Growing Up in New Zealand

Growing Up in New Zealand Policy Brief 1

Nutrition and physical activity during pregnancy: evidence from Growing Up in New Zealand

Malnutrition has important impact on health globally.[1] Recent estimates have shown a 30% increase in obesity prevalence among New Zealand women, with 14% of women aged 15-19 years, 25% of those aged 20-30 years, and 28% of those aged 31-50 years obese.[2]

In pregnancy, good nutrition is particularly necessary, to maintain maternal and child health. Recommendations about what to eat and what to avoid eating and drinking during pregnancy have become increasingly extensive in recent decades. Food and Nutrition Guidelines, including guidelines for physical activity, for pregnant women in New Zealand were published by the Ministry of Health in 2006.[3] They contain recommendations focused on the daily intake of the four major food groups: vegetables and fruit; bread and cereals; milk and milk products; and lean meat, meat alternatives and eggs.

Little is known about the dietary intake of pregnant women in New Zealand, and where they get their information about diet and nutrition. This policy brief describes a selection of information for pregnant women of the *Growing Up in New Zealand* study with respect to their nutrition and physical activity during pregnancy.[4]

Relevant data sets from Growing Up in New Zealand	✓ Antenatal	9mth	2yr

What is the *Growing Up in New Zealand* evidence?

Nutrition during pregnancy

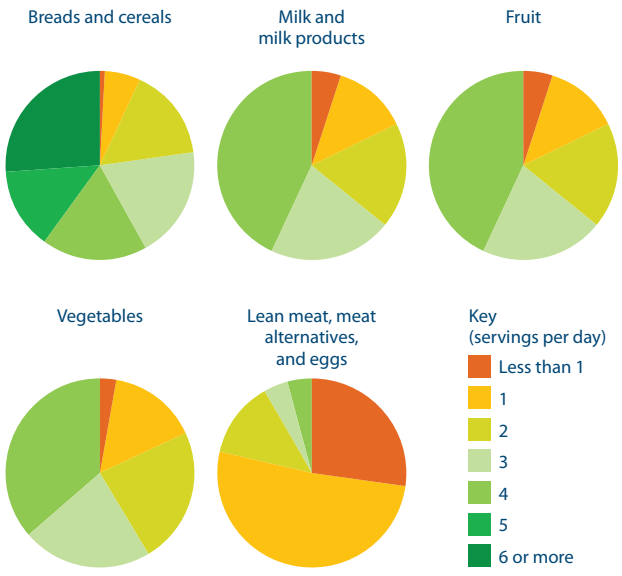
Daily servings

Within *Growing Up in New Zealand,* dietary data were gathered using a semi-quantitative, forty-four item food frequency questionnaire (FFQ). This was administered during face-to-face interviews in the final trimester of pregnancy. The FFQ data allowed description of the frequency of foods consumed within the four main food groups, and therefore enabled comparisons with the recommendations of the Ministry of Health Food and Nutrition Guidelines.

The daily number of servings consumed by New Zealand pregnant women for each food group is shown in Figure 1. Almost all (99%) of the pregnant women consumed breads and cereals on a daily basis. Milk or milk products were also consumed on a daily basis by almost all of the pregnant women (96%). Approximately one in five women consumed 1, 2 or 3 servings of vegetables per day during pregnancy and one in four women consumed 4 or more servings of vegetables per day. Approximately 40% of the pregnant women consumed 4 or more servings of fruit per day, with a further 20% consuming 3 servings of fruit per day.

Most (72%) New Zealand pregnant women also consumed servings of lean meat, meat alternatives or eggs at least once daily. Approximately 28% of women consumed servings of lean meat, meat alternatives or eggs less than once per day.

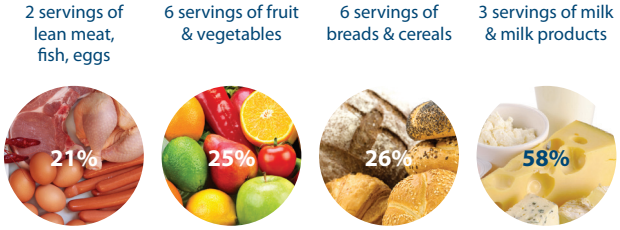
Figure 01: Number of servings consumed per day by food group (Note that for all categories except for breads and cereals, the most frequent category asked was 4+ per day).



Comparison with guideline recommendations

The proportion of pregnant women meeting the recommended number of daily servings from the four major food groups is shown in Figure 2.

Figure 02: Proportion of pregnant women meeting the daily serving recommendations for each food group



The greatest proportion of women (58%) met the recommended number of daily servings of milk and milk products (≥3 servings per day).

Approximately one quarter of pregnant women met the recommended number of daily servings of bread and cereals (≥6 servings per day) and vegetables and fruit (≥6 servings per day). Within the vegetables and fruit category, 27% of women met the recommendations for vegetable intake alone (4 servings per day) and 82% met the recommended intake of fruit alone (≥2 servings per day).

One in five women (21%) met the recommended intake of lean meat, meat alternatives or eggs (≥2 servings per day).

Approximately 38% of the pregnant women met guideline recommendations for one food group, 25% met recommendations for two food groups, 10% met the recommendations for three food groups and 3% of pregnant women met all four food group serving recommendations. Overall, 24% of pregnant women did not meet the Ministry of Health recommendations for daily servings for any of the four main food groups.

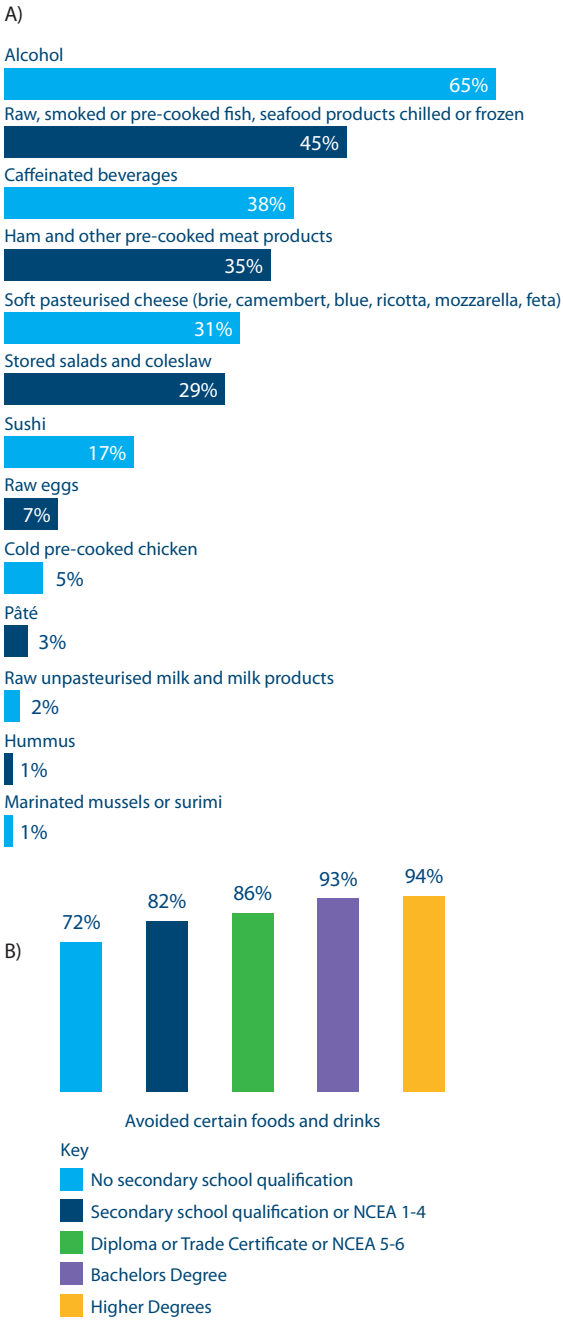
Food avoidance during pregnancy

Almost all pregnant women within *Growing Up in New Zealand* made deliberate changes to their diets during pregnancy, with 87% deliberately avoiding certain food or drinks - most often alcohol, caffeinated beverages, deli and processed goods, raw foods and shellfish. The Ministry of Health Food and Nutrition Guidelines for pregnant women suggest extra precautions around food handling and food safety to reduce the risk of infections that may be especially harmful during pregnancy. The likelihood of deliberately avoiding certain foods during pregnancy was influenced by education status, with mothers who had the highest educational qualifications more likely to avoid foods that could potentially be harmful in pregnancy (Figure 3).

Folate supplementation

Pregnant women have an increased daily requirement for folic acid to reduce the risk of neural tube defects (NTDs). Opportunities to increase folic acid intake in pregnancy include: increased consumption of folate rich foods; taking supplements or tablets containing folic acid; and food fortification (voluntary or mandatory) such as flour. Folic acid intake in New Zealand has been the subject of recent policy focus and debate.[5] The current recommendation is that women of childbearing age take folic acid supplements four weeks prior to, and 12 weeks after,

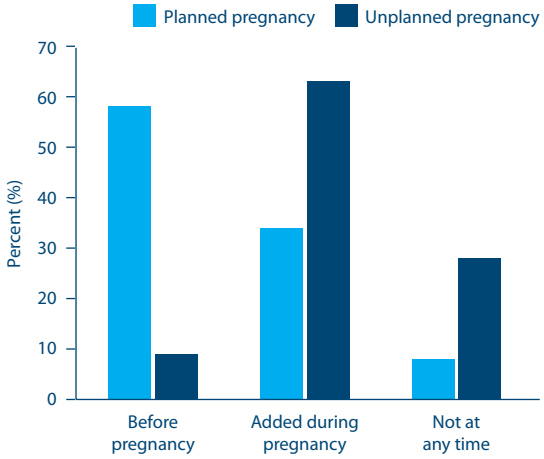
Figure 03: Avoidance of specific foods during pregnancy A) Proportion of pregnant women that avoided certain foods and drinks B) Avoidance of foods and drinks by highest attained maternal education



conception given that New Zealand women do not typically have a sufficient daily intake of folic acid to provide adequate NTD risk reduction.

Within the *Growing Up in New Zealand* study, folic acid supplementation was begun before pregnancy by 39% of women.[6] However, an important 40% of women in the study had not planned this pregnancy,[7] and whether the pregnancy was planned or unplanned significantly influenced the use of folic acid supplementation (Figure 4). Of those women who reported that their pregnancy was planned, 58% were taking folic acid before their pregnancy, and almost all continued during pregnancy, while an additional 34% of these mothers started taking folic acid during their pregnancy - usually from the first trimester onwards. Only 8% of women with planned

Figure 04: Folate supplementation before and during pregnancy

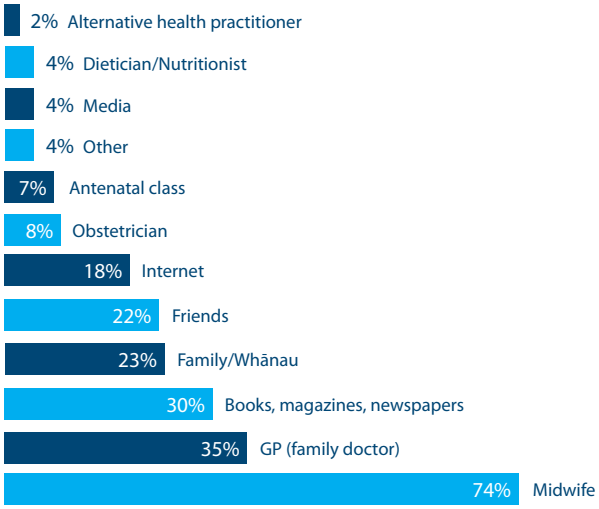


pregnancies did not take folate at any time. Of those women with an unplanned pregnancy, 9% were taking folic acid before and during their pregnancy and 63% initiated folic acid supplementation during their pregnancy, with approximately half beginning in the first trimester. Over one quarter of women with an unplanned pregnancy (28%) did not take folic acid supplementation at any time (before or during pregnancy).

Sources of nutrition information during pregnancy

Evidence regarding the most common source of information about nutrition in pregnancy is important to consider when designing programmes to target early nutrition, and when evaluating effectiveness of existing Food and Nutrition campaigns. Nearly 72% of all the pregnant women within the *Growing Up in New Zealand* study reported that they had changed their diet specifically because of information they had received during or around the time of their pregnancy. The most common source for dietary information (for three quarters of women) was their midwife. Other frequently cited sources of dietary information were family doctors (GPs), printed media, and friends and family (Figure 5).

Figure 05: Sources of nutrition information for pregnant women in New Zealand (multiple responses provided, so total will add to more than 100%)

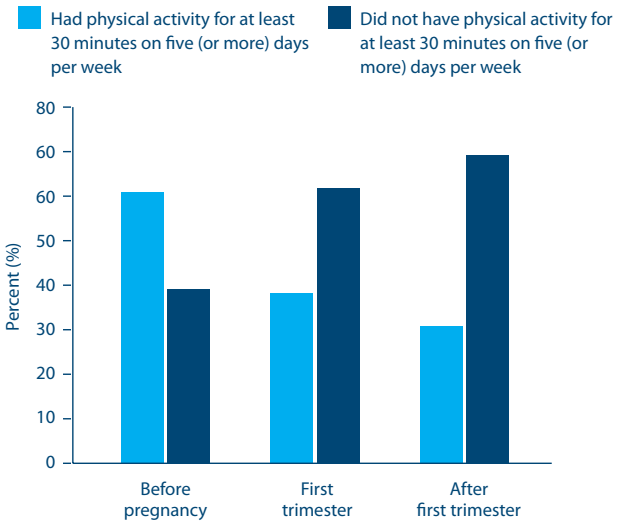


Relevant data sets from Growing Up in New Zealand	✓ Antenatal	9mth	2yr

Physical activity during pregnancy

In addition to their nutritional intake, pregnant women in *Growing Up in New Zealand* were asked about their usual physical activity levels prior to and during pregnancy. Approximately 61% of the pregnant women had physical activity for at least 30 minutes on five (or more) days per week prior to this pregnancy (Figure 6). As pregnancy progressed, fewer women met these criteria for being physically active. Activity levels during pregnancy were influenced markedly by pre-pregnancy activity levels. Of those women that were active before pregnancy, approximately 60% continued the same level of activity during the first three months of their pregnancy. In their second and third trimesters, 30% of this group reduced their exercise further. The group of pregnant women who were inactive prior to pregnancy typically remained inactive throughout pregnancy. Only 4% of this group became active during the first 3 months of their pregnancy and approximately half of them continued that activity into their second and third trimesters.

Figure 06: Physical activity levels before and during pregnancy



What does this evidence mean for nutrition policy and programmes in New Zealand?

- It was uncommon for pregnant women to meet all of the recommended daily serving numbers, with only 3% of women meeting recommendations for all four main food groups
- Approximately 24% of pregnant women did not meet the Ministry of Health recommendations for daily servings for any of the four main food groups
- Recommendations for intake of milk and milk products were met by the greatest proportion of pregnant women
- Recommendations for the daily servings of lean meat, meat alternatives, and eggs were met by the smallest proportion of pregnant women
- Most pregnant women made adjustments to their diets during their pregnancy, most commonly avoiding alcohol and caffeinated drinks, along with raw fish and shellfish, and deli-based foods such as ham
- Pregnant women made dietary changes using information obtained from a variety of sources. The two most common information sources were midwives and GP doctors
- Pregnancies are commonly unplanned, and this impacts folic acid supplementation rates – particularly prior to conception
- A small proportion of women used folic acid supplementation in a manner most likely to prevent NTD affected pregnancies
- Almost one in six women did not take folic acid at all around or during the time of their pregnancy (if their pregnancy was planned or unplanned)
- In pregnancy, women are likely to continue their pre-pregnancy physical activity patterns
- Overall, the number of pregnant women that were physically active decreased during pregnancy

[1]Black, R. E. et al. (2008). Maternal and child undernutrition: global and regional exposures and health consequences. *Lancet*, 371, 243-260.

[2]University of Otago & Ministry of Health (2011) A Focus on Nutrition: Key Findings of the 2008/09 New Zealand Adult Nutrition Survey. Wellington: Ministry of Health.

[3]Ministry of Health (2006) *Food and Nutrition Guidelines for Healthy Pregnant and Breastfeeding Women: A Background Paper.* Wellington: Ministry of Health.

[4]Morton SM, et al. (2014). Adherence to nutritional guidelines in pregnancy: evidence from the Growing Up in New Zealand birth cohort study. Public Health Nutrition. 9:1-11.

[5]Ministry of Health. (2003). Improving Folate Intake in New Zealand: Policy implications. Wellington: Ministry of Health

[6]Morton SM, et al. (2013). Too many left at risk by current folic acid supplementation use: evidence from Growing Up in New Zealand. *Australian and New Zealand Journal of Public Health*. 37(2):190-1.

[7]Morton SM, et al. (2010). Growing Up in New Zealand: A Longitudinal Study of New Zealand Children and Their Families. Report 1: Before we are born. University of Auckland, Auckland. ISBN:978-0-473-17889-5

Relevant data sets from Growing Up in New Zealand	✓ Antenatal	9mth	2yr

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About *Growing Up in New Zealand*

Growing Up in New Zealand is New Zealand's contemporary longitudinal study of child development, tracking the development of nearly 7000 children in the context of their diverse families and environments from before their birth until they are young adults.

Multidisciplinary longitudinal information has been collected from the *Growing Up in New Zealand* children, who were born in 2009 and 2010, and their families.[8] Each data collection of *Growing Up in New Zealand* seeks age-appropriate information across six inter-connected domains: family and whānau, societal context and neighbourhood, education, health and wellbeing, psychosocial and cognitive development, and culture and identity.[9] A number of face-to-face data collection waves have been conducted with the mothers, fathers and children of *Growing Up in New Zealand* from before birth and through the first 1000 days of life. It is intended for data collection waves to occur with the cohort every 2-3 years until they reach adulthood.

The *Growing Up in New Zealand* children are broadly generalisable to current New Zealand births,[10] and importantly the study collects evidence from families across the spectrum of socioeconomic status as well as ethnic diversity. The study includes significant numbers of tamariki Māori (1 in 4 of the cohort), Pacific children (1 in 5) and Asian children (1 in 6). Almost half of the cohort children are expected to identify with multiple ethnicities. This diversity of the families involved, as well as their ongoing commitment, helps to future-proof the information that can be provided from *Growing Up in New Zealand*. Retention rates are very high (over 92%) through to the preschool data collection wave which is in the field in 2014.

The unique information collected within *Growing Up in New Zealand* is designed to contribute evidence to inform

- a better understanding of the causal pathways that lead to particular developmental outcomes in contemporary New Zealand, and
- the effective evaluation, development and implementation of programmes and policy to optimise: support for families; health and development of children; and equity of outcomes across and within the New Zealand population.

The study is run by as a multi-disciplinary team of experts at the University of Auckland, who work in partnership with experts at other academic institutions as well as a large number of government agencies including the Social Policy Evaluation and Research Unit (Superu) and the Ministries of Social Development, Education, Health and others to ensure that up-to-date and appropriate evidence is provided for policy translation. A number of key reports and publications have already been produced from *Growing Up in New Zealand* and the resource provided is being increasingly utilised. Data from the *Growing Up in New Zealand* study is available for access. For further information on data access arrangements, copies of existing study publications, and contact details for our team please view www.growingup.co.nz

[8]Morton SMB., et al. (2012). How Do You Recruit and Retain a Pre-Birth Cohort? Lessons Learnt From Growing Up in New Zealand. *Evaluation & the Health Professions*;DOI: 10.1177/0163278712462717.

[9]Morton SM., et al. (2013). Cohort profile: Growing Up in New Zealand. *International Journal of Epidemiology* 42:65-75.

[10]Morton SMB., et al. (2014). Growing Up in New Zealand cohort alignment with all New Zealand births. *Australian and New Zealand Journal of Public Health*. In press.

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Morton SM, et al. (2010). Growing Up in New Zealand: A Longitudinal Study of New Zealand Children and Their Families. Report 1: Before we are born. University of Auckland, Auckland. ISBN:978-0-473-17889-5

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