



**Growing Up
in Ireland**
National Longitudinal
Study of Children

GROWING UP IN IRELAND

KEY FINDINGS: INFANT COHORT (at 3 years)

NO. 4 CHILDREN'S PHYSICAL GROWTH FROM BIRTH TO AGE 3

INTRODUCTION

This is the fourth in a series of *Key Findings* from the second round of interviews with the Infant Cohort in *Growing Up in Ireland*. The families of 11,100 children were initially interviewed in 2008/2009 when the Study Child was nine months old. They were re-interviewed between January and August 2011, when the children were three years old. This Key Finding presents summary information on infants' physical growth from birth to three years of age.

Measures of the child's height and weight were taken at both interviews and these data provide detailed information on patterns of growth that can be used to inform policy development.



MEDIAN¹ CHILD HEIGHT IS SIMILAR TO OFFICIAL GUIDELINES BUT WEIGHT IS HIGHER

The findings from the *Growing Up in Ireland* study show that the majority of children in Ireland are very healthy and experiencing patterns of physical growth that are similar to those of children in other affluent nations such as Britain and the US. Height and weight have long served as important indicators of children's physical health and development.

Figure 1: Median height and weight of Irish boys relative to World Health Organisation (WHO) guideline weights by age

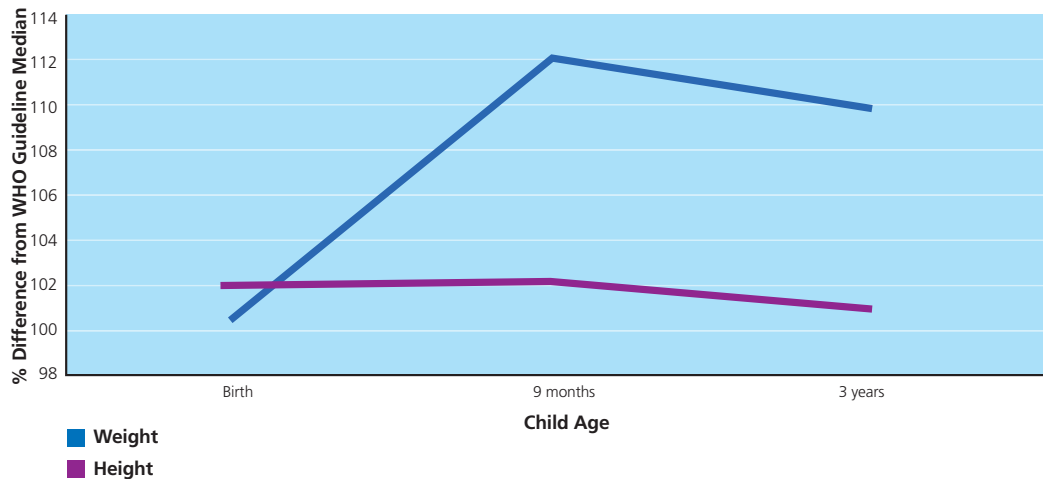
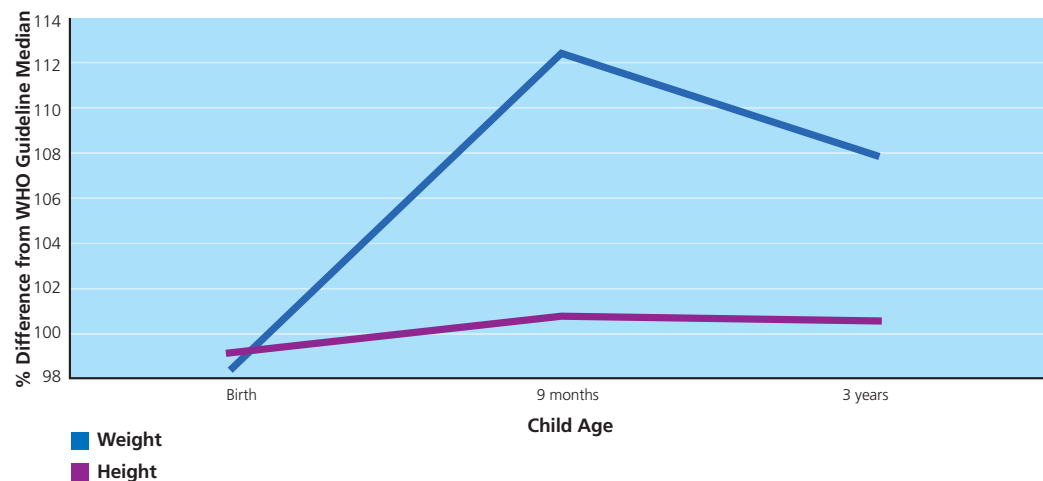


Figure 2: Median height and weight of Irish girls relative to World Health Organisation (WHO) guideline weights by age



- The median length and weight of children at birth in Ireland (see Figures 1 and 2) are very close to the guideline lengths and weights¹ provided for the UK population by the World Health Organisation (WHO).
- The median length remains close to the WHO guideline up to three years for both boys and girls – at slightly higher than 100% (Figures 1 and 2).
- The median weight of both boys and girls increases to 12% above the WHO guideline weight at nine months, before falling marginally to 10% above for boys and 8% above for girls (Figures 1 and 2).

¹ The median height is that of the child who is half way between the smallest and tallest child when children are ranked by height.

RISK OF OBESITY BEGINS EARLY

Previous research suggests that patterns of growth in early infancy have implications for children's risk of obesity in childhood, as well as their health and development in adulthood. A child's rate of growth is highest in early infancy and slows thereafter. Children born prematurely and/or of low birthweight usually experience 'catch-up growth' in terms of length and weight, which is considered healthy. However, when children of average weight at birth experience rapid growth² in early infancy, this is an important marker of their risk of obesity in childhood and may be associated with adult health problems.

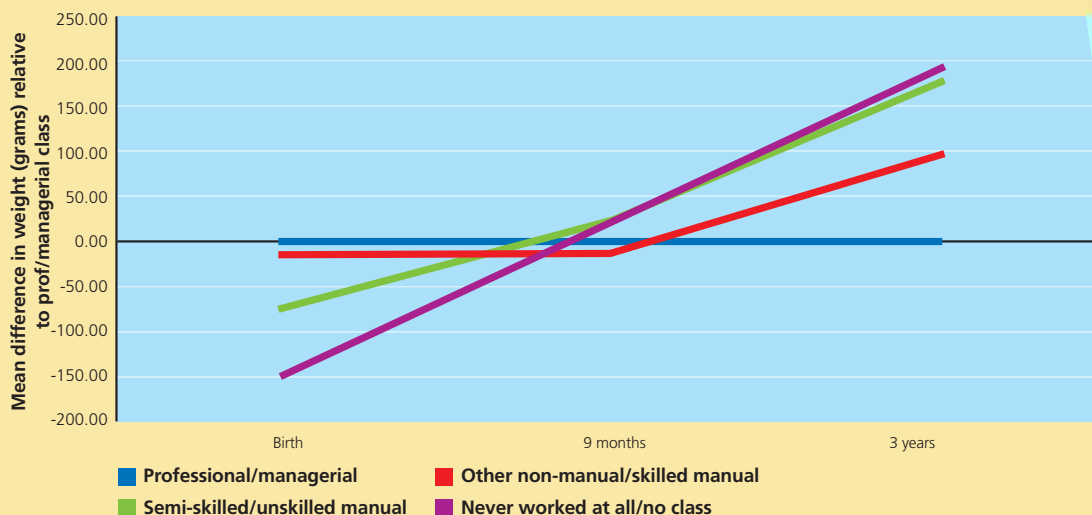
Growing Up in Ireland results show that children who experience rapid weight growth are more likely to become overweight and obese, but that this is less likely for breastfed infants and those who were weaned onto solids later, adjusting for birth weight. World Health Organisation guidelines recommend that children should be exclusively breastfed where possible and not introduced to solid food for the first six months of life.

Ireland has one of the lowest breastfeeding rates in Europe and 46% of children are currently weaned onto solids by four months of age. Just under 10% of Irish children are weaned by three months of age, while less than a third are weaned after six months, as per the WHO recommendation.

- Findings from **Growing Up in Ireland** show that children from lower class, education and income backgrounds were less likely to be breastfed, more likely to be weaned earlier, and significantly more likely to experience rapid weight gain in early infancy, even after adjusting for birth weight.
- Figure 3 shows the weights of children from different social class backgrounds at different ages between birth and three years relative to the weights of children whose parents have professional or managerial jobs. This means that the line for the latter is always zero as the other lines represent average differences from this.

- Figure 3 shows that children whose parents have semi/unskilled manual jobs are 78g lighter at birth on average than children whose parents are professional or managerial; by nine months they had caught up. By three years, the relationship had been reversed; the children of parents with semi/unskilled manual occupations were now 176g heavier on average than children in professional or managerial households. The pattern for children whose parents had never worked was even more pronounced.
- Children from less advantaged households are shorter on average than those from professional and managerial households and remain so at all ages. Their rapid weight gain is therefore disproportionate to their growth in height, leading to a higher risk of overweight and obesity.
- Analysis shows that a large part of the difference in growth rates between children can be explained by duration of breastfeeding and the timing of the introduction of solid foods (adjusting for the child's birthweight and other factors). The **GUI** study did not measure the quantities of milk received; evidence from other studies suggests that bottle-fed babies receive a larger quantity of milk on average. Formula milk is also higher in protein than breast milk, which can also contribute to rapid weight gain. Lastly, it is also possible that children from lower social class households experienced different conditions before birth and that this also alters their growth trajectory in infancy.

Figure 3: Average weight of children at birth, nine months and three years relative to the children of parents in professional and managerial class



² 'Rapid growth' is defined as change in the child's weight centile (i.e. the child's weight rank relative to other children) between two time periods (e.g. centile at nine months – centile at birth). 'Rapid' growth is defined as change of 0.67 or more.

ALMOST A QUARTER OF 3-YEAR-OLDS ARE OVERWEIGHT

The heights and weights of the children were used to calculate the child's body mass index (BMI), a commonly used measure of the degree of body fat, at age three. This is calculated by dividing weight in kilograms by height in metres squared. BMIs can be grouped into healthy weight, overweight and obese using internationally agreed thresholds for the child's age.

- 76% of the children were of healthy weight for their age, 19% were overweight and 6% were obese. This means that one in four three-year-olds in Ireland has a BMI beyond the range that is considered healthy.
- Statistically, girls and boys are equally likely to be overweight (19% v 18%).
- The shorter height and higher average weight of children from less advantaged social backgrounds leads to higher BMI scores and a greater risk of overweight and obesity (see Figure 4).
- This relationship was observed by both household class and the highest education of the primary caregiver. Whereas 4% of three-year-olds from professional/managerial households were classified as obese, this figure was 9% among those whose parents had never worked (see Figure 4).
- Among children whose primary caregiver had lower secondary education or less, 9% were obese compared to 4% where the caregiver had a degree or higher qualification.
- These results suggest that inequalities in the risk of overweight and obesity associated with social background begin early and are already established by the age of three.

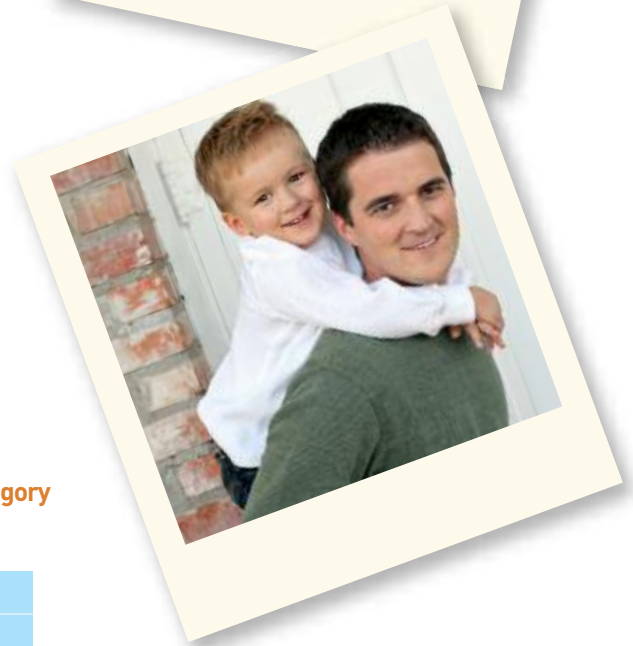
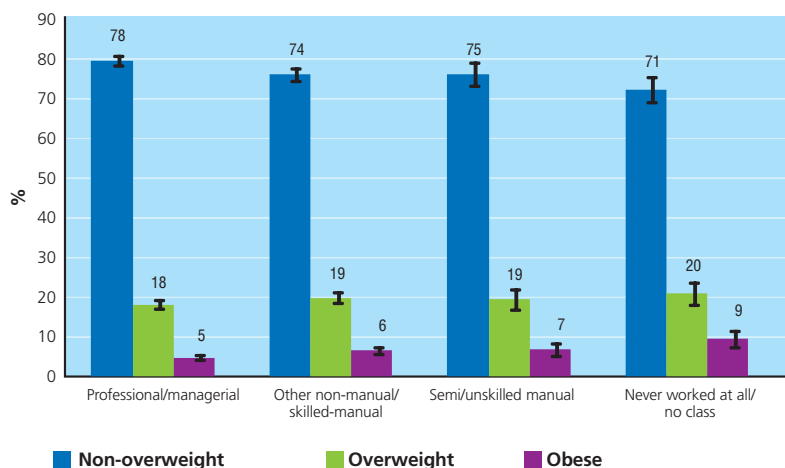


Figure 4: The proportion of three-year-olds within each BMI category by household social class





Growing Up in Ireland is the National Longitudinal Study of Children. It tracks the development of two nationally representative cohorts of children: an *Infant Cohort* which was interviewed initially at nine months and subsequently at three years of age; and a *Child Cohort* which was interviewed initially at nine years and subsequently at 13 years of age.

The Study is funded by the Department of Children and Youth Affairs, in association with the Department of Social Protection and the Central Statistics Office. It is being carried out by a consortium of researchers led by the Economic and Social Research Institute (ESRI) and Trinity College Dublin (TCD).

The first wave of fieldwork with the families of the Infant Cohort included approximately 11,100 nine-month-olds, their parents and carers. Interviews began in September 2008 and were completed in March 2009. Interviews for the second round of interviews with this cohort took place between January and August 2011. A total of 90% of the original sample of nine-month-olds were successfully re-interviewed.

Access to *Growing Up in Ireland* data

An anonymised version of all quantitative and qualitative data collected in ***Growing Up in Ireland*** is being made available through the Irish Social Science Data Archive (ISSDA) (<http://www.ucd.ie/issda/data/growingupinireland/>) and the Irish Qualitative Data Archive (IQDA) (<http://www.iqda.ie/content/growing-ireland>).

'Thank you' to all participants

The success of ***Growing Up in Ireland*** is the result of contributions from a large range of individuals, organisations and groups, many of whom helped to recruit the sample and collect the data. We are particularly grateful to the thousands of families from every part of the country who gave so very generously of their time on two occasions to make this Study possible. A very big 'thank-you' to the children and their families.

www.growingup.ie



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