

**Design:** Population-based cohort (Sweeps 1 and 3 of the UK Millennium Cohort Study).

**Setting:** UK.

**Participants:** 11 801 white singleton children born in 2000–2002.

**Comparison Groups:** Children were grouped according to their breastfeeding status (ever vs never; and duration of any and exclusive breastfeeding). Results were stratified according to gestational age at birth: 37–42 weeks (term); 33–36 weeks (moderately preterm); and 28–32 weeks (very preterm).

**Main Outcome Measures:** British Ability Scales (BAS) tests were administered when the children were aged 5 years. Age-adjusted ability scores and t-scores for the BAS Naming Vocabulary, Pattern Construction and Picture Similarities scales were used.

**Results:** 11 007 children (93%) were born at term, 684 (6%) were born moderately preterm, and 110 (1%) were born very preterm. The mean BAS naming vocabulary score decreased with prematurity (110.3 in those born at term, 109.8 in those born moderately preterm, 107.9 in those born very preterm). The proportion of children ever breastfed varied according to prematurity (68% in those born at term, 62% in those born moderately preterm, 76% in those born very preterm), as did the proportion of children breastfed for at least 3 months (37% in those born at term, 27% in those born moderately preterm, 32% in those born very preterm). After adjusting for confounders (including the baby's sex and birth-weight; the mother's age, education, social class, smoking and alcohol in pregnancy, and whether this was her first child), ever breastfeeding was associated with a higher mean BAS naming vocabulary score in children born at term (adjusted difference in mean between ever breastfed and never breastfed 1.3, 95% CI 0.6 to 2.1,  $p < 0.001$ ). The effect was stronger in children born moderately preterm (2.3, 95% CI 0 to 4.6,  $p = 0.05$ ) or very preterm (4.6, 95% CI -1.0 to 10.1,  $p = 0.11$ ). Among those children who were ever breastfed, there was a small increase in mean BAS naming vocabulary score associated with each additional month of breastfeeding. A similar effect of breastfeeding was observed when using BAS pattern construction and picture similarities scales, and BAS standardised t-scores. Further analysis will explore whether these effects are mediated through parenting and childcare factors.

**Conclusions:** These results, based on one of the largest observational studies of the effect of breastfeeding and child development, suggest that breastfeeding is associated with improved cognitive development, particularly in those born preterm.

## Physical activity

### 009 TRACKING OF PHYSICAL ACTIVITY BEHAVIOURS DURING CHILDHOOD, ADOLESCENCE AND YOUNG ADULTHOOD: A SYSTEMATIC REVIEW

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**Background:** Many health promotion programmes for physical activity are targeted during childhood and adolescence, as these life stages are seen to be important for the development of health behaviours. The underlying assumption is that physical activity will become habitual or “track” (ie will be a stable aspect of behaviour between different ages). Given the considerable variation between studies in the extent to which physical activity demonstrates tracking, this systematic review examined studies that provided data on the tracking of physical activity behaviours in children and young people.

**Methods:** Seven bibliographic databases were searched systematically in July–August 2008 using search strategies built around

three groups of keywords: physical activity, study type, young people. Studies had to be prospective, longitudinal studies that reported data on any physical activity behaviour for at least two time-points ( $\geq 2$  years apart). The study was restricted to community-based populations who were  $\leq 18$  years at baseline. Two reviewers independently undertook data extraction from all suitable papers, and performed quality appraisal.

**Results:** The database search yielded 10 685 titles, from which 59 were included in the review. There were only 15 papers that specifically examined tracking of physical activity behaviours. Tracking co-efficients ranged from -0.11 to 0.59; all indicating low or moderate tracking of physical activity, with no clear differences between males and females. Moderate tracking was observed in studies where follow-up was five years or less. The highest degree of tracking was observed for club sport participation and even over long follow-up, sports training and organised physical activity showed higher tracking than other physical activity behaviours. Physical activity levels declined consistently during adolescence, as did sports participation. However, the decrease in physical activity was less marked among those who participated in sports in early adolescence, and those who participated with parents or at high levels. The likelihood that young people continue with specific sports over short periods is generally low, but the likelihood that they continue to take part in any team, individual or vigorous activity is higher.

**Conclusions:** In general, tracking of physical activity behaviours between childhood, adolescence and young adulthood is low, but the evidence is limited. Levels of physical activity during childhood/adolescence decrease with age. Research is needed to explore the reasons why adolescents and young adults give up physical activity and participation in sports, although there are several factors in adolescence that do lessen the chances of being inactive at a later age.

### 010 THE MULTIPLE SCALES OF AREA EFFECTS ON HEALTH: FROM EVIDENCE TO IMPLICATIONS FOR PUBLIC HEALTH PRACTICE AND POLICY

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**Background:** In area effects on health research, the influence of area characteristics on health is conceptualised and measured in multiple ways. Each conceptualisation, and its empirical application, is therefore likely to provide a unique identification and understanding of the environmental determinants of health and their potential mechanisms of influence, and may convey different information for public health practice and policy. Using as an example the influence of the built environment on physical activity in Montreal, Canada, the objectives of this presentation are to: (1) present results of associations between built environment characteristics and walking measured using different statistical and spatial approaches; and (2) discuss how these findings may inform public health practice and policy to promote active living.

**Methods:** Data on walking behaviours of 2716 adults were linked to area-level data on population density, land use mix and accessibility of services, and analysed using multilevel modelling and spatial analysis procedures.

**Results:** In multilevel models, greater land use mix (OR 2.85, 95% CI 1.44 to 5.64) and accessibility of services (OR 1.05, 95% CI 1.02 to 1.08), but not population density, are significantly associated with more walking. These findings are extended by illustrating the scale dependence of area effects, eg population density influences walking significantly only in small areas defined by a 500 m street-network buffer around individuals' residence (OR 1.04; 95% CI 1.01 to 1.06) and not in larger areas delimited by 750 m or 1000 m