

Eating habits of urban youth aged 16-18

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ABSTRACT

Introduction: Nutrition is one of the most essential factors conditioning normal human growth and development. Nutritional errors can be the basis for the emergence and development of obesity, hypertension, atherosclerosis, osteoporosis or postural defects.

Purpose: The study aimed to learn about the dietary habits of urban high-school youth.

Materials and methods: The study was conducted using the original questionnaire in 2013 and covered 200 students of randomly selected high schools.

Results: Among the subjects, 70.8% consumed 4 or 5 meals during the day. The boys have eaten five meals significantly more often during the day than girls. The first breakfast was consumed by 76.5% of students and the second breakfast with 69.7%. Of the subjects, 80% indicated the eating between meals.

The girls preferred sweets, fruit, and sandwiches, and the boys had sandwiches, sweets, and dairy drinks. The highest percentage of the examined youth ate sweets 3-4 times a week (41.6% girls and 35.6% boys). The respondents who consumed fast food once a week constituted of 60.9% of girls and 48.7% of boys. The girls consumed sweetened drinks most often once a week, and boys 3-4 times a week.

Conclusions: Nutritional errors of adolescents consisted of irregular consumption of meals, late time of the last meal before bedtime, consumption of a large number of sweet and spicy snacks and sweetened beverages were found. Wrong nutrition concerned both girls and boys.

Keywords: Nutrition, dietary habits, youth

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INTRODUCTION

Proper nutrition is one of the most important environmental factors that positively affect the course of puberty, completing the growing process and maintaining a proper body weight [1,2]. Nutrition and related choices of appropriate products, dishes, regarding nutrient content, a preparation method for consumption, quantity, number and distribution of meals over time - have a huge impact on the growth and development and preservation of the health of the human body.

Childhood is the most appropriate time to shape positive eating behaviours. Young people often do not notice a direct relationship between their behaviour, including nutrition and health, which is why it is so important to transfer knowledge and shape attitudes and behaviours that can affect the lifestyle and future of young people [3].

The results of many studies indicate the existence of irregularities in the diet of children and adolescents at school age [4-6]. The most common abnormal nutritional behaviours among adolescents include skipping breakfasts, eating between main meals and an abnormal amount of meals during the day. Another problem is the excessive calorie content of the diet, exceeding the energy expenditure, which results in weight gain [7].

The aim of the study was to learn about the dietary habits of urban high-school youth.

MATERIALS AND METHODS

The research was conducted using the original questionnaire in 2013 and covered 200 students of randomly selected secondary schools from the urban environment. The girls accounted for 56.5% and the boys 43.5%. The study was carried out after obtaining the consent of the management of the facilities. Before the questionnaire was presented, parents/guardians of the children were informed about the goals and methods of the study. Parents/guardians agreed to participate in the study in writing on a specially prepared form. Participation in the study was anonymous. The proper study was preceded by a pilot study on a group of 50 people. The Bioethical Commission of the Medical University of Bialystok approved the conduct of research.

The obtained data has been encoded and entered into the computer database. Statistical analyzes were carried out using the program Statistica 12.0 (STAT SOFT). To determine statistically significant differences between the distinguished features in subgroups of children, the χ^2 independence test was used. The value of $p < 0.05$ was assumed as the level of significance in all calculations.

RESULTS

The highest percentage of girls (70.8%) consumed 4 or 5 meals during the day, 28.3% consumed 3 meals. Over 74.7% of the surveyed boys ate 4 or 5 meals a day, and over 16% ate 3 meals a day. Almost 5% of boys consumed 2 meals a day (Table 1).

Table 1. Number of meals eaten

Number of meals	Girls		Boys		P value
	n	%	n	%	
2	1	0.9	4	4.6	ns
3	32	28.3	14	16.1	<0.05
4	40	35.4	24	27.6	ns
5	40	35.4	45	51.7	<0.05

The surveyed students in the highest percentage declared eating lunch. The first breakfast was consumed by over $\frac{3}{4}$ of the respondents. Consumption of afternoon tea was confirmed by

23.9% of girls and 37.9% of boys, $p = 0.054$. Boys eat dinner much more often than their friends, $p < 0.05$ (Table 2).

Table 2. Structure of meals eaten by young people divided into classes

Meal	Girls		Boys		P value
	n	%	n	%	
First breakfast	85	75.2	68	78.2	ns
Second breakfast	80	70.8	59	67.8	ns
Lunch	107	94.7	84	96.6	ns
Tea	27	23.9	33	37.9	0.054
Dinner	59	52.2	67	77.0	<0.05

Of the girl students, 78.8% were eating between meals, of which the most of them ate sweets (52.8%), not much less, because 47.0% of girls ate fruit, and 44.9% ate sandwiches. As many as 28.1% of girls ate their confectionery (sweet buns, donuts) between meals, every 4 subjects consumed yoghurt and kefir meals. 15.7% of girls consumed chips, and 6.7% of students had fast food. Over $\frac{3}{4}$ of the boys examined ate between meals. The most of snacks were sandwiches (60.6%), followed by sweets (42.4%), and 37.9% of pupils, respectively, fruit and yoghurts, kefirs. Over $\frac{1}{3}$ of pupils consumed crisps between meals, 30.3% confectionery and 12.1% fast food.

The last meal during the day between 7 p.m. and 8 p.m. was eaten by 35.4% girls, every fourth at

6 p.m. and 7 p.m., and every fifth girl after 9 p.m. Almost every fifth (18.6%) of girls ate the last meal before 6 p.m. Over 40% of the surveyed boys ate the last meal before sleep between 7 p.m. and 8 p.m. Nearly 19% of boys ate the last meal at 6 p.m. and 7 p.m., over 10% of students before 6 p.m. Every third student ate the last meal before bedtime after 9 o'clock p.m.

The highest proportions of girls (60.9%) and boys (48.7%) consumed fast food once a week. The youth who did not eat such food at all accounted for 38.9% of girls and 26.4% of boys respectively. A small percentage of students consumed these types of meals daily (Figure 1).

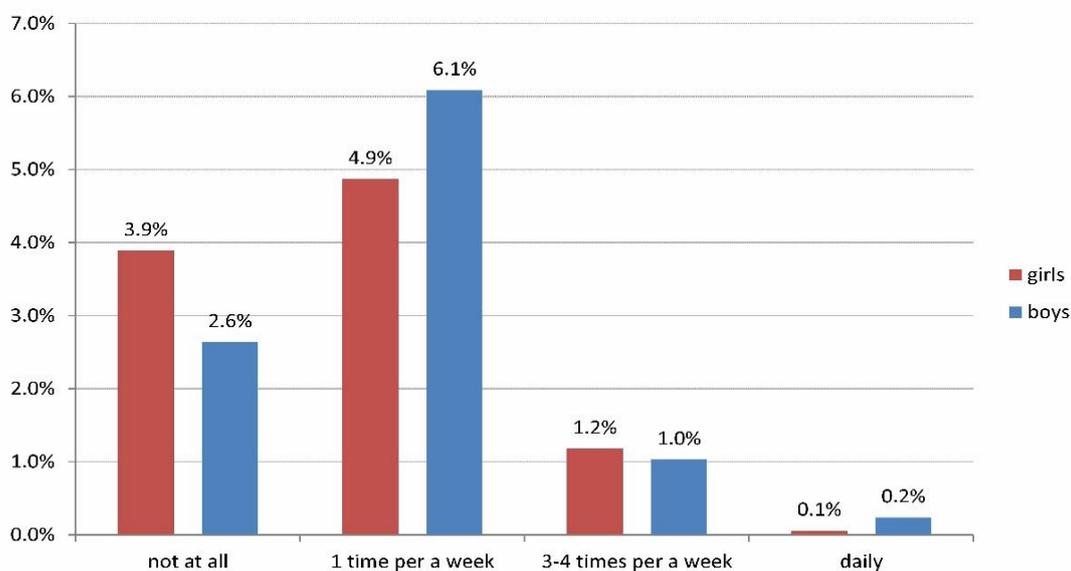


Figure 1. The structure of eating fast food by girls and boys in general

The highest percentage of the surveyed youth ate sweets 3-4 times a week (35.6% boys and 41.6% girls). The daily consumption of sweets was confirmed by 31.0% of boys and 32.7% girls, and 31.0% of boys and 22.1% of girls ate them once a week (Figure 2).

Most students most often ate fried foods (44.2% girls and 63.2% boys), $p < 0.05$, in turn 36.3% girls and 31.0% boys consumed cooked foods. Baked dishes were eaten by 17.7% girls and 3.4% boys, $p < 0.01$. A small proportion of students ate steamed meals (1.8% girls and 2.3% boys).

Among the respondents, 23.0% of girls and 39.1% of boys sweetened their meals, $p < 0.05$, while 6.9% of girls and 56.3% of boys were adding salt to the food they were eating.

Over half of the youth (57.5% girls and 55.2% boys) most often chose a tea with sugar. Juices were preferred by 44.2% girls and 49.4% boys, and mineral water 45.1% girls and 45.2% of boys also chose mineral water. Tea without sugar, coffee and milk drank much less youth.

The majority of girls (35.4%) consumed cola drinks, 26.5% orangeade and 17.7% energy drinks. Only 15.0% of girls did not drink sugary drinks at all. In turn, the majority of boys (31.0%) consumed orangeade, every fourth cola drink, 21.8% of students had energy drinks, and 11.5% of boys did not consume this type of drink. Girls consumed sweetened drinks most often once a week (41.2%), while boys 3-4 times a week (36.8%), (Figure 3).

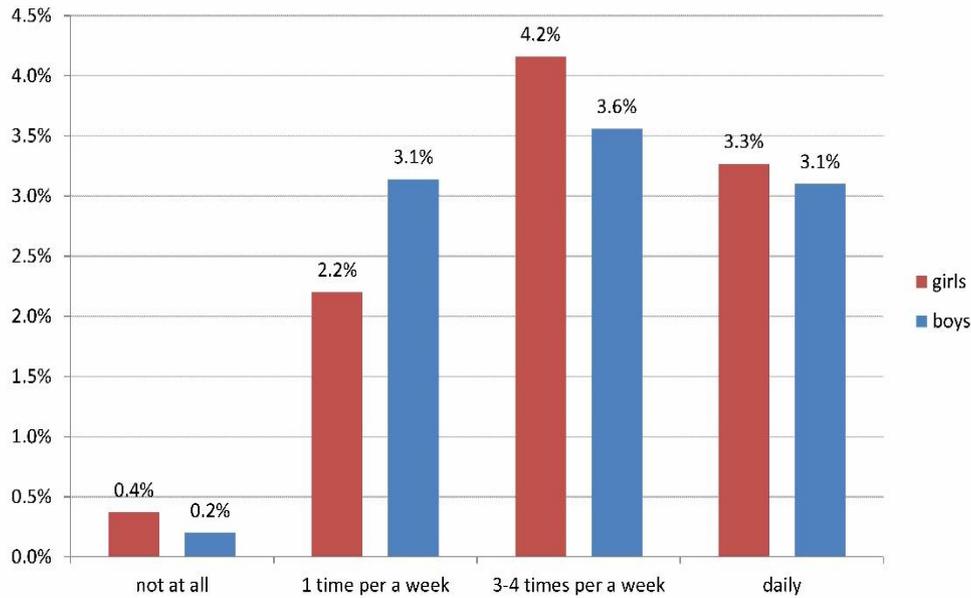


Figure 2. Structure of consumption of sweets by girls and boys in general

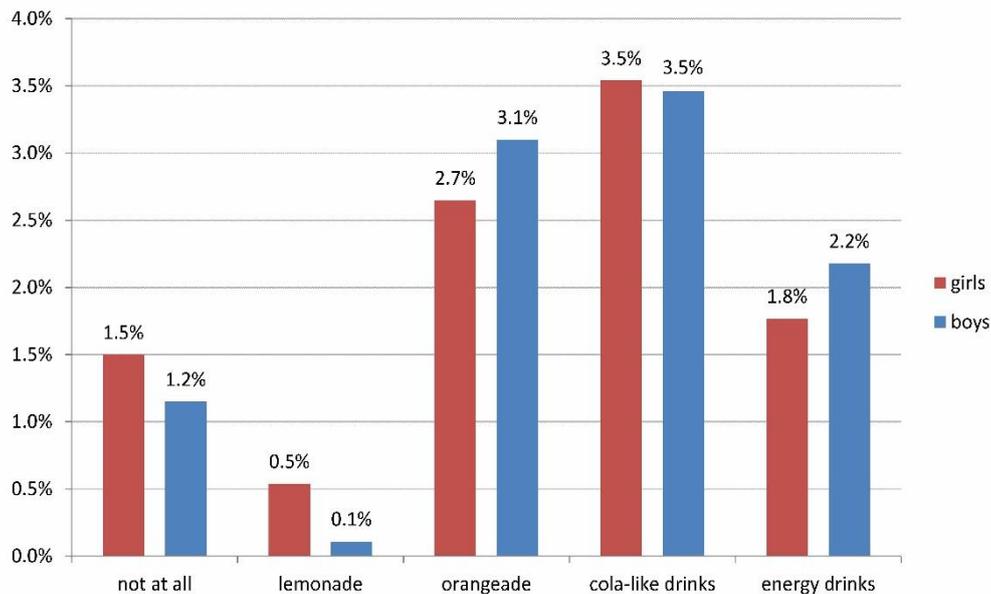


Figure 3. Drinks consumed by girls and boys (in total)

The largest group of respondents was unable to assess their diet (53.1% girls and 37.9% boys, $p < 0.05$). Among the respondents, 34.5% of

girls and 47.1% of boys assessed that they were eating properly ($p < 0.05$), while 12.4% of girls and 14.9% of boys thought they were eating improperly.

DISCUSSION

Our study aimed at understanding the nutritional behaviour of adolescents indicated poor eating habits that concerned skipping meals, eating high-calorie snacks and drinking sweet drinks.

One of the basic elements of rational nutrition is to ensure the consumption of four to five well-balanced meals evenly distributed throughout the day, the most important of which is breakfast. The regularity of eating meals during the day is important for health. Young people often

underestimate this fact and even consider it irrelevant. Skipping meals is associated with a low-quality diet, especially concerning to the low consumption of fruits and vegetables and a high intake of sodium and calories from solid fats, added sugars, and alcoholic beverages [8]. Own research showed that in the study group $\frac{3}{4}$ teenagers consumed 4 or 5 meals during the day, and almost $\frac{1}{4}$ ate three meals a day. Similar results were obtained by Szymańska-Pomorska et al. [9], who showed that the majority of the students who participated in their studies declared eating 4 meals a day (39.4% of the respondents) and 22.5% of the students had 5 meals a day.

The first breakfast was consumed by 76.5% of students, and the second breakfast was 69.7%. In studies by Sitko et al. a high percentage of students consumed the first breakfast, 68% girls and 90% boys, respectively [10]. Whereas Gajda, when assessing the frequency of eating the first breakfast, obtained much lower values. According to them, only 50.5% of girls consumed the first breakfast and not much more boys (54.3%). In a similar percentage, students declared eating the second breakfast (53%), of which 61.3% girls and 10% fewer boys (51.1%) [11]. In the study of Zięba-Kołodziej, 45.6% of students consumed the second breakfast [12].

Dinner is usually the last meal before going to sleep. It should not be too abundant and eaten late just before bedtime, so as not to overload the digestive tract during the night-time rest. In own research, 63% of the youth declared eating dinner, boys much more often than girls. Eating dinner was usually at 7-8 p.m. The girls tried to eat supper earlier than the boys. Most people in the studies of Wojtaś et al. (almost 40%) consumed the last meal between 8 and 10 p.m., every 4 pupils between 6 and 8 p.m. 18% of the surveyed students declared it as the time to eat the last meal before 6 p.m. [13].

Eating between meals is a common phenomenon that results from the irregular consumption of meals. To quickly satisfy hunger, the most popular are snacks. They should not be consumed at close intervals from main courses, as they may cause problems with eating wholesome meals caused by loss of appetite. In own research, 80% of young people indicated that they were eating between meals. The girls preferred sweets, fruit, and sandwiches, and the boys had sandwiches, sweets and dairy drinks. In the studies of Krzywiec et al. [14] (about 96.7% of respondents) and Wojtyła [15], 77% of the youth declared eating between meals. The most frequently chosen snacks by high school students were unhealthy products [16].

Most of the students studied by us most often ate fried foods (44.2% girls and 63.2% boys), followed by boiled and baked. Youth in the studies of Maksymowicz-Jaroszuk et al. [17] and Al-Rethaiaa et al. [18] also most often chose fried meals.

Among the respondents, 23.0% of girls and 39.1% of boys sweetened their food, while meals with salt added ate 46.9% of girls and 56.3% of boys. Persuading or sweetening meals in adolescent age can lead to abnormal habits and development of preferences of these flavours in adulthood [19].

Over half of the youth most often chose a tea with sugar. Juices were preferred by 44.2% girls and 49.4% boys, and mineral water 45.1% girls and 45.2% of boys also chose mineral water. Tea without sugar, coffee and milk youth drank much less. In the studies of Sitko et al. the most popular drink consumed among the youth was still mineral water (70% junior high school students and 64% high school students), fruit juices (74% and 56% respectively) and tea (74% and 56%). Similar results were obtained by Sitko et al. [10] where the most frequently consumed beverages by high school students were fruit juices (56%) and mineral water (64%) and tea. Marcinkowska's research also confirms that almost all junior high school students and high school students drank mineral water - 96%, that is the majority, and 94% fruit juices. Reaching a significant percentage of youth for mineral water and fruit juices should be considered as positive nutritional behaviour, however, a significant proportion of adolescents consumed non-preferred, from the health point of view, carbonated beverages. Only 15.0% of girls and 11.5% of boys did not drink sugary drinks at all. Girls consumed sweetened drinks most often once a week (41.2%), while boys 3-4 times a week (36.8%). In Marcinkowska's research, almost half of the youth regularly consumed sweet sodas. Among the youth who drink sweet drinks, boys (56%) predominate over girls (44%) [20].

The HBSC report provides relevant data which indicates that 27.3% of Polish pupils, age 15-16 years declared drinking sugary drinks [21]. Too much high-carbonated, flavoured carbonated and non-carbonated water, instead of ordinary water, promotes greater consumption of simple sugars, which is accompanied by a smaller intake of sugars that are more beneficial to health.

The highest percentage of students we studied consumed fast food once a week. Sweets 3-6 times a week were consumed by 35.6% boys and 41.6% girls, and every day nearly $\frac{1}{3}$ of the youth. According to studies by Mendyk et al. fast food once a week or more often consumed as much as 33.6% of respondents, several times a month 61.1%, and only 5.3% of students did not reach for this type of food. Sweets consumed 49.1% of the respondents 5 times a week, and 29.8% daily [22].

Many authors warn in their reports that the nutritional habits of young people require taking actions aimed at changing behaviours that are detrimental to health [23-25]. From among those surveyed by us, 53.1% of girls and 37.9% of boys could not express their opinion on their diet.

Nutritional knowledge of female pupils was higher than male in the study of Naeeni et al. [26], Tallarini et al. [27] and Asakura et al. [28].

Despite Adolescents have a nutrition knowledge, they find it difficult to follow healthy eating recommendations. Barriers to healthy eating include a lack of time, limited availability of healthy foods in schools [29,30]. Young people should know the principles of nutrition and be aware of the health effects of inappropriate nutritional behaviours.

CONCLUSIONS

1. In the examined group of adolescents, there were nutritional errors, which consisted of irregular eating, late time of the last meal before bedtime, consumption of a large number of sweet and spicy snacks and sweetened beverages.
2. Over half of the girls had no opinion on their diet, while boys more often than girls rated their diet as healthy.
3. The results of the research indicate the necessity of nutritional education among adolescents and their parents to shape the proper eating behaviour of young people and to correct mistakes made in this area.

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Conflicts of interest

The authors declare that they have no conflicts of interest.

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