

## « TRENDS IN FOOD INTAKE »

### Editorial

Over the 1980-2012 period we have had vast shifts in how people eat throughout the world. Diets in the 1970's began to shift toward excess processed foods, increased away from home intake and greater use of edible oils and sugar-sweetened beverages. We can view diets on many levels from the actual foods consumed to the behaviors that affect what we eat. The latter includes: the large shift toward eating away from home, the increased portion sizes in many countries, and the vast increases in the number of daily eating events (often thought of as frequent snacking or constant eating). Depending on the country, each of these changes has been very important. Across the globe; however, what my work has shown is that the dominant change is in snacking. Whereas 100 years ago and more, only the wealthy and royalty had snacks and items such as the French twice-cooked biscoits were really travelers' food.

The dominant food changes are unfortunately all in the wrong direction - reductions of legumes/pulses and fruits and vegetables (in a few countries fruit intake is up; however in most fruit intake is replaced by the unhealthful fruit juice). The major increases across the globe are: edible oil intake (frying of food, adding oils to all dishes), increased consumption of animal source foods (led by dairy in a few countries like India and pork, beef, poultry, eggs in others like China), and increased intake of all nutritive sweeteners as beverages and in food. Processed food is replacing home cooking and away-from-home intake is rising.

Underlying all of this is a vast shift away from cooking in many parts of the globe and vast shifts in the price structure of foods as grains are increasingly used for animal source foods.

Barry M. Popkin

University of North Carolina at Chapel Hill




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### IFAVA Contacts info

**HEAD OFFICE**  
**International Fruit And Vegetable Alliance**  
 c/o Canadian Produce Marketing Association  
 162 Cleopatra  
 Ottawa, Canada, K2G 5X2

**IFAVA CO-CHAIR**  
 Colleen Doyle - USA  
 e-mail: colleen.doyle@cancer.org

**IFAVA CO-CHAIR**  
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# Age Specific Dietary Trends in France: A Comparison

— Carine Dubuisson —

French Agency for Food, Environmental and Occupational Health Safety (ANSES),  
Direction of Risk Assessment for Nutrition and Food Safety, Dietary Survey Unit – Nutritional Epidemiology - France

In Europe, regional and national dietary habits have been changing over the past forty years, becoming less distinct and moving towards a more homogenized, 'Western diet'. This is prevalent in France, a country situated directly between two traditionally contrasting diets; that of Mediterranean Countries (characterised by the consumption of pulses, fruits, vegetables, cereals and fish) and Northern Countries (characterised by the consumption of meats, milk and dairy products).

In order to examine dietary trends and nutrition intake in France, a study compared the findings of the two Individual and National Food Consumption Surveys (INCA); the first conducted in 1997-98 (INCA1) and the second in 2006-07 (INCA2). The INCA surveys required respondents to fill in a food record, with everything they ate or drank during seven consecutive days. Researchers then evaluated food and nutrient intake based on 38 different food groups, looking at average consumption rate and energy intake by age group, sex, gender, region and socio-economic status. For the first time in France, researchers had access to two consecutive food consumption surveys with a similar methodology, enabling them to monitor how national eating habits and nutrient intake changed over the course of eight years.

## An increase in the consumption of fruit and vegetables

By comparing the findings of the two surveys, several dietary trends were highlighted. Some of the most prominent trends across all age groups were the overall decrease in the consumption of dairy products, meat, bread, potatoes, baked goods and sugar/confectionary. Conversely, the study noted an increase in the consumption of fruit and vegetables, rice, ice cream and chocolate. Between the two surveys, fresh fruit consumption remained stable in younger people but greatly increased in middle-aged adults (+48.4% in women and +37.8% in men) and older women (+23.4%). In comparison, vegetable consumption remained the same in middle aged adults and in older men, but increased in older women (+15%) and decreased in young men (-13.8%).

## Mean energy intake remained unchanged

While several changes in dietary habits were noted between the two studies, the mean energy intake remained unchanged, although

macronutrient contributions to energy did change. For example, energy from proteins was found to decrease in women and middle aged men. Among men, the elderly demonstrated a decrease in energy from carbohydrate and an increase in energy from lipids, while the opposite proved true for the youngest. Vitamin C and folate intake increased across all age groups, and sodium decreased in all diets observed, with the exception of young women.

## Food choices and age : Western diet for young people

Both INCA1 and INCA2 examined the affect age has on food choices, with these differences remaining constant over the eight years. For example, in both studies the elderly followed a more traditional, French diet, consisting of bread, fish, vegetables and fruits, sugar/confectionary, soups and cheese. In an expected trend, young people were more likely to have adopted a Western diet, based on 'snacking and convenience'. Characteristics of this diet include pasta, rice, pastries, milk, chocolate, pizzas, meat (men), and ice cream (women only). This distribution by age was demonstrated by both surveys.

## Conclusion

The changes in dietary trends over the course of eight years were consistent with France's First National Nutrition and Health Program, introduced in 2001. For example, the consumption of bread, meat, milk and sugar decreased, while that of fruit and rice increased, with vegetable and cheese intake remaining stable. While the increased emphasis on healthy eating programs could explain the changes outlined in dietary trends, costs constraints could also be a contributing factor. The French National Institute of Statistics and of Economic Studies (INSEE) data shows that while the price of food increased by 17% overall between 1998-2006, bread and red meat showed the highest cost increases, with other food items remaining relatively stable. Overall, the study outlined several changes that have occurred in the French diet since 1998-99, following a similar trend to that of countries in Northern Europe. While these changes are interesting, it's important to note that trends in food habits had only a slight effect on nutritional intake.



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### BASED ON:

Dubuisson et al. Trends in food and nutritional intakes of French adults from 1999 to 2007: results from the INCA surveys. Br J Nutr. 2010 Apr;103(7):1035-48.

# Food Portion Patterns and Trends among U.S. Children and Adolescents and the Relationship to Total Eating Occasion Size, 1977-2006

— Barry M. Popkin & Carmen Piernas —

Department of Nutrition, University of North Carolina at Chapel Hill

## The “supersizing” of foods in the context of the obesity epidemic

Little is known about an increasing trend of larger portion sizes in the United States. Increased portions of energy-dense foods, promoted by bigger-package-unit sizes and good-value meals, might be pushing the energy intakes beyond requirements, representing a higher risk for childhood obesity<sup>1,2</sup>.

Larger portions sizes of energy-dense foods might be even more problematic among older children and adolescents. As children age, physiological cues such as hunger and satiety that help them self regulate their energy intake exert less influence, predisposing them to overeat in an environment of excess caloric availability and limited energy expenditure<sup>3-6</sup>.

Our research investigated:

- 1) if portion sizes of energy dense foods have increased from 1977 to 2006<sup>7</sup>; and
- 2) if a larger portion size of a certain food increases the energy intake at a meal during which that food was consumed<sup>8</sup>.

We also explored socioeconomic and age-specific patterns and trends in portion sizes from 1977-78 to 2003-06 in the United States.

## Study design

We studied 31,337 children and adolescent ages 2-18 from four U.S. nationally representative surveys of dietary intake data<sup>9-13</sup>. We grouped children and adolescents in three age groups (i.e. 2-6-year-olds, 7-12-year-olds and 13-18-year-olds) and we also created three groups of race/ethnicity (i.e. non-Hispanic white, non-Hispanic African-American and Hispanic) and parent education (i.e. more than 12 years of education or less than 12 years of education). Dietary intake data from two 24-hour recalls was averaged to get per-capita estimates.

We defined a portion size as the amount of kcals, grams or milliliters from a certain food or beverage consumed at a given eating occasion. We calculated mean portion sizes of selected foods and beverages (i.e. salty snacks, desserts, soft-drinks, fruit-drinks, French-fries, burgers, pizza and Mexican-food) and mean energy intake at eating occasions during which each selected food was consumed. Then, kcal from each selected food was divided by the total energy intake at a meal during which each food was

consumed. If the proportion of the meal energy intake comprised by each food increased from 1977 to 2006, we concluded that a larger portion size of a food affected the energy intake at eating occasions.

## Portion sizes of energy dense foods have increased

In 2003-2006, energy dense foods (e.g. salty snacks, desserts, fries, soft drinks, burgers, pizza, etc) represented around 38% of the daily energy intake among adolescents 13-18 years old; 35% of the daily intake among 7-12 year-olds and 28% of the daily intake of 2-6 year-olds.

Overall, portion sizes of all selected foods increased significantly from 1977 to 2006, except desserts. The increases in portion sizes of pizza were particularly pronounced in the last decade.

## Energy intake is affected by larger portion sizes, especially among older children

In all age groups, we found larger portion sizes of pizza in parallel with higher energy intake at eating occasions during which pizza was consumed. Pizza was the only significant contributor to the increased energy intake among young children aged 2-6 years old. In children 7-12 years old, soft drinks and burgers together with pizza were significant contributors to the increased intake at eating occasions. Importantly, adolescents' energy intake at eating occasions was affected by all selected foods, in line with previous findings suggesting that older children might be more susceptible to larger portion sizes than younger children. Energy intake at eating occasions was also significantly affected by larger portion sizes of pizza, especially markedly among non-Hispanic African American and Hispanic and the group of low parent education compared to the other groups.

## Conclusions

Our results provide a new perspective of the effect of larger portion sizes on the total energy intake at meals. In the context of the growing obesity epidemic in the U.S. and worldwide, we identified selected energy-dense foods that have increased in portion size over the 30-year period studied. These selected foods are also important contributors of the increased energy intake at eating occasions. This research supports the need to consider targeted intervention and policy efforts that look specifically at selected foods (e.g. pizza, soft drinks) to reduce the energy intake of children and adolescents.

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# Evaluation of food consumption and dietary patterns in Spain by the Food Consumption Survey: updated information

— Gregorio Varela-Moreiras —

University San Pablo-CEU, Madrid, Spain

## The “new” Spain

Spain has undergone dramatic social changes since the 1960s, including massive rural-urban migration. A generalised incorporation of females into the active work-force added to rapid urbanisation processes that occurred in the 1980s. A rapidly increasing number of people use catering services, restaurants and vending machines - all key factors in understanding changes in diet.

## The tools for the diagnosis

The Food Consumption Survey (FCS), conducted in Spain since 1987, shows trends in consumption of different food groups and provides data on the place of consumption, i.e. either at home, in institutions, catering, or restaurants. The Spanish Nutrition Foundation (FEN) is at present in charge of evaluating the dietary trends and nutritional status of the population derived from the FCS. This information is also essential in order to obtain information on the nutritional parameters that allow the identification of dietary patterns.

## The scenario at present

Milk and derivatives consumption is quantitatively one of the most important in the present Spanish diet. However, a significant decrease was observed between the years 2000 and 2010. Eggs consumption has steadily decreased since the year 2000. Vegetable and greens consumption, including potatoes, remained largely unchanged in the last ten years. This was not the case when comparing the results with those obtained in 1964, when the consumption was clearly higher. However, consumption of vegetables and greens (without potatoes) showed an increase of more than 50 g/person/day since 1964. A steady decrease in potatoes consumption for the last forty years has been observed (over 200g/person/day). Fruit consumption, including dried fruits, showed an increasing trend from year 2000 and, when compared to 1964 data, fruit consumption has nearly doubled. Cereals and derivatives consumption has shown a marked decrease over the last 40 years (434 g/d in 1964 vs. 218 g/d in 2010). Bread was still the most important food within this group. For oils and fats consumption an overall decrease over the last 40 years has been observed (approximately 20 g/person/day since 1964). The decrease is more noticeable for olive oil (a fall of over 25 g/person/day). However, more than 90% of the total consumption of oils and fats are still of vegetable origin, mainly olive which represented roughly 60% of the total. As for the meats group, the most consumed type was chicken. The present consumption of this food group has increased by roughly 300% when compared to the 1964 data. The mean consumption of fish and shellfish was considered high but beneficial (100

g/person/d). Oily fish represents approximately 40% of total fish. Alcoholic beverage consumption has undergone a slow decline during recent years. Within this group, wine, a beverage traditionally included in the Mediterranean diet, represented 25.5% of total alcoholic beverage consumption in the year 2010, in contrast to 62% of the total in 1991. In the last few years, a gradual substitution of wine with beer has occurred. For non-alcoholic drinks, an almost ten-fold increase is observed since 1964. Another food group of current importance, for which a marked rise in consumption was noticed, was precooked foods or ready meals.

## Energy and Nutrient Intake

The mean energy consumption for the Spanish adult population is at present 2,761 kcal/person/d, which is clearly lower than in 1964 (3,008 kcal/person/d). It is remarkable that the mean intake pattern of micronutrients shows that vitamin C intake exceeds the reference intakes by more than 200%. Other vitamins and minerals that present a much higher consumption are vitamin B12, iodine and phosphorus. In contrast, nutrients which did not reach 80% of the recommendations include zinc and folic acid in both sexes, and iron in women only. Other nutrients with a potentially insufficient intake include vitamins D, B6 and magnesium.

In conclusion, social and economic changes have led to modifications in food patterns in the last decades. Some had a potential positive impact, such as increasing variety in the diet and improved access to food, but are not consistent with an adequate food selection as described for a healthy Mediterranean diet. In contrast, some changes have moved the Spanish diet away from the traditional Mediterranean Diet pattern. Therefore, strategies that encourage a healthy diet and which also allow the recovery of the traditional Mediterranean Diet are a priority for nutritional policies.



## BASED ON:

Varela-Moreiras G, Avila JM, Cuadrado C, del Pozo S, Ruiz E, Moreiras O.

Evaluation of food consumption and dietary patterns in Spain by the Food Consumption Survey: updated information. Eur J Clin Nutr. 2010 Nov;64 Suppl 3:S37-43.