

Active Travel Uptake and Physical Activity: evidence from the People and Places Survey

Westminster University were commissioned by Sport England to explore relationships between active travel and physical activity, using data from TfL's People and Places Survey. The People and Places survey is an online longitudinal survey with baseline year of 2016, continuing annually, led by Westminster University. It explores changes in travel behaviour and attitudes among a cohort of Outer Londoners, with a focus on infrastructural interventions aimed at increasing active travel (walking and cycling).

The People and Places survey collected information on the amount of walking and cycling people did in the previous week (minutes of walking and minutes of cycling). While physical activity was not a study focus, it did collect some information about levels of past-week moderate to vigorous physical activity. This means that we could both explore relationships between active travel take-up and changes in physical activity.

This report was written by Rachel Aldred (who leads the People and Places survey) with Monika Zamojska.

Specifically, our research questions were:

A. Is active travel uptake concentrated among those people who are more active at baseline?

This was split into two parts:

- i. Is active travel uptake concentrated among those who were already doing more active travel at baseline?
- ii. Is active travel uptake concentrated among those who were doing more moderate to vigorous physical activity at baseline?

B. Does increased active travel lead to an increase in physical activity?

This was also split into two parts:

- i. Does increased active travel lead to more days on which people report at least 30 minutes of moderate to vigorous physical activity?
- ii. Does increased active travel lead to an increased likelihood of achieving 150+ minutes per week moderate to vigorous physical activity, by having done at least 30 minutes on at least 5 out of 7 days¹?

For definitions of active travel interventions, physical activity etc. please see the end of this report.

This report was commissioned by Sport England and produced by Rachel Aldred and Monika Zamojska of Westminster University

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¹ NHS England and the World Health Organization suggest operationalising 150 minutes as 30 minutes, 5 times a week: hence the survey question design asking on how many days people did at least 30 minutes:

<https://www.nhs.uk/live-well/exercise/>

Summary

- Increased active travel was **not** concentrated among the already active. The trend runs the other way (although it is not always statistically significant).
- In other words, people who were less active (in terms of active travel, and physical activity) tended to be more likely to increase their active travel than the already active.
- An increase in active travel was generally associated with an increase in physical activity days, and an increased likelihood of meeting the active-on-five-days criterion (although again the trend was not always statistically significant in groups with smaller sample sizes).
- In other words, where people were increasing their active travel, they tended also to increase levels of physical activity and be more likely to meet guidelines.

Introduction

In this analysis we are using the People and Places dataset from Baseline to Wave 2. This dataset contains travel diary and physical activity data from a cohort of people living in Outer London and has been used to analyse the impact of Outer London's mini-Holland schemes. The People and Places survey is funded by Transport for London and led by Westminster University. Survey waves run in May to early June each year, and this analysis uses Baseline (2016) and Wave 2 (2018) data.

The mini-Holland schemes

Governed by the Greater London Authority (GLA), London is divided into 33 districts: 32 boroughs and the City of London (see Figure 1). The population is 8.7 million, i.e. around 13% of the UK population. Enfield, Waltham Forest and Kingston are part of the £100 million 'mini-Holland' programme. The scheme was part of a commitment by the previous Mayor of London, Boris Johnson, forming part of the Transport for London (TfL) Vision for Cycling (2013). It has evolved to be part of TfL's more holistic 'Healthy Streets' approach, which aims to create a mode shift from driving to sustainable travel, and to increase physical activity achieved through transport.

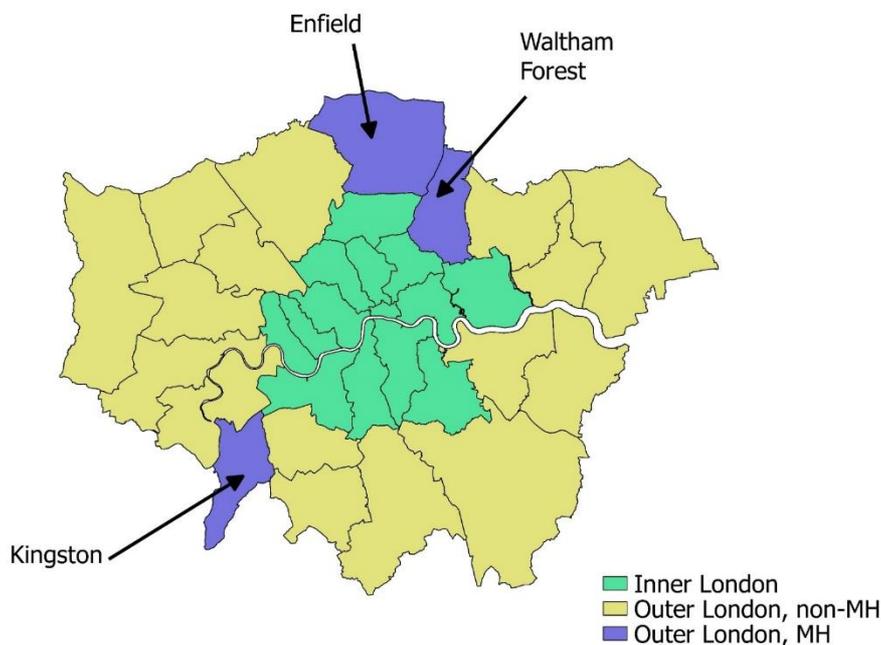


Figure 1: Inner and Outer London, showing mini-Holland (MH) boroughs

102 separate schemes have been proposed within the three boroughs, comprised of 97 infrastructure schemes and 5 'supporting measures' (revenue rather than capital funded), due all to be complete by 2021-2. Supporting measures include for instance events and provision of cycle training. The infrastructure changes include redesigned town centres, with cycle hubs at tube and rail stations; measures to reduce and calm motor traffic in residential areas; and physically protected cycle lanes along main roads.

Figure 2 and Figure 3 illustrate two examples in Waltham Forest of (i) a major infrastructure investment creating new protected cycle infrastructure and improved pedestrian space and public realm and (ii) part of an area-wide motor traffic reduction scheme.



Figure 2: major new cycling and walking infrastructure, Lea Bridge Road, Waltham Forest (photo: Joseph Croft)



Figure 3: example of 'modal filtering' of junction, before and after, Waltham Forest (TfL, Travel in London, 11, 2018)

Baseline activity and population

Figure 4 shows that at baseline, only a third (539; 33.5%) of people said they were physically active (moderate-vigorous activity) for half an hour or more on five or more days during the past week.

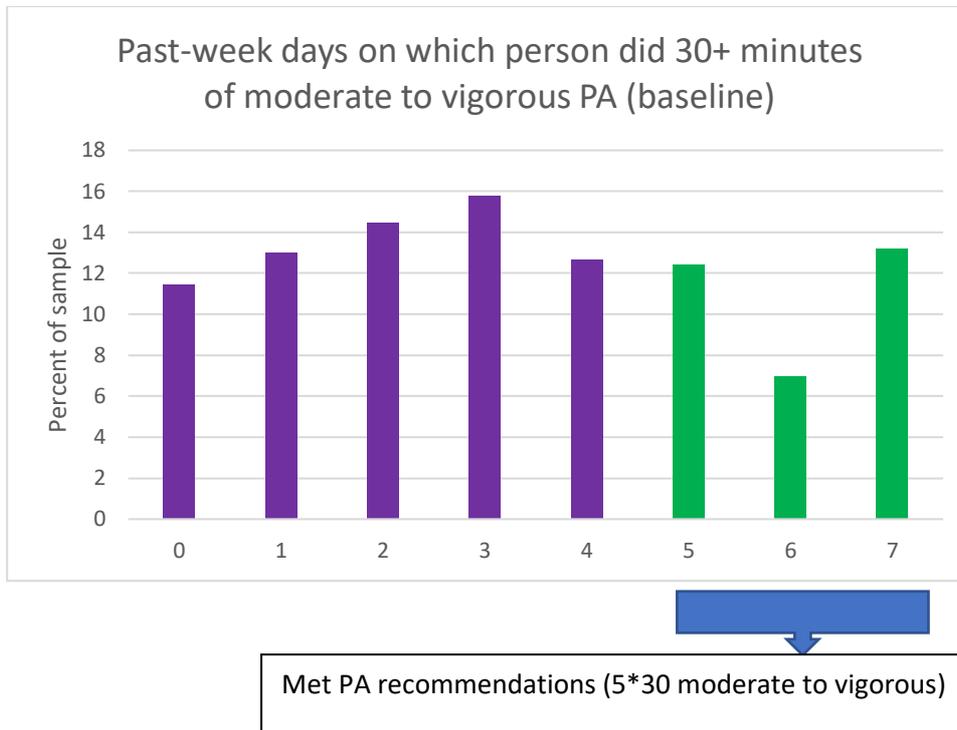


Figure 4: physical activity at baseline

Among people doing less than '5*30', the mean amount of past-week active travel reported was 204 minutes. Among those doing 5*30 or more, this was higher at 367 past-week active travel minutes. Note that there are differing ways to measure physical activity, and that not all active travel would 'count' under this definition. Much walking would not be rated as 'brisk' by participants (the test of whether it is at least moderate), and hence not count. If all walking were moderate, the 5*30 test would be met by 641 (43.3%) of participants at baseline through active travel alone, while considering all physical activity, 57.9% (855 people) would then meet the test.

Each question had two hypotheses, and each hypothesis was tested for three groups who participated at both baseline (2016) and Wave 2 (2018):

- All survey participants (N=1432)²
- Only those living in mini-Holland boroughs (N=649)
- Only those living in 'high-dose' areas at Wave 2 within mini-Holland boroughs (N=269)

Due to progressively lower sample size, the MH and especially the high-dose only groups are less likely to reach statistical significance, but we considered it useful to examine all groups, given that the latter two represent only people living in intervention areas. We used $p < 0.01$ as a significance threshold for the 12 tests.

² NB that all survey participants includes those living outside of mini-Holland areas, as the study was a controlled evaluation.

Weights which controlled for differences between control and intervention groups based on survey sample source were applied. However, the sample is not demographically representative of all Outer Londoners (e.g. older Londoners are over-represented), although the percentage of people doing any past-week walking or cycling at baseline was similar to broader population figures. (*Amount* of active travel was higher, probably partly due to our asking for leisure walking and cycling to be included and asking people to report chunks of at least five minutes rather than only longer walks, for instance).

Part A: is active travel uptake concentrated among the already active?

1. Were those who increased their amount of active travel more physically active at baseline?

For the analysis including all respondents, people who increased their walking and/or cycling by Wave 2 had been **less** active at baseline than others, with 0.31 fewer days on which they met the 30 minutes threshold ($p < 0.01$). While this significance threshold was not met for the other two groups, the non-significant trends were in the same direction as for all respondents. Therefore, we can at least conclude that **increases in active travel time were not concentrated among the already more physically active, with some evidence that they were concentrated among the less physically active.**

Figure 5 shows the results for the whole sample, showing that on average those who increased their amount of walking and/or cycling were less physically active to start off with.

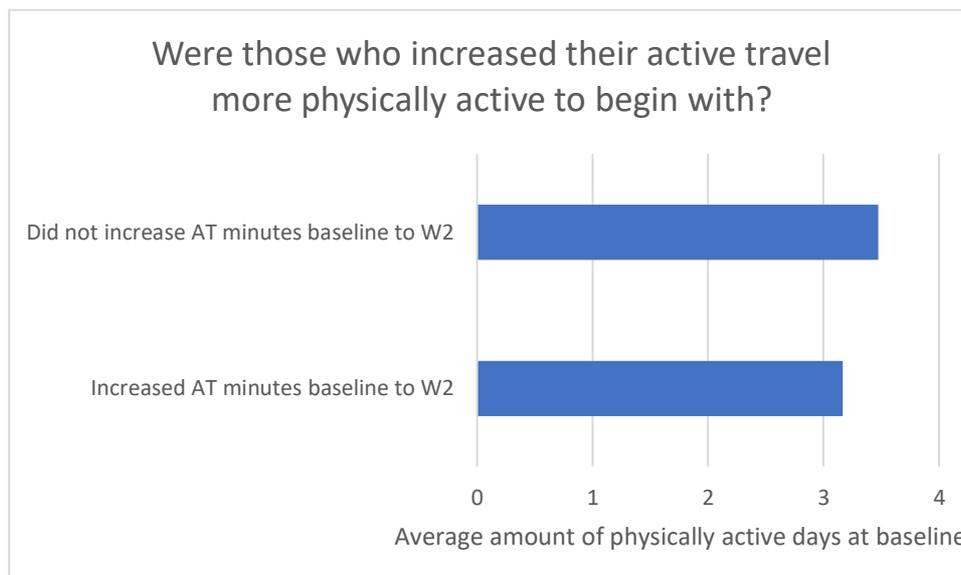


Figure 5: Baseline physical activity for those who did and did not increase their active travel, full sample (N=1432)

2: Did people whose active travel minutes increased do more, or less, active travel at baseline than people whose active travel minutes did not increase?

Here the findings were significant at $p < 0.01$ for all three groups. **People who had increased their active travel by Wave 2 had done less active travel at the baseline, compared to people who did not increase their levels of active travel.** NB that regression to the mean (originally high or low outliers returning towards the average at a second time point) may account for some of this effect, however (i) there is no agreed method to control for regression to the mean, and (ii) the effect is quite substantial, and trends are consistent across groups and hypotheses.

Among all test groups, those who did not increase their active travel were walking and cycling for on average 5.5 hours per week at baseline, whereas those who did increase their active travel were doing on average 3 hours per week at baseline.

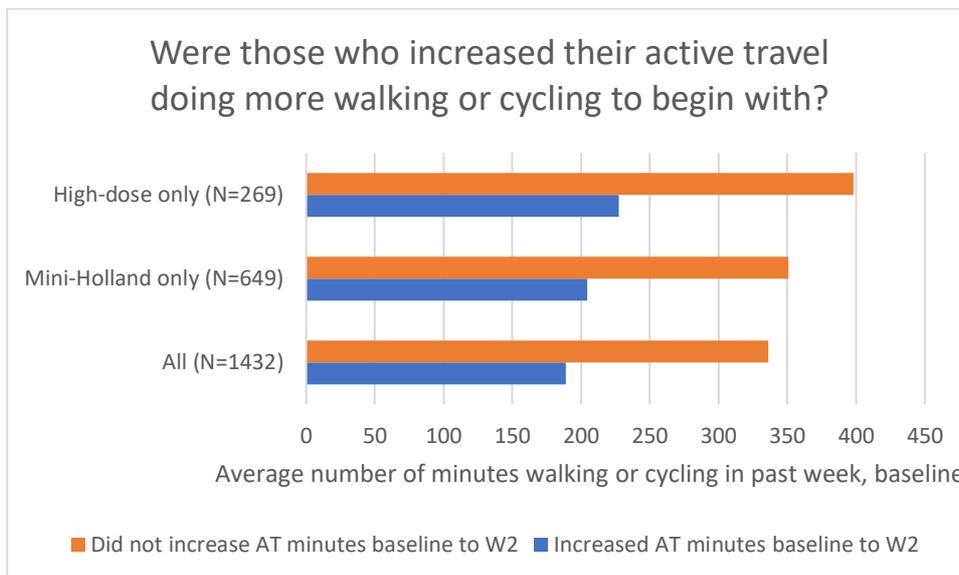


Figure 6: Baseline past-week active travel for those who did and did not increase their active travel, all three groups

Part B: does an increase in active travel lead to an increase in physical activity?

1: Were people whose active travel minutes increased more, or less, likely than people whose active travel minutes did not increase to then report an increase in days of moderate-to-vigorous physical activity?

Here there was a statistically significant result for the 'all' and mini-Holland groups, while a similar trend was non-significant in the high-dose group. **Those who increased active travel between baseline and wave 2 were more likely to have also increased their days of physical activity, than those who did not increase their active travel.** Among all respondents, for instance, only 39.1% of those who did not increase their active travels reported more PA days at Wave 2 than at baseline, while this figure rose to 47.2% among those who had increased their active travel.

Error! Reference source not found. illustrates how an increase in active travel was associated with an increased number of days on which people achieved at least 30 minutes moderate to vigorous physical activity. People who did not increase their active travel minutes tended to have fewer physical activity days at Wave 2, while **those who did increase their active travel minutes, on average, reported 0.5 more physical activity days at Wave 2 than they had done at baseline.** Figure 7 illustrates this pattern, with a growth in active travel tending to mean a growth in days of physical activity and vice versa.

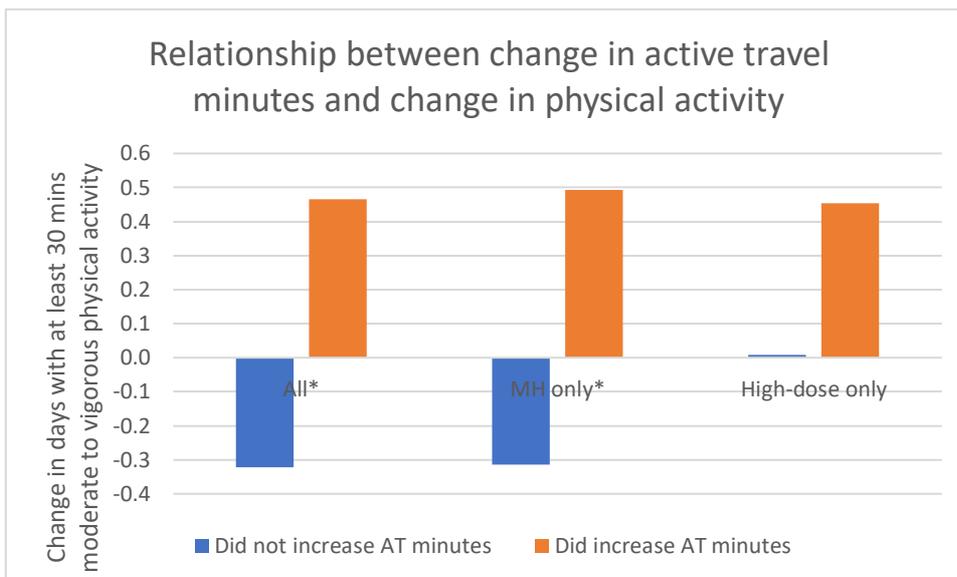


Figure 7: change in physical activity by whether people did more active travel

*=statistically significant to $p < 0.01$

4: Were people whose active travel minutes increased any more likely to meet the physical activity weekly threshold of 30 minutes of moderate to vigorous exercise on at least 5 days?

Again, there was a statistically significant result for both 'all' and the mini-Holland groups, while a similar trend was non-significant in the high-dose group. **For inactive people, those who increased their time spent in active travel were more likely than those who didn't to meet physical activity guidelines** at Wave 2.

Figure 8 shows what proportion of people who were inactive at baseline (i.e. fewer than 5 days doing at least 30 minutes moderate to vigorous physical activity) then became active (5+ days...) at wave two, depending on whether they increased their active travel or not.

For instance, in the mini-Holland sample, 430 people did not at baseline achieve the physical activity target. Among the 211 people who didn't increase their time spent in active travel, only 31 (14.7% of this group) met the physical activity guidelines at Wave 2. By contrast, of the 219 inactive people who did increase their time spent in active travel, 57 (26.0%) did now meet these guidelines. Thus, among the initially physically inactive mini-Holland group, an increase in active travel was associated with a 11.3% percentage point increase (77% relative increase) in the likelihood of achieving enough past-week physical activity at Wave 2.

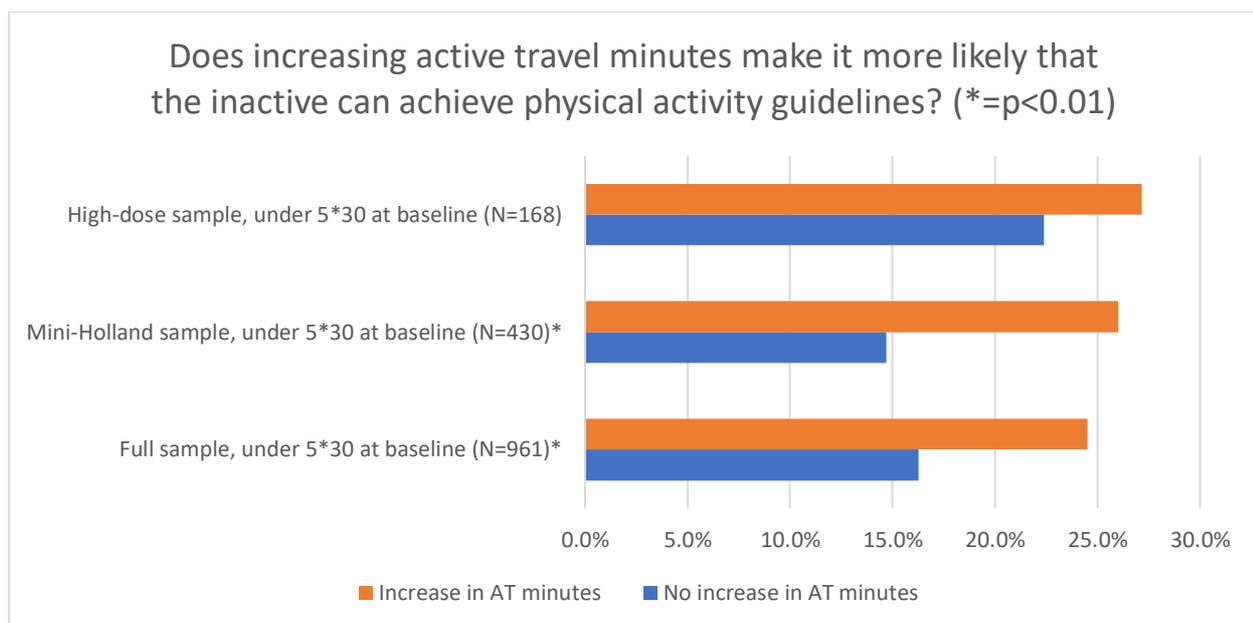


Figure 8: how an increase in active travel affects the likelihood of now achieving physical activity guidelines

Conclusions

While more evidence is needed, this analysis suggests that (i) increased uptake in active travel is seen among the less active as well as among the already active, and if anything, it may be more likely to be concentrated among the less active, and (ii) increasing levels of active travel should lead to increased physical activity, including more people achieving 150 minutes per week.

We can be hopeful that ambitious interventions such as the mini-Holland schemes, which have led to a growth in active travel, can support increased active travel and physical activity in less active segments of the community, not just (for instance) among existing cyclists or the already active.

More research could usefully look in more detail about how physical activity impacts of new active travel might vary by demographic group, for instance. There are also different definitions of physical activity (e.g. whether or not non-brisk walking 'counts') that may affect results of research and which justify further consideration.

References

R Aldred, J Croft, A Goodman, 2019, [Impacts of an active travel intervention with a cycling focus in a suburban context: One-year findings from an evaluation of London's in-progress mini-Hollands programme](#), Transportation Research Part A: Policy and Practice 123, 147-169

R Aldred, 2019, [Who caused that congestion? Narrating driving and cycling in a changing policy context](#), Travel Behaviour and Society 16, 59-69

TfL, 2018, Travel in London 11, available at <https://tfl.gov.uk/corporate/publications-and-reports/travel-in-london-reports>

Definitions

- People and Places study: a longitudinal study with baseline year of 2016, continuing annually, exploring changes in attitudes and travel behaviour among a cohort of Outer Londoners, with a focus on any changes related to mini-Holland schemes and boroughs
 - Mini-Holland scheme: a programme of ambitious walking and cycling interventions in three Outer London boroughs (Enfield, Kingston, Waltham Forest), continuing to 2020/21
 - 'Control boroughs' – other Outer London boroughs
 - 'Intervention boroughs' – Enfield, Kingston, Waltham Forest
 - 'High-dose areas' – areas at each Wave where interventions had taken place and hence we might (according to stakeholders) expect to see changes in perceptions and/or behaviour
 - Active travel (AT): in the study, use of physically active travel modes, primarily walking and cycling. It does not have to be for transport purposes and could be for instance walking the dog in a park. In the People and Places study, past-week AT was measured by asking about minutes walked/cycled each day.
 - Physical activity (PA): amount of moderate to vigorous past-week physical activity. In the People and Places study, this was asked using a single question:
 - 'In the past **week (seven days)**, on how many days have you done a total of 30 minutes or more of physical activity, which was enough to raise your breathing rate? This may include sport, exercise and brisk walking or cycling for recreation or to get to and from places, but should not include housework or physical activity that may be part of your job.'
 - Note that this definition of PA (at least moderate activity) means that it is quite possible for someone to walk or cycle for thirty minutes or more a day (in the sample, this would mostly be walking, as levels of cycling are relatively low) but still not achieve a similar number of physically active days.