

Exercise Related Problems in Children

O-169

EARLY PROGRAMMING OF PHYSICAL ACTIVITY AND SEDENTARY BEHAVIOUR AT PRIMARY SCHOOL AGE. THE ABCD-STUDY

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Background and aims Energy balance may be affected by developmental (re)programming of physical activity and sedentary behaviour, hence predispose for cardiovascular disease in later life. We hypothesise that low birth weight and accelerated growth in infancy corresponds with lower physical activity levels and more sedentary behaviour at 8–9 years of age, thereby predisposing for obesity.

Methods Physical activity and sedentary behaviour were measured in 183 children (100 boys) of a prospective birth cohort at mean age 8.7 years using accelerometry. Outcomes were minutes per day above moderate activity (>3000 counts/min) and minutes sedentary per day.

Results On average (\pm SD), children participated in 37 (\pm 14) minutes of physical activity and 412 (\pm 45) minutes of sedentary behaviour per day. Low birth weight was not associated with either physical activity or sedentary time. The average standardised growth velocity, however, was positively associated with sedentary time, with an average increase of 7.8 min in daily sedentary time per SD weight gain in infancy. Growth velocity was not significantly associated with physical activity.

Conclusions Infant growth may program sedentary behaviour, but not physical activity levels at age 8–9. Birth weight was not related to either physical activity or sedentary behaviour. Hence developmental effects of growth on childhood energy balance correspond with variations in sedentary behaviour rather than physical activity.

O-170

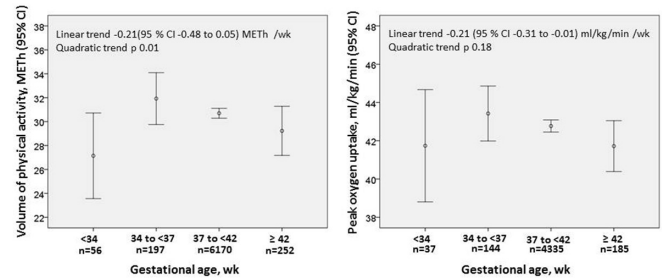
GESTATIONAL AGE IS ASSOCIATED WITH PHYSICAL ACTIVITY AND FITNESS IN ADOLESCENCE – NORTHERN FINLAND BIRTH COHORT 1986

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Background and aims Severely preterm birth is associated with low physical activity and cardiorespiratory fitness. We studied the association of gestational age across its full range with physical activity (self-reported) and cardiorespiratory fitness in adolescence.

Methods Of the 16-year-old members of the population-based Northern Finland Birth Cohort 1986, 6675 singletons with no major physical disability reported the amount of light, brisk and commuting physical activity outside school hours and 4706 completed a submaximal cycle ergometer test for the assessment of cardiorespiratory fitness. Physical activity was summarised as



Abstract O-170 Figure 1 Mean volume of physical activity (METH) per week and peak oxygen uptake (ml/kg/min) with 95% confidence intervals in 4 categories of gestational age

metabolic equivalent hours (METHours) per week and peak oxygen uptake relative to body weight (ml/kg/min) calculated by heart rate responses. To assess the effect of gestational age on the outcomes, the adequate data were analysed by multiple linear regression.

Results There was an inverse U-shaped association between gestational age and physical activity such that adolescents born at both ends of the full range of gestational age undertook less physical activity than others (Figure). These adolescents also seemed to have low cardiorespiratory fitness; however only the linear inverse trend was statistically significant (Figure), suggesting low fitness in those born later gestational ages.

Conclusion Our results are consistent with previous findings of low levels of physical activity in adolescents born severely preterm. We found no evidence of low physical activity and fitness among adolescents born less preterm. Our results also suggest lower physical activity and fitness among adolescents born at later gestational ages; this was post hoc and requires replication.

Gastroenterology II

O-171

THE COMBINED ROLE OF NORMAL BIRTH AND BREASTFEEDING IN ACUTE EARLY CHILDHOOD GASTROENTERITIS

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Background Clinical studies have shown prematurity, birth via caesarean section (CS) and exposure to breastmilk impact the establishment of gut microbiota and immune system in early life and increase susceptibility to acute gut infections. This study aims to investigate the combined association of mode, timing of birth and breastfeeding with acute gastroenteritis (AGE) in early childhood.

Method We conducted a population-based cohort study of 893,360 infants born in New South Wales, Australia, 2001–2011. Data was ascertained via record-linkage of administrative birth, hospital and death data. Follow-up was based on time between discharge at birth to first admission of AGE, sixth birthday, death or study end-date (30/06/2012). Multivariable Cox regression was used to estimate risk of AGE admission adjusted for maternal, obstetric and birth factors.

Results In 2001–2011, there were 41,274 (4.6%) hospital admissions for AGE in childhood; two-thirds admitted.