



Active transport among youth—how important is the road environment?

Active transport, that is walking or cycling to local destinations, is an important source of physical activity for young people¹. However, parents may restrict their children's active transport in their local neighbourhood due to safety concerns.

This study sought to inform interventions aimed at increasing walking and cycling among youth by gaining an understanding of which safety-related aspects of the local road environment are associated with active transport.

Study design and methods

The Children Living in Active Neighbourhoods (CLAN) study involved parents and children in metropolitan Melbourne over a two-year period from 2004 to 2006. In 2004, 166 parents of children aged 8–9 years and 265 parents of adolescents aged 13–15 years were surveyed. Children's levels of active transport were reported by their parents, while adolescents self-reported their behaviour.

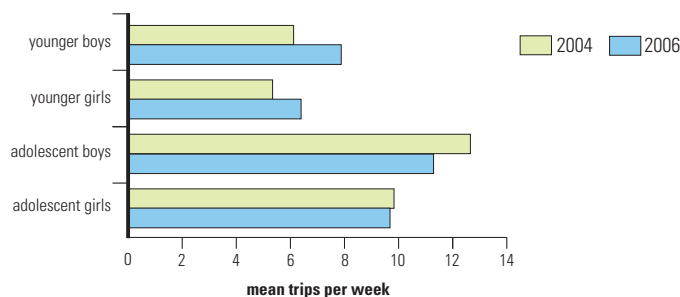
Information about safety-related features of the local road environment within 800m of each participant's home were gathered using a Geographical Information System. Features examined for associations with active transport included:

- total length of local roads (with 50km/h speed limits)
- intersection density
- residing on a cul-de-sac
- total length of walking tracks
- speed humps
- gates and barriers on roads
- slow points and road narrowing
- traffic and pedestrian lights

Levels of active transport among children and adolescents

Consistent with previous research², this study found that adolescents engaged more in active transport than did children. In addition, children increased their active transport as they got older. The study also found that younger boys engaged more in active transport than younger girls at baseline, and their levels of active transport increased more than those of younger girls.

Change between 2004 and 2006 in mean number of walking/cycling trips per week according to age-group and sex



Findings from the CLAN study

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What road environment features are associated with active transport?

Intersection density

Vehicles usually slow down as they approach intersections³, thus intersection density is generally associated with traffic calming. In addition, neighbourhoods with high intersection density tend to have greater street connectivity, which in turn may promote active transport due to directness of walking/cycling routes as well as greater choice of routes⁴. In this study, intersection density was positively associated with active transport among all participant groups.

The road environment features most consistently associated with active transport (at baseline) were intersection density and traffic/pedestrian lights.

Traffic/pedestrian lights

Higher prevalence of traffic/pedestrian lights was associated with higher levels of active transport among children and adolescent girls, but not adolescent boys. Although adolescent boys engaged most in active transport, this was not associated with the number of traffic/pedestrian lights in their neighbourhood. While it is likely that these boys were competent in road crossing skills by age 13–15 years, research suggests that from an early age, boys are socialised to take greater risks than are girls⁵. Thus, adolescent boys may be less likely than girls to rely on pedestrian crossings.

Speed humps

Speed humps have been associated with reduced likelihood of child pedestrian injury⁶. In this study, speed humps were positively associated with active transport among younger girls and adolescent boys.

Cul-de-sacs

Cul-de-sacs were associated with lower levels of active transport among adolescent girls. On average, those who resided on cul-de-sacs made 3 to 4 walking/cycling trips less per week than those who resided on through streets. Nevertheless, it is important to also consider the benefits of cul-de-sacs for children and adolescents. A recent

study demonstrated that adolescent boys who lived on cul-de-sacs spent more time in moderate-to vigorous-intensity physical activity outside school hours than those who lived on through streets⁷.

What road environment features are associated with change in active transport over time?

Several features of the road environment were positively associated with change in active transport over the two-year period, especially among girls. In particular, the importance of physical infrastructure such as walking tracks, residential streets with low speed limits and traffic/pedestrian lights was highlighted in relation to increases in active transport among girls.

Thus, while safety-related features of the local road environment may be beneficial to the broader community, these features may be particularly important for promoting active transport among girls.

Research suggests that parents are more protective of their daughters than sons⁵, and that girls are granted independent mobility at a later age than boys⁸.

Where to from here?

Children's participation in physical activity is influenced by a complex range of factors. This study highlights the importance of traffic calming measures and other physical infrastructure such as walking tracks in creating neighbourhoods that support active transport among youth. The findings are likely to inform urban planners, policy makers and local governments in the development and design of health promoting neighbourhoods.

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Acknowledgements

C-PAN gratefully acknowledges the funding provided by the National Health and Medical Research Council to conduct this project, and the support of the Victorian Health Promotion Foundation. Particular thanks go to all participants in the project.