

## SHARE OF FAST FOOD PRODUCTS IN DIETARY BEHAVIOUR OF YOUNG PEOPLE

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In an answer to the survey, 40% of the surveyed girls and 82% of boys declared regular eating of three or four main meals a day. Only 31% of the young people drank milk or milk beverages regularly, and almost half of the surveyed youth ate raw vegetables and fruit every day. Similar percentage had fish as well as poultry in their menu 1–2 times a week and about one fourth of the surveyed group: 3–4 times a week. Snacking (mainly fruit, sandwiches, crisps) between main meals was declared by 85% of the surveyed. As many as 97% of the surveyed young people ate fast food, but at the same time 100% of the surveyed girls and 95% of the boys expressed an opinion that this is not “healthy” food. Most preferred products were: pizza – 76% of the surveyed young people, open cheese and mushroom toasted sandwich with ketchup – 54%, Big Mac – 43%. A convenient form of consumption, attractiveness, taste and accessible price were regarded by most of the surveyed as great advantages of these products.

### INTRODUCTION

In recent years an increase of fast food consumption with constant low consumption of some recommended food are observed both in Poland and in the whole world [Połom & Sińska, 2003; Wierzbička & Roszkowski, 2005]. For example, in 1970 the Americans spent circa 6 trillions USD on fast food and in the year 2000 already 110 trillions. The expenses of an average US citizen related to this type of food are higher than expenses on cinema, books, magazines, newspapers, tapes and musical recordings altogether [DeMaria, 2003; Schlosser, 2002]. In accordance with the results from recent years, 78% of American schools have at least one fast food restaurant within 800 m distance [Austin *et al.*, 2005]. In the United States 30.3% of tested children and teenagers declared eating fast food every day. Particularly frequent consumption of this food was observed among male teenagers coming from households with higher income [Bowman, 2004]. Restaurants that serve fast food, among them mainly KFC and McDonald's, are widespread also in China, a country with different nutritional traditions and customs [Cheng, 2003].

It is estimated that 130 millions of customers visit McDonald's restaurants annually. According to the specialists from Gallup Institute, highly appraised all over the world, well-organised system of fast service, existence of a standard, simplified menu and location in big agglomerations are reasons of popularity of this type of catering outlets [Zwierzyk, 2005].

The phenomenon of high popularity of fast food restaurants may seem alarming, because in the opinion of specialists food rations with a share of fast food meals comprise,

in comparison with traditional food, more energy, fats, total carbohydrates, sugar coming from beverages, cooking salt, and less vitamins (A and C), minerals (Fe, Ca), plant protein and fibre [Bowman, 2004; Zwierzyk, 2005]. It was observed that along with the increase of the frequency of visits to fast food bars there is an increase in consumption of carbonated drinks, cheeseburgers, pizzas, chips, calories and fats in general, while consumption of vegetables, fruits and milk decreases [Brownell, 2004].

According to the published data, during the last 30 years, along with the increase in consumption of fast food, the incidence of obesity, diabetes and circulatory system diseases has rose up rapidly. These diseases are directly connected with disorders of energy metabolism in an organism and central regulation of appetite, caused by an increase in resistance to insulin and leptin [Bowman, 2004; Cheng, 2003; Ebbeling *et al.*, 2004; Isganaitis & Lustig, 2005; Zwierzyk, 2005].

The goal of this study was to survey dietary behaviours and preferences as well as share of fast food in diet of school children. Shaping proper dietary behaviours in this group is of special importance because they are in favour of correct development and functioning of an organism and well-being in adulthood.

### MATERIAL AND METHODS

The analysis was done on the basis of data obtained from questionnaires polled during the winter period of 2004/2005. The surveyed group of 200 persons was made up mostly of second, third and fourth class students of both sexes from a general secondary school “Liceum Ogólnokształcące”, located in the centre of Warsaw.

Weighted average age of the surveyed girls was  $17.2 \pm 0.9$  years, and that of boys was  $17.9 \pm 0.4$  years. According to data from questionnaires, weighted average weight and height were  $55.2 \pm 0.9$  kg and  $166.5 \pm 6.3$  cm as well as  $72.4 \pm 0.5$  kg and  $180.5 \pm 6.9$  cm, respectively. BMI was on average  $20.0 \pm 2.7$  for girls and  $22.2 \pm 2.8$  for boys.

The questionnaire developed by the authors of this paper included questions on sociological data such as sex, age, height and weight. The second part of the questionnaire comprised questions that allowed to assess general eating habits, that is, the frequency of basic products intake and questions related to the consumption frequency of fast food, on the reason for choosing them, the type, the quantity, the circumstances and place of consumption, choice of beverages and others.

The questionnaire, which was anonymous, was filled out in an auditorium system (independently, under the supervision of a poller) after a detailed explanation of notions and the method of filling it out.

Standard deviations were calculated for the obtained data related to height, weight, BMI and the frequency of products intake.

## RESULTS AND DISCUSSION

### Dietary behaviours

The factors which determine a correct way of nutrition are the right quantity and frequency of eating meals and the correct share of particular food groups in them. Young, developing and physically and mentally active organisms require 4–5 meals a day at fixed times of the day [Hamułka, 1998; Hamułka & Gronowska-Senger, 2000].

On the basis of the results of the questionnaire, irregularities in nutrition of the youth were found in relation to both the frequency of meals consumption and to the choice of products for their preparation.

According to data from questionnaires, 40% of the surveyed girls and 82% of the boys consumed three or four main meals a day. At the same time, in that group 69% of girls and 90% of boys declared regular eating of lunch. The remaining respondents admitted that they were eating pretty irregularly. The survey by Frączek [2003] showed that about 60% of young people were taking three meals a day regularly while in the survey done by Cieřlik *et al.* [2003] only one third of young people declared eating such a number of meals a day.

Among persons eating irregularly the frequency of eating particular meals during a week was very varied. Only 33% of the surveyed girls and 50% of the boys declared that they ate breakfast seven times a week, which leads to the conclusion that the others were leaving their homes with an empty stomach. The results of a survey by Wierzbicka & Roszkowski [2005] indicated that half the surveyed girls and one third of the surveyed boys did not eat breakfast.

According to these results, 40% of the surveyed girls and 55% of the boys ate lunch. Dinner was eaten every day by 52 and 45% and supper by 43 and 33% of the surveyed, respectively. It is worth emphasizing that among those eating irregularly 44% ate lunch five times a week, which means only on schooldays, which may be the rule also among persons who claim that they eat regularly. This phenomenon may be connected with the fact that in weekends students sleep longer,

sleeping over the breakfast time. These results were consistent with the results obtained by other authors [Schlegel-Zawadzka *et al.*, 2004]. However, other sources of information say that only 13% of surveyed young people ate lunch [Kostogrys & Filipiak-Florkiewicz, 2005].

An analysis of the answers to questions related to the frequency of consumption of products (Table 1) indicated that only 31% of young people drank milk or milk beverages every day and 15% did not consume milk at all. Rennet cheeses were eaten more frequently than cottage cheeses. Low consumption of milk and milk beverages, found in this study, was confirmed by other authors as well [Cieřlik *et al.*, 2003; Frączek, 2003; Kofłajtis-Dołowy *et al.*, 2004; Komosińska *et al.*, 2001; Kostogrys & Filipiak-Florkiewicz, 2005; Leszczyńska *et al.*, 2005;

TABLE 1. Frequency of meal consumption.

Group of products	Frequency of consumption (%)				
	every day	5–6 times a week	3–4 times a week	1–2 times a week	never
Girls					
Milk and milk beverages	20	4	27	33	16
Cottage cheese	8	12	25	27	28
Rennet cheese	27	23	23	14	13
Eggs	0	0	12	74	14
Pork-butcher's meat products	36	21	22	7	14
Red meat	22	12	19	43	4
Fish and poultry	2	8	30	39	21
Raw vegetables and fruit	43	26	13	18	0
Boiled vegetables and fruit	7	13	31	27	22
Bright bread and noodles	39	24	30	7	0
Dark bread and cereals	17	14	12	31	26
Boys					
Milk and milk beverages	42	4	27	13	14
Cottage cheese	21	10	16	15	38
Rennet cheese	45	15	15	17	8
Eggs	0	6	16	59	19
Pork-butcher's meat products	47	12	37	4	0
Red meat	31	8	44	13	4
Fish and poultry	0	5	17	55	23
Raw vegetables and fruit	52	18	17	13	0
Boiled vegetables and fruit	17	7	30	27	19
Bright bread and noodles	81	5	10	4	0
Dark bread and cereals	1	8	20	37	34
Together					
Milk and milk beverages	31	4	27	23	15
Cottage cheese	15	11	21	21	33
Rennet cheese	36	19	19	16	11
Eggs	0	3	14	67	17
Pork-butcher's meat products	42	17	30	6	7
Red meat	27	10	32	28	4
Fish and poultry	1	7	24	47	22
Raw vegetables and fruit	48	22	15	16	0
Boiled vegetables and fruit	12	10	31	27	21
Bright bread and noodles	60	15	20	6	0
Dark bread and cereals	9	11	16	35	30

Wierzbicka & Roszkowski, 2005]. This is a very disturbing phenomenon, as in its result there is an insufficient supply of calcium and riboflavin which may increase the risk of occurrence of some diseases (osteoporosis) in the adulthood.

Red meat was eaten 3–4 times a week by one third of the surveyed, while only one fourth of the surveyed declared that they did not eat red meat. Almost half the surveyed young people declared eating fish as well as poultry 1–2 times a week, about one fourth declared eating it 3–4 times a week. At the same time as many as 22% of the surveyed did not eat these important products at all. Other Polish surveys indicated also that there was an unsatisfactory consumption of fish by the young people [Frączek, 2003; Kostogrys & Filipiak-Florkiewicz, 2005; Szlegel-Zawadzka *et al.*, 2004].

It resulted from the questionnaire that 48% of the surveyed young people ate raw fruit and vegetables every day and 22% ate these products 5–6 times a week. The surveys done by other authors [Cieślak *et al.*, 2003] indicated that almost all young people surveyed included fruit and vegetables in their diet. On the other hand, according to some other assays fruits and vegetables were present in all-day diet of the half [Frączek, 2003; Leszczyńska *et al.*, 2005; Szlegel-Zawadzka *et al.*, 2004] or only of ~20% of surveyed young people [Komosińska *et al.*, 2001; Kostogrys & Filipiak-Florkiewicz, 2005].

About one third of the surveyed declared that they ate dark bread and cereals 1–2 times a week. One third of the surveyed young people stated that they did not eat these products at all. Low share of dark bread and cereals in consumed food, indicated in this study, confirms the results obtained by other authors [Cieślak *et al.*, 2003; Komosińska *et al.*, 2001; Leszczyńska *et al.*, 2005; Wierzbicka & Roszkowski, 2005].

Snacking between the main meals was admitted by 80% of the surveyed girls and 90% of the boys. Fruits were the most frequently snacked products (61% of the surveyed), and girls ate them more frequently than boys (Figure 1). Sweets were as popular (56% of the surveyed), and were also eaten more willingly by girls than by boys; sandwiches (63%) were in the same rank, more frequently chosen by boys than girls. Occasional eating of crisps was declared by 62% of the surveyed, a few times a month – by 32%, a few times a week – by 5%, every day 2%. Regular snacking between meals by most teenagers of fruits, sandwiches and sweets which may replace lunch and afternoon snack is also confirmed by surveys done by other authors [Jeżewska-Zychowicz, 2004; Kostogrys &

Filipiak-Florkiewicz, 2005; Wierzbicka & Roszkowski, 2005]. High share of sweets may be explained by high inclination of young people towards their consumption which was proved by the surveys done by Komosińska and others [2001], and easy access to them on school premises which was confirmed by Jeżewska-Zychowicz [2004]. Cavaolini [1996] stated that young people from various countries of the world have the custom to munch on snacks between meals. French youngsters snacked on most frequently (90%), mainly milk products and desserts, and snacking included on average 80–85% of the surveyed from Germany (mainly fruit, juices and sweets), Italy (fruits and pizza), Spain (various hamburgers) and the United States (sweets, salty snacks and fruits).

The products mentioned by the surveyed young people were consumed mainly during their stay at school and often proceeded from school shops. Therefore, the tendency to replace the assortment of products offered in shops located on school premises involving replacement of sweets, crisps and similar snacks with more valuable products and of gaseous beverages with fruit juices, especially that juices were the beverages most often drunk at home (by ~67% of the surveyed), should be regarded as beneficial. The fact that some corporations that produce sparkling beverages (Coca-Cola, Pepsi) decided to remove vending machines with these products from schools may be in favour of positive changes in this respect.

Most of the surveyed young people claimed that they ate meals at home and only 20 persons (10%) declared that they ate also outside their households. This referred mostly to lunches and dinners. Eating outside home a few times a week was declared by 36 persons (18%) in this group and 120 persons (60%) informed that they did it occasionally (Figure 2).

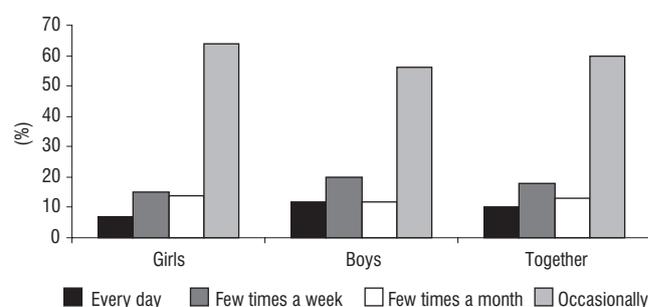


FIGURE 2. Frequency of taking meals out of home.

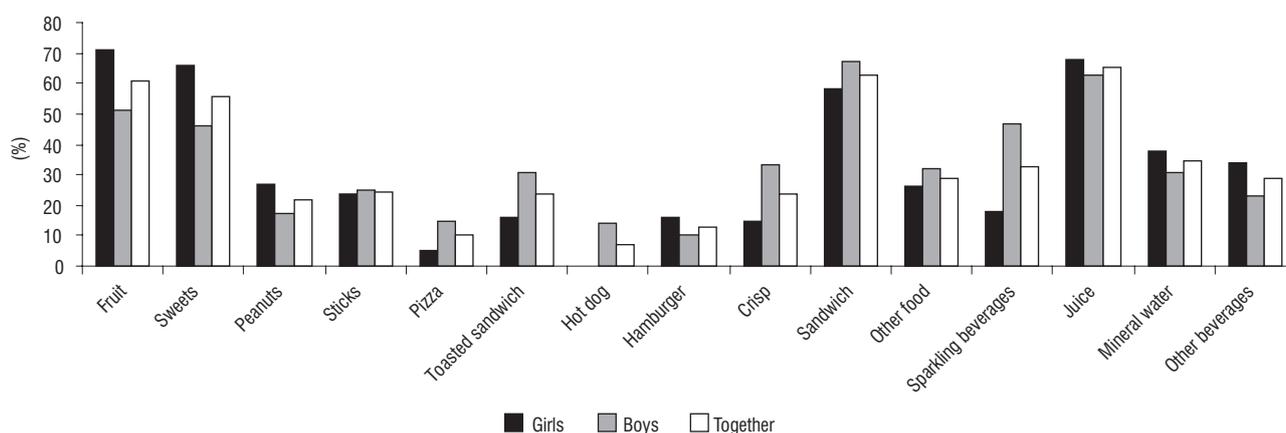


FIGURE 1. Products eaten intermittently.

From among persons who ate their meals out of home, 72% did it in fast food restaurants. The majority of the remaining surveyed young people indicated catering outlets which are not fast food restaurants but offer food for fast consumption (kebab, Chinese food, cafeterias). Wierzbicka & Roszkowski [2005] and Nazarewicz & Zabrocki [2001] observed that McDonald's and Pizza Hut restaurants were the most popular. The results obtained by Kall & Sojkin [2000] and Połom & Sińska [2003] were similar; they also included TelePizza in the favourite catering outlets of the youth. According to Zwierzyk [2005] young people most frequently make use of various forms of catering, mainly in fast food networks.

It should be emphasised that a very small percentage of young people used the school canteen which may result from its lack or small attractiveness of offered meals in comparison with their prices (Figure 3). Kośmider & Gronowska-Senger [2005] found also that 60–80% of young people from towns visited fast food outlets, while school canteens, absent from town schools, played that role in villages.

In the researches covering young people from various countries Cavaolini [1996] proved that on average 47% of German young people, 42% of French teenagers and about 36% of young people from Italy, Spain and the United States ate meals out of home once a week. About 28% of young Italians and about 18% of young people from other countries

ate out of home twice a week. In such events they frequented most often pizzerias and restaurants that serve hamburgers.

**Preferences and share of fast food products in nutrition of the youth**

As many as 97% of the surveyed young people declared that they ate fast food and it resulted from the questionnaire that fast food was very frequently and willingly eaten by young people of both sexes. Nevertheless, differences were found in the frequency of eating fast food depending on the sex of the surveyed young people (Figure 4). At the same time, 56% of persons claimed that they ate the discussed products occasionally and 0.5% – every day. Only 3% of the surveyed stated that they did not eat fast food at all. In the survey by Frączek [2003] as many as 78% of the surveyed young people claimed that they avoided eating such food.

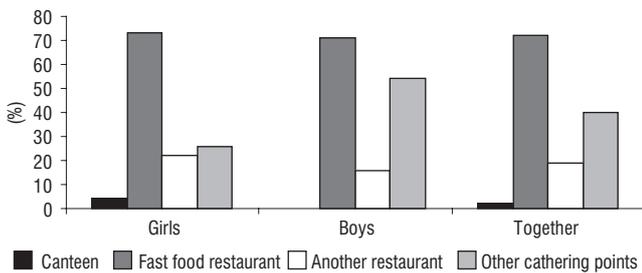


FIGURE 3. Places of consumption.

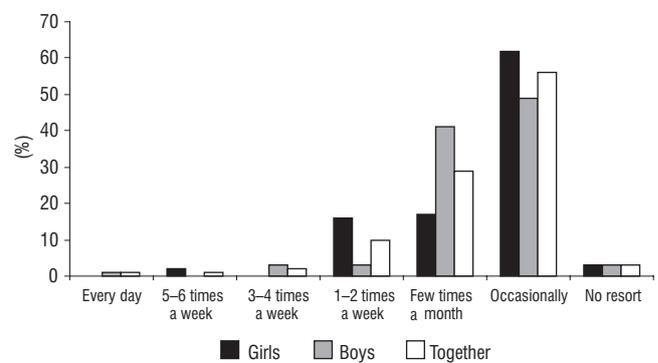


FIGURE 4. Frequency of fast food intake.

From among the surveyed young people 82% concluded that they liked fast food products, the remaining part stated that they did not like them. The preferred products included: pizza – 76% of the surveyed young people, open cheese and mushroom toasted sandwich with ketchup – 54%, and Big Mac – 43%. The following products were less popular: Longer (KFC) – 8%, Fish Mac – 6%, Chicken fillet – 4%; some

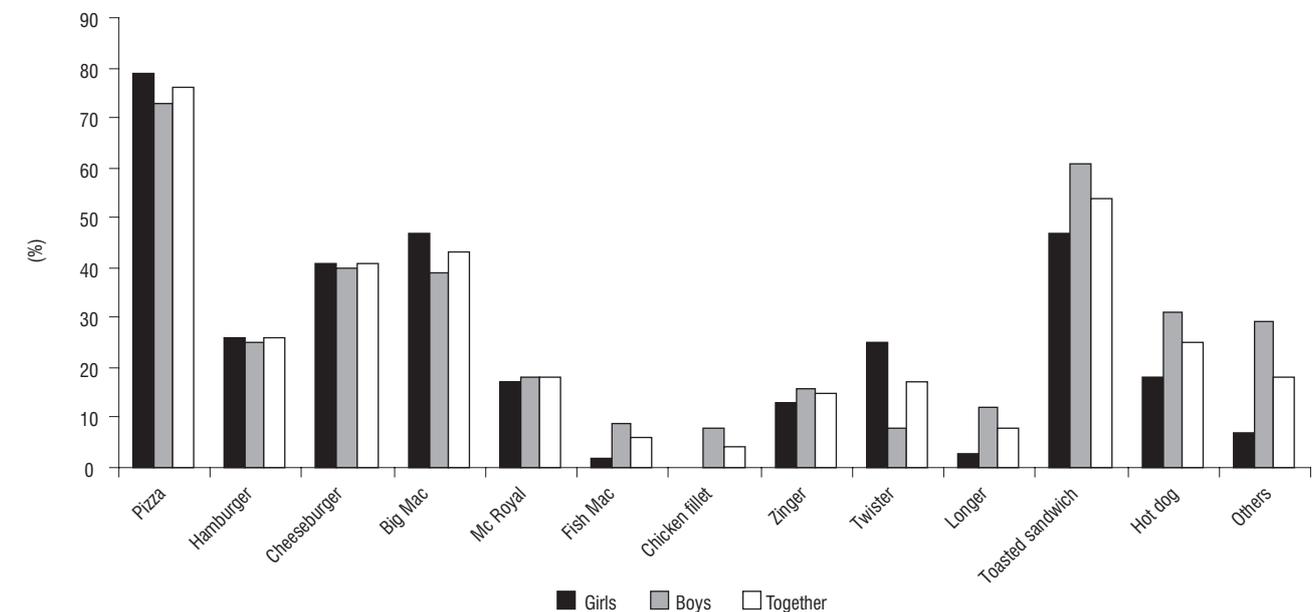


FIGURE 5. Favourite products.

persons mentioned more than one favourite product. Eighteen per cent of the respondents (7% of girls and 29% of boys) said that their preferred products were “other” products not listed in the questionnaire; among these kebab was most popular, chips and Chinese food came second (mentioned only three times less frequently than kebab) (Figure 5). According to Wierzbicka & Roszkowski [2005], the fast food most frequently consumed by young people include sandwiches and sparkling beverages, hamburgers, chips, open cheese and mushroom toasted sandwich with ketchup, hot dogs (among boys) and salads (among girls). Kořmider & Gronowska-Senger [2005] indicated that it was alarming that a high percentage of young people drank gaseous beverages at the expense of natural juices and still water.

From among the surveyed young people, 56% claimed that they were buying single fast food products (the majority of girls: 64%) while 44% were buying sets (the majority of boys: 52%). The average purchased set comprised: a hamburger, chips and a beverage. In the case of a purchase of a set, the surveyed young people were making the following choices: 72% of girls claimed that they were buying XL sets, that is, with an increased quantity of chips and the beverage, the remaining – XXL sets, that is, with a double portion of chips and a double volume of the beverage. In the case of boys the situation was exactly reverse – 29% were buying XL sets, 71% – XXL sets. This is understandable as one hamburger could not probably sate the hunger of a male teenager.

Boys (76%) were choosing sparkling beverages within the set much more frequently than girls (46%), while girls (35%) chose mineral water much more frequently than boys (12%) (Figure 6).

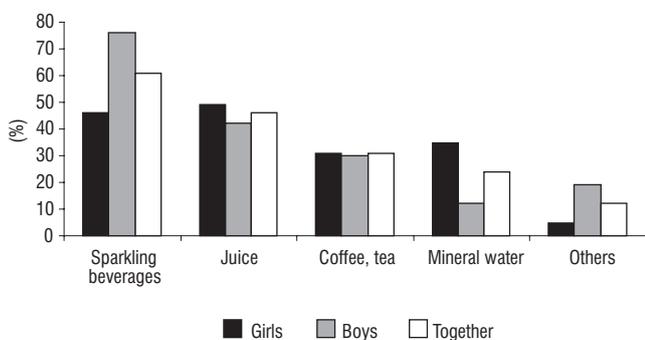


FIGURE 6. Beverages chosen to accompany fast food meals.

Desserts consumption in fast food restaurants was declared by 52% of the surveyed girls and by 48% of the boys. The results indicated that girls were buying most frequently small ice creams – 30%, shakes – 28% and cakes 27%, while boys (28%) preferred shakes (Figure 7).

Most young people (60%) stated that they were buying fast food because they liked it. About half the surveyed stated in this point that fast food restaurants offer a quick and convenient meal (Figure 8). In addition, 41% of the surveyed young people claimed that they visited fast food restaurants when they were very hungry and 35% when they wanted to eat something. In the opinion of the majority of respondents fast food restaurants are not only a place for eating meals. As many as 61% of the surveyed declared that they visited these

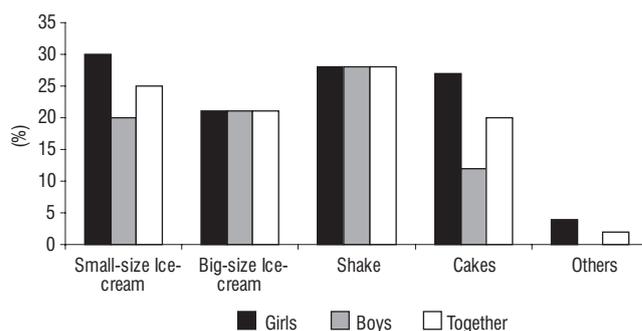


FIGURE 7. Preferred desserts.

places to meet friends and 3% of the surveyed young people – when they had free time. In the survey done by Nazarewicz & Zabrocki [2001] a convenient form of eating meals was the reason for choosing fast food by about 40% of the surveyed teenagers. These authors have also proved that the surveyed were purchasing fast food when they could not prepare a meal on their own. Połom & Sińska [2003] observed that half the surveyed students visited fast food restaurants to satisfy hunger and one fourth because they were persuaded by friends or because of convenience. It was also found that almost half the surveyed chose McDonald’s restaurants for the place of arranged meetings.

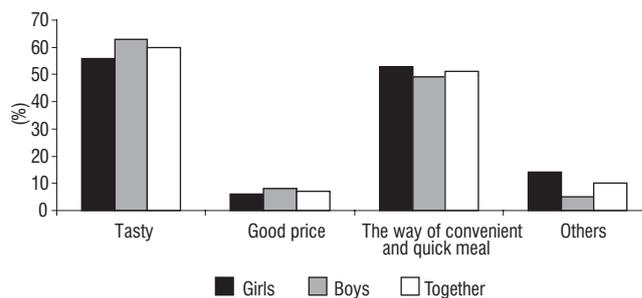


FIGURE 8. Reasons for which fast food is chosen.

The results of the questionnaire concerning fast food consumption by teenagers are quite surprising in comparison with the fact that at the same time 100% of the surveyed girls and 95% of the boys were of the opinion that it is not healthy food. In the researches done by other authors over 90% teenagers believed that fast food is not healthy but in spite of their knowledge the respondents were in favour of this type of food and ate it contrary to the advice of specialists [Nazarewicz & Zablocki, 2001; Połom & Sińska, 2003].

Around 89% of the surveyed girls and 90% of the surveyed boys believed that fast food contains too much fat. In the opinion of the majority of the surveyed teenagers (68% of girls and 59% of boys) fast foods should be enriched with an addition of vegetables or fruit such as tomatoes, cucumbers, paprika, lettuce, onion, maize, broccoli, carrots, garlic, beans, pineapple (descending order of preference). The remaining 32% of girls and 41% of boys believed that there is no need to enrich fast food with fruit and vegetables. In the United States the frequency of visits to fast food restaurants by children is associated with an increased intake of soft drinks, cheeseburgers, pizza, French fries, total fat, and total

calories and a decreased intake of vegetables, fruit, and milk [French *et al.*, 2001].

In the opinion of about half of the surveyed young people the price of fast food was rather affordable while one third of the respondents thought it was rather high.

## CONCLUSIONS

On the basis of the results of the questionnaire, irregularities were found in nutrition of the surveyed young people, related both to the frequency of eating meals and the choice of products for their preparation. From among the surveyed young people, 97% were in favour of fast food because of the convenient form of their consumption. Attractiveness, taste and accessible price for most of the surveyed were regarded as great advantages of these products. The fact that for most young people catering outlets which serve fast food have become the meeting place is worth noting.

Fast food is not a correct substitute or supplement of traditional meals, because of wrongly balanced amounts of nutrients. Frequent snacking between meals of this type of foods as well as of sweets and a high intake of sparkling beverages could be dangerous. Too frequent eating of fast food may lead to incorrect dietary behaviours which, in consequence, may cause an increase in the risk of occurrence of diseases related to incorrect nutrition, including overweight, obesity, and diabetes.

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**UDZIAŁ PRODUKTÓW TYPU FAST FOOD W ZWYCZAJACH ŻYWIENIOWYCH MŁODZIEŻY***Elżbieta Sikora, Teresa Leszczyńska, Przemysław Szymański**Katedra Żywienia Człowieka Wydziału Technologii Żywności, Akademia Rolnicza w Krakowie*

Odpowiadając na przeprowadzoną ankietę 40% badanych dziewcząt oraz 82% chłopców deklarowało regularne spożywanie trzech lub czterech głównych posiłków w ciągu dnia. Jedynie 31% młodzieży piło codziennie mleko lub napoje mleczne, a prawie połowa spożywała codziennie warzywa i owoce w stanie surowym. Podobny odsetek uwzględnił w jadłospisach ryby, jak również drób 1–2 razy w tygodniu, a około jedna czwarta badanych – 3–4 razy w tygodniu. Pojadanie między głównymi posiłkami (głównie owoców, kanapek, chipsów) deklarowało 85% ankietowanych. Aż 97% badanej młodzieży spożywało produkty typu fast food, ale jednocześnie 100% badanych dziewcząt i 95% chłopców wyrażało opinię, iż nie jest to żywność „zdrowa”. Wśród najchętniej spożywanych produktów wymieniano: pizzę – 76% ankietowanych, zapiekankę – 54%, Big Mac’a – 43%. Jako główne przyczyny wyboru żywności tego typu wymieniano wygodną formę konsumpcji, atrakcyjność, smakowitość i przystępną cenę.

