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Faster weight gain as a baby may lead children gaining a higher proportion of fat tissue when older

Thursday 30 Sept.

Researchers funded by the Medical Research Council (MRC) have demonstrated for the first time in humans that feeding babies enriched milk can lead to significant increases in body fat by the time they reach 5-8 years of age.

The research led by Professor Atul Singhal, at the MRC Childhood Nutrition Research Centre, UCL Institute of Child Health, looked at different randomised, double blind, controlled trials, in which babies who were small for their age were randomly assigned either a nutritionally enhanced formula milk, or a standard formula. The researchers found that, at 5–8 years old, children who were given the enriched formula had more body fat than those who were given normal formula.

Previous studies, in a vast range of creatures from rats to butterflies, have shown that over-nutrition in infancy can lead to being overweight later in life and a reduced lifespan. Human studies have also suggested a link between infant over-nutrition and being overweight in later life but without the gold-standard evidence of a systematic randomised controlled double blind trial, which takes into account other factors such as any genetic tendency for overweight mothers to have overweight babies.

This new study, which takes into account confounding factors such as gestational age, BMI and shows that fat mass in childhood was 22–38 per cent higher in infants fed nutrient-enriched formula compared with those fed a standard nutrient formula. The study confirms previous estimates that more than 20 per cent of adult obesity might be caused by over-nutrition or other early excessive weight gain in infancy.

Professor Singhal said:

"This study robustly demonstrates a link between early nutrition and having more fat in later life in humans – a finding suggested by animal studies and confirmed in many other animals. Our findings are consistent, show a dose-response effect, and are biologically plausible. Immediately, it raises the issue about the best way to feed those children small for gestational age, which should now be evaluated in light of all current evidence. In public health terms, it supports the recommendation in the general population for breastfeeding – since it is harder to overfeed a breastfed baby. And it will undoubtedly be of interest to formula milk companies wishing to improve their products."

"Nutrition in Infancy and Long-term Risk of Obesity: Evidence from Randomised Controlled Trials" published online in *American Journal of Clinical Nutrition* on 30 September

1. For media queries, please contact the MRC press office on 020 7611 6011 or press.office@headoffice.mrc.ac.uk

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