ÉCOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE

Looking for “frequent walkers” among the resident population of Switzerland

Introduction

Walking is the focus of interest for reasons linked to public health, the environment, climate change and transport policy. However, the phenomenon of people who spontaneously walk great distances has not been investigated. Our group defines “frequent walkers” as people who walk at least 5 km on an average day, an activity that takes at least one hour at a fast pace (5 km/h). We hypothesise that frequent walkers have advanced navigation skills and an ability to plan and improvise in time and space.

Methods

In the first phase of our research, we use quantitative data from the Swiss transport micro-census (MRMT2010), containing information from 62’868 individuals interviewed by telephone throughout 2010, in a representative stratified sample covering all residents of Switzerland (66% response rate). Each respondent aged > 6 years was asked about his or her transport activity on a randomly selected reference day. All bouts of 25 metres or more were taken into account, as long as they were not carried out within a building or facility.

Limitations

This study is based on self-declaration. Data were collected for a single day for each individual; however the reference days were spread out during the year (2010). Only a small subset of respondents chose to answer questions on weight and height, which were used to calculate BMI.

Results

On the reference day, 11.5% of the sample stayed at home. People walking less than 2 km or 2-5 km represented 26.6% and 22.3% of the sample, respectively. The proportion of great walkers (potential frequent walkers) was defined as walking 5-20 km on the reference day and represented 12.8% of the sample. A further 0.4% declared > 20 km of walking and were considered to be potential outliers. Two other groups were identified: non-walking cyclists (4.0% of the sample) and people who drove a car or motorbike on the reference day, without declaring any walking (22.5%). It follows that around one-third of the sample did not walk in public space on the reference day.

The average age of great walkers was 43.4 years (SD 20.3), similar to the other groups, except non-walking cyclists who were younger (36.9 years, SD 20.0) and people who stayed at home who were older (50.9, SD 24.1). Around 53% of great walkers were women, whereas non-walking cyclists, non-walking drivers and potential outliers were more likely to be men. Great walkers tended to be more educated: 30% had reached ISCED 5 or higher (University or equivalent), compared to 26% for non-walking drivers and 18% for people who stayed at home. All results were significant at $p < 0.05$ (chi-squared test).

Calculating body-mass index (BMI) proved challenging due to missing values. Results were calculated for around 27% of the respondents. BMI ranged from 22.4 for non-walking cyclists to 23.1-23.5 for the three categories of walkers, up to 24.0 for people who stayed at home and 24.4 for non-walking drivers. Differences between groups were significant (t-test, $p<0.05$).

Discussion

People who perform to policy standards, or who out-perform them, are neglected in scientific research. Our results show that people who walk 5 km or more on a given day make up over 12% of the population. This is higher than expected and is the result of a shockingly unequal distribution of walking in the population. Indeed, it was even more unexpected to discover that one-third of the population did not walk at all in public space. The results concerning BMI are thought-provoking, but need to be backed up by studies based on measurement rather than self-declaration.

It is not possible to draw conclusions about “frequent walkers” based on data covering a single day (hence our choice of the term “great walkers” in presenting our results). Our main conclusion is therefore in the shape of a research agenda. We suggest engaging in fieldwork in order to meet frequent walkers, engage with them, and follow them with GIS-supported devices including accelerometers. In this way, it should prove possible to discover how and why these people became frequent walkers, which is a desirable condition from the point of view of several policy sectors.

Acknowledgements

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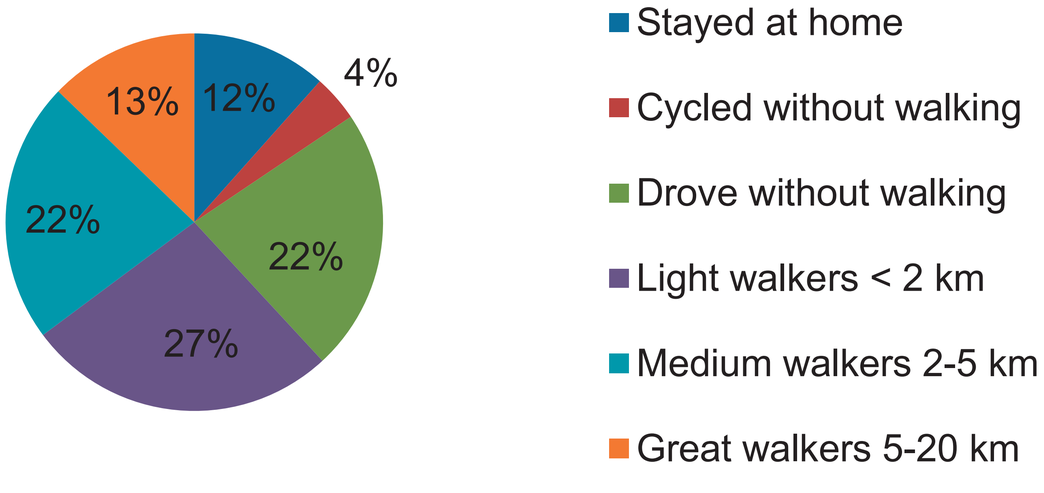
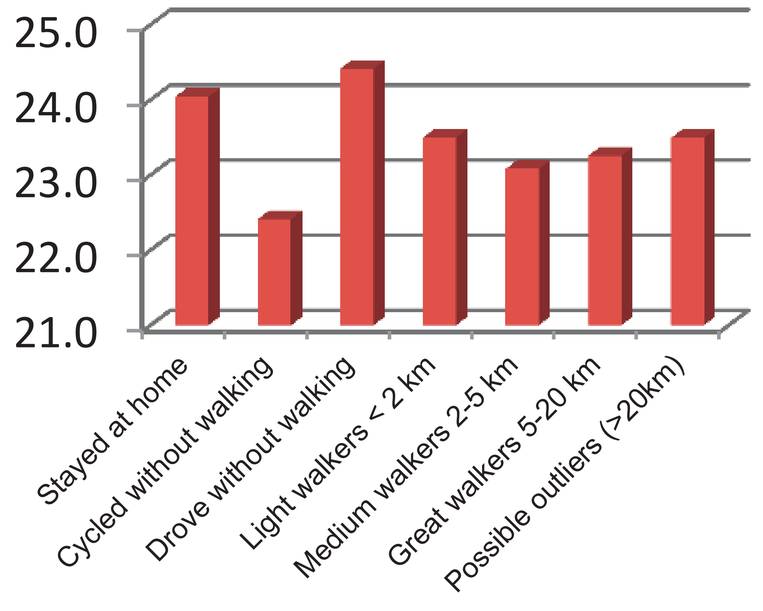
Transport behaviour on a reference day



Body-mass index (kg/m²)



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