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*Health behaviour, nutrition in particular, of grammar school  
girls and boys from Lublin*

The awareness of health promoting behaviour and the ability to make proper choices determining the health condition in the nearest and remote future are essential for human beings.

Rational nutrition is one of the most important environmental factors affecting further proper physical development, mental well-being, contentment and easy assimilation of knowledge of teenagers. Therefore, the way of nutrition of grammar school students requires their parents' attention. Balanced diet promotes optimal health, decreases the risk of such disorders as dental caries, anaemia, obesity, retarded growth and maturation. Improper long-term nutrition, especially in this age group, leads to various diseases or facilitates their rapid development. Rational nutrition not only consists in optimal supply of energy and dietary components but also in proper distribution of meals throughout the day as well as in such a selection of products in each meal to provide suitable amounts of nutrients. An adequate level of dietary knowledge among parents and teenagers promotes proper dietary habits, e.g. reduced intake of products and meals characterized by low nutritional and high calorific values, which are replaced with full-value meals.

It should be kept in mind that health promoting behaviour of teenagers, healthy nutrition in their youth particularly, promotes continuation of such behaviour in adulthood. This may contribute to a decrease in the risk of civilization diseases that are currently an extremely important social and economic problem.

The present study was aimed at analysing health promoting behaviour of the grammar school girls and boys from Lublin, mainly at evaluating quantitatively their way of nutrition and indicating the most common dietary errors endangering their future health.

#### MATERIAL AND METHODS

The study encompassed 83 individuals – 39 girls (47%) and 44 boys (53%), aged 13–15 (average – 14) studying in one of the Lublin grammar schools. Their nutritional habits were assessed using an anonymous questionnaire concerning the number and regularity of meals consumed, composition of meals, place of consumption, way of meal preparation, types of meals and drinks and frequency of intake of selected products (including sweets and fast-food). Moreover, the questions dealt with cigarette smoking, alcohol drinking and reducing diets used. Additionally, the nutrition state of girls and boys was determined using the percentile net. The results were statistically analysed. The values of parameters were characterized by means of number and percentage. The differences between the groups for unrelated qualitative characteristics were detected by the  $\chi^2$  homogeneity test. The feature correlations were examined by the  $\chi^2$  independence test.  $P < 0.05$  was considered statistically significant. The database and statistical calculations were conducted using Statistica 6.0 software (StatSoft, Poland).

## RESULTS

Table 1 illustrates the distribution of the body-height ratio in the teenage population. Amongst 83 individuals examined, body mass deficiency was found in 7% of boys and 2% of girls, proper body mass was observed in 78% of boys and 90% of girls, while overweight in 11% and 8%, respectively. Obesity was found only in boys – 4%. Table 2 and 2a presents the results of evaluation of nutrition and other health promoting habits among the grammar school students of Lublin.

Table. 1 Distribution of body-height ratio according to sex (%)

Sex	Deficient body mass	Normal weight	Overweight	Obesity
Boys	7%	78%	11%	4%
Girls	8%	90%	2%	-

Table 2. Distribution of answers concerning the way of nutrition and other habits among grammar school students (%)

Parameter examined	Boys	Girls	Significance of statistical differences
Number of meals			p<0.05
1–2	2%	20%	
3–4	66%	66%	
5	18%	10	
> 5	14%	4%	
Breakfast consumed before school			p<0.05
- always	71%	45%	
- sometimes	17%	30%	
- never	12%	25%	
Time of the last meal			p<0.05
- 16–18	2%	20%	
- 18–20	26%	43%	
- 20–22	62%	32%	
- after 22	10%	5%	
The way of meal consumption			p<0.05
- with family at the table	54%	35%	
- in front of TV	35%	35%	
- alone	10%	30%	
Snacks			p>0.05, but near significance
- sweets	60%	50%	
- vegetables	0%	12%	
- fruits	31%	35%	
- dairy products	9%	3%	
Type of meals consumed most frequently			p<0.05
- cooked and stewed	34%	56%	
- fried	57%	26%	
- powdered food + sandwiches	9%	18%	
Difficulties in giving up certain meals			p>0.05
- salty	23%	18%	
- sweet	66%	74%	
- sour	11%	8%	
Frequency of fruit intake			p>0.05
- every day	40%	55%	
- sometimes	55%	32%	
- I do not eat fruits	5%	13%	

Frequency of vegetable intake			
- every day	26%	35%	p>0.05
- sometimes	55%	45%	
- I do not eat vegetables	19%	20%	
Milk consumption			
- 1 glass	31%	48%	p>0.05
- 2 glasses	26%	17%	
- 3 glasses	14%	15%	
- I do not drink milk	29%	20%	
Calorie consciousness			
- yes	5%	18%	p<0.05
- sometimes	21%	37%	
- no	74%	45%	
Reducing diets used			
- yes	12%	50%	p<0.05
- no	88%	50%	
Frequency of intake of sweets			
- every day	83%	82%	p>0.05
- several times a week	17%	18%	

Table 2a. Distribution of answers concerning the way of nutrition and other habits among grammar school students(%)

Parameter examined	Boys	Girls	Significance of statistical differences
Frequency of intake of fries and chips			p>0.05
- every day	41%	45%	
- once a week	19%	10%	
- once a month	26%	23%	
- several times a year	9%	7%	
- never	5%	15%	
Frequency of fast food intake			p<0.05
- every day	10%	3%	
- once a week	24%	3%	
- once a month	24%	37%	
- several times a year	35%	45%	
- never	7%	12%	
Frequency of alcohol intake			p<0.05
- once a week	7%	3%	
- once a month	22%	12%	
- several times a year	38%	20%	
- never	33%	65%	
Cigarette smoking			p>0.05
- every day	5%	0%	
- several times a year	7%	7%	
- never	88%	93%	

The analysis shows significant differences in the number of meals during 24 hours according to sex. The percentage of those having 3–4 meals a day was identical in both sex groups – 66%. Among the individuals consuming 1–2 meals per 24h, girls significantly exceed boys (20% vs 2%). Boys, on the other hand, more eagerly consume more than 5 meals a day (14%) compared to girls (4%). Moreover, the findings reveal statistically significant dependences between sex and breakfast consumption (p<0.05).

Up to 25% of girls and 12% of boys go to school without breakfast; 45% of girls and 71% of boys claimed that they had breakfast before school.

Significant differences were also observed in answers concerning the time of last meals. 43% of girls and only 26% of boys consume their last meal between 6 and 8 p.m., while up to 62% of boys and 32% of girls have supper between 8 and 10 p.m. The way of consumption is worth stressing, with regard to girls, particularly. Over 35% of them have meals in front of the TV, 30% – alone and the remaining 35% with family at the table. A slightly better situation is observed among boys – over a half of them (54%) consume meals with their families. Similarly to girls, 35% of the boys examined have meals in front of the TV and only 10% eat alone. The issue of snacks is similar in both sex groups, the main snacks being bars, cakes, wafers and sweets followed by fruit – 31% of boys and 35% of girls. Only 12% of girls admitted to vegetable snacks, while 9% of boys to dairy snacks. The most common meals consumed by boys include fried dishes – 57% of boys and 26% of girls felt like having them. Cooked dishes are consumed by 56% of girls and 34% of boys. The differences in fruit and vegetable intake are small. The study showed that 40% of boys and 55% of girls had fruit every day, mainly raw fruit and juices. The intake of vegetables looks worse. Only 26% of boys and 35% of girls state their consumption every day. Furthermore, low milk intake is alarming; 31% of boys and 48% of girls admit that they do not drink milk. One glass of milk is drunk by only 31% of boys and 48% of girls.

Calorie-consciousness was higher among girls than among boys ( $p < 0.05$ ). Every 5<sup>th</sup> girl and every 12<sup>th</sup> boy count calories; however, over a half of girls and 1 of boys do not pay attention to that. Likewise, a higher percentage of girls (41%) compared to boys (13%) admit to using reducing diets. Fast food is more frequently eaten by boys than by girls. Almost 24% of boys and 3% of girls had it at least once a week. Over 45% of boys and 45% of girls had a helping of fries and chips every day.

The boys examined were characterized by significantly higher consumption of alcohol ( $p < 0.05$ ). Up to 22% of grammar school boys and 12% of girls drink alcohol once a month. 14% of the population in both sex groups smoked cigarettes several times a year, while 5% of boys admitted that they smoked every day.

## DISCUSSION

There is strong evidence showing that a balanced diet promotes optimal health and intellectual development in childhood and youth. It decreases the risk of such disorders as dental caries, anaemia, obesity, retarded growth and maturation. Healthy diet in youth promotes its continuation in adulthood, which reduces the risk of cardiovascular diseases, hypertension, diabetes type II and osteoporosis (7).

Our study showed many abnormalities in proper nutrition. This is, however, a country-wide phenomenon, which was demonstrated by Gronowska-Seneger et al. (2) (on the basis of the reports published between 1980 and 1985), Białokoz-Kalinowska et al. (1) and Woynarowska (7). The aforementioned authors list the following main and common dietary errors: irregularity of meals, their inadequate number, too low intake of fruit, vegetables and milk, too high fat intake, particularly from fast food and sweets. Our findings confirm these observations. This phenomenon is alarming as increased consumption of products rich in so-called empty calories often competes with consumption of full-value foodstuffs, increases the risk of obesity and thus is likely to lead to various diseases resulting from dietary deficiency.

Our observations concerning snacks are also reported by other authors (1, 6), who indicate an unfavourable, too high proportion of fats, cakes and sweets and too low proportion of fruits and vegetables. According to Ziemianski (8), snacks between meals may have a positive role in the whole day's nutrition of teenagers, simultaneously fulfilling some natural needs of this age to eat quick

meals as long as a full-value alternative to „fast-food” is provided by home and school. Our findings indicating that 25% of girls and 12% of boys have no breakfast are not a local tendency. This is extremely alarming as lack of this meal leads to morning tiredness, reduces cognitive abilities and concentration, causes mood depression (3). The dietary errors correspond to nutrition indices. It seems alarming that 8% of girls and 11% of boys are overweight, which is believed to be an independent risk factor of numerous degenerative diseases; obesity was observed in 4% of boys. Our findings are also likely to result from the time of last meals which should be consumed two hours before sleep; 62% of boys and 32% of girls admitted to having supper between 8 and 10p.m., and 15% even later.

A new health problem is associated with body mass control behaviour. Our study shows that 9% of the students had body mass deficiency, a half of girls (50%) and every 7<sup>th</sup> boy (12%) admitted to using reducing diets, mostly because of being dissatisfied with their appearance. Numerous studies revealed that the percentage of teenagers on reducing diet, girls particularly, increased with age, in the period when body mass gain is a physiological process protecting their proper sexual development. This results from the mass media model observed in the last decade in Poland and since the 60-ties in the western countries concerning the ideal of a slim body called „tyranny of a slim body”(4).

Our study reveals that the majority of teenagers do not smoke; however, 5% of boys smoke every day and 15% try to smoke, which shows that every 5<sup>th</sup> student has contact with cigarettes. Numerous studies indicate that the effects of smoking are visible in adults but the onset of smoking is between 13 and 15 years of age. The earlier the smoking onset, the more severe health effects. The studies show that half of the people who start smoking in their teens and continue later die of tobacco-related diseases. The results are even more alarming since it was demonstrated that smoking increased drug abuse. Smoking is thought to be „the gateway to drug addiction” (7).

The obtained results show that every 4<sup>th</sup> boy (22%) admits to alcohol consumption once a month, while 14% of teenagers at the age of 14 drink alcohol once a week. The study demonstrates that drinking of alcohol by teenagers may seriously damage their tissues and developmental processes. Alcohol impairs the abilities of learning, memorizing and logical thinking, it results in learning difficulties, inhibits emotional development, retards maturation, increases the risk of alcohol and cigarette addiction as well as drug abuse. The studies carried out in the United States demonstrated that children who had started drinking alcohol before the age of 15 were four times as often addicted to alcohol as people who had started drinking after 20 (5).

The above mentioned examples of improper behaviour, mostly dietary patterns, among grammar school teenagers are likely to result from inappropriate family habits. Our results and those of other authors demonstrating wide-spread bad behaviour and dietary choices indicate that attention should be paid to dietary education of teenagers. Suitable knowledge about rational nutrition and health consequences related to wrong dietary habits should substantially affect the process of shaping proper nutritional behaviour amongst teenagers, the effects of which will be visible in adulthood and old age.

## CONCLUSIONS

1. The way of nutrition of grammar school students arouses serious objections with regard to the deviations from principles of rational nutrition.
2. Pubescent teenagers have many abnormal dietary habits, including low intake of milk, vegetables and fruits and frequent intake of fast-food.
3. Late consumption of supper and very frequent snacks between meals, sweets particularly, is likely to contribute to body mass gain in future.

4. It is mainly teenage girls who succumb to patterns of ideal slim postures promoted by mass media and a half of them attempt to lose weight in the period in which adequate nutrition and proper body mass are prerequisites of normal sexual development.

5. Alarming results of studies evaluating the way of nutrition indicate an urgent need of further comprehensive research and implementation of educational activities about the principles of adequate nutrition.

6. Prophylactic educational programmes for addicted teenagers or those at risk of addiction should be implemented. Schools ought to provide reliable information about harmful effects of addictive substances.

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#### SUMMARY

The study analysed health promoting behaviour of the grammar school girls and boys from Lublin, focusing mainly on qualitative evaluation of the way of nutrition and the most common dietary errors endangering their future health. The study included 83 individuals – 39 girls (47%) and 44 boys (53%), aged 13–15. Dietary habits were assessed using an anonymous questionnaire. Moreover, the questions concerned cigarette smoking, alcohol drinking and reducing diets used. Using percentile nets the state of nutrition in the group examined was determined. The results were statistically analysed by the<sup>2</sup> homogeneity test. The findings demonstrate that the way of nutrition of grammar school teenagers arouses serious objections due to many deviations from the current principles of rational nutrition. Furthermore, prophylactic educational programmes for addicted and high risk teenagers should be implemented. Schools ought to provide reliable information about harmful effects of addictive substances.

Zachowania zdrowotne dziewcząt i chłopców w wieku gimnazjalnym miasta Lublina  
ze szczególnym uwzględnieniem odżywiania

Przeprowadzono analizę zachowań prozdrowotnych dziewcząt i chłopców szkoły gimnazjalnej w Lublinie, ze szczególnym uwzględnieniem jakościowej oceny sposobu odżywiania oraz ze wskazaniem najczęściej popełnianych błędów żywieniowych, zagrażających zdrowiu. Badaniami objęto 83 osoby: 39 dziewcząt (47%) i 44 chłopców (53%) w wieku od 13 do 15 roku życia. Do oceny zwyczajowego sposobu żywienia zastosowano metodę ankiety anonimowej. Ponadto pytania ankietowe dotyczyły częstości spożywania używek (palenia papierosów, picia alkoholu) oraz stosowania przez młodzież diet odchudzających. W badanej grupie osób ustalono stan odżywienia posługując się siatkami centylowymi. Uzyskane wyniki poddano analizie statystycznej za pomocą testu jednorodności  $\chi^2$ . Na podstawie przeprowadzonych badań stwierdzono, że sposób żywienia młodzieży w wieku gimnazjalnym budzi poważne zastrzeżenia z racji odstępstw od zasad racjonalnego żywienia. Należy wdrażać profilaktyczne programy edukacyjne dla młodzieży uzależnionej bądź zagrożonej uzależnieniami. W szkołach powinna być wprowadzona rzetelna informacja o szkodliwości substancji uzależniających.