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IS A CHANGE IN MODE OF TRAVEL TO SCHOOL ASSOCIATED WITH A CHANGE IN OVERALL PHYSICAL ACTIVITY LEVELS IN CHILDREN? LONGITUDINAL RESULTS FROM THE SPEEDY STUDY

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Background Previous work suggests that children who use active modes of travel (walking or cycling) are more physically active overall than those who use motorised transport (car, bus or train). However, the majority of these studies used cross-sectional designs, and it is not known whether a shift in mode of travel to school is associated with a change in children's overall physical activity.

Objective To investigate the relationship between changes in mode of travel to school and changes in overall physical activity among children aged 9-10 years over a 1-year period.

Method We used data collected in the SPEEDY study, a population-based cohort study examining factors associated with physical activity among primary school children in Norfolk, UK. Baseline data collection took place during the summer term of 2007, with follow-up exactly 1 year later. Usual mode of travel to school (car, bus or train, bike, or on foot) was self-reported at both time points. Physical activity was measured using Actigraph accelerometers worn for one week. Only children with three or more valid days of accelerometer wear (≥ 500 min/day) at both baseline and follow-up were included in analysis. Accelerometer data were summarised as time (min/day) spent in moderate to vigorous physical activity (MVPA, defined as >2000 accelerometer counts/min). Two-level multiple linear regression models stratified by sex were used to explore associations between change in travel mode and change in MVPA after adjustment for sociodemographic and locational characteristics.

Results 813 students, 47% of whom were boys, provided valid data at both time points. 50 (6%) students reported a change from active to motorised travel, 75 (9%) reported a change from motorised to active travel, and 688 (85%) reported no change in their usual mode of travel. Compared with those who reported no change, a shift from motorised to active travel was associated with an increase in daily time spent in MVPA ($\beta=12.96$, 95% CI 6.29 to 19.63). This equated to an estimated mean difference of 9 min/day (SD =31) of MVPA in boys and 6 min/day (sd=29) in girls. No significant change in MVPA was observed in those who shifted from active to motorised travel ($\beta=-4.81$, 95% CI -12.91 to 3.29).

Conclusion Taking up active travel to school is associated with an increase in overall physical activity in primary school children. Promoting active travel to school may therefore contribute to increasing physical activity in this age group.