



Active Buildings: Modelling Physical Activity and Movement in Office Buildings

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Active Buildings Collaborators

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Background

- 95% of UK adults do not meet physical activity guidelines and 50% of the UK workforce are in sedentary office jobs
- Restructuring office environments could increase office workers physical activity levels and break up their sitting time
- To date very limited literature exists on associations between office layout and physical activity or sitting behaviour.

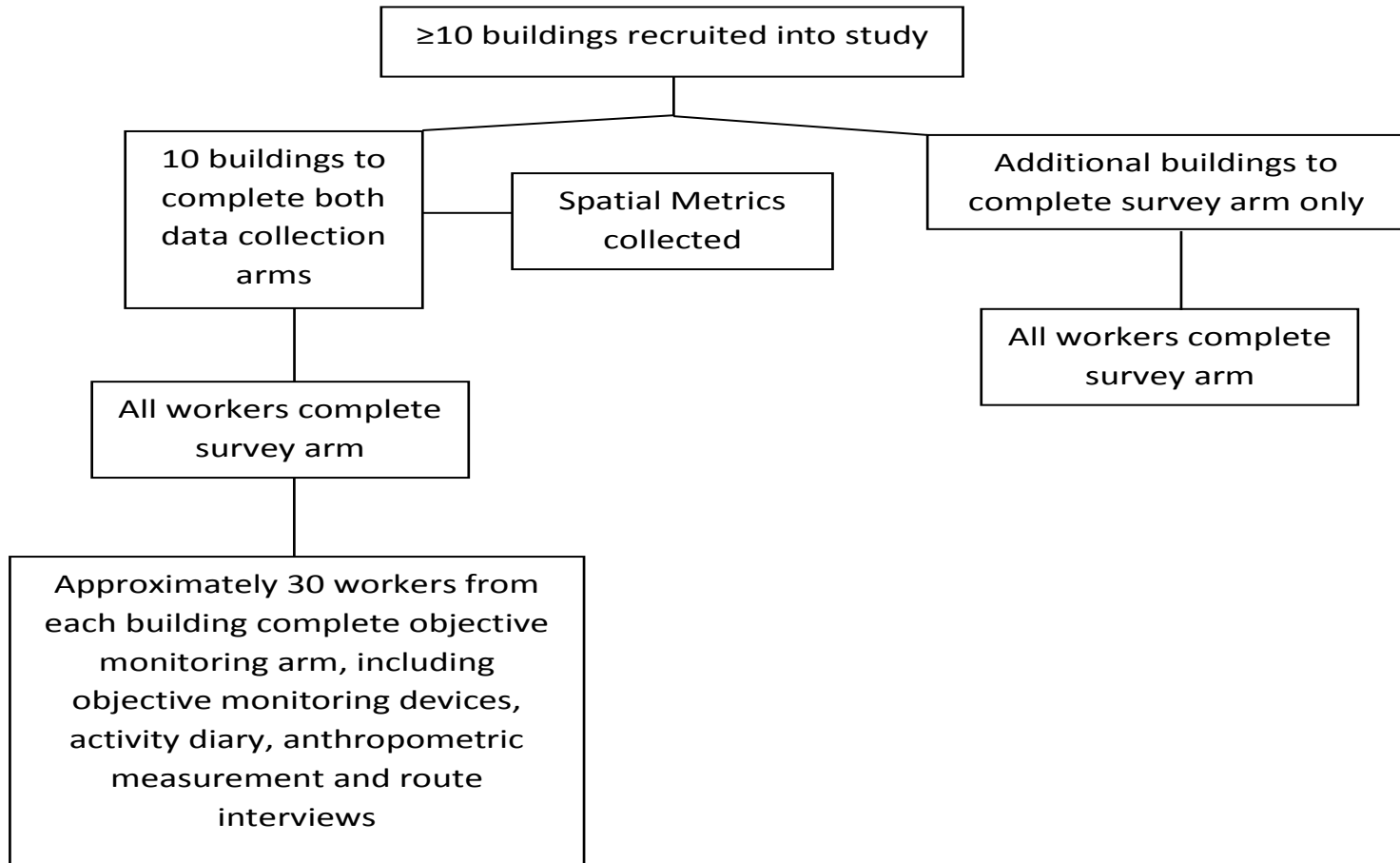
Aim

- To understand how and where office workers accumulate step counts as well as sitting and standing time in buildings, to determine the potential for change arising from spatial reconfiguration of the office layout
- To identify potential socio-ecological correlates of occupational physical activity and sitting behaviour such as environmental perceptions and job role.

Project Design

- *Phase I:* Office-based organisations and their employees were recruited. Data was then collected on office workers' occupational physical activity, including step counts, and characteristics of sitting and standing time as well as putative socio-ecological correlates of these behaviours
- *Phase II:* will use data collected in Phase I to apply ABM techniques to produce a model of how office buildings could be planned to increase step counts and reduce sitting time
- *Phase III:* will compile data collected from the previous two phases to inform future intervention design.

Phase I Study Design



Objective Monitoring





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Movement at Work Survey

- All workers in participating buildings were asked to complete the Movement at Work Survey
- The survey included questions on standard demographics, physical activity and sedentary behaviour as well as potentially important socio-ecological correlates of workplace activity.

Spatial Variables

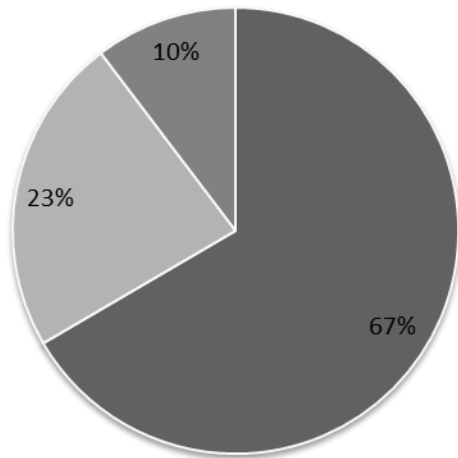
- Building audits collected general information about the building and identified the location of different types of office building destinations
- Floor plans were used to calculate numerous spatial variables. For example, distances between each participant's desk and various office building destinations.

Preliminary Data

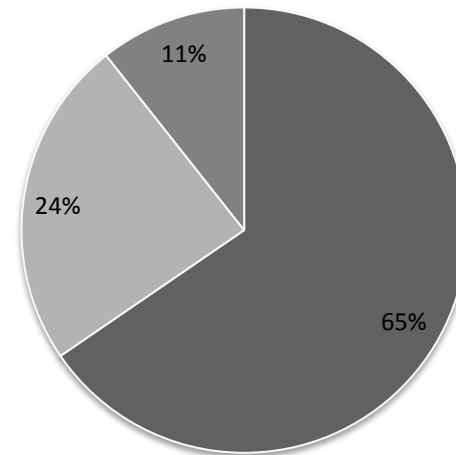
Average times (hours) spent standing and sitting and average daily step counts and sit/stand transitions

	Average daily Mean (SD)	Average weekday Mean (SD)	Average weekend day Mean (SD)
Time spent standing (2400 to 2359)	4.1 (1.4) N= 162	4.05 (1.8) N=164	4.3 (1.7) N=146
Time spent sitting (0700 to 2300)	10.6 N=162	10.6 (2.1) N=164	10.6 (2.52) N=146
Step counts (2400 to 2359)	9737 (3517) N= 162	9682 (3872) N=164	9518 (4615) N=146
Sit/ stand transitions (2400 to 2359)	52.2 (13.7) N=162	54.2 (15.1) N=164	50.1 (16.2) N=146

Preliminary Data



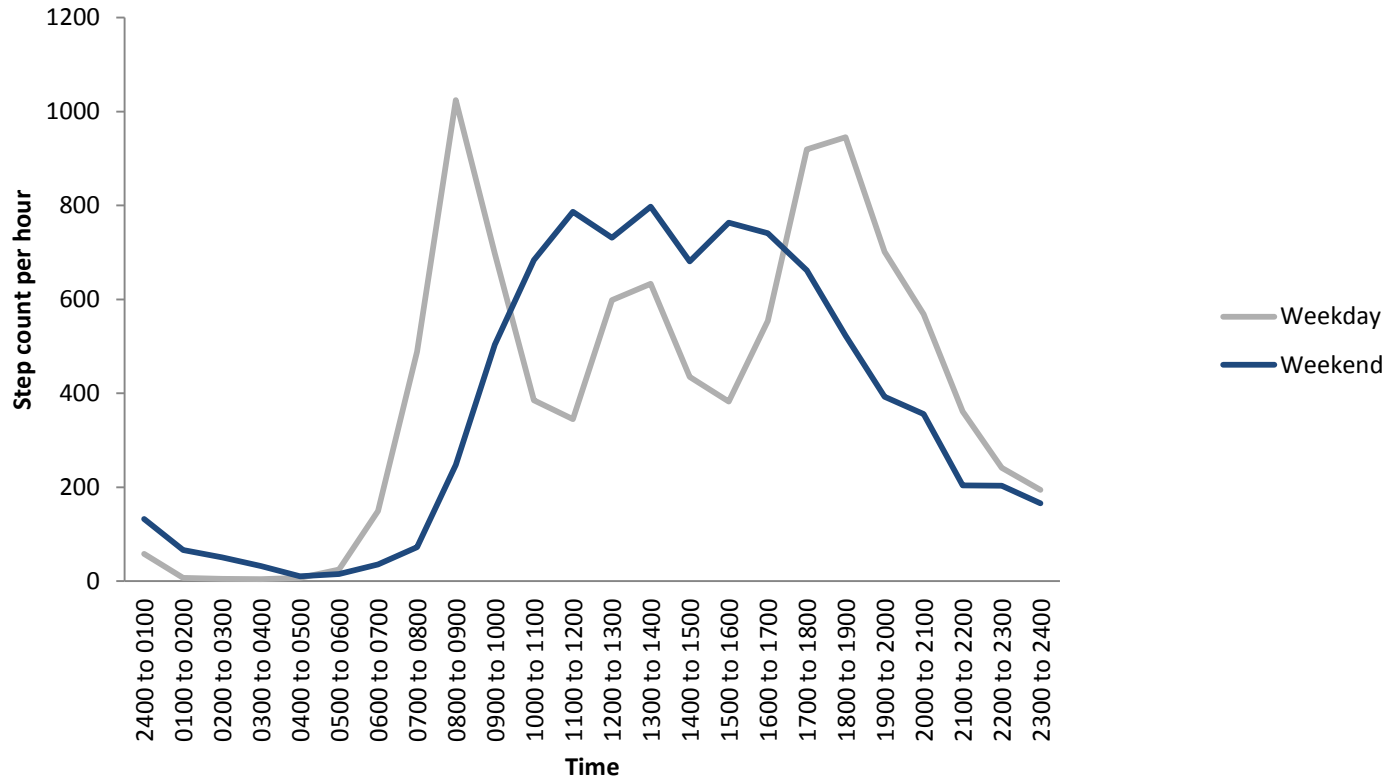
- Weekday sit
- Weekday stand
- Weekday step



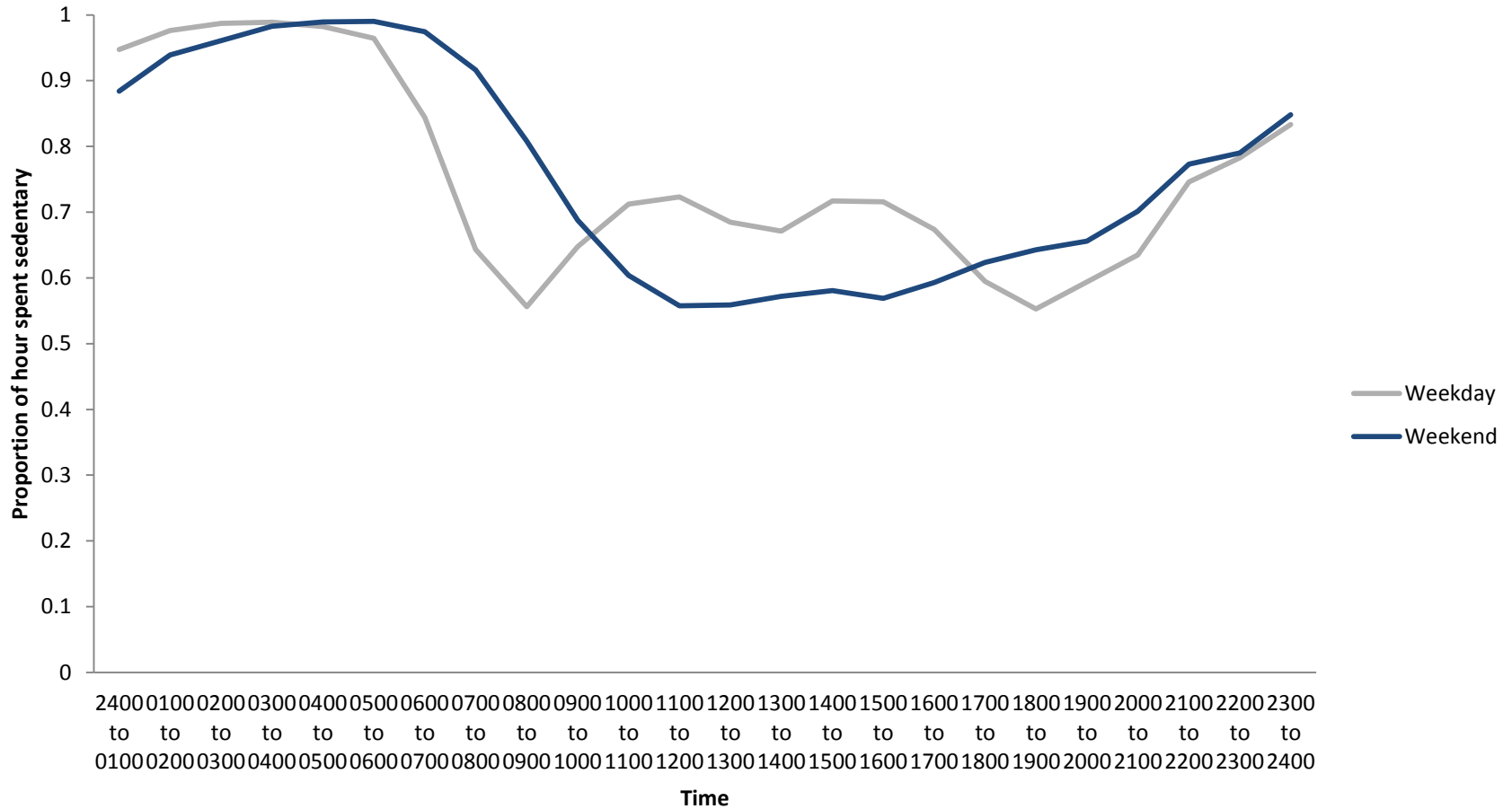
- Weekend sit
- Weekend stand
- Weekend step

Proportion of weekday and weekend time spent sitting, standing, stepping (0700 to 2300)

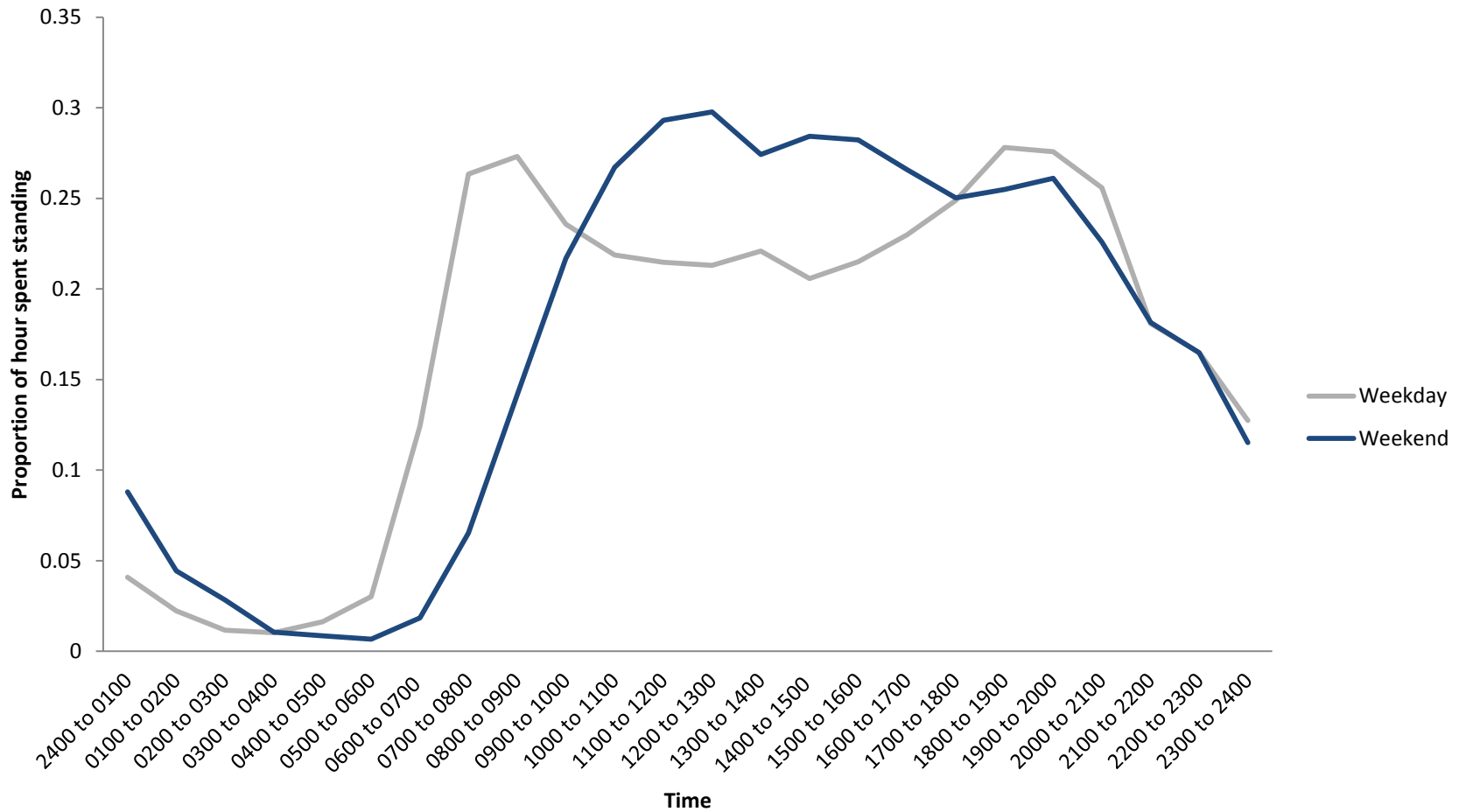
Average step count per hour



Average proportion of hour spent sitting



Average proportion of hour spent standing





Questions

