

# Infographic: The effects of residential relocation on walking, physical activity and travel behaviour

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Increasing evidence suggests that attributes of neighbourhood environments may play an important role in physical activity.<sup>1,2</sup> However, nearly all studies in the field are cross-sectional and are subject to substantial bias.<sup>3</sup> Residential relocation provides an opportunity for natural experiments where relocating to a new neighbourhood may 'interrupt' habitual behaviours and help establish new behavioural patterns.<sup>4</sup>

We conducted a systematic review on the effects of residential relocation on physical activity, walking and travel behaviour (PROSPERO registration number CRD42017077681, available at [https://www.crd.york.ac.uk/PROSPERO/display\\_record.php?RecordID=77681](https://www.crd.york.ac.uk/PROSPERO/display_record.php?RecordID=77681)).<sup>5</sup> We found 23 publications based on 16 studies (11 prospective and 5 retrospective), a much smaller body of research than the existing

plethora of cross-sectional studies. Findings from these studies differ markedly by study design. Retrospective/quasi-longitudinal studies, which were rated lower on study quality, were more likely to report consistent evidence supporting the association between favourable changes in neighbourhood built environments and improvement in physical activity outcomes.<sup>6</sup> The evidence was particularly strong regarding transportation access, aesthetics and crime-related safety. While prospective studies were rated higher on study quality, they tended to report less consistent associations.<sup>7</sup> For both study designs, environmental attributes tended to have more consistent associations with walking than other measures of physical activity such as cycling. Overall, conclusions about the effects of residential relocation on physical activity outcomes are limited by the small number of studies available.

Understanding the influences of neighbourhood environments on physical activity and health is an important area of research and has strong implications for policies and practice.<sup>8</sup> Evidence building requires incremental steps in improving research quality to move towards causal inquiry. While cross-sectional studies are important at an early stage of hypothesis testing, repeated cross-sectional studies alone are not enough to advance the field. To better understand neighbourhood influences on physical activity, evidence from longitudinal studies, evaluations of environmental interventions and relocation studies should be examined to corroborate findings from cross-sectional studies.<sup>4</sup> Residential relocation provides a unique and novel opportunity for improving the evidence base. Future studies on built environments should use longitudinal data sources, such as travel panels and cohort studies, follow up participants for longer periods, better account for self-selection and concurrent life events in relocation studies, and include evidence from geographically diverse areas, particularly from low-income and middle-income countries.<sup>5</sup>

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This infographic is based on a systematic review on residential relocation and change in walking, physical activity and travel behaviour. We systematically synthesised data from 23 studies.

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