

CHAPTER 13

CONCLUSION

This study is the most comprehensive and representative data base so far available on the food & nutrient intakes, health and lifestyle habits of elderly Greeks in Australia and Greece. The thesis concentrates on the food, health and lifestyle changes that have taken place with time or age and upon migration and the continuing importance of food in determining the 'health' of people of Greek ethnicity in later life.

'Health' status includes not only physical health (e.g self-reported health conditions, medication-use), but also functional health (e.g mobility and self-care), mental health (e.g well-being, memory) and social health (e.g social activity and networks) - all of which were encompassed in the 'later life status score' developed for the study and used in multivariate analyses with food and nutrients.

This is a cross-sectional study. Therefore observations made in this thesis are not intended to determine causal relationships. This thesis seeks to describe 'what' the food and nutrient intakes of elderly Greeks is and 'how' later life status is influenced by diet at that point-in-time. This operational enquiry of diet and 'health' is based upon within population variations. Thus cohort effects, such as those derived from migration or birth (time and place) and various life events, may obscure true relationships.

According to 1982 mortality data, Greek Australians were deemed to be one of the 'healthiest' and longest living populations of the world (after the Japanese in Hawaii). However, results from the current study indicate that the morbidity profile of elderly Greek Melbournians, especially for women, has changed in an adverse direction since 1982. Greek Australians appear to be losing their protection against chronic diseases (such as heart disease and colonic cancer) at a greater rate than Greeks in Greece and approaching the high levels found in Anglo-Celtic Australians.

These observations are supported by the National Health Survey conducted by the Australian Bureau of Statistics in 1989-1990. This finding is of concern particularly since the Greeks in Australia, because of the present age structure and population dynamics, will experience the most rapid ageing of their community in the years to come, compared with other ethnic groups and the non-Greek Australian-born. These statistics also

highlight the need to promote preventive measures as soon as possible in order to minimise such health problems in future generations of elderly Greek Australians. The most significant changes to the 'traditional' Greek diet that had occurred on migration, included a marked increase in the intake of meat, beer, tea, instant coffee, polyunsaturated fats and a decrease in consumption of legumes, cereals, fruits, vegetarian-style dishes, fish, olive oil and wine. These changes approached food intake levels found in Anglo-Celtic Australians.

Although plant food intake was greater in Melbourne Greeks, the plant to animal food ratio was greater (or more favourable) in Spata elderly - especially in men aged 70-79. Spata men in this age group were also found to have better blood lipid profiles and immune function, to be less obese, to be more physically active and to have younger looking skin (according to skin microtopography as a measure of biological age) than Melbourne men and the women in both centres. This suggests that Spata men may be 'fitter' than Melbourne men and further analyses of their diet and lifestyle may provide information regarding desirable diets in later life.

Interestingly, a high current intake of legumes, fruit (especially melons & grapes), vegetables (especially tomatoes & onions and total vegetable variety), vitamin C (men only), fish (Spata men only) and low intake of meat (Spata only) were associated with a better later life status (a multidimensional index of health). These data suggest that certain foods not only continue to be of importance in later life but may also explain the deterioration in the 'health' of Greek Australians over the years.

The changes in food intake on migration, were also reflected in the nutrient intakes. Consumption of complex carbohydrates were low and that of protein, iron, cholesterol and polyunsaturates, high. The vitamins and minerals most likely to be inadequately consumed by elderly Greeks included: thiamin & riboflavin (especially Spata), vitamin A, calcium, magnesium and zinc (vitamins E and B6 were not assessed).

Compared with Spata Greeks, Melbourne Greeks appear to be 'overnourished' rather than 'undernourished' with a higher prevalence of obesity (and lower levels of physical activity) and higher storage iron levels. Melbourne Greeks also had diets of higher nutrient density because of their greater total food intake and food variety which were related to their greater social activity and support networks.

However, Melbourne women aged 80+ and Spata men aged 80+ appeared to be at risk of protein energy malnutrition, due to low values for certain anthropometric

measurements (BMI, TSF, MAMA) and haematological indices (albumin, TLC). These elderly were also more likely to be eating alone and to report feeling lonely, to be adhering to religious fasting practices, to be less socially active, to report greater disability, health problems and medication-use, and to report food avoidances.

According to the study findings, the public health implications for the Greek community in Melbourne would include the following recommendations:

1. *Encourage adherence to the traditional Greek diet, especially in the form of vegetarian-style foods, such as **legumes** (about twice a week) and mixed vegetable dishes.*
2. *Encourage consumption of a wide variety of **vegetables**, especially tomatoes, onions and green leafy vegetables.*
3. *Encourage greater consumption of **cereals**, especially bread (> 4 slices/day) and pasta (about 1-2 times/week).*
4. *Encourage greater consumption of **fruits**, especially watermelon, cantaloup and grapes.*
5. *Decrease consumption of **meat dishes** (beef & chicken) (to about 1-2 times/week) and increase consumption of fish dishes (to about 1-2/week).*
6. *Encourage consumption of foods rich in the following vitamins and minerals, which were found to be inadequately consumed by elderly Greeks:*

thiamin:	<i>cereals, fish roe, organ meats, pork, nuts, sesame seeds</i>
riboflavin:	<i>milk, cheese, breakfast cereals, eggs, fish roe, organ meats, lean meats, almonds</i>
vitamin A:	<i>cheese, eggs, organ meats, fish roe, yellow/orange fruits & vegetables, broccoli, lettuce, endive/chicory, parsley, spinach.</i>
calcium:	<i>milk & milk products, almonds, sesame seeds (tahini), sardines, spinach</i>
magnesium:	<i>green vegetables, seafoods & fresh-water fish, wholegrains, legumes, nuts, dried fruit</i>
zinc:	<i>lean meats, sardines, seafood, wholegrains, eggs, legumes, nuts</i>

7. Encourage increased **total food variety** (especially from plant foods), but not at the expense of cereal foods.
8. Encourage greater intake of **water** (especially for the elderly).
9. Encourage increased **physical** (e.g walking) and **social activity/support** in order to reduce levels of obesity and increase the nutrient density of the diet (via increased food variety).
10. **Greater screening of 'old' elderly** at risk of protein energy malnutrition e.g if eating alone, reporting many food avoidances or adherence to long-term religious fasts, reduced social activity & support and the presence of disabling chronic diseases.

The quantities nominated in these recommendations, are as often happens in the application in public health, a matter of judgement based on the distributions of intakes in the more healthy segments of the population.

Although these recommendations are made for the more dynamically changing population of elderly Greeks in Melbourne, they are likely to be applicable to Greeks in their homeland as well. In summary, it is clear that in many respects, the way in which elderly Greeks eat is predictive of 'later life status'. Of particular interest, then, is that not only has the general hypothesis of this thesis been fulfilled, but also that new insights into the 'ways' in which food affects 'health' in later life have emerged.