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Dietary guidelines for the Spanish population

Spanish food patterns

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Abstract

Data from household food budgetary surveys and regional, population-based, cross-sectional studies show a declining trend in energy intake in the last decades, also applicable to protein, fat and carbohydrate intakes in absolute terms. The pattern suggests a lower fat content in the diet. Protein intake is 200% of the recommended level.

Spanish food patterns underwent dramatic changes between the 1960s and the 1980s, including an important increase in fat intake, up to 44% energy intake from fat in the 1980s. The trend changed in the 1990s, and current fat supply provides an average of 37% of energy intake. Main sources of fat in the Spanish diet are added fats for cooking (49% of total fat intake), especially olive oil; meat and meat products (25%); and a lower percentage provided by milk and dairy products. Most saturated fatty acids are supplied by meats (30%) and dairy products (27%).

Rapid urbanisation processes and the growing proportion of females in the active workforce have led to important changes in food patterns in the last decades. On the one hand, some changes had a positive impact, such as increasing variety in the diet and access to food; on the other hand, some changes moved the Spanish diet away from the traditional Mediterranean food pattern.

Current food patterns evidence high consumption of animal products: meat, fish, milk and dairy products. It seems advisable to increase consumption of plant foods, particularly whole-grain cereals, potatoes and pulses. Intake of fruit and vegetables shows a shift towards a greater consumption of processed foods rather than fresh products, and overall a greater consumption would be recommended.

Keywords
Food habits
Dietary surveys
Fruit and vegetables
Food consumption patterns
Fat
Mediterranean diet

Spain has undergone dramatic social changes since the 1960s, including massive rural–urban migration[1]. Generalised incorporation of females into the active workforce added to rapid urbanisation processes in the 1980s, an accelerating factor for dietary change due to new uses and changes in the organisation of family life and home meals[1].

Never before in human history has the food on offer been so abundant and varied as it is nowadays in developed societies. However, processed foods have gained relevance in Western diets against fresh products.

Another factor worthy of mentioning is the increasing number of people using catering services, restaurants, vending machines and other possibilities to get food outside the home, both during weekdays and leisure time. This fact is evidenced by the series of panel Food Surveys produced by the Spanish Ministry of Agriculture, Fisheries and Food (MAPA). Results from these surveys, dated from 1987 onwards, show the evolution of trends in the consumption of different food groups and percentage of users by place of consumption, either at home or in institutions, catering, restaurants, cafeteria and any other hostelry service[2–5].

Energy and nutrient intake

The first Spanish data on food availability at national level were based on the Food and Agriculture Organisation's (FAO) Food Balance Sheets, which made possible interesting overviews of food trends in Spain from the 1940s to date[6,7].

Several nutrition surveys by Varela *et al.*, based on the National Institute of Statistics' Household Budgetary Surveys, evidenced evolution trends in energy and nutrient intake estimates between 1961 and 1991[8–10]. Some increase in energy from protein, alongside a clear decline in energy from carbohydrate and a noteworthy increase in energy from fat, are key features in Spanish patterns during this period. Percentage energy from fat seems to be decreasing in recent years, though. Both

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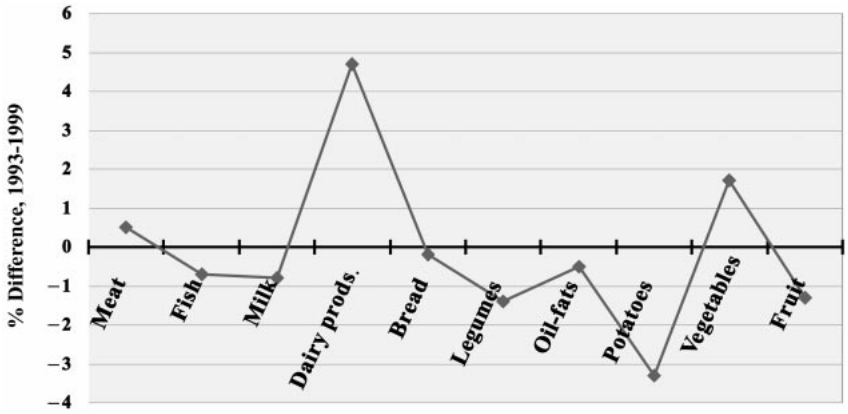

Fig. 1 Food consumption evolution trends in Spain, 1993–1999 (*source*: Spanish Ministry of Agriculture, Fisheries and Food, 2000)

sources of data are based on household food expenditures, thus no estimates regarding age or gender can be made.

Since the beginning of the 1990s a number of Spanish autonomous regions have accomplished random population Nutrition Surveys, including individual food consumption data. These are a valuable source of information from a public health perspective, enabling a more descriptive analysis of the food and nutrition situation of the Spanish population.

The eVe Study[11] was performed by pooling together extant data from Spanish regional population nutrition surveys[12–19], provided suitable adjustment and weighting. According to eVe results, protein intake provides 17.1% of energy in the current average Spanish diet, carbohydrate provides 45% and fat accounts for 38% of energy intake, with prevailing monounsaturated fatty acids (MUFAs), which supply 19% of energy. Saturated fatty acids (SFAs) account for 12% and polyunsaturated (PUFAs) for 6%. The above description is similar for both men and women, although the fat content in women's diets is 2% higher in SFAs and MUFAs.

In this study, nutrient density below desirable levels and risk for inadequate nutrient intake were estimated in a considerable percentage of the population for nutrients such as iron, magnesium and zinc. Likewise, for several vitamins such as riboflavin, folate, vitamin A and vitamin E.

Some 22.6% of men and 25% of women had good diet quality score (DQS) (considering folate, vitamin C, vitamin A and vitamin E intakes). However, 43% of the male group and 37% of the female subgroup were classified as having either poor or fair DQS. Old age, female gender, low education level, belonging to a poor or economically disadvantaged group, and being a widower living alone were key environmental determinants for a poor diet quality index.

Food consumption pattern

Analysis of food consumption data based on the MAPA panel food surveys over the period 1987–1999[2–5] shows a declining trend for meat consumption, mainly for beef and chicken, although there is a slight increase for pork. Consumption of fish decreased at the end of the 1980s; thereafter this trend reversed and remained stable at high levels of consumption in comparison with those observed in other countries (Fig. 1). Consumption of eggs has decreased steadily over the last decade.

Divergent trends appear for the different food items included in the dairy group. An overall decline is observed for milk consumption; nevertheless, the proportion of consumers choosing semi-skimmed (24%) and full skimmed milk (18%) has increased progressively in recent years up to current figures. Conversely, the percentage of people choosing whole-fat milk has decreased (58%). Concerning dairy products (fresh cheese, yoghurt, dairy desserts, etc.), overall consumption has increased considerably in the last 10 years, thus leading to a globally higher consumption for the entire group.

For the consumption of dry pulses, the declining trend started decades ago still keeps the same slope. Consumption of bread is recovering slowly following the important decrease seen in previous decades. However, overall consumption of cereals has decreased. Likewise, there is a slight decline for rice consumption and a steady decrease for potatoes. Conversely, the consumption of pasta, buns and cookies has increased considerably in the last years.

The trend for fruit and vegetables is globally to maintain the levels achieved in recent years. Fresh vegetables decreased at the beginning of the decade, although more recently this trend seems to have reversed. It is noteworthy to mention that the decrease in consumption of fresh products has been partly compensated for by processed vegetables. The same was observed for fruit. Consumption of a number of fruit varieties decreased, but other items such as strawberries, cherries (seasonal fruits), grapes and other varieties included more recently in the Spanish diet (like kiwi or certain exotic fruits) have increased[5].

Consumption of nuts as well as fats and oils has decreased.

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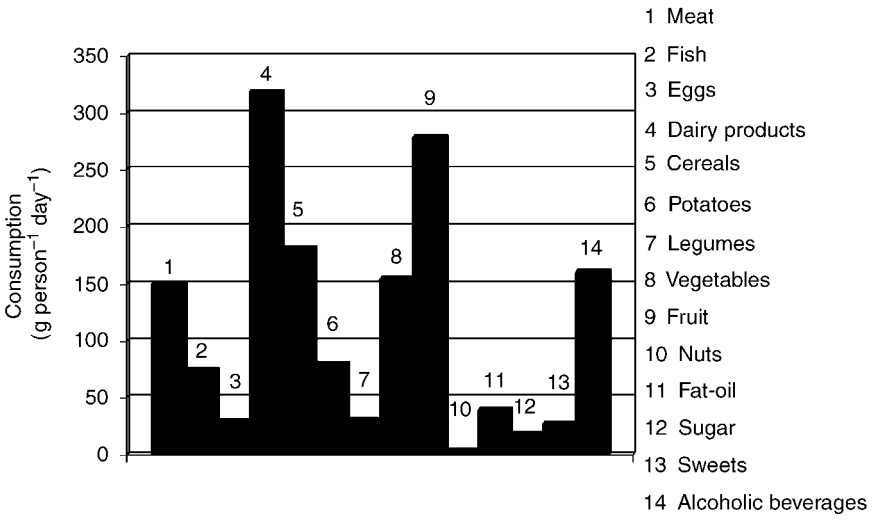

Fig. 2 Average food consumption pattern by food group in Spain, The eVe Study

Regarding sugary foods and sweets, consumption of sugar itself has decreased, while that of processed sugary food items has increased considerably.

Consumption of soft drinks and alcoholic drinks has increased sharply over the past years. Consumption of wine decreased some decades before, but recent data suggest that it is recovering, while that of beer is decreasing instead[5].

Figure 2 shows the average food consumption pattern by food groups estimated in The eVe Study. The pattern is characterised by a high consumption of meat (150 g person^{-1} day^{-1}), fish (74 g person^{-1} day^{-1}) and dairy products (318 g person^{-1} day^{-1}); a moderate intake of eggs (29 g person^{-1} day^{-1}); and lower than desirable levels for plant foods: cereals (181 g person^{-1} day^{-1}), potatoes (79 g person^{-1} day^{-1}), pulses (29 g person^{-1} day^{-1}), fruit (278 g person^{-1} day^{-1}) and vegetables (154 g person^{-1} day^{-1}). The estimated consumption for alcoholic drinks is 160 ml person^{-1} day^{-1}, mostly wine and beer[11].

Table 1 Food consumption patterns in Spain: median consumption (P50) and number of daily servings by food group, The eVe Study

Food group	P50 (g)	Number of servings per day
Meat	136	
Fish	45	2.2
Eggs	21	
Milk and dairy products	280	1.5
Cereals	161	4.5
Potatoes	51	
Legumes	25	0.3
Vegetables	127	1
Fruit	225	2
Nuts	2.1	
Sweets and sugary foods	10	
Alcoholic beverages	123	

In terms of food frequency on a daily basis (Table 1), considering average serving sizes for Spanish adults, the above pattern is translated into 2 or more servings for animal products rich in protein (meat, fish, eggs); 1.5 servings for milk and dairy products; about 4.5 servings for cereals and potatoes; 1 serving for vegetables (potatoes excluded); and 2 servings of fruit. Main sources of fat in the Spanish diet are oils and edible fats; milk and dairy products; and meat and meat products.

People classified as having 'good' DQS in The eVe Study showed higher consumptions of fruit, vegetables, fish, dairy products, eggs and nuts compared with people in the 'fair' or 'poor' DQS group. Non-smokers, people who do not take alcohol on a usual basis and those with moderate physical activity showed healthier food patterns, including high consumption of fruit, vegetables and pulses, and moderate intake of meat, fish and dairy products[11].

Population groups

The enKid Study (1998–2000)[20] was carried out on a random sample of the Spanish population aged 2 to 24 years. Results of The enKid Study show moderate-to-low consumption of fruit and vegetables in this age group, notably lower than levels estimated for Spanish adults in terms of number of average servings per day. Consumption of fish and legumes is lower as well. Conversely, intakes of buns, sweets, cookies and soft drinks are high. The food items preferred by this age group are rice and pasta.

Population data regarding the food consumption of elderly Spanish people show food patterns closer to the traditional Mediterranean diet than for younger age groups. Consumption of pulses, cereals and potatoes, as

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well as of fruit, is higher in this age group compared with younger adults[21–23].

Analysis of environmental determinants of food patterns shows that lower educated and economically disadvantaged groups have significantly higher consumption of fat, legumes, bread and potatoes, but lower intakes of fruit and vegetables[11]. According to the SEEDO'97 Study, the prevalence of obesity in Spanish adults is higher in women and increases with age after 35 years, particularly in the lower educated and economically disadvantaged groups[24,25].

In summary, current food patterns in Spain show high consumption for meat, fish and dairy products, and intakes below desirable levels for cereals, potatoes and legumes. Trends for fruit and vegetables show an increase for processed and a decline for fresh fruit and vegetables. Overall, it would be advisable to increase the consumption level of the group to achieve 5 or more servings daily in every population subgroup.

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