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HOW CLOSE IS CLOSE? AN EXPERIMENTAL STUDY OF CYCLING SAFETY RELATED TO CYCLING ON RURAL ROADS

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Introduction

In Sweden, as well as in many countries in Scandinavia and in northern Europe, there is a growing trend towards daily sport and exercise cycling and cycle commuting. Cycling on rural roads is, whether for health, exercise, sports, leisure or commuting, is hampered by feelings of insecurity and risk caused by motorised traffic passing too close to the cyclist sharing the rural road. A cyclist is often overtaken by cars and other motorised vehicles and does not have control over the distance between them and the other vehicles. However, if the cyclist had control over the distance between themselves and the motor vehicle/object, how much space would they give themselves?

Aim

The aim of this study was to investigate a scenario where the cyclists had control over the distance between themselves and a fictive motor vehicle or road side object and assess how much space they would give themselves.

Method

The experiment was conducted in an indoor athletics arena at Lugnet stadium in Falun where 48 participants were assigned to one of three groups. Group one with a balanced order of the object-proximity variable (n = 24); group two with the object-proximity variable ordered closest first and moving outward from the track (n = 12); and group three with object-proximity variable ordered furthest away first and moving inward towards the track (n = 12). The participants were donned with a bicycle helmet, with a GoPro camera, a second camera was attached to the handlebars. The independent variables were object proximity to the bicycle lane (cm) measured from the centre of the lane; the dependent variable was the cyclists' lateral position in cm to object. The proximity of the object was surreptitiously manipulated.

Results and conclusions

The results suggest that a unidirectional bicycle lane must be at least 120 cm from wheel-centre to the outside lane, equating to a lane breadth of 240 cm to accommodate a 'comfortable' passing distance (for the cyclist). The equivalent passing speeds equates to a car speed of approximately 40 km/h. If the car speeds were higher, the bicycle lane will need to be broader. This would suggest that the current minimum bicycle lane breadth (in Sweden) of 70 cm would appear to be woefully under-dimensioned.