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The Effects of 30 Km/Hour Speed Limits on Physical Activity and Sedentary Behaviour in Rotterdam, The Netherlands

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Purpose: Rising physical inactivity highlights the need for public policies that foster active lifestyles. Implementing 30 km/h speed limits may discourage care use and encourage walking and cycling by creating safer environments. However, evidence on these effects is limited. This natural experiment examines the impact of 30 km/h speed limits on physical activity (PA) and sedentary behaviour in Rotterdam, The Netherlands.

Methods: We employed a repeated cross-sectional design in 2023 (n = 316) and post-intervention in 2024 (n = 362). Seven centrally located streets reduced their speed limits from 50 km/h to 30 km/h and introduced physical traffic-calming measures, including narrowed roads and speed bumps. Using propensity score matching based on neighbourhood socio-economic status and address density, intervention streets were matched with control streets located >250 meters away to avoid spill-over effects. We applied linear difference-in-differences regression to evaluate the intervention's impact on PA and sedentary behaviour, using the validated International Physical Activity Questionnaire (IPAQ) and accelerometers (in a subsample). IPAQ outcomes included weekly minutes of transport by motor vehicle, bike, and foot, leisure walking, leisure moderate-to-vigorous PA (MVPA), and sitting. This abstract presents preliminary IPAQ findings, with accelerometer results (i.e. minutes of MVPA) to be shared at the conference.

Results: Participants had a mean age of 47.1 ± 17.2 (standard deviation), 53% were female, and 78% highly educated. Cycling for transport and leisure MVPA decreased by 100.36 minutes (95% confidence interval (CI) = –226.40, 25.69) and 33.86 minutes (95% CI = –132.07, 64.35), respectively. However, these changes were not statistically significant. In contrast, we observed no meaningful change in walking for transport (2.98; 95% CI = –104.30, 110.26), walking for leisure (10.77; 95% CI = –78.91, 100.45), time spent using motor vehicles for transport (–18.27; 95% CI = –126.71, 90.16), and time spent sitting (–3.54; 95% CI = –385.22, 378.14).

Conclusion: We found no clear patterns in the impact of 30 km/h speed limits on PA outcomes using a validated questionnaire, possibly due to the small-scale intervention, relatively short follow-up, and highly educated sample. Adding accelerometer data could provide more objective and nuanced insights. While 30 km/h speed limits alone may not drive PA changes, they might support broader intervention strategies, highlighting the importance of multi-component policy approaches and robust evaluations.

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