

Submission No. 72  
(Inq into Obesity)

*E 18106108*



**Prof Colin Binns** MBBS MPH PhD FRACGP FAFOM FAFPHM  
**School of Public Health**  
**Curtin University**

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1. **Body size has been increasing slowly in Australia since European settlement, but the rate of increase appears to have increased in recent decades. The current obesity epidemic is a continuation of this trend.**
2. **There is a lack of recent nationally representative data on body size and food consumption.**
3. **Australia is unique amongst Western Countries in not having a National Nutrition Committee to oversee data collection and provide advice to the government**
4. **The promotion of breastfeeding (exclusive to 6 months) in accordance with NHRMC recommendations, offers the best, proven, immediately available, intervention that the committee could recommend.**

### **Obesity Submission**

There is no doubt that obesity is a significant public health problem for Australia. With obesity prevention is very important as treatment is difficult. Once obesity is established it is very difficult to lose weight permanently. Dieting is undertaken to reduce weight, but the client often falls into a pattern of “cycling” as weight is lost and gained. They may even end up worse off than before. To loose weight once obesity is established is difficult and prevention is the best way to reduce the prevalence in the community.

#### **Origins of obesity.**

Body size, nutritional status and obesity are all part of the same spectrum of human growth. For practical purposes body weight, is the balance between energy input and energy expenditure, between food eaten and physical activity. Food eaten is measured in terms of the energy that it contains and as well as the absolute amount of energy (MJ or Cals), the concept of energy density (MJ/100 Grams) is also useful.

For non-indigenous Australians the amount and quality of food available has been increasing continuously since settlement. During this time the amount of energy expended in daily living has decreased with mechanisation of our daily lives. Factors in the increased availability of food in the home have included increased food production, refrigeration, processing, packaging, transportation and distribution. All of these are well known, but several “host factors” are also important.

Over the past century there has been a substantial decrease in child illnesses and improvement in nutritional status. Children living in conditions of poor hygiene are subjected to a continuing series of gastrointestinal infections with viruses, bacteria and helminthes (C. W. Binns 1976; Mata et al. 1972; Pust et al. 1985). Gastrointestinal infections result in continuing diarrhoeal disease and decreased nutrient absorption. As GI infection is decreased through improved environment and water supply, nutritional status improves. Secretion of digestive enzymes, stomach pH and blood transport proteins increase. All these factors increase the ability of the human body to utilise all the energy and nutrients available to it. This has resulted in a

continual increase in body size as shown by the work of Loesch (Loesch, Stokes & Huggins 2000) (Figures One and Two)

**Cohort analysis of weight gain.**

The method commonly used to describe overweight or obesity is to describe the percentage above a “cutoff” level and usually this is a BMI of 25 or of 30. This is a legitimate way of assessing obesity levels, but because the mean BMI is about at the level of the cutoff, a very small shift in weight will give a large change in the proportion in the overweight category. I am sure that the committee will be presented with many statistics about the change in the proportion of Australian’s above the 25 BMI level. However the committee needs to also consider the absolute change in weight.

**Table 3.1 Weight in women\***

Year	1980	1983	1989	Cohort Weight gain (9 years)
Age (years)				
25-34	58.7	60.4	61.8	
35-44	61.4	62.5	63.9	5.2
45-54	63.2	64.8	67.3	5.9
55-64	63.7	64.6	67.0	3.8

Average Cohort weight gain (9 years) 5.0 kgm = 0.55kg/year

**Table 3.2 Weight in men**

25-34	75.6	75.1	77.5	
35-44	78.8	77.2	79	4.4
45-54	77.4	78.8	80.4	1.6
55-64	76.4	76.9	78.6	1.2

Average Cohort weight gain (9 years) 2.4 kgm = 0.27kg/year

Data from (NHMRC 1997)

Cohort average weight gain/year 25 -45 years (cohort assessed over 10 years+)

	USA 1	USA 2	Australia
Females	0.44	0.59	0.55
Males	0.36	0.50	0.27

USA data. NHANES II 1976–80, NHANES III 1988–94, NHANES 1999–2002

Average weight gain in USA was

In the above table the annual gain in weight for women was 550grams for women and 250grams for men, just a little less than the USA. Over the course of a year this is an imbalance in energy of approximately 0.7% for women and 0.3% for men. In terms of energy this is less than Cals per day, all the approximate a problem to at the most one can of soft drink per week.

Using the data of Loesch (Loesch, Stokes & Huggins 2000) it is possible to calculate the energy excess over the 20<sup>th</sup> century needed to explain the weight gain (secular trend) during that period. The energy excess was about 0.1-0.2 % for boys and slightly less for girls. These figures should only be taken as approximations, but two conclusions can be drawn:

1. Only a very small excess of energy intake over expenditure over a long period of time (less than 1%) is required to produce the obesity problem that we have in Australia.
2. The amount of the excess available to the Australian population appeared to increase in the last decades of the 20<sup>th</sup> century.

The quantities of excess energy are very small. One can of softdrink (375mls) contains approximately 160 Cals. Thus it can be seen that the obesity problem of Australia can be caused by one can of softdrink every 10-12 days. The excess of energy required to produce obesity is so small, that it is amazing that the body can regulate weight so accurately, despite widely differing meal patterns, energy density of foods and exercise patterns. This makes obesity a difficult problem to control as the excess in energy is so small as to be “hidden”.

#### **National Nutrition Information and Advice**

Unfortunately Australia has not had a major national nutrition survey since 1995. The Australian Bureau of Statistics has even stopped collecting data on apparent food consumption. From the early 1930s until 1994 Australia had a national nutrition committee that reviewed information, advocated for nutrition surveys and provided advice to the governments of Australia. . Since the mid-1990s Australia has had no national nutrition committee and no national nutrition data. This has made it extremely difficult to tackle it obesity as a national priority.

To summarise the issues:

- 1. Obesity is a major public health issue for Australia with serious consequences for health outcomes and health costs**
- 2. Prevention is the only solution, as treatment has been generally found to be of short term duration only.**
- 3. There is no recent national data on nutrition, food consumption and obesity**
- 4. There is no national nutrition committee to provide appropriate scientific advice on nutrition and obesity. Australia is the only major Western country without a nutrition committee.**
- 5. The committee needs to consider the most effective preventive measures for obesity in Australia (see next section)**

#### **Breastfeeding and the Prevention of Obesity**

##### **Association between breastfeeding and obesity.**

There have now been numerous systematic reviews of the benefit of breastfeeding in the prevention of obesity. Cattaneo published a summary which included 340,000 subjects from a total of 48 papers, all of which have been observational studies (Cattaneo 2006).

In addition there have been several major reviews published by international agencies and governments that have recognised the importance of breast-feeding in the engine of obesity.

- a. World Health Organisation, **Evidence on the Long-Term Effects of Breastfeeding: meta-analyses and systematic reviews** ([www.who.int/child-adolescent-health/New\\_Publications/NUTRITION/ISBN\\_92\\_4\\_159523\\_0.pdf](http://www.who.int/child-adolescent-health/New_Publications/NUTRITION/ISBN_92_4_159523_0.pdf))
- b. USA. Ip **Evidence Report/Technology Assessment Number 153, Breastfeeding and Maternal and Infant Health Outcomes in Developed Countries**. Prepared for Agency for Healthcare Research and Quality, U.S. Department of Health and Human Services. 540 Gaither Road, Rockville, MD 20850.
- c. British Medical Association, Board of Science “Preventing childhood obesity” 2005.
- d. Australia NHMRC. Infant Feeding Guidelines (CW Binns 2003)

Observational studies must be used for research on breastfeeding because it would be completely unethical and experimentally very difficult to undertake a randomized controlled trial. The consensus is that breast-feeding has a definite protective effect against obesity (Odds ratio 0.68-0.93). The odds ratio may be small, but the preventable fraction, or population attributable risk, is very large because of the high prevalence of breastfeeding in the community. The size of the effect depends on the exclusivity and the duration of breastfeeding. The accumulation evidence, even though it is from observational studies is more than sufficient justification to implement a major public health promotion campaign for breastfeeding. The evidence suggests that increasing breastfeeding initiation and duration is probably the most effective public-health preventive measure that we have for childhood obesity. The recent report of the Parliamentary inquiry into the breastfeeding provides much information on how this can be achieved.

The possible mechanisms of action may include:

1. Breastmilk has the ideal balance of nutrients, unlike infant formula (an excess amount of calories may program an increased number of cells in adipose tissue.)

2. Breastmilk helps program appetite (leptins)
3. Breastfeeding on demand helps babies to learn to regulate their own appetite.
4. Proceeding helps establish a more relaxed mother-child attitude to feeding.
5. Breast-fed babies have a lower growth velocity and grow into a leaner body shape. (Formula fed babies have an earlier adiposity rebound)

**Summary of recommendations on breastfeeding and obesity:**

1. **Breastfeeding is the most effective intervention for prevention that is available for immediate implementation**
2. **Promote exclusive Breastfeeding 6 months by initiating a national education program**
3. **Ban prelacteal and complementary feeds in hospital unless absolutely needed**
4. **Include teats and bottles in the APMAIF agreement**
5. **Include promotion of Baby Friendly Hospital Principles in new Commonwealth state Health Funding agreement**

**Infant Growth Charts.**

The growth of infants is the most important index of health and nutrition. Regular weighing is a part of routine assessment. Recently the WHO has proposed the use of a new set of growth references. However these were based on a highly selected sample (top 5% or so). If Australia switches to these new standards it may discourage mothers from continuing to breastfeed and may even promote childhood obesity (C. Binns & Lee 2006).

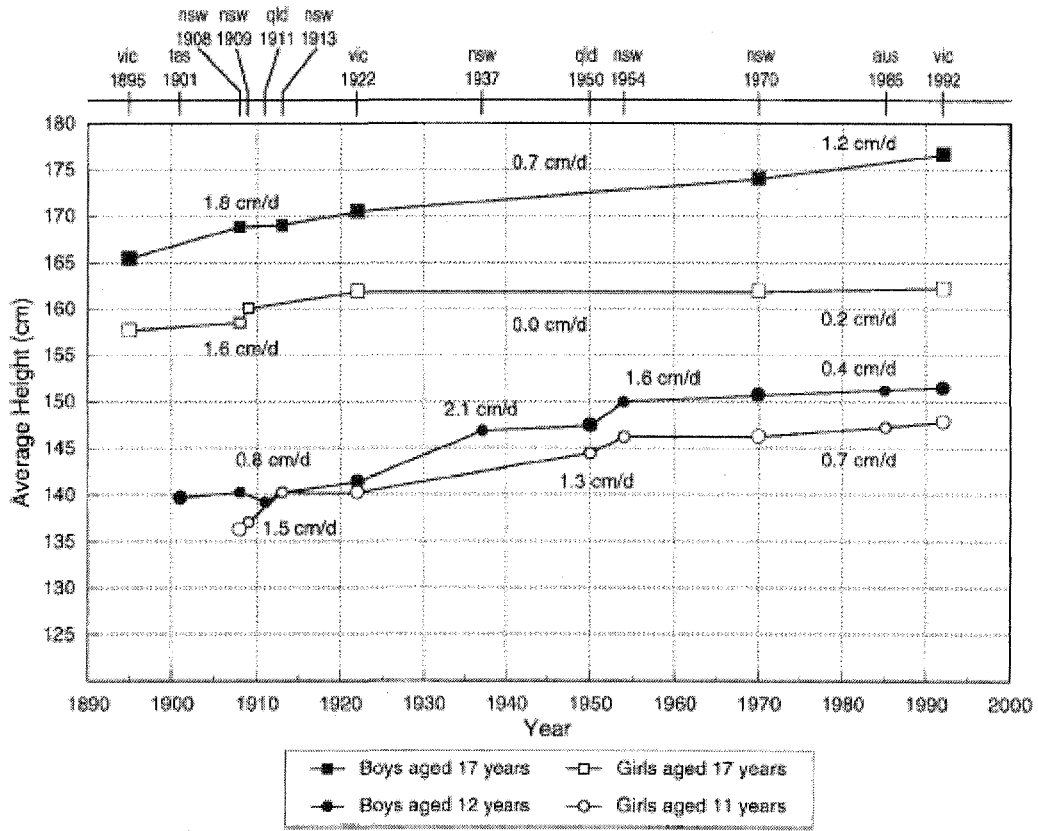
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Secular Changes in Height in Australia (Loesch 2000)



Secular Changes in Weight in Australia (Loesch 2000)

