



University of  
**Salford**  
MANCHESTER

# The contribution of commuting to total moderate-to-vigorous physical activity

Gbadamosi, AR, Clarke-Cornwell, AM, Sindall, PA and Granat, MH

<b>Title</b>	The contribution of commuting to total moderate-to-vigorous physical activity
<b>Authors</b>	Gbadamosi, AR, Clarke-Cornwell, AM, Sindall, PA and Granat, MH
<b>Publication title</b>	
<b>Publisher</b>	
<b>Type</b>	Conference or Workshop Item
<b>USIR URL</b>	This version is available at: <a href="http://usir.salford.ac.uk/id/eprint/50995/">http://usir.salford.ac.uk/id/eprint/50995/</a>
<b>Published Date</b>	2019

USIR is a digital collection of the research output of the University of Salford. Where copyright permits, full text material held in the repository is made freely available online and can be read, downloaded and copied for non-commercial private study or research purposes. Please check the manuscript for any further copyright restrictions.

For more information, including our policy and submission procedure, please contact the Repository Team at: [library-research@salford.ac.uk](mailto:library-research@salford.ac.uk).





# The contribution of commuting to total daily moderate-to-vigorous physical activity

Abolanle Gbadamosi, Alex Clarke-Cornwell, Paul Sindall, Malcolm Granat<sup>1</sup>

<sup>1</sup>School of Health Sciences, The University of Salford, UK

## Background

- Physical inactivity is one of the most associated risk factors for chronic, non-communicable diseases.
- One of the factors contributing to low levels of physical activity is the decrease in the use of active modes of transport.
- Commuting to and from work can increase moderate-to-vigorous physical activity (MVPA) and increase adherence to physical activity guidelines.
- There is lack of evidence on the contribution of different modes of commute and continuous stepping bouts to physical activity while commuting.
- Most commuting studies have employed the use of self-reported physical activity measures.

## Project Objectives

- To objectively determine the contribution of MVPA during commuting to total MVPA, using a cadence definition to quantify MVPA
- To explore how the length of stepping bouts affects adherence to physical activity guidelines.

## Methods

- Twenty-seven office workers at the University of Salford were recruited.
- Participants wore an activity monitor, the activPAL, for 7 days and filled a daily activity diary.
- Activity diaries collected information on commute times and modes of commute.
- Data from the activPAL provided the duration and cadence of all walking bouts for the entire recorded period.
- MVPA was defined as walking bouts with a cadence of more than 100 steps/min.

- Modes of commute were categorised as: car, walking and mixed mode.
- Tests were carried out to determine if there was a relationship between commute MVPA and total MVPA accumulated.

## Results

- Twenty-three of the 27 participants completed the study.
- The average total time per day spent in MVPA was 53.1 ( $\pm 30.2$ ) minutes.
- Commuting contributed 33% or 17.7 ( $\pm 14.7$ ) minutes to total time spent in MVPA.
- The highest percentage contribution to total MVPA was the walking commuters (54%), followed by mixed mode commuters (41%) and car commuters (21%).
- At a cadence of over 110 steps/min, there was a far greater proportion of stepping during commuting compared to other cadence bands (Figure 1)

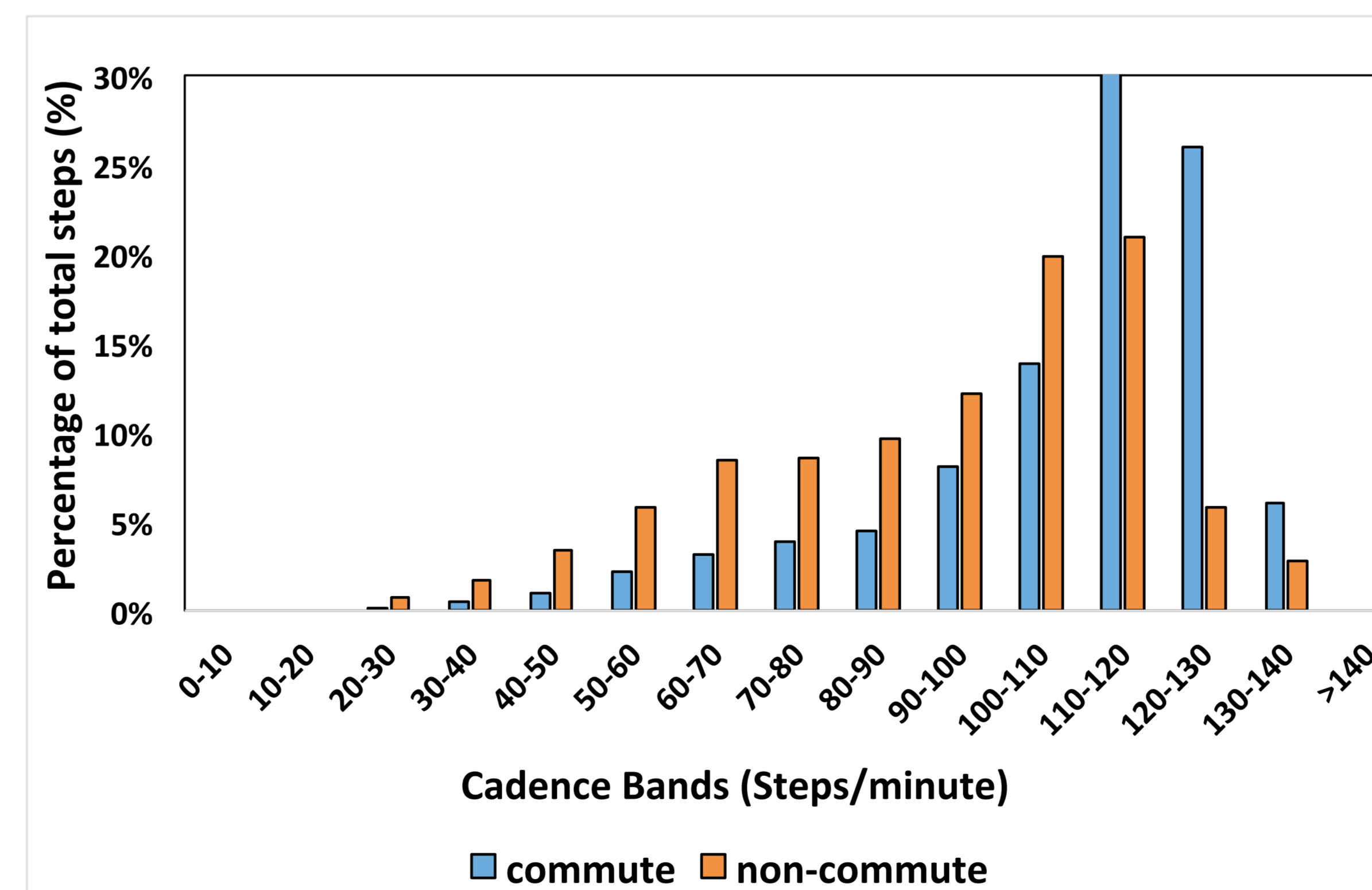


Figure 1: Cadence Distribution of commute and non-commute steps

- Stepping bouts of greater than 210 seconds were only undertaken whilst commuting, with a much higher number of steps accumulated in bouts over 300 seconds (Figure 2).

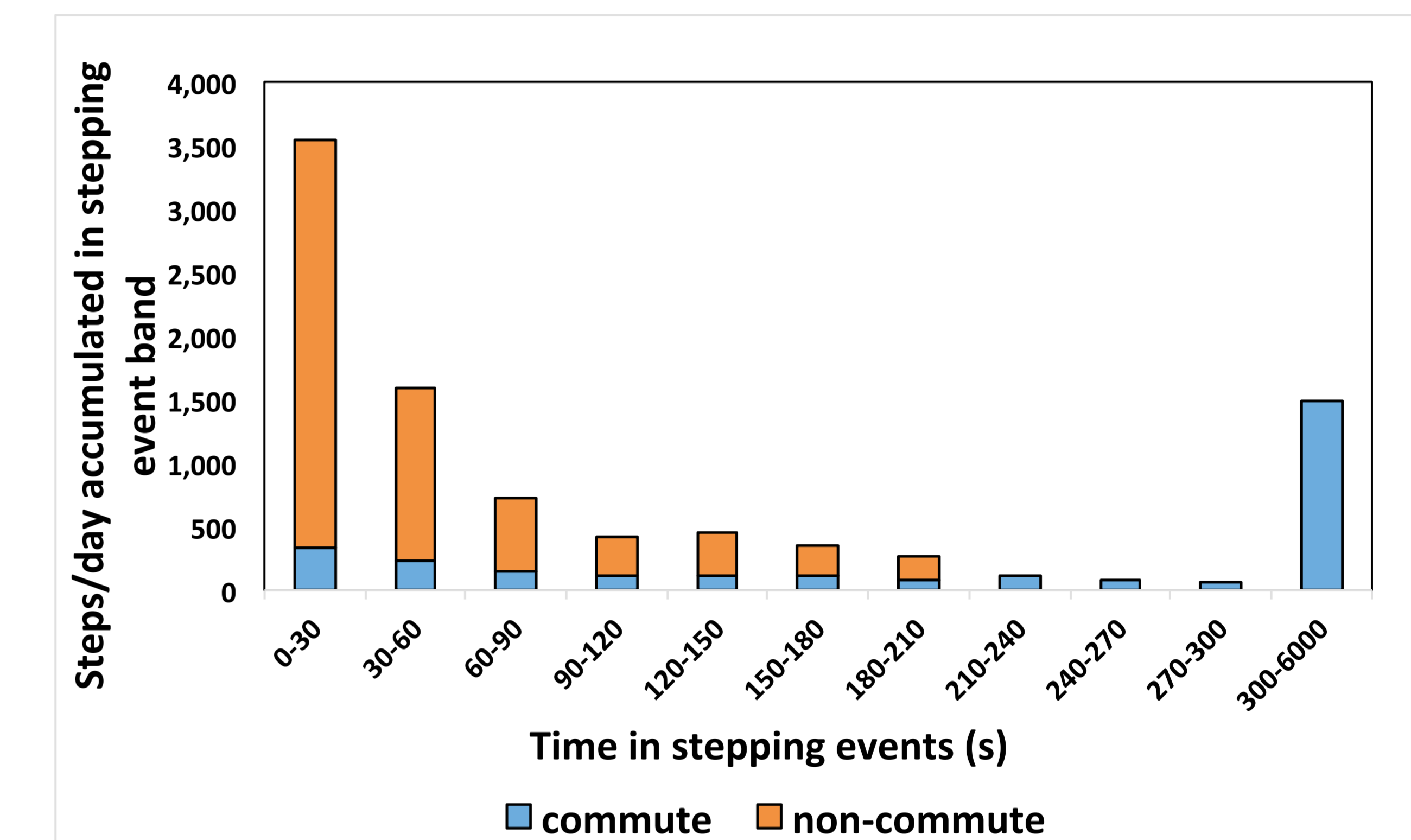


Figure 2: Stepping bout distribution of commute and non-commute steps

- Seventeen of the 23 participants achieved more than 30 minutes of MVPA per day, with five achieving this in their commute alone; irrespective of the length of stepping bouts.
- Compliance to physical activity guidelines reduced among the participants when a minimum stepping bout of 10 minutes was applied, with only seven participants achieving an average of 30 minutes of MVPA per day.
- A significant positive association was found between commute time spent in MVPA and total MVPA ( $p < 0.001$ ).

## Conclusions and Recommendations

- Commuting to and from work can provide a significant contribution to total MVPA accumulated during the day.
- Mode of commuting has an important effect on the amount of MVPA accumulated during commuting.
- Public health recommendations should encourage active or mixed-mode commuting.