

## Essential Evidence on a page: No 16

### Objective monitoring, children's travel and physical fitness

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*Top line:* Increased emphasis on improving the physical and built environment, and addressing parental concerns about children's safety, are important determinants of children's physical activity and fitness levels.

The environment in which we live has an important influence on physical activity, including motor traffic density, land use mix, and available green space. Children's physical activity has declined in recent decades, contributed to by changes in travel patterns, particularly with regards to increasing numbers of children travelling by motor car instead of walking or cycling. Observational studies have consistently shown that young people who walk or cycle to school have higher physical activity than those travelling by car. Cycling to school has also been associated with higher cardiorespiratory fitness (CRF). However, these observations are limited by the cross-sectional<sup>1</sup> nature of the studies and would be strengthened by identifying whether change in travel mode was associated with changes in physical activity or CRF.

Page and colleagues<sup>2</sup> studied whether changes in travel mode to school are associated with changes in objectively measured physical activity. Associations between change in travel mode to school and objectively measured physical activity (accelerometer) were investigated in participants in the PEACH project. PEACH is a longitudinal study investigating the personal and environmental determinants of physical activity across the transition from primary to secondary school in English primary school children. Location within the built environment was measured using a personal Global Positioning System (GPS) receiver.

The results showed that at baseline 1307 children have been recruited from 23 primary schools within Bristol of whom approximately 700 have so far been followed up in 19 secondary schools. These data are the first to show that objectively measured physical activity declines across the transition from primary to secondary school, and that the decline in physical activity is greater in children who change from active to passive transport modes. Children who walked to school were significantly more active than those using motorised transport. In longitudinal analyses children were 10% less active in secondary school than they were 1 year previously in primary school. Additionally, children who reported being allowed to visit destinations unsupervised locally and in the wider neighbourhood had higher levels of weekday physical activity compared to those who reported low levels of independent mobility.

In conclusion, longitudinal changes in travel mode to school are associated with changes in physical activity and CRF, supporting the observation that active travel to school may contribute to higher physical activity and cardiovascular fitness in young people. Combined accelerometer and GPS data can be used to investigate children's spatial mobility and provide objective measurements of children's physical activity levels.

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<sup>1</sup> See Evidence Briefing 3 re Evidence Hierarchy

<sup>2</sup> Page, A., Cooper, A., Griew, P., Davis, L., Hillsdon, M. 2009 Independent mobility in relation to weekday and weekend physical activity in children aged 10-11 years: The PEACH project, International Journal of Behavioural Nutrition and Physical Activity, 6(2) [www.ijbnpa.org/content/6/1/2](http://www.ijbnpa.org/content/6/1/2)