

Differences in body composition and energy expenditure in prepubertal children born term or preterm appropriate or small for gestational age

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Small size at birth may result from fetal undernutrition which may occur at different times during gestation. Early postnatal catch-up growth and excess childhood weight gain are associated with an increased risk of adult cardiovascular disease and type 2 diabetes mellitus. The aim of this study was to assess the relative contributions of body composition and energy expenditure on fasting insulin sensitivity during late childhood. We took advantage of two previously described prospective cohorts of children born either at term or prematurely, with a wide range of birth weights adjusted for gestational age. Seventy-one prepubertal children (mean age 7.5 ± 0.3 years) were examined: 23 term SGA (8 M, 15 F), 12 preterm SGA (7 M, 5 F), 16 term AGA (8 M, 8 F), and 20 preterm AGA (9 M, 11 F). Mean height SDS was -0.18 ± 0.11 and mean BMI SDS was 0.27 ± 0.03 . Change in weight SDS was significantly higher in children born SGA compared to their AGA counterparts ($p < 0.001$). Change in weight SDS was