

Methods Auditor pairs visited locations where bicycling injuries were known to have occurred in two cities, and recorded location characteristics using the validated Systematic Pedestrian and Cyclist Environmental Scan (SPACES). Case locations were those where a bicyclist was struck by a motor-vehicle (MV), or suffered injuries requiring hospitalisation. Control locations were those where non-MV or minor injuries occurred. Inter-rater reliability of each item on the tool was assessed using observed agreement and Kappa (κ).

Results Ninety-seven locations were audited from May–October 2010. Inter-observer agreement was generally high ($\geq 95\%$); most items had a 1–2% difference in responses. Items with differences $\geq 5\%$ between raters included path condition, slope, and obstructions. For land use, path, and roadway characteristics, κ ranged from 0.3 for presence of offices and cleanliness to 0.9 for schools and number of lanes; overall, 78% of items had high agreement ($\kappa \geq 0.61$). For MV cases the proportion of items with high agreement was 60%, compared with 73% for controls. For both severe cases and controls, 76% of items had high agreement.

Significance Despite low reliability for land use types and cleanliness, percent agreement was high for most items. Our findings suggest that the SPACES tool provides reliable quantitative descriptions of built environmental characteristics at bicycle injury locations.

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ASSESSING INTER-RATER RELIABILITY OF ENVIRONMENTAL AUDIT DATA IN A CASE-CONTROL STUDY ON BICYCLING INJURIES

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Background Environmental audit tools must be valid in order to accurately estimate the association between built environmental characteristics and bicycling injury risk.

Objectives To examine the inter-rater reliability of a built environment audit tool in a case-control study on the environmental determinants of bicycling injuries.