

# Get on your bike: Active transport makes a significant impact on carbon emissions

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Cycling, e-biking or walking can help tackle the climate crisis—even if you swap the car for active transport just one day a week—according to a new study led by researchers from the University of Oxford's

Transport Studies Unit.

Emission targets are unlikely to be met without a significant move away from motorized transport, according to the researchers, and shifting to [active transport](#) could save as much as a quarter of personal CO<sub>2</sub> emissions from transport.

Published in the journal *Global Environmental Change*, this is the first study of the carbon-reducing impact of city-based lifestyle changes and it reveals that increases in active mobility significantly lower carbon footprints, even in urban European contexts with a high incidence of walking and cycling.

'By following nearly 2,000 urban dwellers over time, we found that those who switch just one trip per day from car driving to cycling reduce their carbon footprint by about 0.5 tons over a year, representing a substantial share of average per capita CO<sub>2</sub> emissions,' says the lead researcher, Oxford's Dr. Christian Brand. 'If just 10% of the population were to change travel behavior, the emissions savings would be around 4% of lifecycle CO<sub>2</sub> emissions from all [car travel](#).'

Dr. Brand says, 'Our findings suggest that, even if not all car trips could be substituted by bicycle trips, the potential for decreasing emissions is huge.'

Researchers found active travel substitutes for motorized travel—and increases in cycling, e-biking or walking over time independently lowers mobility-related lifecycle CO<sub>2</sub> emissions. And swapping the car for a bike or e-bike for just one day a week—or going from 'not cycling' to 'cycling' – drastically lowers mobility-related lifecycle CO<sub>2</sub>.

The analysis comes as UK, and the world, enters the 2020s—what needs to be a 'decade of action', if global goals to limit rising temperatures are

to be met. Ahead of this November's COP26 UN climate summit in Glasgow, countries are expected to submit enhanced pledges to tackle emissions.

To put this into context, for the cities in this study, average per capita CO<sub>2</sub> emissions from transport (excl. international aviation and shipping) ranged between 1.8 tons of CO<sub>2</sub> per person per year in the UK to 2.7 tons of CO<sub>2</sub> per person per year in Austria. According to the [Global Carbon Atlas](#), average per capita CO<sub>2</sub> emissions from all activities were eight tons per year in the UK (on a consumption basis).

The largest benefits from shifts from car to active travel are for business travel, followed by social and leisure trips, and commuting to work or place of study. The finding that those who already cycled had 84% lower CO<sub>2</sub> emissions from all daily travel than non-cyclists further shows the population benefits of traveling actively that already exist.

The study collected primary data on daily [travel](#) behavior, journey purpose, as well as personal and geospatial characteristics in seven European cities and derived mobility-related lifecycle CO<sub>2</sub> emissions over time and space.

Statistical modeling of longitudinal panel data of 1,849 study participants was performed to assess how changes in active mobility, the 'main mode' of daily travel, and cycling frequency influenced changes in mobility-related lifecycle CO<sub>2</sub> emissions.

Dr. Brand says, 'A typical response to the [climate crisis](#) is to 'do something', such as planting more trees, or switching to electric vehicles. While these are important and effective, they are neither sufficient nor fast enough to meet our ambitious climate targets.'

'Doing more of a good thing combined with doing less of a bad thing—and doing it now is much more compliant with a 'net zero' pathway and preserving our 'perfect planet's' and our own futures.

'Switching from car to active mobility is one thing to do, which would make a real difference, and we show here how good this can be in cities. Not just for the climate but also for reducing [social inequalities](#) and improving public health and quality of urban life in a post-COVID-19 world.'

Cities across the world will need to increase investment in high-quality infrastructure for pedestrians and cyclists and incorporate policy and planning concepts that require a fairly radical rethink of our cities and is likely to reduce inequalities because the concepts involve mixing different population groups rather than maintaining the model of residential zoning by socioeconomic status currently used.

**More information:** Christian Brand et al. The climate change mitigation impacts of active travel: Evidence from a longitudinal panel study in seven European cities, *Global Environmental Change* (2021). [DOI: 10.1016/j.gloenvcha.2021.102224](https://doi.org/10.1016/j.gloenvcha.2021.102224)

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