

## On the evaluation of visual nudges to promote safe cycling: Can we encourage lower speeds at intersections?

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Crashes between cars and cyclists at urban intersections are common, and their consequences are often severe. Typical causes for this type of crashes included the excessive speed of the cyclist as well as car drivers failing to see the cyclist. Measures that decrease the cyclists' speed may lead to safer car-cyclist interactions. This study aimed to investigate the extent to which cyclists may approach intersections at a lower speed when nudged to do so.

Visual flat-stripe nudges were placed on bicycle lanes in the proximity of uncontrolled intersections (with a history of car-cyclist crashes) in two locations in Gothenburg, Sweden. This specific nudge was the one obtaining the best results from a previous study that tested different nudges in controlled experiments. Video data from the intersections were recorded with a site-based video recording system both before (baseline), and after (treatment), the nudge was installed. The video data was processed to extract trajectory and speed for cyclists. The baseline and treatment periods were equivalent in terms of day of the week, light, and weather conditions. Furthermore, two treatment periods were recorded to capture the effect of the nudge over time in one of the locations. This study shows that visual nudges to decrease cyclist speed at intersections are hard to evaluate in the wild because of the many confounders. We also found that the effect of visual nudges may be smaller than the effect of environmental factors such as wind and demographics, making their evaluation even harder. This study informs policymakers and road authorities that want to promote countermeasures to intersection crashes and improve the safety of cyclists at urban intersections.