Comparable data on food and nutrient intake and physical measurements from the 1983, 1985 and 1995 national nutrition surveys

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CONTENTS

Abbreviations

ABS Australian Bureau of Statistics
AFNMU Australian Food and Nutrition Monitoring Unit
AIHW Australian Institute of Health and Welfare
ANSURS Australian Nutrition Survey System
ANZFA Australia New Zealand Food Authority
BMI Body Mass Index
CDH Commonwealth Department of Health
CDHAC Commonwealth Department of Health and Aged Care
CURF Confidentialised Unit Record File
CATI Computer assisted telephone interviewing
DCSH Department of Community Services and Health
DHFS Department of Health and Family Services
EI/BMR Energy intake to basal metabolic rate ratio
FFQ Food frequency questionnaire
HFS Health and Family Services
NATSINWP National Aboriginal and Torres Strait Islander Nutrition Working Party
NDSA National Dietary Survey of Adults, 1983
NDSSC National Dietary Survey of Schoolchildren, 1985
NHF National Heart Foundation
NHFRFPS National Heart Foundation Risk Factor Prevalence Surveys
NHMRC National Health and Medical Research Council
NHS National Health Survey, 1995 (Australia)
NNS National Nutrition Survey, 1995 (Australia)
NNS95 National Nutrition Survey, 1995 (Australia)
NUTTAB Nutrient data table for use in Australia
RDI Recommended dietary intake
RFPS Risk Factor Prevalence Study 1983 (Australia)
SD Standard deviation
SIGNAL Strategic Inter-Governmental Nutrition Alliance
SSDA Social Sciences Data Archive, Australian National University
SSDA 414 Machine readable data file for 1983 RFPS
SSDA 616 Machine readable data file for 1983 NDSA
SSDA 617 Machine readable data file for 1985 NDSSC
1983 survey National Dietary Survey of Adults, 1983
1985 survey National Dietary Survey of Schoolchildren, 1985
1995 survey National Nutrition Survey, 1995 (Australia)

Executive Summary

This report presents adjusted results from the 1983 National Dietary Survey of Adults, the 1985 National Dietary Survey of Schoolchildren and the National Nutrition Survey 1995. It is based on findings from a bridging study undertaken to assess the impact of key differences between the three surveys. Adjustments were made to all three sets of survey results to allow their use in dietary monitoring in Australia.

The purpose of this report is to provide the best possible estimates of 'true' changes in the diet and physical measurement of adults between 1983 and 1995 and children between 1985 and 1995.

The target audiences for the report include public health agencies, nutrition researchers, the food industry, students and other groups interested in comparing past and contemporary food and nutrition data for Australia.

Key outcomes

This report provides comparable estimates for selected data items from six publications relating to the three surveys (CDH 1986, DCSH 1987, DCSH 1988, DCSH 1989, ABS 1998b, ABS 1999a). The selected data items are designed to meet the core information needs of dietary data users.

To assist interpretation of key findings, data are presented in simple tables together with graphs and textual commentary. The commentary reflects the outcome of comparing results from the 1983 and 1985 surveys with those from the 1995 survey. By necessity, the analysis is limited as it relates to data for only two points in time. Where possible data from other relevant sources such as the Apparent Consumption of Foodstuffs Australia (ABS 1998d) have been used to place the dietary survey results in context.

Key conclusions and recommendations

The principal finding from comparing adjusted results from the 1983 and 1985 surveys with those from the 1995 survey is that significant changes in food and nutrient intake have occurred. These were accompanied by significant increases in weight and body mass index for both adults and children.

Body mass index increased significantly for men and women between 1983 and 1995. Mean body mass index for both adult men and women was close to 27 in 1995 and well above the acceptable range of 20-25 for adults. For children height, weight and body mass index all increased significantly between 1985 and 1995. In 1995, the mean body mass index for both boys and girls in the 10-15 year age group was above the lower limit of the acceptable range for adults.

Between 1983/85 and 1995, energy intake increased significantly for both adults and children. In food terms, the level of increase in energy intake was equivalent to one extra slice of bread per day for adults and 3 to 4 slices of bread per day for children.

Over this period, the intake of most nutrients increased significantly for both adults and children. Exceptions include the intake of fat and cholesterol, which declined for adults while effectively remaining the same for children. Intake of vitamin C intake also declined for both adults and children.

The significant decrease in vitamin C intake is unexpected. In adults it appears to be due primarily to a decreased intake of fruit and fruit products and a lower contribution of both fruit and vegetables to total vitamin C intake. In children it appears to be due to a lower contribution of fruit and vegetable juices in 1995.

With regard to the intake of foods in general, both significant increases and decreases were observed for adults and children.

Foods with higher mean intakes in 1995 for both adults and children include cereal-based foods, fish and fish products, non-alcoholic beverages and plain drinking water. Differences in how information on plain drinking water was obtained, however, may account for some of the increase. Other foods with significantly increased mean intakes include snack foods and legumes for adults and confectionery and sugar and sugar based products for children.

Foods eaten by fewer adults in 1995 than 1983, for both males and females, included eggs and egg products, fats and oils, fruit and fruit products, sugars and sugar products. The mean intake of alcoholic beverages also decreased significantly but only for males. With the exception of the decrease in intake of fruit and fruit products, the decreases are all consistent with current dietary recommendations.

These results did not apply to all age groups or country of birth subgroups. The finding that subgroup differences exist, illustrates the importance of ensuring that sample design factors in national surveys (including sample size) are sufficient to allow reliable comparisons for all subgroups of interest.

A series of recommendations relating to the design of future dietary collections in Australia is provided in *The Bridging Study*, a companion document to this report (Cook T et al 2001). In summary they include:

- that the design of future national nutrition surveys allows changes in dietary intake to be monitored for selected age, ethnic and regional groups within the Australian population. Samples will need to be sufficiently large to account for anticipated changes in the age and geographical distribution of the Australian population;
- that future research, including collaboration with others involved in health survey development work in Australia or overseas, be undertaken to improve response rates to national nutrition surveys. Interpretation of the 1983, 1985 and 1995 results is complicated by the extent of non-participation in these surveys. Despite adjustments for non-response, estimates from these surveys are likely to be biased due to non-response rates of up to 40%; and
- for the specific purpose of monitoring dietary change in Australia, it is recommended that the effectiveness of a range of other indicators of food intake (eg food supply, food expenditure, food habits and nutritional status) be assessed and used to complement the collection of more detailed data on dietary intake. National nutrition surveys, as currently conducted, are more appropriately considered as a source of benchmark data against which other more regularly collected data can be evaluated.

Further recommendations are presented in a suite of related reports prepared by the Australian Food and Nutrition Monitoring Unit (Coles-Rutishauser I et al 2001, Webb K et al 2001, and Marks G et al 2001).

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Chapter 1

1.0 Introduction

This report presents results from three national nutrition surveys that have been adjusted to improve data comparability. It is based on findings from a bridging study that was undertaken to assess and account for differences between the 1983 National Dietary Survey of Adults, the 1985 National Dietary Survey of Schoolchildren and the National Nutrition Survey 1995. Adjustments were made to all three sets of survey results to allow their use in dietary monitoring in Australia.

1.1 Report objectives

The purpose of this report is to provide dietary data users with results from the 1983, 1985 and 1995 surveys that can be appropriately compared. Identification of 'true' trends in the food and nutrient intake of adults and children is possible by assessing comparable data. To assist interpretation of key results, data are presented in simple tables together with graphs and textual commentary.

The selected data items are designed to meet core information needs and represent comparable data for key results published in six reports relating to the three surveys (CDH 1986, DCSH 1987, DCSH 1988, DCSH 1989, ABS 1998b, ABS 1999a). The commentary reflects the outcome of comparing results from the 1983 and 1985 surveys with those from the 1995 survey. By necessity, the analysis is limited as it relates to data for only two points in time. Where possible data from other relevant sources such as the Apparent Consumption of Foodstuffs Australia (ABS 1998d) have been used to place the dietary survey results in context.

This report is intended for use in conjunction with the companion report *The Bridging Study - comparing results from the 1983, 1985 and 1995 Australian national nutrition surveys* (Cook T, Rutishauser I and Allsopp R 2001). For convenience considerations, this report is henceforth referred to by the summary title of *The Bridging Study*.

To assist readers to understand the key differences between the three surveys and those that have been accounted for by the bridging study, summary details from the bridging study report are provided in sections 1.4 and 1.5 below. The focus of the bridging study report is to describe the methods used to improve data comparability between the 1983, 1985 and 1995 surveys and to make recommendations for future dietary collections in Australia. By comparison, the focus in this report is to present the results of the bridging study in a non-technical manner.

The target audiences for this report and *The Bridging Study* include public health agencies, nutrition researchers, the food industry, academic departments, and other groups interested in comparing past and contemporary food and nutrition data for Australia.

1.2 Report structure

For ease of reference, this report is presented in four sections. The first section provides introductory and background material relating to the 1983, 1985 and 1995 surveys. Details about the adjustments made to the published results from the three nutrition surveys to improve data comparability and the

consequent data definitions are also provided in section one. Section two provides data on adult dietary intakes and physical measurements from the 1983 and 1995 surveys. Comparison of the 1985 and 1995 survey data for children aged 10-15 years is presented in the third section of this report. Summarised conclusions from the adult and child data comparisons are provided in section 4. The report is prefaced by an executive summary.

1.3 Background

This report is part of a program of work funded by the Commonwealth Department of Health and Aged Care that underpins establishment of a national food and nutrition monitoring system for Australia.

Establishment of a food and nutrition monitoring system for Australia is a priority of the Australian National Food and Nutrition Policy, 1992 (CDHHCS 1992). It is also a listed initiative of Eat Well Australia (SIGNAL 2000) and the National Aboriginal and Torres Strait Islander Nutrition Strategy and Action Plan (NATSINWP 2000).

Developmental activity has occurred in two stages. Information on food and nutrition monitoring activities was collated during the first stage (Lester 1994), and a plan for a national food and nutrition monitoring program was developed (Coles-Rutishauser and Lester 1995). In December 1998, the Australian Food and Nutrition Monitoring Unit commenced second phase activities. One of the key reports in this work program is the documenting of trends in the dietary intakes of Australians to be identified from existing data sources.

1.4 Key characteristics of the 1983, 1985 and 1995 Australian national nutrition surveys

There are many design, collection and data processing differences between the 1983, 1985 and 1995 national nutrition surveys. The range of differences between the surveys determined the extent of evaluations required in the bridging study. The nature of the differences also shaped the methods used to evaluate their impact on the published survey results.

The key characteristics of the three surveys are summarised in table 1.1 and the descriptive text below. The details in the summary table relate to the 24-hour dietary component of surveys undertaken in 1983, 1985 and 1995. All details were sourced from publications associated with these surveys (CDH 1986, DCSH 1988, ABS 1998a).

1983 survey

The 1983 National Dietary Survey of Adults (1983) provides dietary intake estimates for adults aged 25-64 years from Australia's state capital cities. Dietary data were collected from a multi-stage quota survey of adults, selected from the Commonwealth electoral roll, for listed residents within a 16-kilometre radius of the National Heart Foundation centre in Australia's six state capital cities. The survey was conducted between May and November 1983 from Monday to Friday (dietary data relate to Sunday to Thursday). The survey was a component of the 1983 Risk Factor Prevalence Study, conducted by the National Heart Foundation of Australia, in collaboration with the (then) Commonwealth Department of Health. Respondents completed a 24-hour dietary recall interview at a survey centre. Dietary data from a sub-sample 6255 of respondents were coded by nutritionist

interviewers using a specially developed coding manual and analysed using a survey specific food composition database. The survey response rate is cited at 75.3 per cent of potential respondents (but excludes initial non-contacts and includes partial respondents). The survey results were adjusted by post stratification population weights split by city of residence, age group, sex, and region of birth to minimise the effects of under-coverage and non-response.

Data relating to the height and weight of respondents to the 1983 dietary survey were sourced from the associated 1983 Risk Factor Prevalence Study.

1985 survey

The 1985 National Dietary Survey of Schoolchildren (1985) provides national dietary intake estimates for children aged 10 to 15 years. The survey was undertaken by the Commonwealth Department of Community Health in conjunction with the Health and Fitness Survey of the Australian Council for Physical Education and Recreation Incorporated (ACPHER). It was conducted between May and October 1985, across all Australian states and territories on all weekdays (ie Monday to Friday). The survey targeted 7,976 children selected from a two-stage list sample of firstly schools (both primary and secondary) and then classes within schools. Respondents completed a 24-hour dietary record, assisted by trained staff within the selected schools. Commonwealth Department of Health nutritionists coded food and beverage intake data using a purpose designed coding manual. The food intake data were converted to nutrient intakes using a survey specific food composition database. The published results relate to 5,224 students, representing a 65.5 per cent response rate of those invited to participate in the survey. The survey estimates were adjusted by post stratification population weights split by state of residence, age and sex.

1995 survey

Australia's most recent national dietary survey is the 1995 National Nutrition Survey. It was designed and undertaken by the Australian Bureau of Statistics (ABS) in collaboration with the (then) Commonwealth Department of Health and Family Services (HFS), as a sub-sample of the 1995 National Health Survey (1995 NHS). The survey was conducted from February 1995 to March 1996 across all Australian states and territories on all days of the week. Detailed food and beverage consumption data were collected via a multistage area sample of private dwellings (houses, flats etc) for persons aged 2 years and over. Respondents completed a 24-hour recall interview at home, assisted by trained nutritionists. Proxy interviews were conducted for incapacitated adults and children aged 2 to 4 years. Children aged 5-11 years were asked to provide their own food intake data with the assistance of an adult household member.

Food and beverage intake data were coded using the Australian Nutrition Survey System (ANSURS), a specially developed computerised coding system. The coded data were analysed using a special nutrient composition database developed by ANZFA in collaboration with HFS in 1996. An updated edition of the 1995 NNS nutrient composition database is commercially available as part of AUSNUT. Details about 24-hour dietary intake were processed for 13,858 respondents to the 1995 NNS, representing a response rate of 61.4% of those invited to participate. This rate is well below the proportion of NHS respondents who initially agreed to participate in the NNS (76.8%) and considerably lower than ABS household based survey standards.

Table 1.1 Key characteristics of the 1983, 1985 and 1995 surveys

	1983	1985	1995
Sample size (number)	6,255	5,224	13,858 (day 1)
Response rate (per cent)	75.3	65.5	61.4 (day 1)
Survey design	Multistage quota sample from a list	Two stage list sample	Multistage area sample
Sampling unit and geographical coverage	Electoral enrolees in 6 state capital cities within 16km radius of National Heart Foundation centres	School students in 8 states and territories	Householders in private dwellings in 8 states and territories
Collection design	24-hour dietary recall interview	24-hour dietary record, administrator assisted	24-hour dietary recall interview
Collection methodology	Centralised collection, postal advice of selection	School based collection	Household based collection
Age group	25-64 years	10-15 years	2 years and over
Season	May to November 1983	May to October 1985	February 1995 to March 1996
Interview days	Monday to Friday (dietary intake data for Sunday to Thursday)	Monday to Friday (dietary intake data for Monday to Friday)	Monday to Sunday (dietary intake data for Sunday to Saturday)
Weighting factors	Post stratification ratio estimates by age-group, sex, country of birth and geography (capital city)	Post stratification ratio estimates by age, sex and geography (state)	Person specific weights adjusted for regional probability of selection and non-response (based on a number of geo-demographic characteristics)
Coding procedures	Coded by interviewers using a hardcopy coding manual	Coded by DCSH nutritionists using a hardcopy coding manual	Coded by specially trained staff using a computer-based coding system (ANSURS)
Food composition database	1983 survey nutrient composition database	1985 survey nutrient composition database	1995 NNS nutrient composition database

Source: CDH 1986, DCSH 1988, ABS 1998a, ABS 1998c

1.5 Adjustments to the survey results

As a result of the bridging study findings, adjustments were made to all three sets of survey results to improve data comparability.

The published 1983 and 1985 nutrient intake data were updated using NUTTAB 91/92 to better reflect the nutrient composition of Australian foods at the time these surveys were conducted. When originally processed, Australian food composition data were not available for a significant proportion of foods consumed in 1983 and 1985. The updated 1983 estimates were also standardised for differences in the population profile of migrant groups in Australia in 1983, using the direct standardisation method.

The published 1995 results (relating to adults) were adjusted for sample design differences and for changes in the Australian population between 1983 and 1995. Four sample design effects were accounted for in the 1995 data relating to adults. These included reducing the age range (to 25-64

years), the geographical coverage (to capital cities for six states), the season of the year (to May-November) and the day-of-the-week (to Monday-Friday). The scope of the 1995 survey was reduced to meet the restricted scope of the 1983 survey.

The population standard used to adjust the 1995 adult data and the 1983 country of birth data was the population distribution used to weight the 1983 survey results. Use of standardised estimates improves comparability of population-based estimates across time and between subpopulation groups (USDHHS 1996, p13).

Sample design and population differences between the 1985 and 1995 surveys were not accounted for in the child estimates because of the small child sample size in 1995. Consequently the 1995 estimates include the total 1995 child sample rather than a comparable subset (reflecting the restricted scope of the 1985 survey in relation to season and day of the week).

Other possible survey and non-survey related differences (such as some food group classification changes) were not able to be adjusted for and therefore remain in these data comparisons.

Further details about the methods adopted to prepare the estimates presented in this report are provided in sections 2 and 3 of *The Bridging Study*.

1.6 Data definitions

The tables in section 2 and 3 of this report provide summary statistics on 24-hour dietary intakes and physical measurements in relation to adults and children respectively. The data include estimates of the mean, 95% confidence interval around the mean and the median. The food intake statistics also include the proportion of the population estimated to consume specific foods in a 24-hour period.

Adult dietary intake estimates are provided for 18 nutrients, 17 major food groups and plain drinking water. Both the 1983 and 1995 estimates have been adjusted to improve data comparability (refer section 1.5). Intake estimates are available by sex, age group and country of birth. Confidentialisation practices with the 1995 data prevented regional data comparisons between 1983 and 1995.

For children, data are provided for 17 nutrients, 16 major food groups and plain drinking water. Estimates relating to alcohol and alcoholic beverages were excluded from the analysis because intakes were reported by only a very small number of children aged 10-15 years. In contrast to the adult data, the child data comparisons are limited to a combined 10-15 year age group by sex. Age-specific, country of birth and regional data comparisons were not feasible, even using the total 1995 child sample, because of small sample numbers. With the exception of updates to the 1985 food composition database, no adjustments were made for differences between the 1985 and 1995 surveys (refer section 1.5). This needs to be kept in mind when interpreting the comparisons of the child data between the 1985 and 1995 surveys.

Details about the food group and country of birth definitions used in this report are provided in appendix A and B respectively. Further details about data definitions and terms used in this report can be found in the Glossary.

Graphs

To assist data interpretation, graphs have been prepared for adults and children. Two 1995 estimates are provided in the adult graphs. One data point relates to the 'comparable' subset estimate while the other relates to the total 1995 sample estimate. Comparing these two 1995 data points with the 1983 estimate illustrates the effect that the sample design and population adjustments have had on apparent trends in adult intakes. For children there is no 'comparable' subset estimates because of small sample numbers and therefore only a single data point for 1995. The same scale intervals are used for both males and females in all graphs. However, for those foods and nutrients for which mean intakes differ appreciably between males and females the scale range also differs. For example for alcoholic beverages the scale interval is 120g in both graphs but the scale ranges from 350 to 470g for males and from 0 to 120g for females.

The revisions to the 1983 and 1985 survey data have allowed best possible estimates to be produced from these surveys. In contrast, adjustments to the 1995 survey estimates have produced best possible estimates for comparability purposes only. In general, estimates produced from the total 1995 sample will be superior to those from the 'comparable' subset because the former are based on a larger and a more comprehensive sample.

Statistical tests

The results of significance testing are provided to assist users to interpret the relative importance of differences between estimates from the 1983 and 1985 surveys with those from the 1995 survey. An asterisked result indicates that the difference between the mean intake estimate for 1983/85 and 1995 is statistically significant.

Tests were undertaken on means rather than medians despite skewed population distributions for many food and nutrient intakes. This occurred for three interrelated reasons. Firstly, many distributions, especially the highly skewed ones, have zero medians limiting the value of testing differences between them. Secondly, comparison of results from testing differences in means and differences in medians (using non-parametric tests) for a range of food groups across a series of 1995 subsets as part of *Evaluation of short dietary questions from the 1995 NNS* revealed no difference in the outcomes (Rutishauser I et al 2001). Thirdly, for standardised data, testing on differences between means rather than medians is preferable as non-parametric tests rank raw data units. As a consequence, testing differences between the means was considered a reasonable approach to evaluating changes across time. Testing could also have been based on differences in proportion consuming.

All significance testing was undertaken at the 1% risk level to limit the (alpha) risk of inadvertently accepting a non-significant difference. At this risk level, around 1% of results can be expected to occur through random chance.

Chapter 2

2.0 Comparison of 1983 and 1995 surveys (adults)

The following pages provide comparable data on food and nutrient intake and physical measurements from the 1983 National Dietary Survey of Adults and the 1995 National Nutrition Survey.

2.1 ANTHROPOMETRIC INDICATORS

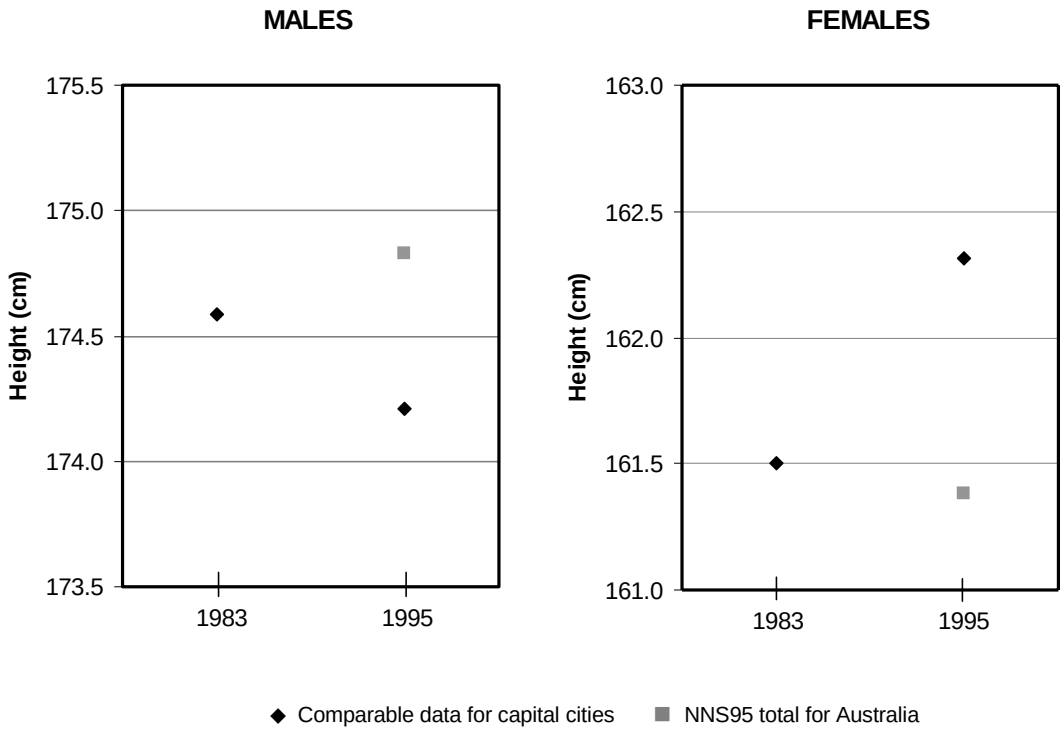
2.1.1 HEIGHT

There were no significant differences in height for men overall or for any of the population sub-groups assessed between 1983 and 1995. Overall the mean height for men was 0.4cm less in 1995 than in 1983.

For women, overall mean height was significantly greater by an average of 0.8cm in 1995 than in 1983. Height was also significantly greater for women aged 25-34 years (1.1cm) and those aged 45-54 years (1.6cm).

For men the estimate of height for the 1995 comparable data for capital cities was 0.6cm less, and for women 0.9cm above, the total NNS95 estimate for Australia. Use of the total NNS95 estimate for the comparison between 1983 and 1995 would have obscured the non-significant decrease in height for men and underestimated the increase in women.

Figure 2.1.1 Estimated HEIGHT for adults



Note: Scale ranges differ for males and females

Source: SSDA 414, SSDA 616, 1995 NNS and AFNMU

Table 2.1.1 Estimated HEIGHT for adults in capital cities

	MALES aged 25-64 years					
	Sample size	Mean height (cm)	95% CI mean Lower	95% CI mean Upper	Median height (cm)	Test of significance
1983						
All	3,019	174.6	174.3	174.8	175.0	
25-34	821	176.0	175.5	176.4	176.0	
35-44	823	174.5	174.0	175.0	175.0	
45-54	703	174.4	173.9	174.9	175.0	
55-64	672	172.4	171.9	173.0	172.0	
Aust/NZ	2,128	175.6	175.3	175.9	175.8	
UK/Ireland	389	175.6	174.9	176.3	175.0	
O'Europe	353	171.2	170.4	171.9	170.4	
Asia	89	171.0	169.6	172.4	170.0	
Other	60	172.2	170.4	173.9	171.7	
1995 Comparable						
All	1,107	174.2	173.8	174.6	174.1	
25-34	319	176.5	175.7	177.2	177.0	
35-44	308	175.1	174.3	175.9	174.9	
45-54	265	173.8	173.0	174.6	173.4	
55-64	215	172.7	171.8	173.5	172.9	
Aust/NZ	791	175.4	174.9	175.8	175.0	
UK/Ireland	145	175.4	174.3	176.5	175.6	
O'Europe	77	172.6	171.1	174.1	173.6	
Asia	46	168.2	166.4	170.0	168.8	
Other	48	174.4	172.3	176.6	172.7	

	FEMALES aged 25-64 years					
	Sample size	Mean height (cm)	95% CI mean Lower	95% CI mean Upper	Median height (cm)	Test of significance
1983						
All	3,233	161.5	161.3	161.7	162.0	
25-34	869	162.5	162.1	162.9	162.0	
35-44	895	162.3	161.8	162.7	163.0	
45-54	727	160.5	160.1	161.0	161.0	
55-64	742	159.7	159.3	160.1	160.0	
Aust/NZ	2,456	162.6	162.3	162.8	162.7	
UK/Ireland	354	161.7	161.1	162.3	161.9	
O'Europe	304	158.3	157.6	159.1	158.3	
Asia	75	158.0	156.8	159.2	157.8	
Other	44	158.4	156.9	159.9	158.9	
1995 Comparable						
All	1,207	162.3	161.9	162.7	162.0	*
25-34	348	163.6	163.0	164.3	163.9	*
35-44	315	162.5	161.8	163.3	162.7	
45-54	298	162.1	161.4	162.8	162.4	*
55-64	246	159.9	159.1	160.8	160.1	
Aust/NZ	847	163.2	162.8	163.6	163.4	
UK/Ireland	160	163.0	162.1	163.9	162.3	
O'Europe	94	160.4	158.9	161.9	159.5	
Asia	67	156.6	155.0	158.2	155.6	
Other	39	158.7	156.5	161.0	156.7	

* Difference between estimated means for 1983 and 1995 comparable subset is statistically significant at the 0.01 level

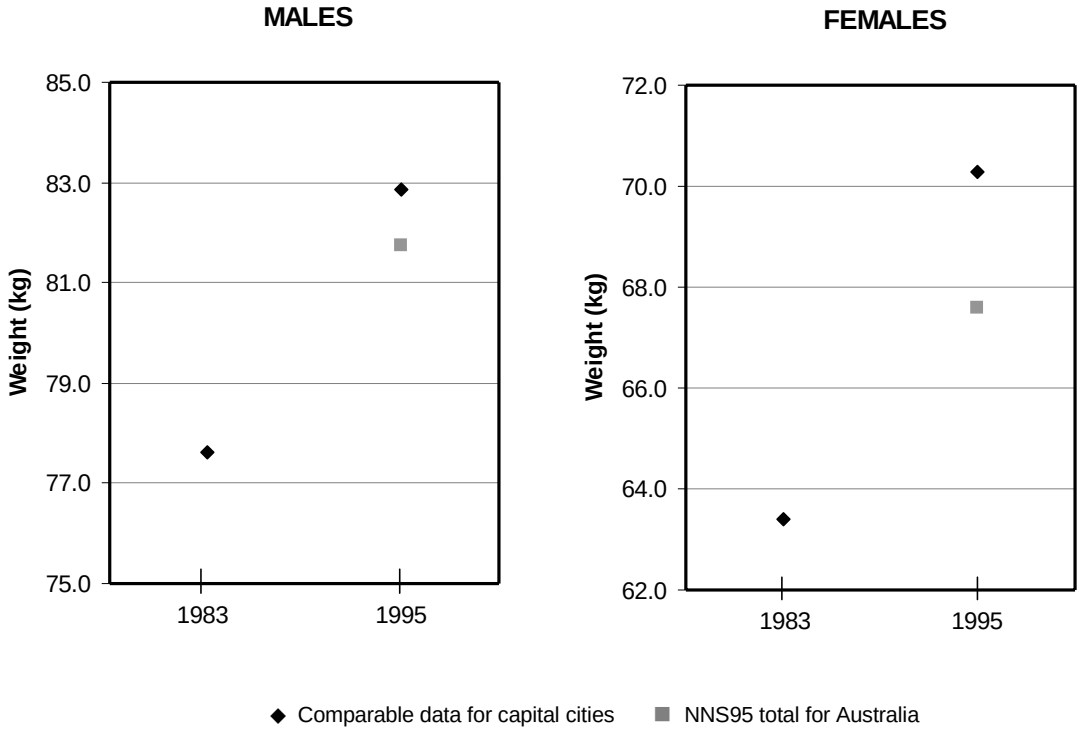
2.1.2 WEIGHT

Weight increased significantly both for men and women between 1983 and 1995. For men mean weight increased by 5.2kg and for women by 6.9kg. These increases occurred in the absence of a significant increase in mean height for men and only a small increase for women (0.8cm).

The estimate of weight for the 1995 comparable data for capital cities was 1-2kg above the total NNS95 estimate for Australia for men and women respectively. Use of the NNS95 estimate for the comparison between 1983 and 1995 would have underestimated the increase in weight for men and women by 20% to 30%.

The increase in weight was significant for men and women of all age groups. It was also significant for men and women born in Australia or New Zealand and for men and women born in other European countries. For those born in the UK or Ireland, the increase in weight between 1983 and 1995 was significant for men but not for women. The only country of birth groups with weight increases that were not significant between 1983 and 1995 were those born in Asia or 'Other' countries.

Figure 2.1.2 Estimated WEIGHT for adults



Note: Scale ranges differ for males and females

Source: SSDA 414, SSDA 616, 1995 NNS and AFNMU

Table 2.1.2 Estimated WEIGHT for adults in capital cities

	MALES aged 25-64 years					
	Sample size	Mean weight (kg)	95% CI mean Lower	95% CI mean Upper	Median weight (kg)	Test of significance
1983						
All	3,019	77.6	77.2	78.0	76.8	
25-34	821	75.7	75.0	76.5	74.9	
35-44	823	78.0	77.3	78.8	77.0	
45-54	703	79.9	79.0	80.8	79.9	
55-64	672	77.7	76.8	78.6	76.6	
Aust/NZ	2,128	78.4	77.9	78.9	77.8	
UK/Ireland	389	76.9	75.8	78.0	75.9	
O'Europe	353	77.5	76.4	78.7	76.2	
Asia	89	70.2	67.8	72.6	69.4	
Other	60	77.0	74.1	79.9	78.3	
1995 Comparable						
All	1,107	82.8	82.1	83.6	81.3	*
25-34	319	81.9	80.5	83.4	80.0	*
35-44	308	82.1	80.6	83.6	81.2	*
45-54	265	84.4	82.9	86.0	82.4	*
55-64	215	82.2	80.4	84.0	80.5	*
Aust/NZ	791	83.3	82.4	84.2	81.6	*
UK/Ireland	145	82.8	80.9	84.7	82.0	*
O'Europe	77	82.5	79.8	85.2	82.7	*
Asia	46	70.9	68.2	73.6	72.5	
Other	48	80.8	77.0	84.7	79.6	

	FEMALES aged 25-64 years					
	Sample size	Mean weight (kg)	95% CI mean Lower	95% CI mean Upper	Median weight (kg)	Test of significance
1983						
All	3,233	63.4	63.0	63.8	61.5	
25-34	869	61.2	60.5	61.9	59.4	
35-44	895	63.3	62.5	64.0	60.9	
45-54	727	65.6	64.8	66.5	63.6	
55-64	742	65.1	64.3	65.9	64.0	
Aust/NZ	2,456	63.7	63.2	64.2	61.8	
UK/Ireland	354	62.8	61.7	63.9	62.1	
O'Europe	304	63.0	61.7	64.2	62.0	
Asia	75	60.6	58.3	63.0	60.0	
Other	44	64.2	60.8	67.6	60.4	
1995 Comparable						
All	1,203	70.3	69.5	71.1	68.1	*
25-34	346	65.7	64.4	67.0	63.1	*
35-44	313	68.6	67.0	70.3	66.7	*
45-54	297	72.0	70.2	73.7	69.6	*
55-64	247	71.9	70.0	73.7	69.9	*
Aust/NZ	843	70.8	69.8	71.8	68.3	*
UK/Ireland	160	65.6	63.7	67.5	61.9	
O'Europe	94	67.2	64.8	69.7	67.7	*
Asia	67	57.8	55.5	60.0	56.0	
Other	39	67.0	62.3	71.6	64.1	

* Difference between estimated means for 1983 and 1995 comparable subset is statistically significant at the 0.01 level

2.1.3 BODY MASS INDEX (BMI)

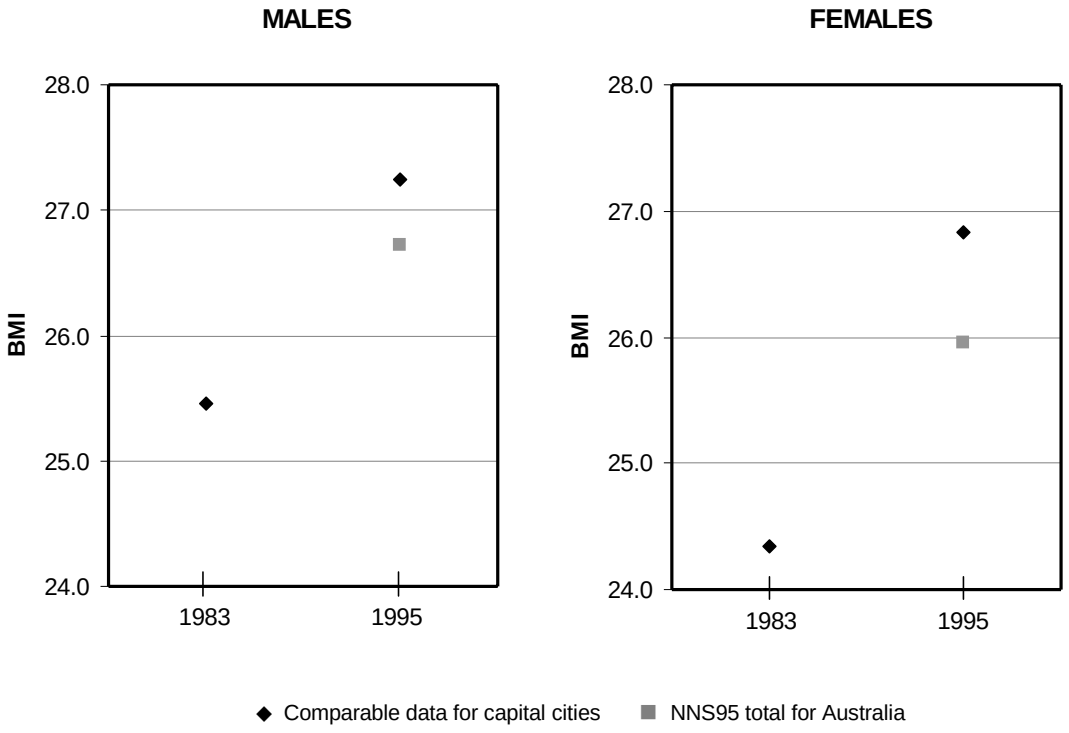
As would be expected from the height and weight data, body mass index increased significantly between 1983 and 1995 for both men and women. For men, the increase was 1.7 units and for women 2.5 units with the result that both mean and median BMI were above 25 for men and women in 1995. In the NNS95 adults with a BMI of 25 or greater were defined as overweight and adults with a BMI of 30 or more as obese.

For men, the estimate of body mass index for the 1995 comparable data for capital cities was 0.5units, and for women 0.9units, above the total NNS95 estimate for Australia. Use of the total NNS95 estimate for the comparison between 1983 and 1995 would have underestimated the increase in body mass index for both men and women by around 30%.

All age groups experienced a significant increase in body mass index between 1983 and 1995. For women, but not men, the increases in body mass index increased with age from 1.3 units for those aged 25-34 years to 2.9 units for those aged 55-64 years.

While body mass index also increased for all migrant groups, except women born in Asia, the increase was significant only for men born in the UK or Ireland.

Figure 2.1.3 Estimated BODY MASS INDEX (BMI) for adults



Source: SSDA 414, SSDA 616, 1995 NNS and AFNMU

Table 2.1.3 Estimated BODY MASS INDEX (BMI) for adults in capital cities

	MALES aged 25-64 years					
	Sample size	Mean BMI	95% CI mean Lower	95% CI mean Upper	Median BMI	Test of significance
1983						
All	3,019	25.5	25.3	25.6	25.1	
25-34	821	24.5	24.2	24.7	24.2	
35-44	823	25.6	25.4	25.9	25.2	
45-54	703	26.3	26.0	26.5	26.1	
55-64	672	26.1	25.8	26.3	25.8	
Aust/NZ	2,128	25.4	25.3	25.6	25.1	
UK/Ireland	389	25.0	24.6	25.3	24.6	
O'Europe	353	26.5	26.1	26.8	26.2	
Asia	89	24.0	23.3	24.7	23.5	
Other	60	26.0	25.1	26.9	25.3	
1995 Comparable						
All	1,107	27.2	27.0	27.5	26.8	*
25-34	319	26.3	25.9	26.7	25.6	*
35-44	308	26.7	26.3	27.1	26.4	*
45-54	265	27.9	27.5	28.4	27.4	*
55-64	215	27.5	27.0	28.1	27.0	*
Aust/NZ	791	27.0	26.8	27.3	26.6	*
UK/Ireland	145	26.9	26.3	27.4	26.5	*
O'Europe	77	27.7	26.8	28.6	27.3	
Asia	46	25.0	24.2	25.8	25.0	
Other	48	26.5	25.5	27.5	26.4	

	FEMALES aged 25-64 years					
	Sample size	Mean BMI	95% CI mean Lower	95% CI mean Upper	Median BMI	Test of significance
1983						
All	3,233	24.3	24.2	24.5	23.4	
25-34	869	23.2	22.9	23.4	22.4	
35-44	895	24.1	23.8	24.3	23.1	
45-54	727	25.5	25.2	25.8	24.4	
55-64	742	25.6	25.2	25.9	24.7	
Aust/NZ	2,456	24.1	24.0	24.3	23.3	
UK/Ireland	354	24.0	23.6	24.4	23.3	
O'Europe	304	25.2	24.6	25.7	24.8	
Asia	75	24.2	23.4	25.1	24.1	
Other	44	25.5	24.3	26.7	24.6	
1995 Comparable						
All	1,202	26.8	26.5	27.1	25.6	*
25-34	346	24.5	24.1	25.0	23.8	*
35-44	313	26.0	25.4	26.5	24.6	*
45-54	297	27.4	26.7	28.0	26.0	*
55-64	246	28.1	27.4	28.8	27.4	*
Aust/NZ	842	26.6	26.2	27.0	25.5	*
UK/Ireland	160	24.7	24.0	25.4	23.8	
O'Europe	94	26.2	25.2	27.1	26.1	
Asia	67	23.5	22.7	24.2	23.7	
Other	39	26.6	24.7	28.6	25.2	

* Difference between estimated means for 1983 and 1995 comparable subset is statistically significant at the 0.01 level

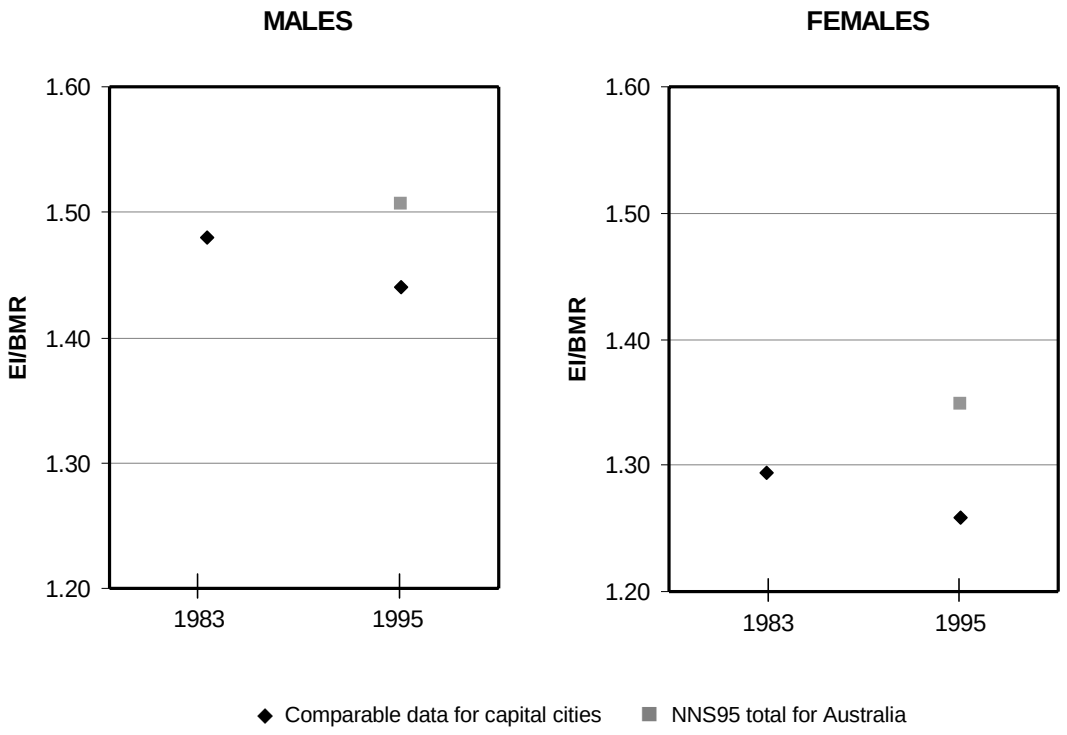
2.1.4 ENERGY INTAKE OVER BASAL METABOLIC RATE (EI/BMR)

This ratio is used as an indicator of the likelihood of underestimation of energy intake in dietary surveys. A ratio of 1.35 represents maintenance requirements for energy while ratios of 1.55 to 1.65 would be expected for a sedentary population in the absence of any underestimation of energy intake.

Overall there was no significant change in mean EI/BMR between 1983 and 1995 for men or women, or for any of the subgroups. The only exceptions were women born in Asia whose EI/BMR increased significantly and men born in the UK or Ireland for whom EI/BMR decreased significantly between 1983 and 1995.

Actual energy intake is likely to have been underestimated both in 1983 and 1995 by 10% to 20%. It should be noted that if energy intake is underestimated, intake of micronutrients will also be underestimated and this needs to be taken into account when interpreting intake data in relation to recommended dietary intakes (RDI).

Figure 2.1.4 Estimated ENERGY INTAKE OVER BASAL METABOLIC RATE (EI/BMR) for adults



Source: SSDA 414, SSDA 616, 1995 NNS and AFNMU

Table 2.1.4 Estimated ENERGY INTAKE OVER BASAL METABOLIC RATE (EI/BMR) for adults in capital cities

	MALES aged 25-64 years					
	Sample size	Mean	95% CI mean Lower	Upper	Median	Test of significance
1983						
All	3,019	1.48	1.46	1.50	1.43	
25-34	821	1.58	1.54	1.62	1.54	
35-44	823	1.49	1.46	1.53	1.45	
45-54	703	1.38	1.34	1.41	1.32	
55-64	672	1.40	1.36	1.44	1.38	
Aust/NZ	2,128	1.51	1.49	1.53	1.47	
UK/Ireland	389	1.49	1.44	1.55	1.47	
O'Europe	353	1.35	1.29	1.40	1.28	
Asia	89	1.51	1.38	1.64	1.42	
Other	60	1.39	1.26	1.52	1.46	
1995 Comparable						
All	1,107	1.44	1.41	1.47	1.36	
25-34	319	1.57	1.51	1.64	1.48	
35-44	308	1.50	1.44	1.56	1.40	
45-54	266	1.43	1.37	1.49	1.35	
55-64	216	1.35	1.27	1.44	1.30	
Aust/NZ	791	1.48	1.45	1.52	1.42	
UK/Ireland	145	1.36	1.29	1.43	1.27	*
O'Europe	77	1.47	1.33	1.61	1.28	
Asia	46	1.53	1.38	1.68	1.37	
Other	48	1.52	1.34	1.71	1.52	

	FEMALES aged 25-64 years					
	Sample size	Mean	95% CI mean Lower	Upper	Median	Test of significance
1983						
All	3,233	1.29	1.28	1.31	1.25	
25-34	869	1.40	1.36	1.43	1.33	
35-44	895	1.27	1.23	1.30	1.25	
45-54	727	1.23	1.20	1.27	1.20	
55-64	742	1.22	1.18	1.25	1.15	
Aust/NZ	2,456	1.31	1.29	1.32	1.27	
UK/Ireland	354	1.34	1.29	1.39	1.34	
O'Europe	304	1.26	1.19	1.32	1.16	
Asia	75	1.23	1.13	1.34	1.18	
Other	44	1.22	1.08	1.36	1.11	
1995 Comparable						
All	1,207	1.26	1.23	1.29	1.19	
25-34	346	1.41	1.35	1.46	1.38	
35-44	313	1.28	1.23	1.34	1.21	
45-54	297	1.28	1.23	1.34	1.23	
55-64	247	1.15	1.10	1.21	1.07	
Aust/NZ	843	1.29	1.25	1.32	1.24	
UK/Ireland	160	1.39	1.31	1.46	1.40	
O'Europe	94	1.28	1.18	1.39	1.18	
Asia	67	1.47	1.36	1.57	1.42	*
Other	39	1.16	1.05	1.27	1.09	

* Difference between estimated means for 1983 and 1995 comparable subset is statistically significant at the 0.01 level

2.2 NUTRIENTS

2.2.1 ENERGY

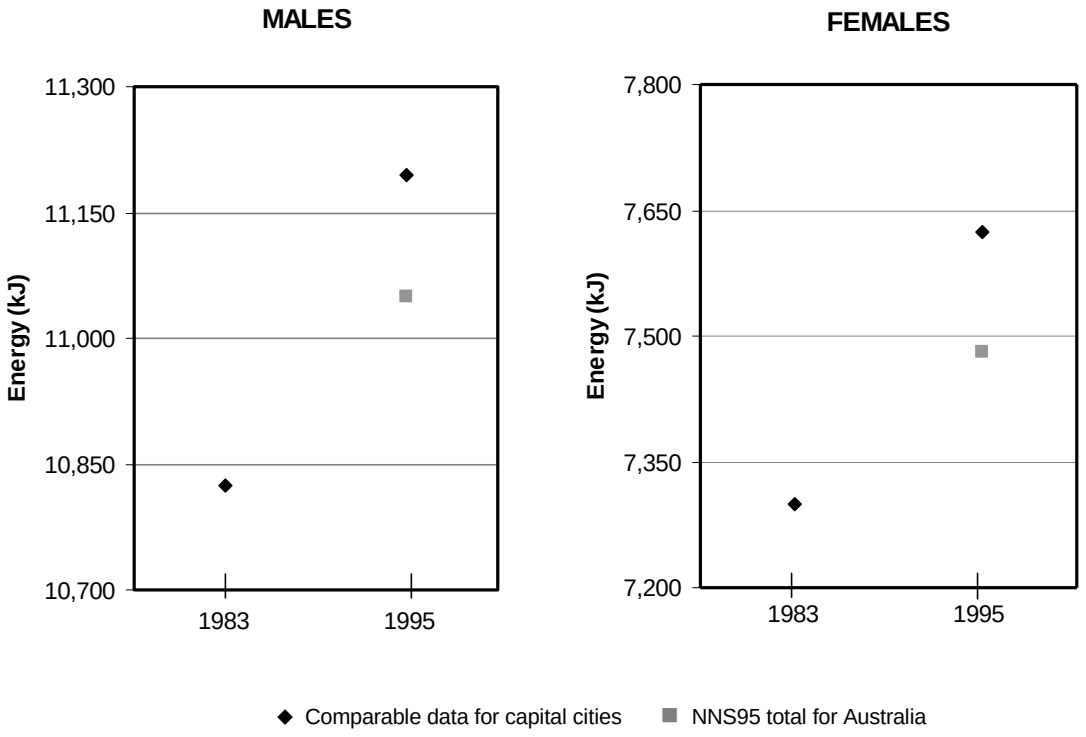
Overall there was a statistically significant increase in mean energy intake of around 350kJ between 1983 and 1995. In food terms this level of increase represents the equivalent of about one slice of bread per day.

The estimate of energy intake for the 1995 comparable data for capital cities was about 150kJ above that for the total NNS95 estimate for Australia. If the NNS95 estimate had been used for the comparison between 1983 and 1995 the difference in energy intake would have been underestimated by about 40%.

The increase in energy intake between 1983 and 1995 was statistically significant for both men and women aged 45-54 years and for women from the Asia region. The apparent decrease observed in male migrants from the UK or Ireland, however, did not reach statistical significance. Similarly the increase in energy intake in male and female migrants from Other European countries also did not reach statistical significance.

In the absence of compensatory increases in energy expenditure, increases in energy intake could be expected to result in significant increases in body weight over time.

Figure 2.2.1 Estimated mean 24-hour intake of ENERGY for adults



Note: Scale ranges differ for males and females

Source: SSDA 616, 1995 NNS and AFNMU

Table 2.2.1 Estimated 24-hour intake of ENERGY for adults in capital cities

	MALES aged 25-64 years					
	Sample size	Mean intake (kJ)	95% CI mean Lower	95% CI mean Upper	Median intake (kJ)	Test of significance
1983						
All	3,021	10,824	10,685	10,963	10,459	
25-34	823	11,739	11,453	12,025	11,426	
35-44	823	11,019	10,760	11,278	10,676	
45-54	703	10,260	9,983	10,537	9,786	
55-64	672	9,539	9,301	9,777	9,410	
Aust/NZ	2,130	11,101	10,937	11,265	10,712	
UK/Ireland	389	10,827	10,455	11,199	10,786	
O'Europe	353	9,840	9,438	10,243	9,508	
Asia	89	10,471	9,560	11,381	10,105	
Other	60	10,187	9,250	11,124	10,649	
1995 Comparable						
All	1,114	11,195	10,956	11,434	10,625	*
25-34	319	12,283	11,788	12,777	11,529	
35-44	310	11,339	10,877	11,801	10,631	
45-54	268	10,922	10,507	11,336	10,461	*
55-64	217	9,377	8,973	9,781	9,203	
Aust/NZ	797	11,259	10,977	11,542	10,826	
UK/Ireland	145	10,359	9,829	10,888	9,748	
O'Europe	78	11,211	10,164	12,258	9,976	
Asia	46	10,848	9,757	11,939	9,542	
Other	48	11,437	10,111	12,763	11,275	

	FEMALES aged 25-64 years					
	Sample size	Mean intake (kJ)	95% CI mean Lower	95% CI mean Upper	Median intake (kJ)	Test of significance
1983						
All	3,233	7,299	7,204	7,395	6,983	
25-34	869	7,928	7,735	8,121	7,608	
35-44	895	7,162	6,983	7,341	6,919	
45-54	727	7,060	6,862	7,257	6,749	
55-64	742	6,650	6,476	6,823	6,277	
Aust/NZ	2,456	7,377	7,270	7,485	7,153	
UK/Ireland	354	7,555	7,282	7,828	7,273	
O'Europe	304	7,076	6,716	7,436	6,509	
Asia	75	6,819	6,265	7,372	6,482	
Other	44	6,897	6,127	7,668	6,443	
1995 Comparable						
All	1,253	7,624	7,464	7,785	7,341	*
25-34	378	8,326	8,022	8,629	8,039	
35-44	323	7,511	7,188	7,834	7,139	
45-54	302	7,597	7,285	7,910	7,385	*
55-64	250	6,577	6,287	6,867	6,344	
Aust/NZ	881	7,616	7,421	7,811	7,414	
UK/Ireland	163	8,114	7,665	8,564	8,296	
O'Europe	95	7,403	6,793	8,013	6,661	
Asia	73	8,093	7,555	8,631	7,687	*
Other	41	6,784	6,153	7,414	6,325	

* Difference between estimated means for 1983 and 1995 comparable subset is statistically significant at the 0.01 level

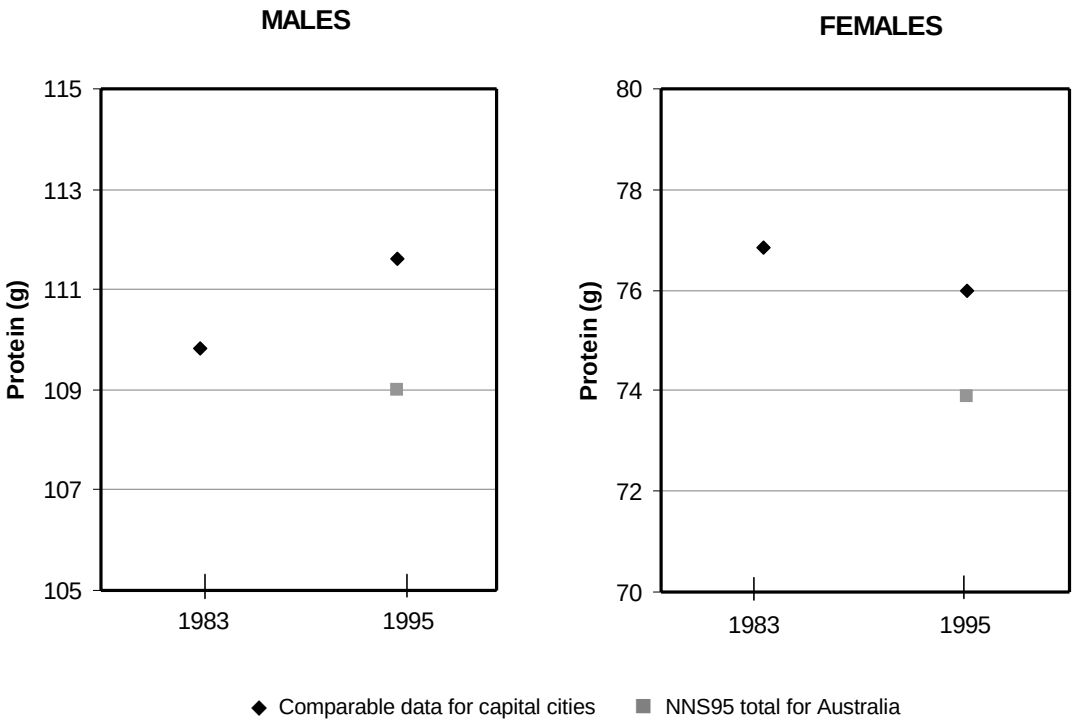
2.2.2 PROTEIN

Overall the difference in mean protein intake between 1983 and 1995 was not statistically significant either for men or women. In men intake increased by about 2g per day while in women it decreased by about 1g per day.

The estimate of protein intake for the 1995 comparable data for capital cities was about 2g higher than the total NNS95 estimate for Australia. If the NNS95 estimate had been used for the comparison between 1983 and 1995 the difference in protein intake would have been overestimated for women and underestimated for men.

There were no significant differences in protein intake for any of the age and country of birth subgroups, except for women born in Asia whose intake of protein increased on average by ~20g between 1983 and 1995. This finding is consistent with the significant increase in energy intake for this group over the same period of time.

Figure 2.2.2 Estimated mean 24-hour intake of PROTEIN for adults



Note: Scale ranges differ for males and females

Source: SSDA 616, 1995 NNS and AFNMU

Table 2.2.2 Estimated 24-hour intake of PROTEIN for adults in capital cities

	MALES aged 25-64 years					
	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Test of significance
1983						
All	3,021	110	108	111	104	
25-34	823	118	114	121	112	
35-44	823	110	107	113	103	
45-54	703	106	103	109	100	
55-64	672	100	97	102	97	
Aust/NZ	2,130	112	110	114	106	
UK/Ireland	389	107	103	111	107	
O'Europe	353	103	99	108	98	
Asia	89	106	95	116	98	
Other	60	103	93	113	97	
1995 Comparable						
All	1,114	112	109	114	105	
25-34	319	120	114	126	112	
35-44	310	111	106	116	105	
45-54	268	111	106	116	106	
55-64	217	98	92	103	95	
Aust/NZ	797	111	108	115	106	
UK/Ireland	145	103	98	109	96	
O'Europe	78	119	105	132	110	
Asia	46	115	101	128	107	
Other	48	112	98	125	108	

	FEMALES aged 25-64 years					
	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Test of significance
1983						
All	3,233	77	76	78	73	
25-34	869	82	80	84	77	
35-44	895	76	73	78	72	
45-54	727	75	72	77	70	
55-64	742	72	70	74	68	
Aust/NZ	2,456	76	75	78	73	
UK/Ireland	354	79	76	82	75	
O'Europe	304	80	76	84	76	
Asia	75	71	64	77	65	
Other	44	74	66	82	78	
1995 Comparable						
All	1,253	76	74	77	72	
25-34	378	79	76	83	77	
35-44	323	73	69	76	70	
45-54	302	79	76	83	73	
55-64	250	69	65	72	68	
Aust/NZ	881	75	73	77	71	
UK/Ireland	163	78	73	83	76	
O'Europe	95	72	65	79	68	
Asia	73	90	81	98	83	*
Other	41	63	55	70	58	

* Difference between estimated means for 1983 and 1995 comparable subset is statistically significant at the 0.01 level

2.2.3 TOTAL CARBOHYDRATE

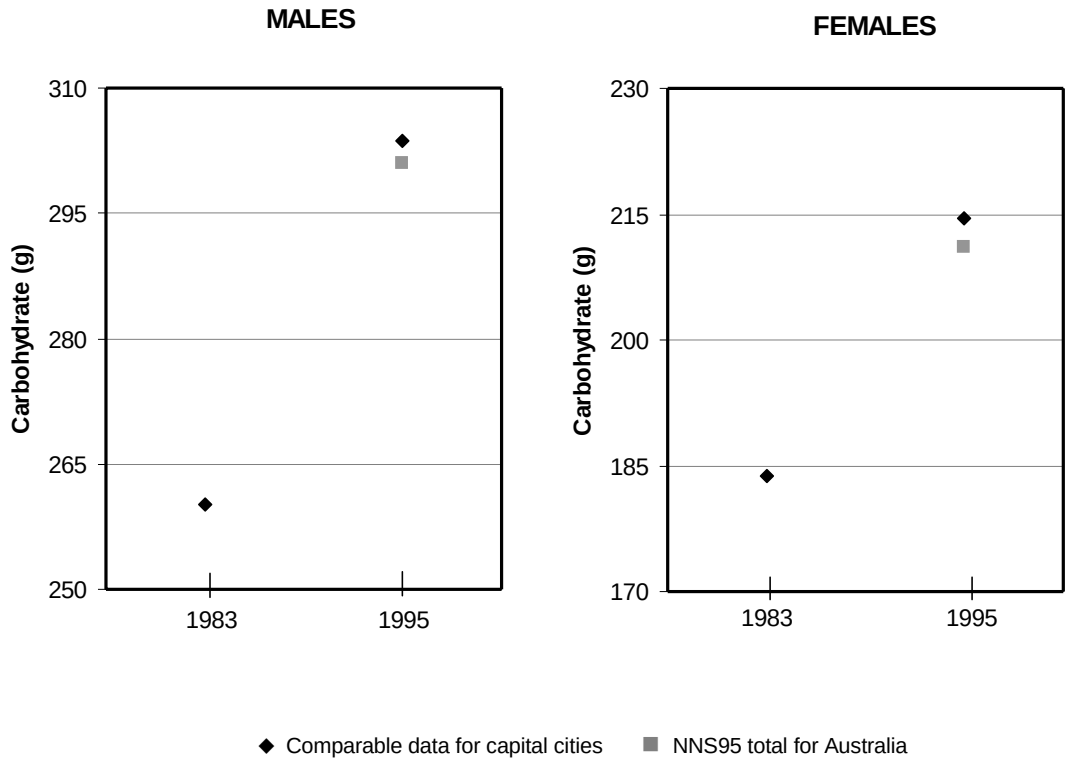
In contrast to protein intake, mean intake of total carbohydrate increased significantly both overall and for almost all age and country of birth subgroups. The average observed increase was of the order of 30g for women and 40g for men with an energy equivalent of 480-640kJ.

The estimate for total carbohydrate intake for the 1995 comparable data for capital cities differed only marginally from the total NNS95 estimate for Australia. In this instance using the NNS95 estimate for the comparison between 1983 and 1995 would have had little impact on the difference.

The average increase in total carbohydrate intake was greater for younger than for older men and women.

Population subgroups with no significant increase in total carbohydrate intake between 1983 and 1995 were men born in the UK or Ireland or in Asia; and men and women born in 'Other' countries.

Figure 2.2.3 Estimated mean 24-hour intake of TOTAL CARBOHYDRATE for adults



Note: Scale ranges differ for males and females

Source: SSDA 616, 1995 NNS and AFNMU

Table 2.2.3 Estimated 24-hour intake of TOTAL CARBOHYDRATE for adults in capital cities

	MALES aged 25-64 years					
	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Test of significance
1983						
All	3,021	260	256	264	247	
25-34	823	289	281	296	283	
35-44	823	264	257	271	245	
45-54	703	242	235	250	229	
55-64	672	224	217	231	211	
Aust/NZ	2,130	261	257	266	250	
UK/Ireland	389	265	254	275	250	
O'Europe	353	240	229	251	227	
Asia	89	283	259	307	279	
Other	60	279	249	309	293	
1995 Comparable						
All	1,114	304	296	311	289	*
25-34	319	337	323	351	312	*
35-44	310	312	297	326	291	*
45-54	268	289	276	302	281	*
55-64	217	249	236	263	252	*
Aust/NZ	797	302	294	311	292	*
UK/Ireland	145	274	258	291	254	
O'Europe	78	301	271	331	281	*
Asia	46	317	285	349	292	
Other	48	340	297	383	338	

	FEMALES aged 25-64 years					
	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Test of significance
1983						
All	3,233	184	181	186	176	
25-34	869	202	196	207	198	
35-44	895	174	169	179	163	
45-54	727	180	174	186	171	
55-64	742	170	164	175	154	
Aust/NZ	2,456	184	181	187	175	
UK/Ireland	354	187	179	195	179	
O'Europe	304	178	168	189	157	
Asia	75	183	166	200	173	
Other	44	191	165	217	183	
1995 Comparable						
All	1,253	214	210	219	203	*
25-34	378	237	228	246	232	*
35-44	323	210	200	219	192	*
45-54	302	207	198	216	196	*
55-64	250	190	181	199	177	*
Aust/NZ	881	211	205	217	201	*
UK/Ireland	163	223	209	237	223	*
O'Europe	95	217	200	234	198	*
Asia	73	248	229	267	239	*
Other	41	202	181	223	186	

* Difference between estimated means for 1983 and 1995 comparable subset is statistically significant at the 0.01 level

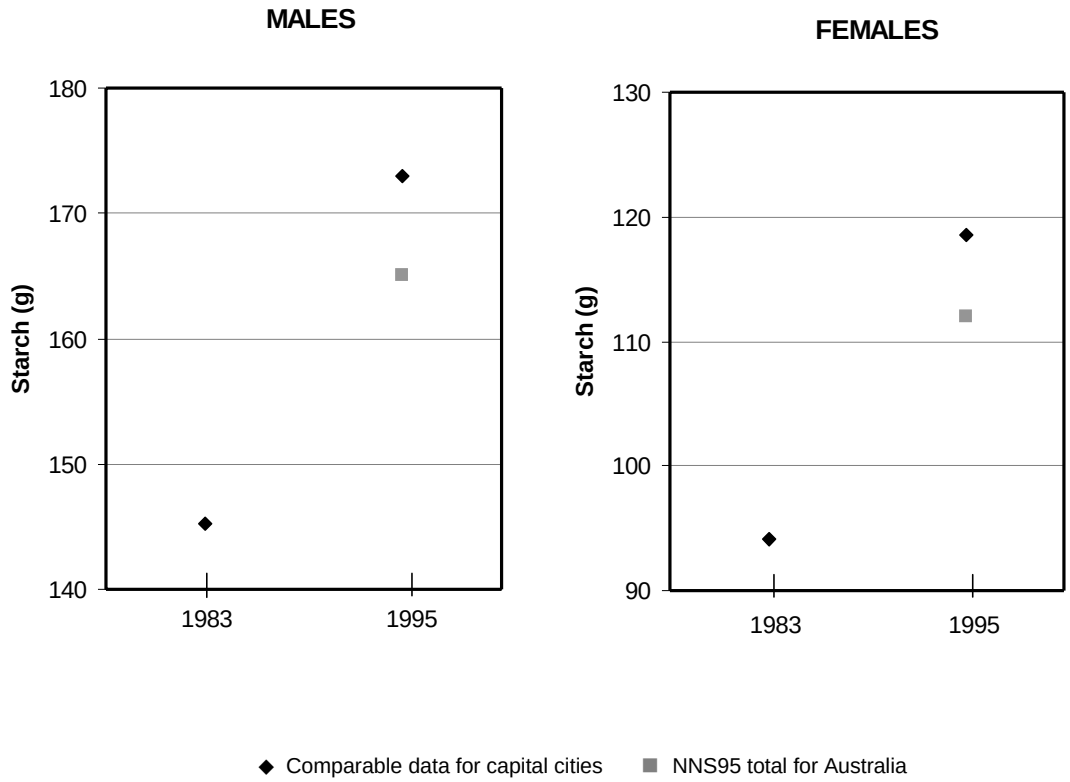
2.2.4 TOTAL STARCH

Overall the increase in mean intake of starch between 1983 and 1995 was 24-28g per day or about two thirds of the increase in total carbohydrate. The increase in starch intake was significant for the same population subgroups as the increase in total intake of carbohydrate.

The estimate for starch intake for the 1995 comparable data for capital cities was 7-8g higher than the total NNS95 estimate for Australia. If the NNS95 estimate had been used for the comparison between 1983 and 1995 the difference in starch intake would have been underestimated by about 30%.

Like the increase in total carbohydrate, the increase in starch was greater for younger than for older age groups. The country of birth subgroups with a significant increase in starch intake between 1983 and 1995 included men and women born in Australia or New Zealand or in Asia; women born in the UK or Ireland; and women born in Other European countries.

Figure 2.2.4 Estimated mean 24-hour intake of TOTAL STARCH for adults



Note: Scale ranges differ for males and females

Source: SSDA 616, 1995 NNS and AFNMU

Table 2.2.4 Estimated 24-hour intake of TOTAL STARCH for adults in capital cities

	MALES aged 25-64 years					
	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Test of significance
1983						
All	3,021	145	143	148	135	
25-34	823	160	155	165	149	
35-44	823	149	144	153	137	
45-54	703	137	132	141	130	
55-64	672	124	121	128	119	
Aust/NZ	2,130	143	140	145	136	
UK/Ireland	389	145	138	151	135	
O'Europe	353	140	132	147	127	
Asia	89	180	159	201	162	
Other	60	162	143	180	176	
1995 Comparable						
All	1,114	173	168	178	161	*
25-34	319	186	176	195	179	*
35-44	310	183	174	192	164	*
45-54	268	169	160	178	155	*
55-64	217	141	132	149	134	*
Aust/NZ	797	169	164	175	158	*
UK/Ireland	145	154	143	165	145	
O'Europe	78	162	145	178	148	
Asia	46	236	209	263	217	*
Other	48	201	172	230	198	

	FEMALES aged 25-64 years					
	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Test of significance
1983						
All	3,233	94	93	96	87	
25-34	869	103	100	107	95	
35-44	895	90	87	93	84	
45-54	727	91	88	95	82	
55-64	742	86	83	89	81	
Aust/NZ	2,456	92	90	94	86	
UK/Ireland	354	97	92	102	93	
O'Europe	304	96	90	103	82	
Asia	75	105	90	120	93	
Other	44	101	87	116	82	
1995 Comparable						
All	1,253	119	115	122	111	*
25-34	378	127	122	133	123	*
35-44	323	122	115	129	109	*
45-54	302	114	108	120	107	*
55-64	250	103	98	108	98	*
Aust/NZ	881	113	110	117	108	*
UK/Ireland	163	120	112	128	113	*
O'Europe	95	122	110	135	107	*
Asia	73	168	150	185	156	*
Other	41	110	95	125	92	

* Difference between estimated means for 1983 and 1995 comparable subset is statistically significant at the 0.01 level

2.2.5 TOTAL SUGARS

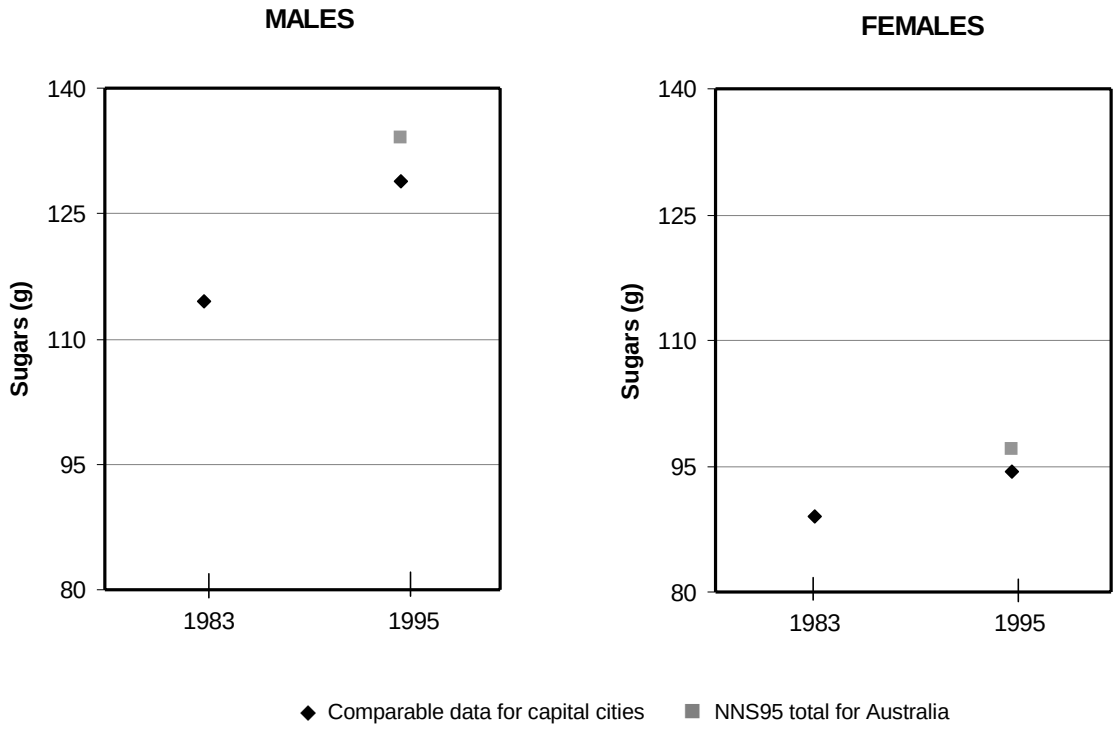
Overall there was a significant increase in mean intake of sugars for both men and women between 1983 and 1995. For men the average increase amounted to about 14g per day while for women it was only 5g. These increases represent the equivalent of between one and three level teaspoons of sugar.

The estimate of sugar intake for the 1995 comparable data for capital cities was 3-5g lower than the total NNS95 estimate for Australia. If the NNS95 estimate had been used for the comparison between 1983 and 1995 the difference in sugar intake would have been slightly overestimated.

The increase in sugar intake in the 25-34 year age group was significant and above the average increase (20g and 10g per day) for men and women respectively. The only other age group with a significant increase in sugar intake was men aged 45-54 years.

None of the female country of birth groups had a significant increase in sugar intake. Significant differences in sugar intake were observed for men born in Australia or New Zealand, Other European countries or in Asia. The average increase for men born in Australia or New Zealand was ~15g per day and in Other European countries was ~35g per day. In contrast men born in Asia decreased their sugar intake by ~25g per day between 1983 and 1995.

Figure 2.2.5 Estimated mean 24-hour intake of TOTAL SUGARS for adults



Source: SSDA 616, 1995 NNS and AFNMU

Table 2.2.5 Estimated 24-hour intake of TOTAL SUGARS for adults in capital cities

	MALES aged 25-64 years					
	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Test of significance
1983						
All	3,021	115	112	117	102	
25-34	823	129	124	134	120	
35-44	823	115	111	119	100	
45-54	703	105	100	110	91	
55-64	672	99	95	103	89	
Aust/NZ	2,130	118	115	121	107	
UK/Ireland	389	120	113	127	109	
O'Europe	353	100	94	107	83	
Asia	89	103	91	114	91	
Other	60	117	99	134	104	
1995 Comparable						
All	1,114	129	124	133	116	*
25-34	319	150	141	159	133	*
35-44	310	127	119	135	112	
45-54	268	118	110	125	106	*
55-64	217	107	98	115	101	
Aust/NZ	797	131	126	136	118	*
UK/Ireland	145	118	108	129	114	
O'Europe	78	136	118	154	119	*
Asia	46	80	69	92	72	*
Other	48	137	118	156	133	

	FEMALES aged 25-64 years					
	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Test of significance
1983						
All	3,233	89	87	91	80	
25-34	869	98	95	101	92	
35-44	895	83	80	87	74	
45-54	727	88	84	91	79	
55-64	742	83	79	86	75	
Aust/NZ	2,456	91	89	93	84	
UK/Ireland	354	89	85	94	85	
O'Europe	304	81	75	88	68	
Asia	75	78	70	85	69	
Other	44	88	75	102	86	
1995 Comparable						
All	1,253	94	91	97	84	*
25-34	378	108	102	114	97	*
35-44	323	86	81	91	77	
45-54	302	91	85	97	80	
55-64	250	86	80	92	78	
Aust/NZ	881	96	92	100	86	
UK/Ireland	163	101	92	111	92	
O'Europe	95	93	85	101	89	
Asia	73	78	70	86	76	
Other	41	91	77	104	89	

* Difference between estimated means for 1983 and 1995 comparable subset is statistically significant at the 0.01 level

2.2.6 TOTAL FAT

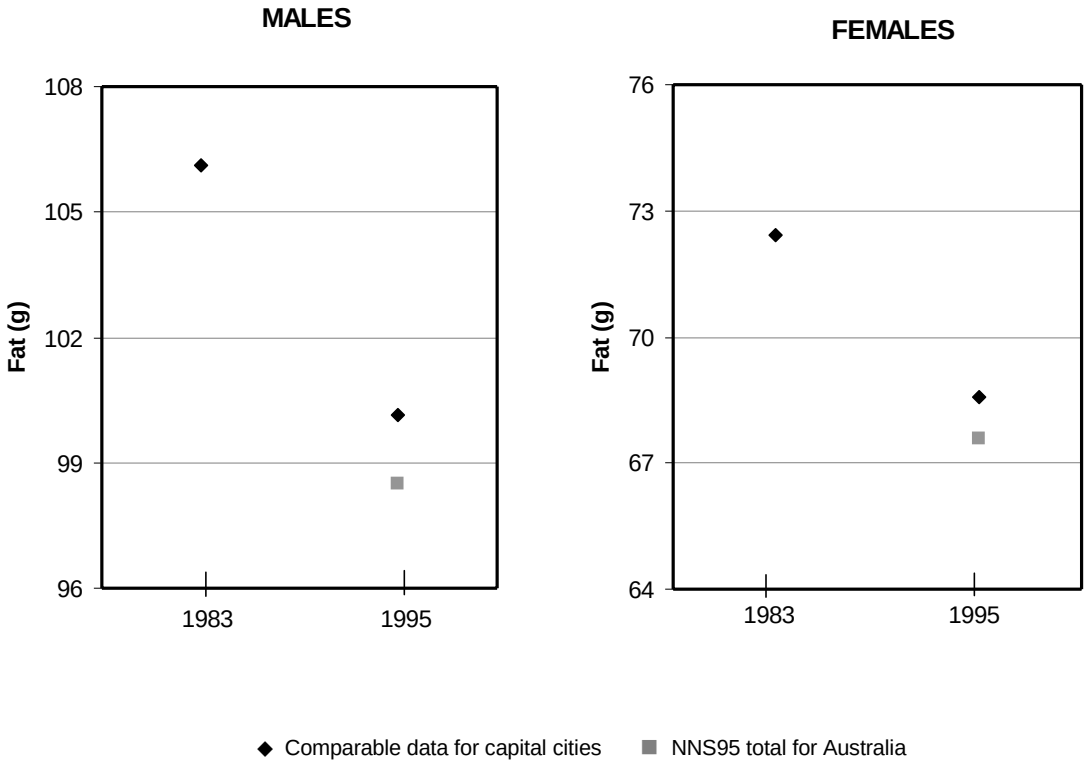
In contrast to the other macronutrients (protein and carbohydrate), mean intake of fat fell significantly between 1983 and 1995 for both men and women. The decrease was 6g per day for men and 3g for women and equivalent to between 100 and 200kJ per day.

The estimate of fat intake for the 1995 comparable data for capital cities was about 1g higher than the total NNS95 estimate for Australia. If the NNS95 estimate had been used for the comparison between 1983 and 1995 the difference in fat intake would have been slightly overestimated.

Significant decreases in fat intake were not evident for all age and country of birth groups. Only men and women aged 55-64 years and men and women born in Australia or New Zealand had a significant decrease in fat intake between 1983 and 1995.

Among the other country of birth subgroups only men born in the United Kingdom or Ireland had a significant decrease in total fat intake between 1983 and 1995. The men in this group decreased their fat intake by ~10g per day.

Figure 2.2.6 Estimated mean 24-hour intake of TOTAL FAT for adults



Note: Scale ranges differ for males and females

Source: SSDA 616, 1995 NNS and AFNMU

Table 2.2.6 Estimated 24-hour intake of TOTAL FAT for adults in capital cities

	MALES aged 25-64 years					
	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Test of significance
1983						
All	3,021	106	104	108	100	
25-34	823	117	114	121	111	
35-44	823	107	104	111	101	
45-54	703	99	96	103	94	
55-64	672	92	89	95	90	
Aust/NZ	2,130	111	109	113	105	
UK/Ireland	389	104	100	109	101	
O'Europe	353	94	89	99	83	
Asia	89	94	83	105	85	
Other	60	88	78	99	88	
1995 Comparable						
All	1,114	100	97	103	91	*
25-34	319	110	104	116	98	
35-44	310	103	98	109	91	
45-54	268	98	93	103	94	
55-64	217	80	75	84	78	*
Aust/NZ	797	102	98	105	94	*
UK/Ireland	145	94	87	100	86	*
O'Europe	78	100	87	113	82	
Asia	46	92	79	105	84	
Other	48	96	83	109	95	

	FEMALES aged 25-64 years					
	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Test of significance
1983						
All	3,233	72	71	74	67	
25-34	869	79	77	82	74	
35-44	895	72	70	74	67	
45-54	727	69	67	72	63	
55-64	742	65	63	67	61	
Aust/NZ	2,456	74	73	76	70	
UK/Ireland	354	75	72	79	70	
O'Europe	304	68	64	72	65	
Asia	75	62	55	69	54	
Other	44	62	53	72	50	
1995 Comparable						
All	1,253	69	67	71	64	*
25-34	378	77	73	80	72	
35-44	323	67	63	71	63	
45-54	302	68	65	72	65	
55-64	250	57	53	60	51	*
Aust/NZ	881	70	67	72	64	*
UK/Ireland	163	74	69	80	76	
O'Europe	95	65	58	72	58	
Asia	73	63	57	70	58	
Other	41	60	52	67	57	

* Difference between estimated means for 1983 and 1995 comparable subset is statistically significant at the 0.01 level

2.2.7 CHOLESTEROL

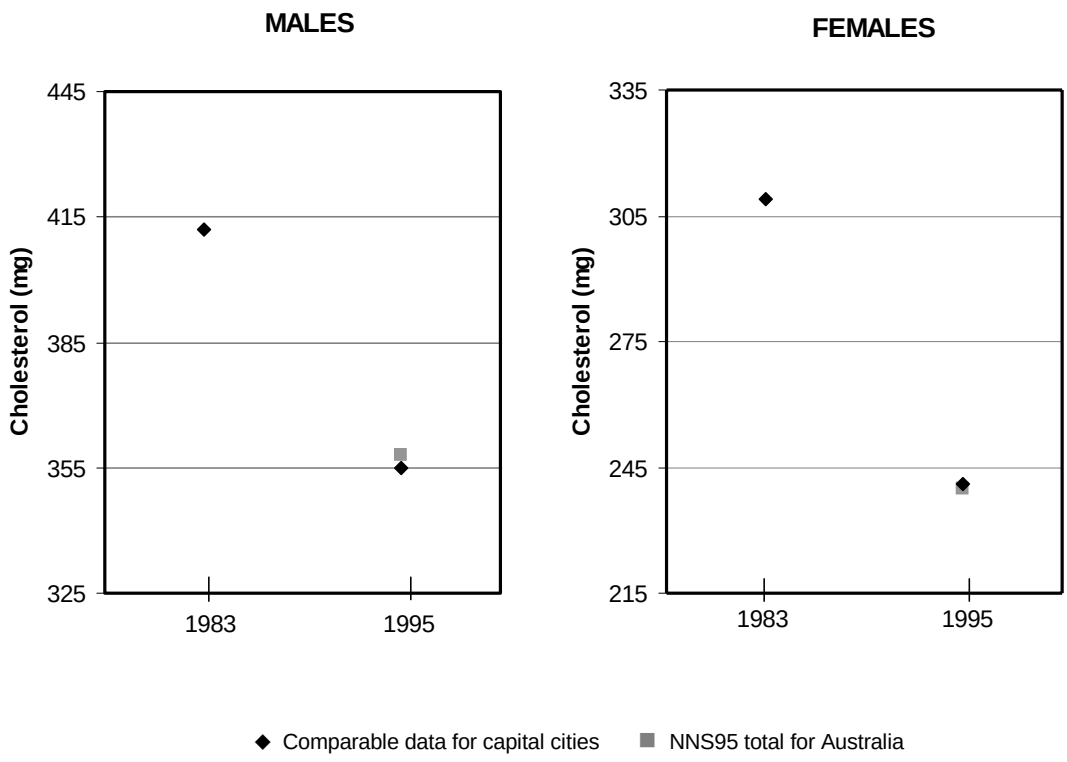
Mean cholesterol intake decreased significantly in both men and women. Intake in 1995 was on average about 60mg lower than in 1983.

The estimate of cholesterol intake for the 1995 comparable data for capital cities was similar to the total NNS95 estimate for Australia and use of the NNS95 estimate would not have had any effect on the difference in average cholesterol intake between 1983 and 1995.

Cholesterol intake was lower in 1995 than in 1983 for all age groups and significantly different from intake in 1983 except for women aged 45-54 years.

Among the country of birth groups only men and women born in Australia or New Zealand or in the UK or Ireland had a significant decrease in their average intake of cholesterol. The average decrease, for both men and women of 80g per day, was well above the overall average decrease of 60g per day.

Figure 2.2.7 Estimated mean 24-hour intake of CHOLESTEROL for adults



Note: Scale ranges differ for males and females

Source: SSDA 616, 1995 NNS and AFNMU

Table 2.2.7 Estimated 24-hour intake of CHOLESTEROL for adults in capital cities

	MALES aged 25-64 years					
	Sample size	Mean intake (mg)	95% CI mean Lower	95% CI mean Upper	Median intake (mg)	Test of significance
1983						
All	3,021	412	402	422	353	
25-34	823	434	415	453	375	
35-44	823	415	396	435	349	
45-54	703	392	374	411	338	
55-64	672	389	370	407	332	
Aust/NZ	2,130	426	414	437	366	
UK/Ireland	389	405	379	431	353	
O'Europe	353	370	346	394	334	
Asia	89	364	311	417	332	
Other	60	465	364	566	350	
1995 Comparable						
All	1,114	355	341	369	304	*
25-34	319	378	352	405	330	*
35-44	310	365	337	392	305	*
45-54	268	350	324	376	310	*
55-64	217	305	272	338	249	*
Aust/NZ	797	355	338	371	302	*
UK/Ireland	145	323	282	363	291	*
O'Europe	78	404	338	470	343	
Asia	46	337	276	398	302	
Other	48	370	309	431	373	

	FEMALES aged 25-64 years					
	Sample size	Mean intake (mg)	95% CI mean Lower	95% CI mean Upper	Median intake (mg)	Test of significance
1983						
All	3,233	309	300	318	256	
25-34	869	333	316	350	276	
35-44	895	299	286	313	244	
45-54	727	293	276	311	236	
55-64	742	298	276	319	242	
Aust/NZ	2,456	312	302	322	259	
UK/Ireland	354	324	295	353	269	
O'Europe	304	291	269	313	249	
Asia	75	305	243	368	245	
Other	44	262	211	314	220	
1995 Comparable						
All	1,253	241	231	251	201	*
25-34	378	255	237	272	218	*
35-44	323	234	214	254	192	*
45-54	302	268	246	290	219	
55-64	250	196	180	213	165	*
Aust/NZ	881	239	228	251	204	*
UK/Ireland	163	233	206	261	190	*
O'Europe	95	247	205	288	197	
Asia	73	299	253	346	246	
Other	41	191	149	233	144	

* Difference between estimated means for 1983 and 1995 comparable subset is statistically significant at the 0.01 level

2.2.8 ALCOHOL

Mean intake of alcohol decreased significantly for men but not for women between 1983 and 1995. The decrease in intake was 6g per day with an energy equivalent of 180kJ.

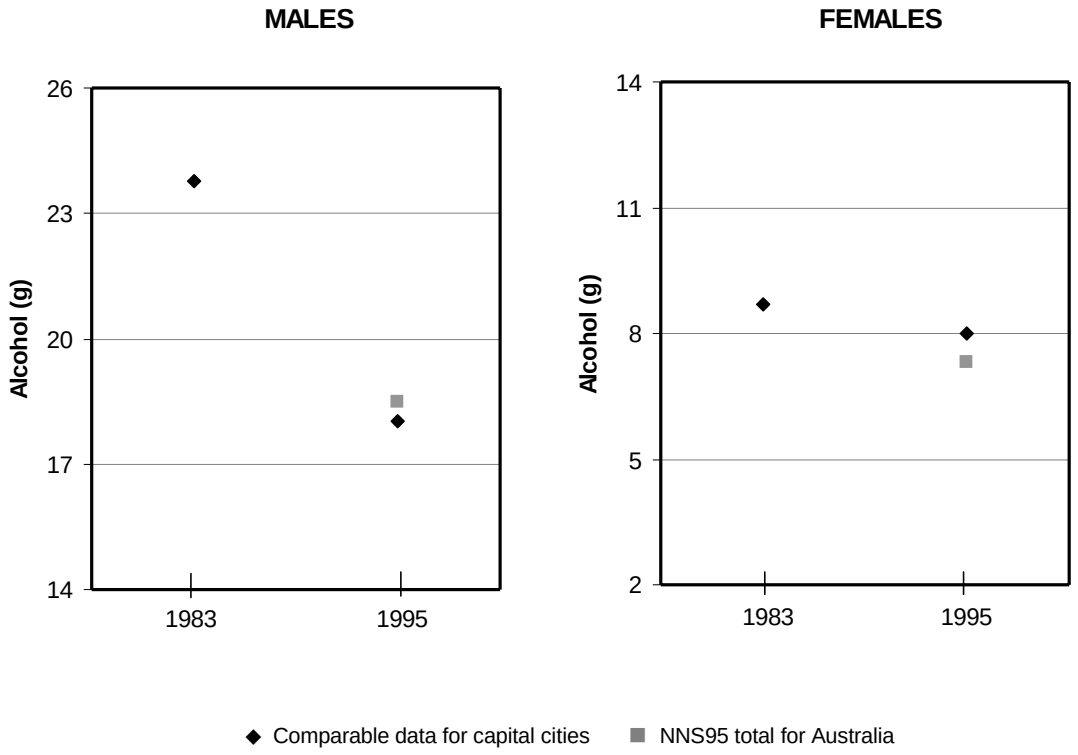
The estimate of alcohol intake for the 1995 comparable data for capital cities was similar to the total NNS95 estimate for Australia. In this instance use of the total NNS95 estimate would have had no effect on the difference in alcohol intake between 1983 and 1995.

Among age and country of birth subgroups, significant decreases in alcohol intake were observed only for men aged 35-44 years and for men born in Australia or New Zealand.

For women, alcohol intake was similar in 1983 and 1995. The only subgroup who had a significant decrease in alcohol intake between 1983 and 1995 was the group born in Asia. For this group of women, the estimate of mean alcohol intake fell from 9g per day in 1983 to 2g per day in 1995.

With the exception of only two population subgroups, specifically men born in the UK or Ireland and men born in Other European countries, the median intake of alcohol was zero in 1995.

Figure 2.2.8 Estimated mean 24-hour intake of ALCOHOL for adults



Note: Scale ranges differ for males and females

Source: SSDA 616, 1995 NNS and AFNMU

Table 2.2.8 Estimated 24-hour intake of ALCOHOL for adults in capital cities

	MALES aged 25-64 years					
	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Test of significance
1983						
All	3,021	24	22	25	6	
25-34	823	20	18	23	0	
35-44	823	26	24	29	7	
45-54	703	26	23	28	8	
55-64	672	24	21	27	11	
Aust/NZ	2,130	25	23	26	7	
UK/Ireland	389	25	21	29	6	
O'Europe	353	20	17	24	9	
Asia	89	15	9	21	3	
Other	60	18	10	25	0	
1995 Comparable						
All	1,114	18	16	20	0	*
25-34	319	18	14	22	0	
35-44	310	15	11	18	0	*
45-54	268	19	16	23	0	
55-64	217	21	17	25	0	
Aust/NZ	797	19	17	22	0	*
UK/Ireland	145	19	14	25	3	
O'Europe	78	16	11	22	6	
Asia	46	5	0[(a)]	13	0	
Other	48	11	3	19	0	

	FEMALES aged 25-64 years					
	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Test of significance
1983						
All	3,233	9	8	9	0	
25-34	869	8	7	10	0	
35-44	895	11	9	12	0	
45-54	727	8	7	10	0	
55-64	742	7	6	8	0	
Aust/NZ	2,456	9	9	10	0	
UK/Ireland	354	11	8	13	0	
O'Europe	304	7	6	9	0	
Asia	75	9	5	13	0	
Other	44	5	1	10	0	
1995 Comparable						
All	1,253	8	6	9	0	
25-34	378	7	5	9	0	
35-44	323	10	7	13	0	
45-54	302	9	7	11	0	
55-64	250	5	3	6	0	
Aust/NZ	881	8	7	10	0	
UK/Ireland	163	11	7	15	0	
O'Europe	95	5	2	9	0	
Asia	73	2	0	4	0	*
Other	41	5	1	9	0	

* Difference between estimated means for 1983 and 1995 comparable subset is statistically significant at the 0.01 level

[(a)] Truncated to zero from negative estimate

2.2.9 DIETARY FIBRE

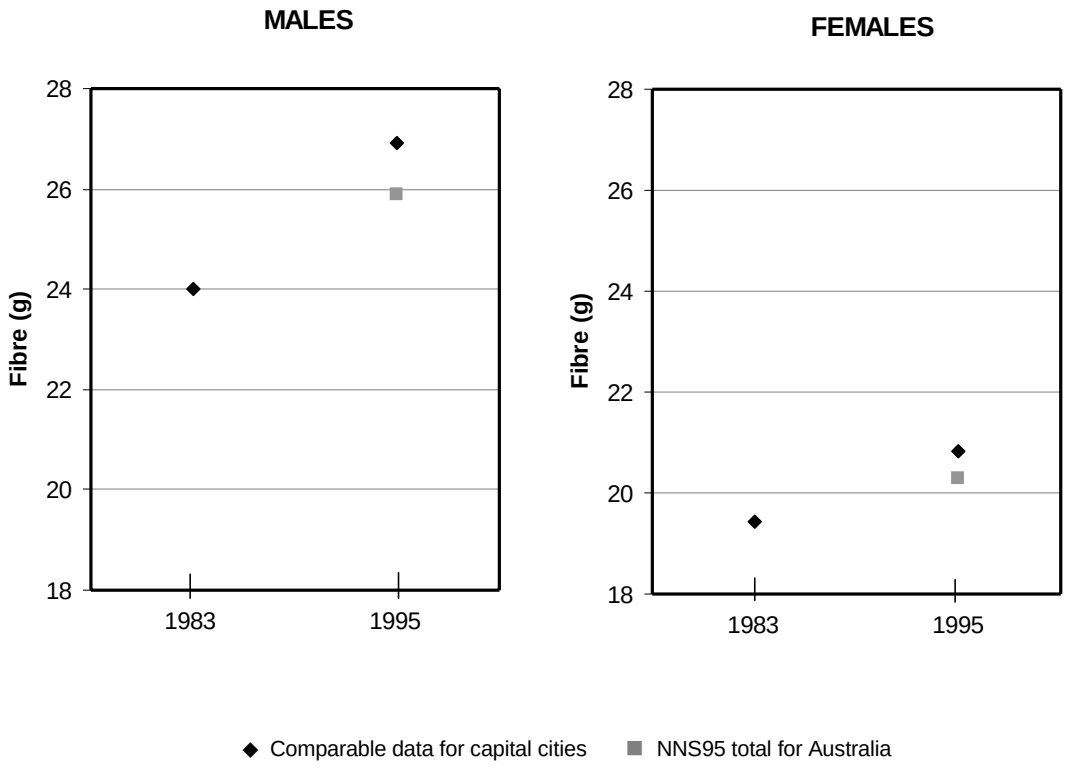
Mean intake of dietary fibre increased between 1983 and 1995 by 3g per day for men and by 2g per day for women. These increases were statistically significant.

The estimate of dietary fibre intake for the 1995 comparable data for capital cities was 1g higher than the total NNS95 estimate for Australia. If the NNS95 estimate had been used for the comparison between 1983 and 1995 the difference in dietary fibre intake would have been underestimated.

Intake of fibre increased in all age groups but significant increases in fibre intake were observed only for men aged 35-44 and 45-54 years and for women aged 35-44 years.

Among country of birth groups significant increases in dietary fibre intake were confined to men and women born in Australia or New Zealand.

Figure 2.2.9 Estimated mean 24-hour intake of DIETARY FIBRE for adults



Source: SSDA 616, 1995 NNS and AFNMU

Table 2.2.9 Estimated 24-hour intake of DIETARY FIBRE for adults in capital cities

	MALES aged 25-64 years					
	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Test of significance
1983						
All	3,021	24	24	25	22	
25-34	823	26	25	27	23	
35-44	823	25	24	25	22	
45-54	703	24	23	25	21	
55-64	672	23	22	24	20	
Aust/NZ	2,130	25	24	25	22	
UK/Ireland	389	24	22	25	21	
O'Europe	353	24	23	25	21	
Asia	89	25	22	28	23	
Other	60	27	23	31	24	
1995 Comparable						
All	1,114	27	26	28	25	*
25-34	319	27	26	29	24	
35-44	310	27	26	29	25	*
45-54	268	28	26	29	27	*
55-64	217	25	24	27	23	
Aust/NZ	797	27	26	28	25	*
UK/Ireland	145	25	23	27	23	
O'Europe	78	27	24	30	22	
Asia	46	23	19	26	18	
Other	48	28	24	32	26	

	FEMALES aged 25-64 years					
	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Test of significance
1983						
All	3,233	19	19	20	18	
25-34	869	20	19	20	19	
35-44	895	18	18	19	17	
45-54	727	20	19	21	18	
55-64	742	20	19	21	18	
Aust/NZ	2,456	19	19	19	18	
UK/Ireland	354	20	19	21	18	
O'Europe	304	21	19	22	17	
Asia	75	18	16	20	18	
Other	44	20	18	23	20	
1995 Comparable						
All	1,253	21	20	21	19	*
25-34	378	21	20	22	19	
35-44	323	20	19	21	20	*
45-54	302	22	21	23	20	
55-64	250	21	20	22	19	
Aust/NZ	881	21	20	22	20	*
UK/Ireland	163	22	20	23	20	
O'Europe	95	20	18	22	18	
Asia	73	20	18	21	19	
Other	41	19	17	21	18	

* Difference between estimated means for 1983 and 1995 comparable subset is statistically significant at the 0.01 level

2.2.10 TOTAL VITAMIN A-RETINOL EQUIVALENTS

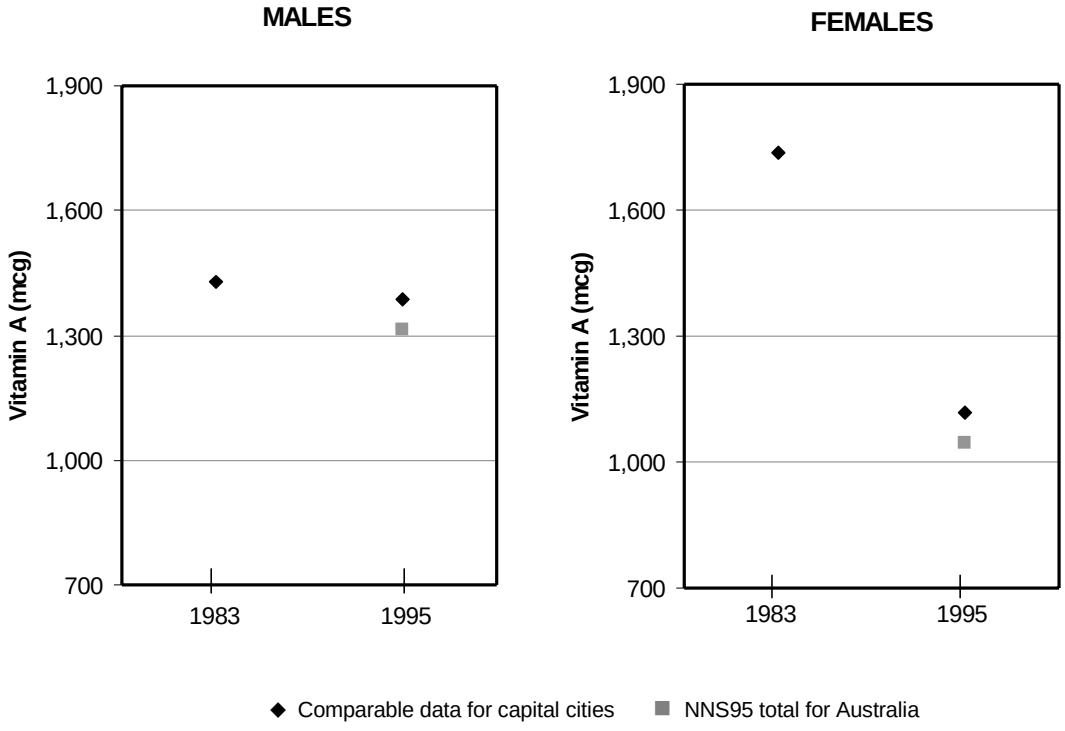
Mean intake of total vitamin A decreased, between 1983 and 1995, for both men and women. For women, but not for men, the decrease was substantial (~600ug per day) and was statistically significant.

The estimate of vitamin A intake for the 1995 comparable data for capital cities was about 75ug per day higher than the total NNS95 estimate for Australia. If the NNS95 estimate had been used for the comparison between 1983 and 1995 the difference would have been overestimated.

A fall in vitamin A intake did not occur for all age and country of birth subgroups. Men aged 35-44 and 45-54 years and women aged 35-44 years had an increase in intake of vitamin A, between 1983 and 1995, but these increases did not reach statistical significance. The overall decrease in vitamin A intake, between 1983 and 1995, was due primarily to the substantial (>1,000ug) and statistically significant fall in women aged 25-34 years.

A significant decrease in vitamin A intake of around 400ug per day was also observed for men and women born in Australia or New Zealand. With the exception of women born in the UK or Ireland or in 'Other' countries, all other migrant groups had non-significant increases in vitamin A intake between 1983 and 1995.

Figure 2.2.10 Estimated mean 24-hour intake of TOTAL VITAMIN A-RETINOL EQUIVALENTS for adults



Source: SSDA 616, 1995 NNS and AFNMU

Table 2.2.10 Estimated 24-hour intake of TOTAL VITAMIN A-RETINOL EQUIVALENTS for adults in capital cities

	MALES aged 25-64 years					
	Sample size	Mean intake (mg)	95% CI mean Lower	95% CI mean Upper	Median intake (mg)	Test of significance
1983						
All	3,021	1,427	1,253	1,600	915	
25-34	823	1,307	1,032	1,582	953	
35-44	823	1,677	1,206	2,148	870	
45-54	703	1,206	1,074	1,338	945	
55-64	672	1,529	1,150	1,908	897	
Aust/NZ	2,130	1,655	1,407	1,904	1,012	
UK/Ireland	389	1,166	870	1,462	892	
O'Europe	353	1,034	806	1,261	673	
Asia	89	811	664	958	689	
Other	60	1,018	860	1,176	986	
1995 Comparable						
All	1,114	1,387	1,180	1,593	992	
25-34	319	1,285	1,141	1,429	1,013	
35-44	310	1,765	1,069	2,461	956	
45-54	268	1,313	1,199	1,426	1,075	
55-64	217	1,114	1,011	1,216	917	
Aust/NZ	797	1,297	1,215	1,379	1,020	*
UK/Ireland	145	1,221	1,082	1,360	1,111	
O'Europe	78	3,743	895	6,591	903	
Asia	46	900	725	1,075	738	
Other	48	1,194	921	1,466	898	

	FEMALES aged 25-64 years					
	Sample size	Mean intake (mg)	95% CI mean Lower	95% CI mean Upper	Median intake (mg)	Test of significance
1983						
All	3,233	1,737	1,479	1,995	743	
25-34	869	2,292	1,605	2,980	747	
35-44	895	1,255	1,006	1,505	723	
45-54	727	1,545	1,058	2,031	720	
55-64	742	1,629	1,204	2,054	771	
Aust/NZ	2,456	1,532	1,296	1,767	780	
UK/Ireland	354	3,133	1,724	4,543	792	
O'Europe	304	1,314	958	1,671	703	
Asia	75	1,581	0[(a)]	4,499	497	
Other	44	1,088	25	2,152	596	
1995 Comparable						
All	1,253	1,118	976	1,260	760	*
25-34	378	956	881	1,030	735	*
35-44	323	1,413	922	1,905	706	
45-54	302	1,062	957	1,167	827	
55-64	250	1,051	917	1,185	808	
Aust/NZ	881	1,065	941	1,189	786	*
UK/Ireland	163	1,036	917	1,155	864	*
O'Europe	95	2,320	923	3,718	907	
Asia	73	1,035	789	1,280	621	
Other	41	761	594	928	675	

* Difference between estimated means for 1983 and 1995 comparable subset is statistically significant at the 0.01 level

[(a)] Truncated to zero from negative estimate

2.2.11 THIAMIN

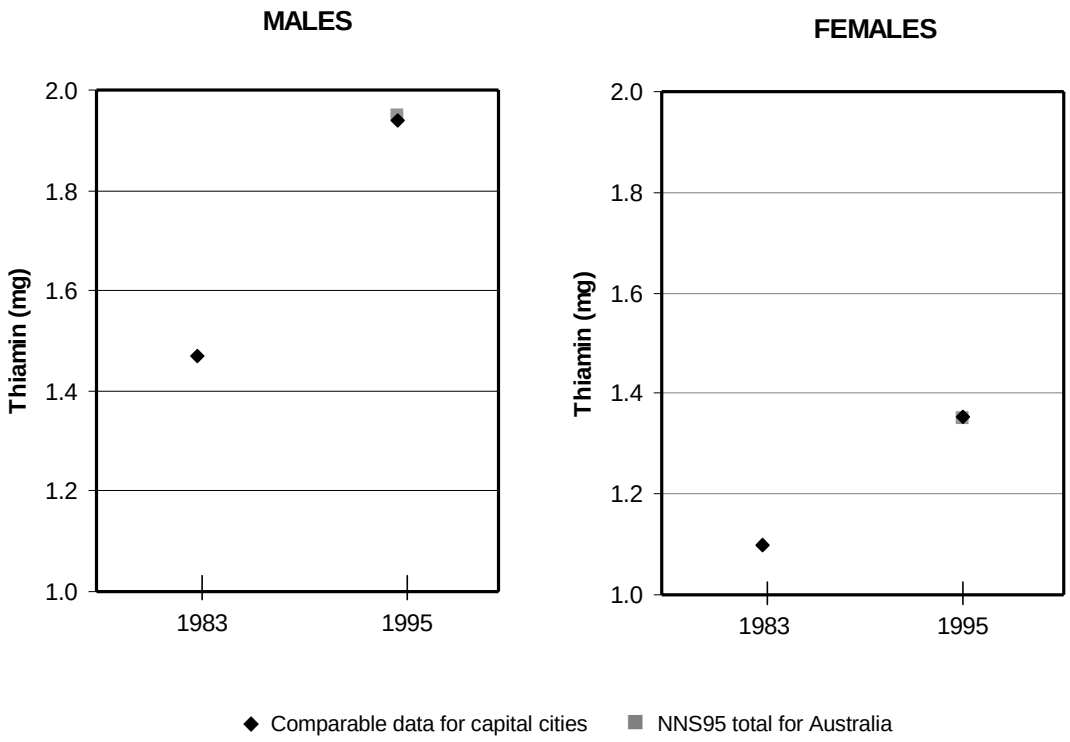
Mean intake of thiamin increased significantly, for men (0.47mg) and women (0.25mg), between 1983 and 1995. Because this increase was primarily due to the mandatory addition of thiamin to bread-making flour from 1991 onwards it would be expected to be reflected in all segments of the population who use bread-making flour or foods derived from it.

The estimate of thiamin intake for the 1995 comparable data for capital cities was similar to the total NNS95 estimate for Australia for both men and women.

Mean intake of thiamin increased significantly for men and women of all age groups between 1983 and 1995.

The increase in intake of thiamin was also significant for all country of birth subgroups except for the small group of women born in 'Other' countries.

Figure 2.2.11 Estimated mean 24-hour intake of THIAMIN for adults



Source: SSDA 616, 1995 NNS and AFNMU

Table 2.2.11 Estimated 24-hour intake of THIAMIN for adults in capital cities

	MALES aged 25-64 years					
	Sample size	Mean intake (mg)	95% CI mean Lower	95% CI mean Upper	Median intake (mg)	Test of significance
1983						
All	3,021	1.47	1.44	1.50	1.31	
25-34	823	1.61	1.54	1.68	1.42	
35-44	823	1.47	1.41	1.52	1.27	
45-54	703	1.37	1.32	1.43	1.26	
55-64	672	1.33	1.27	1.38	1.19	
Aust/NZ	2,130	1.55	1.51	1.58	1.36	
UK/Ireland	389	1.44	1.36	1.51	1.37	
O'Europe	353	1.28	1.21	1.35	1.12	
Asia	89	1.26	1.14	1.37	1.21	
Other	60	1.37	1.17	1.58	1.13	
1995 Comparable						
All	1,114	1.94	1.87	2.01	1.69	*
25-34	319	2.06	1.93	2.20	1.72	*
35-44	310	2.05	1.89	2.21	1.76	*
45-54	268	1.84	1.73	1.95	1.67	*
55-64	217	1.67	1.55	1.79	1.55	*
Aust/NZ	797	1.95	1.86	2.03	1.74	*
UK/Ireland	145	1.74	1.60	1.87	1.56	*
O'Europe	78	1.76	1.56	1.96	1.66	*
Asia	46	1.87	1.51	2.23	1.51	*
Other	48	2.26	1.81	2.71	1.84	*

	FEMALES aged 25-64 years					
	Sample size	Mean intake (mg)	95% CI mean Lower	95% CI mean Upper	Median intake (mg)	Test of significance
1983						
All	3,233	1.10	1.08	1.12	0.99	
25-34	869	1.20	1.15	1.25	1.10	
35-44	895	1.02	0.98	1.05	0.95	
45-54	727	1.07	1.03	1.12	0.93	
55-64	742	1.05	1.02	1.09	0.94	
Aust/NZ	2,456	1.13	1.10	1.16	1.02	
UK/Ireland	354	1.11	1.05	1.17	1.00	
O'Europe	304	1.01	0.94	1.08	0.86	
Asia	75	0.89	0.80	0.99	0.94	
Other	44	0.91	0.70	1.12	0.84	
1995 Comparable						
All	1,253	1.35	1.31	1.40	1.17	*
25-34	378	1.38	1.31	1.46	1.20	*
35-44	323	1.38	1.28	1.48	1.14	*
45-54	302	1.34	1.26	1.41	1.16	*
55-64	250	1.28	1.20	1.36	1.20	*
Aust/NZ	881	1.38	1.33	1.43	1.21	*
UK/Ireland	163	1.38	1.25	1.50	1.16	*
O'Europe	95	1.39	1.23	1.55	1.14	*
Asia	73	1.39	1.20	1.58	1.08	*
Other	41	0.96	0.86	1.05	0.89	

* Difference between estimated means for 1983 and 1995 comparable subset is statistically significant at the 0.01 level

2.2.12 RIBOFLAVIN

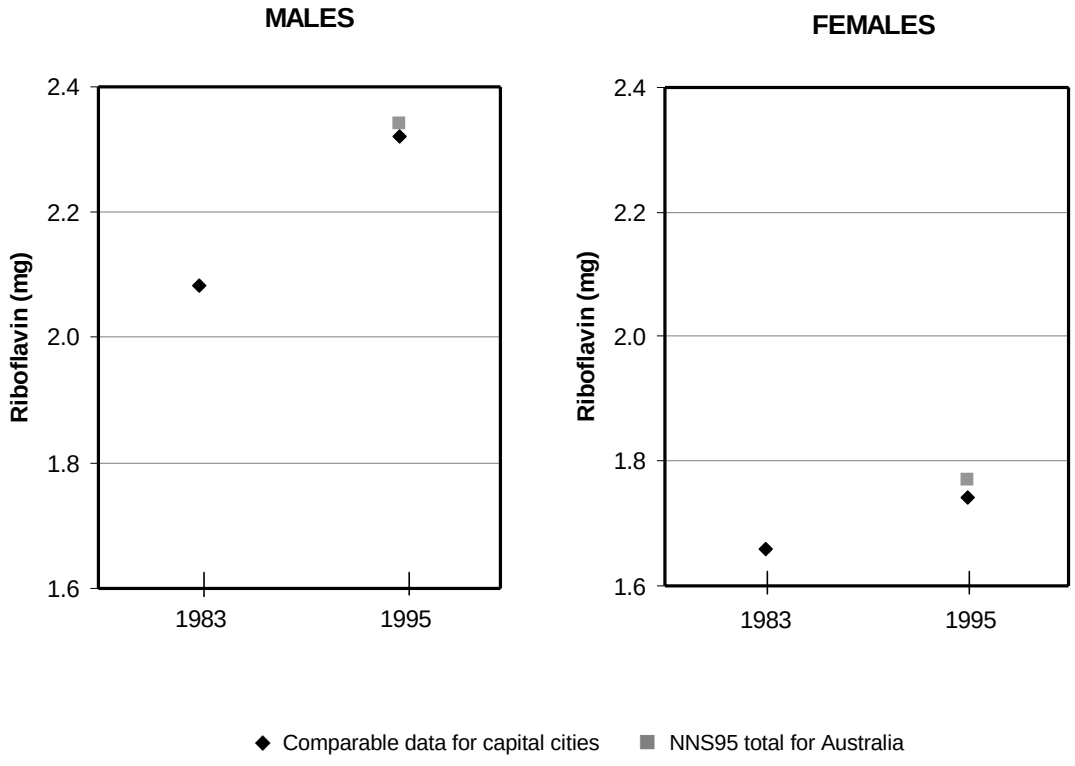
Mean intake of riboflavin increased both for men and women between 1983 and 1995, but the increase was statistically significant only for men.

The estimate of riboflavin intake for the 1995 comparable data for capital cities was slightly lower than the total NNS95 estimate for Australia. If the NNS95 estimate had been used for the comparison between 1983 and 1995, the increase in riboflavin intake would have been marginally overestimated.

For men, significant increases in riboflavin intake occurred in all age groups except men aged 55-65 years. For women, only those aged 35-44 years had a significant increase in riboflavin intake.

Among the country of birth subgroups only men born in Other European countries or in 'Other' countries had a significant increase in average riboflavin intake between 1983 and 1995. In both these groups the increase in riboflavin intake was 0.5mg per day or greater and was much larger than the overall increase of 0.24mg for men.

Figure 2.2.12 Estimated mean 24-hour intake of RIBOFLAVIN for adults



Source: SSDA 616, 1995 NNS and AFNMU

Table 2.2.12 Estimated 24-hour intake of RIBOFLAVIN for adults in capital cities

	MALES aged 25-64 years					
	Sample size	Mean intake (mg)	95% CI mean Lower	95% CI mean Upper	Median intake (mg)	Test of significance
1983						
All	3,021	2.08	2.04	2.13	1.85	
25-34	823	2.26	2.17	2.35	2.00	
35-44	823	2.09	1.99	2.19	1.82	
45-54	703	1.95	1.88	2.03	1.79	
55-64	672	1.90	1.82	1.99	1.73	
Aust/NZ	2,130	2.26	2.20	2.32	2.01	
UK/Ireland	389	2.02	1.91	2.12	1.87	
O'Europe	353	1.64	1.55	1.73	1.50	
Asia	89	1.70	1.49	1.90	1.45	
Other	60	1.61	1.43	1.80	1.57	
1995 Comparable						
All	1,114	2.32	2.24	2.40	1.99	*
25-34	319	2.54	2.36	2.72	2.13	*
35-44	310	2.34	2.18	2.49	2.00	*
45-54	268	2.17	2.03	2.30	1.88	*
55-64	217	2.08	1.92	2.24	1.88	
Aust/NZ	797	2.39	2.29	2.49	2.10	
UK/Ireland	145	2.06	1.87	2.24	1.84	
O'Europe	78	2.14	1.86	2.42	1.86	*
Asia	46	1.69	1.43	1.94	1.35	
Other	48	2.57	2.04	3.09	1.91	*

	FEMALES aged 25-64 years					
	Sample size	Mean intake (mg)	95% CI mean Lower	95% CI mean Upper	Median intake (mg)	Test of significance
1983						
All	3,233	1.66	1.61	1.71	1.39	
25-34	869	1.86	1.74	1.98	1.47	
35-44	895	1.51	1.45	1.57	1.37	
45-54	727	1.61	1.51	1.72	1.34	
55-64	742	1.57	1.50	1.65	1.36	
Aust/NZ	2,456	1.70	1.65	1.75	1.46	
UK/Ireland	354	1.87	1.66	2.07	1.40	
O'Europe	304	1.47	1.33	1.62	1.20	
Asia	75	1.21	0.83	1.58	1.07	
Other	44	1.27	1.06	1.47	1.20	
1995 Comparable						
All	1,253	1.74	1.69	1.80	1.53	
25-34	378	1.78	1.67	1.88	1.53	
35-44	323	1.72	1.61	1.84	1.40	*
45-54	302	1.70	1.61	1.80	1.60	
55-64	250	1.75	1.62	1.87	1.63	
Aust/NZ	881	1.80	1.73	1.86	1.57	
UK/Ireland	163	1.76	1.60	1.91	1.61	
O'Europe	95	1.72	1.53	1.91	1.61	
Asia	73	1.69	1.48	1.91	1.53	
Other	41	1.35	1.15	1.55	1.38	

* Difference between estimated means for 1983 and 1995 comparable subset is statistically significant at the 0.01 level

2.2.13 TOTAL NIACIN EQUIVALENTS

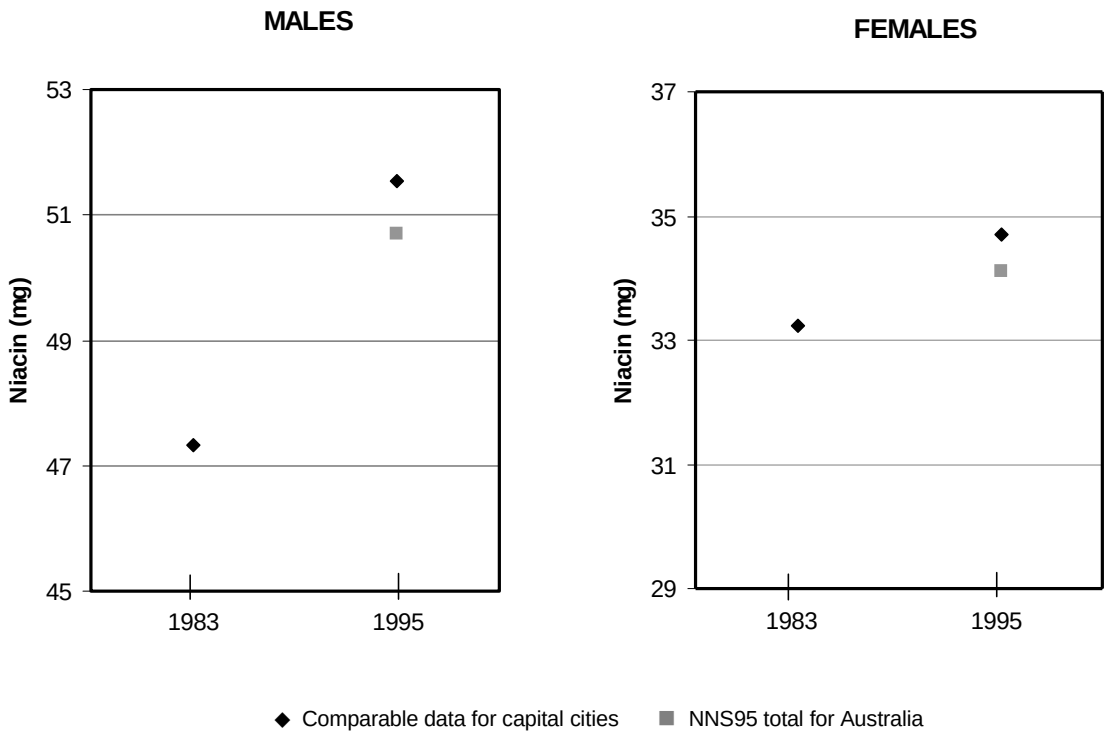
Mean intake of niacin, expressed in terms of total niacin equivalents, increased by 2-4mg between 1983 and 1995. The increase was significant for both men and women.

The estimate of niacin intake for the 1995 comparable data for capital cities was about 0.7mg higher than the total NNS95 estimate for Australia. If the NNS95 estimate had been used for the comparison between 1983 and 1995 the difference in niacin intake would have been underestimated.

For men, a significant increase in niacin intake was observed for all age groups except those aged 55-64 years. For women, the increase in niacin intake was significant only for those aged 45-54 years.

The increase in niacin intake was significant for men and women born in Australia or New Zealand. It was also significant for men born in Other European countries and for women born in Asia. In the latter group, the mean increase in niacin intake between 1983 and 1995 was ~10mg per day. This high level of increase is consistent with the marked increases in both energy and protein intake also observed for this group.

Figure 2.2.13 Estimated mean 24-hour intake of TOTAL NIACIN EQUIVALENTS for adults



Note: Scale ranges differ for males and females

Source: SSDA 616, 1995 NNS and AFNMU

Table 2.2.13 Estimated 24-hour intake of TOTAL NIACIN EQUIVALENTS for adults in capital cities

	MALES aged 25-64 years					
	Sample size	Mean intake (mg)	95% CI mean Lower	95% CI mean Upper	Median intake (mg)	Test of significance
1983						
All	3,021	47.3	46.6	48.0	44.8	
25-34	823	50.5	49.1	52.0	48.1	
35-44	823	47.6	46.3	48.9	44.8	
45-54	703	45.7	44.4	47.0	42.6	
55-64	672	43.0	41.8	44.2	41.2	
Aust/NZ	2,130	49.0	48.2	49.9	46.0	
UK/Ireland	389	46.3	44.5	48.0	44.6	
O'Europe	353	43.1	41.3	44.9	41.6	
Asia	89	42.6	38.6	46.7	40.5	
Other	60	43.0	38.9	47.0	42.0	
1995 Comparable						
All	1,114	51.5	50.3	52.8	48.2	*
25-34	319	54.9	52.2	57.5	51.3	*
35-44	310	52.1	49.8	54.4	48.0	*
45-54	268	50.9	48.7	53.2	48.5	*
55-64	217	45.6	43.2	47.9	42.5	
Aust/NZ	797	51.7	50.3	53.2	48.7	*
UK/Ireland	145	47.6	45.1	50.2	44.2	
O'Europe	78	52.8	47.4	58.3	48.1	*
Asia	46	50.3	44.4	56.2	44.9	
Other	48	51.7	45.2	58.2	48.3	

	FEMALES aged 25-64 years					
	Sample size	Mean intake (mg)	95% CI mean Lower	95% CI mean Upper	Median intake (mg)	Test of significance
1983						
All	3,233	33.2	32.7	33.7	31.2	
25-34	869	35.6	34.6	36.7	32.7	
35-44	895	32.5	31.7	33.3	30.9	
45-54	727	32.2	31.2	33.1	30.8	
55-64	742	31.2	30.3	32.0	29.5	
Aust/NZ	2,456	33.3	32.8	33.9	31.7	
UK/Ireland	354	34.4	32.7	36.1	31.7	
O'Europe	304	33.8	32.1	35.5	31.3	
Asia	75	29.5	26.2	32.9	26.6	
Other	44	30.4	27.4	33.4	30.5	
1995 Comparable						
All	1,253	34.7	33.9	35.5	33.0	*
25-34	378	35.9	34.4	37.3	34.9	
35-44	323	34.5	32.9	36.0	32.7	
45-54	302	35.7	34.1	37.3	33.1	*
55-64	250	31.8	30.3	33.3	30.1	
Aust/NZ	881	35.0	34.0	35.9	33.8	*
UK/Ireland	163	34.6	32.5	36.7	33.1	
O'Europe	95	32.9	29.7	36.0	31.5	
Asia	73	39.7	36.4	43.0	36.2	*
Other	41	27.2	24.4	30.1	25.1	

* Difference between estimated means for 1983 and 1995 comparable subset is statistically significant at the 0.01 level

2.2.14 VITAMIN C

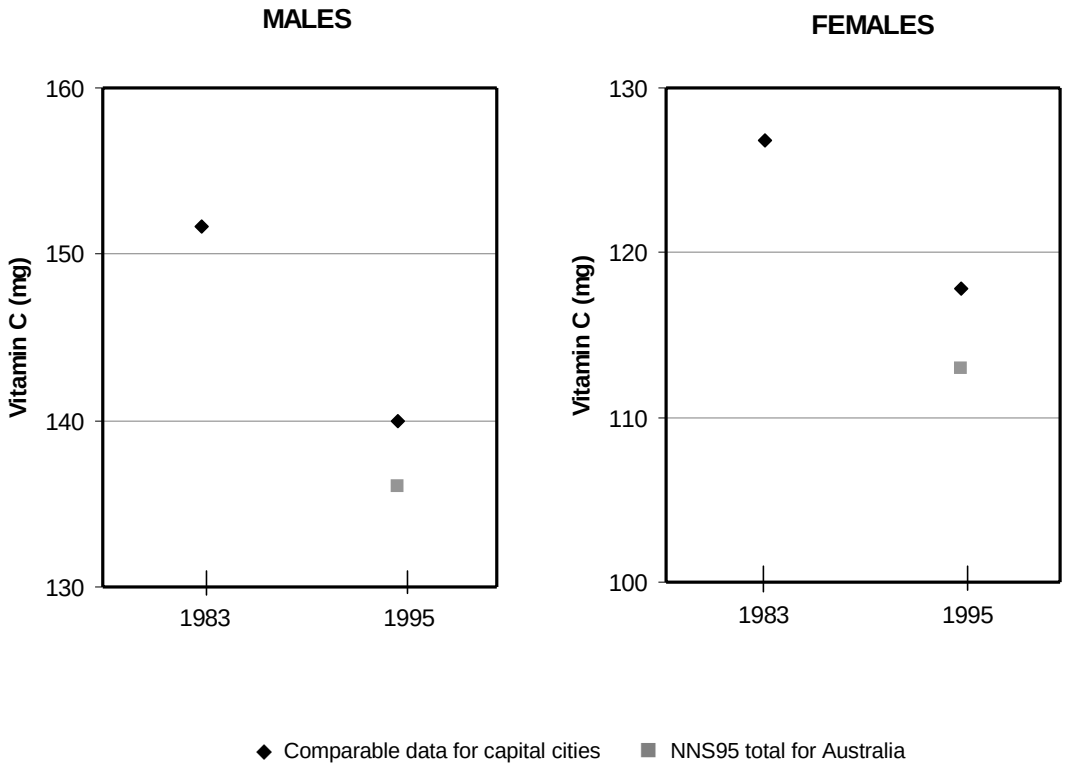
Mean intake of vitamin C decreased significantly by ~10mg for both men and women between 1983 and 1995.

The estimate for vitamin C intake for the 1995 comparable data for capital cities was about 4mg lower than the total NNS95 estimate for Australia. If the NNS95 estimate had been used for the comparison between 1983 and 1995 the difference would have been overestimated by about 40%.

While a decrease in vitamin C intake between 1983 and 1995 was observed for all except two population subgroups, the only significant decrease was for men born in Australia or New Zealand.

The two population subgroups for which intake of vitamin C increased between 1983 and 1995, were men aged 45-54 years and men born in Other European countries. Neither of these increases reached statistical significance.

Figure 2.2.14 Estimated mean 24-hour intake of VITAMIN C for adults



Note: Scale ranges differ for males and females

Source: SSDA 616, 1995 NNS and AFNMU

Table 2.2.14 Estimated 24-hour intake of VITAMIN C for adults in capital cities

	MALES aged 25-64 years					
	Sample size	Mean intake (mg)	95% CI mean Lower	95% CI mean Upper	Median intake (mg)	Test of significance
1983						
All	3,021	152	147	157	115	
25-34	823	162	152	172	118	
35-44	823	153	144	162	125	
45-54	703	144	133	155	104	
55-64	672	140	130	149	105	
Aust/NZ	2,130	152	147	158	118	
UK/Ireland	389	151	139	164	125	
O'Europe	353	146	128	163	102	
Asia	89	152	118	185	110	
Other	60	176	133	219	126	
1995 Comparable						
All	1,114	140	133	147	112	*
25-34	319	145	132	159	120	
35-44	310	131	117	146	94	
45-54	268	153	140	166	125	
55-64	217	127	114	139	107	
Aust/NZ	797	137	129	145	108	*
UK/Ireland	145	139	119	158	106	
O'Europe	78	171	135	208	125	
Asia	46	126	98	154	100	
Other	48	160	124	195	135	

	FEMALES aged 25-64 years					
	Sample size	Mean intake (mg)	95% CI mean Lower	95% CI mean Upper	Median intake (mg)	Test of significance
1983						
All	3,233	127	123	130	100	
25-34	869	138	131	146	114	
35-44	895	116	109	122	86	
45-54	727	123	116	131	101	
55-64	742	125	118	133	96	
Aust/NZ	2,456	120	116	124	94	
UK/Ireland	354	131	121	141	110	
O'Europe	304	135	120	149	91	
Asia	75	148	119	177	170	
Other	44	137	106	169	127	
1995 Comparable						
All	1,253	118	112	123	92	*
25-34	378	121	109	133	88	
35-44	323	111	101	121	82	
45-54	302	120	110	130	102	
55-64	250	119	108	130	104	
Aust/NZ	881	118	111	125	90	
UK/Ireland	163	118	105	132	95	
O'Europe	95	121	102	139	95	
Asia	73	124	105	143	99	
Other	41	109	85	133	82	

* Difference between estimated means for 1983 and 1995 comparable subset is statistically significant at the 0.01 level

2.2.15 IRON

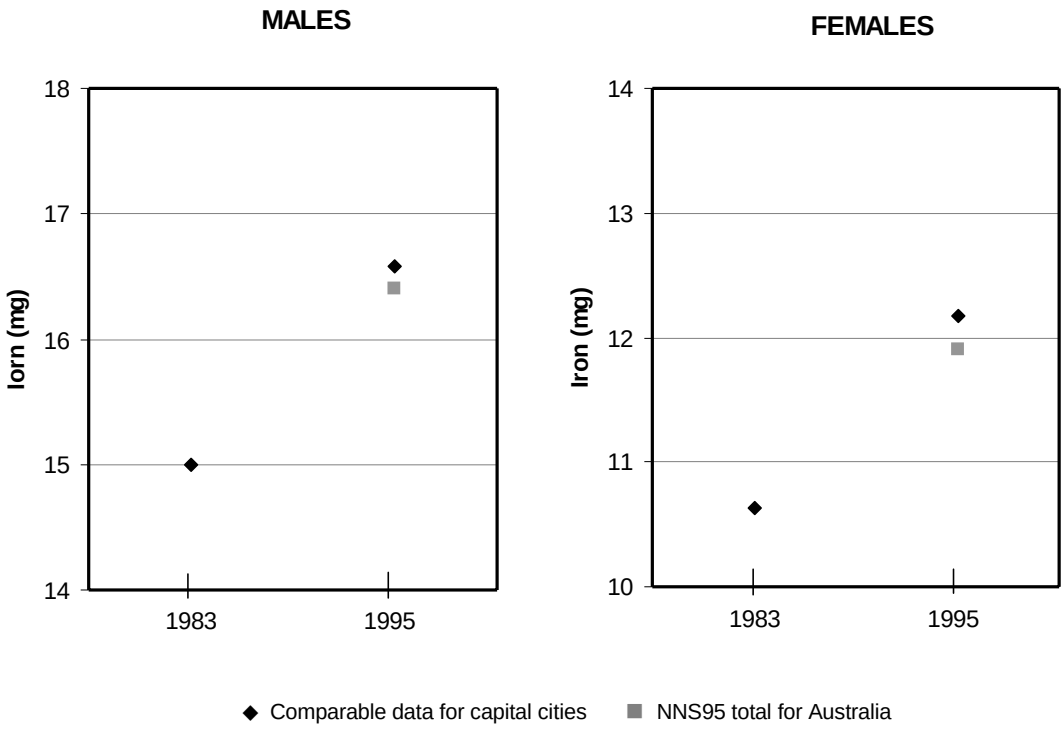
Mean intake of iron increased significantly (1.6mg per day) for both men and women between 1983 and 1995.

The estimate of iron intake for the 1995 comparable data for capital cities was 0.2mg to 0.3mg higher than the total NNS95 estimate for Australia. If the NNS95 estimate had been used for the comparison between 1983 and 1995 the difference in iron intake would have been underestimated by about 15%.

An increase in iron intake was evident for all age and country of birth population subgroups except the small group of women born in 'Other' countries whose mean intake of iron decreased between 1983 and 1995. The increase in iron intake was significant for all age groups except men and women aged 25-34 years.

Among the country of birth groups the observed increase in iron intake was not significant for men born in the UK or Ireland, men born in Asia, women born in Other European countries or women born in 'Other' countries.

Figure 2.2.15 Estimated mean 24-hour intake of IRON for adults



Note: Scale ranges differ for males and females

Source: SSDA 616, 1995 NNS and AFNMU

Table 2.2.15 Estimated 24-hour intake of IRON for adults in capital cities

	Sample size	Mean intake (mg)	95% CI mean Lower	95% CI mean Upper	Median intake (mg)	Test of significance
MALES aged 25-64 years						
1983						
All	3,021	15.0	14.8	15.3	14.0	
25-34	823	15.9	15.4	16.4	15.1	
35-44	823	15.2	14.8	15.7	14.2	
45-54	703	14.5	14.0	14.9	13.4	
55-64	672	13.8	13.3	14.2	12.9	
Aust/NZ	2,130	15.5	15.2	15.8	14.4	
UK/Ireland	389	14.6	14.0	15.2	13.8	
O'Europe	353	13.9	13.3	14.6	13.3	
Asia	89	14.0	12.7	15.3	11.7	
Other	60	14.4	12.7	16.1	13.0	
1995 Comparable						
All	1,114	16.6	16.2	17.0	15.7	*
25-34	319	17.0	16.1	17.9	15.9	
35-44	310	16.9	16.1	17.7	15.7	*
45-54	268	16.8	16.1	17.5	16.2	*
55-64	217	15.2	14.5	16.0	14.8	*
Aust/NZ	797	16.6	16.1	17.1	15.8	*
UK/Ireland	145	15.8	14.8	16.8	14.1	
O'Europe	78	16.5	14.7	18.2	14.6	*
Asia	46	14.9	13.0	16.8	12.7	
Other	48	18.7	16.0	21.5	17.4	*

	Sample size	Mean intake (mg)	95% CI mean Lower	95% CI mean Upper	Median intake (mg)	Test of significance
FEMALES aged 25-64 years						
1983						
All	3,233	10.6	10.4	10.8	9.7	
25-34	869	11.3	10.9	11.7	10.1	
35-44	895	10.1	9.8	10.4	9.5	
45-54	727	10.5	10.1	10.9	9.5	
55-64	742	10.4	10.1	10.8	9.5	
Aust/NZ	2,456	10.6	10.4	10.8	9.8	
UK/Ireland	354	11.0	10.3	11.7	9.6	
O'Europe	304	11.0	10.3	11.7	9.7	
Asia	75	9.5	8.2	10.8	8.4	
Other	44	10.1	8.9	11.2	9.9	
1995 Comparable						
All	1,253	12.2	11.9	12.5	11.3	*
25-34	378	12.1	11.5	12.6	10.9	
35-44	323	12.0	11.5	12.6	11.1	*
45-54	302	12.8	12.1	13.6	11.9	*
55-64	250	11.8	11.2	12.5	11.4	*
Aust/NZ	881	12.2	11.8	12.5	11.5	*
UK/Ireland	163	13.0	12.1	13.9	12.1	*
O'Europe	95	11.5	10.4	12.7	10.5	
Asia	73	13.5	11.4	15.6	11.2	*
Other	41	9.6	8.6	10.6	9.5	

* Difference between estimated means for 1983 and 1995 comparable subset is statistically significant at the 0.01 level

2.2.16 CALCIUM

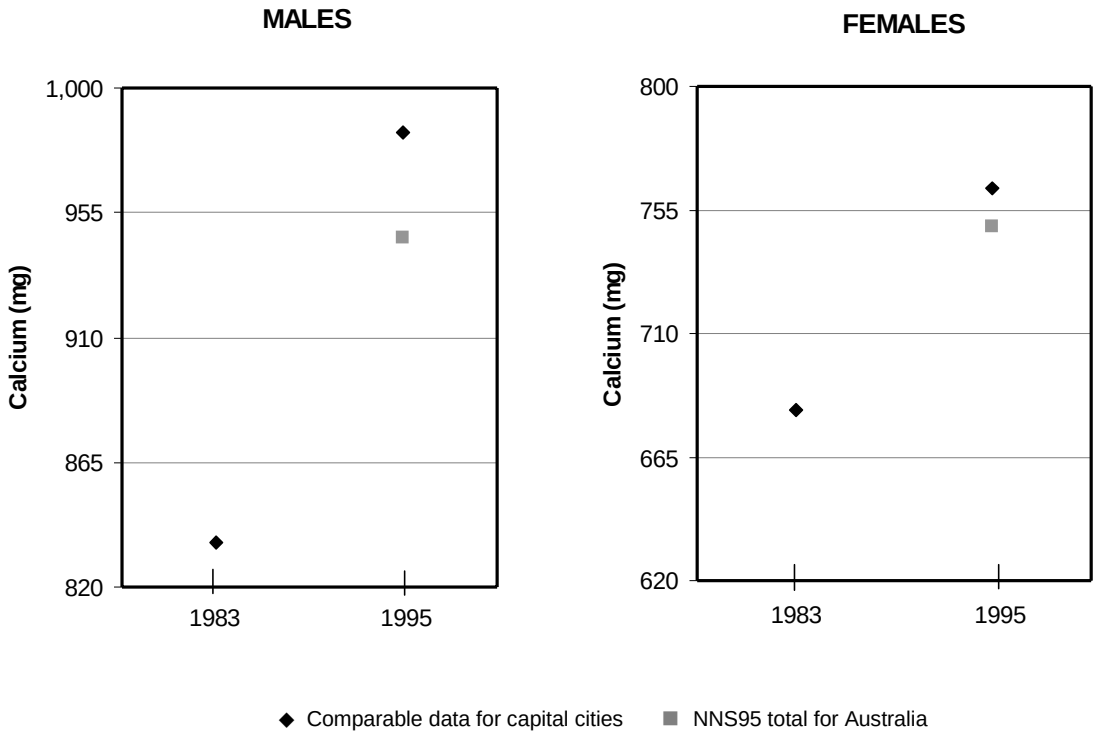
Mean intake of calcium increased significantly between 1983 and 1995 for both men and women. The increase was ~150mg per day for men and 80mg for women.

The estimate of calcium intake for the 1995 comparable data for capital cities was about 40mg per day lower for men and 15g lower for women than the total NNS95 estimate for Australia. If the NNS95 estimate had been used for the comparison between 1983 and 1995 the difference in calcium intake would have been underestimated by 17-26%.

For men the increase in calcium intake was significant for all age groups but for women the increase was not significant for those aged 35-44 or those aged 45-54 years.

There were also differences between men and women for country of birth subgroups. The only subgroup of men who had a significant increase in calcium intake between 1983 and 1995 were men born in Other European countries. In this group the mean increase in calcium intake amounted to ~250mg per day and the median increase to ~200mg per day. The only subgroup of migrant women with a significant increase in calcium intake was the group born in Asia. In this group the mean increase in calcium intake was ~200mg per day and the median increase ~150mg per day.

Figure 2.2.16 Estimated mean 24-hour intake of CALCIUM for adults



Note: Scale ranges differ for males and females

Source: SSDA 616, 1995 NNS and AFNMU

Table 2.2.16 Estimated 24-hour intake of CALCIUM for adults in capital cities

	MALES aged 25-64 years					
	Sample size	Mean intake (mg)	95% CI mean Lower	95% CI mean Upper	Median intake (mg)	Test of significance
1983						
All	3,021	836	819	853	741	
25-34	823	945	908	982	850	
35-44	823	814	783	845	710	
45-54	703	790	755	825	712	
55-64	672	725	697	754	657	
Aust/NZ	2,130	867	847	888	791	
UK/Ireland	389	888	838	938	793	
O'Europe	353	711	667	755	639	
Asia	89	718	609	827	574	
Other	60	708	609	808	608	
1995 Comparable						
All	1,114	984	949	1,019	878	*
25-34	319	1,114	1,036	1,193	985	*
35-44	310	944	882	1,005	874	*
45-54	268	954	892	1,017	829	*
55-64	217	842	779	906	750	*
Aust/NZ	797	1,008	964	1,052	894	*
UK/Ireland	145	967	894	1,039	939	
O'Europe	78	943	816	1,070	833	*
Asia	46	725	575	876	499	
Other	48	876	738	1,014	808	

	FEMALES aged 25-64 years					
	Sample size	Mean intake (mg)	95% CI mean Lower	95% CI mean Upper	Median intake (mg)	Test of significance
1983						
All	3,233	682	666	698	609	
25-34	869	714	686	741	653	
35-44	895	670	644	696	607	
45-54	727	679	629	729	591	
55-64	742	647	621	673	587	
Aust/NZ	2,456	680	665	695	619	
UK/Ireland	354	759	716	802	701	
O'Europe	304	675	579	770	575	
Asia	75	467	410	525	397	
Other	44	603	503	704	525	
1995 Comparable						
All	1,253	763	738	788	671	*
25-34	378	818	768	868	731	*
35-44	323	711	664	759	595	
45-54	302	758	714	803	685	
55-64	250	743	693	794	658	*
Aust/NZ	881	777	748	806	683	*
UK/Ireland	163	901	822	980	801	*
O'Europe	95	701	625	777	678	
Asia	73	651	566	735	551	*
Other	41	640	526	755	579	

* Difference between estimated means for 1983 and 1995 comparable subset is statistically significant at the 0.01 level

2.2.17 ZINC

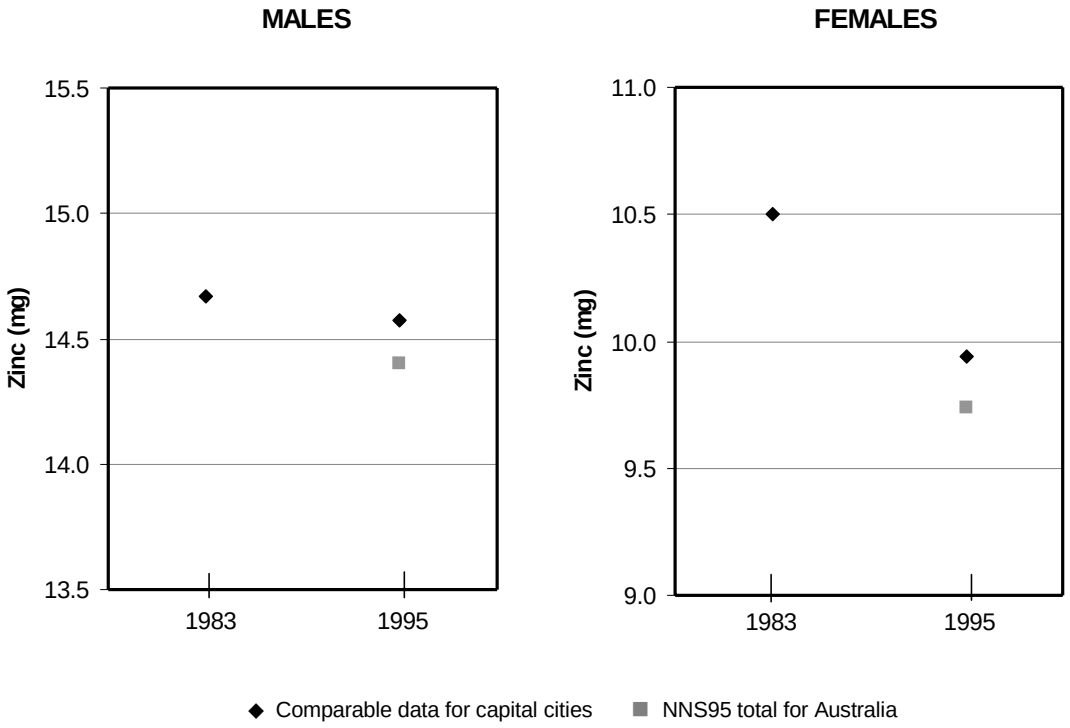
Mean intake of zinc decreased between 1983 and 1995 for men and women. For men the decrease was only 0.1mg per day but for women the decrease of 0.6mg per day was statistically significant.

The estimate of zinc intake for the 1995 comparable data for capital cities was 0.2mg higher than the total NNS95 estimate for Australia. If the NNS95 estimate had been used for the comparison between 1983 and 1995 the difference in zinc intake for women would have been overestimated by about 30%.

For men there were no statistically significant differences in zinc intake for any of the age and country of birth subgroups. In general, mean intake of zinc was greater in 1995 than in 1983 for all migrant groups except men from the UK or Ireland.

For women significant decreases in zinc intake of 1mg or more per day were observed for the subgroups of women aged 25-34 years, women aged 55-64 years and women born in Other European countries. In contrast, the mean intake of zinc for women born in Asia increased between 1983 and 1995 but not significantly.

Figure 2.2.17 Estimated mean 24-hour intake of ZINC for adults



Note: Scale ranges differ for males and females

Source: SSDA 616, 1995 NNS and AFNMU

Table 2.2.17 Estimated 24-hour intake of ZINC for adults in capital cities

	MALES aged 25-64 years					
	Sample size	Mean intake (mg)	95% CI mean Lower	95% CI mean Upper	Median intake (mg)	Test of significance
1983						
All	3,021	14.7	14.4	15.0	13.0	
25-34	823	15.3	14.8	15.9	13.7	
35-44	823	15.0	14.4	15.7	13.2	
45-54	703	14.2	13.5	14.8	12.5	
55-64	672	13.6	12.9	14.2	12.0	
Aust/NZ	2,130	15.2	14.8	15.6	13.5	
UK/Ireland	389	13.9	13.0	14.8	12.3	
O'Europe	353	13.5	12.6	14.4	11.9	
Asia	89	14.1	12.6	15.5	12.4	
Other	60	12.4	11.1	13.7	12.0	
1995 Comparable						
All	1,114	14.6	14.1	15.0	13.0	
25-34	319	15.3	14.5	16.1	13.7	
35-44	310	14.3	13.5	15.1	12.8	
45-54	268	15.3	14.2	16.4	12.9	
55-64	217	12.9	12.0	13.8	12.0	
Aust/NZ	797	14.5	14.0	15.1	13.1	
UK/Ireland	145	13.5	12.4	14.7	11.4	
O'Europe	78	14.8	12.5	17.2	13.7	
Asia	46	14.4	12.7	16.2	12.2	
Other	48	15.0	13.0	16.9	15.4	

	FEMALES aged 25-64 years					
	Sample size	Mean intake (mg)	95% CI mean Lower	95% CI mean Upper	Median intake (mg)	Test of significance
1983						
All	3,233	10.5	10.3	10.8	9.1	
25-34	869	11.8	11.2	12.5	9.8	
35-44	895	9.8	9.4	10.2	8.7	
45-54	727	10.1	9.7	10.6	9.0	
55-64	742	9.8	9.4	10.2	8.7	
Aust/NZ	2,456	10.2	10.0	10.5	9.1	
UK/Ireland	354	10.8	10.0	11.6	9.1	
O'Europe	304	13.8	12.6	15.0	11.0	
Asia	75	10.3	8.9	11.8	9.5	
Other	44	9.5	8.1	10.9	8.7	
1995 Comparable						
All	1,253	9.9	9.6	10.3	8.9	*
25-34	378	10.1	9.6	10.6	9.1	*
35-44	323	10.3	9.2	11.3	8.8	
45-54	302	10.3	9.7	11.0	9.4	
55-64	250	8.7	8.3	9.2	8.3	*
Aust/NZ	881	9.8	9.4	10.3	8.9	
UK/Ireland	163	10.7	9.9	11.5	10.9	
O'Europe	95	9.2	7.8	10.5	8.7	*
Asia	73	11.6	10.4	12.9	10.8	
Other	41	8.5	7.6	9.5	7.8	

* Difference between estimated means for 1983 and 1995 comparable subset is statistically significant at the 0.01 level

2.2.18 MAGNESIUM

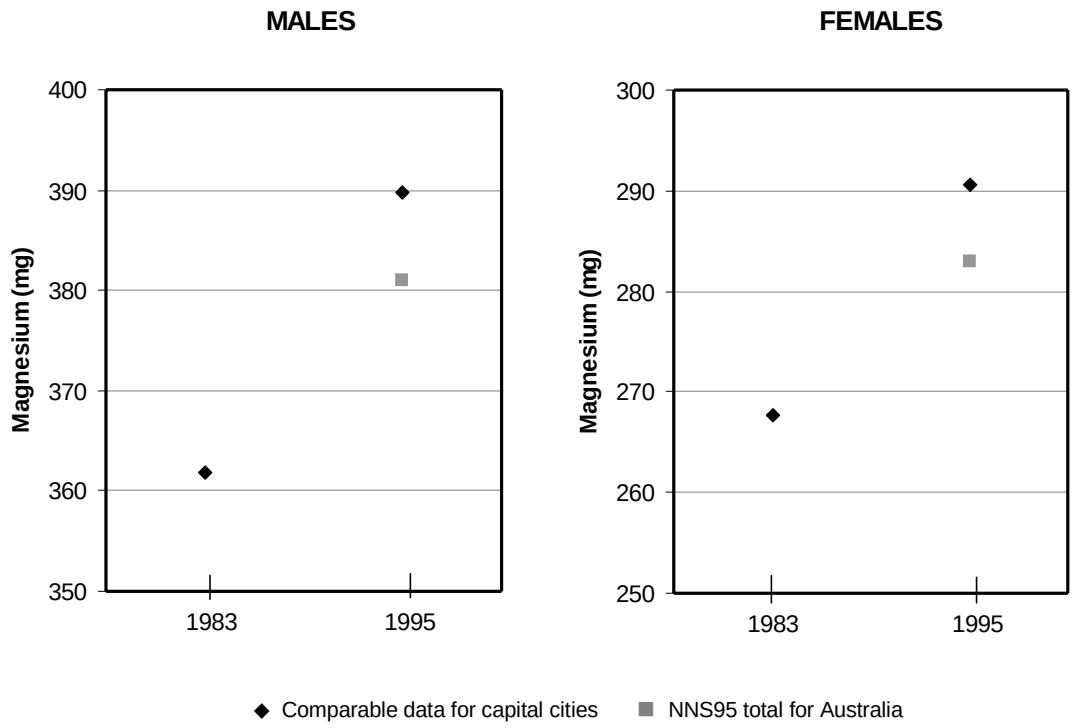
Mean magnesium intake increased significantly between 1983 and 1995 by ~30mg per day for men and by ~20mg per day for women.

The estimate of magnesium intake for the 1995 comparable data for capital cities was about 10mg higher than the total NNS95 estimate for Australia. If the NNS95 estimate had been used for the comparison between 1983 and 1995 the difference in magnesium intake would have been underestimated by at least 30%.

For men, the increase in magnesium intake was significant for those aged 45-54 and 55-64 years. For women, it was significant for all age groups except the youngest group aged 25-34 years.

The increase in magnesium intake between 1983 and 1995 was significant for men and women born in Australia or New Zealand. Of the other country of birth subgroups, only women born in Asia had a significant increase in magnesium intake over this period.

Figure 2.2.18 Estimated mean 24-hour intake of MAGNESIUM for adults



Note: Scale ranges differ for males and females

Source: SSDA 616, 1995 NNS and AFNMU

Table 2.2.18 Estimated 24-hour intake of MAGNESIUM for adults in capital cities

	MALES aged 25-64 years					
	Sample size	Mean intake (mg)	95% CI mean Lower	95% CI mean Upper	Median intake (mg)	Test of significance
1983						
All	3,021	362	357	367	344	
25-34	823	385	375	395	369	
35-44	823	366	357	375	350	
45-54	703	349	339	359	331	
55-64	672	329	320	337	318	
Aust/NZ	2,130	372	366	378	357	
UK/Ireland	389	372	359	385	359	
O'Europe	353	320	308	332	306	
Asia	89	333	302	364	304	
Other	60	356	316	396	331	
1995 Comparable						
All	1,114	390	381	399	364	*
25-34	319	399	380	419	361	
35-44	310	387	371	404	358	
45-54	268	398	383	413	385	*
55-64	217	367	349	385	356	*
Aust/NZ	797	395	385	406	371	*
UK/Ireland	145	370	347	394	356	
O'Europe	78	367	330	403	353	
Asia	46	352	313	391	313	
Other	48	373	325	421	341	

	FEMALES aged 25-64 years					
	Sample size	Mean intake (mg)	95% CI mean Lower	95% CI mean Upper	Median intake (mg)	Test of significance
1983						
All	3,233	268	264	272	254	
25-34	869	277	270	284	263	
35-44	895	262	255	268	251	
45-54	727	267	257	276	241	
55-64	742	261	254	269	245	
Aust/NZ	2,456	268	264	272	256	
UK/Ireland	354	286	274	297	262	
O'Europe	304	268	251	286	232	
Asia	75	219	198	240	207	
Other	44	255	229	280	274	
1995 Comparable						
All	1,253	291	284	297	272	*
25-34	378	286	274	299	264	
35-44	323	291	279	304	274	*
45-54	302	301	288	313	285	*
55-64	250	286	272	300	268	*
Aust/NZ	881	293	286	301	280	*
UK/Ireland	163	307	289	326	275	
O'Europe	95	262	237	287	234	
Asia	73	307	281	333	277	*
Other	41	241	218	263	229	

* Difference between estimated means for 1983 and 1995 comparable subset is statistically significant at the 0.01 level

2.3 FOOD GROUPS

2.3.1 ALCOHOLIC BEVERAGES

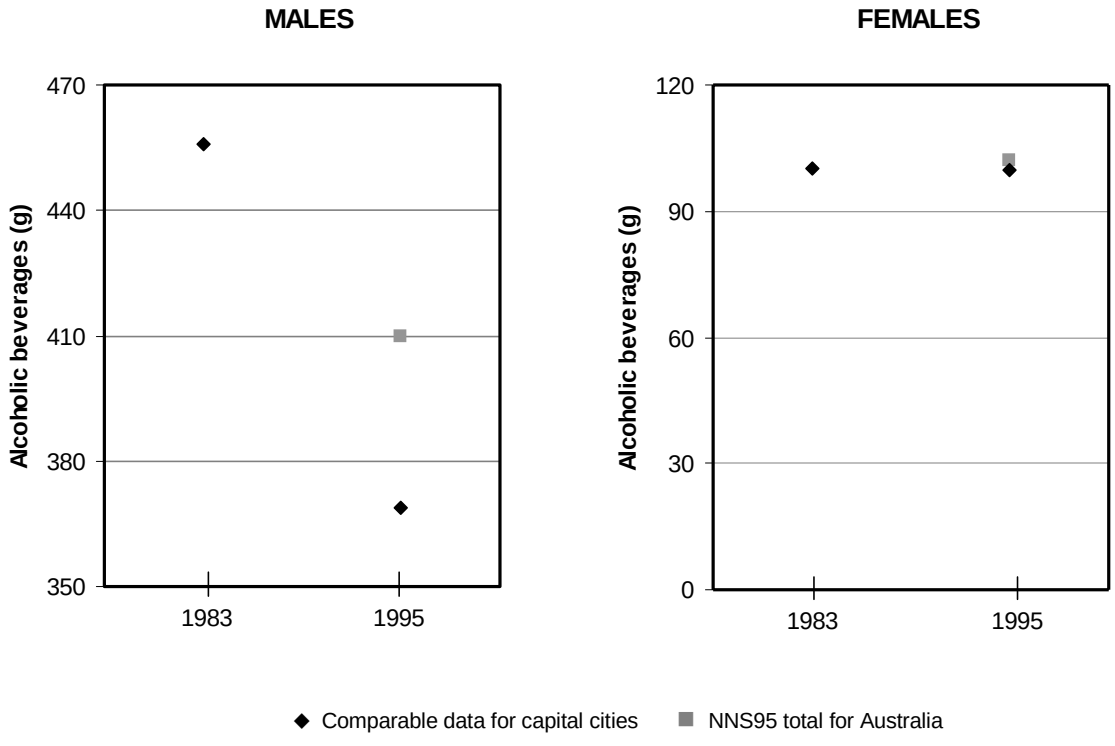
The percentage of the population who consumed an alcoholic beverage on the day of the survey decreased between 1983 and 1995, from 53% to 39% for men and from 34% to 24% for women.

The mean intake of alcoholic beverages also decreased significantly for men overall (~90g), for those aged 35-44 years and for men born in Australia or New Zealand. For women there was no significant decrease in mean intake in any group.

For men, but not for women, the estimate of alcoholic beverage intake for the 1995 comparable data for capital cities was about 40g lower than the total NNS95 estimate for Australia. If the NNS95 estimate had been used for the comparison between 1983 and 1995 the difference in intake of alcoholic beverages for men would have been underestimated by about 45%.

Apparent Consumption data for Australia for alcoholic beverages (ABS Catalogue No 4306.0 1985 and 1998) show a decrease of ~60g per head per day over the period 1983 to 1995, mainly due to a decrease in the supply of beer.

Figure 2.3.1 Estimated mean 24-hour intake of ALCOHOLIC BEVERAGES for adults



Note: Scale ranges differ for males and females

Source: SSDA 616, 1995 NNS and AFNMU

Table 2.3.1 Estimated 24-hour intake of ALCOHOLIC BEVERAGES for adults in capital cities

	MALES aged 25-64 years						
	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Proportion consuming (%)	Test of significance
1983							
All	3,021	456	427	484	60	53	
25-34	823	414	360	468	0	50	
35-44	823	482	430	535	83	54	
45-54	703	486	425	547	63	52	
55-64	672	459	396	521	83	57	
Aust/NZ	2,130	509	472	545	90	54	
UK/Ireland	389	477	399	556	77	53	
O'Europe	353	320	261	379	98	57	
Asia	89	178	78	278	11	37	
Other	60	229	112	347	0	32	
1995 Comparable							
All	1,114	369	325	413	0	39	*
25-34	319	380	292	468	0	36	
35-44	310	291	219	363	0	33	*
45-54	268	416	318	515	0	45	
55-64	217	407	322	492	0	47	
Aust/NZ	797	415	359	471	0	41	*
UK/Ireland	145	363	258	468	11	44	
O'Europe	78	274	172	376	60	40	
Asia	46	67	0[a]	147	0	23	
Other	48	198	54	342	0	19	

	FEMALES aged 25-64 years						
	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Proportion consuming (%)	Test of significance
1983							
All	3,233	100	93	108	0	34	
25-34	869	93	79	107	0	33	
35-44	895	120	105	134	0	38	
45-54	727	102	85	119	0	33	
55-64	742	85	70	101	0	32	
Aust/NZ	2,456	111	102	120	0	36	
UK/Ireland	354	117	92	143	0	38	
O'Europe	304	77	56	99	0	27	
Asia	75	75	41	109	0	21	
Other	44	50	6	94	0	18	
1995 Comparable							
All	1,253	100	83	117	0	24	
25-34	378	95	62	127	0	19	
35-44	323	123	86	160	0	26	
45-54	302	110	75	145	0	30	
55-64	250	65	42	89	0	21	
Aust/NZ	881	108	86	130	0	26	
UK/Ireland	163	127	83	171	0	31	
O'Europe	95	61	9	112	0	15	
Asia	73	41	0[a]	89	0	8	
Other	41	50	5	94	0	18	

* Difference between estimated means for 1983 and 1995 comparable subset is statistically significant at the 0.01 level

[a] Truncated to zero from negative estimate

2.3.2 CEREALS AND CEREAL PRODUCTS

The cereals and cereal products group of foods consists of basic cereals such as rice and cereal products such as breads, pasta and breakfast cereals. The percentage of the population who consumed a cereal on the day of the survey decreased between 1983 and 1995, from 97% to 92% for men and from 97% to 95% for women.

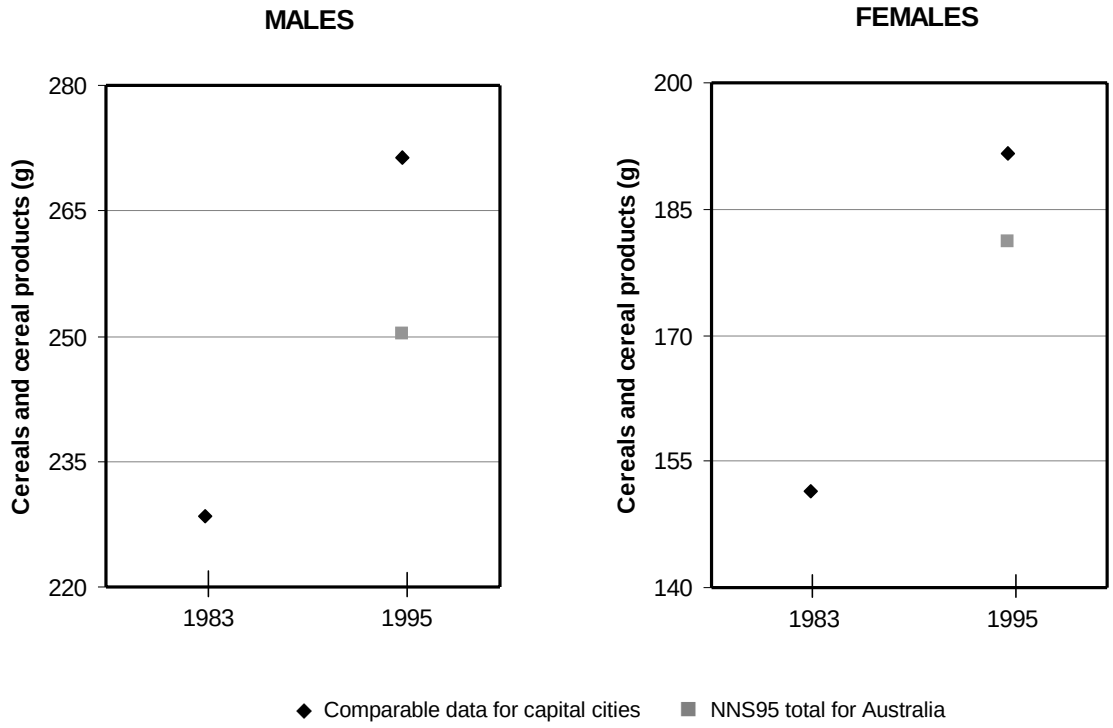
Mean intake of cereal foods, however, increased between 1983 and 1995 for both men and women by about 40g per day.

For men the estimate of cereal intake for the 1995 comparable data for capital cities was about 20g higher, and about 10g higher for women than the total NNS95 for Australia estimate. If the total NNS95 estimates had been used for the comparison between 1983 and 1995 the difference in intake of cereal foods would have been underestimated by 25% to 50%.

For men and women the increase in cereal intake was significant except for those aged 25-34 years and for those born in Other European countries and in 'Other' countries. In addition, the cereal intake of men aged 55-64 years and those born in the UK or Ireland also increased between 1983 and 1995 but not significantly.

Apparent Consumption data for grain products, which decreased between 1983 and 1995 by about 20g per person per day, cannot be compared directly with the intake data because they relate to the dry weight of cereals.

Figure 2.3.2 Estimated mean 24-hour intake of CEREALS AND CEREAL PRODUCTS for adults



Note: Scale ranges differ for males and females

Source: SSDA 616, 1995 NNS and AFNMU

Table 2.3.2 Estimated 24-hour intake of CEREALS AND CEREAL PRODUCTS for adults in capital cities

MALES aged 25-64 years

	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Proportion consuming (%)	Test of significance
1983							
All	3,021	228	222	235	180	97	
25-34	823	250	236	264	200	96	
35-44	823	231	218	244	182	97	
45-54	703	219	206	232	170	97	
55-64	672	196	184	208	150	98	
Aust/NZ	2,130	211	204	218	176	97	
UK/Ireland	389	207	189	224	165	97	
O'Europe	353	238	218	258	200	96	
Asia	89	414	342	486	344	98	
Other	60	311	252	370	261	99	
1995 Comparable							
All	1,114	271	256	286	189	92	*
25-34	319	282	253	311	198	88	
35-44	310	286	257	315	195	94	*
45-54	268	273	242	303	190	95	*
55-64	217	231	203	259	164	93	
Aust/NZ	797	241	225	256	179	92	*
UK/Ireland	145	252	218	286	189	93	
O'Europe	78	247	209	285	227	94	
Asia	46	738	633	843	726	97	*
Other	48	331	239	423	255	90	

FEMALES aged 25-64 years

	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Proportion consuming (%)	Test of significance
1983							
All	3,233	151	147	156	119	97	
25-34	869	173	163	182	131	97	
35-44	895	139	131	146	115	96	
45-54	727	151	142	160	120	96	
55-64	742	132	125	140	105	98	
Aust/NZ	2,456	141	137	145	117	98	
UK/Ireland	354	146	133	159	122	96	
O'Europe	304	162	147	177	118	96	
Asia	75	230	179	281	198	95	
Other	44	191	147	235	156	93	
1995 Comparable							
All	1,253	192	182	202	134	95	*
25-34	378	195	177	213	131	94	
35-44	323	208	185	231	145	95	*
45-54	302	185	167	203	132	95	*
55-64	250	170	153	186	129	97	*
Aust/NZ	881	164	155	173	121	95	*
UK/Ireland	163	188	161	214	144	97	*
O'Europe	95	205	173	237	159	94	
Asia	73	443	372	514	403	99	*
Other	41	197	137	257	109	86	

* Difference between estimated means for 1983 and 1995 comparable subset is statistically significant at the 0.01 level

2.3.3 CEREAL-BASED PRODUCTS AND DISHES

The cereal-based group of foods consists of all foods for which a cereal or product is the major component and includes cakes, biscuits, fruit and vegetable tarts, pies and flans as well as meat and cereal dishes such as pizza.

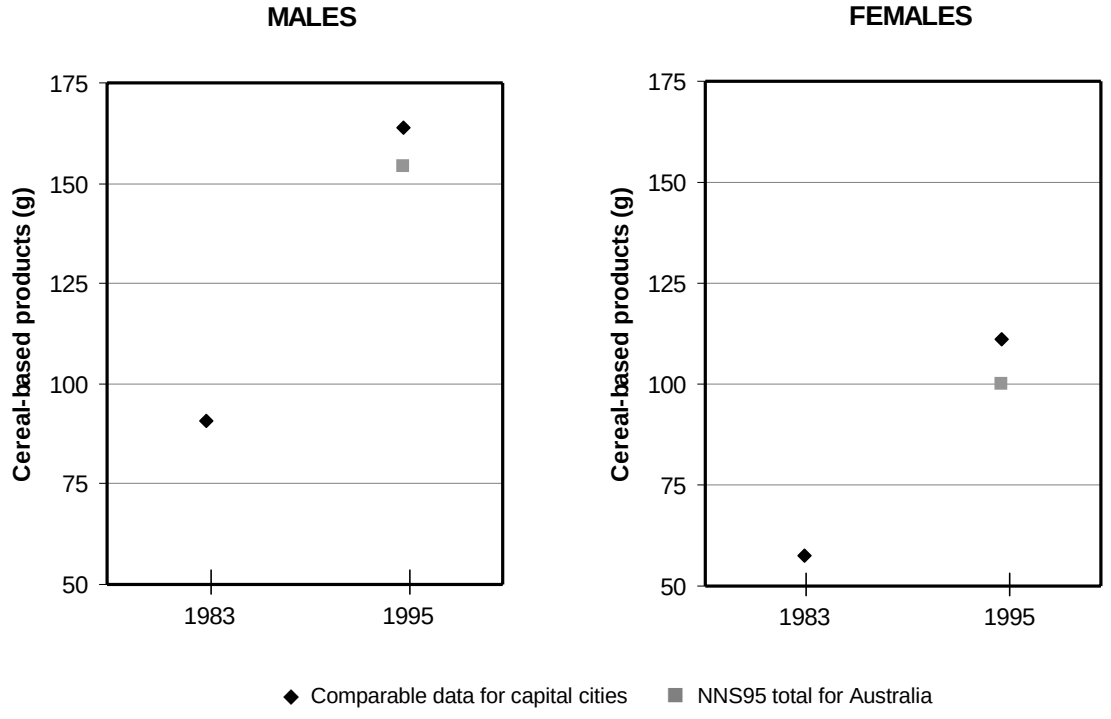
For men there was a small increase, between 1983 and 1995, in the percentage consuming a cereal-based product on the day of the survey from 66% to 70%. For women, the respective proportions were 70% and 71%.

Mean intake of this group of foods increased significantly for all population subgroups except men born in the UK or Ireland or in Asia and for women born in Asia or in 'Other' countries. The average increase was between 50g and 70g per day between 1983 and 1995.

In part the significant increase in mean intake of this group reflects the inclusion of more mixed dishes within this group in 1995 than in 1983. Further details about this can be found in section 2.3 of the companion report *The Bridging Study*.

For both men and women, the estimate of cereal-based foods for the 1995 comparable data for capital cities was about 10g higher than the total NNS95 estimate for Australia. If the NNS95 estimate had been used for the comparison between 1983 and 1995 the difference in intake of cereal-based foods would have been underestimated by about 15%.

Figure 2.3.3 Estimated mean 24-hour intake of CEREAL-BASED PRODUCTS AND DISHES for adults



Source: SSDA 616, 1995 NNS and AFNMU

Table 2.3.3 Estimated 24-hour intake of CEREAL-BASED PRODUCTS AND DISHES for adults in capital cities

MALES aged 25-64 years

	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Proportion consuming (%)	Test of significance
1983							
All	3,021	91	86	95	34	66	
25-34	823	107	97	117	37	64	
35-44	823	92	83	101	32	66	
45-54	703	80	72	88	32	69	
55-64	672	72	64	80	30	68	
Aust/NZ	2,130	93	87	98	40	69	
UK/Ireland	389	93	80	106	33	66	
O'Europe	353	75	63	88	12	56	
Asia	89	107	71	142	41	69	
Other	60	82	50	113	21	58	
1995 Comparable							
All	1,114	164	150	177	82	70	*
25-34	319	195	169	222	119	71	*
35-44	310	180	152	207	80	72	*
45-54	268	145	119	172	53	66	*
55-64	217	106	86	126	51	71	*
Aust/NZ	797	172	155	188	84	71	*
UK/Ireland	145	124	97	151	56	70	
O'Europe	78	172	124	220	108	77	*
Asia	46	65	34	96	18	44	
Other	48	243	164	322	174	77	*

FEMALES aged 25-64 years

	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Proportion consuming (%)	Test of significance
1983							
All	3,233	58	55	60	26	70	
25-34	869	68	62	74	35	70	
35-44	895	52	47	56	23	67	
45-54	727	52	47	57	24	72	
55-64	742	53	48	58	25	72	
Aust/NZ	2,456	59	56	62	30	72	
UK/Ireland	354	59	51	67	25	70	
O'Europe	304	54	46	63	34	62	
Asia	75	48	31	66	26	63	
Other	44	46	28	64	24	67	
1995 Comparable							
All	1,253	111	102	120	42	71	*
25-34	378	130	111	148	50	71	*
35-44	323	115	98	133	44	70	*
45-54	302	106	88	124	35	73	*
55-64	250	77	63	91	34	68	*
Aust/NZ	881	112	101	123	44	71	*
UK/Ireland	163	121	99	143	60	78	*
O'Europe	95	149	114	184	118	69	*
Asia	73	87	61	114	27	65	
Other	41	87	43	131	27	61	

* Difference between estimated means for 1983 and 1995 comparable subset is statistically significant at the 0.01 level

2.3.4 CONFECTIONERY

The proportion consuming food from this group on the day of the survey was between 20% and 25% and similar in 1983 and 1995 for both men and women.

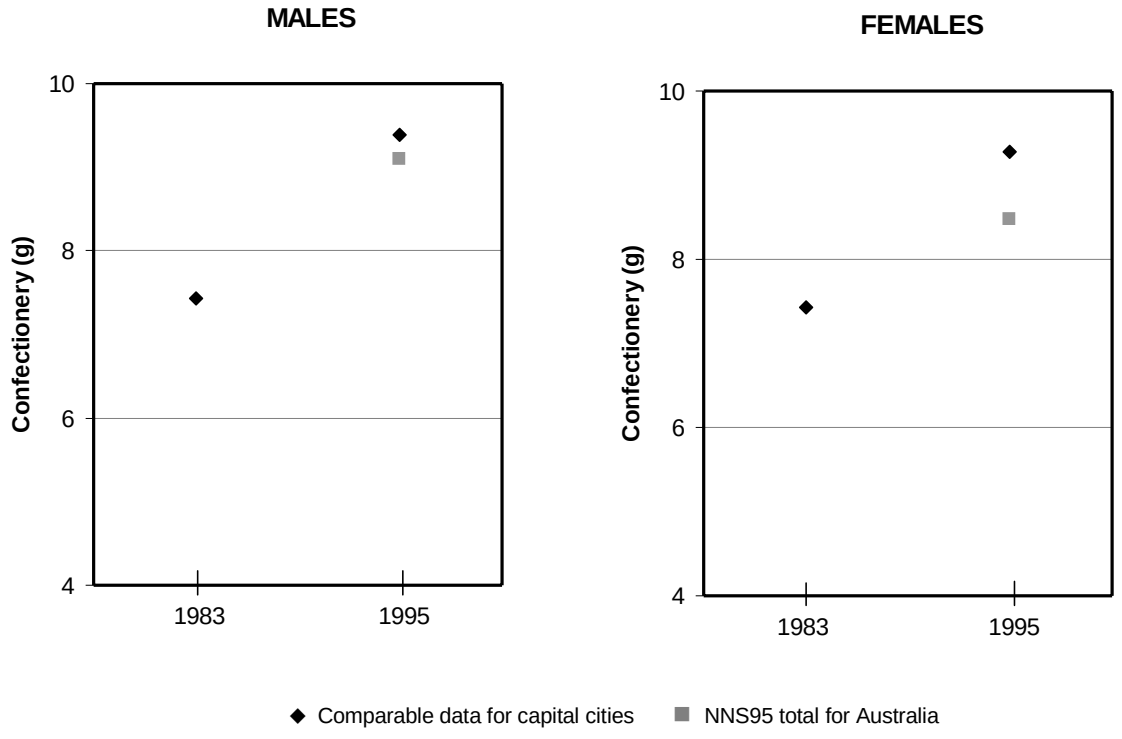
The only significant change in mean confectionery intake between 1983 and 1995 occurred for women born in the UK or Ireland. The change involved an increase from 5g per day to10g per day.

For both men and women, the estimate of confectionery intake for the 1995 comparable data for capital cities was only marginally higher than the total NNS95 estimate for Australia. Use of the NNS95 estimate would have had little effect on the comparison between 1983 and 1995.

The mean intake of confectionery was highest in those aged 25-34 years and those born in Australia or New Zealand or in the UK or Ireland.

Comparable Apparent Consumption data are not available for this food group.

Figure 2.3.4 Estimated mean 24-hour intake of CONFECTIONERY for adults



Source: SSDA 616, 1995 NNS and AFNMU

Table 2.3.4 Estimated 24-hour intake of CONFECTIONERY for adults in capital cities

	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Proportion consuming (%)	Test of significance
MALES aged 25-64 years							
1983							
All	3,021	7	7	8	0	20	
25-34	823	10	8	12	0	24	
35-44	823	7	5	9	0	19	
45-54	703	7	5	8	0	18	
55-64	672	5	4	6	0	16	
Aust/NZ	2,130	8	7	9	0	21	
UK/Ireland	389	11	8	14	0	22	
O'Europe	353	5	3	7	0	15	
Asia	89	3	1	4	0	15	
Other	60	4	1	6	2	22	
1995 Comparable							
All	1,114	9	8	11	0	21	
25-34	319	12	9	15	0	23	
35-44	310	10	7	13	0	23	
45-54	268	8	5	11	0	19	
55-64	217	5	3	8	0	13	
Aust/NZ	797	9	8	11	0	21	
UK/Ireland	145	13	8	17	0	26	
O'Europe	78	5	1	8	0	15	
Asia	46	6	0[a]	13	0	12	
Other	48	9	0	18	0	14	

	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Proportion consuming (%)	Test of significance
FEMALES aged 25-64 years							
1983							
All	3,233	7	7	8	0	24	
25-34	869	9	7	10	0	29	
35-44	895	7	6	8	0	23	
45-54	727	7	5	8	0	22	
55-64	742	6	5	8	0	18	
Aust/NZ	2,456	9	8	10	0	26	
UK/Ireland	354	5	3	6	0	22	
O'Europe	304	4	2	6	0	15	
Asia	75	3	2	5	0	23	
Other	44	3	0[a]	8	0	24	
1995 Comparable							
All	1,253	9	8	11	0	23	
25-34	378	13	9	17	0	26	
35-44	323	9	6	12	0	21	
45-54	302	8	6	10	0	27	
55-64	250	5	3	7	0	15	
Aust/NZ	881	10	8	13	0	24	
UK/Ireland	163	10	7	13	0	25	*
O'Europe	95	2	0	4	0	10	
Asia	73	6	2	10	0	20	
Other	41	6	0	12	0	24	

* Difference between estimated means for 1983 and 1995 comparable subset is statistically significant at the 0.01 level

[a] Truncated to zero from negative estimate

2.3.5 EGG PRODUCTS AND DISHES

The percentage of men and women who consumed eggs and egg products on the survey day halved between 1983 and 1995, from 33% to 15%.

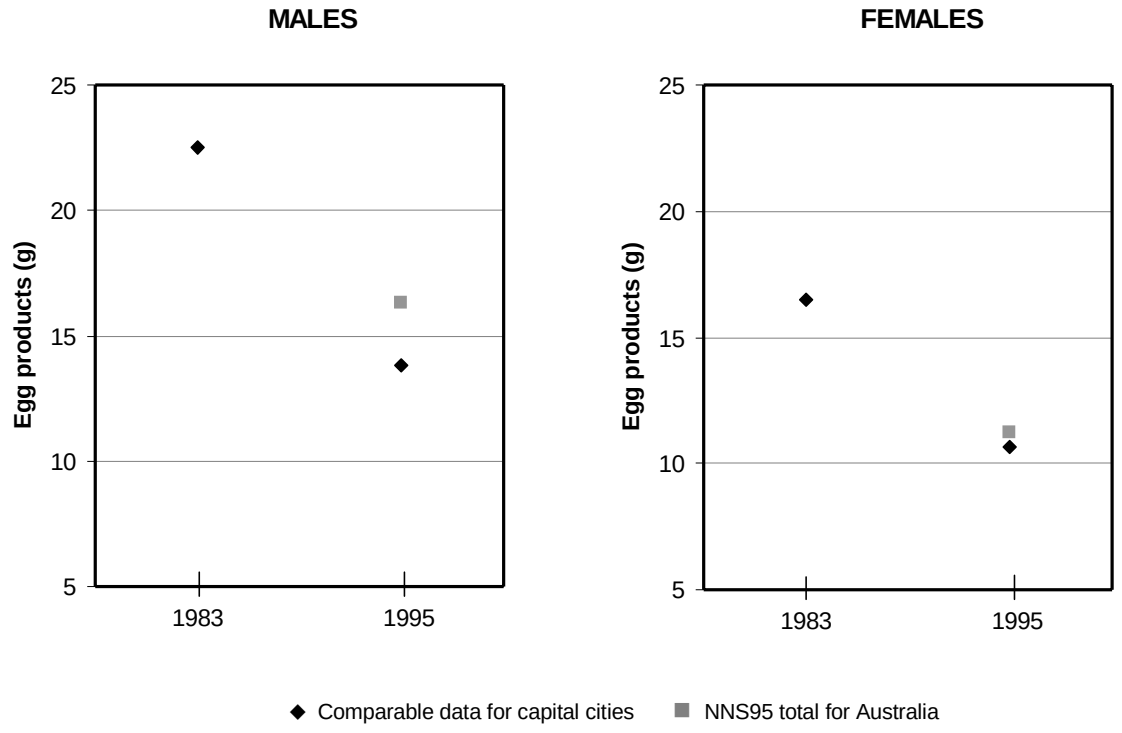
This marked decrease in the proportion consuming eggs was associated with a significant decrease in mean intake of eggs for some but not all population subgroups.

Subgroups who did not show a significant decrease in mean egg intake were men and women aged 45-54 years and born in the UK or Ireland or in Asia or 'Other' countries. Egg intake for men aged 35-44 years or 55-64 years also decreased between 1983 and 1995 but not significantly.

For men, the estimate of egg intake for the 1995 comparable data for capital cities was 2.5g lower than the total NNS95 estimate for Australia. Use of the total NNS95 estimate for the comparison between 1983 and 1995 would have underestimated the average decrease in egg intake for men but had little impact on the comparison for women.

Apparent Consumption data show a 40% reduction in supply between 1983 and 1995, from 223 to 132 eggs per head per year.

Figure 2.3.5 Estimated mean 24-hour intake of EGG PRODUCTS AND DISHES for adults



Source: SSDA 616, 1995 NNS and AFNMU

Table 2.3.5 Estimated 24-hour intake of EGG PRODUCTS AND DISHES for adults in capital cities

	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Proportion consuming (%)	Test of significance
MALES aged 25-64 years							
1983							
All	3,021	23	21	24	0	33	
25-34	823	23	20	27	0	32	
35-44	823	22	19	25	0	32	
45-54	703	21	18	25	0	32	
55-64	672	23	20	27	0	36	
Aust/NZ	2,130	22	20	24	0	33	
UK/Ireland	389	25	21	29	0	35	
O'Europe	353	21	17	25	0	32	
Asia	89	21	11	30	0	26	
Other	60	46	22	70	3	25	
1995 Comparable							
All	1,114	14	11	16	0	16	*
25-34	319	10	7	14	0	14	*
35-44	310	15	11	20	0	18	
45-54	268	17	11	22	0	19	
55-64	217	15	6	23	0	16	
Aust/NZ	797	13	10	16	0	16	*
UK/Ireland	145	17	4	29	0	16	
O'Europe	78	5	2	9	0	11	*
Asia	46	17	3	31	7	23	
Other	48	21	8	34	0	28	

	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Proportion consuming (%)	Test of significance
FEMALES aged 25-64 years							
1983							
All	3,233	17	15	18	0	33	
25-34	869	17	15	19	0	34	
35-44	895	17	15	19	0	35	
45-54	727	15	13	17	0	33	
55-64	742	16	14	19	0	32	
Aust/NZ	2,456	18	16	19	0	35	
UK/Ireland	354	13	10	17	0	28	
O'Europe	304	15	12	18	0	32	
Asia	75	15	8	22	0	26	
Other	44	16	6	26	0	38	
1995 Comparable							
All	1,253	11	9	13	0	14	*
25-34	378	11	8	14	0	14	*
35-44	323	9	6	13	0	13	*
45-54	302	15	10	19	0	17	
55-64	250	8	4	11	0	11	*
Aust/NZ	881	11	9	14	0	14	*
UK/Ireland	163	10	5	15	0	14	
O'Europe	95	6	1	12	0	9	*
Asia	73	9	3	16	0	15	
Other	41	10	1	19	0	15	

* Difference between estimated means for 1983 and 1995 comparable subset is statistically significant at the 0.01 level

2.3.6 FATS AND OILS

This group includes only fats and oils used as spreads or added to food after preparation and not fats and oils in cooked or processed foods.

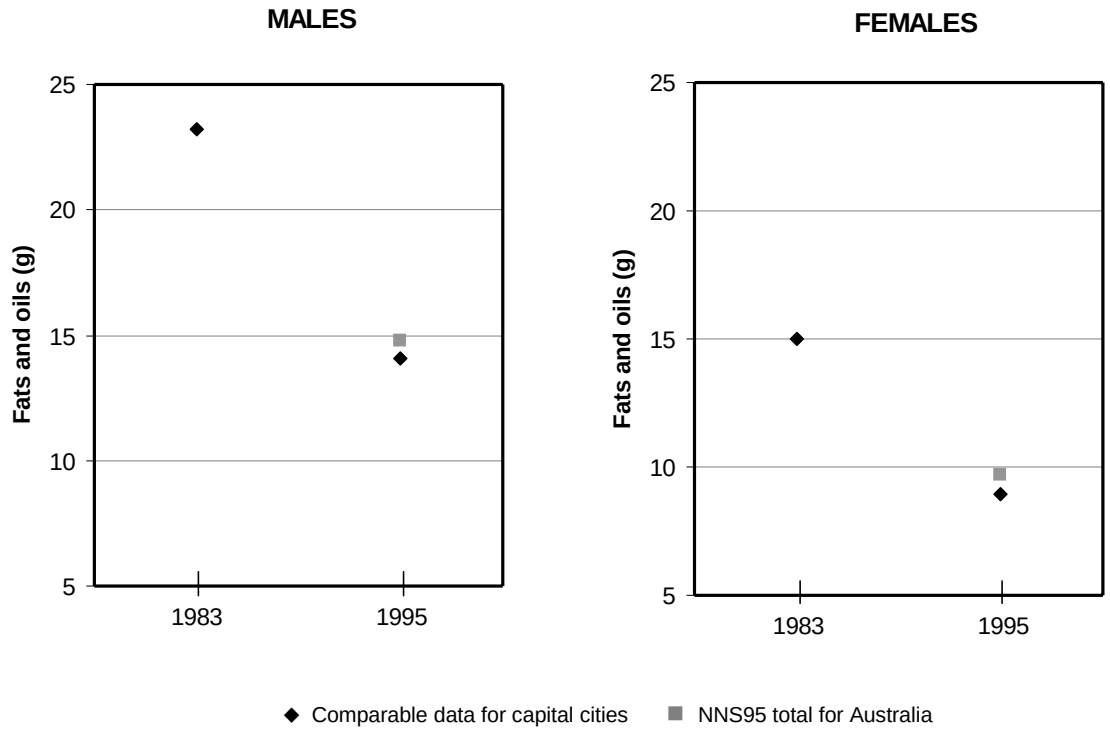
The percentage of men and women consuming any fats and oils on the day of the survey, decreased from over 80% in 1983 to 74% in 1995.

This was associated with a significant decrease in mean intake of fats and oils between 1985 and 1995 for all population subgroups except men and women born in Asia or 'Other' countries. On average, intake of fats and oils decreased by 6-9g per day between 1983 and 1995.

For both men and women, the estimate of fats and oils intake for the 1995 comparable data for capital cities was similar to the total NNS95 estimate for Australia.

Apparent Consumption data for butter and table margarine (but excluding oils and other fats) decreased from 30g to 25g per head per day between 1983 and 1995.

Figure 2.3.6 Estimated mean 24-hour intake of FATS AND OILS for adults



Source: SSDA 616, 1995 NNS and AFNMU

Table 2.3.6 Estimated 24-hour intake of FATS AND OILS for adults in capital cities

	MALES aged 25-64 years						
	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Proportion consuming (%)	Test of significance
1983							
All	3,021	23	22	24	18	82	
25-34	823	24	23	26	19	81	
35-44	823	23	21	25	19	80	
45-54	703	22	21	24	18	83	
55-64	672	22	21	24	18	88	
Aust/NZ	2,130	27	26	28	20	90	
UK/Ireland	389	22	20	24	17	85	
O'Europe	353	14	12	16	6	56	
Asia	89	16	12	20	13	65	
Other	60	14	9	19	4	60	
1995 Comparable							
All	1,114	14	13	15	11	74	*
25-34	319	13	11	15	10	69	*
35-44	310	15	13	17	12	73	*
45-54	268	15	13	17	12	78	*
55-64	217	14	12	15	11	78	*
Aust/NZ	797	15	14	17	12	77	*
UK/Ireland	145	13	11	15	11	77	*
O'Europe	78	8	6	11	2	60	*
Asia	46	9	5	13	4	59	
Other	48	9	5	13	7	59	

	FEMALES aged 25-64 years						
	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Proportion consuming (%)	Test of significance
1983							
All	3,233	15	15	16	10	84	
25-34	869	15	14	17	10	83	
35-44	895	15	14	16	10	82	
45-54	727	15	14	16	10	83	
55-64	742	15	14	16	11	89	
Aust/NZ	2,456	17	16	18	12	90	
UK/Ireland	354	15	13	16	12	86	
O'Europe	304	11	10	13	6	67	
Asia	75	8	6	10	4	54	
Other	44	7	4	10	4	48	
1995 Comparable							
All	1,253	9	8	10	6	74	*
25-34	378	8	7	9	5	72	*
35-44	323	9	8	11	6	75	*
45-54	302	9	8	11	6	73	*
55-64	250	10	8	12	8	77	*
Aust/NZ	881	10	9	10	6	77	*
UK/Ireland	163	10	9	11	8	82	*
O'Europe	95	7	5	9	6	64	*
Asia	73	5	3	6	1	53	
Other	41	7	4	11	4	59	

* Difference between estimated means for 1983 and 1995 comparable subset is statistically significant at the 0.01 level

2.3.7 FISH AND SEAFOOD PRODUCTS AND DISHES

This group includes all types of fish and seafood as well as fish and seafood dishes in which fish or seafood is the major component.

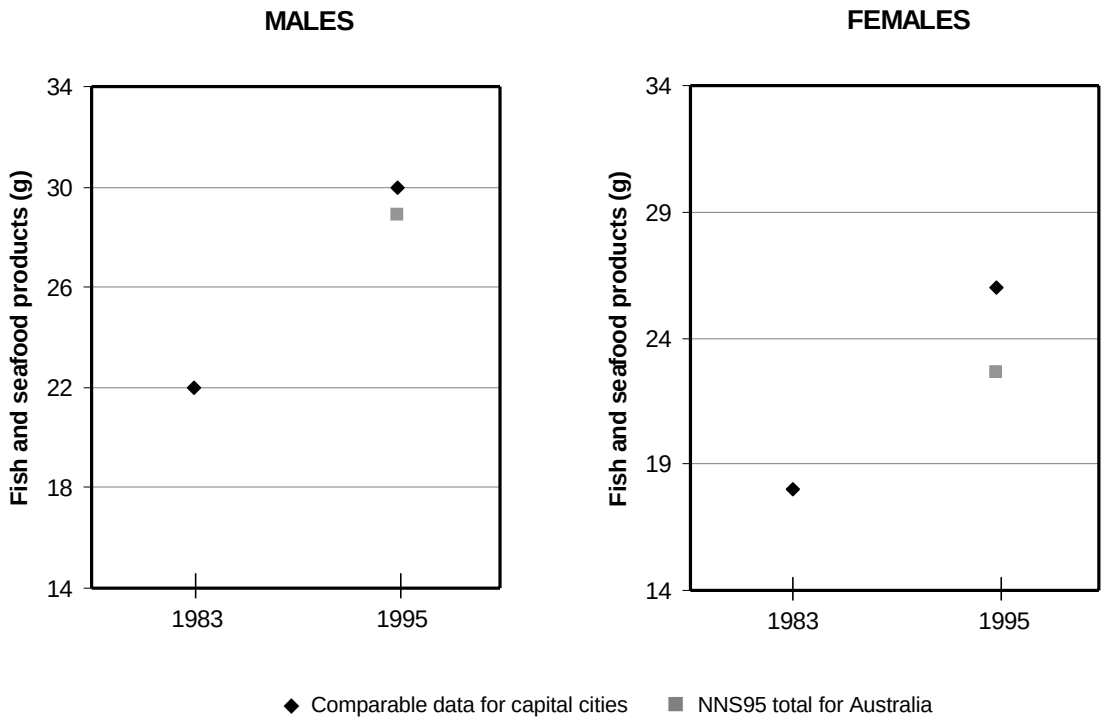
Overall there was no change between 1983 and 1995 in the percentage of men (19%) or women (20%) who consumed a fish or seafood product on the day of the survey.

Mean intake of fish and fish products, however, showed a significant increase of 8g per day for both men and women between 1983 and 1995. The increase in mean intake was also significant for men born in Australia or New Zealand and for women born in Asia.

For women, the estimate of fish intake for the 1995 comparable data for capital cities was about 3g higher than the total NNS95 estimate for Australia. For men, the difference was about 1g. Use of the NNS95 estimate for the comparison between 1983 and 1995 would have underestimated the difference in fish intake for women by about 40% but had little impact on the comparison for men.

Apparent Consumption data for seafood (including fish, crustacea and molluscs) increased by 8g per head per day between 1983 and 1995.

Figure 2.3.7 Estimated mean 24-hour intake of FISH AND SEAFOOD PRODUCTS AND DISHES for adults



Source: SSDA 616, 1995 NNS and AFNMU

Table 2.3.7 Estimated 24-hour intake of FISH AND SEAFOOD PRODUCTS AND DISHES for adults in capital cities

MALES aged 25-64 years

	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Proportion consuming (%)	Test of significance
1983							
All	3,021	22	19	24	0	19	
25-34	823	18	15	22	0	18	
35-44	823	24	20	29	0	20	
45-54	703	23	19	28	0	20	
55-64	672	21	17	26	0	19	
Aust/NZ	2,130	19	17	22	0	17	
UK/Ireland	389	31	24	38	0	26	
O'Europe	353	20	14	26	0	19	
Asia	89	28	14	42	0	33	
Other	60	16	2	30	0	13	
1995 Comparable							
All	1,114	30	25	35	0	19	*
25-34	319	26	17	35	0	16	
35-44	310	28	19	36	0	19	
45-54	268	32	21	43	0	21	
55-64	217	39	25	53	0	23	
Aust/NZ	797	31	25	38	0	18	*
UK/Ireland	145	28	17	39	0	17	
O'Europe	78	22	8	36	0	17	
Asia	46	66	37	94	0	36	
Other	48	13	1	26	0	21	

FEMALES aged 25-64 years

	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Proportion consuming (%)	Test of significance
1983							
All	3,233	18	16	20	0	20	
25-34	869	18	15	21	0	22	
35-44	895	19	16	23	0	20	
45-54	727	20	16	23	0	20	
55-64	742	15	12	18	0	18	
Aust/NZ	2,456	19	17	21	0	21	
UK/Ireland	354	18	13	24	0	18	
O'Europe	304	17	12	22	0	19	
Asia	75	17	8	27	0	26	
Other	44	13	3	23	0	16	
1995 Comparable							
All	1,253	26	21	30	0	20	*
25-34	378	20	13	26	0	17	
35-44	323	26	19	34	0	24	
45-54	302	34	22	45	0	20	
55-64	250	26	18	35	0	22	
Aust/NZ	881	25	20	29	0	19	
UK/Ireland	163	12	2	23	0	13	
O'Europe	95	28	11	45	0	23	
Asia	73	60	31	88	2	42	*
Other	41	12	1	22	0	19	

* Difference between estimated means for 1983 and 1995 comparable subset is statistically significant at the 0.01 level

2.3.8 FRUIT PRODUCTS AND DISHES

This group of foods includes all types of fruit and a small number of fruit dishes in which fruit is the major component. It excludes fruit consumed as fruit juices which are classified as non-alcoholic beverages.

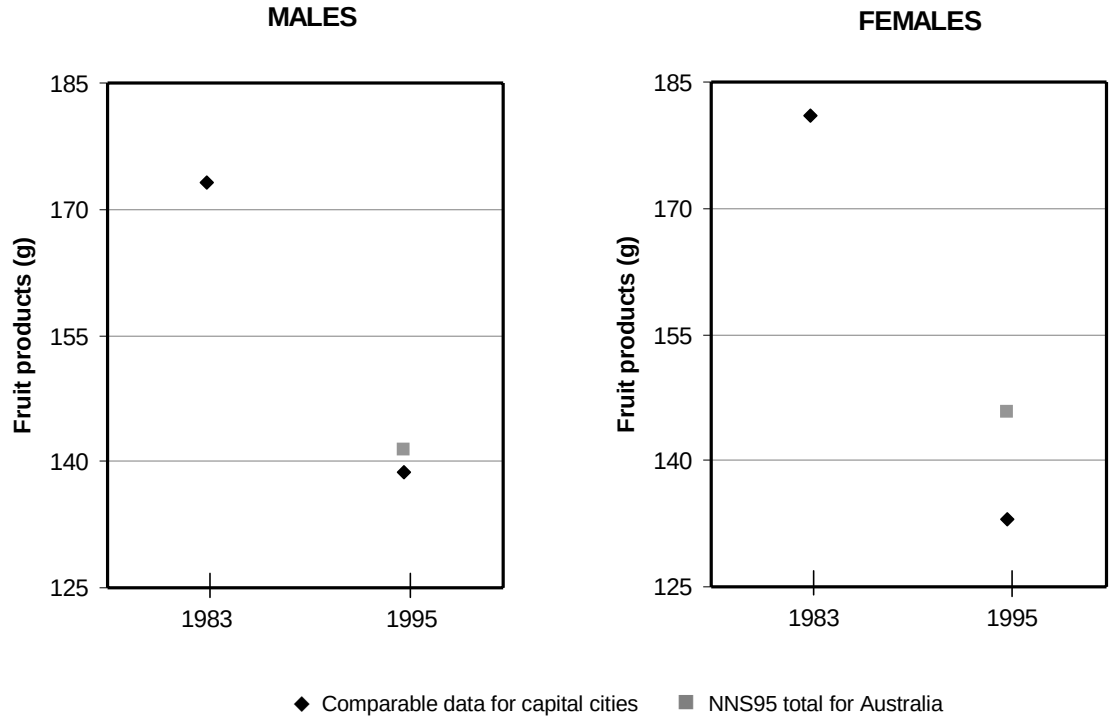
The percentage of the population consuming fruit on the day of the survey decreased for both men and women between 1983 and 1995. For men the decrease was from 59% to 53% and for women from 70% to 60%.

Mean intake of fruit also decreased by between 30g and 50g for men and women respectively, between 1983 and 1995. The only population subgroup for which both men and women showed a significant decrease in fruit intake was the group born in Australia or New Zealand.

For women, the estimate of fruit intake for the 1995 comparable data for capital cities was 13g lower than the total NNS95 estimate for Australia. Whereas, the difference for men was only about 2g. Use of the NNS95 estimate for the comparison between 1983 and 1995, would have underestimated the difference in fruit intake for women by about 25%.

Apparent consumption data for the fresh weight equivalent of fruit and fruit products increased between 1983 and 1995, by ~30g per head per day. The Apparent Consumption data are not directly comparable with the intake data for fruit because they include fruit used for fruit juice. Another reason for the apparent inconsistency between the data on fruit supply and on fruit intake is that more mixed dishes containing some fruit were included in the cereal-based foods group in 1995 than in 1983. Details are provided in section 2.3 of *The Bridging Study*.

Figure 2.3.8 Estimated mean 24-hour intake of FRUIT PRODUCTS AND DISHES for adults



Source: SSDA 616, 1995 NNS and AFNMU

Table 2.3.8 Estimated 24-hour intake of FRUIT PRODUCTS AND DISHES for adults in capital cities

MALES aged 25-64 years

	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Proportion consuming (%)	Test of significance
1983							
All	3,021	173	164	183	71	59	
25-34	823	159	143	175	48	55	
35-44	823	174	157	190	82	58	
45-54	703	185	162	208	84	58	
55-64	672	185	166	203	101	65	
Aust/NZ	2,130	169	159	179	71	59	
UK/Ireland	389	144	123	165	67	57	
O'Europe	353	195	159	230	70	57	
Asia	89	197	145	249	111	57	
Other	60	292	200	384	157	64	
1995 Comparable							
All	1,114	139	127	151	38	53	*
25-34	319	143	117	170	0	46	
35-44	310	106	88	124	0	48	*
45-54	268	159	134	183	86	61	
55-64	217	155	131	179	108	63	
Aust/NZ	797	129	115	143	31	49	*
UK/Ireland	145	117	91	143	50	57	
O'Europe	78	265	193	337	174	71	
Asia	46	179	129	229	165	58	
Other	48	136	98	174	78	65	*

FEMALES aged 25-64 years

	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Proportion consuming (%)	Test of significance
1983							
All	3,233	181	174	188	110	70	
25-34	869	183	168	197	102	67	
35-44	895	151	138	163	85	67	
45-54	727	191	175	206	136	73	
55-64	742	209	193	226	145	75	
Aust/NZ	2,456	170	162	178	105	69	
UK/Ireland	354	177	154	200	118	72	
O'Europe	304	191	164	218	92	69	
Asia	75	213	166	260	240	75	
Other	44	276	207	345	256	86	
1995 Comparable							
All	1,253	133	124	142	69	60	*
25-34	378	112	96	128	0	50	*
35-44	323	129	111	147	83	57	
45-54	302	138	120	156	101	66	*
55-64	250	170	149	192	135	76	*
Aust/NZ	881	127	117	138	69	58	*
UK/Ireland	163	116	90	141	58	55	*
O'Europe	95	143	108	179	94	69	
Asia	73	161	124	198	139	68	
Other	41	174	121	227	145	75	

* Difference between estimated means for 1983 and 1995 comparable subset is statistically significant at the 0.01 level

2.3.9 LEGUMES AND PULSE PRODUCTS AND DISHES

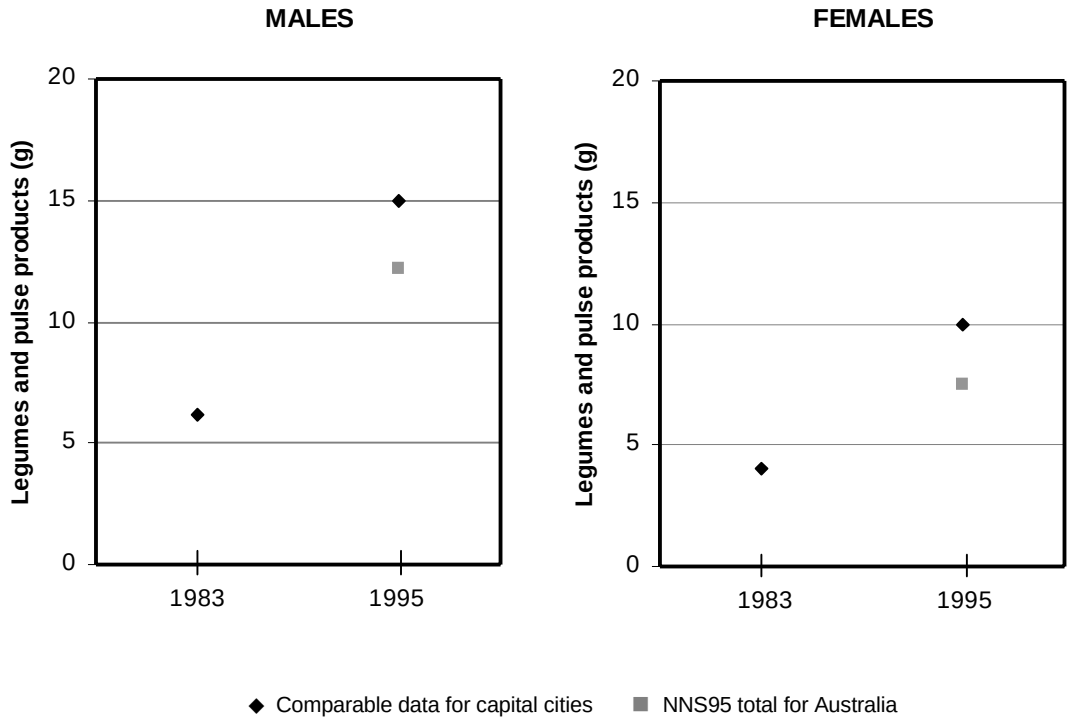
The percentage consuming legumes or pulse products on the day of the survey increased between 1983 and 1995 from 5% to 10% for men and from 5% to 8% for women. The mean intake also increased by 9g for men and 6g for women during this period.

For population subgroups significant increases in mean intake for both men and women were seen only in those aged 35-44 years and those born in Australia or New Zealand. Mean intake of pulses and legumes was highest for men and women born in Asia, approximately double that of the general population.

For both men and women, the estimate of legume intake for the 1995 comparable data for capital cities was higher than the total NNS95 estimate for Australia. Use of the NNS95 estimate for the comparison between 1983 and 1995 would therefore have underestimated the difference in legume intake by between 30% to 40%.

Apparent Consumption data for dried legumes and pulse products is not available for comparison with the intake data.

Figure 2.3.9 Estimated mean 24-hour intake of LEGUMES AND PULSE PRODUCTS AND DISHES for adults



Source: SSDA 616, 1995 NNS and AFNMU

Table 2.3.9 Estimated 24-hour intake of LEGUMES AND PULSE PRODUCTS AND DISHES for adults in capital cities

MALES aged 25-64 years

	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Proportion consuming (%)	Test of significance
1983							
All	3,021	6	5	8	0	5	
25-34	823	7	4	11	0	5	
35-44	823	6	4	9	0	6	
45-54	703	7	4	10	0	5	
55-64	672	3	2	5	0	4	
Aust/NZ	2,130	6	4	7	0	5	
UK/Ireland	389	7	3	12	0	5	
O'Europe	353	6	2	9	0	6	
Asia	89	7	0	14	0	11	
Other	60	7	0[a]	19	0	4	
1995 Comparable							
All	1,114	15	11	19	0	10	*
25-34	319	10	5	15	0	6	
35-44	310	20	11	30	0	10	*
45-54	268	20	12	28	0	12	*
55-64	217	9	5	14	0	11	
Aust/NZ	797	12	9	16	0	8	*
UK/Ireland	145	15	5	24	0	12	
O'Europe	78	8	1	15	0	8	
Asia	46	35	0[a]	74	0	26	
Other	48	16	0[a]	47	0	7	

FEMALES aged 25-64 years

	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Proportion consuming (%)	Test of significance
1983							
All	3,233	4	3	5	0	5	
25-34	869	3	2	5	0	5	
35-44	895	4	2	5	0	5	
45-54	727	6	3	8	0	6	
55-64	742	4	2	5	0	5	
Aust/NZ	2,456	3	3	4	0	5	
UK/Ireland	354	5	3	8	0	6	
O'Europe	304	6	2	10	0	6	
Asia	75	2	0	3	0	4	
Other	44	8	0[a]	18	0	8	
1995 Comparable							
All	1,253	10	7	12	0	8	*
25-34	378	10	5	15	0	6	*
35-44	323	11	6	16	0	11	*
45-54	302	9	5	13	0	9	
55-64	250	8	3	13	0	8	
Aust/NZ	881	10	7	13	0	7	*
UK/Ireland	163	10	4	16	0	9	
O'Europe	95	3	0[a]	6	0	5	
Asia	73	20	8	31	0	24	*
Other	41	3	0[a]	10	0	4	

* Difference between estimated means for 1983 and 1995 comparable subset is statistically significant at the 0.01 level

[a] Truncated to zero from negative estimate

2.3.10 MEAT, POULTRY AND GAME PRODUCTS AND DISHES

The percentage consuming any meat, poultry or game on the day of the survey decreased between 1983 and 1995 from 91% to 84% for men and from 86% to 75% for women.

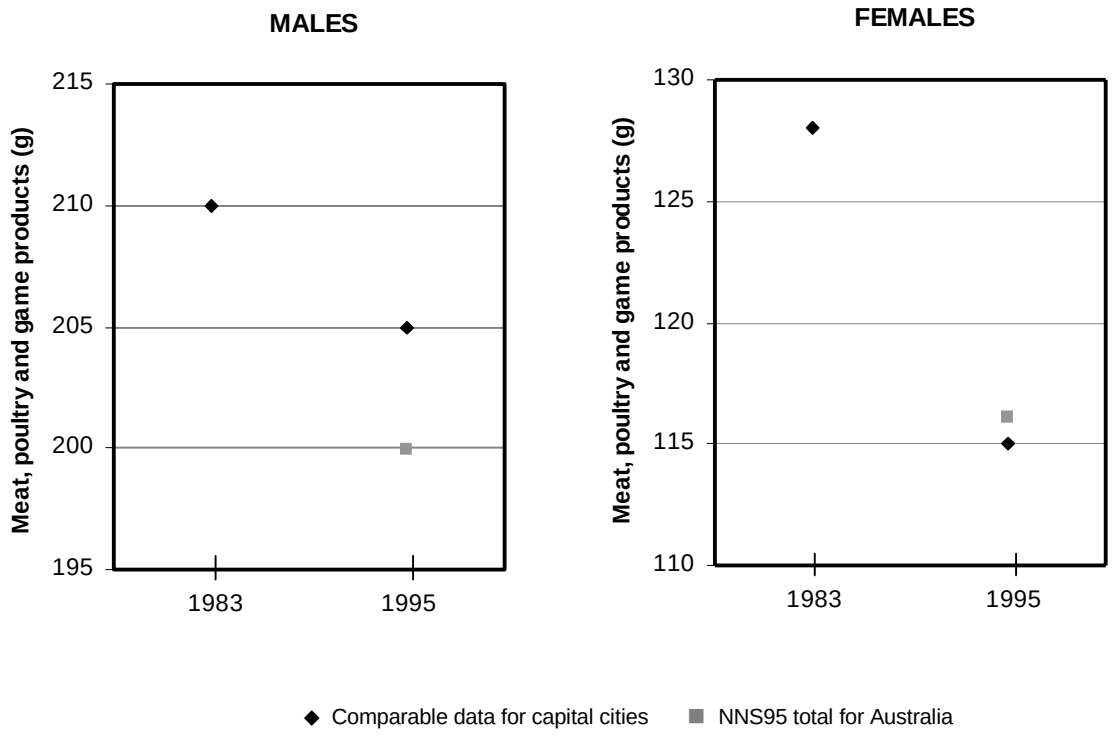
Mean intake also decreased by an average of 5g per day for men and 13g per day for women. Only the decrease for women was statistically significant.

For men, but not for women, the estimate of meat intake for the 1995 comparable data for capital cities was 5g higher than the total NNS95 estimate for Australia. Use of the NNS95 estimate for men, for the comparison between 1983 and 1995, would have overestimated the difference in meat intake by 100%.

The only population subgroup with a significant decrease in meat intake for both men and women was the group born in Australia or New Zealand for whom the average decrease was ~20g per day. Other population subgroups who had a significant decrease in meat intake (~60g per day) between 1983 and 1995 were women aged 55-64 years and women born in Other European countries.

Apparent Consumption data for carcass meat and dressed poultry decreased by an average of 20g per head per day over the period 1983 to 1995.

Figure 2.3.10 Estimated mean 24-hour intake of MEAT, POULTRY AND GAME PRODUCTS AND DISHES for adults



Note: Scale ranges differ for males and females

Source: SSDA 616, 1995 NNS and AFNMU

Table 2.3.10 Estimated 24-hour intake of MEAT, POULTRY AND GAME PRODUCTS AND DISHES for adults in capital cities

	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Proportion consuming (%)	Test of significance
MALES aged 25-64 years							
1983							
All	3,021	210	204	217	179	91	
25-34	823	224	211	237	193	90	
35-44	823	207	195	219	170	88	
45-54	703	204	192	215	171	93	
55-64	672	200	189	211	170	92	
Aust/NZ	2,130	221	214	228	189	92	
UK/Ireland	389	189	173	205	158	88	
O'Europe	353	205	187	224	171	87	
Asia	89	196	164	227	160	91	
Other	60	162	129	195	170	88	
1995 Comparable							
All	1,114	205	192	218	152	84	
25-34	319	214	189	240	152	83	
35-44	310	209	185	232	160	80	
45-54	268	219	191	247	160	88	
55-64	217	168	146	191	134	87	
Aust/NZ	797	198	184	213	144	83	*
UK/Ireland	145	192	164	221	157	88	
O'Europe	78	271	196	346	156	85	
Asia	46	261	196	326	189	90	
Other	48	193	138	248	173	79	

	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Proportion consuming (%)	Test of significance
FEMALES aged 25-64 years							
1983							
All	3,233	128	124	132	111	86	
25-34	869	134	126	142	109	86	
35-44	895	129	122	135	112	87	
45-54	727	122	115	129	110	86	
55-64	742	123	116	131	111	85	
Aust/NZ	2,456	130	126	134	111	86	
UK/Ireland	354	126	114	138	105	84	
O'Europe	304	133	121	144	126	84	
Asia	75	122	102	142	100	95	
Other	44	117	95	140	106	93	
1995 Comparable							
All	1,253	115	107	122	81	75	*
25-34	378	122	108	136	86	72	
35-44	323	110	96	125	81	75	
45-54	302	126	110	141	85	80	
55-64	250	97	84	110	65	73	*
Aust/NZ	881	113	105	121	77	75	*
UK/Ireland	163	112	93	131	83	75	
O'Europe	95	90	63	117	68	69	*
Asia	73	167	125	210	130	84	
Other	41	102	66	137	67	78	

* Difference between estimated means for 1983 and 1995 comparable subset is statistically significant at the 0.01 level

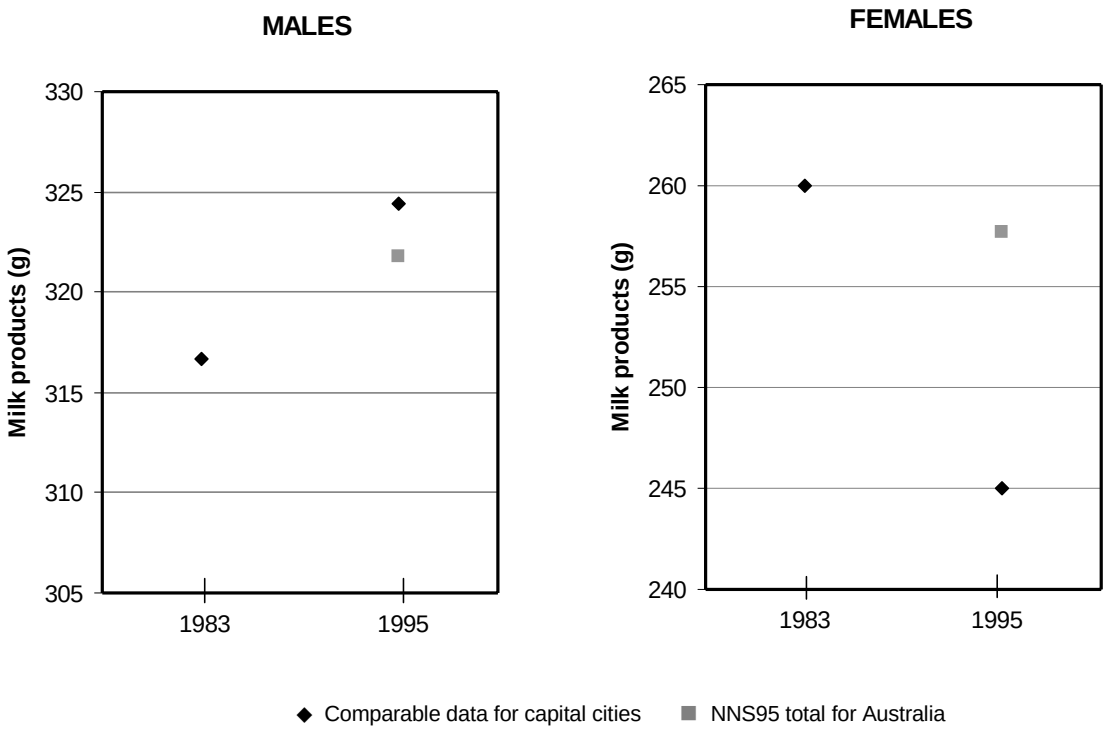
2.3.11 MILK PRODUCTS AND DISHES

On average 95% of the population consumed milk on the day of the survey in 1983 and 94% in 1995. The mean intake of milk also remained relatively unchanged over this period except for women born in Australia or New Zealand whose intake decreased by an average of ~25g per day.

For women, the estimate of milk intake for the 1995 comparable data for capital cities was 13g higher than the total NNS95 estimate for Australia. For men, the difference was much smaller (2g) and in the opposite direction. Use of the total NNS95 estimate for women for the comparison between 1983 and 1995 would have obscured the difference in milk intake.

Apparent Consumption data for dairy products (expressed as liquid milk) increased by just under 30g per head per day between 1983 and 1995. The inconsistent results obtained for intake and supply data may be explained by an increase in the use of milk for manufactured products other than cheese or powdered milk between 1983 and 1995.

Figure 2.3.11 Estimated mean 24-hour intake of MILK PRODUCTS AND DISHES for adults



Note: Scale ranges differ for males and females

Source: SSDA 616, 1995 NNS and AFNMU

Table 2.3.11 Estimated 24-hour intake of MILK PRODUCTS AND DISHES for adults in capital cities

	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Proportion consuming (%)	Test of significance
MALES aged 25-64 years							
1983							
All	3,021	317	306	327	259	95	
25-34	823	362	340	384	300	96	
35-44	823	308	289	327	240	96	
45-54	703	296	276	316	245	95	
55-64	672	272	255	289	233	95	
Aust/NZ	2,130	341	328	353	280	97	
UK/Ireland	389	348	322	375	309	99	
O'Europe	353	228	204	252	158	88	
Asia	89	228	174	283	152	94	
Other	60	218	164	272	156	88	
1995 Comparable							
All	1,114	324	305	344	250	94	
25-34	319	386	343	430	299	94	
35-44	310	294	261	327	227	96	
45-54	268	308	269	347	231	93	
55-64	217	276	238	313	217	91	
Aust/NZ	797	342	318	367	275	94	
UK/Ireland	145	307	263	350	249	97	
O'Europe	78	260	183	338	127	98	
Asia	46	193	122	263	125	84	
Other	48	271	204	338	227	82	

	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Proportion consuming (%)	Test of significance
FEMALES aged 25-64 years							
1983							
All	3,233	260	253	268	207	95	
25-34	869	278	263	293	232	95	
35-44	895	254	241	268	202	95	
45-54	727	247	231	263	194	95	
55-64	742	252	237	267	200	96	
Aust/NZ	2,456	271	262	280	220	97	
UK/Ireland	354	307	284	330	278	96	
O'Europe	304	213	192	234	169	92	
Asia	75	145	112	178	116	77	
Other	44	205	148	262	145	91	
1995 Comparable							
All	1,253	245	232	258	184	94	
25-34	378	266	240	292	195	94	
35-44	323	218	193	243	145	93	
45-54	302	228	206	251	195	95	
55-64	250	267	236	298	206	95	
Aust/NZ	881	247	231	262	188	95	*
UK/Ireland	163	295	255	334	211	97	
O'Europe	95	263	214	312	204	89	
Asia	73	205	157	253	165	87	
Other	41	230	170	290	225	96	

* Difference between estimated means for 1983 and 1995 comparable subset is statistically significant at the 0.01 level

2.3.12 NON-ALCOHOLIC BEVERAGES (EXCLUDING PLAIN DRINKING WATER)

The percentage of the population consuming a non-alcoholic beverage on the day of the survey decreased between 1983 and 1995, from 98% to 97% for men and from 99% to 98% for women.

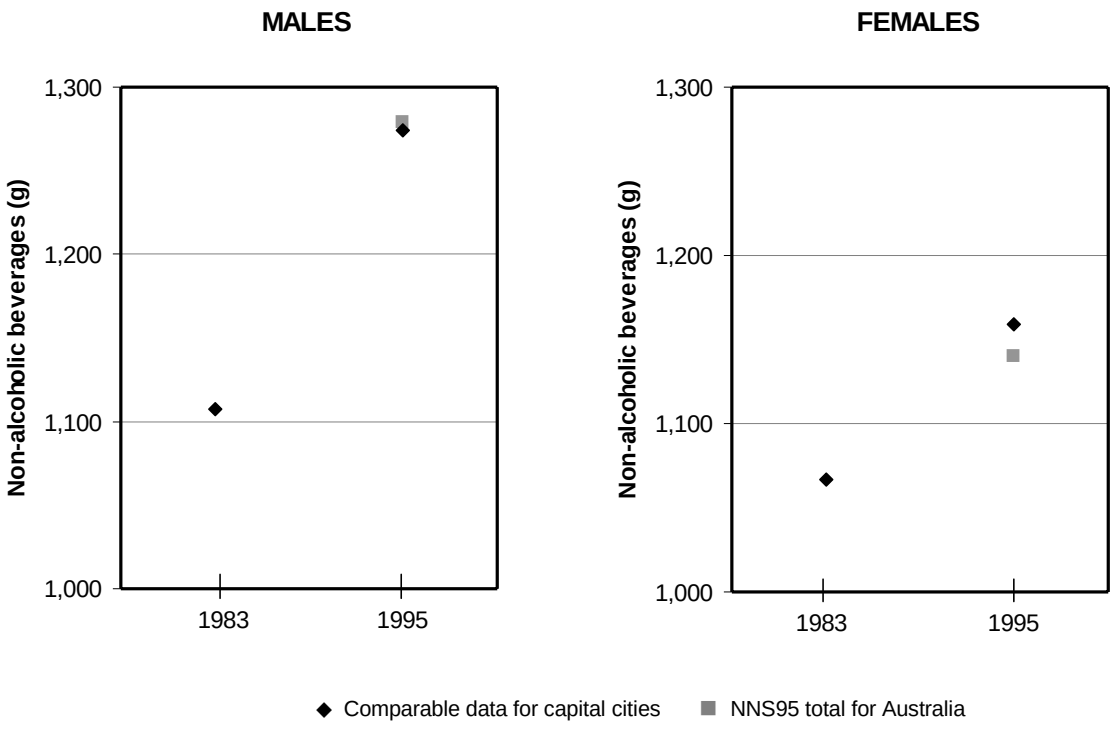
The mean intake of non-alcoholic beverages, however, increased significantly for both men (166g) and women (92g) over the same period but not for all population subgroups.

For women, the estimate of non-alcoholic beverage intake for the 1995 comparable data for capital cities was ~20g higher than the total NNS95 estimate for Australia. For men, the difference was much smaller and in the opposite direction. Use of the total NNS95 estimate for the comparison between 1983 and 1995 would have led to an underestimate of the difference in non-alcoholic beverage intake for women.

Population subgroups for which both men and women showed a significant increase in intake of non-alcoholic beverages included those aged 45-54 years and those born in Australia or New Zealand. Subgroups that did not have a significant increase in non-alcoholic beverage intake for either men or women were those aged 25-34 years and those born either in the UK or Ireland, in Asia, or in 'Other' countries.

Apparent Consumption data for non-alcoholic beverages cannot be compared directly with the intake data.

Figure 2.3.12 Estimated mean 24-hour intake of NON-ALCOHOLIC BEVERAGES (excluding plain drinking water) for adults



Source: SSDA 616, 1995 NNS and AFNMU

Table 2.3.12 Estimated 24-hour intake of NON-ALCOHOLIC BEVERAGES (excluding plain drinking water) for adults in capital cities

MALES aged 25-64 years

	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Proportion consuming (%)	Test of significance
1983							
All	3,021	1,108	1,071	1,144	1,025	98	
25-34	823	1,118	1,118	1,118	1,045	98	
35-44	823	1,124	1,124	1,124	1,006	99	
45-54	703	1,121	1,121	1,121	1,027	99	
55-64	672	1,050	1,050	1,050	1,000	98	
Aust/NZ	2,130	1,135	1,135	1,135	1,056	98	
UK/Ireland	389	1,337	1,337	1,337	1,226	100	
O'Europe	353	880	880	880	810	98	
Asia	89	1,026	1,026	1,026	988	99	
Other	60	934	934	934	913	100	
1995 Comparable							
All	1,114	1,274	1,225	1,323	1,160	97	*
25-34	319	1,185	1,097	1,273	1,068	94	
35-44	310	1,347	1,257	1,436	1,210	98	*
45-54	268	1,363	1,269	1,457	1,269	98	*
55-64	217	1,230	1,102	1,358	1,136	98	*
Aust/NZ	797	1,274	1,218	1,330	1,151	96	*
UK/Ireland	145	1,402	1,235	1,570	1,327	97	
O'Europe	78	1,253	1,068	1,438	1,155	99	*
Asia	46	811	646	977	797	98	
Other	48	1,187	969	1,406	1,212	98	

FEMALES aged 25-64 years

	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Proportion consuming (%)	Test of significance
1983							
All	3,233	1,067	1,032	1,101	1,004	99	
25-34	869	1,046	1,046	1,046	1,001	97	
35-44	895	1,100	1,100	1,100	1,012	100	
45-54	727	1,066	1,066	1,066	1,011	100	
55-64	742	1,059	1,059	1,059	1,000	99	
Aust/NZ	2,456	1,112	1,112	1,112	1,044	99	
UK/Ireland	354	1,195	1,195	1,195	1,144	100	
O'Europe	304	914	914	914	794	99	
Asia	75	728	728	728	637	82	
Other	44	872	872	872	815	100	
1995 Comparable							
All	1,253	1,159	1,122	1,196	1,079	98	*
25-34	378	1,093	1,021	1,164	1,036	95	
35-44	323	1,204	1,130	1,279	1,072	98	
45-54	302	1,204	1,132	1,277	1,078	99	*
55-64	250	1,164	1,091	1,238	1,169	99	
Aust/NZ	881	1,218	1,173	1,263	1,158	99	*
UK/Ireland	163	1,316	1,216	1,416	1,231	98	
O'Europe	95	942	829	1,055	768	100	
Asia	73	764	652	876	704	86	
Other	41	830	659	1,002	826	99	

* Difference between estimated means for 1983 and 1995 comparable subset is statistically significant at the 0.01 level

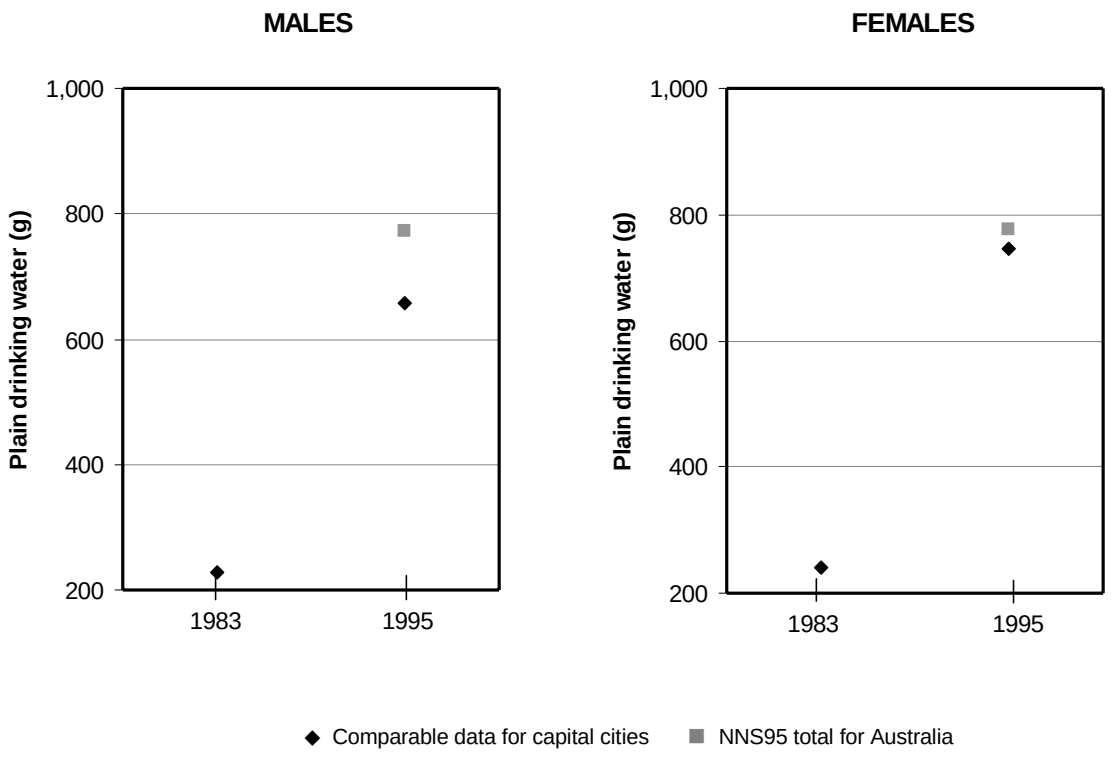
2.3.13 PLAIN DRINKING WATER

The percentage of the population who reported consuming some plain drinking water increased from 45% to 69% for men and from 50% to 78% for women between 1983 and 1995.

The mean intake of plain drinking water (water with nothing added to it) also increased significantly for both men (430g) and women (503g). The increase in mean intake was significant for all population subgroups. The procedure for collecting the information on plain drinking water was different in the two surveys and this may have introduced a systematic bias. Further details are provided in section 2.3 of *The Bridging Study*.

For men the estimate of plain water intake for the 1995 comparable data for capital cities was ~100g lower than the total NNS95 estimate for Australia. For women the difference was much smaller. Use of the NNS95 estimate for comparison between 1983 and 1995 would have led to an overestimate of the increase in plain water intake by men.

Figure 2.3.13 Estimated mean 24-hour intake of PLAIN DRINKING WATER for adults



Source: SSDA 616, 1995 NNS and AFNMU

Table 2.3.13 Estimated 24-hour intake of PLAIN DRINKING WATER for adults in capital cities

	MALES aged 25-64 years						
	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Proportion consuming (%)	Test of significance
1983							
All	3,021	227	213	242	0	45	
25-34	823	238	210	266	0	45	
35-44	823	211	183	238	0	42	
45-54	703	242	211	274	0	48	
55-64	672	215	186	244	0	46	
Aust/NZ	2,130	213	196	229	0	43	
UK/Ireland	389	190	155	225	0	40	
O'Europe	353	318	264	372	54	51	
Asia	89	316	232	400	142	59	
Other	60	256	179	332	165	61	
1995 Comparable							
All	1,114	657	611	703	453	69	*
25-34	319	820	720	921	500	73	*
35-44	310	579	504	654	500	67	*
45-54	268	639	545	732	500	69	*
55-64	217	500	423	578	250	65	*
Aust/NZ	797	660	606	715	447	69	*
UK/Ireland	145	544	426	663	340	63	*
O'Europe	78	532	390	675	302	65	*
Asia	46	683	508	859	472	84	*
Other	48	773	480	1,066	533	74	*

	FEMALES aged 25-64 years						
	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Proportion consuming (%)	Test of significance
1983							
All	3,233	242	226	257	31	50	
25-34	869	248	219	277	40	51	
35-44	895	226	198	254	0	48	
45-54	727	276	231	320	31	50	
55-64	742	216	192	240	63	54	
Aust/NZ	2,456	217	201	234	12	48	
UK/Ireland	354	163	129	196	40	45	
O'Europe	304	390	307	472	187	64	
Asia	75	314	237	390	199	58	
Other	44	315	201	428	169	65	
1995 Comparable							
All	1,253	745	702	789	584	78	*
25-34	378	856	775	937	750	80	*
35-44	323	750	661	839	500	79	*
45-54	302	679	590	769	500	75	*
55-64	250	617	539	695	500	77	*
Aust/NZ	881	736	685	787	528	77	*
UK/Ireland	163	635	533	737	453	75	*
O'Europe	95	810	626	994	433	77	*
Asia	73	1,002	786	1,217	848	89	*
Other	41	753	551	955	631	92	*

* Difference between estimated means for 1983 and 1995 comparable subset is statistically significant at the 0.01 level

2.3.14 SEED AND NUT PRODUCTS AND DISHES

The percentage consuming a seed or nut product decreased for both men and women from ~20% in 1983 to 14% in 1995.

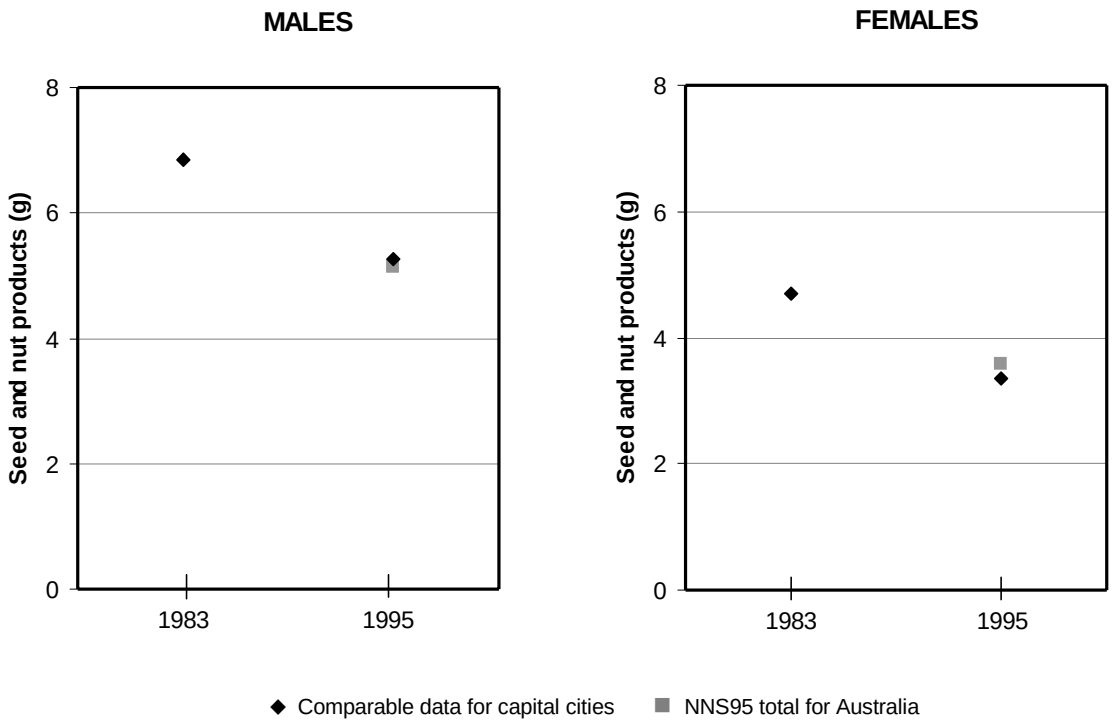
Mean intake also decreased by between 1-2g per day for men and women between 1983 and 1995, but the decrease was statistically significant for women only.

The estimated seed and nut intake for both men and women for the 1995 comparable data for capital cities was similar to that for the total NNS95 estimate for Australia. In this instance use of the total NNS95 estimate would have had no effect on seed and nut intake comparisons between 1983 and 1995.

Population subgroups with a significant decrease in seed and nut intake included men born in 'Other' countries (12g per day) and women aged 25-34 years (4g per day) and women born in the UK or Ireland (5g per day).

Comparable Apparent Consumption data are not available for this food group.

Figure 2.3.14 Estimated mean 24-hour intake of SEED AND NUT PRODUCTS AND DISHES for adults



Source: SSDA 616, 1995 NNS and AFNMU

Table 2.3.14 Estimated 24-hour intake of SEED AND NUT PRODUCTS AND DISHES for adults in capital cities

	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Proportion consuming (%)	Test of significance
MALES aged 25-64 years							
1983							
All	3,021	7	6	8	0	21	
25-34	823	8	6	9	0	22	
35-44	823	8	6	9	0	25	
45-54	703	6	4	8	0	20	
55-64	672	4	3	6	0	14	
Aust/NZ	2,130	7	6	8	0	21	
UK/Ireland	389	5	4	7	0	17	
O'Europe	353	6	5	8	0	22	
Asia	89	12	6	19	0	30	
Other	60	13	5	21	0	22	
1995 Comparable							
All	1,114	5	4	6	0	14	
25-34	319	7	4	10	0	14	
35-44	310	5	3	7	0	15	
45-54	268	3	1	5	0	11	
55-64	217	5	3	7	0	17	
Aust/NZ	797	5	4	7	0	14	
UK/Ireland	145	4	0	7	0	9	
O'Europe	78	6	1	11	2	22	
Asia	46	6	0	13	0	19	
Other	48	1	0[(a)]	3	0	8	*

	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Proportion consuming (%)	Test of significance
FEMALES aged 25-64 years							
1983							
All	3,233	5	4	5	0	22	
25-34	869	6	5	8	0	25	
35-44	895	5	4	6	0	24	
45-54	727	4	3	5	0	20	
55-64	742	3	2	3	0	16	
Aust/NZ	2,456	4	4	5	0	22	
UK/Ireland	354	8	6	10	0	27	
O'Europe	304	5	3	6	0	19	
Asia	75	5	2	7	1	20	
Other	44	6	2	10	0	26	
1995 Comparable							
All	1,253	3	3	4	0	14	*
25-34	378	4	2	5	0	16	*
35-44	323	3	2	5	0	14	
45-54	302	3	1	4	0	10	
55-64	250	4	1	6	0	13	
Aust/NZ	881	3	2	4	0	14	
UK/Ireland	163	3	2	5	0	12	*
O'Europe	95	3	0[(a)]	7	0	16	
Asia	73	5	2	8	0	13	
Other	41	3	0	7	0	15	

* Difference between estimated means for 1983 and 1995 comparable subset is statistically significant at the 0.01 level
[(a)] Truncated to zero from negative estimate

2.3.15 SNACK FOODS

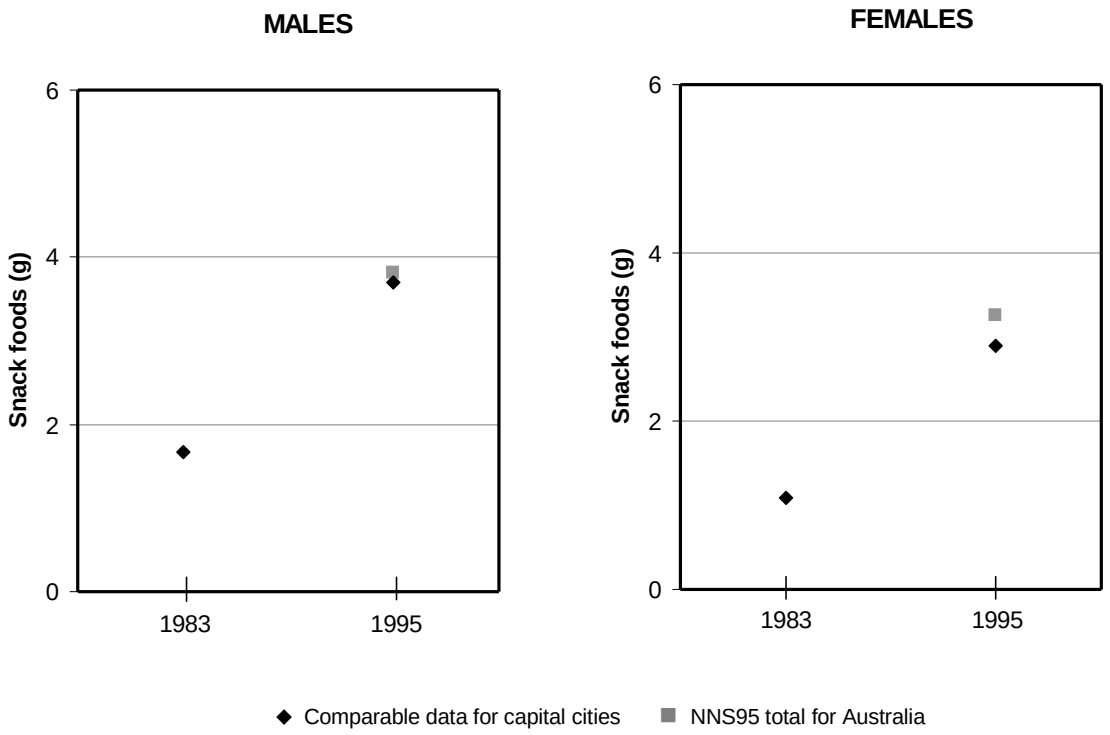
The percentage of the population consuming a snack food on the day of the survey, increased from 5% to 8% for men and from 5% to 7% for women between 1983 and 1995.

The mean intake of snack foods also increased between 1983 and 1995. The mean increase of 2g per day was statistically significant both for men and women overall and for men and women born in Australia or New Zealand. This increase represents a doubling in average daily snack food intake by adults between 1983 and 1985.

The estimate of snack food intake for both men and women for the 1995 comparable data for capital cities was similar to that for the total NNS95 estimate for Australia. Use of the total NNS95 estimate would therefore have had little impact on comparisons between 1983 and 1995 intake estimates.

Comparable Apparent Consumption data are not available for this food group.

Figure 2.3.15 Estimated mean 24-hour intake of SNACK FOODS for adults



Source: SSDA 616, 1995 NNS and AFNMU

Table 2.3.15 Estimated 24-hour intake of SNACK FOODS for adults in capital cities

	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Proportion consuming (%)	Test of significance
MALES aged 25-64 years							
1983							
All	3,021	2	1	2	0	5	
25-34	823	3	2	4	0	8	
35-44	823	1	1	2	0	4	
45-54	703	1	0	1	0	3	
55-64	672	0	0	1	0	2	
Aust/NZ	2,130	2	1	2	0	5	
UK/Ireland	389	3	2	4	0	7	
O'Europe	353	1	0	2	0	2	
Asia	89	2	0	5	0	9	
Other	60	3	0	6	0	8	
1995 Comparable							
All	1,114	4	3	5	0	8	*
25-34	319	6	4	9	0	13	
35-44	310	3	1	5	0	6	
45-54	268	3	1	4	0	8	*
55-64	217	1	0	2	0	3	
Aust/NZ	797	4	3	5	0	8	*
UK/Ireland	145	3	1	6	0	6	
O'Europe	78	2	0[(a)]	5	0	3	
Asia	46	1	0	1	0	9	
Other	48	4	0	8	0	15	

	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Proportion consuming (%)	Test of significance
FEMALES aged 25-64 years							
1983							
All	3,233	1	1	1	0	5	
25-34	869	1	1	1	0	5	
35-44	895	2	1	3	0	7	
45-54	727	1	0	1	0	4	
55-64	742	0	0	1	0	2	
Aust/NZ	2,456	1	1	1	0	5	
UK/Ireland	354	2	1	2	0	6	
O'Europe	304	0	0	1	0	3	
Asia	75	1	0	1	0	2	
Other	44	1	0	2	0	4	
1995 Comparable							
All	1,253	3	2	4	0	7	*
25-34	378	6	3	8	0	11	*
35-44	323	2	1	3	0	8	
45-54	302	2	1	3	0	5	
55-64	250	1	0	1	0	2	
Aust/NZ	881	3	2	4	0	8	*
UK/Ireland	163	3	1	5	0	5	
O'Europe	95	0	0	0	0	1	
Asia	73	1	0	2	0	6	
Other	41	4	0	8	0	13	

* Difference between estimated means for 1983 and 1995 comparable subset is statistically significant at the 0.01 level

[(a)] Truncated to zero from negative estimate

2.3.16 SOUP

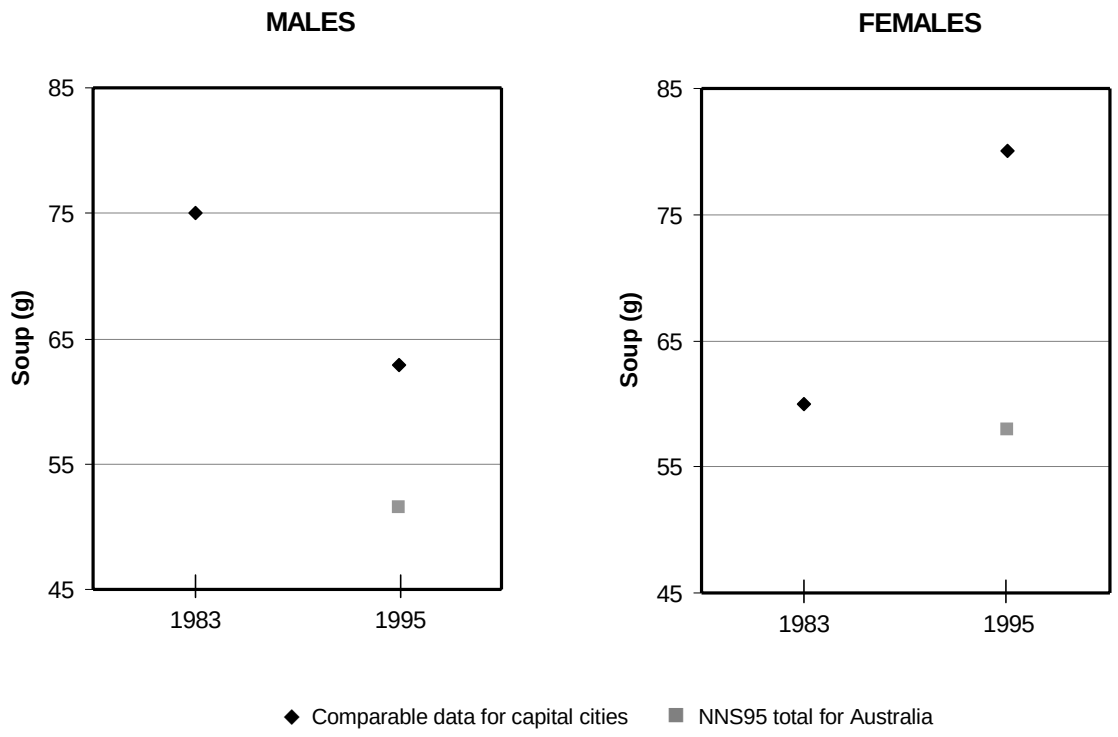
The percentage of the population consuming soup decreased from 18% to13% for men but remained constant for women (18%) between 1983 and 1995.

For men, the mean intake of soup decreased but not significantly between 1983 and 1995. For women overall and for women born in Australia or New Zealand, mean intake of soup increased significantly and by an average of about 20g per day.

The estimate of soup intake for the 1995 comparable data for capital cities was higher than the total NNS95 estimate for Australia for both men and women. Use of the total NNS95 estimate for the comparison between 1983 and 1995 would have obscured the significant difference in soup intake for women.

Comparable Apparent Consumption data for soup are not available.

Figure 2.3.16 Estimated mean 24-hour intake of SOUP for adults



Source: SSDA 616, 1995 NNS and AFNMU

Table 2.3.16 Estimated 24-hour intake of SOUP for adults in capital cities

	MALES aged 25-64 years						
	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Proportion consuming (%)	Test of significance
1983							
All	3,021	75	68	82	0	18	
25-34	823	68	55	80	0	17	
35-44	823	76	62	91	0	17	
45-54	703	78	63	93	0	18	
55-64	672	84	69	99	0	20	
Aust/NZ	2,130	58	52	65	0	15	
UK/Ireland	389	71	52	91	0	18	
O'Europe	389	133	114	153	0	24	
Asia	89	119	76	163	0	32	
Other	60	79	28	130	0	19	
1995 Comparable							
All	1,114	63	52	74	0	13	
25-34	319	36	20	51	0	8	*
35-44	310	55	36	73	0	11	
45-54	268	76	53	99	0	17	
55-64	217	108	76	140	0	22	
Aust/NZ	797	52	41	63	0	11	
UK/Ireland	145	58	27	89	0	13	
O'Europe	78	112	49	175	0	21	
Asia	46	103	37	169	0	26	
Other	48	91	32	149	0	17	

	FEMALES aged 25-64 years						
	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Proportion consuming (%)	Test of significance
1983							
All	3,233	60	55	66	0	18	
25-34	869	70	59	82	0	20	
35-44	895	45	37	54	0	14	
45-54	727	58	46	69	0	18	
55-64	742	66	56	77	0	21	
Aust/NZ	2,456	50	44	55	0	16	
UK/Ireland	354	42	32	52	0	20	
O'Europe	304	103	78	127	0	24	
Asia	75	133	78	188	0	35	
Other	44	42	14	69	0	11	
1995 Comparable							
All	1,253	80	69	91	0	18	*
25-34	378	83	61	106	0	16	
35-44	323	65	44	87	0	15	
45-54	302	82	61	103	0	21	
55-64	250	92	69	115	0	25	
Aust/NZ	881	72	59	85	0	17	*
UK/Ireland	163	67	38	95	0	14	
O'Europe	95	65	28	102	0	23	
Asia	73	142	81	202	0	29	
Other	41	110	46	174	0	24	

* Difference between estimated means for 1983 and 1995 comparable subset is statistically significant at the 0.01 level

2.3.17 SUGAR PRODUCTS AND DISHES

The sugar products and dishes group includes sugar, honey, syrups, jams and marmalades and dishes and products other than confectionery where sugar is the major component.

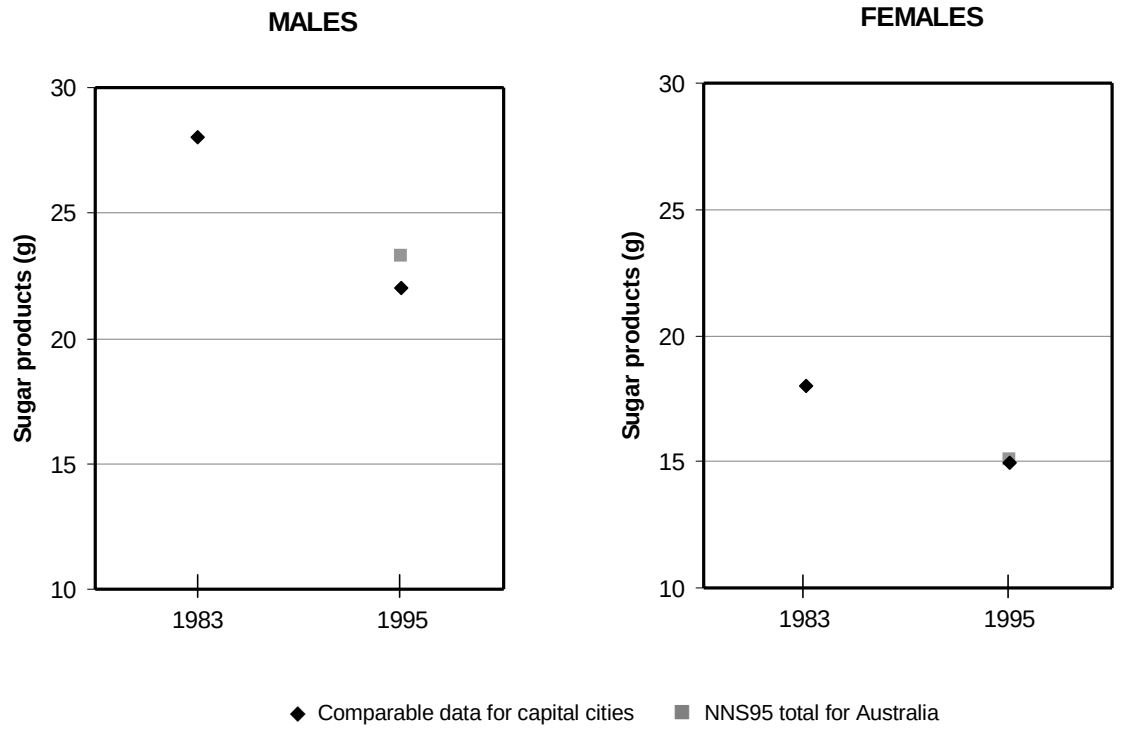
The percentage of the population consuming a sugar product on the day of the survey, decreased for men from 81% to 73% and for women from 72% to 62% between 1983 and 1995.

Mean intake of sugar products also decreased significantly between 1983 and 1995, by 6g per day for men and 3g per day for women.

For men, but not women, the estimate of sugar product intake for the 1995 comparable data for capital cities was 1g lower than the total NNS95 estimate for Australia. Therefore, use of the total NNS95 estimate for the comparison between 1983 and 1995 would have slightly underestimated the difference in sugar intake for men.

Changes in the Apparent Consumption data for sugars between 1983 and 1995 show a decrease of ~4g per head per day in the sugar supply. This result is consistent with that found in intake data relating to sugar products and dishes even though apparent consumption data for sugars, which includes sugars in manufactured foods, may not be directly comparable with intake data for sugar products and dishes.

Figure 2.3.17 Estimated mean 24-hour intake of SUGAR PRODUCTS AND DISHES for adults



Source: SSDA 616, 1995 NNS and AFNMU

Table 2.3.17 Estimated 24-hour intake of SUGAR PRODUCTS AND DISHES for adults in capital cities

MALES aged 25-64 years

	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Proportion consuming (%)	Test of significance
1983							
All	3,021	28	27	29	18	81	
25-34	823	29	26	31	20	82	
35-44	823	28	26	30	19	83	
45-54	703	27	24	30	17	80	
55-64	672	27	25	30	17	79	
Aust/NZ	2,130	28	27	30	19	82	
UK/Ireland	389	33	29	38	22	81	
O'Europe	353	24	21	27	17	83	
Asia	89	22	17	27	15	75	
Other	60	26	20	33	19	73	
1995 Comparable							
All	1,114	22	20	24	13	73	*
25-34	319	20	17	24	8	69	*
35-44	310	22	18	25	14	74	*
45-54	268	24	20	27	17	77	
55-64	217	23	19	27	14	76	
Aust/NZ	797	22	20	24	14	73	*
UK/Ireland	145	22	16	28	13	72	*
O'Europe	78	19	12	27	14	79	
Asia	46	11	7	14	7	72	*
Other	48	18	8	28	7	74	

FEMALES aged 25-64 years

	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Proportion consuming (%)	Test of significance
1983							
All	3,233	18	17	18	10	72	
25-34	869	17	15	19	11	69	
35-44	895	19	17	21	12	78	
45-54	727	18	16	20	9	72	
55-64	742	16	14	17	7	67	
Aust/NZ	2,456	19	18	20	10	72	
UK/Ireland	354	17	15	20	12	73	
O'Europe	304	16	13	19	7	72	
Asia	75	15	10	19	8	65	
Other	44	14	9	18	12	68	
1995 Comparable							
All	1,253	15	13	17	6	62	*
25-34	378	17	14	20	8	66	
35-44	323	12	9	16	3	54	*
45-54	302	14	11	17	5	65	*
55-64	250	17	12	21	5	62	
Aust/NZ	881	16	14	18	5	60	
UK/Ireland	163	14	10	18	7	60	
O'Europe	95	13	9	17	8	75	
Asia	73	8	6	11	6	59	
Other	41	11	6	16	5	78	

* Difference between estimated means for 1983 and 1995 comparable subset is statistically significant at the 0.01 level

2.3.18 VEGETABLE PRODUCTS AND DISHES

The percentage of the population consuming a vegetable product on the day of the survey decreased between 1983 and 1995, from 91% to 89% for men and from 92% to 89% for women.

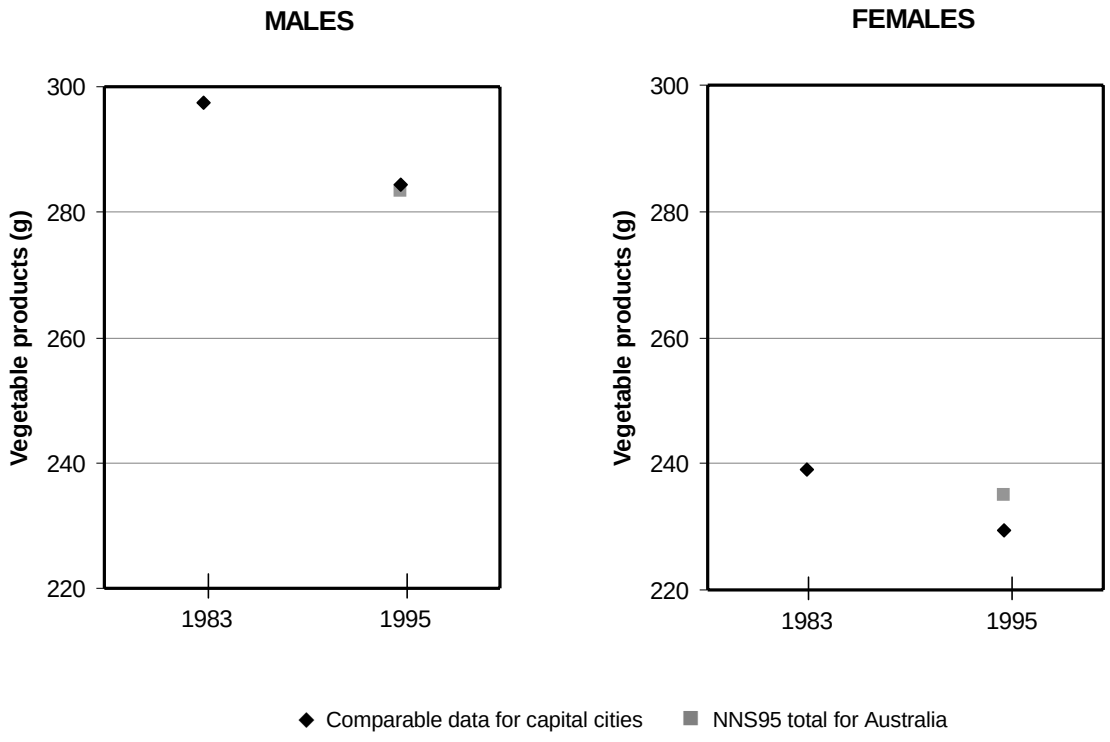
The mean intake of vegetables also decreased by about 11g per day between 1983 and 1995, but the decrease was not significant overall or for any of the population subgroups assessed.

For women, but not men, the estimate of vegetable intake for the 1995 comparable data for capital cities was 5g lower than the total NNS95 estimate for Australia. Use of the NNS95 estimate for the comparison between 1983 and 1995 would have underestimated the small but non-significant difference in vegetable intake for women.

Apparent Consumption data for the vegetable supply, expressed as the fresh weight equivalent, showed an increase of ~60g per head per day over the period 1983 to 1995.

There is no obvious explanation for the inconsistency between the intake and supply data for vegetables. In part the observed decrease in vegetable intake between 1983 and 1995, may be due to more mixed dishes (that contain some vegetables) being classified to food groups other than the vegetable group in 1995.

Figure 2.3.18 Estimated mean 24-hour intake of VEGETABLE PRODUCTS AND DISHES for adults



Source: SSDA 616, 1995 NNS and AFNMU

Table 2.3.18 Estimated 24-hour intake of VEGETABLE PRODUCTS AND DISHES for adults in capital cities

MALES aged 25-64 years

	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Proportion consuming (%)	Test of significance
1983							
All	3,021	298	289	306	267	91	
25-34	823	298	282	315	261	89	
35-44	823	304	287	320	274	93	
45-54	703	290	273	307	264	90	
55-64	672	296	278	313	267	92	
Aust/NZ	2,130	313	303	322	293	93	
UK/Ireland	389	309	284	334	266	90	
O'Europe	353	249	225	273	219	86	
Asia	89	207	162	251	154	92	
Other	60	303	220	387	237	89	
1995 Comparable							
All	1,114	284	270	299	226	89	
25-34	319	271	244	297	214	86	
35-44	310	275	246	304	194	88	
45-54	268	306	278	334	238	92	
55-64	217	299	269	329	282	92	
Aust/NZ	797	292	275	309	240	88	
UK/Ireland	145	297	253	341	270	89	
O'Europe	78	240	190	289	189	91	
Asia	46	172	125	219	122	91	
Other	48	265	209	321	260	96	

FEMALES aged 25-64 years

	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Proportion consuming (%)	Test of significance
1983							
All	3,233	239	233	245	215	92	
25-34	869	234	222	246	193	93	
35-44	895	239	227	250	221	92	
45-54	727	235	222	247	216	93	
55-64	742	254	241	266	242	92	
Aust/NZ	2,456	236	229	243	216	92	
UK/Ireland	354	275	258	292	285	95	
O'Europe	304	244	223	266	218	89	
Asia	75	179	144	214	141	94	
Other	44	236	175	297	180	98	
1995 Comparable							
All	1,253	229	219	240	202	89	
25-34	378	215	197	233	180	89	
35-44	323	223	201	245	195	86	
45-54	302	247	226	268	218	91	
55-64	250	244	220	268	233	89	
Aust/NZ	881	238	225	251	210	89	
UK/Ireland	163	254	224	283	231	93	
O'Europe	95	202	166	237	169	81	
Asia	73	177	147	206	179	89	
Other	41	209	159	258	230	89	

Chapter 3

3.0 Comparison of 1985 and 1995 surveys (children)

The following pages provide comparable data on food and nutrient intake and physical measurements from the 1985 National Dietary Survey of Schoolchildren and the 1995 National Nutrition Survey.

3.1 ANTHROPOMETRIC INDICATORS

3.1.1 HEIGHT

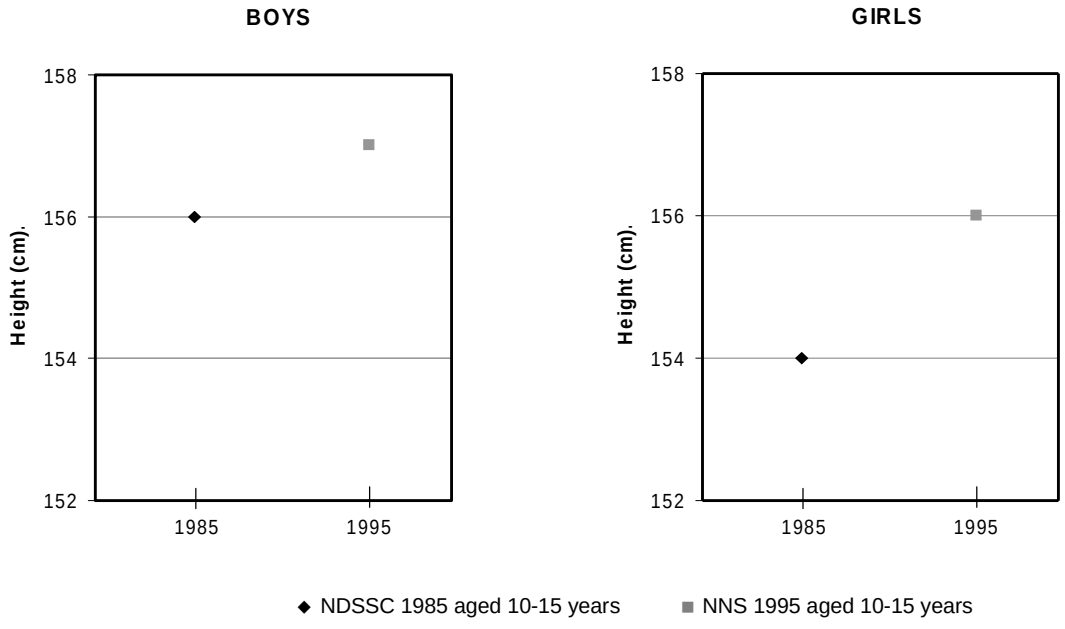
Table 3.1.1 Estimated HEIGHT for children

	CHILDREN aged 10-15 years					
	Sample size	Mean height (cm)	95% CI mean Lower	95% CI mean Upper	Median height (cm)	Test of significance
Boys						
1985	2,533	155.8	155.3	156.3	155.3	
1995 Total	543	157.4	156.3	158.6	155.9	*
Girls						
1985	2,506	153.9	153.5	154.3	155.1	
1995 Total	487	155.9	155.0	156.7	157.0	*

* Difference between estimated means for 1985 and 1995 comparable subset is statistically significant at the 0.01 level

Mean height increased significantly for both boys and girls between 1985 and 1995. For boys the mean increase was 1.6cm and for girls 2.0cm. The increase is not due to a difference in the age distribution of the group aged 10-15 years between the two surveys. The increase is also much greater than the technical error of measurement for height. It is most likely, therefore, that the increase represents a continuing secular increase in height for this age group.

Figure 3.1.1 Estimated HEIGHT for children



Source: SSDA 617, 1995 NNS and AFNMU

3.1.2 WEIGHT

Table 3.1.2 Estimated WEIGHT for children

	CHILDREN aged 10-15 years					
	Sample size	Mean weight (kg)	95% CI mean Lower	Upper	Median weight (kg)	Test of significance
Boys						
1985	2,619	45.3	44.8	45.9	44.5	
1995 Total	543	50.1	48.9	51.4	48.4	*
Girls						
1985	2,591	44.9	44.4	45.4	46.0	
1995 Total	487	51.4	47.7	55.0	49.4	*

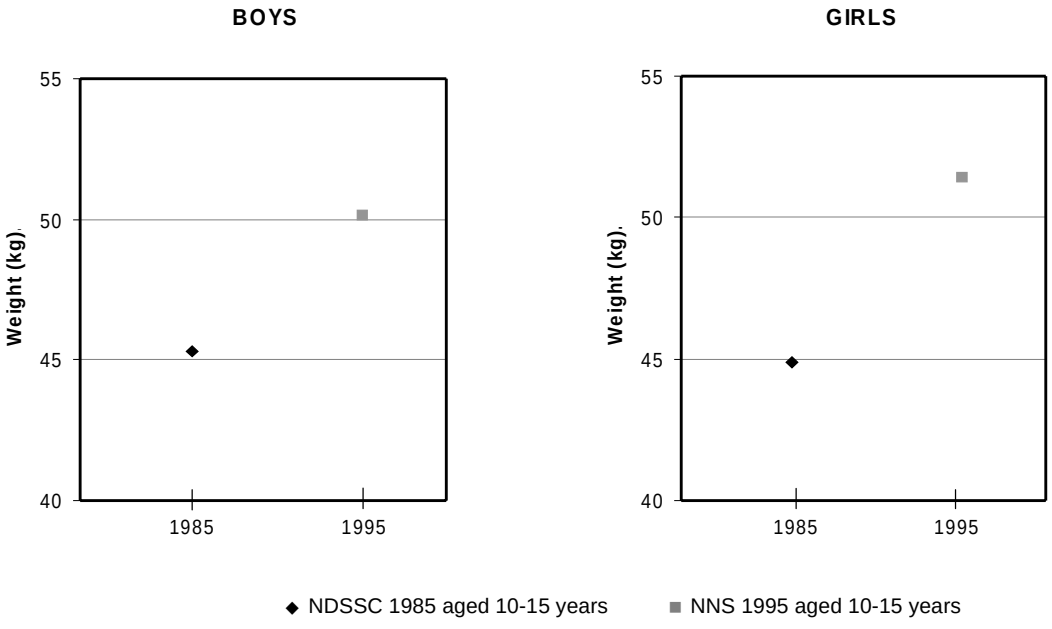
* Difference between estimated means for 1985 and 1995 comparable subset is statistically significant at the 0.01 level

Mean weight also increased significantly for both boys and girls between 1985 and 1995. For boys the mean increase was 4.8kg and for girls 6.5kg.This increase is only partly due to the increase in height since 1985 and is much greater than has been observed previously in Australian children of this age over longer intervals of time (Rutishauser 1997).

The level of increase is similar to that observed for male and female adults between 1983 and 1995 and suggests that there has been a significant increase in body energy stores both for children and adults. This could be a result of an increase in energy intake or a decrease in physical activity or both.

Energy intake expressed per cm of height has increased by 10-13% since 1985 for both boys and girls and this suggests that an increase in energy intake is at least part of the reason for the marked increase in body weight.

Figure 3.1.2 Estimated WEIGHT for children



Source: SSDA 617, 1995 NNS and AFNMU

3.1.3 BODY MASS INDEX (BMI)

Table 3.1.3 Estimated BODY MASS INDEX (BMI) for children

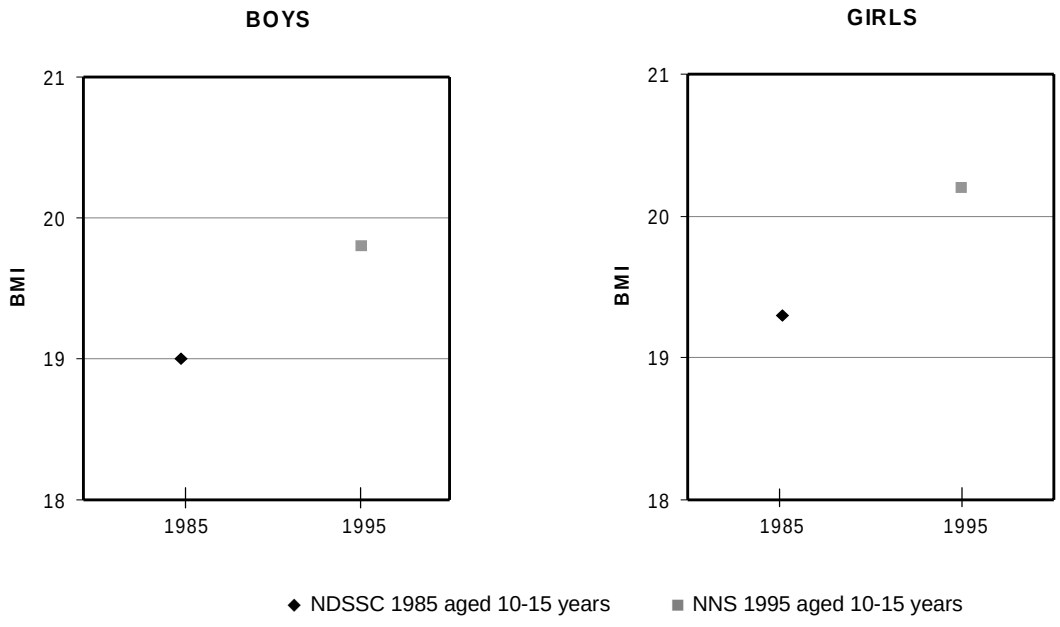
	CHILDREN aged 10-15 years					
	Sample size	Mean BMI	95% CI mean Lower	Upper	Median BMI	Test of significance
Boys						
1985	2,533	19.0	18.9	19.1	18.6	
1995 Total	543	19.8	19.5	20.1	19.2	*
Girls						
1985	2,506	19.3	19.2	19.5	19.0	
1995 Total	486	20.2	19.9	20.5	19.8	*

* Difference between estimated means for 1985 and 1995 comparable subset is statistically significant at the 0.01 level

Mean body mass index increased significantly for both boys and girls between 1985 and 1995. For boys the mean increase was 0.8kg/m^2 and for girls 0.9kg/m^2 since 1985.

As indicated in section 3.1.2, part of the reason for the increase is likely to be the significant increase in energy intake for this age group between 1985 and 1995.

Figure 3.1.3 Estimated BODY MASS INDEX (BMI) for children



Source: SSDA 617, 1995 NNS and AFNMU

3.1.4 ENERGY INTAKE OVER BASAL METABOLIC RATE (EI/BMR)

Table 3.1.4 Estimated ENERGY INTAKE OVER BASAL METABOLIC RATE (EI/BMR) for children

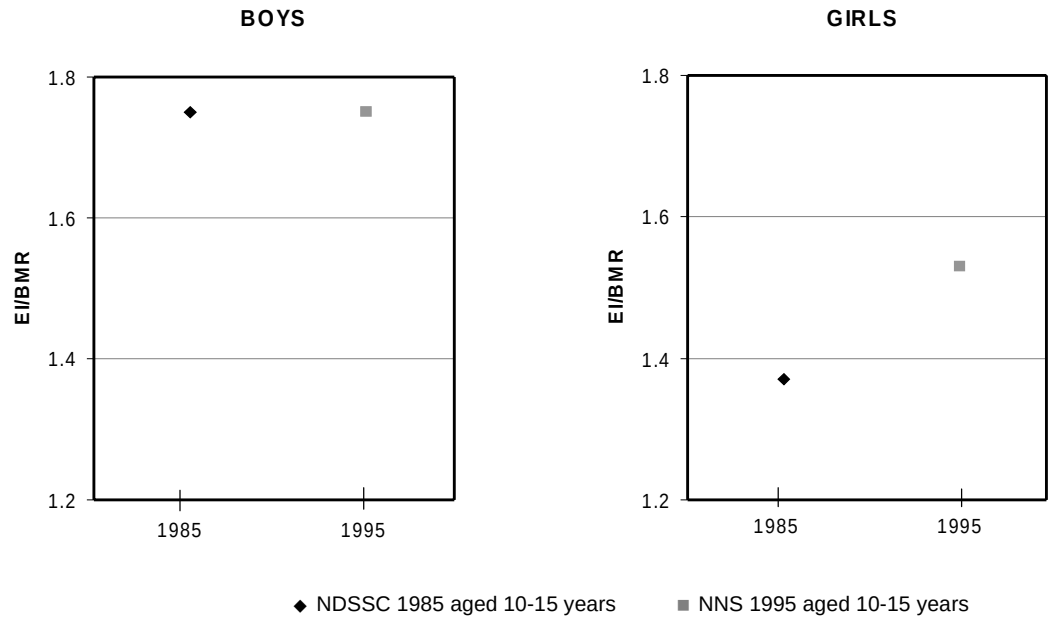
	CHILDREN aged 10-15 years					
	Sample size	Mean	95% CI mean Lower	Upper	Median	Test of significance
Boys						
1985	2,619	1.75	1.73	1.78	1.66	
1995 Total	543	1.75	1.69	1.80	1.70	
Girls						
1985	2,591	1.37	1.35	1.39	1.32	
1995 Total	487	1.53	1.47	1.58	1.45	*

* Difference between estimated means for 1985 and 1995 comparable subset is statistically significant at the 0.01 level

For boys, mean energy intake relative to basal metabolic rate was 1.75 both in 1985 and 1995. For girls, however, there was a significant increase from 1.37 to 1.53. Desirable levels of energy expenditure for adolescents are estimated to be between 1.6 and 1.8 times basal metabolic rate for boys and between 1.5 and 1.7 for girls (NHMRC 1991). For boys reported energy intake approximated the desirable level of energy expenditure both in 1985 and 1995 while that for girls was below the desirable range in 1985 and at the lower end of the range in 1995.

The marked increase in body weight between 1985 and 1995 for both boys and girls is not due to a level of energy intake that exceeds the desirable level of energy expenditure. One must conclude, therefore, that either the estimates of energy intake for this age group are under-estimates, or that energy expenditure is less than the reported energy intake.

Figure 3.1.4 Estimated ENERGY INTAKE OVER BASAL METABOLIC RATE (EI/BMR) for children



Source: SSDA 617, 1995 NNS and AFNMU

3.2 NUTRIENTS

3.2.1 ENERGY

Table 3.2.1 Estimated 24-hour intake of ENERGY for children

	CHILDREN aged 10-15 years					
	Sample size	Mean intake (kJ)	95% CI mean Lower	95% CI mean Upper	Median intake (kJ)	Test of significance
Boys						
1985	2,619	9,670	9,532	9,808	9,154	
1995 Total	544	11,088	10,754	11,422	10,644	*
Girls						
1985	2,591	7,586	7,494	7,678	7,378	
1995 Total	488	8,488	8,244	8,731	8,045	*

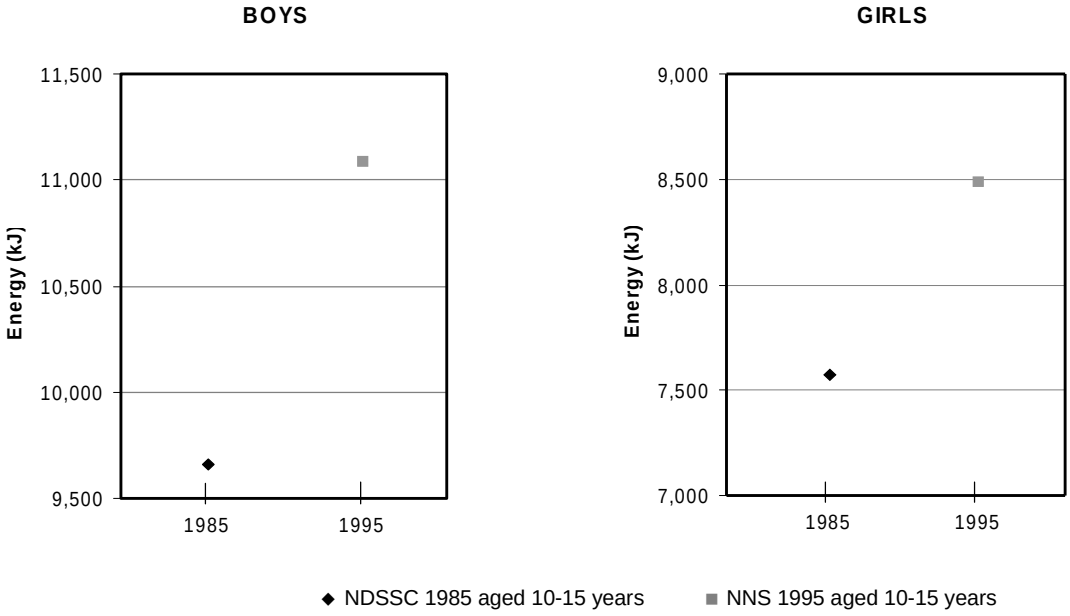
* Difference between estimated means for 1985 and 1995 comparable subset is statistically significant at the 0.01 level

The increase in energy intake between 1985 and 1995 was statistically significant for both boys and girls aged 10-15 years. The absolute increases of 1,400kJ for boys and 900kJ per day for girls represent proportional increases of 15% and 11% respectively. These increases are much greater than the 3-4% increase for adults between 1983 and 1995. In food terms, this level of increase represents the equivalent of between 3 and 4 slices of bread per day.

In 1985 data on food intake were obtained from a 24-hour record while in 1995 a 24-hour recall interview was used to obtain the data. There are no data in the literature that directly compare these two methods but it is possible that some of the observed difference in intake between 1985 and 1995 is a result of the different dietary data collection methods used in the two surveys.

Both mean height and weight increased significantly for boys and girls between 1985 and 1995 (tables 3.1.1 and 3.1.2). In the absence of compensating increases in energy expenditure, increases in body size can be expected with the increases in energy intake between 1985 and 1995.

Figure 3.2.1 Estimated mean 24-hour intake of ENERGY for children



Note: Scale ranges differ for boys and girls
Source: SSDA 617, 1995 NNS and AFNMU

3.2.2 PROTEIN

Table 3.2.2 Estimated 24-hour intake of PROTEIN for children

	CHILDREN aged 10-15 years					
	Sample size	Mean intake (g)	95% CI mean Lower	Upper	Median intake (g)	Test of significance
Boys						
1985	2,619	83.8	82.4	85.1	78.7	
1995 Total	544	95.8	92.5	99.0	88.0	*
Girls						
1985	2,591	64.5	63.6	65.4	61.2	
1995 Total	488	72.8	70.2	75.4	67.8	*

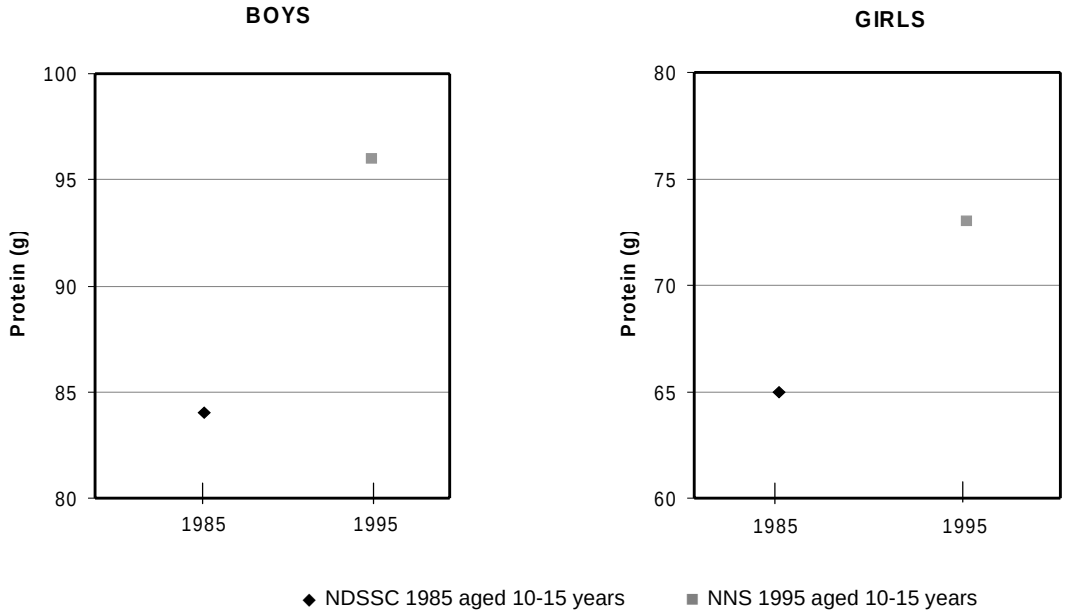
* Difference between estimated means for 1985 and 1995 comparable subset is statistically significant at the 0.01 level

Like energy intake, protein intake increased significantly between 1985 and 1995 for both boys and girls. The average increases of 12g per day for boys and 8g for girls represent increases of 14% and 13% respectively since 1985.

There was no change between 1985 and 1995 in the proportion of energy derived from protein.

In food terms, the main reason for the significant increase in protein intake between 1985 and 1995 was the overall increase (~25%) in the combined intake of cereals and cereal-based products (tables 3.3.1 and 3.3.2).

Figure 3.2.2 Estimated mean 24-hour intake of PROTEIN for children



Note: Scale ranges differ for boys and girls
Source: SSDA 617, 1995 NNS and AFNMU

3.2.3 TOTAL CARBOHYDRATE

Table 3.2.3 Estimated 24-hour intake of TOTAL CARBOHYDRATE for children

	CHILDREN aged 10-15 years					
	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Test of significance
Boys						
1985	2,619	283	279	287	269	
1995 Total	544	345	334	356	322	*
Girls						
1985	2,591	224	221	227	215	
1995 Total	488	264	256	272	258	*

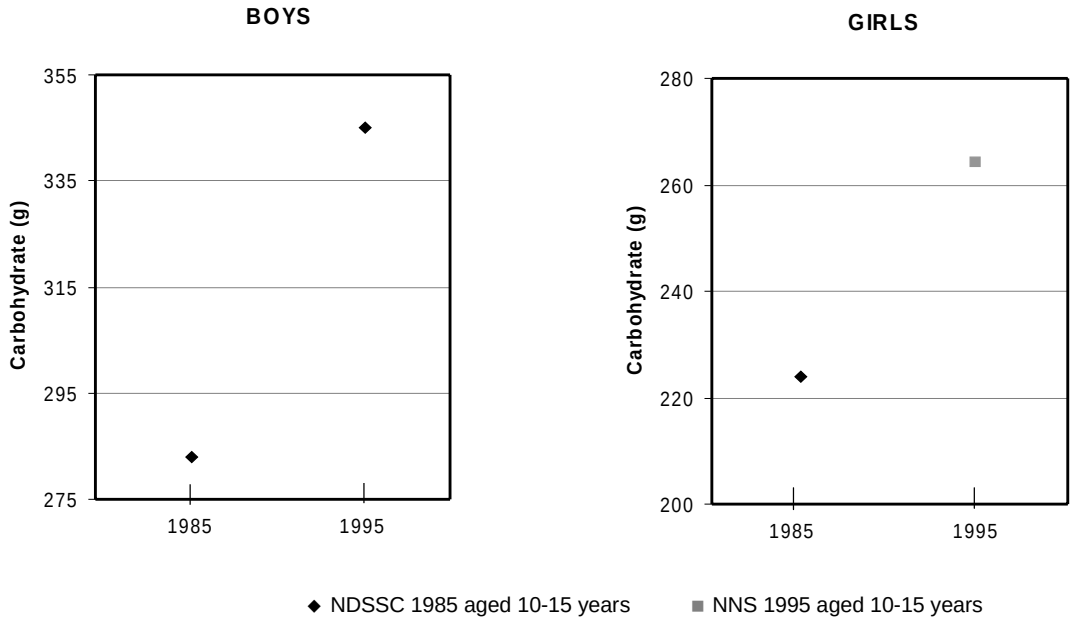
* Difference between estimated means for 1985 and 1995 comparable subset is statistically significant at the 0.01 level

Intake of total carbohydrate was significantly higher in 1995 than in 1985. The increase in intake averaged 62g per day for boys and 40g for girls and represents a proportional increase of ~20% since 1985.

The percentage of energy intake derived from total carbohydrate increased by around 3% for both boys and girls between 1985 and 1995.

As for protein, the significant increase in total carbohydrate intake was mainly due to the increases in the intake of cereals and cereal-based products between 1985 and 1995 (tables 3.3.1 and 3.3.2).

Figure 3.2.3 Estimated mean 24-hour intake of TOTAL CARBOHYDRATE for children



Note: Scale ranges differ for boys and girls
Source: SSDA 617, 1995 NNS and AFNMU

3.2.4 TOTAL STARCH

Table 3.2.4 Estimated 24-hour intake of TOTAL STARCH for children

	CHILDREN aged 10-15 years					
	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Test of significance
Boys						
1985	2,619	142	139	144	131	
1995 Total	544	170	164	176	160	*
Girls						
1985	2,591	109	107	110	103	
1995 Total	488	126	121	130	124	*

* Difference between estimated means for 1985 and 1995 comparable subset is statistically significant at the 0.01 level

Given the significant increase in intake of total carbohydrate, the significant increase in starch intake is not unexpected. The absolute increase averaged 28g per day for boys and 17g for girls and represents a proportional increase of around 18% since 1985.

The percentage of total energy intake derived from starch, however, increased by only around 1% between 1985 and 1995.

In food terms, as for carbohydrate intake, the main reasons for the significant increase in starch intake were the increases in the intake of cereals and cereal-based products since 1985 (tables 3.3.1 and 3.3.2).

Figure 3.2.4 Estimated mean 24-hour intake of TOTAL STARCH for children

Note: Scale ranges differ for boys and girls
Source: SSDA 617, 1995 NNS and AFNMU

3.2.5 TOTAL SUGARS

Table 3.2.5 Estimated 24-hour intake of TOTAL SUGARS for children

	CHILDREN aged 10-15 years					
	Sample size	Mean intake (g)	95% CI mean Lower	Upper	Median intake (g)	Test of significance
Boys						
1985	2,619	142	139	145	132	
1995 Total	544	174	166	182	158	*
Girls						
1985	2,591	115	113	117	109	
1995 Total	488	137	131	143	129	*

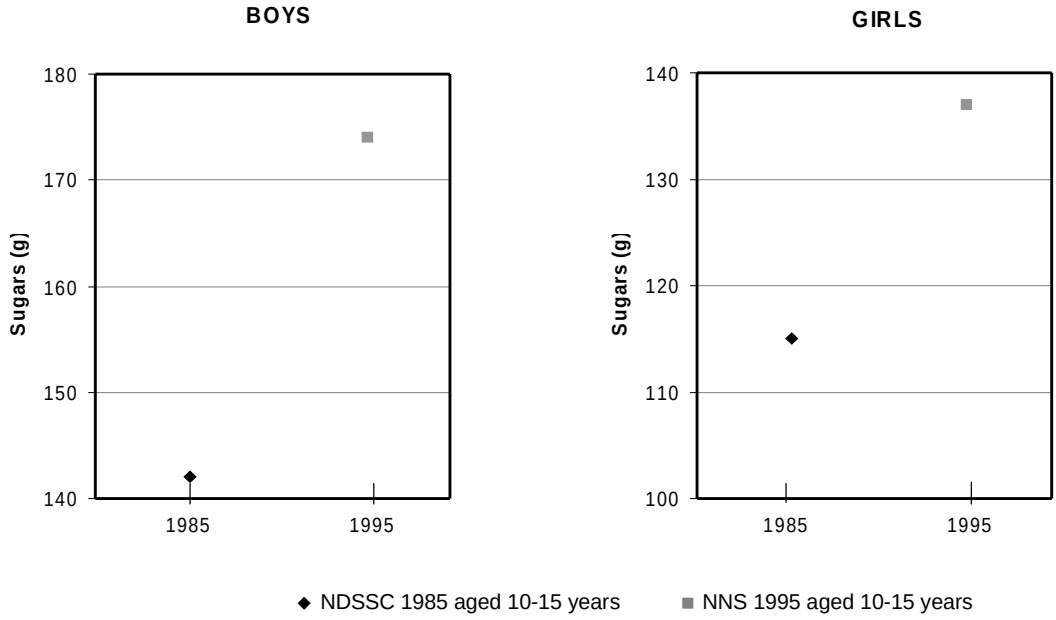
* Difference between estimated means for 1985 and 1995 comparable subset is statistically significant at the 0.01 level

Intake of total sugars increased significantly for boys and girls between 1985 and 1995. The increase averaged 32g per day for boys and 22g for girls and represents a proportional increase of ~20% since 1985.

The contribution made by sugars to total energy intake increased by 2% between 1985 and 1995 for both boys and girls.

In food terms the main reason for the significant increase in intake of sugars were significant increases in the intake of cereal-based foods, confectionery and health bars and sugar products and dishes (tables 3.3.2, 3.3.3, 3.3.16).

Figure 3.2.5 Estimated mean 24-hour intake of TOTAL SUGARS for children



Note: Scale ranges differ for boys and girls
Source: SSDA 617, 1995 NNS and AFNMU

3.2.6 TOTAL FAT

Table 3.2.6 Estimated 24-hour intake of TOTAL FAT for children

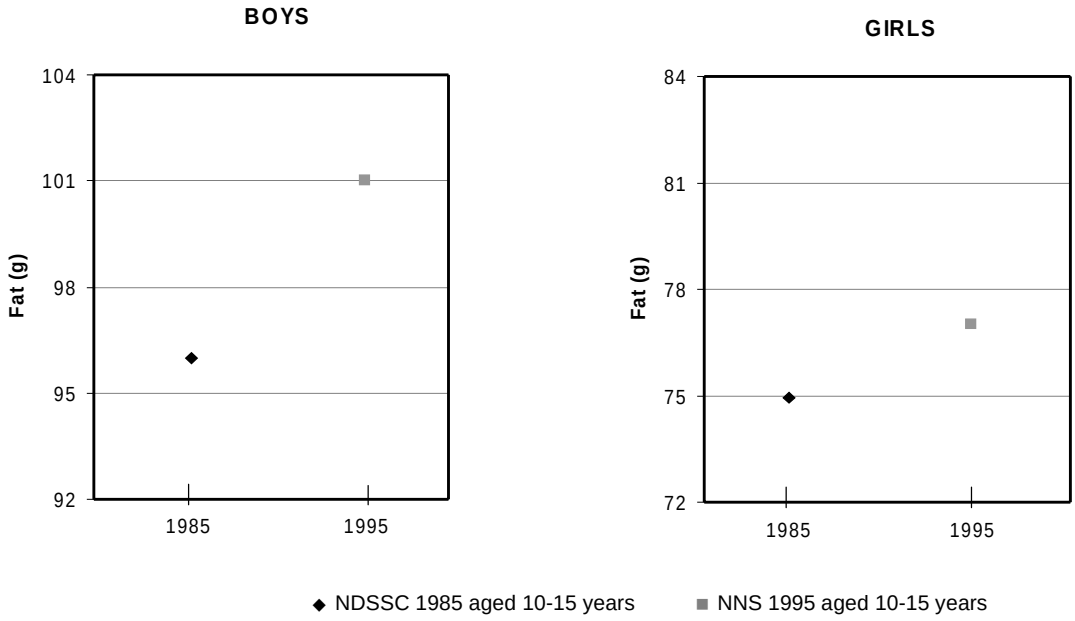
	CHILDREN aged 10-15 years					
	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Test of significance
Boys						
1985	2,619	96	94	97	88	
1995 Total	544	101	97	105	94	
Girls						
1985	2,591	75	74	76	72	
1995 Total	488	77	74	80	72	

Intake of total fat did not change significantly either for boys and girls between 1985 and 1995.

The proportion of energy derived from fat, however, decreased for both boys and girls from 37% in 1985 to 34% in 1995. This is consistent with the pattern observed for adults between 1983 and 1995.

In food terms, it appears that the significant decrease in intake of fats and oils between 1985 and 1995 (table 3.3.5) was balanced by an increased intake of fat from other sources such as cereal-based foods and confectionery and health bars.

Figure 3.2.6 Estimated mean 24-hour intake of TOTAL FAT for children



Note: Scale ranges differ for boys and girls
Source: SSDA 617, 1995 NNS and AFNMU

3.2.7 CHOLESTEROL

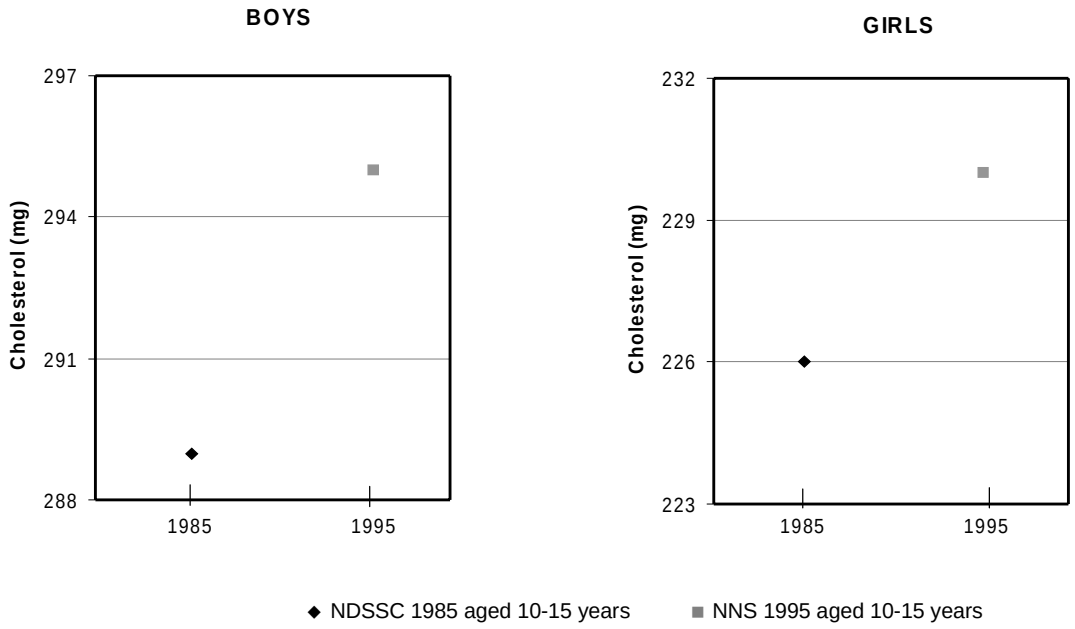
Table 3.2.7 Estimated 24-hour intake of CHOLESTEROL for children

	CHILDREN aged 10-15 years					
	Sample size	Mean intake (mg)	95% CI mean Lower	95% CI mean Upper	Median intake (mg)	Test of significance
Boys						
1985	2,619	289	281	297	237	
1995 Total	544	295	279	311	245	
Girls						
1985	2,591	226	219	233	188	
1995 Total	488	230	216	243	192	

There was no significant change in intake of dietary cholesterol either for boys or girls between 1985 and 1995.

This observation is consistent with the intake data on two major sources of cholesterol in the diet, meat and meat products and milk and milk products. With the exception of milk intake for boys, changes in the intake of meat and meat products and milk and milk products were not significant between 1985 and 1995 (tables 3.3.9 and 3.3.10).

Figure 3.2.7 Estimated mean 24-hour intake of CHOLESTEROL for children



Note: Scale ranges differ for boys and girls
Source: SSDA 617, 1995 NNS and AFNMU

3.2.8 DIETARY FIBRE

Table 3.2.8 Estimated 24-hour intake of DIETARY FIBRE for children

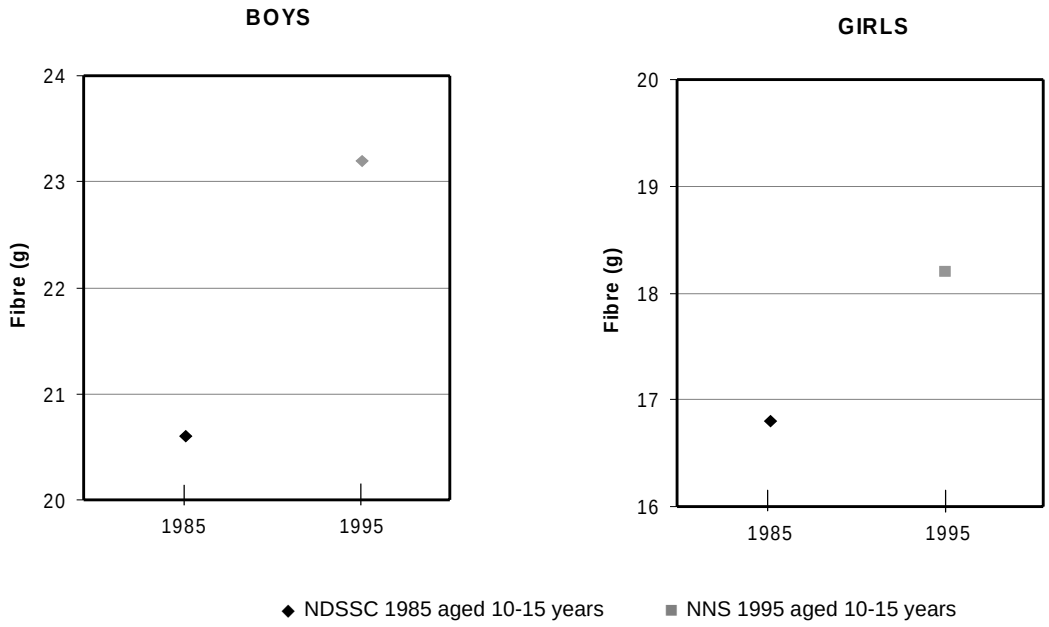
	CHILDREN aged 10-15 years					
	Sample size	Mean intake (g)	95% CI mean Lower	Upper	Median intake (g)	Test of significance
Boys						
1985	2,619	20.6	20.2	21.1	18.9	
1995 Total	544	23.2	22.2	24.1	20.5	*
Girls						
1985	2,591	16.8	16.5	17.1	15.5	
1995 Total	488	18.2	17.5	18.9	16.8	*

* Difference between estimated means for 1985 and 1995 comparable subset is statistically significant at the 0.01 level

Intake of dietary fibre increased significantly for both boys and girls between 1985 and 1995. The average increase of 2.6g per day for boys and 1.4g per day for girls represents a proportional increase of ~10% since 1985.

The increase in fibre intake does not represent an increase in the fibre density of the diet, which remained at 2.1g per MJ, but is primarily a consequence of a higher overall intake of food in 1995.

Figure 3.2.8 Estimated mean 24-hour intake of DIETARY FIBRE for children



Note: Scale ranges differ for boys and girls
Source: SSDA 617, 1995 NNS and AFNMU

3.2.9 TOTAL VITAMIN A-RETINOL EQUIVALENTS

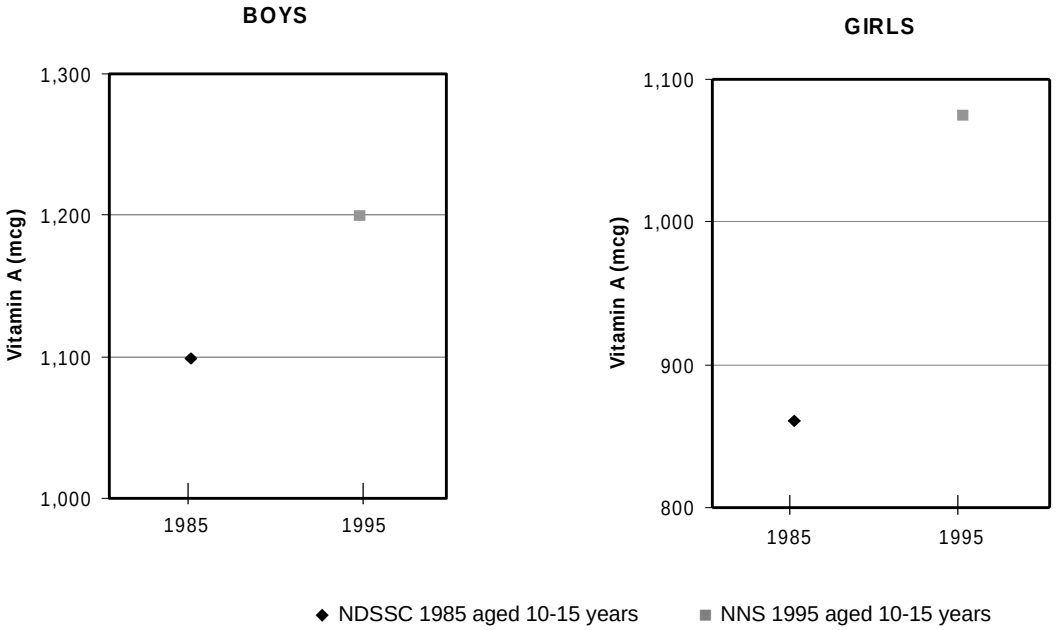
Table 3.2.9 Estimated 24-hour intake of TOTAL VITAMIN A-RETINOL EQUIVALENTS for children

	CHILDREN aged 10-15 years					
	Sample size	Mean intake (mg)	95% CI mean Lower	95% CI mean Upper	Median intake (mg)	Test of significance
Boys						
1985	2,619	1,103	970	1,236	797	
1995 Total	544	1,199	991	1,407	904	
Girls						
1985	2,591	861	794	928	664	
1995 Total	488	1,074	838	1,309	734	

Intake of vitamin A did not change significantly either for boys or girls between 1985 and 1995. Average intake for girls increased from ~850ug per day to over 1000ug in 1995 but this increase was not significant because of the large variability in vitamin A intake. For boys, intake was around 1100ug per day both in 1985 and 1995.

Intake of vegetables and vegetable products, which are a major source of vitamin A in the diet consumed by this age group, did not change significantly either for boys or girls between 1985 and 1995 (table 3.3.17).

Figure 3.2.9 Estimated mean 24-hour intake of TOTAL VITAMIN A-RETINOL EQUIVALENTS for children



Note: Scale ranges differ for boys and girls

Source: SSDA 617, 1995 NNS and AFNMU

3.2.10 THIAMIN

Table 3.2.10 Estimated 24-hour intake of THIAMIN for children

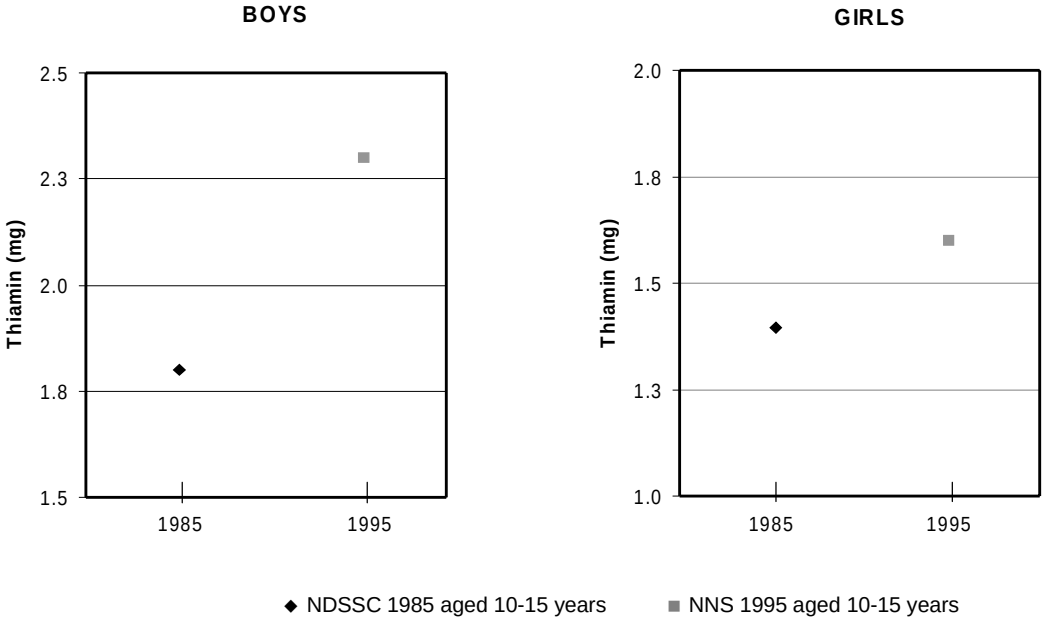
	CHILDREN aged 10-15 years					
	Sample size	Mean intake (mg)	95% CI mean Lower	95% CI mean Upper	Median intake (mg)	Test of significance
Boys						
1985	2,619	1.75	1.71	1.79	1.52	
1995 Total	544	2.26	2.13	2.38	1.91	*
Girls						
1985	2,591	1.40	1.36	1.43	1.21	
1995 Total	488	1.56	1.48	1.65	1.34	*

* Difference between estimated means for 1985 and 1995 comparable subset is statistically significant at the 0.01 level

Intake of thiamin increased significantly for both boys and girls between 1985 and 1995. The average increase of 0.51mg per day for boys represents a proportional increase of 29% since 1985. The much smaller average increase of 0.16mg per day for girls represents a proportional increase of 11% since 1985.

In boys but not girls, the thiamin density of the diet increased by an average of 13% since 1985. The reason for the marked difference in the thiamin density of the diet between boys and girls is the much higher intake of cereals and cereal products by boys than girls (table 3.3.1). Cereals and cereal products contribute ~40% to overall intake of thiamin for this age group.

Figure 3.2.10 Estimated mean 24-hour intake of THIAMIN for children



Note: Scale ranges differ for boys and girls
Source: SSDA 617, 1995 NNS and AFNMU

3.2.11 RIBOFLAVIN

Table 3.2.11 Estimated 24-hour intake of RIBOFLAVIN for children

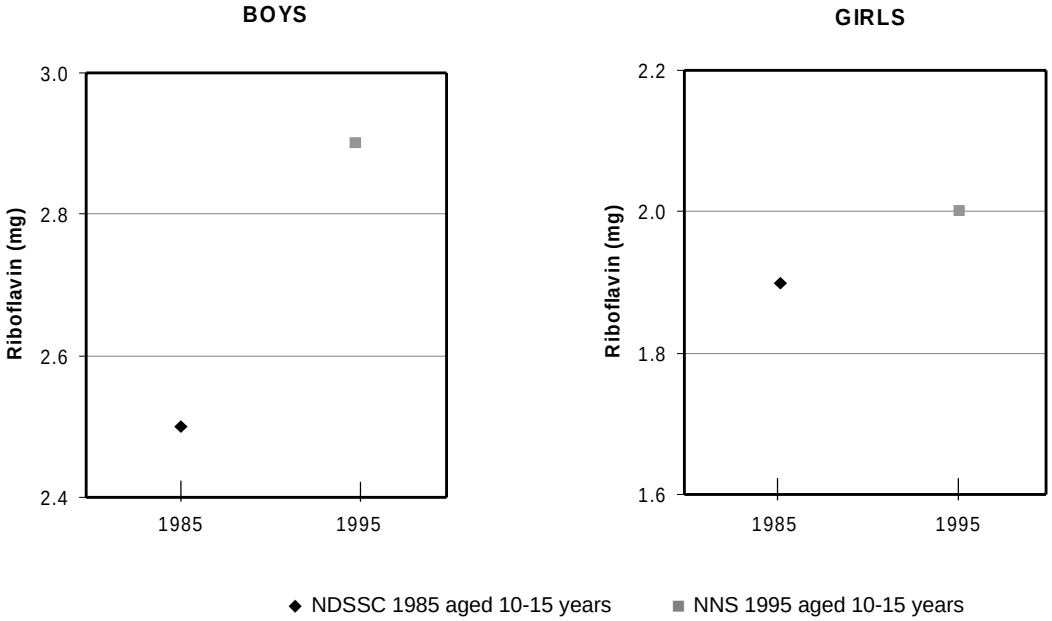
	CHILDREN aged 10-15 years					
	Sample size	Mean intake (mg)	95% CI mean Lower	95% CI mean Upper	Median intake (mg)	Test of significance
Boys						
1985	2,619	2.47	2.41	2.53	2.17	
1995 Total	544	2.88	2.71	3.05	2.47	*
Girls						
1985	2,591	1.86	1.82	1.91	1.64	
1995 Total	488	2.01	1.90	2.13	1.72	

* Difference between estimated means for 1985 and 1995 comparable subset is statistically significant at the 0.01 level

Intake of riboflavin increased significantly for boys but not girls between 1985 and 1995. This difference is similar to that seen in adults. In boys, the average increase of 0.41mg per day represents a proportional increase of 17% since 1985. This is consistent with the proportional increase in energy intake over the same period.

The increase in riboflavin intake for boys occurred despite a significant decrease in intake of milk and milk products (table 3.3.10), which is the main source of riboflavin in the diet of this age group (~35%). The increase therefore reflects an increase in riboflavin intake from sources other than milk.

Figure 3.2.11 Estimated mean 24-hour intake of RIBOFLAVIN for children



Note: Scale ranges differ for boys and girls

Source: SSDA 617, 1995 NNS and AFNMU

3.2.12 TOTAL NIACIN EQUIVALENTS

Table 3.2.12 Estimated 24-hour intake of TOTAL NIACIN EQUIVALENTS for children

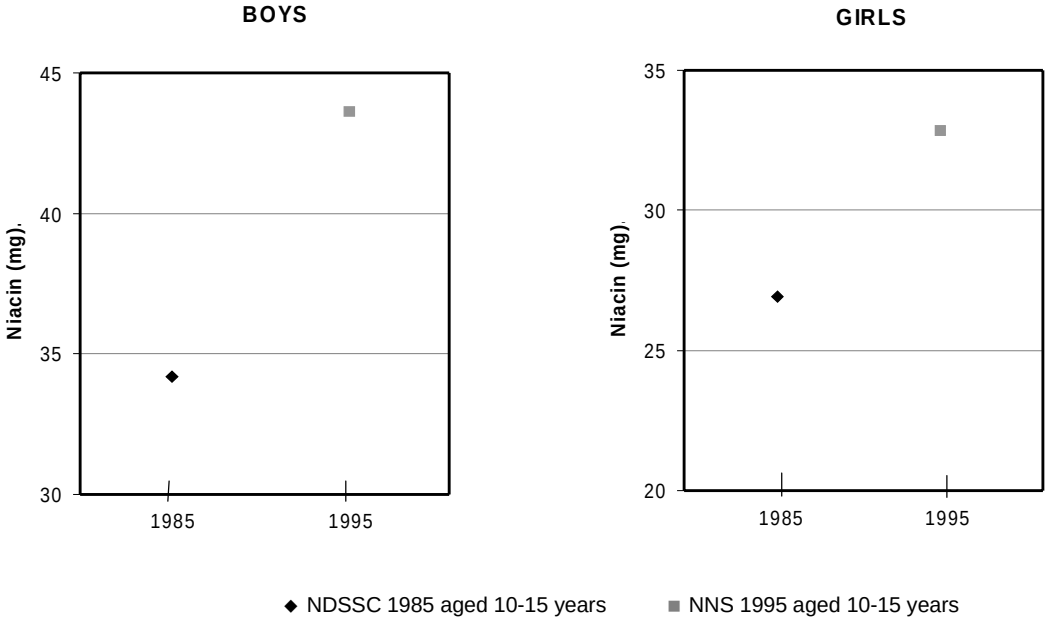
	CHILDREN aged 10-15 years					
	Sample size	Mean intake (mg)	95% CI mean Lower	95% CI mean Upper	Median intake (mg)	Test of significance
Boys						
1985	2,619	34.2	33.7	34.8	31.7	
1995 Total	544	43.6	42.0	45.2	40.3	*
Girls						
1985	2,591	26.9	26.5	27.3	25.3	
1995 Total	488	32.8	31.6	34.0	30.8	*

* Difference between estimated means for 1985 and 1995 comparable subset is statistically significant at the 0.01 level

The intake of niacin increased significantly for both boys and girls between 1985 and 1995. The average increase of 9.4mg per day for boys and 5.9mg per day for girls represents proportional increases of 27% and 22% respectively. Similar increases were also evident in adults between 1983 and 1995.

The proportional increases in niacin intake are greater than those for energy intake and reflect an increase in the concentration of niacin in the diet relative to energy from 3.5mg to 3.9mg per MJ since 1985.The main foods that contribute niacin to the diet of this age group are meat and meat products and cereals and cereal products. The fact that the intake of neither of these groups increased significantly between 1985 and 1995 suggests that the niacin content of other foods in the diet must have increased.

Figure 3.2.12 Estimated mean 24-hour intake of TOTAL NIACIN EQUIVALENTS for children



Note: Scale ranges differ for boys and girls

Source: SSDA 617, 1995 NNS and AFNMU

3.2.13 VITAMIN C

Table 3.2.13 Estimated 24-hour intake of VITAMIN C for children

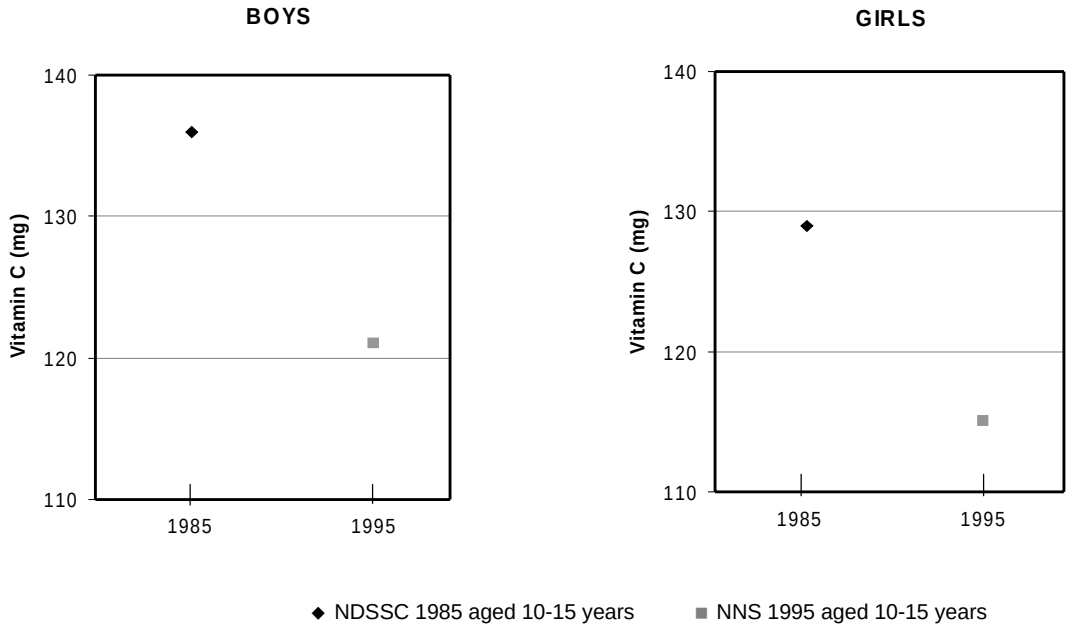
	CHILDREN aged 10-15 years					
	Sample size	Mean intake (mg)	95% CI mean Lower	95% CI mean Upper	Median intake (mg)	Test of significance
Boys						
1985	2,619	136	131	141	98	
1995 Total	544	121	110	132	91	
Girls						
1985	2,591	129	125	134	96	
1995 Total	488	116	106	125	84	*

* Difference between estimated means for 1985 and 1995 comparable subset is statistically significant at the 0.01 level

Intake of vitamin C decreased both for boys and girls between 1985 and 1995 but the decrease was significant only for girls. The average decrease of ~15mg for both boys and girls was greater than that seen for adults between 1983 and 1995.

The main food sources of vitamin C in the diet of this age group are non-alcoholic beverages and vegetables and vegetable products. Intake of the former but not the latter increased significantly between 1985 and 1995 (tables 3.3.11 and 3.3.17). The fact that intake of vitamin C did not increase over the same period indicates that the intake of non-alcoholic beverages containing vitamin C (fruit and vegetable juices) decreased over this period while the intake of soft drinks, mineral waters and electrolyte drinks increased significantly.

Figure 3.2.13 Estimated mean 24-hour intake of VITAMIN C for children



Source: SSDA 617, 1995 NNS and AFNMU

3.2.14 IRON

Table 3.2.14 Estimated 24-hour intake of IRON for children

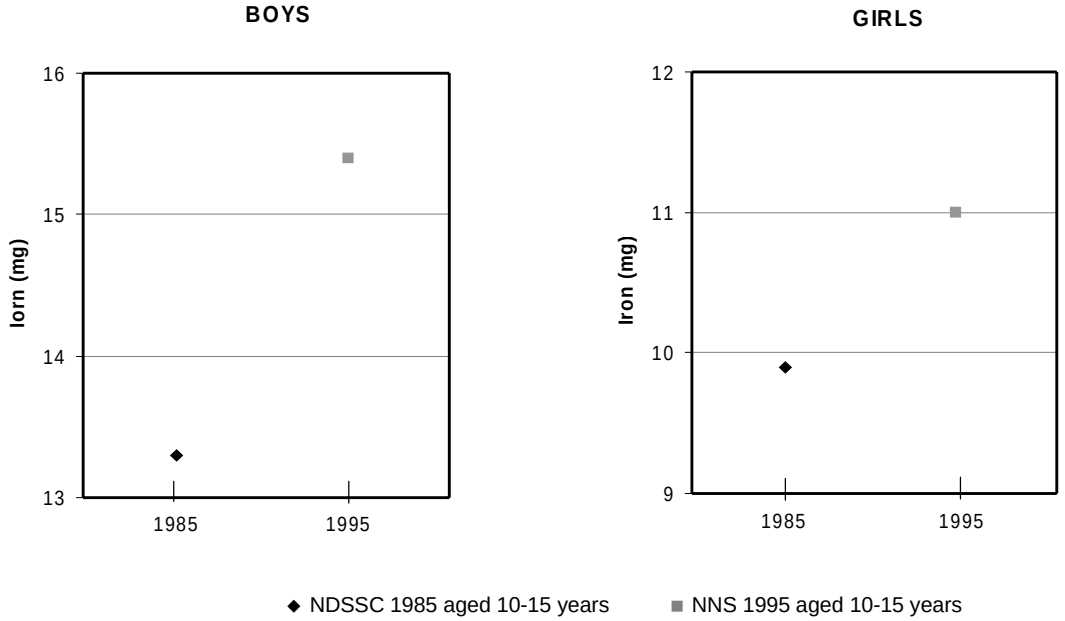
	CHILDREN aged 10-15 years					
	Sample size	Mean intake (mg)	95% CI mean Lower	Upper	Median intake (mg)	Test of significance
Boys						
1985	2,619	13.3	13.1	13.5	12.2	
1995 Total	544	15.4	14.7	16.1	14.2	*
Girls						
1985	2,591	9.9	9.8	10.1	9.5	
1995 Total	488	11.0	10.5	11.4	10.2	*

* Difference between estimated means for 1985 and 1995 comparable subset is statistically significant at the 0.01 level

Intake of iron increased significantly both for boys and girls between 1985 and 1995. The mean increase of 2.1mg per day for boys and 1.1mg iron per day for girls represents proportional increases of 16% and 11% respectively. These rates of increase are similar to those for energy intake over the same period.

The main food sources of iron in the diet of this age group are cereals and cereal products and meat and meat products. The intake from neither of these food groups increased significantly between 1985 and 1995. The concentration of iron in the diet relative to energy also did not increase over this period. This suggests that the significant increase in iron intake since 1985 is due primarily to the increased overall intake of food.

Figure 3.2.14 Estimated mean 24-hour intake of IRON for children



Note: Scale ranges differ for boys and girls
Source: SSDA 617, 1995 NNS and AFNMU

3.2.15 CALCIUM

Table 3.2.15 Estimated 24-hour intake of CALCIUM for children

	CHILDREN aged 10-15 years					
	Sample size	Mean intake (mg)	95% CI mean Lower	95% CI mean Upper	Median intake (mg)	Test of significance
Boys						
1985	2,619	1,007	984	1,030	888	
1995 Total	544	1,054	1,002	1,106	934	
Girls						
1985	2,591	753	737	768	690	
1995 Total	488	794	752	836	722	

Intake of calcium showed no significant change since 1985 for boys or girls. This pattern differs from that seen in adults where intake for both males and females increased significantly between 1983 and 1995.

The main food source of calcium in the diet of this age group is milk and milk products (~60%). Intake of milk and milk products decreased for both boys and girls between 1985 and 1995 but significantly so only for boys (table 3.3.10). An increase in calcium intake would therefore not be expected. The fact that intake did not show a significant decrease over the period is due to the increased overall intake of food.

Figure 3.2.15 Estimated mean 24-hour intake of CALCIUM for children

Note: Scale ranges differ for boys and girls
Source: SSDA 617, 1995 NNS and AFNMU

3.2.16 ZINC

Table 3.2.16 Estimated 24-hour intake of ZINC for children

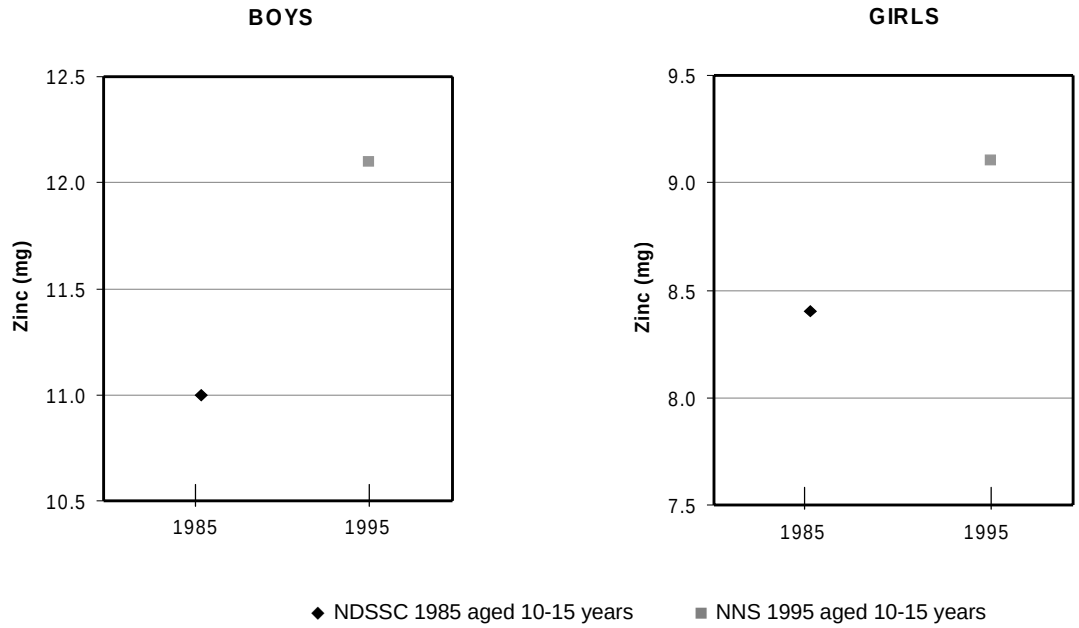
	CHILDREN aged 10-15 years					
	Sample size	Mean intake (mg)	95% CI mean Lower	Upper	Median intake (mg)	Test of significance
Boys						
1985	2,619	11.0	10.8	11.2	9.9	
1995 Total	544	12.1	11.6	12.6	10.8	*
Girls						
1985	2,591	8.4	8.3	8.6	7.8	
1995 Total	488	9.1	8.7	9.4	8.3	*

* Difference between estimated means for 1985 and 1995 comparable subset is statistically significant at the 0.01 level

Intake of zinc increased significantly for both boys and girls between 1985 and 1995. The mean increase of 1.1mg for boys and 0.7mg per day for girls represents proportional increases of 10% and 8% respectively.

The main food sources of zinc in the diet of this age group are meat and meat products (33%) and milk and milk products (~20%). As already indicated, the intake from neither of these food groups increased significantly between 1985 and 1995. The significant increase in zinc intake since 1985 is thus due mainly to the increased overall intake of food.

Figure 3.2.16 Estimated mean 24-hour intake of ZINC for children



Note: Scale ranges differ for boys and girls
Source: SSDA 617, 1995 NNS and AFNMU

3.2.17 MAGNESIUM

Table 3.2.17 Estimated 24-hour intake of MAGNESIUM for children

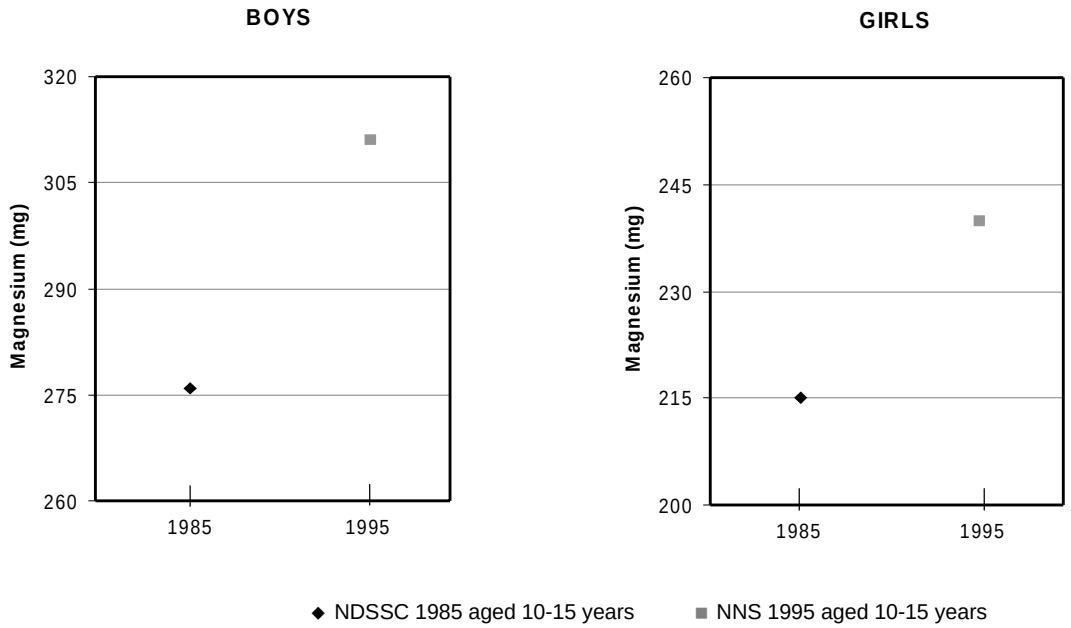
	CHILDREN aged 10-15 years					
	Sample size	Mean intake (mg)	95% CI mean Lower	95% CI mean Upper	Median intake (mg)	Test of significance
Boys						
1985	2,619	276	272	281	256	
1995 Total	544	311	300	322	288	*
Girls						
1985	2,591	215	212	219	206	
1995 Total	488	240	233	248	231	*

* Difference between estimated means for 1985 and 1995 comparable subset is statistically significant at the 0.01 level

Intake of magnesium increased significantly for both boys and girls between 1985 and 1995. The mean increases of 35mg for boys and 25mg per day for girls represent proportionate increases of 13% and 12% respectively, which are similar to those for energy intake.

The main food sources of magnesium for this age group are cereals and cereal-based products which together contribute ~33% of the magnesium in the diet. The combined intake of these two groups of foods increased by ~25% between 1985 and 1995.

Figure 3.2.17 Estimated mean 24-hour intake of MAGNESIUM for children



Note: Scale ranges differ for boys and girls

Source: SSDA 617, 1995 NNS and AFNMU

3.3 FOOD GROUPS

3.3.1 CEREALS AND CEREAL PRODUCTS

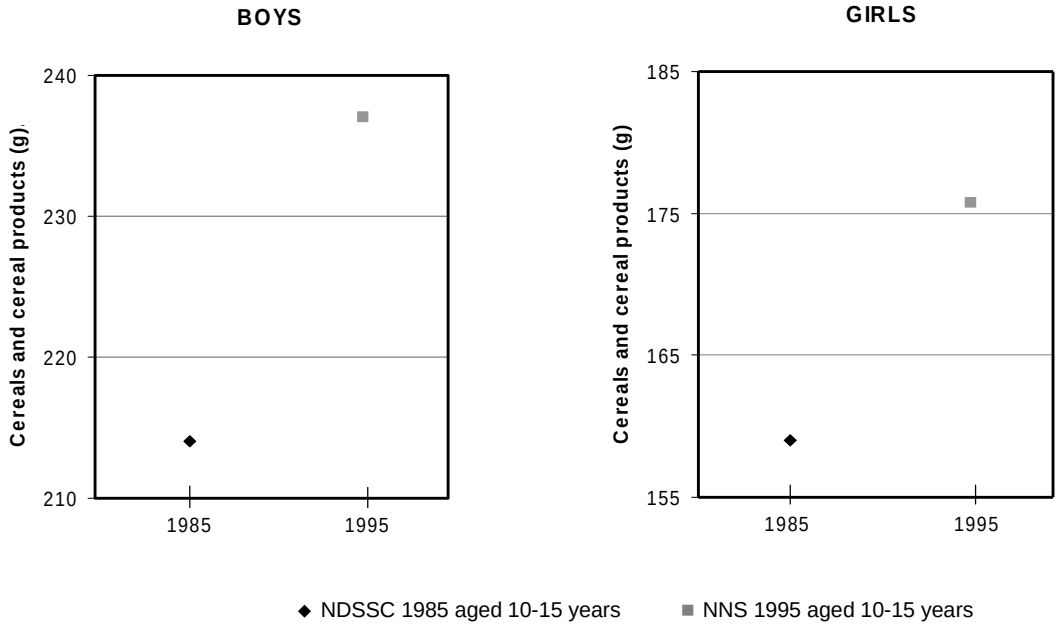
Table 3.3.1 Estimated 24-hour intake of CEREAL AND CEREAL PRODUCTS for children

	CHILDREN aged 10-15 years						
	Sample size	Mean intake (g)	95% CI mean Lower	Upper	Median intake (g)	Proportion consuming (%)	Test of significance
Boys							
1985	2,619	214	207	221	162	97	
1995 Total	544	237	219	255	180	98	
Girls							
1985	2,591	159	153	164	125	96	
1995 Total	488	176	162	190	128	96	

The cereals and cereal products group of foods includes only basic cereals such as rice and cereal products such as breads, pasta and breakfast cereals. Over 95% of both boys and girls consumed foods from this group on the day of the survey both in 1985 and 1995.

There was no significant change between 1985 and 1995 in the percentage of boys and girls who consumed foods from this food group or in the mean intake of cereals and cereal products consumed. The average quantity consumed increased by about 20g per day for both boys and girls between 1985 and 1995.

Figure 3.3.2 Estimated mean 24-hour intake of CEREALS AND CEREAL PRODUCTS for children



Note: Scale ranges differ for boys and girls
Source: SSDA 617, 1995 NNS and AFNMU

3.3.2 CEREAL-BASED PRODUCTS AND DISHES

Table 3.3.2 Estimated 24-hour intake of CEREAL-BASED PRODUCTS AND DISHES for children

	CHILDREN aged 10-15 years						
	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Proportion consuming (%)	Test of significance
Boys							
1985	2,619	110	104	115	60	75	
1995 Total	544	161	144	178	84	76	*
Girls							
1985	2,591	85	81	89	46	75	
1995 Total	488	124	110	138	74	73	*

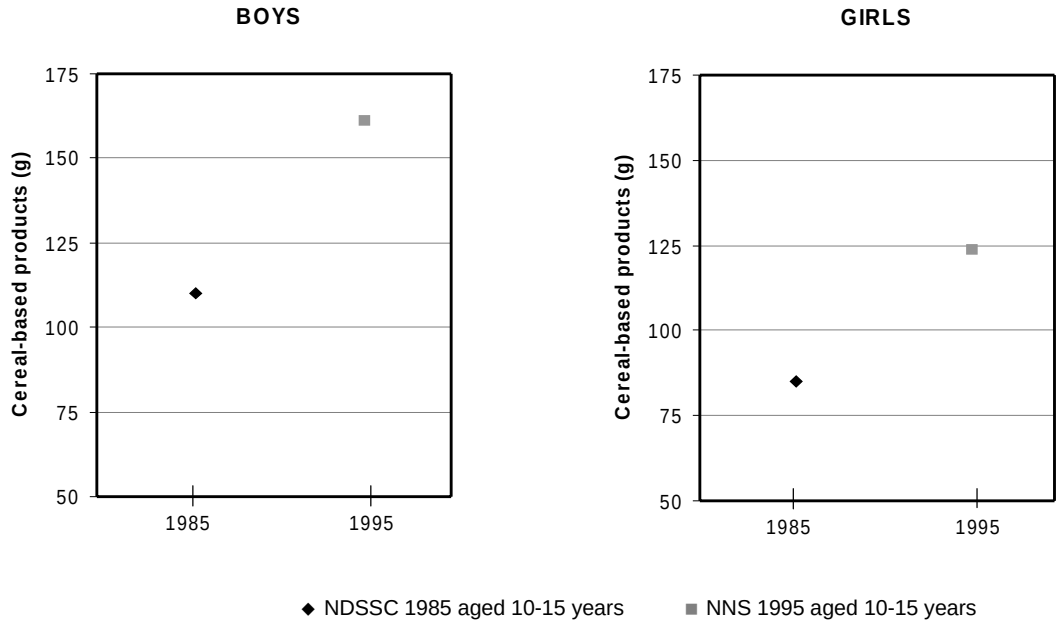
* Difference between estimated means for 1985 and 1995 comparable subset is statistically significant at the 0.01 level

The cereal-based group of foods includes all foods for which a cereal or product is the major component and includes cakes, biscuits, fruit and vegetable tarts, pies and flans as well as meat and cereal dishes such as pizza. In 1985 this group of foods also included some desserts, which were classified under the milk and milk products or the sugar and sugar products group in 1995.

The same percentage of both boys and girls consumed foods from this group on the day of the survey in 1985 (75%). In 1995, the percentage was the same for boys but was 73% for girls.

The mean intake of cereal-based foods and food products, however, increased significantly for both boys and girls between 1985 and 1995. The increase was ~50g per day for boys and 40g for girls. As for adults, the significant increase in mean intake of this food group is due in part to the inclusion of more mixed dishes containing cereals within this group in 1995 than in 1985.

Figure 3.3.2 Estimated mean 24-hour intake of CEREAL-BASED PRODUCTS AND DISHES for children



Source: SSDA 617, 1995 NNS and AFNMU

3.3.3 CONFECTIONERY

Table 3.3.3 Estimated 24-hour intake of CONFECTIONERY for children

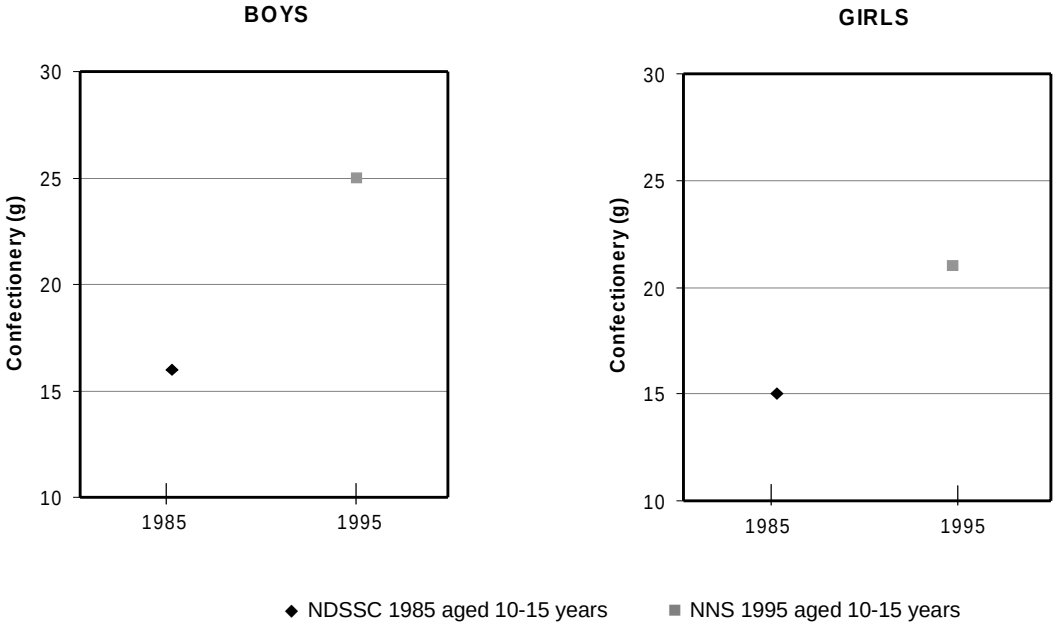
	CHILDREN aged 10-15 years						
	Sample size	Mean intake (g)	95% CI mean Lower	Upper	Median intake (g)	Proportion consuming (%)	Test of significance
Boys							
1985	2,619	16	15	18	0	34	
1995 Total	544	25	21	28	0	50	*
Girls							
1985	2,591	15	14	17	0	42	
1995 Total	488	21	18	25	2	50	*

* Difference between estimated means for 1985 and 1995 comparable subset is statistically significant at the 0.01 level

The proportion consuming foods from this group on the day of the survey increased for both boys and girls between 1985 and 1995. For boys the percentage consuming increased from 34% to 50% and for girls from 42% to 50%.

The mean intake of confectionery also increased significantly for both boys and girls between 1985 and 1995. For boys, the mean increase of 9g per day appears to simply reflect the increased proportion consuming whereas for girls the mean increase of 6g per day is only partly due to the increase in the proportion consuming.

Figure 3.3.3 Estimated mean 24-hour intake of CONFECTIONERY for children



Source: SSDA 617, 1995 NNS and AFNMU

3.3.4 EGG PRODUCTS AND DISHES

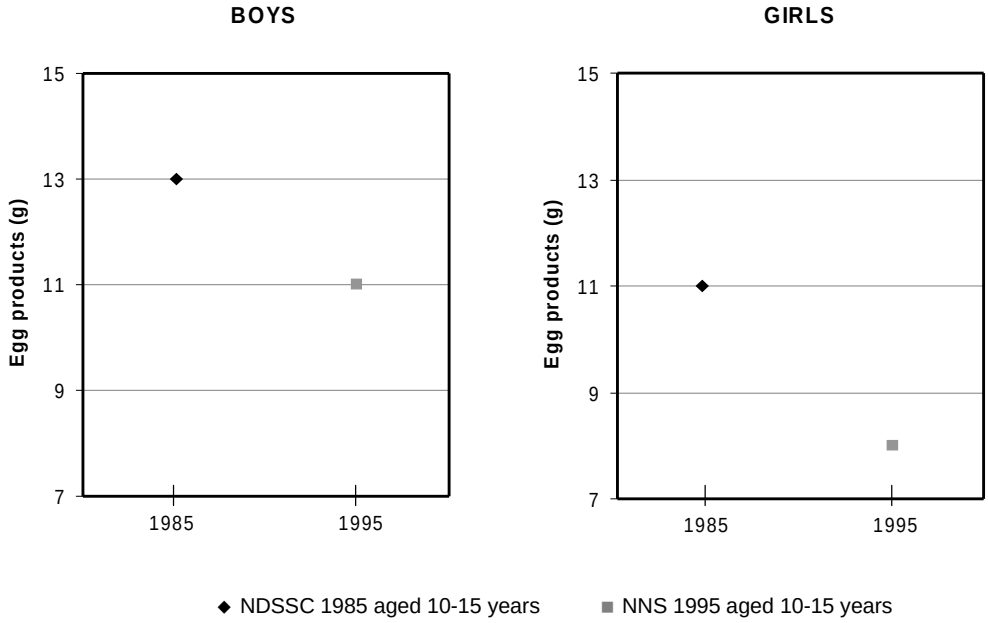
Table 3.3.4 Estimated 24-hour intake of EGG PRODUCTS AND DISHES for children

	CHILDREN aged 10-15 years						
	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Proportion consuming (%)	Test of significance
Boys							
1985	2,619	13	11	14	0	19	
1995 Total	544	11	7	14	0	13	
Girls							
1985	2,591	11	9	12	0	17	
1995 Total	488	8	5	10	0	10	

For boys and girls, the proportion consuming foods from this group on the day of the survey decreased between 1985 and 1995. For boys the percentage consuming decreased from 19% to 13% and for girls from 18% to 10%. A decrease in the proportion consuming was also observed for adults between 1983 and 1995.

The mean intake of egg products and dishes also decreased for both boys and girls but the decrease was not statistically significant for either sex. The decline in mean intake was less than expected given the decrease in proportion consuming. These results indicate that the mean intake of those who did eat egg products and dishes in 1995 was actually higher than in 1985.

Figure 3.3.4 Estimated mean 24-hour intake of EGG PRODUCTS AND DISHES for children



Source: SSDA 617, 1995 NNS and AFNMU

3.3.5 FATS AND OILS

Table 3.3.5 Estimated 24-hour intake of FATS AND OILS for children

	CHILDREN aged 10-15 years						
	Sample size	Mean intake (g)	95% CI mean Lower	Upper	Median intake (g)	Proportion consuming (%)	Test of significance
Boys							
1985	2,619	19	18	20	14	82	
1995 Total	544	12	11	13	10	78	*
Girls							
1985	2,591	15	15	16	14	83	
1995 Total	488	9	8	10	6	75	*

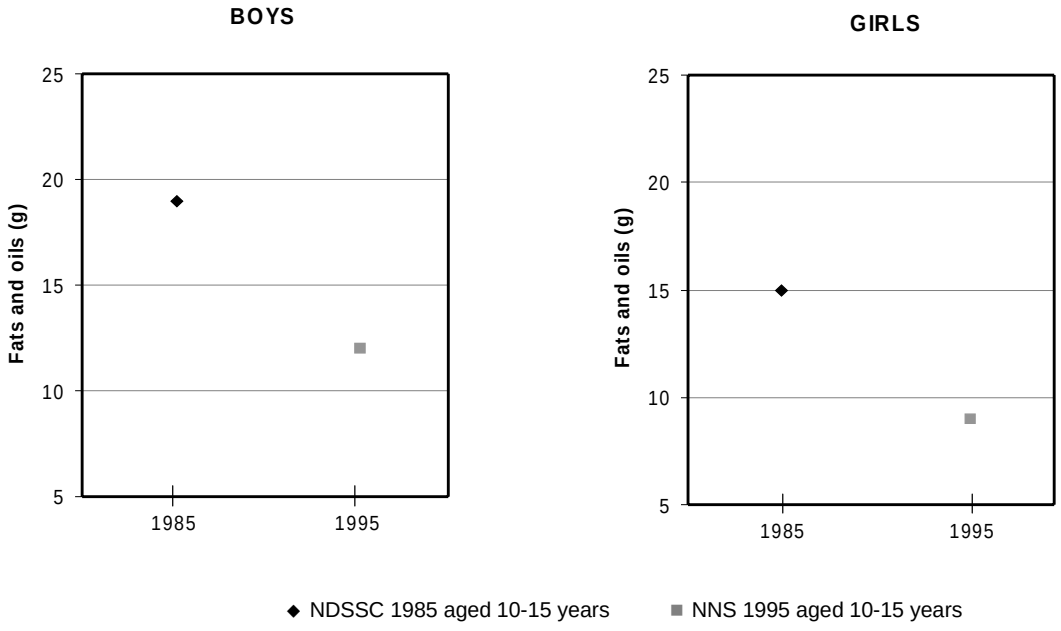
* Difference between estimated means for 1985 and 1995 comparable subset is statistically significant at the 0.01 level

This group includes only the fats and oils used as spreads or added to food after preparation and not the fats and oils used in cooked or processed foods.

The proportion consuming foods from this group on the day of the survey decreased for both boys and girls between 1985 and 1995. For boys the decrease was from 82% to 78% and for girls from 83% to 75%.

The mean intake of fats and oils also decreased significantly for both boys and girls. The decrease was greater than would be expected simply on the basis of the decreased proportion consuming. This indicates that the mean intake of consumers also decreased between 1985 and 1995.

Figure 3.3.5 Estimated mean 24-hour intake of FATS AND OILS for children



Source: SSDA 617, 1995 NNS and AFNMU

3.3.6 FISH AND SEAFOOD PRODUCTS AND DISHES

Table 3.3.6 Estimated 24-hour intake of FISH AND SEAFOOD PRODUCTS AND DISHES for children

	CHILDREN aged 10-15 years						
	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Proportion consuming (%)	Test of significance
Boys							
1985	2,619	9	8	10	0	10	
1995 Total	544	17	13	22	0	12	*
Girls							
1985	2,591	8	7	9	0	11	
1995 Total	488	15	10	20	0	11	*

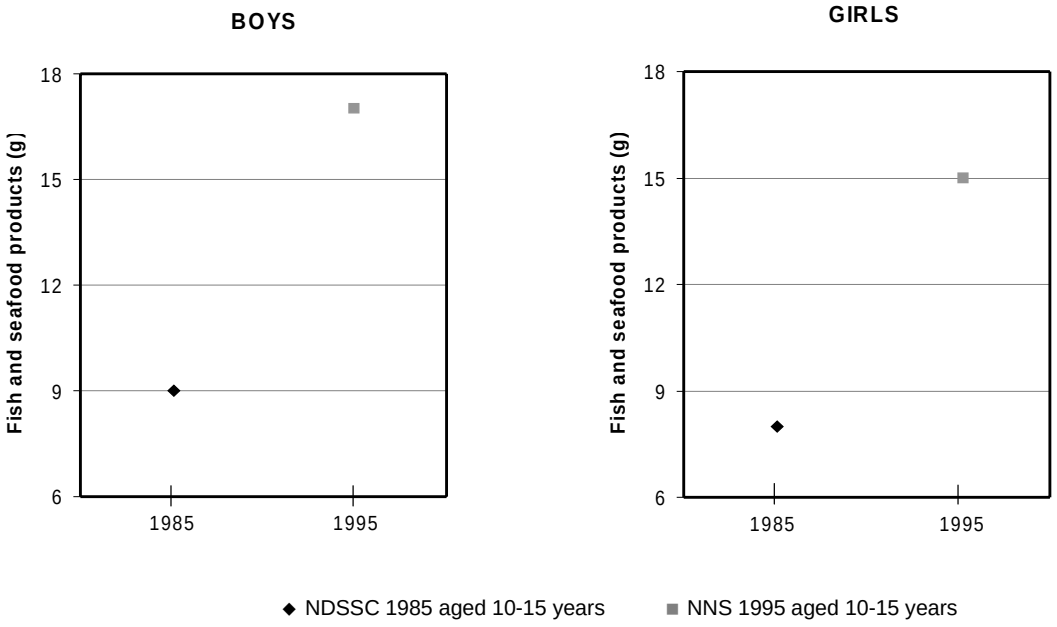
* Difference between estimated means for 1985 and 1995 comparable subset is statistically significant at the 0.01 level

The proportion consuming foods from this group increased slightly for boys but was similar for girls in 1985 and 1995.

The mean intake of fish and seafood products increased significantly for both boys and girls between 1985 and 1995. For boys the mean increase was 8g per day and for girls 7g per day since 1985.

This level of increase is greater than would be expected solely on the basis of the changes in the proportion consuming between 1985 and 1995 and indicates that the mean intake of fish and seafood products by consumers also increased over this period.

Figure 3.3.6 Estimated mean 24-hour intake of FISH AND SEAFOOD PRODUCTS AND DISHES for children



Source: SSDA 617, 1995 NNS and AFNMU

3.3.7 FRUIT PRODUCTS AND DISHES

Table 3.3.7 Estimated 24-hour intake of FRUIT PRODUCTS AND DISHES for children

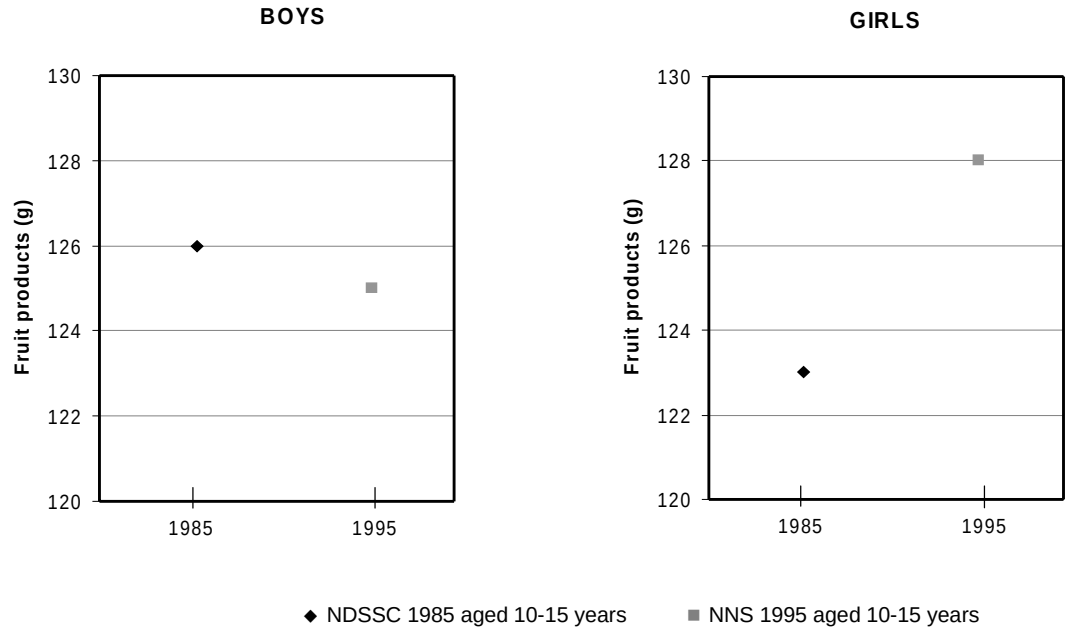
	CHILDREN aged 10-15 years						
	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Proportion consuming (%)	Test of significance
Boys							
1985	2,619	126	120	133	85	60	
1995 Total	544	125	109	141	43	52	
Girls							
1985	2,591	123	118	128	86	69	
1995 Total	488	128	115	142	97	59	

The proportion consuming foods from this group on the day of the survey decreased for both boys and girls between 1985 and 1995. For boys the proportion decreased from 60% to 52% and for girls from 69% to 59%. A similar decrease was seen for adults.

The mean intake of fruit and fruit products, however, did not change significantly between 1985 and 1995.

These results indicate that although the proportion of boys and girls consuming fruit and fruit products decreased, the mean intake of consumers actually increased over the period. Calculations show that the mean intake of consumers of fruit and fruit products in 1995 was 30g to 40g higher per day than in 1985.

Figure 3.3.7 Estimated mean 24-hour intake of FRUIT PRODUCTS AND DISHES for children



Source: SSDA 617, 1995 NNS and AFNMU

3.3.8 LEGUMES AND PULSE PRODUCTS AND DISHES

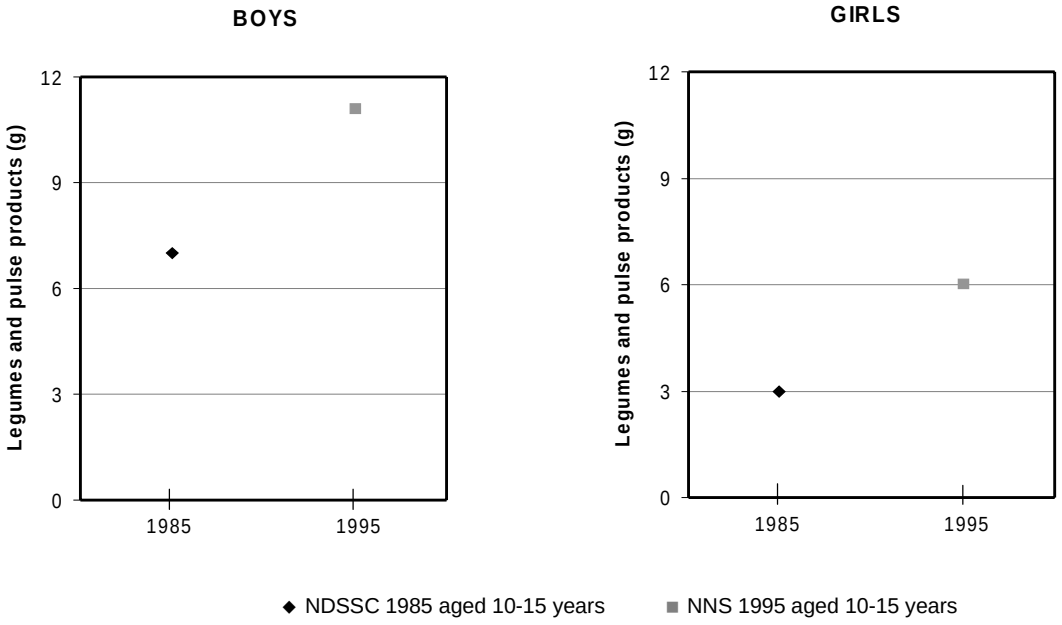
Table 3.3.8 Estimated 24-hour intake of LEGUMES AND PULSE PRODUCTS AND DISHES for children

	CHILDREN aged 10-15 years						
	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Proportion consuming (%)	Test of significance
Boys							
1985	2,619	7	5	9	0	3	
1995 Total	544	11	6	16	0	6	
Girls							
1985	2,591	3	2	4	0	3	
1995 Total	488	6	3	8	0	5	

The proportion consuming foods from this group on the day of the survey increased for both boys and girls between 1985 and 1995. For boys the proportion increased from 3.5% to 5.8% and for girls from 3% to 5.4%. A similar increase was seen for adults.

The mean intake of legumes and pulse products also increased in proportion to the increased percentage consuming but the increase was not statistically significant.

Figure 3.3.8 Estimated mean 24-hour intake of LEGUMES AND PULSE PRODUCTS AND DISHES for children



Source: SSDA 617, 1995 NNS and AFNMU

3.3.9 MEAT, POULTRY AND GAME PRODUCTS AND DISHES

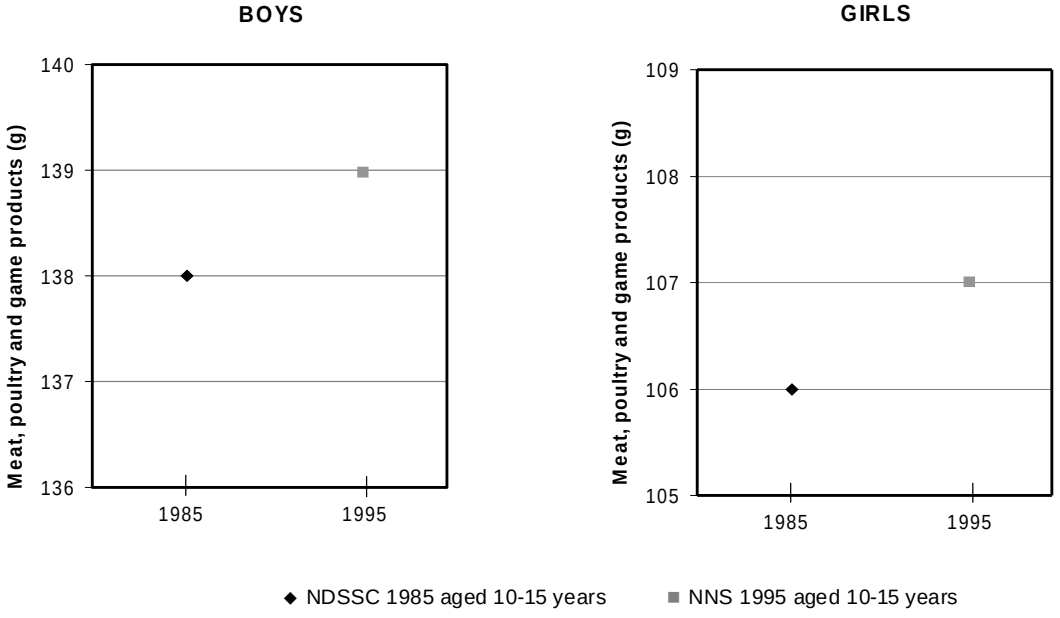
Table 3.3.9 Estimated 24-hour intake of MEAT, POULTRY AND GAME PRODUCTS AND DISHES for children

	CHILDREN aged 10-15 years						
	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Proportion consuming (%)	Test of significance
Boys							
1985	2,619	138	132	144	104	85	
1995 Total	544	139	127	150	111	79	
Girls							
1985	2,591	106	102	110	80	83	
1995 Total	488	107	97	117	78	78	

The proportion consuming foods from this group on the day of the survey decreased slightly both for boys and girls between 1985 and 1995. For boys the decrease was from 85% to 80% and for girls from 83% to 79%. A similar decrease was seen for adults.

The fact that the mean intake of meat and poultry products effectively did not change between 1985 and 1995 despite the decreased proportion of consumers indicates that the mean intake of consumers rose slightly over the period.

Figure 3.3.9 Estimated mean 24-hour intake of MEAT, POULTRY AND GAME PRODUCTS AND DISHES for children



Note: Scale ranges differ for boys and girls
Source: SSDA 617, 1995 NNS and AFNMU

3.3.10 MILK PRODUCTS AND DISHES

Table 3.3.10 Estimated 24-hour intake of MILK PRODUCTS AND DISHES for children

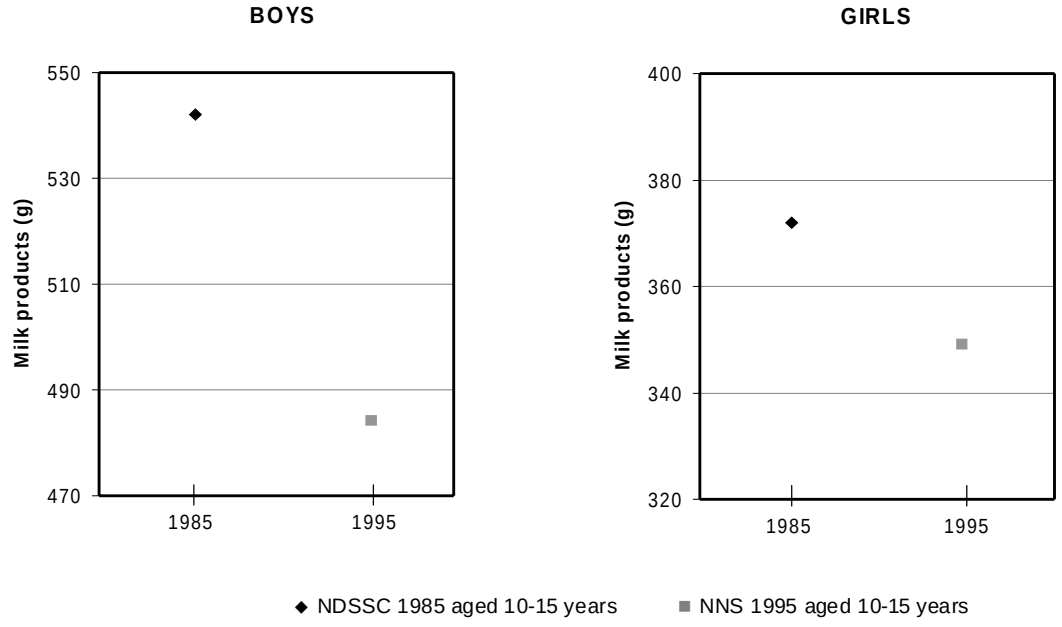
	CHILDREN aged 10-15 years						
	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Proportion consuming (%)	Test of significance
Boys							
1985	2,619	542	525	558	455	95	
1995 Total	544	484	451	518	392	92	*
Girls							
1985	2,591	372	360	383	312	95	
1995 Total	488	349	319	378	281	91	

* Difference between estimated means for 1985 and 1995 comparable subset is statistically significant at the 0.01 level

The proportion consuming foods from this group on the day of the survey decreased slightly for both boys and girls between 1985 and 1995. For boys the proportion decreased from 95% to 92% and for girls from 95% to 91%. These decreases were slightly greater than those observed for adults between 1983 and 1995.

The mean intake of milk and milk products also decreased for both boys and girls but the decrease was significant only for boys. For boys, mean intake of milk and milk products decreased by ~60g per day (~10%) between 1985 and 1995. This decrease was greater than would be expected solely on the basis of the decreased proportion consuming and indicates that the mean intake for consumers of milk and milk products also decreased between 1985 and 1995.

Figure 3.3.10 Estimated mean 24-hour intake of MILK PRODUCTS AND DISHES for children



Note: Scale ranges differ for boys and girls
Source: SSDA 617, 1995 NNS and AFNMU

3.3.11 NON-ALCOHOLIC BEVERAGES (excluding plain drinking water)

Table 3.3.11 Estimated 24-hour intake of NON-ALOCHOLIC BEVERAGES (excluding plain drinking water) for children

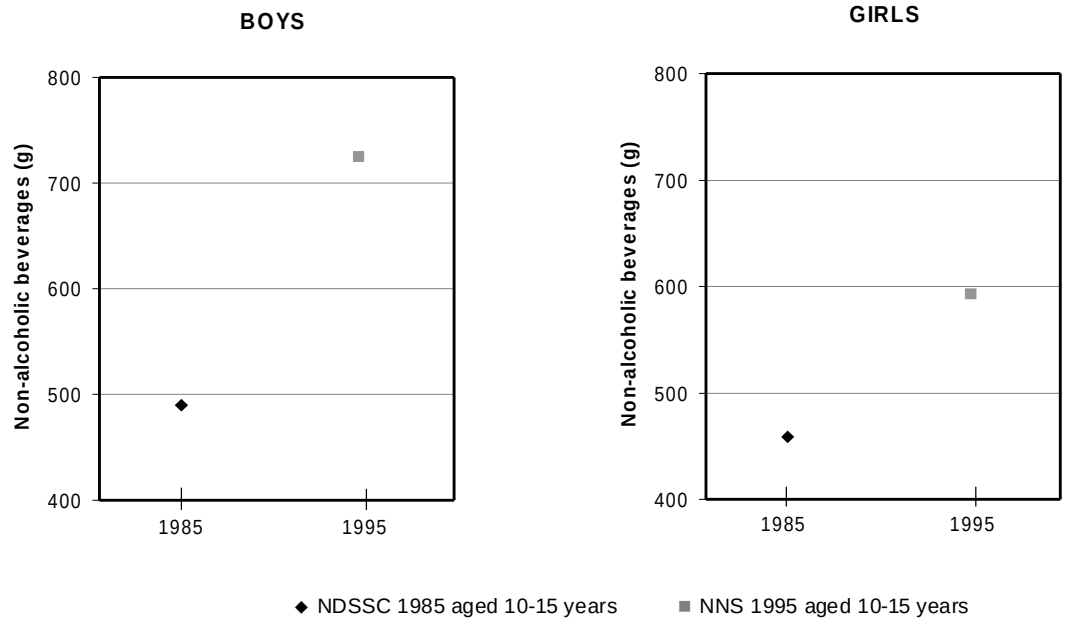
	CHILDREN aged 10-15 years						
	Sample size	Mean intake (g)	95% CI mean Lower	Upper	Median intake (g)	Proportion consuming (%)	Test of significance
Boys							
1985	2,619	490	474	506	438	83	
1995 Total	544	724	670	779	626	87	*
Girls							
1985	2,591	459	445	473	429	84	
1995 Total	488	592	551	633	521	86	*

* Difference between estimated means for 1985 and 1995 comparable subset is statistically significant at the 0.01 level

The proportion consuming from this food group on the day of the survey increased for both boys and girls between 1985 and 1995. For boys the increase was from 83% to 87% and for girls from 84% to 86%. Despite these increases the proportion consuming from this group was still about 10% less than for adults.

The mean intake of non-alcoholic beverages also increased significantly for both boys and girls. For boys the mean intake increased by more than 200g and for girls by about 150g per day between 1985 and 1995. While these increases are greater than those seen for adults between 1983 and 1995, the total intake of non-alcoholic beverages in this age group is still 300-500g per day less than that for adults.

Figure 3.3.11 Estimated mean 24-hour intake of NON-ALCOHOLIC BEVERAGES (excluding plain drinking water) for children



Source: SSDA 617, 1995 NNS and AFNMU

3.3.12 PLAIN DRINKING WATER

Table 3.3.12 Estimated 24-hour intake of PLAIN DRINKING WATER for children

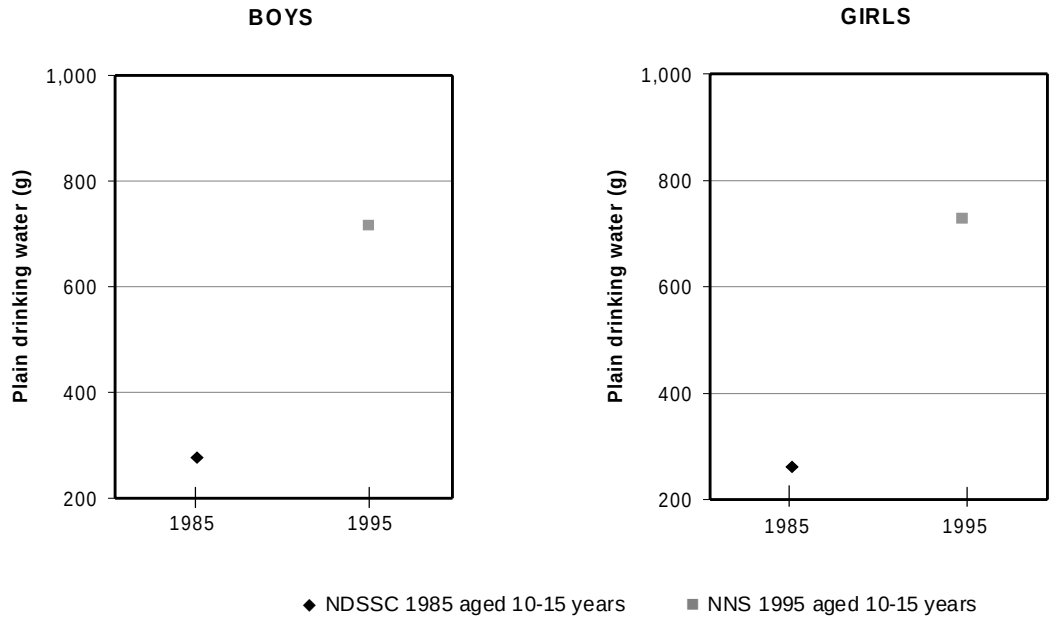
	CHILDREN aged 10-15 years						
	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Proportion consuming (%)	Test of significance
Boys							
1985	2,619	278	262	293	125	54	
1995 Total	544	715	654	777	500	83	*
Girls							
1985	2,591	260	246	273	125	60	
1995 Total	488	727	665	788	500	86	*

* Difference between estimated means for 1985 and 1995 comparable subset is statistically significant at the 0.01 level

The proportion consuming plain drinking water on the day of the survey increased markedly for both boys and girls between 1985 and 1995. For boys the proportion increased from 54% to 83% and for girls from 60% to 86%. These proportions are somewhat higher than those for adults (table 2.3.13).

The mean intake of plain drinking water also increased significantly between 1985 and 1995 from an average of less than 300g to over 700g per day for both boys and girls. These amounts are similar, but slightly higher, than those reported by adults. The increase was much greater than could be expected solely on the basis of the increase in the proportion consuming. As discussed in *The Bridging Study* report this increase may, in part, reflect a difference in the way in which information on plain drinking water was obtained in the two surveys.

Figure 3.3.12 Estimated mean 24-hour intake of PLAIN DRINKING WATER for children



Source: SSDA 617, 1995 NNS and AFNMU

3.3.13 SEED AND NUT PRODUCTS AND DISHES

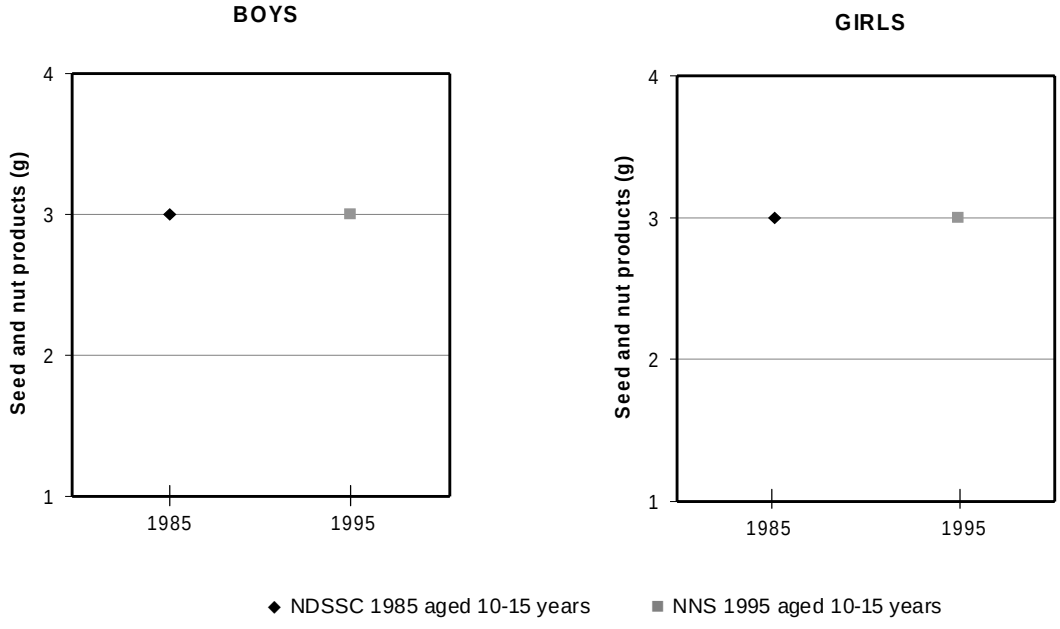
Table 3.3.13 Estimated 24-hour intake of SEED AND NUT PRODUCTS AND DISHES for children

	CHILDREN aged 10-15 years						
	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Proportion consuming (%)	Test of significance
Boys							
1985	2,619	3	3	4	0	17	
1995 Total	544	3	2	4	0	11	
Girls							
1985	2,591	3	2	3	0	16	
1995 Total	488	3	2	4	0	11	

The proportion consuming foods from this group on the day of the survey decreased for both boys and girls between 1985 and 1995. For boys the decrease was from 17% to 11% and for girls from 16% to 11%. A similar decrease was observed for adults (table 2.3.14).

The fact that the mean intake of seed and nut products did not decrease between 1985 and 1995 indicates that the mean intake for consumers of these foods actually increased during this period.

Figure 3.3.13 Estimated mean 24-hour intake of SEED AND NUT PRODUCTS AND DISHES for children



Source: SSDA 617, 1995 NNS and AFNMU

3.3.14 SNACK FOODS

Table 3.3.14 Estimated 24-hour intake of SNACK FOODS for children

	CHILDREN aged 10-15 years						
	Sample size	Mean intake (g)	95% CI mean Lower	Upper	Median intake (g)	Proportion consuming (%)	Test of significance
Boys							
1985	2,619	12	11	13	0	27	
1995 Total	544	12	9	14	0	29	
Girls							
1985	2,591	12	11	13	0	33	
1995 Total	488	12	10	14	0	36	

The proportion consuming from this group of foods on the day of the survey increased marginally for both boys and girls between 1985 and 1995. For boys the increase was from 27% to 29% and for girls from 33% to 36%. The proportion consuming these foods in this age group was much higher than for adults although the direction of change over time was the same (table 2.3.15).

The mean intake of snack foods did not change significantly and was 12g per day for boys and girls both in 1985 and 1995.

Figure 3.3.14 Estimated mean 24-hour intake of SNACK FOODS for children

Source: SSDA 617, 1995 NNS and AFNMU

3.3.15 SOUP

Table 3.3.15 Estimated 24-hour intake of SOUP for children

	CHILDREN aged 10-15 years						
	Sample size	Mean intake (g)	95% CI mean Lower	Upper	Median intake (g)	Proportion consuming (%)	Test of significance
Boys							
1985	2,619	36	31	41	0	9	
1995 Total	544	30	19	41	0	7	
Girls							
1985	2,591	35	31	40	0	11	
1995 Total	488	20	12	28	0	6	*

* Difference between estimated means for 1985 and 1995 comparable subset is statistically significant at the 0.01 level

The proportion consuming soup on the day of the survey decreased for both boys and girls between 1985 and 1995. For boys the decrease was from 10% to 7% and for girls from 11% to 6%. These proportions are lower than for adults (table 2.3.16).

The mean intake of soup also decreased between 1985 and 1995 but significantly so only for girls. For girls, mean intake of soup decreased from 35g per day in 1985 to 20g per day in 1995 and is in line with the decrease in the proportion consuming.

Figure 3.3.15 Estimated mean 24-hour intake of SOUP for children

Source: SSDA 617, 1995 NNS and AFNMU

3.3.16 SUGAR PRODUCTS AND DISHES

Table 3.3.16 Estimated 24-hour intake of SUGAR PRODUCTS AND DISHES for children

	CHILDREN aged 10-15 years						
	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Proportion consuming (%)	Test of significance
Boys							
1985	2,619	17	16	18	9	75	
1995 Total	544	27	20	34	6	61	*
Girls							
1985	2,591	11	11	12	6	68	
1995 Total	488	26	21	31	3	55	*

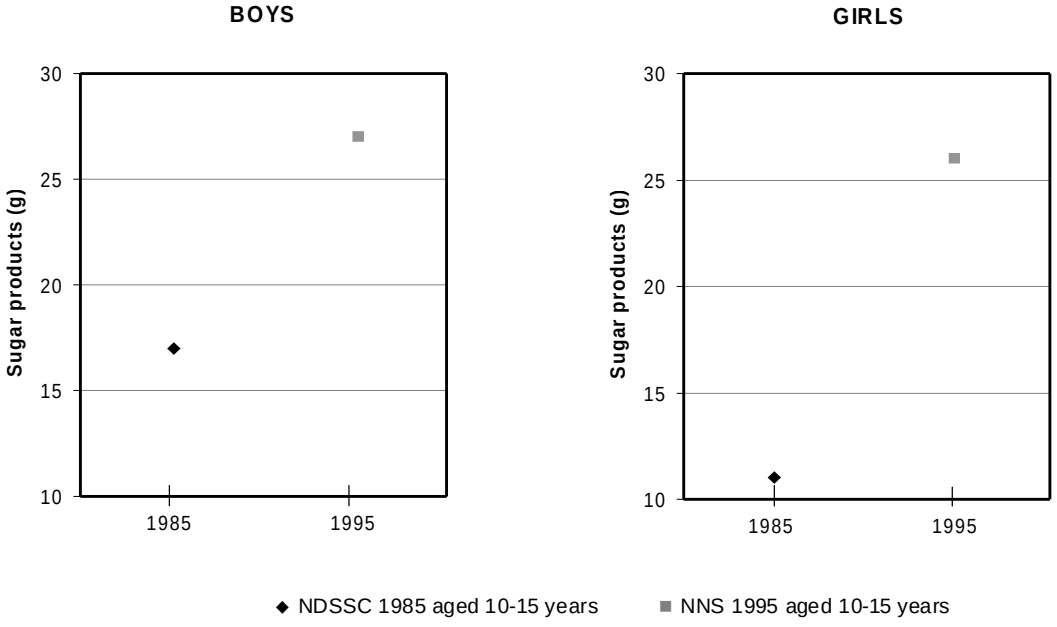
* Difference between estimated means for 1985 and 1995 comparable subset is statistically significant at the 0.01 level

The proportion consuming foods from this group on the day of the survey decreased for both boys and girls between 1985 and 1995. For boys the decrease was from 75% to 62% and for girls from 68% to 55%. These proportions are lower than those for adults (table 2.3.17).

Despite the decrease in the proportion consuming, the mean intake of sugar products and dishes increased significantly for both boys and girls between 1985 and 1995. For boys the mean increase was from 17g to 27g per day and for girls from 11g to 26g per day.

This change is in the opposite direction to that seen for adults. It is likely that this result reflects the inclusion of sugar-based desserts in this food group in 1995 but not in 1985.

Figure 3.3.16 Estimated mean 24-hour intake of SUGAR PRODUCTS AND DISHES for children



Source: SSDA 617, 1995 NNS and AFNMU

3.3.17 VEGETABLE PRODUCTS AND DISHES

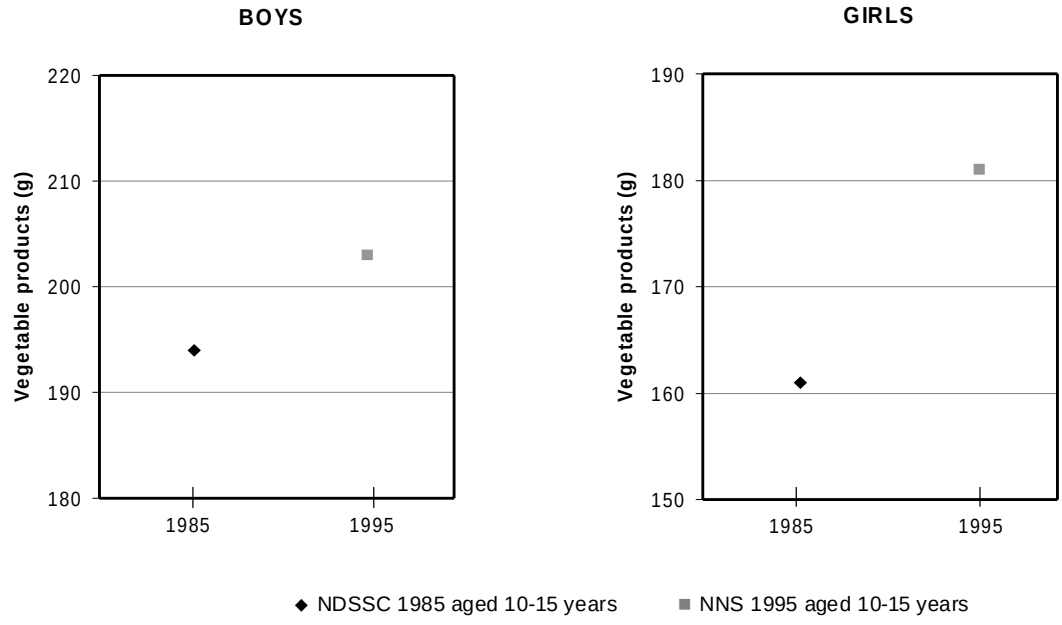
Table 3.3.17 Estimated 24-hour intake of VEGETABLE PRODUCTS AND DISHES for children

	CHILDREN aged 10-15 years						
	Sample size	Mean intake (g)	95% CI mean Lower	95% CI mean Upper	Median intake (g)	Proportion consuming (%)	Test of significance
Boys							
1985	2,619	194	187	201	165	82	
1995 Total	544	203	186	221	157	79	
Girls							
1985	2,591	161	156	166	145	84	
1995 Total	488	181	166	196	150	84	

The proportion consuming foods from this group on the day of the survey decreased between 1985 and 1995 from 82% to 79% for boys but remained at 84% for girls. These proportions are slightly lower than those for adults (table 2.3.18).

While the mean intake of vegetable products and dishes increased by 9g per day for boys and 20g per day for girls between 1985 and 1995, this increase was not significant. The absence of a significant increase in intake of vegetable products and dishes is consistent with the pattern of intake for adults since 1983.

Figure 3.3.17 Estimated mean 24-hour intake of VEGETABLE PRODUCTS AND DISHES for children



Note: Scale ranges differ for boys and girls
Source: SSDA 617, 1995 NNS and AFNMU

Chapter 4

4.1 Key findings for adults

Background

The results in this report provide the best available estimates of 'real change' in food and nutrient intakes since 1983 after adjustment for a number of differences. The differences accounted for include survey design changes (relating to age, geographical coverage, season and day of the week), changes in the food composition database and changes in the Australian population profile since 1983 and between migrant groups. Other possible survey and non-survey related differences have not been adjusted for and remain in these data comparisons.

In this report the tabulated 1995 estimates do not relate to the intake of Australian adults. Rather, they relate to the intake of adults aged 25-64 years, living in state capital cities, whose food intake was collected for one day between Monday and Friday during the months of May to November (in accordance with the more restricted 1983 survey design).

The effect of the sample design and population adjustments on adult intakes is illustrated in graphs that compare the 1983 estimate with two estimates for 1995. One of the 1995 data points is the total 1995 sample estimate while the other is the 'comparable' 1995 estimate.

Anthropometric indicators

Body mass index increased significantly for both men and women between 1983 and 1995. In 1995 mean BMI was close to 27 both for men and women. For women but not men, there was also a small but significant increase in height between 1983 and 1995. Significant increases in weight occurred in all age but not all country of birth subgroups. The exceptions were men and women born in Asia and women born in the UK and Ireland.

While there was no significant change in mean EI/BMR, the ratio was lower than would be expected for a sedentary population, both in 1983 and 1995, and indicates that there was an element of underestimation of energy intake in both surveys.

Nutrients

Intake of energy and most nutrients increased significantly between 1983 and 1995. The exceptions were protein intake, which effectively did not change and intakes of fat, cholesterol and vitamin C that decreased significantly both for males and females. Intakes of vitamin A and zinc also decreased between 1983 and 1995 but significantly so only for zinc for females.

These results did not apply to all age groups or country of birth subgroups. The finding that subgroup differences exist, illustrates the importance of ensuring that sample design factors in national surveys (including sample size) are sufficient to allow reliable comparisons for all subgroups of interest.

Allowing for survey design and demographic differences had some impact on the magnitude of the estimated differences in intake for most nutrients between 1983 and 1995 but only reversed the direction of the non-significant difference for protein intake for males.

The greatest relative increases in nutrient intake were seen for thiamin (25-35%), total starch (20-25%), calcium (12-18%) and iron (10-15%). The increase in thiamin intake since 1983 is mainly due to the introduction in 1991 of mandatory fortification of bread-making flour with thiamin to a level of 6.4mg per kg. Additionally, the increase in carbohydrate intake from cereal sources also contributed to the increase in thiamin intake.

The increase in carbohydrate intake represents a significant shift in dietary energy intake from fat to carbohydrate (both starch and sugars) since 1983 in line with dietary recommendations.

The increases in calcium and iron intake are not due to significant increases in the intake of milk and meat products, which are the principal food sources of calcium and iron in the diet. They are more likely to be due to an increased intake of other important sources of calcium and iron in the diet such as cereals and cereal-based products.

The significant decrease in vitamin C intake is unexpected. It appears to be due primarily to a decreased intake of fruit and fruit products since 1983 and a lower contribution of both fruit and vegetables to total vitamin C intake. The finding that this decrease has occurred despite increases in the supply of both fruit and vegetables since 1983 (ABS 2000) is not readily explained. It is not a consequence of differences in the food composition database since the same database was used to make the comparison.

Foods

Both significant increases and decreases in mean intake of foods occurred between 1983 and 1995. Only three major food groups, confectionery, milk and milk products and vegetables and vegetable products showed no significant changes in mean intake. These three groups also showed no changes in the proportion consuming on the day of the survey.

Plain drinking water was the only item for which the increase was significant for all age and country of birth sub-groups and for which there was also a marked increase in the proportion consuming. The percentage consuming on the day of the survey increased from 45% to 69% for men and from 50% to 78% for women and the mean intake increased by almost 200% between 1983 and 1995. The information on plain drinking water was obtained in a different way in the two surveys and it is possible that this survey related difference accounts for at least some of the increase.

Foods which were consumed by at least 40% of the sample for which there were significant increases in mean intake without an associated increase in the proportion consuming, included cereal-based foods (80-90%), cereals and cereal products (19-27%) and non-alcoholic beverages (9-15%).

Other less commonly consumed foods that showed a significant increase in mean intake without an increase in the proportion consuming, were fish and seafood products, snack foods and legumes.

All significant decreases in the mean intake of major food groups were associated with a decrease in the proportion consuming on the day of the survey. Foods for which there were significant decreases, for both males and females, included eggs and egg products, fats and oils, fruit and fruit products, sugars and sugar products. Mean intake of alcoholic beverages also decreased significantly but only for males. With the exception of the decrease in intake of fruit and fruit products, the decreases are all consistent with current dietary recommendations.

Consumption of some foods differed by age group. A smaller proportion of younger adults (aged 25-44 years) than older adults (aged 45-64 years) consumed alcoholic beverages and fruit and fruit products on the day of the survey, especially in 1995. Differences also exist by country of birth with the Asian born having a mean intake of cereals and cereal products twice that of any other group and also the highest proportion consuming fish or seafood products both in 1983 and 1995 (Cook T, 2000).

Accounting for design and population differences between the 1983 and 1995 surveys altered the magnitude of the estimated difference in intake for most foods but changed the direction only for soup for females.

4.2 Key findings for children

Background

As for adults, the results in this report provide the best available estimates of 'real change' in food and nutrient intakes for children aged 10-15 years since 1985. Because of the small sample size for children in the 1995 survey it was only possible to adjust the child data for changes in the food composition database. Allowances could not be made for sample design differences (season and day of the week) or demographic changes between the 1985 and 1995 surveys. Other possible survey and non-survey related differences have also not been adjusted for and remain in these data comparisons.

The differences in food and nutrient intake described in this report apply to Australian children aged 10-15 years from all parts of Australia. The 1985 and 1995 data, however, are not strictly comparable. The 1985 data relate to dietary intake recorded between Monday to Friday during the months of May to October whereas the 1995 data include all days of the week and all months of the year. These differences need to be taken into account when interpreting the comparisons between 1985 and 1995.

Anthropometric indicators

Both height and weight increased significantly for children aged 10-15 years between 1985 and 1995. Because weight increased to a greater extent than height there was also a significant increase in body mass index since 1985. In 1995, the mean body mass index for both boys and girls in this age group was above the lower limit of the acceptable range of 20-25 for adults.

The mean level of energy intake relative to basal metabolic rate, however, did not exceed the desirable level of energy expenditure in this age group, either in 1985 or in 1995. Together with the increase in body mass index, this observation suggests that either energy intake in this age group was underestimated or that energy expenditure is lower than is desirable.

Nutrients

Mean intake of energy and most nutrients increased significantly for children aged 10-15 years between 1985 and 1995. The exceptions were fat, cholesterol and calcium, for which the mean intake effectively did not change between 1985 and 1995 for both boys and girls. Mean intake of vitamin C also decreased for both boys and girls between 1985 and 1995 but significantly so only for girls.

In general, the increases in nutrient intake between 1985 and 1995 were greater for children aged 10-15 years than for adults. Increases of about 20% were observed for niacin, total carbohydrate, starch and sugars for both boys and girls. Mean thiamin intake rose by 11% for girls and 32% for boys between the two surveys. The increases in protein, iron and magnesium intake for boys and girls were of the same order as that for energy intake (12-15%).

The significant increases in carbohydrate intake (both starch and sugars) are a consequence of the significant increase in energy intake as well as the significant increases, in intake of cereal-based foods, confectionery and sugars and sugar-based products, between 1985 and 1995.

The marked increase in niacin intake is partly due to the increase in energy intake and partly due to an increase in the intake of cereals and cereal-based products since 1985. Like niacin, thiamin is one of the nutrients that may be added to cereal-based products under Australia New Zealand Food Standards Code Vol 1, Standard A9. The higher increase in mean thiamin intake for boys than girls reflects their much greater intake of cereals and cereal-based products.

The significant increase in intake of protein, iron and magnesium follow largely from the increase in energy intake.

Unlike adults, the decrease in mean intake of vitamin C between 1985 and 1995 for children aged 10-15 years, although only significant for girls, is not due to a decrease in mean intake of fruit and fruit products. It is more likely to reflect a reduced contribution of fruit and vegetable juices to total intake of vitamin C. In 1985, fruit and vegetable juices and drinks contributed ~60% of vitamin C intake whereas in 1995 this subgroup contributed only about 45% of the vitamin C intake.

Foods

The mean intake for eight of the 17 food groups analysed effectively did not change between 1985 and 1995. These groups included commonly consumed foods such as cereals and cereal products, fruit and fruit products, meat and meat products and vegetables and vegetable products.

Mean intake increased significantly, both for boys and girls, for six food groups. These groups were cereal-based foods (relative increase 46%), confectionery (40-56%), fish and fish products (88-89%), non-alcoholic beverages (29-48%), plain drinking water (157-180%), and sugars and sugar products (59-136%). With the exception of fish and fish products, foods from these groups were consumed by at least 40% of respondents on the survey day.

The increases for only two of these groups, confectionery and plain drinking water, were associated with a marked increase in the proportion consuming. The increase in mean intake for sugars and sugar products was unusual in that the proportion consuming decreased from 68% to 55% for girls and from 75% to 62% for boys. It is likely that this result reflects the inclusion of sugar-based desserts in this food group in 1995 but not in 1985.

A significant decrease in mean intake of fats and oils was seen for both boys and girls. Milk intake also decreased significantly between 1985 and 1995, but only for boys.

4.3 Conclusions and recommendations

The principal finding of the comparison between the 1983, 1985 and 1995 surveys is that significant changes in food and nutrient intake have occurred between 1983/85 and 1995. Over the same period there were also significant increases in weight and body mass index for both adults and children.

As indicated in the *The Bridging Study*, a companion publication to this report, it is inappropriate to directly compare published results from the 1983 and 1985 surveys with the 1995 survey in order to assess trends in the food and nutrient intake of adults and children. Allowances are needed to account for differences in sample design, data collection and processing practices, the food composition databases and demographic changes in the Australian population between the surveys.

Because of the complex nature of food and nutrient intake data it is not always possible to anticipate the effect that specific design differences will have on survey results. Consequently, differences are best minimised where possible. However, when comparing survey results it is always necessary to identify the impact of any differences and where possible, to adjust for these to improve data comparability.

The design and response rate to the 1995 survey resulted in a final sample size of around 100 males and 100 females for each year of age. This sample size was insufficient for subgroup estimates relating to age (other than ten year age groups), for some ethnic groups (including Indigenous Australians) and for regional comparisons.

It is recommended that the design of future national nutrition surveys allow changes in dietary intake to be monitored for selected age, ethnic and regional groups within the Australian population.

Samples will need to be sufficiently large to account for anticipated changes in the age and geographical distribution of the Australian population.

Interpretation of the 1983, 1985 and 1995 results is complicated by the extent of non-participation in these surveys. Despite adjustments for non-response, estimates from these surveys are likely to be biased due to non-response rates of up to 40%. It is recommended that future research, including collaboration with others involved in health survey development work in Australia and overseas, be undertaken to improve response rates to national nutrition surveys.

For the specific purpose of monitoring dietary change in Australia, it is recommended that the effectiveness of a range of other indicators of food intake (eg food supply, food expenditure, food habits and nutritional status) be assessed and used to complement the collection of more detailed data on dietary intake. National nutrition surveys, as currently conducted, are more appropriately considered as a source of benchmark data against which other more regularly collected data can be evaluated.

A series of recommendations relating to the design of future dietary collections in Australia is provided in *The Bridging Study*. Further recommendations are presented in a suite of related reports prepared by the Australian Food and Nutrition Monitoring Unit (Rutishauser I et al 2001, Webb K et al 2001, and Marks G et al 2001).

Appendix A – Data definitions for food groups

Table A.1 Food group definitions used to output 1983, 1985 and 1995 survey results

Food Group	Code	1995	Code	1983 and 1985
11		**Non-alcoholic beverages**		
	113	Fruit and vegetable juices and drinks	M1	Orange juice
	114	Soft drinks, flavoured mineral waters, electrolyte drinks	M2	Other fruit and vegetable juices
	115	Mineral waters and water	M3	Fruit juice drinks
	116	Water with other additions as a beverage	M4	Soft drinks sweetened
			M5	Artificial sweetened and mineral waters
			M6	Cordials
	111	Tea	M7	Tea
	112	Coffee and coffee substitutes	M8	Coffee and coffee substitutes
12		**Cereals and cereal products**		
	123	Breakfast cereals, plain, single source	A1	Breads - white, rye
	124	Fancy breads, flat breads, English-style muffins and crumpets	A2	Breads - wholewheat, kibble
	125	Pasta and pasta products	A3	Other yeast and bread-type products
	121	Flours and other cereal grains and starches	A4	Flour
	126	Rice and rice products	A5	Pasta
	127	Breakfast cereals, mixed source	A6	Rice
	122	Regular breads, and rolls	A7	Cereal grains, other
	128	Breakfast cereal, hot porridge type	A8	Breakfast cereal - bran
			A9	Breakfast cereal - corn, rice, sweetened
			A10	Breakfast cereal - muesli
			A11	Breakfast cereal - oats, oatmeal
			A12	Breakfast cereal - protein fortified
			A13	Breakfast cereal - wholewheat
13		**Cereal-based products and dishes**		
			A14	Pastry
	134	Pastries	A15	Cake and cake-type puddings
	133	Cakes, buns, muffins, scones, cake-type desserts	A16	Biscuits - savoury
	131	Sweet biscuits	A17	Biscuits - sweet plain
	132	Savoury biscuits	A18	Biscuits - sweet fancy
	135	Mixed dishes where cereal is the major ingredient	A19	Desserts containing cereal
	136	Batter-based products	A20	Desserts, other
			A21	Breakfast cereal - pre-sweetened
			A22	Muesli bars
			D9	Take-away (excluding fish)

Food Group	Code	1995	Code	1983 and 1985
14		**Fats and oils**		
	141	Dairy fats	I1	Butter
	143	Vegetable oil	I2	Margarine - polyunsaturated
	144	Other fats	I3	Margarine - other
			I4	Other spreads
	145	Unspecified fats	I5	Poly oil, blended
			I6	Oils
	142	Margarine	I7	Fats, solid and unspecial cook
15		**Fish and seafood products and dishes**		
	151	Fin fish (excluding canned)	E1	Fish
	152	Crustacea and molluscs (excluding canned)	E2	Crustacea and molluscs
	153	Other sea and freshwater foods	E3	Canned products, spreads, etc.
	154	Packed (canned and bottled) fish and seafood		
	155	Fish and seafood products		
	156	Mixed dishes with fish or seafood as the major component		
16		**Fruit products and dishes**		
	163	Citrus fruit	C1	Citrus fruits
	161	Pome fruit	C2	Apples, pears and similar fruits
	165	Tropical fruit	C3	Banana
	166	Other fruit	C4	Other tropical fruits
	164	Stone fruit	C5	Stone fruits
	162	Berry fruit	C6	Berry fruits
	167	Mixtures of two or more groups of fruit	C7	Dried fruits
	168	Dried fruit, preserved fruit	C8	Other fruits
	169	Mixed dishes where fruit is the major component		
17		**Egg products and dishes**		
	171	Eggs	F1	Eggs
	172	Dishes where egg is the major ingredient		
	173	Egg substitutes and dishes		
18		**Meat, poultry and game products and dishes**		
	181	Muscle meat	D1	Beef and veal
	182	Game and other carcase meats	D2	Lamb
	183	Poultry and feathered game	D3	Poultry and game
	184	Organ meats and offal, products and dishes	D4	Pork (including ham and bacon)
	185	Sausages, frankfurts and saveloys	D5	Meat offal
	187	Mixed dishes where beef or veal is the major component	D6	Deli meats (excluding ham and bacon)
	186	Processed meat	D7	Sausages, frankfurters

Food Group	Code	1995	Code	1983 and 1985
	188	Mixed dishes where lamb or pork, bacon, ham is the major component	D8	Mixed dishes (including meat substitutes)
	189	Mixed dishes where poultry or game is the major component		
19		**Milk products and dishes**		
	191	Dairy milk	H1	Milk - liquid, whole
	192	Yoghurt	H2	Milk - liquid, fat reduced
	193	Cream	H3	Milk - evaporated
	194	Cheese	H4	Milk - powdered
	198	Flavoured milks	H5	Cheeses
	195	Frozen milk products	H6	Yoghurts
	196	Other dishes where milk or a milk product is the major component	H7	Ice creams
	197	Milk substitutes	H8	Creams
			H9	Milk - flavoured
20		**Soup**		
	201	Soup	O6	Soups
	202	Dry soup mix		
	203	Canned condensed soup		
21		**Seed and nut products and dishes**		
	211	Seeds and seed products	G1	Peanuts, peanut paste, cashews
	212	Nuts and nut products	G2	Other nuts and seeds
22		**Savoury sauces and condiments**		
	221	Gravies and savoury sauces	O1	Sauces, sweet and savoury
	222	Pickles, chutneys and relishes	O2	Sauces, tomato
	224	Salad dressings	O3	Pickles and chutney
	225	Stuffings	O4	Salad dressings
23		**Vegetable products and dishes**		
	231	Potatoes	B1	Potato
	235	Peas and beans	B2	Peas and beans
	236	Tomato and tomato products	B4	Tomato and tomato products
	233	Carrot and similar root vegetables	B5	Carrots
	234	Leaf and stalk vegetables	B6	Leafy greens
	232	Cabbage, cauliflower and similar brassica vegetables	B7	Cabbage, cauliflower and similar vegetables
	237	Other fruiting vegetables	B8	Marrow, pumpkin and similar vegetable
	238	Other vegetables and vegetable combinations	B9	Onions, leeks, shallots
	239	Dishes where vegetable is the major component	B10	Turnips, parsnips and similar vegetables
			B11	Other vegetables

Food Group	Code	1995	Code	1983 and 1985
24		**Legume and pulse products and dishes**		
	241	Mature legumes and pulses	B3	Legumes and pulses
	242	Mature legume and pulse products and dishes		
25		**Snack foods**		
	252	Corn snacks	L1	Snack foods - other
	251	Potato snacks	L2	Potato crisps
	253	Extruded snacks		
	254	Pretzels and other snacks		
26		**Sugar products and dishes**		
	261	Sugar, honey and syrups	J1	Sugars and sugar products
	263	Dishes and products other than confectionery where sugar is the major component	J2	Jams and lemon spreads
	262	Jam and lemon spreads, chocolate spreads	J3	Honey and syrups
27		**Confectionery and health bars**		
	271	Chocolate and chocolate-based confectionery	K1	Filled and plain chocolate
	272	Cereal-, fruit-, nut- and seed-bars	K2	Confectionery, other
	273	Other confectionery		
28		**Alcoholic beverages**		
	281	Beers	N1	Beer - standard
	282	Wines	N2	Beer - reduced alcohol
	283	Spirits	N3	Wine - white and cider
	284	Other alcoholic beverages	N4	Wine - red and rose
			N5	Spirits
			N6	Liqueurs, port, sherry, vermouth
29		**Special dietary foods**		
	291	Formula dietary foods		
	292	Enteral formula		
30		**Miscellaneous**		
	302	Yeast; yeast, vegetable and meat extracts	O5	Yeast and meat extracts
	301	Beverage flavourings	O7	Beverage flavourings
	303	Artificial sweetening agents	O8	Artificial sweeteners
	304	Herbs, spices, seasonings and stock cubes		
	305	Essences		
	306	Chemical raising agents and cooking ingredients		
		Other		**Other**
	777	Plain drinking water	M11	Water

Source: ABS 1998a, NUTTAB 1991/92

Appendix B - Data definitions for countries of birth

Table B.1 Country of birth definitions used to output 1983 and 1995 survey results

Country group	1995	1983
Aust/NZ	**Australia and New Zealand**	
	Australia (including Other Territories of Christmas Island, Cocos (Keeling) Island and Jervis Bay)	Australia (including Jervis Bay)
	New Zealand	Australian external territories (Christmas and Cocos (Keeling) Islands)
		New Zealand
UK/Ireland	**United Kingdom and Ireland**	
	England	England
	Scotland	Wales
	Wales	Scotland
	Northern Island	Northern Island
	Channel Islands	Republic of Ireland
	Isle of Man	England
	Ireland	Wales
	The United Kingdom and Ireland, not further defined	Scotland
O' Europe	**Other Europe**	
	Italy	Northern Europe
	Greece	Southern Europe
	Other Southern Europe	
	Western Europe	
	Northern Europe	
	Eastern Europe	
	The Former USSR and the Baltic States	
Asia	**Asia**	
	Vietnam	Asia (excluding Middle East countries)
	Other Southeast Asia	
	Southern Asia	
	Northeast Asia	
Other	**Other countries**	
	Middle East	Middle East
	North Africa	Africa
	Northern America	United States of America (including Hawaii)

Country group	1995	1983
	South America	Canada
	Central America	Other American Countries
	The Caribbean	Pacific Islands
	Africa	Other
	Central and West Africa	
	Southern and East Africa	

Source: ABS 1990, SSDA 1993a

Glossary

Many of the glossary items in this section have been re-printed from Australian Bureau of Statistics publications (ABS 1997, 1998a, 1998b, 1998c and 1999a) with permission from the Director of the Health Section of the Australian Bureau of Statistics.

ANSURS

The Australian Nutrition Survey System is an automated food coding system used for entering food and beverage intake data from the 24-hour recall.

AUSNUT

A CD ROM released by ANZFA in 1999 comprising seven inter-related data files that contain descriptive and numerical data on the food and nutrient composition of Australian foods. It is an updated, commercial version of the technical support files used to code food intakes reported in the 1995 National Nutrition Survey. The nutrient file in AUSNUT is significantly revised and expanded (over 4500 foods) from NUTTAB95 (1800 foods). The nutrient values in AUSNUT are a mixture of analytical, calculated and imputed data rather than a compilation of mostly analytical data, as is the case for NUTTAB95 (refer NUTTAB).

Biased estimates

Survey results that cannot be relied on to give the true population value even after repeated samples.

Basal metabolic rate

BMR is the amount of energy expended at rest over a given period of time. BMR has been predicted in megajoules (MJ) per 24 hour based on age and sex (Schofield 1985), as recommended by the National Health and Medical Research Council (NHMRC 1991).

BASAL METABOLIC RATE

Age group (years)	Males	Females
10-18	0.074 x weight (kg) + 2.754	0.056 x weight (kg) + 2.898
19-30	0.063 x weight (kg) + 2.896	0.062 x weight (kg) + 2.036
31-60	0.048 x weight (kg) + 3.653	0.034 x weight (kg) + 3.538
Over 60	0.049 x weight (kg) + 2.459	0.038 x weight (kg) + 2.755

EI/BMR has been calculated as energy intake divided by predicted BMR, both expressed in megajoules (equivalent to 1,000 kilojoules).

Body mass index - adults

Based on height and weight as measured by the interviewer. Body mass index (BMI) is body weight in kilograms divided by the square of height in metres (kg/m^2). The groups used are those recommended by the World Health Organisation (1995).

BODY MASS INDEX - adults

Underweight or thinness:	<18.5
Normal or acceptable weight range (a)	18.5–<20.0
	20.0–<25.0
Overweight	25.0-<30.0
Obese	³30.0

(a) The normal or acceptable range has been split to enable comparison with NHMRC categories.

The measuring scales only measured weights up to 140 kilograms. People over this weight have been classified as obese.

Body mass index – children and adolescents

In children and adolescents age and sex specific reference values are used in place of the BMI categories described above. This is because weight and height, and therefore BMI, are age and sex dependent during childhood and adolescence.

BODY MASS INDEX – children and adolescents

Low BMI for age	If BMI is less than 5th percentile reference value for their age and sex
Acceptable BMI for age	If BMI is greater than or equal to 5th percentile and less than 85th percentile
At risk of overweight	If BMI is greater than or equal to 85th percentile and less than the 95th percentile
Overweight	If BMI is greater than or equal to the 95th percentile

Capital city

Defined in the 1995 survey in accordance with the Australian Standard Geographical Classification (edition 2.1) as the capital city statistical division for each state/territory. Capital cities and metropolitan areas are combined on the CURF for all states and territories except Queensland.

Defined in the 1983 survey as within a 16km radius of National Heart Foundation centres for six state capital cities.

Central limit theorem

The central limit theorem states that for a random sample of observations from any distribution with a finite mean and a finite variance, the average will tend to follow a normal distribution for

	large samples. This theorem is the main justification for the widespread use of confidence intervals based on the normal distribution and for t tests when estimating the mean and comparing two means.
Confidence interval	The range of values that has a specified probability (eg 95%) of containing the parameter being estimated (eg mean). The range is defined by the lower and upper confidence limit.
Coverage	Coverage refers to the extent to which the desired scope of the collection has been achieved. Coverage rules for surveys attempt to ensure that each person within the target population has only one chance of being interviewed.
Country of birth	Refer to appendix B for country of birth data definitions used to output data in this report.
Direct standardisation	Method used to transform population-based data to a single base population distribution. Use of standardized estimates improves comparability of population-based estimates across time and between subpopulation groups. The population standard used in this report was the population distribution used to weight the 1983 survey results.
Eating occasion	Each food or beverage reported in the 24-hour recall is assigned to an eating occasion. This information is not available for plain drinking water. Participants selected the name of the eating occasion from a list provided by the interviewer. The list contained the following options: · breakfast; · lunch and brunch; · dinner; and · other (this included food and/or beverage break, supper, other extended consumption, not stated and don't know).
Energy intake to BMR ratio (EI/BMR)	The ratio of energy intake over a 24-hour period to BMR predicted on the basis of weight, age and sex. This ratio provides an estimate of the level of physical activity and has also been used to develop cut-off limits for implausibly low intakes.
Estimation procedure	Estimates from the 1995 survey were derived using a complex estimation (weighting) procedure which ensures that survey estimates conform to independent population estimates of the Australian population for the third quarter of 1995. Specifically the estimates conform to Australian age by sex estimates and Australian State by part of State estimates. Estimates from the 1985 survey were derived using post stratification weights relating to age, sex and state of residence for the Australian population at 30 June 1985.

	Estimates from the 1983 survey were derived using post stratification weights relating to age, sex, country of birth and city of residence for the population in selected areas of Australia's six state capital cities at 30 June 1983. Standardized estimates were prepared based on the population distribution used to weight the 1983 survey using the direct standardization method.
Food Codebook Database	This database was part of ANSURS. The Food Codebook Database contained information used to code the type and amount of each food/ beverage that was reported in the 24-hour recall.
Food codes	Foods and beverages consumed in the 24-hour dietary recall were allocated eight-digit codes to uniquely identify each food. The first four digits can be used to categorise foods and beverages into a hierarchical classification system. This classification has been published in the *National Nutrition Survey Users' Guid*e Cat No 4801.0. Digits five to seven are simply unique identifiers and the last digit indicates whether the food is a modifiable recipe (value of '2') or a single item food/unmodifiable recipe (value of '1'). There are two fields that indicate the food code. Most food records contain an 8-digit code in the field FOODCOD1. However modified recipes have a 6-digit code in FOODCOD1 and the 8-digit code of the base recipe in FOODCOD2. For most purposes the 8-digit code of the modified recipes is suitable for categorising foods as the recipe modifications while altering nutrient composition did not alter the nature of the food/beverage.
Food groups	Foods and beverages reported in the 24-hour recall can be categorised to varying levels of detail. This classification was based on those used in the 1983 dietary survey of adults, with modifications done in consultation with experts. The major food groups are similar to those used in the National dietary survey of adults, 1983 and the National dietary survey of schoolchildren (aged 10-15 years), 1985. However, there are differences in the classification systems between the surveys.
Heteroscedasticity	Assumes that the means being statistically tested come from populations with unequal variances (ie lack of homogeneity of variances).
Individual food intake questionnaire (IFIQ)	Individual food intake questionnaire, also referred to as the 24-hour recall (refer 24-hour dietary recall).

List survey	Surveys using one or more lists as their sample frame (refer sample frame).
Major food group	The broadest level of output data on food consumption available from the 1995 National Nutrition Survey (ABS 1999a). This level was used to output food intake estimates for the 1983, 1985 and 1995 surveys in this report. Refer appendix A for food group data definitions.
Mean	The estimated value consumed by the population on average.
Median	The estimated value at which half the population consumed more and half the population consumed less.
Metropolitan areas	Defined in the 1995 survey as areas containing capital cities or an urban centre with a population of 100,000 or more. Capital cities and metropolitan areas are combined on the CURF for all states and territories except Queensland. Specifically, the urban centres of Gold Coast and Townsville/Thuringowa are included in the CURF definition of rest of state for Queensland, rather than being combined with Brisbane capital city.
Nutrient	Throughout this report the term nutrient has been used to describe a range of food components including energy, macronutrients (such as carbohydrate), vitamins, minerals and non-nutrients that may affect health (such as dietary fibre).
NUTTAB	A nutrient composition database developed by ANZFA, it is compiled mainly from analytical data published in the Composition of Foods, Australia (COFA) series. The 1987 and a number of later versions of NUTTAB included food codes originally used for coding food intakes reported in the 1983 and 1985 national dietary surveys. Since the 1995 National Nutrition Survey, food codes from older surveys are no longer issued. In 1996, ANZFA developed a separate customised nutrient composition database to code the food intakes reported in the 1995 National Nutrition Survey. The database (referred to above in the AUSNUT entry as one of the technical support files), was developed in collaboration with the former Department of Health and Family Services, is significantly revised and expanded from NUTTAB95, and forms the basis for the AUSNUT data files.
Part of state	In the 1995 survey, capital city is the capital city statistical division for each state/territory. Rest of the state is the remaining areas in each state/territory. For some states and territories, the rest of state definition differs on the CURF (refer Metropolitan areas).

Plain drinking water	Tap water or any uncarbonated bottled water, with nothing added, not even lemon. Plain drinking water has been classified as a non-alcoholic beverage in ABS tables on food intake. In nutrient intake tables, the only constituent that has been included is the moisture content.
Post stratification	Partitioning the population and sample into subgroups after collection of survey results, often for the purpose of applying weights to minimise the effects of survey under-coverage and or non-response.
Prompt card	A card used to assist respondents to understand concepts and definitions relating to specific survey questions.
Proportion consuming	An estimate of the proportion of the population who consumed specific foods within the 24-hour survey period.
Proxy interviews	Proxy interviews were used to collect 24-hour food record data in the 1995 NNS for children aged two years up to four years and for adult participants who could not report for themselves because of physical or mental limitations. The preferred proxy was the person responsible for preparing the participant's meals. Interpreters were used for people who could not conduct the interview in English (this could be either another member of the household, if the respondent agreed, or an interpreter arranged by the ABS). Children aged 5-11 years old were asked to provide their own food intake data with the assistance of an adult household member.
Recipe Database	This database was part of ANSURS. It stored information about the ingredients of recipe foods and was used by the recipe processing system in ANSURS to calculate nutrient values for recipe foods, taking into account changes in moisture, vitamins and minerals as a result of cooking.
Recipe foods	Recipe foods consist of several ingredients mixed/cooked together (eg chocolate cake or macaroni cheese). Within ANSURS, the term 'recipe' refers specifically to foods which consist of other foods in the Food Codebook Database and which consequently can have their recipe modified during coding to take account of specific types of ingredients, such as the kind of fat used.
Sample count	Number of survey respondents.
Sample frame	A systematic and structured record of the population from which a sample can be drawn with a known probability.
Significance level	The pre-selected probability (or alpha risk) in statistical testing of incorrectly rejecting the base assumption (null hypothesis) when it is

	in fact true. The statistical tests in this report have had a null hypothesis that the two population means are equal.
Scope	When used in a statistical context, the term 'scope' refers to the target population covered by a data collection.
Skewed distribution	A frequency distribution that is not symmetrical about its mean. Data from positively skewed (skewed to the right) distributions have values that are bunched together below the mean and a long tail above the mean.
Standard deviation	A measure of the spread in the distribution of responses to the survey.
Sub-major food group	The second and lower level of the output data on food consumption available from the National Nutrition Survey. Refer appendix 2 in *National Nutrition Survey Foods Eaten* (ABS 1999a) for more details.
Subset	A group of units selected from within a sample that meet specified criterion (eg age-range) rather than selection through probability (ie not a sub-sample).
24-hour dietary recall	This was the methodology used in the 1995 and 1983 surveys to collect detailed information on food and nutrient intake from respondents. In 1995, the 24-hour dietary recall collected a list of all foods and beverages consumed the previous day from midnight to midnight, the amount consumed, the time of consumption, the name of the eating occasion, the source of the foods and beverages, whether they were consumed in the home and whether they were ever in the home. Food and nutrient data were obtained by a face-to-face interview with respondents (or proxies) in their homes in 1995 and at a centralised location in 1983. The interview was conducted by a nutritionist/ dietitian.
24-hour dietary record	In 1985, survey participants completed a diary record about food and beverage intakes over a 24-hour recording period, roughly midday to midday, with the assistance of trained staff within the selected schools. Respondents were interviewed individually and diaries were checked as part of follow-up activity.
Weights	Adjustment factors applied to survey results to account for differences in the probability of selection, the rate of response or the relative importance of individuals or subgroups within a sample.

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