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# Research on the Effects of Bicycle Education is Limited but Does Point to Higher Rates of Bicycling and Increased Safety

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## Issue

Increasing the number of people bicycling is often proposed as a solution for addressing environmental and climate-related challenges. Strategies to support more bicycling have traditionally included building bicycle infrastructure, enforcing traffic laws, and educating people about bicycling. Additionally, many cities across California are pursuing Vision Zero, the goal to eliminate traffic death and serious injury in the next decade. In San Francisco, for example, Vision Zero strategies include creating safe streets, safe people and safe vehicles.<sup>1</sup> It also seeks to include training on “bicycle education, safety, and laws to adults” as a strategy for helping adults learn to bicycle more safely.<sup>2</sup>

With more than 44 of the 50 largest U.S. cities offering adult bicycle education classes, educational programs are becoming increasingly popular.<sup>3</sup> While studies show that infrastructure such as protected bicycle lanes is effective in encouraging bicycle use, the effectiveness of educational programs in improving bicycling, encouraging bicycle use, and replacing auto trips remains to be determined.<sup>4</sup>

## Key Research Findings

***There is little empirical research on the effectiveness of bicycle education among adults and no studies evaluating classroom-based education.*** The review of the scientific and gray literatures (e.g., government reports, white papers) on the effects of bicycle safety training in adult populations identified seven studies in Australia, the United Kingdom, the United States and the Netherlands. All studies examined on-bicycle training courses only. However, classroom-based courses can be implemented at a fraction of the cost of on-bicycle training courses.<sup>5</sup> The methods and interventions

varied across studies, making it difficult to draw general conclusions. Most studies used methods that make the conclusions susceptible to bias; only one study randomly assigned participants to the class or a control.<sup>6</sup>

***Middle-aged women are overrepresented among adult participants in bicycle education courses; few studies report on participant race.*** Most people who commute to work by bicycle are middle-aged, white men. Yet multiple studies reported that women were more likely to participate in bicycle education courses. This suggests an underlying interest for safer bicycling among women that, if served, could close or narrow the gender gap in bicycle commuting. Unfortunately, few studies report on participants' race.

***There are no studies on the connection between bicycle education and bicycle mode choice.*** A common goal of bicycle education programs is to encourage people to ride bicycles more, specifically replacing trips that they would have taken via another mode of transportation. However, the role of bicycle education in changing mode choice (e.g., replacing a car trip with a bicycle trip) has not been evaluated.

***Most studies focus on children or youth and their findings are mixed.*** A review of literature found over 25 studies focused on school-aged youth, and only seven studies on adults. While it is important to understand the effects of school-based bicycle education for training, these programs do not meet the needs of cities seeking to encourage adults to bicycle more frequently and/or more safely. Furthermore, the studies reviewed showed no effect of interventions on reducing injuries from bicycling. Half of the studies suggested that children gained knowledge, and over one-third of studies reported changes in bicycling behavior or attitudes towards bicycling.

**The type of bicycle training intervention affects the outcomes in youth.** Training programs with an on-bicycle focus consistently found increases in bicycle skill and confidence while bicycling. Classroom-based interventions, though limited, suggest an increase in bicycle safety knowledge.

**Few studies report on a multi-prong bicycle education approach consisting of multiple types of interventions, despite being the recommended approach by the League of American Bicyclists (LAB).** The foremost organization promoting bicycle safety training is the LAB, which promotes use of its Smart Cycling course that consists of an in-classroom course followed by an on-bicycle course. However, only three studies (two in adults, one in youth) examine the impact of a multi-pronged approach to bicycle education.<sup>7,8,9</sup>

## Further Reading

This brief summarizes a literature review conducted as part of a larger research project examining the effectiveness of bicycle education. The findings of the the larger research project are presented in the report “Evaluating the Effects of a Classroom-based Bicycle Education Intervention on Bicycle Activity, Self-efficacy, Personal Safety, Knowledge, and Mode Choice” prepared by Elizabeth R. Nachman and Daniel A. Rodríguez with the University of California, Berkeley. Digital copies of the report and this brief can be found on the UC ITS website following this link: <https://www.ucits.org/research-project/uc-its-2019-18>. An associated policy brief discussing the findings and implications of the larger research project brief can also be found by following the link provided above.

## Contact Information

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<sup>1</sup> Vision Zero SF. *Vision Zero Action Strategy: Eliminating Traffic Deaths in San Francisco*. 2019.

<sup>2</sup> *Ibid.*

<sup>3</sup> League of American Bicyclists. (2018). *Bicycling and walking in the United States: 2018 benchmarking report*. 417.

<sup>4</sup> Sersli, S., DeVries, D., Gislason, M., Scott, N., & Winters, M. (2018). *Changes in bicycling frequency in children and adults after bicycle skills training: A scoping review*. *Transportation Research Part A: Policy and Practice*. <https://doi.org/10.1016/j.tra.2018.07.012>

<sup>5</sup> Author communication.

<sup>6</sup> Schneider, R. J., Kusch, J., Dressel, A., & Bernstein, R. (2018). *Can a twelve-week intervention reduce barriers to bicycling among overweight adults in low-income Latino and Black communities?* *Transportation Research Part F: Traffic Psychology and Behaviour*, 56, 99–112. <https://doi.org/10.1016/j.trf.2018.03.023>

<sup>7</sup> *Ibid.*

<sup>8</sup> Zander, A., Passmore, E., Mason, C., & Rissel, C. (2013). *Joy, Exercise, Enjoyment, Getting out: A Qualitative Study of Older People's Experience of Cycling in Sydney, Australia*. *Journal of Environmental and Public Health*, 2013, 1–6. <https://doi.org/10.1155/2013/547453>

<sup>9</sup> van Lierop, D., Bebronne, M., & El-Geneidy, A. (2016). *Bicycle Education for Children: Evaluation of a Program in Montreal, Quebec, Canada*. *Transportation Research Record: Journal of the Transportation Research Board*, 2587(1), 23–33. <https://doi.org/10.3141/2587-04>

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