

Adolescent food habits in Europe.

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INTRODUCTION

Nutrition plays a key role during adolescence, a period of fast growth, with high physical activity, sexual maturation, requiring important amounts of energy and nutrients. New food habits may appear, having psychological, social and socio-economical causes, like peer influence, rejection of familial constraints, search for autonomy and identity, increase of purchasing power, regular preparation of own food, urbanisation and habit to eat outside the home (1,2). New emerging food patterns and habits may have far reaching implications on food choices of the adolescent and on the health status of the mature and older adult (3).

Adolescents have often been identified as a group at nutritional risk due to their food habits. Both in Europe and in the United States, breakfast skipping, missing lunch and dinner and their replacement by frequent snacking, regular consumption of take-away food and fast food might have consequences on daily nutrient intakes (1,2,4-9). The role of sugar and confectionery has been studied in relation with dental caries (7,10-12), as was the role of soft drinks on micronutrient intake (1).

The increasing prevalence of overweight and obesity observed in US adolescents (13,14) is a subject of concern, as is the frequent habit of dieting, especially among girls, with risk of intakes below recommendations (7).

In this paper we will discuss adolescent food habits in Europe by means of results from two surveys: one in Switzerland (15) in adolescents aged 15 to 20 years, and the other in adolescents aged 13-15 years in United Kingdom, France, Germany, Spain and Italy (16).

SURVEYS

In 1993, in the German speaking part of Switzerland, the University of Lausanne implemented a survey of health and lifestyles of adolescents. A total of 5461 adolescents received a questionnaire on self-perceived health, family life, occupation, relations with friends, leisure time, sex life, risk behaviour including consumption of alcohol, drugs and smoking. An additional questionnaire on food habits was distributed to 1464 adolescents, randomly chosen. This questionnaire, developed and validated at the Nestlé Research Centre, included questions related to meal and snacking patterns, dieting habits, use of supplements, self assessment of food habits and the frequency of consumption of different types of food eaten either as meals or as snacks: dairy products, bread and cereals, meat, fruits, vegetables, confectionery, savoury snacks, fast food and drinks.

In 1994, a marketing study from Leatherhead Food RA focusing on children's eating habits was implemented in the 5 European countries previously mentioned. The method used was a combination of face-to-face interviews and a 2 day dietary record in 500 adolescents. The topics addressed were: awareness and interest in health issues, use of supplements, relative importance of information sources and their influence, eating habits with particular emphasis on snacking, preparation of own food and frequency of eating out of home.

RESULTS

Main meals

The consumption pattern for main meals was studied in the Swiss survey.

Breakfast was skipped by 27% of the girls and by 24% of the boys the day of the study; it was eaten in less than 5 minutes by one fifth of the sample.

Lunch was consumed very regularly, by 92% of the girls and 95 % of the boys. It was a traditional, cooked meal for 51% of the girls and for significantly more boys, 75% ($p < 0.001$). Lunch was mainly eaten at home and in canteens; it was eaten in a fast food restaurant by less than 1% of the girls and less than 2% of the boys.

Dinner was also eaten regularly, less by girls (79%) than by boys (87%) ($p < 0.001$).

Snacking

Snacking was common among adolescents with large differences in snacking patterns throughout Europe. The highest frequency of snacking was observed in France where more than 90% of adolescents ate one and more snacks during morning, afternoon and evening. In UK and Germany, 80% of the adolescents ate snacks regularly. In Switzerland snacking was more common during the morning and the afternoon than during the evening (75% and 65% respectively). The same pattern was observed in Italy with larger differences (85% and 35% respectively). In Spain, 20% of the adolescents ate snacks during morning and evening and 60% during the afternoon. The most popular items for snacking were chips and savoury snacks, sweets and chocolate, yoghurt and pot desserts, biscuits, soft drinks, fruits and fruit juices. Pizza was the most popular snacking item for Italian adolescents. Adolescents from UK and Spain preferred crisps and savoury snacks, while French adolescents preferred confectionery, fruit juices and soft drinks. German adolescents seemed to have the most healthy snacking habits as they consumed more often fruits and yoghurt or pot desserts. These items were also most regularly consumed by Swiss adolescents; moreover, girls consumed more fruits and fruit juices, more diet soft-drinks, and more raw vegetables than boys, while boys drank more regular soft-drinks and ate more sandwiches than girls.

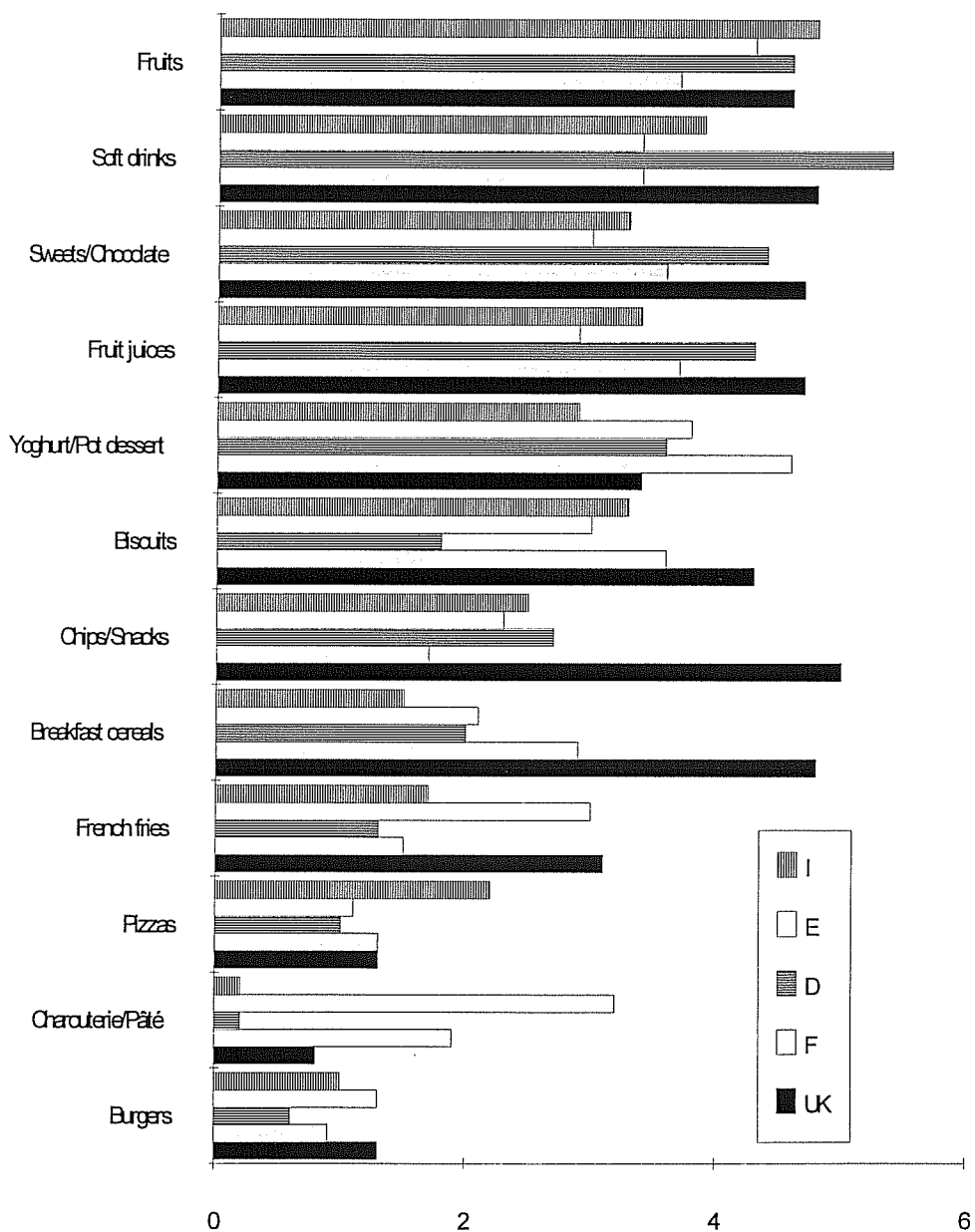
Total daily intake

Considering the total daily food intake in Switzerland, dairy products with the exception of cheese, were eaten regularly, bread was consumed by most subjects. Consumption of meat and cuts was larger in boys than in girls, and fish consumption was very low. As already noted for snacks, total daily consumption of fruits, fruit juice and vegetable was higher in girls than in boys. Consumption of hamburgers and pizzas was very low, as was that of alcohol in girls. Alcohol consumption was more frequent in boys.

Weekly frequency of food consumption

The weekly frequency of consumption of different food items in the five EC countries, including main meals and snacks, is shown in figure 1.

Figure 1: frequency of food consumption per week (5 week days).



I: Italy, E: Spain, D: Germany, F: France, UK: United Kingdom. Source LFRA (16).

Adolescents from UK had the highest consumption of several items like breakfast cereals, confectionery, biscuits, chips and savoury snacks, french fries, but also a high consumption of fruits, fruit juice and soft drinks. French adolescents had the highest consumption of yoghurt/pot desserts and the lowest of chips and savoury snacks. German respondents had the highest consumption of soft drinks and frequent consumption of fruits, fruit juices and confectionery. Spanish adolescents showed a high consumption of french fries and the highest consumption of meat products like charcuterie/pâté and burgers. Italian teenagers reported the highest levels of fruits and pizza consumption. Adolescents ate 3 to 4 times per week each of the following items: fruits, fruit juices, soft drinks, yoghurt/pot desserts, confectionery and biscuits. Breakfast cereals, savoury snacks, chips and French fries were eaten on average 2 to 3 times a week but with more inter-country differences. Pizza, burgers and charcuterie consumption was around one time per week.

DISCUSSION

We observed a great variety in food habits of adolescents in Europe between countries as well as major individual and gender differences.

In the Swiss study, skipping breakfast is frequent and comparable to observations in other European countries or in the USA (5,17). Skipping breakfast might lower daily micronutrient intakes by replacing breakfast cereals, often fortified and usually consumed with milk, by consumption of snacks with lower nutrient density later during the day (5,6).

The frequent consumption of lunch and dinner is satisfactory and reflects habits that are still traditional for a majority of adolescents.

Snacking is important since in general, more than 60% of the girls and the boys ate at least one snack three times a day. The Swiss study shows that the most popular snacks are dairy products, fruits and fruit juices, diet soft drinks, bread, soft drinks and confectionery. The study from Leatherhead Food RA shows a great variety in snacking patterns throughout Europe and illustrates differences in snack contribution to energy

intakes. Frequent snacking, as opposed to eating structured meals, is becoming part of adolescent food habits; it is thus important to provide a variety of nutritious snacks. We observed a low frequency of eating out in fast-food restaurants in Switzerland and in the 5 EC countries studied. This is in contrast with the USA, where it is estimated that 20% of the American population eat daily in a fast food restaurant (18). For people who eat regularly in fast food restaurants, there might be both excess of energy intake and low micronutrients intakes (19). However, the high fat content of such meals should be evaluated in the context of the total diet; with a frequency of about one fast-food meal per week in Europe, this does not have much health significance. Since the major US fast food companies have plans to considerably increase their presence in Europe (20), the adolescents will have more opportunities to eat in fast-food restaurants and should be educated to balance their meals with adequate food choice, including salads and low-fat dressings that are available in fast-food restaurants. Soft drink consumption was high both in Switzerland and in other European countries and might be associated with a risk of dental caries (21) or with intake of calories with little other nutrients. The preference for regular versus diet soft drink is dependent on gender.

CONCLUSION

The food habits observed in Europe, might lead, in some cases, to unbalanced intakes. Skipping breakfast is a common habit in adolescents; the important contribution of this meal to the overall daily food intake should be stressed. Missing meals, apart from breakfast, is not frequent. Snacking is very common among adolescents; should snacks partly replace main meals, then it would be important to provide adolescents with nutritious snacks. Snack food may significantly contribute to a balanced diet if the right food choices are taken. Fast food consumption, presently low in Europe, might with time increase. It will need special attention as these restaurants have advantages and limitations that must be considered within the context of the total diet.

Nutrition education, both in the family and at school, should draw the attention of adolescents on how to choose nutritious food among the wide variety available. There are hurdles between health and nutritional information, and dietary behaviour: lack of time, lack of discipline and lack of perception of any urgency in preventive measures which may bring benefits only decades later. Other factors such as self-esteem, relationship with friends and family, peer influence play an important role in adolescent behaviour, including eating habits. Prevention should help adolescents to understand how to avoid present and future nutrition-related diseases, through development of their own capacity to make good decisions and choices.

REFERENCES

1. Farthing MC. Current eating patterns of adolescents in the United States. *Nutr Today* 1991; (March/April): 35-39.
2. Skinner JD, Salvetti NN, Ezell JM, Penfield MP, Costello CA. Appalachian adolescents' eating patterns and nutrient intakes. *J Am Diet Assoc* 1985; 85 (9): 1093-1099.
3. Must A, Jacques PF, Dallal GE, Bajema CJ, Dietz WH. Long-term morbidity and mortality of overweight adolescents - A follow-up of the Harvard Growth Study of 1922 to 1935. *N Engl J Med* 1992; 327 (19): 1350-1355.
4. Morgan KJ, Zabik ME, Stampely GL. Breakfast consumption patterns of U.S. children and adolescents. *Nutr Res* 1986; 6: 635-646.
5. Nicklas TA, Bao W, Webber LS, Berenson GS. Breakfast consumption affects adequacy of total daily intake in children. *J Am Diet Assoc* 1993; 93 (8): 886-891.
6. Crawley HF. The role of breakfast cereals in the diets of 16-17-year-old teenagers in Britain. *J Hum Nutr Diet* 1993; 6: 205-215.
7. Truswell AS, Darnton-Hill I. Food habits of adolescents. *Nutr Rev* 1981; 39 (2): 73-88.
8. Cross AT, Babicz D, Cushman LF. Snacking patterns among 1,800 adults and children. *J Am Diet Assoc* 1994; 94 (12): 1398-1403.

9. Chapman G, Maclean H. "Junk food" and "healthy food": meanings of food in adolescent women's culture. *J Nutr Educ* 1993; 25 (3): 108-113.
10. Adamson AJ, Rugg-Gunn AJ, Appleton DR, Butler TJ, Hackett AF. Dietary sources of energy, protein, unavailable carbohydrate and fat in 11-12-year-old English children in 1990 compared with results in 1980. *J Hum Nutr Diet* 1992; 5: 371-385.
11. Michaud C, Corniglion JM, Musse N, Michel F, Nicolas JP, Mejean L. Sources des macronutriments et de l'énergie dans l'alimentation d'adolescents scolarisés. *Med Nutr* 1991; 27 (1): 19-24.
12. Summerbell CD, Moody RC, Shanks J, Stock MJ, Geissler C. Sources of energy from meals versus snacks in 220 people in four age groups. *Eur J Clin Nutr* 1995; 49: 33-41.
13. Division of Health Examination Statistics, National Center for Health Statistics, CDC. Prevalence of overweight among adolescents - United States, 1988-91. *MMWR Morb Mortal Wkly Rep* 1994; 43 (44): 818-821.
14. Schlicker SA, Borra ST, Regan C. The weight and fitness status of United States children. *Nutr Rev* 1994; 52 (1): 11-17.
15. Narring F, Tschumper A, Michaud PA, et al. La santé des adolescents en Suisse : rapport d'une enquête nationale sur la santé et les styles de vie des 15-20 ans. Lausanne: Institut universitaire de médecine sociale et préventive (Cah Rech Doc IUMSP, no. 113a), 1994: 1-112.
16. Cathro J, Hilliam M. Children's eating habits in Europe - An in-depth consumer and market analysis - Countries: UK, France, Germany, Spain and Italy (cross-country comparisons) - Volume I: quantitative research. Leatherhead: Leatherhead Food Research Association, 1994: 1-39.
17. Philippe I, Baudier F, Mazelin A, Bourderon D, Pinochet C. Etude du comportement alimentaire de 225 adolescentes âgées de 16 à 18 ans. *Cah Nutr Diet* 1988; 23 (2): 126-136.
18. The Committee on Nutrition of the Massachusetts Medical Society. Fast-food fare - Consumer guidelines. *N Engl J Med* 1989; 321 (11): 752-756.

19. Wenlock RW. Healthy foods and unhealthy diets - Public misconceptions. *J R Soc Health* 1988; 108 (4): 132-135.

20. Price C. Fast food chains penetrate new markets. *Food Rev* 1993; 16 (1): 8-12.

21. Grenby T. Dental and nutritional properties of snack foods and soft drinks.

Deutsche Zahnärztliche Zeitschrift 1987; 42 (10 Suppl 1): S104-S106.