

Toddler height linked to learning and adult risk of chronic disease in low- and middle-income countries

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Children from low- and middle-income countries who grow taller in height during the first two years of life may do better at school and be healthier adults, whereas those who gain weight rapidly after the age of two are at higher risk of chronic diseases in later life.

These findings come from an analysis of [birth cohort](#) studies in five countries and have important implications for public health programmes to combat undernutrition.

Until now, most early child growth research has focused on body weight and outcomes in later life rather than on the separate effects of height and weight gain. It is not clear whether the promotion of weight gain during infancy and early childhood, which is important for survival and cognitive development, might also influence the risk of [chronic diseases](#) later in life, such as heart disease and diabetes.

An international team of researchers collaborating as the Consortium of Health-Orientated Research in Transitioning Societies (COHORTS) group analysed data from five cohort studies in Brazil, Guatemala, India, the Philippines and South Africa that followed more than 8000 participants from birth into [early adulthood](#). The team compared the potential long-term effects of faster weight gain and growth in height during infancy and childhood on height, schooling, blood pressure, [glucose metabolism](#) and [body composition](#) in [young adulthood](#).

The findings reveal that the children who weighed more at birth and grew quickly in body length during the first two years of life were more likely to be taller as adults and had a higher level of schooling.

However, children who gained weight faster in mid-childhood, between the ages of four and eight, had higher levels of [risk factors](#) for obesity and heart disease in later life. As adults they had higher blood pressure, increased [body fat levels](#) and higher [body mass index](#). They also had higher levels of glucose in the blood, a risk factor for the onset of diabetes.

The study's lead author, Linda Adair from the Gillings School of Global Public Health at the University of North Carolina, explains: "The present focus in low- and middle-income countries on reducing the proportion of children under five years of age who are underweight might have detrimental repercussions if feeding interventions promote excess weight gain after the age of two years.

"Conversely, interventions that promote linear growth in early life could build human capital [height and levels of schooling] in adults without increasing the burden of non-communicable diseases.

"Our results challenge several programmes in low- and middle-income countries. For example, traditional school feeding programmes that increase body mass index with little effect on height might be doing more harm than good in terms of future health."

Dr Jimmy Whitworth, Head of International Activities at the Wellcome Trust, said: "The world is facing a dual crisis of hunger and obesity. These findings highlight the first 1000 days of life as being a vital time for interventions to secure a healthy future, free from preventable diseases."

The study appears in this week's print issue of the *Lancet*.

More information: Adair, L. et al. Associations of linear growth and relative weight gain during early life with adult health and human capital in countries of low and middle income: findings from five birth cohort studies, *Lancet* 2013. [www.thelancet.com/journals/lan ...](http://www.thelancet.com/journals/lan...)
 [\(13\)60103-8/abstract](http://www.thelancet.com/journals/lan...)

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