



To: Transport Planners

From: Adrian Davis

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Subject: School Travel Toolbox No.2 Children's Independent mobility

Top line: Independent mobility appears to be an important independent determinant of weekday physical activity for both boys and girls.

Children's independent mobility has fallen in recent decades and may in part explain reported declines in physical activity in young people. A cross-sectional study investigated whether independent mobility in boys and girls was related to objectively measured physical activity.

1307 10–11 year old boys and girls from 23 schools in Bristol took part.¹ Measures included objectively recorded physical activity (measured by accelerometer), height (m) and weight (kg), a newly developed scale for local (Local-IM) and area independent mobility (Area-IM), minutes of daylight after school, level of neighbourhood deprivation and pubertal status. As would be expected both boys and girls had higher scores for Local-IM than Area-IM indicating that parents were more willing to let them visit 'local' destinations i.e. friend's house, park, local shops and school unsupervised compared to those which were assumed to be further away. Both Local-IM and Area-IM were higher in boys compared to girls. This is consistent with other studies^{2, 3} where parents appear more willing to let boys visit places outside the home unsupervised compared to girls.

Children who reported being allowed to visit destinations unsupervised locally (Local-IM) and in the wider (Area-IM) neighbourhood had higher levels of weekday physical activity compared to those who reported lower levels of Local-IM and Area-IM. This positive association with objectively measured physical activity for weekdays remained even after adjustment for a range of potential confounders (Body Mass Index, Index of Multiple Deprivation, pubertal status and minutes of daylight from 3 pm until sunset). For weekend physical activity, only Local-IM in girls was significantly related to average weekend physical activity. The lack of association between Area-IM and weekend physical activity may indicate 10-11 year olds get the majority of their weekend physical activity 'locally'.

Physical activity and factors such as independent mobility are likely to be influenced by the type of neighbourhood (housing density, land use mix, available green space) as well as perceptions of neighbourhood. Parents may be much more likely to allow independent mobility if they perceive their environment to be safe and traffic density to be low.

The inclusion of minutes of daylight after school (3 pm) is relatively unusual in the literature, but the data confirm that minutes of daylight are positively related to both independent mobility and physical activity so should be considered as a potential confounder in future work. Available daylight is particularly relevant when investigating independent mobility as darkness has been reported as a barrier to parents allowing their children to play outside unsupervised.

¹ Page, A. et al, 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) Open Access

² Hillman, M., Adams, J., Whitelegg, J. 1990 *A study of children's independent mobility*. London: PSI.

³ Reilly, J. (ed) 2008 Objective measurement of physical activity and sedentary behaviour: review with new data, *Archive of Diseases in Childhood*, 93(7): 614-619.