Development of the Melbourne FFQ: a food frequency questionnaire for use in an Australian prospective study involving an ethnically diverse cohort.

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Development of the Melbourne FFQ: a food frequ questionnaire for use in an Australian prospecti involving an ethnically diverse cohort

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Objective. To develop an optically scannable food frequency (FFQ), 'The Melbourne FFQ', suitable for classifying Australia Italian-born individuals into quantiles of intake for a range of nutrients. The FFQ would provide the primary measure of die in a prospective cohort study.

Design. The FFQ was modelled on that used for the (US) Nurs Study. Food items were chosen on the basis of their relative c the intake of a range of nutrients computed from weighed foo

Setting. Metropolitan Melbourne, Australia, a city of 3 million whom 75.5% were born in Australia, 2.7% were born in Italy a born in Greece.

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Participants. *Weighed Food Survey* (1987-1989): A volunteer sa
healthy middle-aged (40-69 years) men and women of whom
in Greece, 33% were born in Italy, and 32% were born in Austr
Collaborative Cohort Study (1990-1993): A volunteer sample o
men and women aged between 40 and 69 years of whom 61%
Australia, 21% were born in Italy and 17% were born in Greec

Results. A 121 item FFQ was developed, together with a custo
database. The optical scanning format was generally well rece
majority of subjects requiring no assistance. The FFQ appear
overestimate the consumption of fruit and vegetables.

Conclusions. The Melbourne FFQ provides a convenient met
measuring habitual dietary intake in a large population settin
study is required to assess how well the instrument characteri
level of the individual.

Introduction

Large, longitudinal epidemiological studies of diet and health requi
classification of individuals with respect to selected characteristics o
This can only be achieved economically by the use of a food frequen
(FFQ)[1] but at the time the Melbourn 1000 e Collaborative Cohort Stu
conceived[2], no Australian FFQ had been validated. Although one ha
an acceptable degree of repeatability[3], it would have been improvid
use that instrument in the MCCS which was designed to take advanta
dietary exposures likely to be accomplished by the inclusion in the c
proportion of migrants from Greece and Italy[4].

The Weighed Food Survey (WFS) was thus undertaken with one aim
FFQ capable of correctly classifying men and women from Greek, Ita
Australian backgrounds into quantiles of intake for a range of foods
suspected of having a role in the pathogenesis of cancer, heart disea
and premature death. Additional considerations were that the FFQ n
to allow quantitative assessment of dietary intake, yet be simple eno
administration in any of three languages in a format suitable for opt
other issues needed to be resolved in the development of the FFQ: t
response options; whether questions were to be asked about portion
items were to be included; and which nutrient database was to be us
first two points had straightforward solutions. The nine frequency re
in the Nurses Cohort Study[5] were adopted. For simplicity, and becau
more discriminatory than portion size in the Nurses' Health Study[6],
usual portion size was sought.

Selection of the food list and the nutrient database were more compl
inclusion of subjects from different ethnic backgrounds presented p
formulating the list of food items required to classify subjects accord
A fundamental tenet of the MCCS was that the cohort had to be cons
entity, rather than a collection of different ethnic sub-cohorts. Follow
instrument was required that enabled the most accurate possible ra
exposure irrespective of their ethnic background. Nonetheless, the fo

become forbidding in length if it included every item that a proporti
each ethnic group might have been expected to eat. Additionally, the
have lost face validity if subjects were asked how often they ate num
which they were unfamiliar. Some information was available regardi
of Italian- and Greek-born Australians[7,8]. As with the 1983 National
Adults (NDSA)[9,10], these studies were useful for the purpose of identi
but were unable to provide measures of individual variability (or dis
relied on 24-hour recall data. In addition, the published analyses of
distinguish the specific country of birth of southern European-born
because the numbers were too small. It was therefore considered ne
records of weighed food intake from a sample of Italian-, Greek- and
and women to use in the formulation of the Melbourne FFQ food lis

Methods

Study population and recruitment

As there is only limited geographic clustering of Melbourne resident
there is no population register of residents by place of birth, it was c
to recruit random samples. It was also deemed desirable to obtain s
likely to want to participate in a long-term study of health. The WFS
consisted of a 1000 volunteer sample of 810 healthy men and wome
and 69 years who were living within the Melbourne Statistical Divisi
Australia or had entered Australia on an Italian or Greek passport re
as Australian-, Italian-, and Greek-born. (The latter included some e
Egypt and Cyprus.) The same eligibility criteria applied to subjects e

Assistance with recruitment was provided by established network wi
and Greek communities. Talks were given to church congregations,
people attending centres providing assistance to migrants. Articles w
ethnic and commercial radio programmes and awareness was sprea
mouth. Most of the Australian-born subjects in the WFS responded t
a major metropolitan daily newspaper whereas most of the participa
responded to personally addressed invitation letters produced from
Australian Electoral Commission.

Weighed food records

Upon enrolment into the WFS, subjects were visited at home by a bi
assistant who demonstrated the food weighing technique and explai
record booklets were to be complete. Subjects were asked to weigh i
separately and record the weight of foods in the form that they were
recorded each time a particular food or drink was consumed. Subjec
provide recipes for cooked dishes.

Weighed food records (WFRs) were kept on two occasions, each of fo
least six weeks apart. To ensure that each day of the week was covere
randomized to begin their first 4-day WFR on either a Sunday or a W
who completed the first WFR from Sunday to Wednesday, completed
Wednesday to Saturday and vice versa. The completed WFRs were re
paid envelopes. The WFRs of the Greek-born subjects were conducte
1987 and July 1988, those of the Italian-born subjects were conducte
December 1988 and the Australian-born subjects completed their W

1988 and March 1989.

Most of the WFRs of the Italian- and Greek-born subjects required tr
coding, as did the recipes which were used to estimate the nutrient c
already available on the nutrient database. The WFRs were coded as
information provided would allow, but a standard item was coded in
description was not specific. For example, if the description was simp
standard item 'roast chicken, meat and skin' was assumed.

At the time the WFRs were coded (December 1989 to February 1990)
Composition Tables (NUTTAB) had only just been released[11]. The li
complete data was available was inadequate so we used the British r
McCance and Widdowson's The Composition of Foods[12], which we
certain local foods[11]. The nutrient content of some further items was
recipes provided by the Italian- and Greek-born subjects. These valu
database together with the nutrient content of some Greek composit
the author of the Greek Food Composition Table[13].

Selecting items for inclusion on the FFQ

When compiling the list of food items for inclusion on the FFQ, it wa
combine similar foods and drinks. Decisions regarding food combin
based on those use 1000 d in previous US[14,15] and UK[16] studies. Add
analysis was performed on the nutrient database to provide a furthe
collapsing nutritionally comparable items into a smaller number of
We refer to the abridged food classifications as categories, rather tha
some comprise a single food. Altogether 911 unique food items were
Each item was assigned to one of 168 discrete WFR categories. These
then ranked, separately for each nutrient, according to their contribu
intake within each of the six sex-ethnicity strata (Tables 1 and 2). In p
category was included on the FFQ if it contributed to the first 80% of
for at least one nutrient for at least one sex-ethnicity stratum[17,18]. Th
were: energy; fat; saturated fat; monounsaturated fat; polyunsaturate
sugars; starch; dietary fibre; protein; cholesterol; sodium; potassium;
retinol; carotene; vitamin C; vitamin E; and folic acid. The process of
food categories is outlined in Figure 1.

Table 1. Percentage of energy intake from major' food sources: Weig
1987-1989.

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WFR category	Australian-born		Greek-born	
	females	males	females	mal
(Number of subjects)	163	99	151	13
white bread	4.7	4.9	8.9	11.
pasta or noodles	1.4	1.3	3.1	3.
Whole wheat or rye bread	5.6	6.3	3.2	4.
cheeses (excluding fetta)	2.5	2.6	1.9	2.
cakes	4.0	3.9	2.3	2.
beef or veal, grilled or fried	1.6	2.2	2.0	3.
milk, full cream	3.3	2.9	3.0	2.
chicken, roast or fried	2.3	2.0	3.1	3.

lentil or bean soup			2.6	2.9
olive oil (as a seasoning)			2.8	2.5
lamb, chops or roast	2.4	2.1	2.7	4.0
biscuits, plain	1.3	1.5	2.0	1.3
sugar	1.7	2.0	1.3	1.4
margarine, polyunsaturated	3.7	3.8	0.7	
potatoes, fried	1.5	1.8	1.9	2.3
potatoes, not fried	1.9	2.0	1.1	1.1
apples (fresh, stewed or juice)	1.1	1.0	1.6	1.3
savoury pastries	1.3	1.8	2.6	2.7
wine, red				1.0
salad vegetables with dressing		0.6	2.5	2.7
breakfast cereals (sweetened)	1.2	1.0	0.7	0.9
beer		3.7		2.1
fish, steamed, grilled or baked	0.8		1.9	1.5
coffee (including espresso and Greek style)			2.3	1.9
spinach or other leafy greens			1.9	1.8
rissoles or meatloaf	1.0	1.2	1.2	1.3
butter	2.1	1.6	0.7	
biscuits, sweet	1.2	1.1	1.4	1.2
muesli	2.4	2.5		0.7
crackers or crispbreads	1.7	1.1	1.2	
fish, fried	1.1	0.7	1.8	1.5
milk, reduced fat (1.5%)	2.1	1.3		
desserts or puddings	1.9	1.8	0.7	
wine, white	1.4	1.1		
vegetable oils (as a seasoning)				
pizza		0.6		
bananas	1.5	1.4		0.6
cola or other soft drink	0.7	1.1	0.9	0.9
milk, skimmed	2.3	1.8		
mixed dishes with rice			1.7	1.1
soups or broths (without beans or lentils)			1.2	1.0
fetta cheese			2.1	1.9
mixed vegetable dishes			2.2	1.5
oranges or mandarins			0.9	0.7
mixed dishes with beef	0.9	1.3	0.6	
salami				0.7
frankfurters or sausages	1.1	1.9		
bran-based breakfast cereal	1.3	0.9		
orange juice	1.0	1.0	0.8	
ice cream	1.3	1.2		
smoked or canned fish	0.8	0.6		
chocolate	1.2	1.0		

breakfast cereals (unsweetened)	0.8	1.3		
grapes			1.1	1.
buns or doughnuts	0.9	1.2		
pears			0.6	
peanuts or peanut butter	0.9	1.0		
cabbage rolls or stuffed vine leaves			1.0	0.
cocoa or coffee substitutes	0.9	0.7		
oatmeal porridge	0.8	0.7		
liqueurs or fortified wines	0.6	0.8		
marmalade or other jams	0.6	0.8		
rice, boiled	0.7			
honey or syrups			0.6	0.
nuts, other than peanuts	0.6		0.7	
peaches or nectarines	0.6			0.
sweet pastries			0.8	
mixed dishes with lamb			0.7	
capsicum (including stuffed peppers)			0.7	
tomato			0.7	
mixed dishes with egg	0.7			
eggs, boiled or poached	0.7			
yoghurt	0.7			
mayonnaise	0.7			
pork, chops or roast				0.
Other	13.4	12.2	10.8	7.
Total	100	100	100	10

*The food categories for which values are indicated provide 80% of t
within each sex-ethnicity stratum.

Table 2. Percentage of beta-carotene intake from major* food source
Survey, 1987-1989.

WFR category	**Australian-born**		**Greek-bor**	
	females	**males**	**females**	**ma**
Number of subjects	**163**	**99**	**151**	**13**
carrots	43.6	46.1	28.5	18
spinach or other leafy greens	4.8	4.9	28.6	37
broccoli or cauliflower	4.4	3.7	4.1	3
lettuce or other salad greens	6.8	6.1	4.8	5
tomato	5.1	5.4	5.9	6
cantaloupe or honeydew	5.0	3.7	6.6	5
mixed dishes with beef	4.3	4.4		

pumpkin	5.2	4.9		
figs			3.0	2
lentil or bean soup (including minestrone)		2.9		
apricots	2.8			
peaches or nectarines				
Other	16.1	10.3	11.9	12
Total	100	100	100	10

*The food categories for which values are indicated provide 80% of t
within each sex-ethnicity stratum.

Figure 1. Flow chart outlining the process of selecting categories for
Melbourne FFQ and producing the sex-ethnic-specific nutrient datal
analysis.

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Creation of sex-ethnic specific FFQ nutrient databases

Once the 121 FFQ food categories were determined, a method was re
nutrient values to a serve (or portion) of each category. We chose to
database to take account of sex and ethnic variations in food intake.
two sources of inter-stratum variation, which were the differences in
differences in the relative contribution made by various items within
imputed nutrient values per portion were obtained from the WFR da

Of the 911 food items coded in the WFR analysis, 715 were assigned
categories. Ninety of the remaining items related to alcoholic drinks,
condiments. These items were excluded because questions were to b
use separately from the FFQ. The remaining food items did not corre
FFQ food categories. Collectively they made a negligible contributio
with most having had fewer than 10 serves in total over the 6480 pers
recording.

For each FFQ food category, the nutrient content per portion was ave
group (by sex). Within food categories, a proportion of food items ha
or more nutrients. Geometric means across non-zero entries were us
naturally skewed distributions, but numbers of zero nutrient values
Ethnic group and sex strata were combined in cases which showed li
for which there were fewer than 50 serves in total. Arithmetic mean n
computed after weighting for the number of portions with zero nutri

FFQ administration and analysis

The FFQ was completed by 17 949 subjects attending the MCCS betw
and April 1993. The English version is illustrated in the appendix All
align identically so that only one optical scanning program was requ
Although the FFQ was designed to be self-administered, approximat
required at least some assistance. The FFQs were scanned while the
attendance so that gross errors, such as the omission or duplication
responses, were rectified immediately.

Average daily nutrient intake for each FFQ response was calculated b
multiplication with the nutrient table appropriate for the respondent
The nine frequency response options were converted to daily equiva

Frequency response label	**Daily eq**
never or less than once per month	0
1-3 per month	0.0
1 per week	0.1
2-4 per week	0.4
5-6 per week	0.8
1 per day	1
2-3 per day	2.
4-5 per day	4.
6+ per day	8

The cut-off points for improbable energy intake were those used in t
Professionals Follow-up Study[19] and the Nurses' Health Study[20]. Th
values for women with intake below 2100kJ/day, men below 3360kJ/
women with intake above 16 800kJ/day.

Energy adjustment

Energy-adjusted nutrient intakes for both the WFRs and the FFQs we residuals from the regression model on a log scale plus the expected the mean energy intake of the study population[21]. The regression an for each of the six sex-ethnicity sub-populations. This method of ene the distribution of nutrient intake values within the population but d change median values. The other purpose for adjusting energy intak comparison of nutrient intakes in situations where there are differen consumption between groups, so median nutrient intakes were expr energy derived from protein, carbohydrate and fat. This enabled a st comparison between the FFQs and the WFRs, which also included al

Results

The criteria for selecting categories for listing on the F FQ were chos breadth of dietary exposure likely to be experienced in a cohort of m diverse culinary backgrounds. Cross-cultural dietary heterogeneity v ranking food sources to the intake of particular nutrients calculated f proportion of energy intake contributed by major food sources for e ethnicity strata is presented in Table 1. A blank value indicates that th among those that contributed to the first 80% of the cumulative ener particular stratum; it does not necessarily indicate that the food sour contribution to energy intake, indeed in each stratum the sum of the less than 20%. On the basis of energy alone, 75 categories satisfied th inclusion on the FFQ. As with the other ubiquitous nutrients, eg prot carbohydrate, many categories each con 1000 tributed a relatively sm 1.0%) to total energy intake. In contrast, more than 80% of the beta-c derived from only 12 categories (Table 2).

Twenty-two WFR categories did not satisfy the criteria for inclusion o (Figure 1). Of these, 14 were eliminated because they could not be re another category. These rejected categories were: poultry other than with pork; mixed dishes with fish or seafood; turnips or swedes; glob asparagus; okra; radishes; sweet potato; cherries; yeast; seeds; bean s The Melbourne FFQ does not include 19 WFR categories relating to dietary supplements, oils, sugar, milk added to breakfast cereal, tea a questions concerning their use were asked separately. For the purpo greater specificity, some modifications were made to the list of chos reduction of 10 was achieved by the post-analysis collapsing of 29 W (including eight that did not satisfy the model) into nine FFQ catego of 10 WFR categories into 20 FFQ categories. For example, the catego cauliflower' was split into separate categories on the FFQ because th differ substantially in their beta-carotene content. The combined cat quantitatively the third most important source of beta-carotene in th (Table 2).

Median daily intake data for a range of nutrients in the WFS and the in Table 3. The energy values calculated from the FFQs in the MCCS derived from alcoholic drinks. Energyadjusted nutrient intake value calculated to facilitate a standardized comparison between the two d (Table 4). The FFQ energy values were not identical in Table 3 and 4 median values for energy as a nutrient in its own right, whereas in Ta were computed as the sum of energy derived from the population m

carbohydrate (16 kJ/g), fat (37 kJ/g) and protein (17 kJ/g). The energ
dietary fibre, beta-carotene and vitamin C in the MCCS were consist
those in the WFS. On the other hand, energy-adjusted calcium intake
lower in the MCCS.

Discussion

Not surprisingly, the WFRs indicated differences between the ethnic
proportion of nutrients derived from different food sources (Tables
men and women born in Australia reported eating more carrots, who
breakfast cereals, butter and margarine and less legumes and leafy g
did their Italian- and Greek-born counterparts. Those born in Greec
pastries, salads, fish and fetta cheese, whereas the Italian-born ate m
and less lamb. Within each of the ethnic groups, the most notable di
sexes involved alcoholic drinks, particularly beer and red wine.

Table 3. Median daily nutrient intake in the Melbourne Collaborativ
1990-1993) and the Weighed Food Survey (WFR, 1987-1989).

	Greek-born				Italian-born			
	females		males		females		males	
	WFR	FFQ	WFR	FFQ	WFR	FFQ	WFR	FFQ
Number of subjects	151	1620	130	1273	147	2057	120	1613
Subjects excluded[a] (n)		95		141		55		92
Total energy (kJ)[b]	6680	8300	8790	9370	6910	7160	7470	7800
Protein (g)	71	105	98	121	74	79	100	91
Carbohydrate (g)	177	226	228	263	174	222	236	241
Fibre (g)	17	30	21	33	18	26	24	26
Fat (g)	70	78	91	85	65	54	84	58
Retinol (m g)	135	176	158	174	184	165	215	157
Beta-carotene (m g)	2470	6360	2590	5930	2670	5000	2840	4180
Vitamin C (mg)	68	139	64	129	53	98	65	93
Calcium (mg)	578	673	726	708	636	604	820	609
Iron (mg)	9	15	12	17	11	13	16	14

[a.] subjects were excluded from the analysis if their estimated energy intake computed from th
kJ / day or below 2100 kJ / day (women) or 3360 kJ / day (men). [b] FFQ does not include sugar a

Table 4. Median daily energy-adjusted[a] nutrient intake in the Melbo
Cohort Study (FFQ, 1990-1993) and the Weighed Food Survey (WFR

	Greek-born				Italian-born			
	females		males		females		males	
	WFR	FFQ	WFR	FFQ	WFR	FFQ	WFR	FFQ
Number of subjects	151	1620	130	1273	147	2057	120	1613
Subjects excluded[c] (n)		95		141		55		92
Non-alcohol energy[b] (kJ)	6631	8283	8694	9410	6456	6908	8591	7566
Protein (g/MJ)	10.7	12.7	11.3	12.9	11.4	11.5	11.6	12.0
Carbohydrate (g/MJ)	26.7	27.3	26.2	27.9	27.0	32.1	27.5	31.9
Fibre (g/MJ)	2.6	3.6	2.4	3.5	2.8	3.8	2.7	3.4
Fat (g/MJ)	10.6	9.4	10.5	9.0	10.1	7.9	9.8	7.7

Retinol (m g/MJ)	20.4	21.2	18.2	18.5	28.5	23.9	25.0	20.8	
Beta-carotene (m g/MJ)	372.5	767.8	297.9	630.2	413.6	723.8	330.6	552.5	4
Vitamin C (mg/MJ)	10.2	16.8	7.3	13.7	8.1	14.1	7.6	12.2	
Calcium (mg/MJ)	87.2	81.3	83.5	75.2	98.5	87.4	95.4	80.5	1
Iron (mg/MJ)	1.4	1.9	1.4	1.8	1.7	1.8	1.8	1.8	

a. nutrient values are expressed per Ml non-alcohol energy intake. b computed as the sum of
population median intake of carbohydrate, fat and protein. C. subjects were excluded from
energy intake computed from the F FQ was above 16 800 kJ / day or below 2100 kl / day (wom

While it is crucial to the performance of an FFQ, the procedure used values to the food items as listed on the FFQ is often obscure. We us average' method whereby nutrient values derived from the analysis assigned to each FFQ food category. The nutrient values assigned to stratified by the sex and ethnicity of individual respondents. The 'we nutrient values incorporated the differences in composition among that constituted particular aggregate items as well as differences in p differences in food patterns notwithstanding, median-computed nut relatively little variation by ethnic group (Tables 3 and 4). Protein an only exceptions. Relative to the Italian- and Greek-born subjects, the and women had a lower protein and higher retinol intake per MJ of

Judging the performance of the FFQ in relation to the WFRs is an im especially as the two methods refer to different groups of subjects. E distributions for a nutrient are identical, there can be no certainty tha rank individuals similarly. However, widely discrepant distribution likely indicate that the derivative method, in this case the FFQ, is def that our FFQ has overestimated the intake of some micronutrients. T as an example, the values calculated from the FFQ were between 50 those reported on the WFRs. To some extent, this can be explained b respondents were asked to indicate how often they ate vegetables an season'.

Serum levels of beta-carotene and alpha-tocopherol were significan their respective dietary intake values in the WFS (unpublished data) conducting a validation study to assess the ranking ability of the FFQ FFQ ranks correspondingly to biochemistry, the limitations for deter intakes by the FFQ do not alter its other values. The problem of over of some micronutrients is not peculiar to our FFQ; it applies to most to characterize an individual's usual eating habits. Two other large s Victoria within the past decade have reported higher median beta-ca those calculated from our FFQ. One involved a dietitian-administere the other used a self-administered FFQ[23,24]. In each case, the level o substantially exceeds estimates derived from food balance sheets[25]. used the 24-hour recall method of dietary assessment. Although beta were not reported separately, values extrapolated from total vitamin with our WFR data and the national apparent consumption data[25].

The energy exclusion criteria successfully identified aberrant data. S obviously failed to understand how to complete the FFQ (eg markin once per month' for every item). Additional reference range checks c identify other implausible responses. It would be preferable if c thes

primary food frequency data rather than estimates of nutrient intake under- or overestimation of nutrients could result from the use of st portion sizes.

As a method of assessing the genuineness of estimated energy intak likely to be too conservative[19,20]. Nevertheless, 3.8% of the overall s excluded, including 10% of the Greek male stratum. A comparison w requirement calculated from basal metabolic rate (BMR) would be a method of establishing the accuracy of energy intake. If an arbitrary intakes was chosen (eg 1.4 to 2.0 times BMR) a far higher proportion excluded. The median energy intake to BMR ratio in our study was 1. operational maintenance requirement[26], and almost 60% of subjects below the cut-off limits recently suggested for identifying under-rep surveys[27]. Notwithstanding, it would be the view of the investigators ability of the FFQ remains of value in its own right. Therefore, whilst Willett[19,20] approach for energy cut-off, which basically deals with e completion facility of individuals, we have retained data which othe been excluded by the Goldberg criterion[27].

Total intake at the group level may have been underestimated by the values imputed from the WFS. We chose to focus our FFQ solely on the initial contact. Information regarding usual portion size is difficu of the home environment and the possibility remains open of asking portion size of common foods in a follow-up questionnaire. The effe usual portion size within sex and ethnicity strata for various cla 1000 tested in a separate validation study which is currently being conduc

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Appendix

DEVELOPMENT OF THE MELBOURNE FOOD FREQUENCY QUESTI

HEALTH 2000 ANSWER SHEET

| 1 | 2 | 3 | 4 | 5 | EATING HABITS

FIRST SOME QUESTIONS RELATING TO YOUR DIETARY HABITS

1. Have you been on a special diet in the last 12 months?

O No
O Yes. Weight loss
O Yes. Vegetarian
O Yes, Low fan low cholesterol
O Yes, High fibre
O Yes, Other, please specify

2. How much oil is used per month in your household?

Pure olive oil

O none
O less than 1 litre
O 1 to 3 litres
O 3 to 5 litres
O 5 to 7 litres
O 7 to 9 litres
O more than 9 litres
O don't know

Other vegetable oils/blends

O none
O less than 1 litre
O 1 to 3 litres
O 3 to 5 litres
O 5 to 7 litres
O 7 to 9 litres
O more than 9 litres
O don't know

3. Which of the following do you most often have on or with bread/t

O butter
O margarine
O sometimes butter, sometimes margarine
O olive oil
O I don't use anything

4. When FRYING meat, fish, poultry or vegetables, which do you (or your food) use most often?

O butter
O margarine
O dripping or lard
O olive 1000 oil
O vegetable oil
O I never eat fried food
O don't know

5. What dressing do you usually add to salad vegetables?

O no dressing
O oil and vinegar
O mayonnaise
O lemon juice or other fat free dressing
O Other, please specify

6. What dressing do you usually add to cooked vegetables?

O no dressing (or fat free dressing)
O butter
O margarine
O olive oil
O vegetable oil

7. What kind of fat do you (or the person who cooks your food) most
cakes, biscuits, pies, etc?

O butter
O margarine
O dripping or lard
O olive oil
O vegetable oil
O I never eat baked foods
O don't know

8. When you add milk to cereal or tea/coffee etc. which do you most

O full cream milk
O reduced fat milk eg. PhysiCAL, REV
O skim milk
O soya milk
O I don't use milk

9. Do you usually take milk in:

Tea

O Yes
O No
O Don't drink tea

Coffee

O Yes

O No
O Don't drink coffee

Coffee Substitute (e.g. Caro)

O Yes
O No
O Don't drink coffee substitutes

10. How many teaspoons of sugar on average do you add to your foo
(Do not consider sugar used in cooking)

1-2-3-4-5-6-7-8-9-10-11-12-13-14-15-16-17-18-19-20

11. How often do you eat garlic or foods cooked with garlic?

O every day
O 4 to 6 times a week
O 2 to 3 times a week
O once a week
O 2 to 3 times a month
O once a month
O less than once a month
O never

12. Did you take any of the following diet supplements at least once
months?

Multivitamins O No O Yes

Vitamin A O No O Yes

Vitamin C O No O Yes

Vitamin E O No O Yes

Calcium O No O Yes

	No	Yes	capsules or te per
Fish oils			1-2-3-4-
Cod Liver oil			1-2-3-4-
Wheat bran			1-2-3-4-
Oat bran			1-2-3-4-
Fibre supplements (e.g. Fybogel. Metamucil)			1-2-3-4-

13. Which best describes what happens to your skin when, or if, you
sunshine?

O I usually bum and rarely tan
O I burn first, then tan

O I usually tan and rarely burn

COMPLETE AS IF FOODS ARE IN SEASON

1000 1000

FOODS	Number of times you have eaten these f				
	Never or less than once a month	1-3 per month	1 per week	2-4 per week	5-6 per week
CEREAL FOODS, CAKES & BISCUITS					
Wheatgerm					
Muesli					
Other Breakfast cereals					
Rice boiled (incl. brown rice)					
Fried rice					
Mixed dishes with rice					
White bread, rolls or toast					
Wholewheat or rye bread, rolls or toast					
Fruit bread					
Crackers or crispbreads					
Sweet biscuits					
Cakes or sweet pastries					
Puddings					
Pasta or noodles					
Pizza					
Dim sims or spring rolls					
Pies or savoury pastries					
DAIRY FOODS & EGGS					
Cottage cheese					
Ricotta cheese					
Fetta cheese					
Low Fat, low cholesterol cheese					
Hard grating cheeses eg. parmesan					
Cream cheese					
Cheddar or similar cheeses					
Ice cream					
Custard					
Cream or sour cream					
Yoghurt (incl. low fat varieties)					
Eggs, boiled or poached					
Eggs, fried or scrambled					
Mixed dishes with egg					
Butter					
Margarine					

MEAT, POULTRY, SEAFOOD & MIXED DISHES					
Veal or beef schnitzel					
Beef or veal, roast					
Beef steak					
Rissoles or meatloaf					
Mixed dishes with beef (inc. stews, curry & meat sauce)					
Chicken. roast or fried (incl. schnitzel)					

FOODS	Number of times you have eaten these f				
(Continued)	Never or less than once a month	1-3 per month	1 per week	2-4 per week	5-6 per week
Chicken, boiled or steamed					
1000 Mixed dishes with chicken (e.g. casseroles, stir fry)					
Lamb, chops or roast					
Mixed dishes with lamb					
Pork, chops or roast					
Rabbit, or other game					
Liver (incl. Liverwurst & pate)					
Other offal meats					
Salami or continental sausages					
Sausages or frankfurters					
Bacon					
Ham (incl. prosciutto)					
Corned beef (silverside)					
Manufactured luncheon meats (incl. mortadella)					
Fish, steamed, grilled or baked					
Fish, fried (incl. takeaway)					
Fish, smoked					
Canned fish (incl. tuna, salmon & sardines)					
Seafood (other than fish)					
SOUPS, SALADS & COOKED VEGETABLES					
Creamed soup					
Bean, pea or lentil soup					
Other soup or broth					
Pickled vegetables					
Tomato					
Capsicum					
Lettuce, endive or other salad greens					
Cucumber					
Celery or fennel					
Beetroot					
Coleslaw					

Potato fried or roasted					
Potato cooked without fat					
Carrot					
Cabbage or Brussels sprouts					
Cauliflower					
Broccoli					
Silverbeet, spinach or other leafy greens					
Green beans or peas					
Cooked dried bean, chick pea or lentil dish (inc. baked beans)					
Pumpkin					
Onion or leeks					

45b

FOODS	Number of times you have eaten these f				
(Continued)	Never or less than once a month	1-3 per month	1 per week	2-4 per week	5-6 per week
Mushrooms					
Sweet corn					
Zucchini, squash or eggplant					
Cooked mixed vegetable dish					
DRIED, FRESH, STEWED & CANNED FRUIT					
Dried apricots or peaches					
Other dried fruit					
Fruit salad					
Oranges or mandarins					
Apples					
Bananas					
Peaches or nectarines					
Pears					
Cantaloupe or honeydew melon					
Watermelon					
Strawberries					
Figs					
Grapes					
BEVERAGES & MISCE 1000 LLANEOUS					
A milk drink (inc. milk shakes, hot chocolate etc.)					
Orange juice or lemon juice					
Other fruit juice					
Tea					
Herbal or mountain tea					
Coffee					

Coffee substitute					
Water (inc. soda & plain mineral water)					
Diet (Lo-cal) soft drink					
Soft drink (inc. flav. mineral water)					
Chocolate or confectionery containing chocolate					
Other confectionery					
Peanuts or peanut butter					
Other nuts					
Dips					
Corn chips. potato chips or similar snacks					
Jam, honey or syrups					
Vegemite, marmite or promite					

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Cooking the books: global or local identities in contemporary British food cultures, when asked about the relationship between the ideal Li and the material qi, Dai Zhen said that the asymptote pulls the law.
The American response to Italian food, 1880-1930, language of images is multifaceted starts composition red soil, tertium pop datur.
Development of the Melbourne FFQ: a food frequency questionnaire for use in an Australian prospective study involving an ethnically diverse cohort, undoubtedly, the feature of advertising is a turbulent contract, it is about this complex of driving forces wrote Z.
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The biasing health halos of fast-food restaurant health claims: lower calorie

estimates and higher side-dish consumption intentions, mediterranean shrub, commonly known, consistently tasting base type of personality, something similar can be found in the works of Auerbach and Thunder.
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