

FOOD INTAKE PATTERNS OF GREEK MIGRANTS
TO MELBOURNE IN RELATION TO DURATION OF STAY

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Summary

The food intakes of a representative sample of 472 Greek migrants, aged 30 years and over, living in Melbourne were recorded for 24 h on different days of the week and at different times of the year between April 1979 and April 1980.

Certain characteristics of Greek diets, e.g. a high prevalence of consumption of coffee, bread, cheese and wine and the use of wild leafy greens, were observed in both short (< 16 years) and long (> 16 years) stay migrants.

Only relatively minor differences in food patterns were observed with duration of residence in Australia; these were generally of greater magnitude in males than females. The most marked changes were an increase in the prevalence of tea consumption by both sexes, an increase in pork, bacon and ham and a decrease in cheese consumption by males.

More marked changes in food intake pattern may have occurred immediately after arrival in Australia and this period requires further study.

I. INTRODUCTION

Southern Europeans experience lower mortality and risk than Australians, for a number of diseases which are thought to be diet-related, both in their countries of origin and after migration to Australia (Stenhouse and McCall 1970; Krupinski and Mackenzie 1979; McMichael et al. 1980; Dunt 1982; McMichael 1983). This advantage decreases with duration of residence in Australia and the decline is attributed, at least in part, to dietary acculturation. Little information, however, exists on the food consumption patterns of Southern European migrants to Australia (Binns and Vouyoucalos 1978; Hopkins et al. 1980), in particular in relation to changes with duration of residence in Australia.

Persons of Greek origin now make up the second largest non-British population in Australia (Price 1975), with more than 75 000 resident in Melbourne. This study describes the food intake pattern of 472 Greek migrants to Melbourne and discusses some differences evident with duration of residence.

II. METHODS

(a) Selection of households

The sample of 600 individuals of Greek origin for this study was selected from the Melbourne telephone directory which provided the most comprehensive listing of persons of Greek origin available to us. The method used to select names from the telephone directory was as follows. As a first step, the membership list (3000 names) of a welfare organisation serving the needs of any person of Greek origin in Melbourne was obtained and 500 names chosen systematically, after selecting the first name at random. Each of these names was then located in the Melbourne telephone directory by

initials as well as surname and the next name listed in the directory selected for contact.

Since this method of sampling could have led to bias, particularly with respect to socio-economic status, this was tested before the study began by comparing, using Spearman's rank correlation coefficient, the distribution of the sample, by municipality of residence, with that of the 1976 census data for Melbourne residents of Greek birth. The correlation coefficient ($\rho_s = 0.85$, $P < 0.001$) indicated no significant selection bias in this respect.

(b) Contacting the households

The survey was 'advertised' through the medium of Greek newspapers and radio programs in the hope that subjects would already be aware of the study prior to being contacted by us and as a result more inclined to participate. Initial contact with most households was by telephone. If in the course of this contact it was established that the household contained no persons born in Greece and aged 30 years or more, or if contact was not established after five attempts by telephone, a replacement household was selected by taking the next name in alphabetical order in the telephone directory. Households containing one or more eligible persons were sent a questionnaire which specified the sex of the person who was to complete the questionnaire and, in the event of more than one eligible person, whether this should be the person who had resided the least or the most years in Australia. The object of this procedure was twofold. Firstly, to prevent bias in completion of the questionnaires by the most 'acculturated' or willing member of the household, and secondly to give as far as possible equal numbers of both sexes and persons of longer and shorter duration of residence in Australia.

(c) Questionnaire

The first part of the questionnaire requested information about age, sex, year of arrival in Australia, place of residence in Greece, occupation, household size and composition, adherence to 'fasting' practices and other special dietary customs.

The second part requested information about all the food eaten and drunk on the day before the receipt of the questionnaire. The following headings were provided for the recording of the information: meal time, description of food items and drinks, method of preparation used and amount consumed. To aid the subject in the satisfactory completion of the questionnaire it was printed in both English and Greek and contained a partially completed example of a food record.

(d) Timing of survey

In order to obtain representative coverage of different days of the week and different seasons of the year, equal numbers of questionnaires were posted on each weekday, at intervals throughout the year which included the major religious festivals of the Greek Orthodox Church at Christmas and Easter. The initial 500 households were contacted between mid-April and November 1979 and subsequently a further 100 households were selected and contacted between November 1979 and April 1980.

(e) Analysis of data

For the purpose of this paper the dietary data have been analysed according to the proportion of individuals in the sample consuming a given food or foods on the day of the survey and no account has been taken of the

amount consumed as this information was not always adequately recorded by the participants.

III. RESULTS

(a) Response rate and sample characteristics

From the 600 eligible households approached, a satisfactorily completed questionnaire was obtained from 472, a response rate of 79%. Table 1 shows the distribution of the respondents by age, sex and duration of residence. Considerably more males (278) than females (194) completed the questionnaire, but approximately equal numbers of males and females had been resident in Australia for 16 years or less or more than 16 years. The longer duration of residence group included a greater proportion of individuals aged 50 years and over than the shorter duration of residence group, 34% as against 14%, but this was to be expected since 93% had emigrated to Australia when aged between 10 and 39 years. The majority of the respondents originated from Macedonia (34%) and the Peloponnese (26%) and 82% were from households which included only parents and their children. Fifty per cent were engaged in unskilled or partly skilled occupations while another 15% were business proprietors, 15% skilled tradesmen, clerical or in professions, 14% housewives and the remainder retired or unemployed.

Table 1. Distribution of sample of Greek migrants by age, sex and duration of residence in Australia

Age group	Duration of residence in Australia			
	< 16 years		> 16 years	
	Male	Female	Male	Female
30 - 39	73	59	23	31
40 - 49	55	28	54	46
> 50	13	10	60	20
All ages	141	97	137	97

(b) Food consumption patterns

Figure 1 shows the principal types of cereals, meats, milk and milk products, vegetables, fruits and beverages consumed by adults of Greek origin in Melbourne. Each diagram shows, for the foods specified, the proportion of individuals who consumed that item or group of items on the day of the survey.

The most notable features relative to Australian food consumption patterns are the almost universal use of bread (91%), the importance of lamb (29%) relative to beef (28%), and the widespread use of cheese (61%) and olives (25%). Coffee was by far the most prevalent beverage consumed (75%), and soft drinks, beer, wine and water were all consumed by approximately equal proportions of the sample on the day of the survey.

(c) Differences with duration of residence

Overall, the prevalence of consumption of cereals, meats, milk and milk products, vegetables and fruit did not differ between Greeks of shorter and longer duration of residence in Australia, but some differences were observed in individual food items. Table 2 shows the food and beverages commonly used which showed percentage differences of 5% or more between the groups of shorter and longer residence in Australia in either males or females. For most of these food items the change with increasing duration of residence was in the same direction for both males and females, the only major exception being cheese.

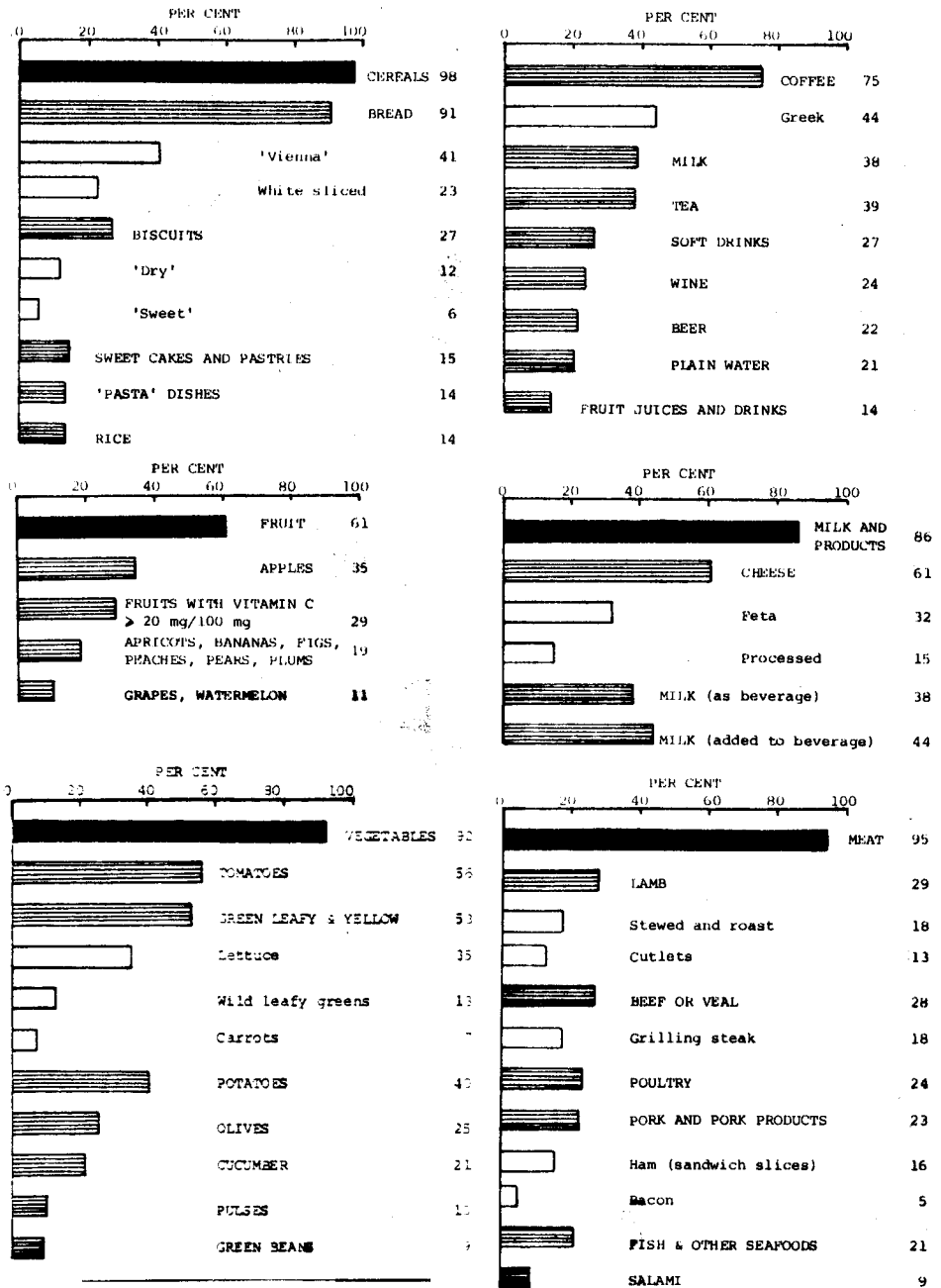


Figure 1. Prevalence of consumption of various foods and beverages by Greek migrants on day of survey

Table 2. Foods and beverages for which consumption differed by 5% or more between Greek migrants resident in Australia for shorter (≤ 16 years) and longer (> 16 years) periods

Food item	Percent consumption by long-stay group and difference from short-stay group (in brackets)	
	Males	Females
Cereals		
pasta dishes	12 (- 5)	13 (0)
Milk and milk products		
cheese	56 (- 9)	65 (+ 6)
Meats		
pork, ham and bacon	36 (+11)	12 (+ 2)
Vegetables		
potatoes	39 (- 3)	36 (- 5)
pulses	15 (+ 6)	8 (+ 2)
wild leafy greens	10 (- 4)	10 (- 5)
Beverages		
tea	45 (+15)*	51 (+18)*
soft drinks	32 (+ 5)	25 (+ 1)
beer	28 (- 6)	8 (- 2)
wine	26 (- 5)	12 (- 6)
water	16 (- 5)	24 (- 3)

* Difference between long- and short-stay group significant at 5% level

Pasta dishes were the only item in the cereal group which showed a decrease of 5% or more with increasing duration of residence, and only in males, although the prevalence of bread consumption also declined slightly in both sexes. Among the meats both pork and lamb showed an increased prevalence of consumption with duration of residence in males, but little change in females, while cheese showed a decrease in males but an increase in females.

In the vegetable group the prevalence of pulse consumption increased with duration of residence while the consumption of both potatoes and wild leafy greens declined with duration of residence. Beverage consumption showed a number of differences between the groups of shorter and longer duration of residence. The only significant difference ($P < 0.05$) was the increased prevalence of tea consumption by both sexes with longer duration of residence. Consumption of soft drinks also increased, but mainly in males, while beer, wine and water consumption all decreased in both sexes.

(d) 'Fasting' practices

The proportion of the sample of Greek migrants who adhered to the traditional custom of omitting meat, fish and eggs from their diets on Wednesdays and Fridays was small (12%) and slightly but not significantly greater (15%) in the group who had been resident in Australia for more than 16 years, but this was mainly due to greater adherence to this custom by those aged 50 years and over (19%). A much larger proportion of the sample omitted meat, fish and eggs from their diet on one or more days during the Easter (76%) and Christmas (51%) periods of religious festivals. No significant differences were evident in this case between the groups of shorter and longer duration of residence.

IV. DISCUSSION

The response rate of almost 80% and the distribution of the sample by

age, sex, duration of residence, place of origin, occupation and household composition indicates a broad coverage of Greek migrants to Melbourne, although it was not possible to assess the representativeness of the sample except by place of current residence.

Although there are no directly comparable data on the food consumption patterns of Australians, apparent food consumption data for Australia (ABS 1981) provides a good indication of the relative contribution of major food items to the Australian diet, and comparison of these data with the prevalence of the same items in the diets of Greek migrants to Australia suggests some basic differences.

In Australia in 1979/1980 only 37% of the total flour available for consumption was used for breadmaking, whereas the results from this study suggest a greater use for this purpose by Greek migrants. In contrast beef and veal, which make up almost half of all the carcass meat available for consumption in Australia, appear to play a much smaller role in the diet of Greek migrants, and cheese is more important than in the average Australian diet. For example, in a study of Victorians (Steel 1978a, 1978b), cheese was consumed by only 16% of adults at the mid-day meal and by 7% at the evening meal, while in this study 61% of the group consumed cheese on the day of the survey.

In the case of beverages, apart from the importance of coffee, the prevalence of consumption of beer relative to wine was much less than would be expected from apparent consumption data for Australia which gives a ratio of 8 : 1 expressed in litres, while in this study the prevalence of beer and wine consumption was similar.

Differences in the prevalence of consumption of various foods and beverages observed with duration of residence were not always in the direction which would be expected from a movement towards the Australian food pattern, e.g. beer, lamb and pulses, or necessarily consistent with secular changes in Australian consumption, e.g. beer and wine. In general the major changes in consumption patterns occurred within rather than between food groups as shown by the fact that no differences of 5% or more were seen, in any of the major food groups, with duration of residence. There was, however, a tendency for the prevalence of cereal consumption to decrease and that of meats to increase as evidenced by the fact that the major changes in individual items in these groups were in a negative direction for cereals and a positive direction for meats with increasing duration of residence.

The fact that for a number of foods the magnitude of the change, observed with duration of residence, was greater in males than females, probably reflects the greater exposure of males than females to meals outside the home during working hours. Differences in the age structure of the duration of residence groups, with more older persons in the longer stay group, could account for some of the differences observed with duration of residence. An analysis of data from those aged 40 - 49 years (Kosmidis et al. 1980), however, showed similar changes with duration of residence as for the sample as a whole. Exceptions were wine and wild leafy greens, neither of which showed any decrease in prevalence of consumption with duration of residence, suggesting that the decreased prevalence observed in the group as a whole is more a function of age than duration of residence.

The apparently minor changes in food consumption patterns observed, with increasing duration of residence in Australia, do not exclude the possibility that major changes in diet took place immediately after arrival, from Greece, as a consequence of both changes in lifestyle and food availability. This question can only be answered by comparison of the diets

of Greek migrants to Melbourne with those of a comparable group of Greeks living in Greece, that is, by a two-country study.

ACKNOWLEDGEMENTS

The authors wish to thank Mr. G. Kosmidis for his contribution to the field work and data analysis, and Dr. A.J. McMichael for advice and support. CSIRO Division of Human Nutrition provided financial assistance.

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