ROCZN. PZH 2007, 58, NR 1, 223-228

DANUTA GÓRECKA, BARBARA SZCZEPANIAK, EWA FLACZYK, PIOTR KORDUBSKI

FREQUENCY OF CONSUMPTION OF PRODUCTS WITH VARYING ENERGY VALUE BY PATIENTS OF A SANATORIUM IN CIECHOCINEK

OCENA CZĘSTOTLIWOŚCI SPOŻYCIA PRODUKTÓW O ZRÓŻNICOWANEJ WARTOŚCI ENERGETYCZNEJ PRZEZ KURACJUSZY SANATORIUM W CIECHOCINKU

Department of Human Nutrition Technology
August Cieszkowski Agricultural University of Poznań
60-624 Poznań, Wojska Polskiego 31, Poland
e-mail: gordan@au.poznan.pl
Head: prof. dr hab. *J. Korczak*

The aim of the study was to assess the frequency of consumption of selected groups of foodstuffs with varying energy value. The survey included 100 persons, out of which 80% were obese individuals (OB), while the others were patients with cardiovascular diseases (CVD). Products with lowered energy value were on average consumed rather frequently. Obese patients, from among women constituted 80%, paid attention to fat content in their daily diet.

Key words: low-fat products, consumption frequency, survey
Słowa kluczowe: produkty niskotłuszczowe, częstotliwość spożycia, badania

INTRODUCTION

In economically developed countries one of the primary problems is currently excessive consumption of high calorie food, especially fats, particularly of animal origin. Such eating habits lead to elevated incidence of metabolic civilization-related diseases, e.g. atherosclerosis, hypertension, diabetes, cancers or obesity [11, 5].

The need to limit - for health reasons - the consumption of food with high fat content is observed with increasing frequency also in Poland and consumer demand for low- and no-fat products is systematically growing. The positive effect of these foodstuffs on health may be observed only in case when they are accepted by consumers and eaten regularly in considerable amounts [7, 8, 10].

Thus it seems advisable to undertake studies on the interest rate in low energy food and to investigate the current consumption frequency of selected products with varying energy value among obese individuals and patients with heart disease.

MATERIAL AND METHODS

The method of a direct interview using a questionnaire was applied in the study. Questions concerned the consumption frequency of selected commonly available products in assortments with varying energy value. They included milk and dairy products (14 products), spreads (5 products), confectionery (4 products) and drinks (9 products). Mean frequency of their consumption was determined using a 4-point scale. The verbal definitions were ascribed appropriate numerical values, i.e. I never consume it - 1, sometimes - 2, often - 3 and I always consume it - 4.

The investigations were carried out in 2005 and included 100 patients of a sanatorium in Ciechocinek. Two groups were distinguished among the respondents: patients with obesity (64 women and 16 men) and heart diseases (9 women and 11 men). Women constituted 73% from among all inquired.

Statistical analysis determining the dependence between the sex of the pooled individuals and a disease unit and the consumption frequency of the analyzed products was conducted using the *Spearman* rank correlation coefficient.

RESULTS AND DISCUSSION

The components reduced in the diet by a majority of polled patients were fat (89%) and sugar (83%). Slightly more women (90%) than men (85%) tried to avoid these ingredients, with 91% obese patients cutting down on fat, and only 84% on sugar.

Dairy products consumed most frequently by all patients included low-fat cottage cheese (x=2.45) and cottage cheese with a lowered fat content (x=2.37), as well as semi-skimmed (x=2.4) and skimmed milk (x=2.18) (Table I). Cream with a 36% fat content was consumed

Table I. Consumption frequency of dairy products by respondents

Product	Total N=100		K N=73		M N=27		OB N=80		CVD N=20	
	x	R	x	R	x	R	x	R	x	R
Low-fat cottage cheese	2.45	1	2.58	1	2.22	6	2.55	1	2.05	8
Cottage cheese with reduced fat content	2.37	2	2.36	2	2.26	5	2.3	2	2.65	2
Milk 1.5-2% fat content	2.4	3	2.33	3	2.63	1	2.29	3	2.85	1
Milk 0.5% fat content	2.18	4	2.27	4	2.04	9	2.28	4	1.8	12
Cheese with reduced fat content	2.11	5	2.14	5	2.26	3.5	2.16	5	1.9	10
Light yoghurt	2.16	6	2.08	6	2.26	3.5	2.15	6	2.2	3.5
Processed cheese	1.91	7	2.05	7	2.3	2	2.1	7	2.2	3.5
Cream 12% fat content	2.12	8	1.85	8	2.07	7.5	1.85	8	2.15	6
Full-cream cheese	1.9	9	1.82	9	2.07	7.5	1.83	9	2.21	5
Cream 9% fat content	1.78	10	1.81	10	1.74	12	1.81	10	1.65	14
Milk 3.2% fat content	1.86	11	1.75	11	2.04	10	1.8	11	2.1	7
Cream 18% fat content	1.76	12	1.68	12	1.93	11	1.71	12	1.95	9
Full-cream cottage cheese	1.64	13	1.58	13	1.74	13	1.59	13	1.85	11
Cream 36% fat content	1.33	14	1.23	14	1.56	14	1.23	14	1.75	13
			r_s=0.77				r_s=0.5			

N - number of respondents; K - women; M - men; OB - obese patients; CVD - patients with cardiovascular diseases; x - average frequency degree; R - rank of consumption frequency;
r_s - *Spearman's* rank correlation coefficient

with the lowest frequency (x=1.33), the same was true of full-cream cottage cheese (x=1.64) and milk with a 3.2% fat content (x=1.86). Women more often than men selected low-fat cottage cheese and skimmed milk, while men chose products with a slightly higher fat content, only "light" yoghurt was consumed more frequently by men (x=2.26) than by women (x=2.16). *Spearman's* rank correlation coefficient between series of consumption frequencies of the analyzed dairy products for women and men was 0.77, indicating a medium strength of the relationship. Similarly, studies by *Solheim & Lawless* [9] and *Babicz-Zielińska* [1] showed that women most frequently consumed products with a lowered fat content or even no-fat foodstuffs.

Obese individuals much more frequently than patients with cardiovascular diseases consumed dairy products with a reduced fat content. An example in this respect may be low-fat cottage cheese ranking first in the order of consumption frequency among obese individuals and only the 8th for the other patients. *Spearman's* rank correlation coefficient (r_s=0.5) between ranks of consumption frequency of the analyzed dairy products for OB and CVD patients showed a medium strength of relationship.

Table II. Consumption frequency of fat spreads

Type of fat	Total N=100		K N=73		M N=27		OB N=80		CVD N=20	
	x	R	x	R	x	R	x	R	x	R
Butter	2.42	1	2.26	1	2.74	1	2.29	1	2.95	1
I don't use any spreads	1.73	2	1.88	2	1.44	5	1.83	2	1.35	6
Traditional type mayonnaise	1.64	3	1.6	3	1.67	2	1.63	3	1.7	2
Low-fat mayonnaise	1.51	4	1.49	4	1.56	4	1.48	4	1.65	3
Light type margarine	1.42	5	1.34	6	1.63	3	1.39	5	1.55	4
Lard	1.4	6	1.38	5	1.41	6	1.38	6	1.5	5
			r_s=0.97				r_s=0.42			

N - number of respondents; K - women; M - men; OB - obese patients; CVD - patients with cardiovascular diseases; x - average frequency degree; R - rank of consumption frequency;
r_s - *Spearman's* rank correlation coefficient

Butter and traditional style mayonnaise were the most popular spreads both for women and men, as well as OB and CVD patients (Table II). Women and obese individuals also rather frequently decided not to use any spreads at all. Series of consumption frequency for fatty spreads formed separately for obese and heart disease patients were characterized by a medium strength of relationship (r_S=0.42). Women used "light" margarine least frequently (x=1.34), whereas for men the same may be said about lard (x=1.41). Selection of spread was statistically independent of the patient's sex (r_S=0.97). Similar results were reported by *Bolesławska* et al. [3]. A study conducted by *Cieślik* et al. [4] on a similar group of respondents (staying at a sanatorium in Iwonicz Zdrój) showed that respondents more often consumed soft margarine spreads than butter. In the study by *Babicz-Zielińska* et al. [2] it was found that fats most frequently consumed by students were butter and margarine.

Consumption frequency coefficient for "light" type confectionery for the total number of respondents showed that these products were consumed very rarely or never. A similarly low consumption frequency of "light" sweets was reported by *Flaczyk* et al. [6].

The most popular drinks, irrespective of the sex and disease unit of the polled individuals, were tea without sugar, fruit juices and coffee without sugar. Respondents very rarely drank tea and coffee with an artificial sweetener or sugar (Table III).

Table III. Consumption frequency of drinks

Product	Total N=100		K N=73		M N=27		OB N=80		CVD N=20	
	x	R	x	R	x	R	x	R	x	R
Tea without sugar	2.94	1	3.01	1	2.74	1	2.98	1	2.8	1
Fruit juices	2.6	2	2.63	2	2.56	2	2.63	2	2.5	2
Coffee without sugar	2.38	3	2.45	3	2.19	3	2.4	3	2.3	3
Fruit drinks with sweetener	1.98	4	2.1	4	1.74	9	2.09	4	1.55	7
Tea with sugar	1.85	5	1.75	6	2.0	5	1.8	5	2.1	4.5
Light type fruit drinks	1.81	6	1.79	5	1.93	6	1.79	7	1.9	6
Coffee with sugar	1.74	7	1.58	9	2.07	4	1.65	9	2.1	4.5
Coffee with sweetener	1.72	8	1.74	7	1.78	7.5	1.79	6	1.45	8.5
Tea with sweetener	1.62	9	1.6	8	1.78	7.5	1.66	8	1.45	8.5
			r_s=0.56				r_s=0.71			

N - number of respondent; K - women; M - men; OB - obese patients; CVD - patients with cardiovascular diseases; x - average frequency degree; R - rank of consumption frequency;
r_s - *Spearman's* rank correlation coefficient

Reasons for which respondents cut down on fat and sugar were primarily their wish to slim down (40%), heart diseases (29%) and diabetes (21%). In the group of women the main reason of cutting down on these ingredients were their wish to lose weight (51%) and diabetes (26%), while in the group of men it was heart disease (67%). Obese individuals as the main causes gave their wish to slim down (49%) and diabetes (25%), whereas as many as 80% patients with cardiovascular diseases gave heart disease as the main reason.

In spite of the expressed declaration on reducing the amount of fat consumed in the daily diet expressed by a majority of the analyzed population of patients, the selection of foodstuffs with varying fat content was probably more often determined by habit, as well as the availability of the product and possibly by a lack of knowledge on the wide assortment of products currently offered on the market.

CONCLUSIONS

Advantageous eating behaviour of all the patients includes first of all high consumption frequency of milk and cottage cheese with reduced fat content. The most popular spread was butter, which belonged to negative eating behaviour of patients.

Polled individuals rarely consumed "light" confectionery. They consumed sugar-free drinks more frequently than those with the addition of sweeteners or sugar.

Obese patients, of whom women constituted 80%, as well as all population of women independently on kind of disease, exhibited behaviour advantageous for health much more frequently than patients with cardiovascular diseases and population of men. They selected low- or no-fat variants of milk and cottage cheese.

D. Górecka, B. Szczepaniak, E. Flaczyk, P. Kordubski

FREQUENCY OF CONSUMPTION OF PRODUCTS WITH VARYING ENERGY VALUE BY PATIENTS OF A SANATORIUM IN CIECHOCINEK

Summary

The aim of the study was to assess the frequency of consumption of selected groups of foodstuffs with varying energy value by patients of the „Dom Zdrojowy" sanatorium in Ciechocinek (Poland). The survey included 100 persons, out of which 80% were obese individuals (OB), while the others were patients with cardiovascular diseases (CVD). Products with lowered energy value, especially cottage cheese, milk, "light" yoghurt, as well as tea and coffee without sugar were on average consumed rather frequently. Obese patients, from among women constituted 80%, paid attention to fat content in their daily diet.

D. Górecka, B. Szczepaniak, E. Flaczyk, P. Kordubski

OCENA CZĘSTOTLIWOŚCI SPOŻYCIA PRODUKTÓW O ZRÓŻNICOWANEJ WARTOŚCI ENERGETYCZNEJ PRZEZ KURACJUSZY SANATORIUM W CIECHOCINKU

Streszczenie

Celem pracy była ocena częstotliwości spożycia wybranych grup produktów spożywczych o zróżnicowanej wartości energetycznej przez kuracjuszy sanatorium „Dom Zdrojowy" w Ciechocinku. Badaniami ankietowymi objęto 100 osób, wśród których 80% stanowiły osoby otyłe (OB), zaś pozostałą część pacjenci z chorobami układu krążenia (CVD). Średnia częstotliwość spożycia produktów o zmniejszonej wartości energetycznej, szczególnie twarogu, mleka, jogurtu „light", a także herbaty i kawy bez cukru była dość wysoka. Osoby otyłe, wśród których 80% stanowiły kobiety, jak również cała populacja ankietowanych kobiet, częściej zwracały uwagę na zawartość tłuszczu w codziennej diecie niż osoby z CVD oraz populacja mężczyzn.

REFERENCES

1. *Babicz-Zielińska E.*: Preferences and consumption frequency of dairy products among young women. Żywność. Nauka. Technologia. Jakość, 1999, 3, 130-138 (in Polish; English abstract).
2. *Babicz-Zielińska E., Przysławski J., Wądołowska L., Schlegel-Zawadzka M.*: Preferences and choice factors for fats among female students of some Polish Universities. Pol. J. Food Nutr. Sci., 2000, 1, 51-55.
3. *Bolesławska I., Maruszewska M., Przysławski J.*: Preferences and selection factors for fats among adults. Żyw. Człow. Metab., 2003, 30, 1/2, 154-159 (in Polish; English abstract).
4. *Cieślik E., Filipiak-Florkiewicz A., Pałasiński J.*: Eating habits in fat consumption. Żyw. Człow. Metab., 2003, 30, 1/2, 314-318 (in Polish; English abstract).
5. *Duda G.*: Nutritional prevention of atherosclerosis, 2000, PTTŻ, Poznań, pp. 11-56 (in Polish).
6. *Flaczyk E., Szczepaniak B., Górecka D., Kobus J.*: Assessment of consumption of „light" food by the elderly. Żyw. Człow. Metab., 2005, 32, Suppl.1, 1030-1034 (in Polish; English abstract).
7. *Matuszewska, I.*: Consumer acceptance of products with lowered fat content - methodology and directions of studies. Żyw. Człow. Metab., 1997, 24, 2, 91-102 (in Polish; English abstract).

8. *Porter D., Kris-Etherton P., Borra S., Christ-Erwin M., Foreyt J., Goldberg J., O'Brien Nabors L., Schwartz N., Lewis C., Layden W. Economos C.*: Educating consumers regarding choices for fat reduction. Nutr. Rev., 1998, 56 (5 II), S75-91.
9. *Solheim R., Lawless, H. T.*: Consumer purchase probability affected by attitude towards low-fat foods, liking, private body consciousness and information on fat and price. Food Quality and Preference, 1996, 2, 137-143.
10. *Tuorila, H.*: selection of milks with varying fat contents and related overall liking, attitudes, Norms, and intentions. Appetite, 1987, 8, 1-14.
11. *Ziemlański Ś.*, Fats; in: Human nutrition. Introduction to nutrition science. (ed. J. Gawęcki, L. Hryniewiecki.). PWN, Warszawa 1998, pp. 152-169 (in Polish).