

# Dietary intake assessments by FSANZ: validation of National Nutrition Survey data

P Chubb<sup>1</sup>, J Boorman<sup>1</sup>, J Baines<sup>1</sup>

<sup>1</sup>. Food Standards Australia New Zealand, ACT 2600

## Background

FSANZ undertakes dietary intake assessments for nutrients as part of food standards development. Data on foods people have consumed are combined with recent analysed levels of nutrients in individual foods. The most recent food consumption data for individuals are from the 1995 National Nutrition Survey (NNS) for Australia and the 1997 NNS for New Zealand, both of which used a 24-hour food recall methodology. Limitations of the NNS data relate to their age and inability to reflect potential changes in consumption patterns since 1995/97. To address this limitation, FSANZ validates NNS data, where required, using more recent information on food consumption. The validation of NNS data for use in assessing *Trans* fatty acids (TFA) intakes in a recent FSANZ risk assessment has been used as an example (Food Standards Australia New Zealand, 2007).

## Objective

To determine whether food consumption patterns have changed markedly since the NNS data were collected and therefore, whether predicted TFA intakes determined in a recent risk assessment based on the NNS data were valid.

## Design

Data on food consumption obtained in the 1995/97 NNSs were compared with more recent Single Source data supplied by Roy Morgan Research (Roy Morgan Research, 2007). Data on all foods contributing to TFA intakes were not available and this analysis assessed milk, fat spreads, cheese, yoghurt and potato crisps consumption patterns.

## Comparing data from different surveys

The comparison of data from different surveys needs to be undertaken with care due to the different methodologies used. Different types of data were available from the 1995 NNS, 1997 NNS and Single Source Survey on the proportions of the Australian and New Zealand populations consuming different types of foods. These data are outlined in Table 1.

Table 1: Comparison of food consumption survey data available for Australia and New Zealand

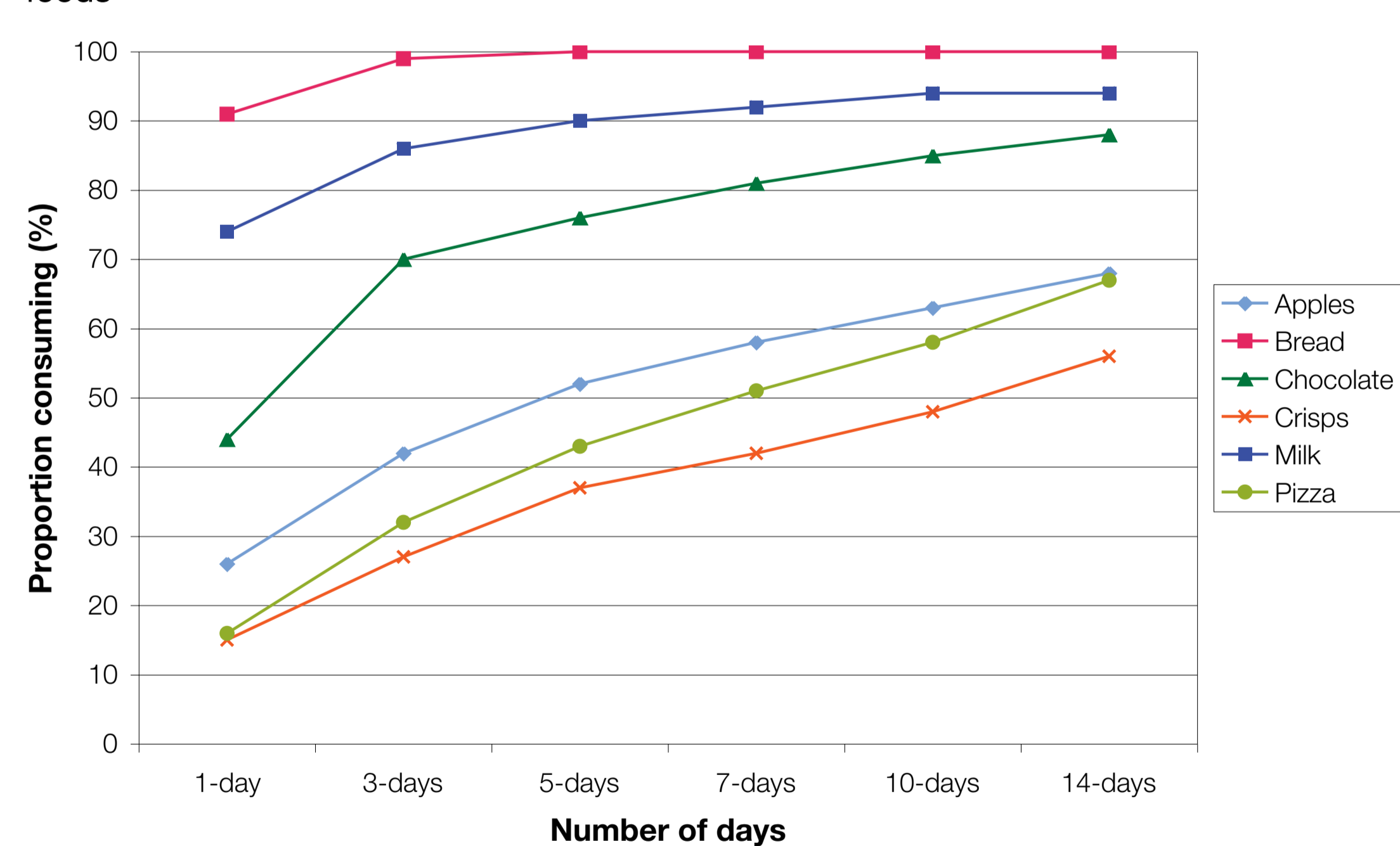
Data Type	Design	Australian NNS	New Zealand NNS	Single Source
		1995	1997	2001-present
Daily Consumer	Proportion of survey participants who consumed particular foods in the 24-hour recall	✓	✓	✗
Weekly Consumer	Frequency of consumption during previous 12 months via a food frequency questionnaire (FFQ) <sup>1</sup>	✓	✗	✗
	Usual frequency of consumption via a FFQ <sup>2</sup>	✗	✓	✗
	Consumption of particular foods in the last seven days	✗	✗	✓

1. To obtain data regarding weekly consumption, figures of 1-6 times/week and 1-6+ times/day are added.  
2. No time-frame was specified in the New Zealand NNS.

Differences in the proportion of the population consuming a food such as chocolate from the older single 24-hour recall NNS and the more recent Single Source data (based on weekly consumption) may not be due to changes in consumption patterns but may result from methodology differences. Figure 1 illustrates the influence of food consumption survey duration in determining the proportion of a population who consume certain foods. Food consumption data from a single 24-hour recall survey may more accurately reflect the proportion of the population who consume commonly consumed foods (e.g. bread, milk) than those consumed occasionally (e.g. chocolate). As the survey duration increases (e.g. from a 24-hour recall to a 7-day period), there is greater likelihood that an occasionally consumed food such as chocolate will be reported as being consumed.

In some instances, the foods under consideration may not be identical between different surveys due to the use of different definitions for the foods (e.g. "breads" may include loaf bread and rolls in one survey and may include loaf bread, rolls, flat breads and English muffins in another).

Figure 1: % consumers based on 1, 3, 5, 7, 10 and 14 days of recording, for selected foods



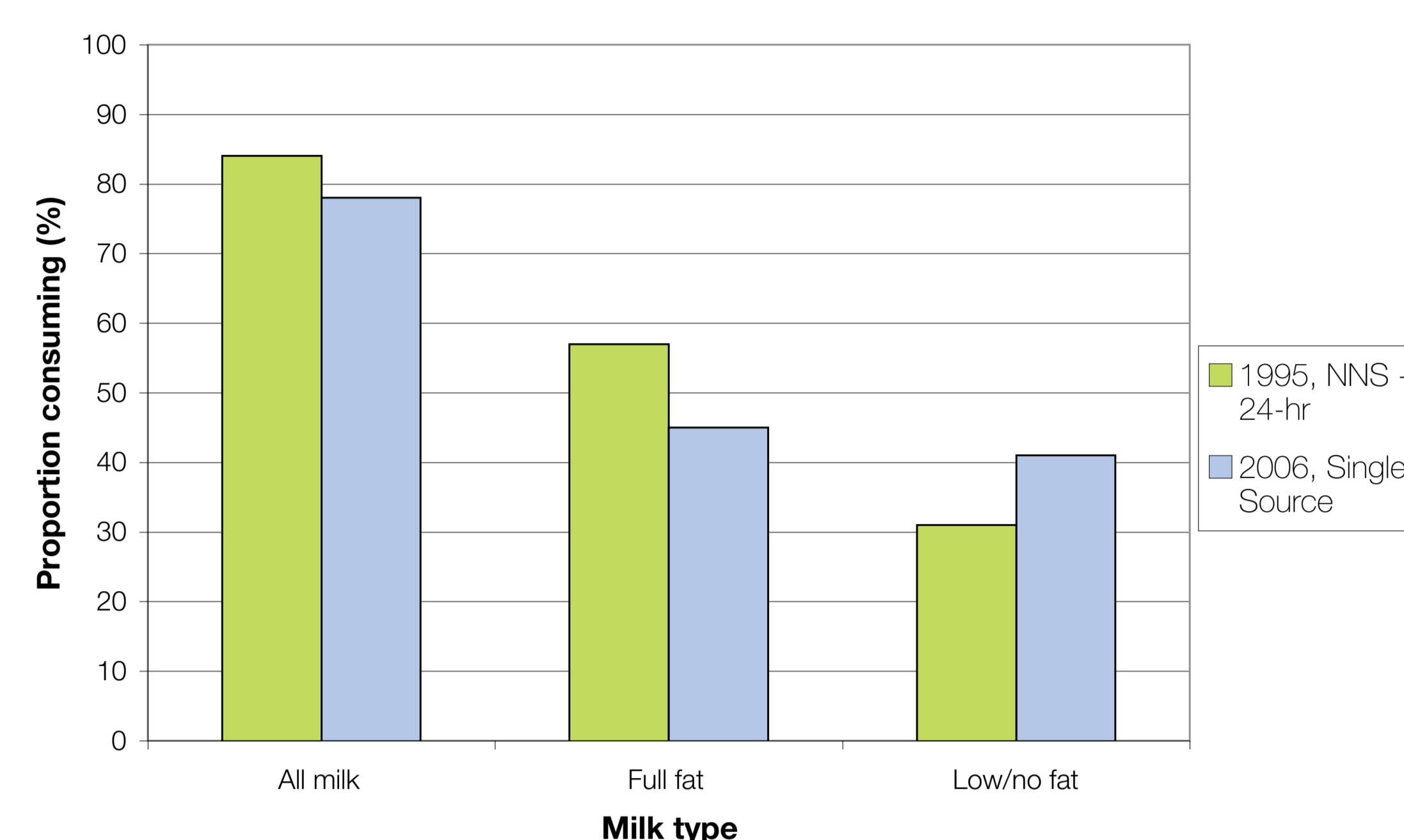
Source: (Institute of European Food Studies, 1998)

## Outcomes of validation process

Potential changes in the proportion of Australian/New Zealand population groups consuming milk, fat spreads, cheese, yoghurt and potato crisps over time was investigated using the 1995 NNS, 1997 NNS and the Single Source data. The amount of each food that was consumed was not further assessed.

## Milk

Figure 2: Proportion of the Australian population aged 14 years and above consuming milk: 1995 and 2006



## Notes:

- 1995 data: % who consumed on the day of the survey (24-hr recall). "All milk" includes full, low and no fat plain and flavoured dairy and non-dairy milk.
- 2006 data: % who consumed in last 7 days (Single Source). Data is from Jan-June. "All milk" includes full, low and no fat plain and packaged flavoured milk.

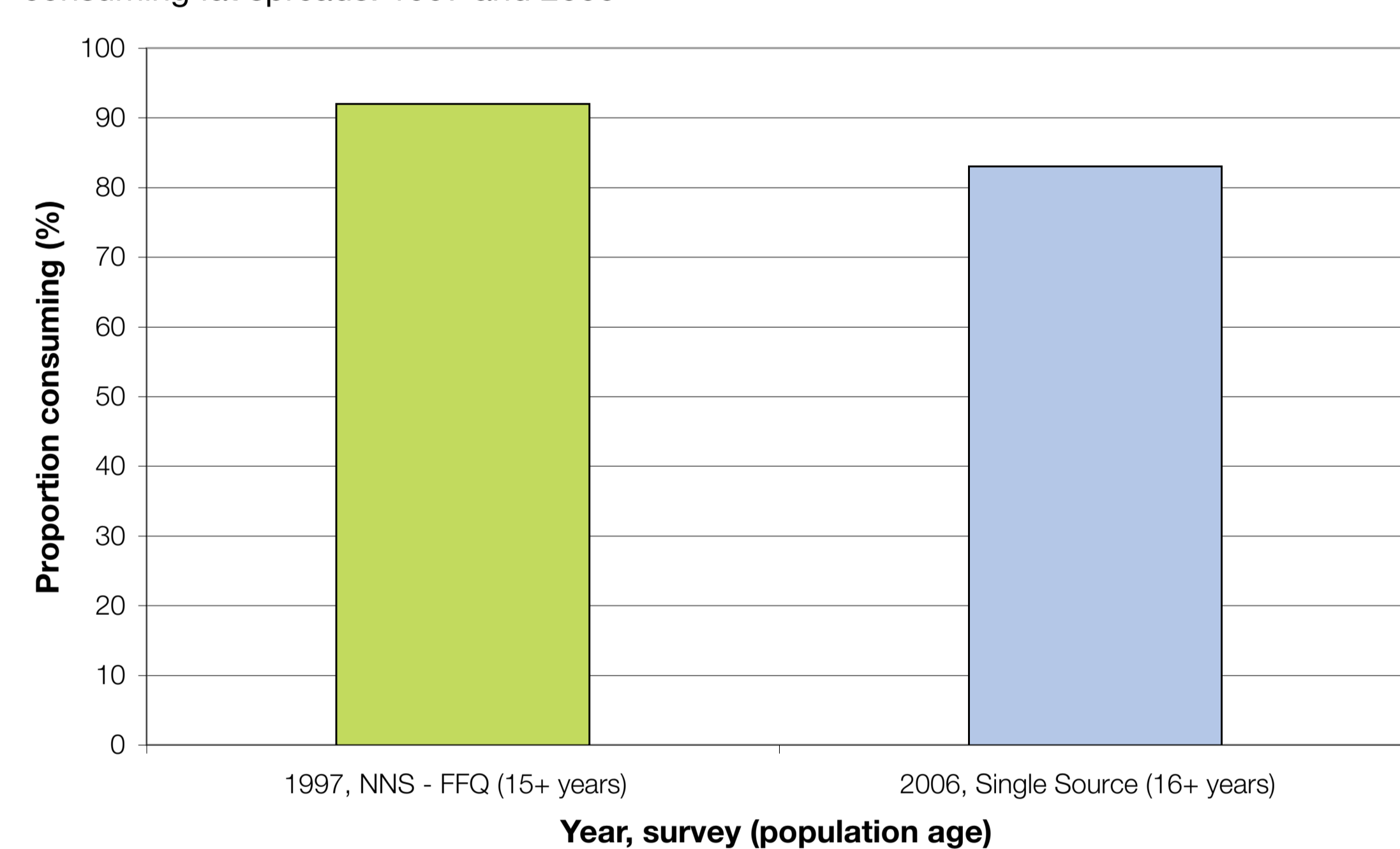
- The proportion of the Australian population aged 14 years and above consuming milk of all types (full, low/no fat) has remained relatively stable since 1995 (decrease of approximately 5%).
- Since 1995, the proportion of the population consuming full fat milk has decreased by approximately 20% and the proportion consuming low/no fat milk has increased by approximately 30%.
- While data were collected for differing time periods (24-hour versus weekly consumption) the comparison of data was undertaken since milk is a staple commodity and the proportion of consumers is less likely to be influenced by the duration of the survey.

## Conclusion

- The trend towards a lower proportion of the population consuming full fat milks and increased proportion consuming low or no fat milk may result in a lower TFA intake from natural sources than predicted using 1995 data.

## Fat spreads

Figure 3: Proportion of the New Zealand population aged 15-16 years and above consuming fat spreads: 1997 and 2006



## Notes:

- 1997 data: % usually consuming at least once a week (FFQ). "Fat spreads" includes the use of "butter and/or margarine products on bread and/or crackers".
- 2006 data: % who consumed in last 7 days (Single Source). Data is from Jan-June. "Fat spreads" includes butter, margarine and other spreads.

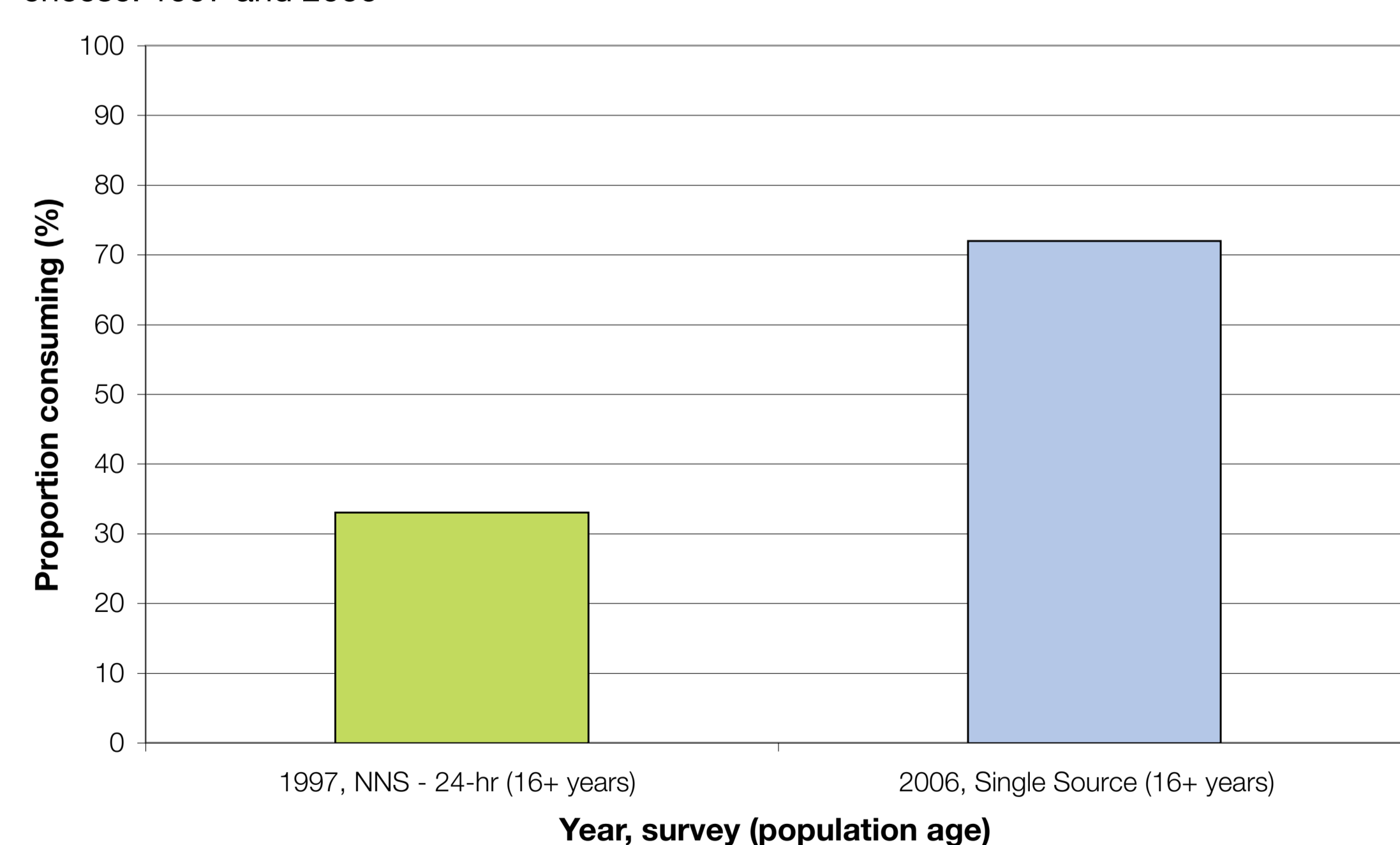
- The proportion of the New Zealand population aged 15-16 years and above consuming fat spreads has remained fairly stable (decrease of 10%) since 1997.
- As data from these surveys measured consumption on a weekly basis, it is appropriate to directly compare data.

## Conclusion

- The 1997 fat spread consumption data is reflective of the current proportions of New Zealanders aged 15-16 years and above consuming fat spreads.

## Cheese

Figure 4: Proportion of the New Zealand population aged 16 years and above consuming cheese: 1997 and 2006



## Notes:

- 1997 data: % who consumed on the day of the survey (24-hr recall). "Cheese" includes all dairy and non-dairy cheese.
- 2006 data: % who consumed in last 7 days (Single Source). Data is from Jan-June. "Cheese" includes all cheese (excluding spread).

- The proportion of the New Zealand population aged 16 years and above consuming cheese appears to have increased by approximately 120% since 1997.
- Data from these surveys measured consumption over differing time periods (24-hour versus weekly consumption). Therefore it was not possible to determine if the increase in the proportion of the population consuming cheese was due to cheese being an occasionally consumed food, and therefore more likely to be reported as consumed in a survey of longer duration, or if consumption patterns have actually changed since 1997.

## Conclusion

- It was not possible to speculate whether the 1997 NNS data on cheese consumption is reflective of current New Zealand consumption patterns.

## Yoghurt

Figure 5: Proportion of the Australian population aged 19-20 years and above consuming yoghurt: 1995 and 2006



## Notes:

- 1995 data: % consuming at least once a week (FFQ). "Yoghurt" includes all yoghurt.
- 2006 data: % who consumed in last 7 days (Single Source). Data is from Jan-June. "Yoghurt" includes all yoghurt.

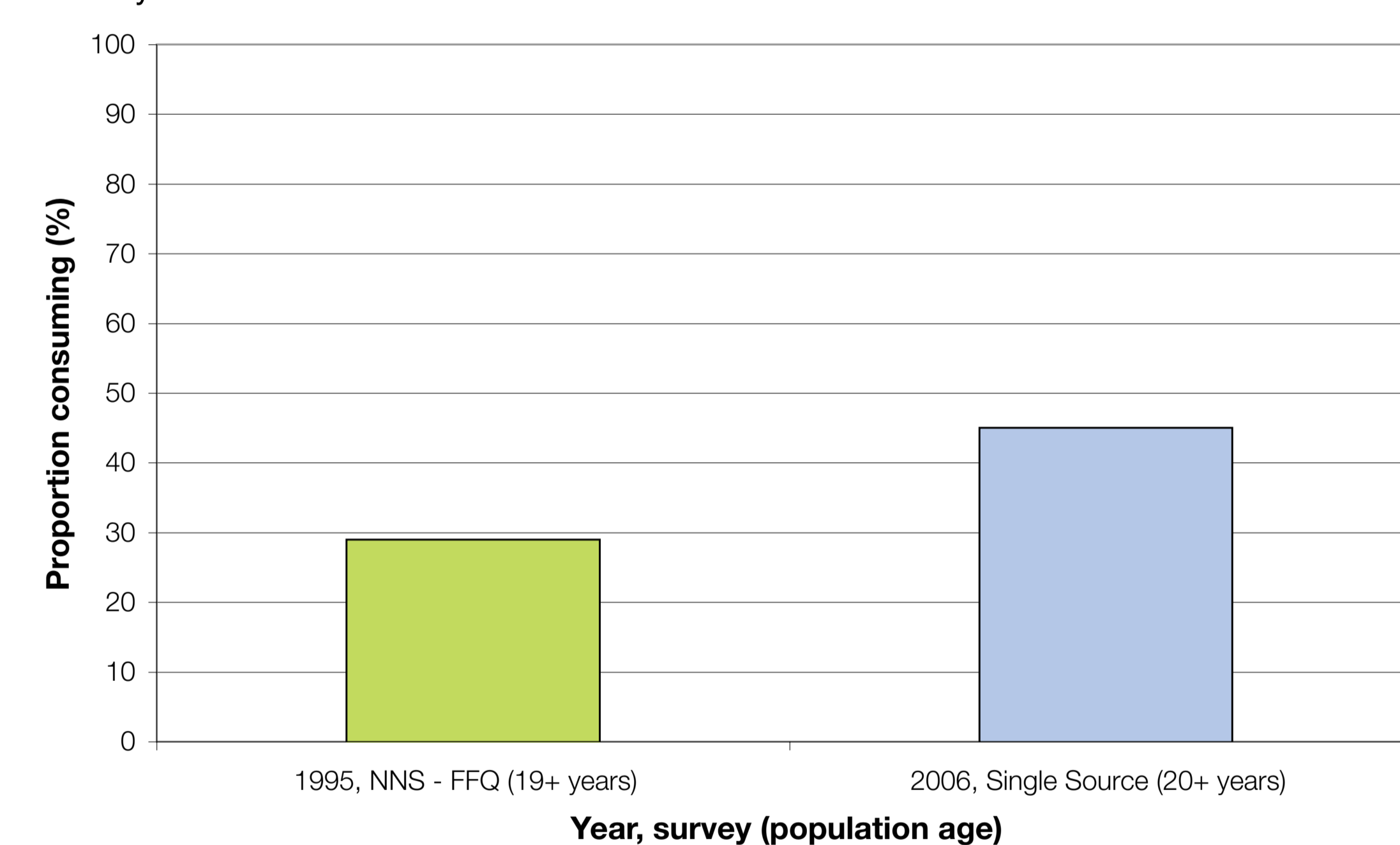
- The proportion of the Australian population aged 19-20 years and above consuming yoghurt has increased slightly (approximately 35%) since 1995.
- As data from these surveys measured consumption on a weekly basis, it is appropriate to directly compare data.

## Conclusion

- The use of 1995 yoghurt consumption data may underestimate current consumption; however any changes in yoghurt consumption patterns is likely to result in only small changes to the estimated TFA intakes since yoghurt was only a minor contributor to TFA intakes.

## Savoury snacks

Figure 6: Proportion of the Australian population aged 19-20 years and above consuming savoury snacks: 1995 and 2006



## Notes:

- 1995 data: % consuming at least once a week (FFQ). "Savoury snacks" includes potato crisps, corn chips, twisties, cheesez etc.
- 2006 data: % who consumed in last 7 days (Single Source). Data is from Jan-June. "Savoury snacks" includes potato crisps, corn chips, twisties, cheesez etc.

- The proportion of the Australian population aged 19-20 years consuming savoury snacks has increased by 55% since 1995.
- As data from these surveys measured consumption on a weekly basis, it is appropriate to directly compare data.

## Conclusion

- The use of 1995 potato crisp consumption data may underestimate current consumption; however any changes in potato crisp consumption patterns is likely to result in only small changes to the estimated TFA intakes since potato crisps were only a minor contributor to TFA intakes.

## Conclusion

Recent consumer surveys can be used to assess the validity of the 1995/97 NNS food consumption data, enabling comment to be made on the expected impact on estimated nutrient intakes of changes in reported food consumption patterns. The recent analysis of TFA intakes using 1995/97 NNS data is a reasonable estimation of current intakes.

## References

Food Standards Australia New Zealand (2007) *Trans fatty acids in the New Zealand and Australian food supply*. [http://www.foodstandards.gov.au/\\_srcfiles/Transfat%20report\\_CLEARED.pdf](http://www.foodstandards.gov.au/_srcfiles/Transfat%20report_CLEARED.pdf).

Institute of European Food Studies (1998) *The effect of survey duration on the estimation of food chemical intakes: report number three*. Institute of European Food Studies.

Roy Morgan Research (2007) *Single Source*.

