Active Buildings: Modelling Physical Activity and Movement in Office Buildings
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Background

Health benefits of regular participation in physical activity are well documented but population levels are worryingly low. Previous work has shown the effectiveness of using the office environment for physical activity promotion and a sizeable literature has found the outdoor built environment influences physical activity behaviour. Restructuring office layout and in particular the distance required to meet "activity hot spots" (e.g. printers and refreshment points) might increase step counts and thus physical activity levels. However, to our knowledge no work has focused on the role that the layout of the indoor office environment plays in facilitating or inhibiting physical activity. The aims of this study are to understand how physical activity accumulates in office environments and to model the relationship between workplace layout and physical activity to aid future design of active buildings.

Methods

Active Buildings is a unique collaboration and involves objective monitoring complemented by a larger survey arm. UK office buildings will be selected based on a variety of building features (e.g. floor plan and number of staff). Surveys will include questions on standard demographics, physical activity behaviour and putative socio-ecological correlates of workplace physical activity. Based on survey responses approximately 50 participants will be recruited from each building into the objective monitoring arm. Participants will be asked to wear accelerometers (to monitor activity inside and outside the office) and a novel tracking device (to record movement in the office) for six days.

Deliverables

(i) A model of the relationship between workplace spatial configuration and physical activity.
(ii) A tool to test office building layouts at design stage in relation to their potential for activity generation.
(iii) Practical guidance for designers/organisations about features required to create active buildings.

Conclusions
This unique collaboration will be the first to use indoor tracking in conjunction with accelerometry. This novel data could be used as a basis for estimating the potential for physical activity change through layout modification in future interventions or the design of future buildings.

Key messages
- Data from this study will aid in the understanding of how physical activity accumulates in office environments.
- Data from this study will be used to model the relationship between workplace layout and physical activity behaviour.