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Relationship between Low Birth weight and Thinness, Severe Obesity in 3 to 12-Year-Old Shanghai Children: A Large-Scale Population Based Study

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Background: The aim of this study is to investigate the relationship between low birth weight (BW) and thinness or severe obesity during maturation.

Methods: A large-scale school-based cross-sectional population-based survey was conducted in 3 to 12-year-old children in Shanghai, China. BW was divided into low (< 2500 g) and normal (2500–4000 g) group. International Obesity Task Force BMI cut-offs were used to define grade 1, 2, 3 thinness, overweight, obesity and severe obesity. Logistic regression was used to estimate the association.

Results: Total 70,284 children participated in the survey. The percentage of grade 1 thinness and severe obesity in children with low birth weight is significantly higher than that with normal birth weight ($P < 0.05$). Low BW correlated with an increased risk of grade 1 thinness (OR = 1.56, 95%CI = 1.38–1.75), grade 2 thinness (OR = 1.34, 95%CI = 1.10–1.64), grade 3 thinness (OR = 1.99, 95%CI= 1.63–2.42) and severe obesity (OR = 1.27, 95%CI = 1.03–1.55) but did not correlate with overweight.

Conclusion: The relationship between low BW and thinness or severe obesity risk is associated.