

# Association Between Caesarean Delivery and Overweight in Children: A Birth Cohort Study

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### Abstract

**Background:** Increasing trends in childhood overweight and obesity has occurred as well as increases in prevalence of caesarean section (CS). There is a strong hypothesis that differences in the gut microbiota of infants depending influenced by delivery method may be associated with future obesity risk. This study aimed to evaluate the association between the delivery method and overweight status in early childhood.

**Method:** A total of 1,277 mother-child dyads from a prospective, hospital-based maternal-child birth cohort were assessed. We recruited women in their early pregnancy from May 2010 to November 2013 and assessed the body composition of the delivered children at ages 1, 3, 6 years using 2 measures, body mass index (BMI) z-score and percentage of overweight (POW). Multivariate logistic regression analyses were performed to examine the associations between delivery method and these outcomes.

**Results:** In total, 366 children (28.7%) were delivered by CS. Delivery method was not significantly associated with BMI z-score at age 1 year (adjusted odds ratio (aOR) 0.96, 95% confidence interval (CI) [0.69-1.33]), 3 years (aOR 0.94, 95% CI [0.65-1.36]), and 6 years (aOR 0.72, 95%CI [0.46-1.12]) respectively. The same tendency was observed with the percentage of overweight (POW). Results of a series of sensitivity analysis addressing methodological issues did not markedly alter the findings.

**Conclusion:** Our findings do not support the hypothesis that children born by CS are at higher risk of being overweight in childhood. Further studies are needed to confirm our findings and explore the mechanisms for the potential association.