

There and Back Again: Safety and Health on the Journey to School

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KEY WORDS

injury prevention, public health, walking or biking to school

ABBREVIATIONS

AST—active school transportation

SRTS—Safe Routes to School

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Active school transportation (AST) has been associated with children attaining more moderate-to-vigorous physical activity and a healthier BMI.^{1–3} Similar to Canadian children, US rates of AST declined from 48% in 1969 to 13% in 2009.⁴ There are many reasons for this decline, but parents report distance (62% of respondents), traffic-related injury (30%), and weather (19%) as the top 3 barriers.⁵

There are many benefits to AST. Children in developed countries are not sufficiently active and obesity remains a global threat.⁶ Families driving students to school represent 10% to 14% of US traffic during the morning commute,⁴ and often such trips are less than a half mile. Communities that have invested in infrastructure to promote walking or biking have shown increased property values, improved air quality, reduced urban heat injury, and greater social cohesion.^{7–9}

In 2005, the US Congress established a Safe Routes to School (SRTS) program to improve safety on walking and bicycling routes to elementary and middle schools and to encourage travel between home and school using these modes.¹⁰ SRTS was apportioned \$612 million benefiting 15 000 schools.¹¹ In 2012, Congress discontinued protected SRTS funding. SRTS initiatives must now compete with other requests such as the Transportation Enhancements and Recreational Trails programs, and show evidence of both increased active transportation and reduced collisions.¹² Although pedestrian injury is a major consideration for AST, few studies have examined this rare outcome. In this issue, Rothman et al¹³ examine AST, the built environment, and associations with pedestrian collisions in Toronto.

This Canadian study is among the first to reveal that a higher rate of children walking or biking to school has no significant association with traffic-related injury. This is welcome and important evidence for policy makers who have invested in AST and for activists who pursue more widespread AST. Whether this research will convince parents to forego driving their children to school remains to be seen, but these findings should encourage the growing numbers of Canadian families whose children are walking or biking to school. US readers should be especially inspired by AST occurring during Canadian winters!

The authors identify opportunities to expand on their research. Foremost is the limitation posed by the cross-sectional design of their study. The authors report 2 nonintuitive findings: both traffic crossing guards and traffic calming were associated with more pedestrian collisions. These findings are not surprising, given the ecological nature of the study. Streets with more pedestrian collisions are prime targets for interventions to calm traffic or for placing public safety personnel such as crossing guards. Interpreting the results of Rothman et al, it is reasonable to conclude that traffic safety improvements and crossing guards were thus appropriately allocated. This example

underscores the need to better define causal relationships. You do not want to get rid of fire trucks just because they are more numerous with more severe fires. Similarly, we caution against extrapolating Rothman et al's findings to give crossing guards and traffic-calming features the budgetary ax. Although rigorous experimental designs proving the effectiveness of AST are difficult and expensive, built-environment interventions have been successfully evaluated by using longitudinal or quasi-experimental designs; furthermore, a solid body of evidence is available to guide strategies to promote walking or biking in adult commuting.

A US-based study in New York City with a before and after design informs the directionality of built-environment interventions and school-aged pedestrian collisions. Investigators reported

a reduction in pedestrian injury rates during school-travel hours from 8.8 per 10 000 population per year (pre-intervention) to 4.4 per 10 000 population per year (postintervention) in census tracts that had SRTS interventions.¹⁴ School-aged pedestrian injury rates in census tracts without SRTS interventions showed no change.¹⁴ This study should provide policy makers with reassurance that SRTS programs likely reduce the risk of child pedestrian collisions.

Investigators should aim to obtain finer-level representation of environmental factors, ie, match the built environment to the actual collision location rather than a broad surrounding area. Also, future work needs to incorporate more accurate information on the speed of vehicular traffic and longer and more frequent time periods for assessing rates of AST

(>1 day in different seasons), and applying spatial analyses or other analytic models that can address non-independence of observations arising from phenomena such as subjects grouping by neighborhood.

We recognize the many societal changes that have led to more students being driven to school. As parents, we empathize with families who worry about dangerous streets, distracted drivers, and challenging weather conditions that give pause to even letter carriers. When viewed through the lens of child health, AST is an "old school" form of physical activity that more children should adopt to make the daily trek to and from school. Programs to increase AST, such as SRTS, deserve well-designed evaluations that clearly document their contributions to child well-being and safety.

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