

## GROWING UP IN WESTERN AUSTRALIA : IF YOU ARE NOT ABORIGINAL

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Summary

As in other States there are serious gaps in our knowledge of the nutritional status of children growing up in Western Australia (W.A.). It appears, however, that the overall level of nutrition in non-Aboriginal children is similar to that in other parts of Australia. Overt deficiencies are rare although deficient nutrient intakes have been documented, particularly in vulnerable groups such as migrant children from Southern Europe and South East Asia. There is evidence that dietary energy intakes are often below the national Recommended Allowances; despite this a significant proportion of children are overweight, perhaps partly because of increasing inactivity particularly amongst teenagers. This general pattern provides interesting contrasts to the pattern in Aboriginal children amongst whom under-nutrition is a widespread problem.

## I. INTRODUCTION

Apart from being the "State of Excitement," Western Australia (W.A.) differs in several important ways from the other States. It is the largest, has one of the smallest populations, is closer to South East Asia than most of the other large centres of population and has more Aboriginal and part-Aboriginal people than most other States. These differences allow some contrasts to be made between Aboriginal and non-Aboriginal children growing up in W.A. and children in South East Asia.

The fact that Perth is closer to Jakarta by air than it is to Sydney often comes as a surprise to many Australians, even Western Australians. This geographical proximity to Asia is of particular significance to W.A. When this State's population density is compared to Indonesia's the contrast becomes dramatic. W.A. covers the western third of this continent and extends over 2.6 million square kilometers yet its population is only 1.2 million; on the other hand, Indonesia has a land area of 1.9 million square kilometers and its 1979 population is estimated to be 145 million (Biro Pusat Statistik, Jakarta, 1978). The population of W.A. is distributed very unevenly with over 80% of people living in urban areas (Western Australian Year Book, 1977) and many of the others living in very sparsely inhabited, remote areas.

## II. DEMOGRAPHIC PATTERNS

Overall, the age and sex distribution of the W.A. population is similar to other parts of Australia. The most recently obtained figures, from the June 1976 Census (Western Australian Yearbook, 1977), show age and sex distribution of our population to be similar to patterns found in other technologically developed societies such as the United States of America or the Scandinavian countries. This is very different to the Aboriginal "population pyramid" for this State which reveals a much higher proportion of their population to be less than 15 years of age; this pattern is characteristic of so-called "developing" or "less developed" countries. Population pyramids for Sweden and Peninsular

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Malaysia or Indonesia, for example, provide similar contrasts. These population patterns have important implications for health and nutrition within communities and these aspects of the lives of Aboriginal infants and children growing up in W.A. are discussed elsewhere (Coles-Rutishauser, 1979).

Growth is a very complex process involving not only physical growth and maturation but other important facets including emotional development, education, the acquisition of sporting skills and social attributes. However, in keeping with the theme of this joint meeting of the Nutrition Society of Australia and the Australian Association of Dietitians, emphasis will be given to the physical growth of non-Aboriginal infants and children in this State and to relevant nutritional information, when available.

Although W.A. differs in some ways from the other States, in general it is remarkably similar; the predominance of urban living is one example of this. The speed with which the State has developed over the past decade makes it difficult to give accurate, current statistics and to predict future changes. In keeping with this rapidity of change the State's inhabitants come from a wide variety of places. In 1971 only 60% of its inhabitants were born in the State; 13% came from other parts of Australia, 15% from the United Kingdom and the Republic of Ireland, 6.3% from five European countries, 2.1% from Asia and 1% from New Zealand (Western Australian Yearbook, 1977). It is probable that there have been significant changes in the intervening eight years particularly with increased immigration from southern Africa and South East Asia. These changes are likely to produce social and demographic effects which are difficult to predict but which may have important long-term implications for future Western Australians.

### III. GROWTH AND NUTRITION OF CHILDREN IN W.A.

A logical approach to a discussion about growing up in W.A. would be a sequential commentary about growth and nutrition from birth, through infancy, pre-school age, primary and secondary school ages, adolescence and early adulthood. However, as has been pointed out elsewhere (Gracey, 1978), there are "serious gaps in our knowledge of human nutrition in Australia" and in this W.A. is no exception. Such an approach is, therefore, difficult. Morbidity and mortality statistics can be used as crude indicators of community health, well-being and nutritional standards. As in other parts of this country, the disease and death patterns of children seen here are now dominated by accidents and violence, perinatal disorders, congenital abnormalities and malignancies; this is typical of industrialized, well-fed communities like ours where the importance of infections as causes of serious disease and death in children have generally diminished. This is not so for the disease and death patterns of Aborigines who, in common with children growing up in "developing" or "less developed" countries, have morbidity and mortality statistics dominated by undernutrition and infectious diseases, particularly those involving the respiratory and gastrointestinal tracts (Shannon and Gracey, 1977).

### IV. PRE-SCHOOL CHILDREN

Little detailed information is available about growth and nutrition of Australian children from birth to the age of 2 years.

In general it seems that Australian pre-school age children are well nourished and in many cases overnourished. However, such generalizations should be viewed cautiously since "detailed knowledge of this age group is lacking and no organized attempt has been made to date to obtain a comprehensive picture of the nutritional status of pre-school children in Australia" (Zed, 1978). In an attempt to close this gap a prospective study of 200 infants born in the metropolitan area of Perth has been commenced. The study will include documentation of feeding patterns, nutrient intakes and growth at regular intervals from birth to 5 years of age. This will be a selected sample of healthy infants of second generation Australian mothers and coming from uncomplicated, single pregnancies and born within a radius of 12 kilometers of the centre of Perth. Despite the selective nature of the sample, the results obtained from this study should provide useful information about their growth and nutritional patterns against which comparisons will then be able to be made with other groups of infants from elsewhere and from different social and ethnic backgrounds.

In a recent survey done in Perth, it was found that children aged one to six years tended to have nutrient intakes which were adequate or often excessive when compared to the Dietary Allowances for Use in Australia (National Health and Medical Research Council, 1971). Protein intakes were high also when compared with the national recommendations. Overall, the dietary patterns of Australian-born children appeared adequate although 4% had inadequate dietary energy intakes and deficient intakes of the following were found; calcium (in 9% of subjects), iron (11%), niacin (8%) and ascorbic acid in 16% (Owles, 1975). These findings suggest that poor dietary patterns may be more common in pre-school children in this country than is suspected. Clearly, more work needs to be done on the nutrient needs and dietary patterns of pre-school children, especially in vulnerable groups such as migrants and Aborigines.

#### V. SCHOOL CHILDREN

Little information is available here about the nutrition of junior primary school children. A current survey is investigating this in Perth in a small, independent primary school (School A) whose parents are mostly professional people from upper socio-economic levels and a government primary school (School B) whose children live mostly in State Housing Commission homes (N.E. Hitchcock, unpublished data). Eighty-five per cent of parents contacted from School A and 64% from School B agreed to take part in this study. Most children from both schools were born either in W.A., other parts of Australia or the United Kingdom; 80% of all parents were of similar origins. There were no significant differences in the physical characteristics of these two groups of children although dental health was better in children from School A. The mean daily protein intake of both sexes at all ages was within or above the range included in the Australian Allowances (National Health and Medical Research Council, 1971) for both groups of children. Calculated intakes of all minerals and vitamins compared favourably with the Recommended Allowances except for iron intakes in 11 and 12 year old girls and vitamin C intakes which were low in 18% of children, and in all age groups food energy was less than the Recommended Allowances.

More information is available about nutrition of older children

in W.A. primary schools. Langelaan (1975) studied nutrient intakes of 234 seventh grade school children in Western Australia with particular reference to school milk, because of the decision made in 1973 to withdraw free milk from schools. The children (120 boys and 114 girls) came from 7 schools; 5 Government primary schools and 2 independent schools. Seventy-three per cent of children (62% of girls and 83% of boys) had dietary energy intakes below the Dietary Allowances for Use in Australia and only 15% of the children had intakes above this allowance. Despite this, the mean intakes of all nutrients, except protein and iron were above the Dietary Allowances. Significantly, it was found that out of the 2 schools with the poorest nutritional intakes, one had a high proportion of migrant children from lower socio-economic groups and the other had a high proportion of Aboriginal children.

In a parallel study (Langelaan and Odgers, 1976) it was found that many children were having inadequate or no breakfasts and many had poor food choices. For example, 38% of the girls and 25% of the boys consumed less than one cup of milk a day and, apart from potatoes, no vegetables were consumed by 15% of the girls and 25% of the boys during the period of the survey while 42% of girls and 61% of boys did not record any fruit intake. It was concluded that these children needed to have an increased nutrient energy intake and because of their level of expenditure of energy (7,954 kJ for boys and 7,721 kJ for girls) these children needed to increase the total energy content of their diet and at the same time to increase their energy expenditure by taking more exercise in order to improve their physical fitness.

Some information about older children comes from the regular on-going surveys conducted in the Busselton community which is discussed in more detail elsewhere (Hitchcock, 1979). A dietary intake study was done in Busselton recently to investigate whether there were significant differences in dietary patterns of families and children with high, median or low cholesterol values. No significant differences were found in the percentage contributions to total daily dietary energy intakes by protein fat or carbohydrate in mothers, children or their families from these 3 groups and it was concluded that diet alone does not account for differences in observed serum cholesterol levels within a culturally homogeneous community such as Busselton (Hitchcock and Gracey, 1977). This study allowed some assessment of nutrient consumption patterns of families in Busselton which reinforced the earlier studies by Langelaan and her colleagues showing a general tendency for daily dietary energy intakes to be considerably below the Australian Dietary Allowances. More recent studies from Busselton (Gracey *et al*, in press) have provided more detailed information about dietary patterns, anthropometric measurements and levels of fitness and other factors such as smoking and television viewing habits. The Department of Home and Consumer Studies at the Western Australian Institute of Technology has studied important aspects of eating, nutrition and health in teenagers in Western Australia through student projects. These studies have confirmed that a considerable number of teenagers have no breakfast or inadequate breakfasts. Up to almost 50% of teenage students take vitamin supplements but not many take slimming tablets. They have also shown daily dietary energy intakes are generally lower than recommended which is associated with decreasing physical activity. However, dietary protein and calcium intakes and consumption of thiamine, riboflavin and ascorbic acid seem adequate. These studies have thrown light on other important aspects of growing up in the teenage years in W.A. including the increasing importance of snacks and take-away foods and the influence of advertising, particularly on television.

## VI. MIGRANTS

It is now becoming more evident that dietary patterns in migrant children differ significantly from those in other groups. Owles (1975) studied nutrient intakes of migrant and Australian children in Western Australia and found that although the mean nutrient intakes in both groups were generally adequate, some individual migrant groups had deficient intakes of one or more nutrients and that overall their consumption of so-called "empty calorie" foods was excessive. While only 5% of Australian children consumed excessive amounts of dietary energy, 28% of Southern Europeans, 50% of Spanish or Portuguese migrants and 28% of Northern European migrants did so. A particular finding of her study was that Burmese migrants had inadequate consumption patterns of essential nutrients. These findings are very important and with the recently increasing immigration to Western Australia of children from South East Asia, including Vietnam, will need to be taken into account when planning health programmes for these newly arrived settlers. There is an urgent need to document the dietary practices of these people on arrival and to study the changes which are bound to occur while settling in to life in Australia. Such background information will be vital to planning appropriate health and welfare programmes for these people to cater for their special needs. Problems in communication will need special attention when devising these programmes.

## REFERENCES

- COLES-RUTISHAUSER, I.H.E. (1970). Proc. Nutr. Soc. Aust. 4:
- GRACEY, M. (1978). Med. J. Aust. 1: 202.
- GRACEY, M., HITCHCOCK, N.E., WEARNE, K.L., GARCIA-WEBB, P. and LEWIS, R. (in press) Med. J. Aust.
- HITCHCOCK, N.E. (1979). Proc. Nutr. Soc. Aust. 4:
- HITCHCOCK, N.E. and GRACEY, M. (1978). Med. J. Aust. 1: 359.
- LANGELAAN, S.G. (1975). Fd Nutr. Notes Rev. 32: 1.
- LANGELAAN, S.G. and ODGERS, T.W. (1976). Fd Nutr. Notes Rev. 33: 144.
- NATIONAL HEALTH AND MEDICAL RESEARCH COUNCIL (1971). "Dietary Allowances for Use in Australia" (Australian Government Publishing Service: Canberra).
- OWLES, E.N. (1975). Med. J. Aust. 2: 130.
- WESTERN AUSTRALIAN YEARBOOK (1977). Australian Bureau of Statistics, Western Australian Office.
- ZED, C.A. (1978). M.Sc. thesis, University of Sydney.