionnaire on food consumption. When asked "How many times per week do you eat cheese, meat, potatoes, wheat products / rice," the answer variants are: Zero - 1 time - 2/3 times - 4/6 times - Daily.

The anthropometric examination was performed based on the values of height and body weight. These values are related to those in national standards. National standards cover the average level and standard deviations for a particular age group, gender, and family background. The values between the

average +/- sigma are considered average, the ones between the average + sigma and the average + 2 sigma are high, and the ones between average + 2 sigma and the average + 3 sigma are very high. At the opposite end, we find the small (between average - sigma and average - 2 sigma) and very small (between average - 2 sigma and average - 3 sigma). The diagnosis of physical development expresses the correlation between the height of the child and his / her weight. For a certain height, there must be a certain body weight. If the height and 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 or decreased weight (related to height).

The results were processed using the Pearson's chi-squared test.

6. Findings

The results will be presented in three directions, represented by the time spent on physical activity, eating habits and physical development.

Time spent on daily physical activity is essential to achieving good sports performance. In the students from the theoretical profile the time allotted for physical activities is also important because systematically practiced physical activity contributes to harmonious development of the body. In the studied group the dominant answer is over 90 minutes (36.75%), an expected result because it is a sports high school. There are also 23.78% of young people who chose the 60-90 minute option, a response also common for such a community (Table 01).

Table 01. Time allotted daily for physical activity

Daily physical activity	Under 30 minutes	30-60 minutes	60-90 minutes	Over 90 minutes
Sports profile	1	5	32	56
Theoretical profile	41	26	12	12
Total	42	31	44	68
%	22.70	16.75	23.78	36.75

Differences between profiles are statistically significant ($p < 0.001$ $f=3$, $\chi^2=88.088$) and draw attention towards the adolescents from the sports profile that systematically practice sustained physical activity.

Concerning students from the theoretical profile who are less interested in physical activity, there are 45.05% of young people who choose the option "Under 30 minutes", but also 13.18% of young people who chose "60-90 minutes" and "Over 90 minutes". Daily physical activity is the healthiest way to control body weight.

In a group of adolescents in Sudan, we can see 3.8% of "Under 30 minutes" responses, and 26.2% of negative responses ("I don't do any physical activity"). At the opposite end, 51.0% are adolescents doing sports for over 60 minutes per day (Misaa, Somiya, & Siham, 2018).

Specialists in the field are concerned about the trend towards adolescent sedentary lifestyle. For young people in Kampala Uganda, physical activity evaluated in minutes ads up to fewer than 150

minutes per week in 58.97% of cases. Adolescents admit, however, that they spend 1-2 hours per day (33.59%) on sedentary activities (Ndagire, Muyonga, & Nakimbugwe, 2019).

Systematical physical activity requires an adequate energy input. In this context, it is necessary to evaluate the eating habits of young people, especially those who practice daily intense physical activity. We will insist on the consumption of animal products (cheese and meat products) and vegetables (potatoes and cereal products).

Cheese is present in menus, especially once (39.46%) or 2-3 times (29.19%) per week. It is insufficient based on rational nutrition norms, which recommend daily cheese intake. Balanced intake is present only to 3.78% of pupils, and also in the 8.10% of young people who consume cheese 4-6 times per week. Practically, balanced intake is only seen in a little over 10% of the surveyed adolescents (Table 02).

We must not overlook the 19.46% of young people who marked the “Zero” option. It is a worrying result because cheese is an important source of quality protein, vitamins and minerals (especially calcium).

Table 02. Weekly cheese intake.

Intake	Zero	1 time	2-3 times	4-6 times	Daily
Sports profile	17	45	22	9	1
Theoretical profile	19	28	32	6	6
Total	36	73	54	15	7
%	19.46	39.46	29.19	8.10	3.78

In the students from the sports profile, the dominant answer is 1 time per week (47.87%) and in those from the theoretical profile, 2-3 times (31.86%) and even 4-6 times (23.07%), so the calculated differences are statistically significant ($p < 0.05$ $f=4$, $\chi^2=9.859$). The result underlines the insufficient intake of cheese by students from the sports profile who consume less cheese, even though their nutritional needs are increased. Also, the abundance of animal protein (containing all essential amino acids) places cheese on the list of foods that help develop and maintain muscle mass.

In milk the essential amino acids content is increased, and by processing (cheese making) this quantity increases further. Thus, in milk, the valine content oscillates from 190.8 mg / 100 g in cow's milk to 369.9 mg / 100 g of sheep's milk; leucine from 323.8 mg / 100 g cow's milk to 518 mg / 100 g sheep's milk; and threonine from 153.05 mg / 100 g cow's milk to 231.99 mg / 100 g sheep's milk (Rațu, Doliș, Murariu, Hodorca, Onose, & Garlic, 2018).

The presence of calcium in large quantities and in easily absorbable forms (cheeses contain factors that favor absorption and do not contain factors that reduce digestibility) is a good element for maintaining the integrity of the skeletal system (Martin & Tarcea, 2015).

In a study carried out on a group of adolescents from a Sports High School and a Theoretical High School in Iasi we can see 10.92% positive answers and 4.37% of “Daily” responses, which corresponds to rational nutrition norms (Albu, Onose, Carausu, & Hodorca, 2017).

In a group of teenagers in Saudi Arabia, consumption of milk / milk products occurs 4.9 times per week in young people who regularly practice sports and 4.5 times per week in those who are sedentary.

The insignificant differences reveal the lack of adaptation of nutrition to increased body demands during physical exercise (Alhakhbany et al., 2018).

Meat products are important sources of protein, which can contribute to the harmonious maintenance and development of the muscular system (Martin & Tarcea, 2015). Dominant intake is 2-3 times per week (35.13%) or 1 time per week (22.70%). Daily consumption is present in 11.89% of cases, with another 11.89% of pupils who chose “Zero” (Table 03).

Table 03. Weekly meat intake

Intake	Zero	1 time	2/3 times	4/6 times	Daily
Sports profile	13	25	36	13	7
Theoretical profile	9	17	29	21	15
Total	22	42	65	34	22
%	11.89	22.70	35.13	18.38	11.89

The calculated differences are statistically insignificant ($p>0.05$, $f=4$, $\chi^2=7.810$) and show the existence of similar eating habits between the two curriculums. This is a problem for young people who practice intense physical activity. They have increased dietary needs, but their intake is similar to their colleagues who do less physical activity. Young people in the sports profile consume little cheese and they do not make up for it by increasing meat intake.

Potatoes are widely consumed by the population of our country and especially by people in Moldova. Thusly we should take note of the 2.16% of negative answers and the 17.29% of young people who consume them daily (Table 04).

Table 04. Weekly potato intake

Intake	Zero	1 time	2/3 times	4/6 times	Daily
Sports profile	2	12	35	38	7
Theoretical profile	2	12	24	28	25
Total	4	24	59	66	32
%	2.16	12.97	31.89	35.67	17.29

The calculated differences are statistically significant ($p<0.01$ $f=4$, $\chi^2=13.778$) and show increased potato intake for students from the sports profile. It is not a satisfying result because potatoes have low protein and lipid content, offering a modest caloric intake.

Our attention falls upon the 2.16% of young people who mark the “Zero” answer, which raises questions when considering the situation in Romania where potatoes are grown on a large scale. There are a number of studies that insist on the reasons why students do not consume certain vegetables. They do not eat a certain food because they do not like the taste, color, texture, smell, it is not consumed at all by the family or it is difficult to cook (Raggio & Gámbaro, 2018).

Such aspects become essential for the teenager in a sports curriculum because vegetables provide an important supply of vitamins and minerals along with carbohydrates. Their elimination from the diet (due to discomfort) has to be solved by increasing the consumption of some other vegetables accepted by

the adolescent and his family. In the studied group, we only insisted on potato consumption, the other vegetables being present in the menu, which compensates for the possible potato deficit.

In a Ugandan adolescents study, 8.86% of negative responses appeared - they did not eat vegetables in the last 30 days (Ndagire, Muyonga, & Nakimbugwe, 2019).

Adolescents in Iran show 13.44% negative responses and 17.84% daily consumption (Shahraki-Sanavi, Rakhshani, Ansari-Moghaddam, & Mohammadi, 2017).

Wheat products / rice are characterized by an increased content of vegetable proteins and carbohydrates offering a high caloric intake. These products are present in menus, especially once and twice per week (34.59%). There are young people who consume them daily (6.48%) and teenagers who do not eat them at all (14.05%) (Table 05).

Table 05. Weekly intake of wheat products / rice.

Intake	Zero	1 time	2/3 times	4/6 times	Daily
Sports profile	13	36	33	9	3
Theoretical profile	13	28	31	10	9
Total	26	64	64	19	12
%	14.05	34.59	34.59	10.27	6.48

The calculated differences are statistically insignificant ($p > 0.05$, $f = 4$, $\chi^2 = 4.071$) and highlight the existence of similar eating habits for students in the studied group. Wheat products must be present in menus in adequate quantities because they provide an increased caloric intake that can be associated with the risk of becoming overweight or obese.

In a Turkish study on fitness clubs they underline the absence of cereal products (13.2% of people) from the diet stating that people do not like the taste (Demirici & Toptas-Demirici, 2018).

For Sudanese teenagers, daily consumption of rice is present in 2.4% of cases, and wheat products in 1.9% of cases. There is a reduction in consumption due to concern for bodily appearance and maintaining body weight to a level desired by young people (Misaa, Somiya, & Siham, 2018).

The results obtained in terms of eating habits are not adequate for young people in the sports curriculum who have much higher energy needs which will be impossible to satisfy. In this context it is necessary to assess the physical development of the examined students. Poor nutrition can be associated with slow and unbalanced physical development for students in the sports profile (who have high nutritional needs).

Diagnosis of physical development allows for correlative interpretation of height and body weight. There are 67.56% of harmoniously developed teens, a positive result especially for those in the 9th and 10th grades (ages 14-16), where growth is still evident. Growth is uneven, the growth periods in length alternating with those of growth in thickness. In this context the appearance of disharmonious development is easily understood. In the studied group we can see 20.00% of cases with decreased weight and 12.43% of cases with increased weight (Table 06).

Table 06. Physical development of pupils in the studied group

Curriculum	Diagnosis of physical development		
	Harmonious	Disharmonious with decreased weight	Disharmonious with increased weight
Sports	65	15	14
Theoretical	60	22	9
Total	125	37	23
%	67.56	20.00	12.43

The calculated differences are statistically insignificant ($p > 0.05$, $f = 2$, $\chi^2 = 2.552$) and show similar development of the students from the two studied profiles. Nutritional imbalances are only those of quality, not of quantity, so there is no disruption concerning the physical development of pupils.

The students in the sports program should have a higher proportion of harmoniously developed young people because physical activity contributes essentially to the emergence of a balanced development of the human body (Abalasei & Trofin, 2016). The results have to be carefully interpreted because they are young people aged 14-17 years in which the growth and development process is still active and because as mentioned above, growth periods in length alternate with growth periods in thickness, a young person who might seem very thin at certain times later can become of average build or even plump (Albu, Indrei, & Cărăușu, 2017).

In the sports group, monitoring body appearance is important because it can be associated with variation in sports performance. In a study carried out on teenagers in Russia, there was a change in motor skills based on the somatotype (Kolokoltsev, Iermakov, & Prusik, 2018). Girls with a sthenic (balanced) or asthenic (lower weight) somatotype show higher endurance in the muscles of the upper extremities, better force in the lower extremities, and a better overall endurance compared to the hypersthenics (greater weight).

7. Conclusion

Students in the sports program prepare for certain sports and so their nutritional needs are greater. At the same time these nutritional needs vary, based on the demands of each type of sports activity. There are intake deficiencies, especially with regard to animal products. In this context, the intake of animal proteins, which have a higher nutritional value, is insufficient. The physical development of the two groups of students is similar, without seeing the expected increase in harmoniously developed teens in the sports group. Nutritional intervention is required and should be performed by a nutritionist specialized in sports activities; a specialist who is unfortunately not in the school staff.

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