

ASSESSMENT OF CONSUMPTION OF “LIGHT” FOOD BY STUDENTS

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Abstract. One of factors which could possibly reduce the trend for the increasing incidence of obesity could be a decrease in energy value of consumed meals through the introduction of “light” food into the daily diet. The aim of this study was to assess the frequency of consumption of “light” food. Survey studies were conducted among 200 students (51% women) in the city of Poznań. For young people the most preferred “light” products were yoghurts and soft drinks. Differences were shown in the preferences and frequencies of consumption between the group of women and men.

Key words: “light” food, consumption, obesity, students

INTRODUCTION

In recent years the problem of appropriate nutrition has received much attention. This results from very simple reasons: a sedentary lifestyle, consumption of fast food and stress have an adverse effect on the figure. Moreover, improper eating habits lead as a consequence to harmful health effects defined as metabolic civilization-related diseases such as e.g. diabetes, diseases of the cardiovascular system and cancers [Lands 2003, Gawęcki and Hryniewiecki 1998].

It results from statistical reports that the percentage of obese individuals is dramatically increasing worldwide. It is estimated that in EU countries over 50% adults are overweight or obese. This problem does not affect only adults. In case of European children and teenagers aged 5 to 17 years a similar trend is found in as many as 20% [Otyłość... 2003, Harton et al. 2002, Peters 2003]. The most frequently applied treatment method is increased physical activity and a proper diet, in which the supply of food is possibly minimal. In such cases it is necessary to use “light” food, which supplies vitamins, minerals and other biologically active substances at a reduced energy value [Allison and Weber 2003, Pacholka and Kłosiewicz-Latoszek 2002, Peters 2003, Wemmer 2000].

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Overweight and obesity found in people population in the world result primarily from excessive consumption of high-caloric food with a high fat content. Its consumption in UE countries, including Poland, is definitely too high. In Europe the share of daily energy intake coming from fat exceeds the value of 30% recommended by FAO/WHO. Although in UE countries the share of fat in the diet decreased from 40% to 36.5% in 1999, consumption in terms of calories per capita in the 1990's increased to 3400 kcal from 3187 kcal in the 1970's [Górecka and Krygier 2004, Peters 2003].

In view of the epidemiological scale of obesity, resulting first of all from improper nutrition, technologists and nutritionists try to lower the calorie value of food rations by introducing into the daily diet "light" food, considered as one of the types of functional food. On the Polish market such foodstuffs may be found with increasing frequency and may prove useful in the prevention and limitation of incidence of the above mentioned civilization-related diseases [Allison and Weber 2003, Tretzel 1999, Johnson and Frary 2001].

Defining and labelling of food with lowered energy value and with a reduced fat content are regulated by respective ordinances and directives [<http://europa.eu.int/scad-plus/leg/en/lvb/121095.htm>]. However, the concept of "light" type food tends not to be properly understood by consumers and expectations connected with this food are sometimes far from reality. This problem pertains both to young people and middle-aged and elderly individuals. For this reason in this study a survey was conducted among students in the city of Poznań.

The aim of this study was to assess the consumption of "light" food by students of the Agricultural University of Poznań and the Poznań University of Technology. Moreover, principles of the rational diet and the understanding of the concept of "light" food were also analysed.

MATERIAL AND METHODS

In order to realize the undertaken study a survey was conducted in the spring of 2003 among 200 students of the Agricultural University of Poznań and the Poznań University of Technology. A questionnaire was used, which contained standardized responses to choose from questions concerning respondents, which were included in the section entitled "descriptive data".

Questions in the specific part concerned the number of typically consumed meals, preferences and frequencies of consumption of "light" products such as yoghurts, milk, fatty bread spreads, jams, soft drinks, puddings, fruit-flavour gelatin desserts, sweets, bread, mayonnaise and ice-creams.

Mean frequency of consumption of these products was defined using a four-point scale, with the following terms: daily, 2-3 times a week, 2-3 times a month, never. On the basis of anthropometric measurements the BMI values were calculated for the respondents.

Percentages of the polled students for individual questions were determined using the Excel software.

DISCUSSION AND RESULTS

Among individuals participating in the survey 51% were women, among which 49% were students at the University of Technology and 51% at the Agricultural University. The questioned male students from the University of Technology and the Agricultural University constituted 51% and 49%, respectively (Table 1).

Table 1. Profile of respondents
Tabela 1. Charakterystyka ankietowanych

| Sex Płeć | University Uczelnia | Percentage of respondents Procent odpowiedzi | Body Mass BMI Masa ciała wg BMI | Percentage of respondents Procent odpowiedzi |
|------------------|------------------------|---|------------------------------------|---|
| Women Kobiety | AU | 51 | underweight – niedowaga | 8 |
| | | | correct mass – właściwa | 88 |
| | | | overweight – nadwaga | 4 |
| | PUT | 49 | underweight – niedowaga | 24 |
| | | | correct mass – właściwa | 72 |
| | | | overweight – nadwaga | 4 |
| | total ogółem | 51 | underweight – niedowaga | 16 |
| | | | correct mass – właściwa | 80 |
| | | | overweight – nadwaga | 4 |
| Men Mężczyźni | AU | 49 | underweight – niedowaga | 0 |
| | | | correct mass – właściwa | 67 |
| | | | overweight – nadwaga | 33 |
| | PUT | 51 | underweight – niedowaga | 0 |
| | | | correct mass – właściwa | 48 |
| | | | overweight – nadwaga | 52 |
| | total ogółem | 49 | underweight – niedowaga | 0 |
| | | | correct mass – właściwa | 41 |
| | | | overweight – nadwaga | 59 |

Explanations notes: AU – Agricultural University, PUT – Poznań University of Technology.
Objaśnienia: AU – Akademia Rolnicza, PUT – Politechnika Poznańska.

On the basis of anthropometric measurements the BMI values were calculated for the respondents. For 59% polled men it was alarmingly high and exceeded 25, which indicates overweight or obesity in the polled group of male students. The BMI value for most women (80%) was appropriate, although it was observed that in contrast to men 16% female students had improper body weight, indicating underweight. In their studies other authors [Chwojnowska et al. 2002, Szponar et al. 1996] also found an insufficient energy supply in women, which was reflected in their inappropriate body weight. Authors explain this behaviour by the trend to decrease the energy ration of women in order to improve their image. Other reports inform that maintenance of an appropriate

body weight may be disturbed already in childhood. It is believed that 98% obesity cases is the consequence of excess of energy uptake over its expenditure [Peters 2003, Wemmer 2000].

Among the polled individuals the regularity of consumption was investigated for meals during the day (Table 2). One of the recommendations published in Poland and concerning the principles of a healthy diet is the consumption of at least three meals daily, including an obligatory breakfast. As it resulted from the investigations, almost 50% respondents did not follow the nutrition recommendations. This problem pertained primarily to men (55%). A total of only 24% respondents had regular meals. Similar results were also obtained by other authors, who while analysing eating habits found that over 50% respondents consume irregularly up to 3 meals a day [CBOS 2000, Harton et al. 2002, Hyżyk et al. 2000, Pacholka and Kłosiewicz-Latoszek 2002, Szczepaniak et al. 2002].

Table 2. Questions and possible answers, %
Tabela 2. Pytania ankietowe i możliwe odpowiedzi, %

| Question Pytanie | Women – Kobiety | | | Men – Mężczyźni | | | Total – Ogółem | | |
|--|-----------------|-----------|------------------|-----------------|-----------|------------------|----------------|-----------|------------------|
| | yes tak | no nie | rarely rzadko | yes tak | no nie | rarely rzadko | yes tak | no nie | rarely rzadko |
| Do you eat your meals regularly? Czy posiłki są spożywane o stałych porach dnia? | 30 | 39 | 31 | 18 | 55 | 27 | 24 | 47 | 29 |
| Do you snack between meals? Czy dojada Pan(i) między posiłkami? | 29 | 61 | 10 | 27 | 59 | 14 | 28 | 60 | 12 |
| Do you know anyone on a slimming diet? Czy w najbliższym otoczeniu jest ktoś na diecie odchudzającej? | 35 | 6 | 59 | 33 | 2 | 65 | 34 | 4 | 62 |
| Do you like “light” jams? Czy wybiera Pan(i) dżemy niskosłodzone? | 57 | 6 | 37 | 39 | 12 | 49 | 48 | 9 | 43 |
| Do you eat “light” yoghurts? Czy spożywa Pan(i) jogurty typu „light”? | 43 | 14 | 43 | 14 | 19 | 67 | 28 | 17 | 55 |
| Do you drink “light” drinks? Czy pije Pan(i) napoje typu „light”? | 39 | 24 | 37 | 31 | 8 | 61 | 35 | 16 | 49 |
| Do you buy “light” sweets? Czy kupując słodycze, wybierasz produkty o obniżonej wartości kalorycznej? | 2 | 67 | 31 | 0 | 90 | 10 | 1 | 78 | 21 |
| Are “light” products in your opinion different (better) in quality from traditional ones? Czy produkty „light” różnią się Pana(i) zdaniem jakościowo od tradycyjnych (są lepsze)? | 51 | 18 | 31 | 26 | 37 | 37 | 44 | 22 | 34 |

Every third polled individual admitted to the habit of snacking. It is not recommended, with the exception of fruit and vegetables, which need to be included in the daily diet and eating them is advisable also between meals [CBOS 2000, Gawęcki and Hryniewiecki 1998].

A total of 14% men and 10% women reported they snack rarely, while 60% respondents do not eat between meals. Obtained results confirm information reported by CBOS [2000], according to which a large percentage of Poles do not have the habit of snacking on various types of chips, puffs and sweets – they eat them not more than once a month or even less often. Recommended amounts of fruit and vegetables are consumed especially by approx. 50% women. A total of three out of four Poles (77%), in our research, have snacks between the main meals at least several times a week.

The "light" products most frequently consumed by the polled young people are yoghurts and soft drinks, although to a slightly smaller degree they had milk, cheeses and spreads with lowered energy value.

Women (57%) more frequently than men (39%) declared the consumption of low-sugar jams. A comparison of these data to those for the total number of Poznań students shows that almost 50% respondents include low-sugar jams in their diet and 43% eat them rarely.

Among the polled women, as many as 43% confirmed that they eat light type yoghurts. In contrast, only 14% men stated that they consume only such products. A total of 55% respondents reported that they consume yoghurts with a reduced energy value rarely and 17% said that they do not eat them at all. Similarly in the study by Szczeniowski et al. [2002] it was shown that yoghurts are consumed primarily in their traditional version, i.e. containing 3-5% fat.

Such trends were also observed in case of "light" soft drinks. More female students (39%) than male students (31%) reported their consumption. Almost two times more men (61%) than women (37%) rarely consumed these drinks, but definitely fewer men (8%) than women (24%) informed that they never drink "light" drinks.

The least frequently consumed "light" products turned to be sweets. Almost 80% respondents declared that they do not eat them and more women (31%) than men (10%) snack on them rarely.

Questions contained in the questionnaire concerned also qualitative differences between "light" products and their traditional equivalents. It results from the analysis of organoleptic differences that women (51%) defined "light" products as sensory better. In contrast, men to a much less degree (26%) opted for the advantageous differences. No differences were observed by 18% female and 37% male students. A larger percentage of men than women did not give any opinion in reference to this question. Over 35% males did not know if there is any difference.

Among the polled, both women and men, a majority (59% and 58%) knew the correct definition of "light" products, i.e. they knew that they are characterized by a reduced calorie value in relation to their traditional equivalents (Table 3). However, the other respondents marked other answers, which indicates their limited knowledge in this respect. Among the polled 12% of the total number were of the opinion that these products do not contain fat, 11% treated "light" products as not natural and thus harmful for health, and 9% respondents declared that they do not contain sugar. A small percentage of respondents (7%) showed a complete lack of knowledge on the subject, defining "light" products as having no energy value, as a result of which they can be consumed with no limitations.

Table 3. The respondents knowledge concerning “light” food, %
 Tabela 3. Wiedza respondentów na temat produktów typu „light”, %

| Answer Odpowiedź | Women – Kobiety | | | Men – Mężczyźni | | | Total – Ogółem | | |
|---|-----------------|-----|-----------------|-----------------|-----|-----------------|----------------|-----|-----------------|
| | AU | PUT | total ogółem | AU | PUT | total ogółem | AU | PUT | total ogółem |
| It is calorie free and I can eat it without limitations Jest bezkaloryczny i mogę go spożywać do woli | 10 | 8 | 9 | 4 | 3 | 4 | 7 | 6 | 7 |
| No fat content Nie zawiera tłuszczu | 16 | 0 | 9 | 8 | 24 | 19 | 12 | 13 | 12 |
| No sugar content Nie zawiera cukru | 10 | 12 | 11 | 8 | 7 | 7 | 9 | 9 | 9 |
| They are unnatural, harmful for health, include only chemical ingredients Są nienaturalne, szkodliwe dla zdrowia, tzw. sama chemia | 6 | 8 | 7 | 20 | 7 | 11 | 12 | 7 | 11 |
| Are low in calories Mają obniżoną kaloryczność | 58 | 60 | 59 | 56 | 59 | 58 | 58 | 59 | 58 |
| I don't know Nie wiem | 0 | 12 | 5 | 4 | 0 | 2 | 2 | 6 | 4 |

AU, PUT – see Table 1.
 AU, PUT – patrz tabela 1.

Respondents did not declare a definite answer to the question on the expected effects after the consumption of “light” products (Table 4). The most frequently selected answer was “I eat it because I like it” (31% total number of respondents). More women than men after the consumption of “light” products expected advantageous effects on accelerated metabolism and body weight loss. In turn, none of the polled individuals were motivated by the acceptance of others in their selection of “light” products.

In the study the frequency of consumption was analysed for “light” products (Fig. 1). It resulted unambiguously from the obtained answers that these products in case of over 50% respondents, both men and women, were consumed up to three times a week. Among the total number of respondents 7% declared the consumption of these products 2-3 times a month. In turn, more men (43%) than women (37%) declared that they do not eat such products at all. To sum up our investigations we perceived the problem of obesity in a large part of the population. It was shown in this study by calculating the BMI values for the polled students of Poznań universities. The obesity in men was observed more frequently than in women (59% vs. 4%). In turn, a too low BMI was found in 16% women, which was not observed in the male population. Moreover, almost 80% respondents did not follow nutritional recommendations and had meals irregularly. However, women more frequently (30%) than men (18%) consumed meals at regular times of the day.

Table 4. What kind of effects do you expect after consumption of "light" food, %
Tabela 4. Jakich efektów oczekuje Pan(i) po spożyciu produktów typu „light”, %

| Answer Odpowiedź | Women – Kobiety | | | Men – Mężczyźni | | | Total – Ogółem | | |
|--|-----------------|-----|-----------------|-----------------|-----|-----------------|----------------|-----|-----------------|
| | AU | PUT | total ogółem | AU | PUT | total ogółem | AU | PUT | total ogółem |
| Body weight lost Utraty masy ciała | 13 | 18 | 15 | 14 | 6 | 10 | 12 | 14 | 13 |
| Accelerated metabolism Przyspieszonej przemiany materii | 26 | 7 | 17 | 7 | 16 | 12 | 12 | 17 | 15 |
| Well-being Dobrego samopoczucia | 26 | 25 | 25 | 15 | 16 | 16 | 20 | 21 | 21 |
| Better health Poprawy zdrowia | 7 | 14 | 10 | 23 | 26 | 24 | 20 | 15 | 17 |
| Acceptance of people Akceptacji otoczenia | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| I expect no effects, I eat it because I like it Nie oczekuję żadnych efektów, spożywam bo lubię | 26 | 36 | 31 | 33 | 29 | 31 | 32 | 29 | 31 |
| Other – Inne | 3 | 0 | 2 | 7 | 6 | 7 | 3 | 5 | 4 |

AU, PUT – see Table 1.
AU, PUT – patrz tabela 1.

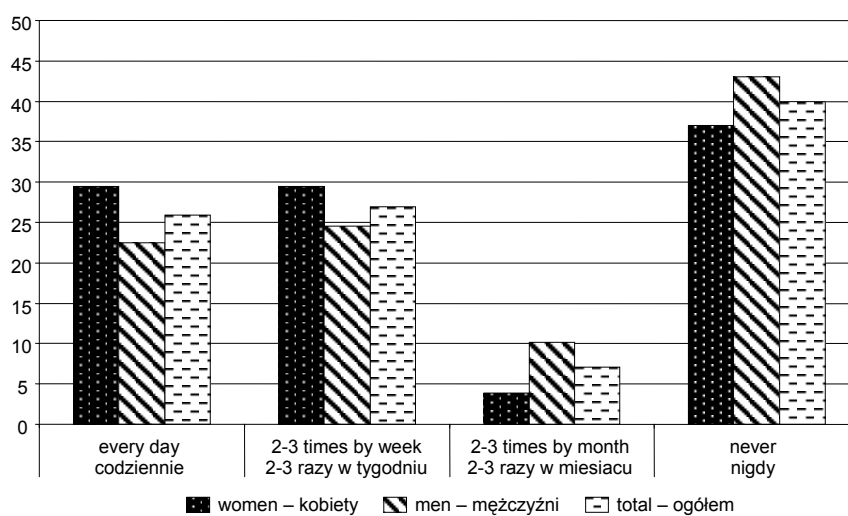


Fig. 1. Frequency of "light" food consumption among each sex of students, %

Rys. 1. Częstość spożycia produktów typu „light” wśród studentów z uwzględnieniem płci, %

CONCLUSIONS

1. Only over 50% respondents knew the correct definition of “light” food.
2. Women consumed “light” products more frequently than men. Over 40% students declared that they do not eat such products at all.
3. Most male respondents rarely consumed yoghurts and drank soft drinks with lowered energy value. Products of this type were used in their diet to a larger extent by women.
4. Most frequently the polled students consumed the analysed food because they were tasty and they liked them, not expecting at the same time any health effects (32%). Women more often consumed “light” products due to their advantageous effect on their well-being and a positive effect on accelerated metabolism.

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OCENA SPOŻYCIA ŻYWNOŚCI TYPU „LIGHT” PRZEZ MŁODZIEŻ STUDENCKĄ

Streszczenie. Jednym z czynników mogących zahamować tendencję powstawania otyłości mogłoby być zmniejszenie kaloryczności spożywanych posiłków poprzez wprowadzenie do jadłospisów żywności typu „light”. Celem niniejszej pracy była ocena częstotliwości spożycia żywności typu „light”. Przeprowadzono badania ankietowe wśród 200 studentów (51% kobiet) na terenie Poznania. Dla młodzieży najbardziej preferowanymi produktami typu „light” były jogurty i napoje bezalkoholowe. Wykazano różnice w preferencjach i częstotliwościach ich spożycia pomiędzy grupą kobiet i mężczyzn.

Słowa kluczowe: żywność typu „light”, spożycie, otyłość, studenci

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