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Accelerometer- determined levels of physical activity and sedentary behaviour in older care home residents

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Outline

- Context
- Introduction
- Methods
- Results
- Summary and Conclusions

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REACH
RESEARCH IN ENHANCING
PHYSICAL ACTIVITY IN CARE HOMES

Forster A, Young J, Farrin A, Gallagher B, Birch K, Hulme C, Godfrey M, Graham E, Firth J, Siddiqi N, Ellard D, Lawton R.

John Green, Alison Ellwood, Alan Wright, Ismail Patel, Carolyn McCrorie, Arvin Prashar, Adelaide Lusambili, Nicola McMaster, Vicki McLellan, Ian Wheeler, Robert Cicero, Dominic Trepel

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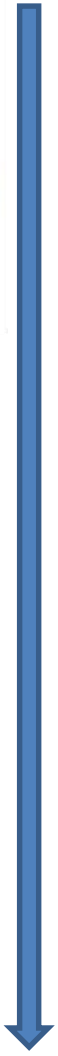
RESEARCH IN ENHANCING PHYSICAL ACTIVITY IN CARE HOMES

May 2013 -

Programme end:
January 2018



Project 1
Ethnographic observations & interviews (4 care homes)

Project 2
Testing methods to measure physical activity (6 care homes)

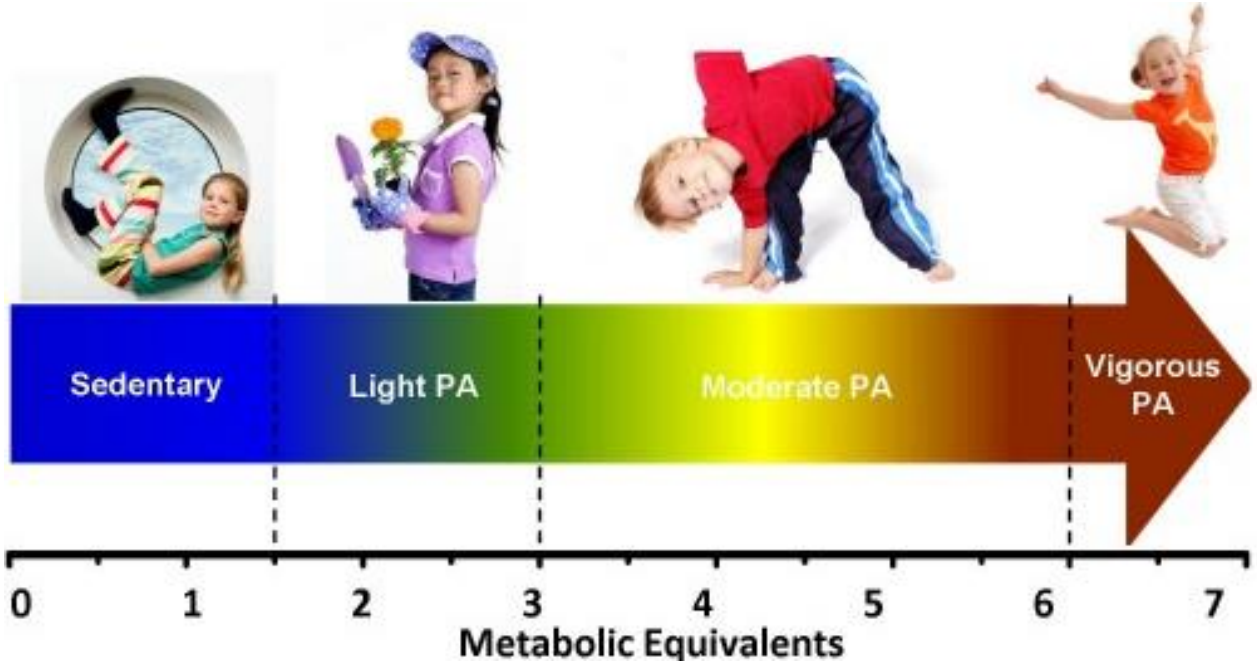
Project 3
Intervention development

Project 4
Action research
(4 care homes)

Project 5
Feasibility cRCT and linked process evaluation (12 care homes)

Introduction

"any bodily movement produced by skeletal muscles that results in energy expenditure" (Caspersen et al., 1985)



"any waking behaviour characterised by low energy expenditure (≤1.5 METs) while in a sitting or reclining posture" (Tremblay., 2012)

Introduction

- Number of individuals aged ≥ 85yrs is expected to double between 2010 and 2035 to 3.5 million (Office for National Statistics, 2011).
- Estimated 1 in 4 older people will spend time in a care home in their last year of life (Forder et al., 2011)
- Beneficial effects of increasing PA and decreasing time spent sedentary

Introduction

- Howeve **Physical rehabilitation for older people in long-term care (Review)** of PA they typically

Crocker T, Forster A, Young J, Brown L, Ozer S, Smith J, Green J, Hardy J, Burns E, Glidewell E, Greenwood DC

- Underst population is critica erventions and adv tions in a care hor

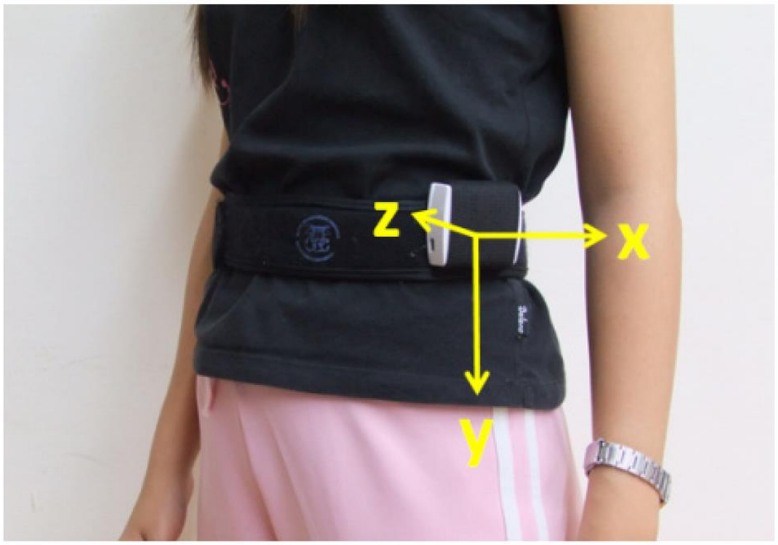
THE COCHRANE COLLABORATION®

Aim: To describe accelerometer-determined levels of physical activity (PA) and sedentary behaviour (SB) and its associations with personal characteristics of care home residents.

Methods

- Recruitment
- Demographic information
- Functional Ambulation Category (FAC)
- Barthel Index (BI) as a rating of independence
- Physical Activity and Mobility in Residential Care Scale (PAM-RC) as a rating of mobility
- Accelerometers

- 84 care home residents (aged 84 ± 8 yr) were invited to wear an ActiGraph accelerometer on the hip for 7 days.

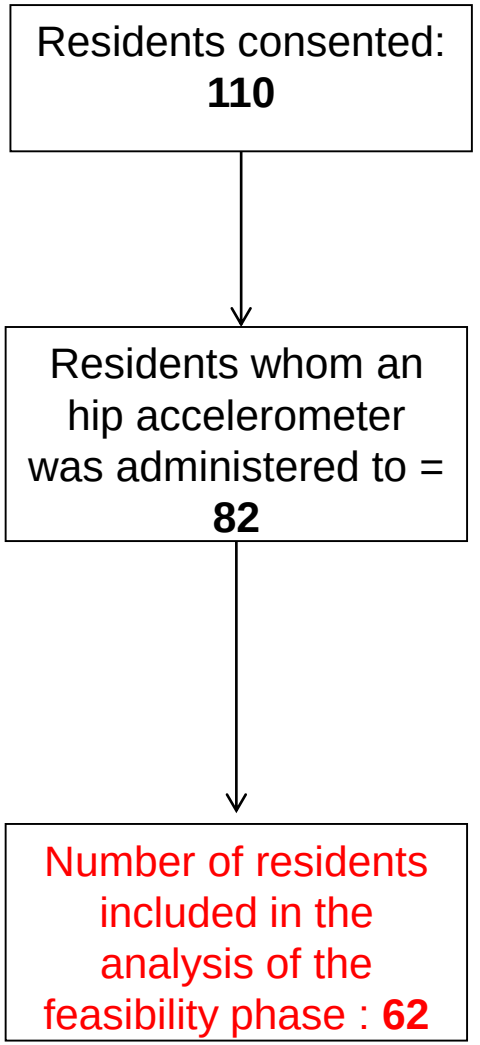


- Raw accelerometer data were reintegrated into 60s epochs and age-specific cut-points were applied.

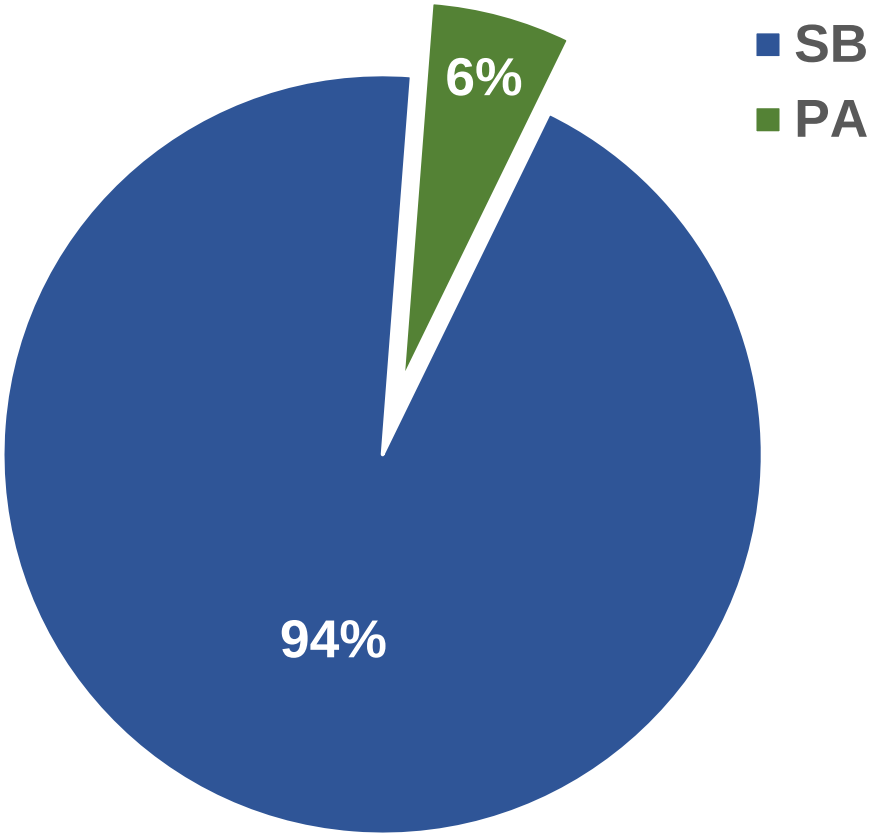
PA classification	Accelerometer counts per minute^{-1} (cpm)	Examples of activities
Sedentary	< 100 cpm	Sitting, reclining
Low PA	100-759 cpm	Upper body movements
Light PA	760-2019 cpm	Self care, slow walk
Moderate-vigorous (MV) PA	≥ 2020 cpm	Walking, sit-stand transfers

Results

- 62 residents (M: 20, F: 42, aged 85 ± 8 yr) provided valid accelerometer data (≥ 8 hr 25 min on ≥ 2 d).
- Mean wear time was 12 hr 23 min ± 1 hr 28 min.



	Mean ± SD
Sedentary	11 hr 23 min ± 1 hr 29 min
Low PA	56 ± 49 min
Light PA	4 ± 4 min
MVPA	Negligible



No significant differences were observed according to gender, age group (< 85 yr and ≥ 85 yr) or length of time in care home

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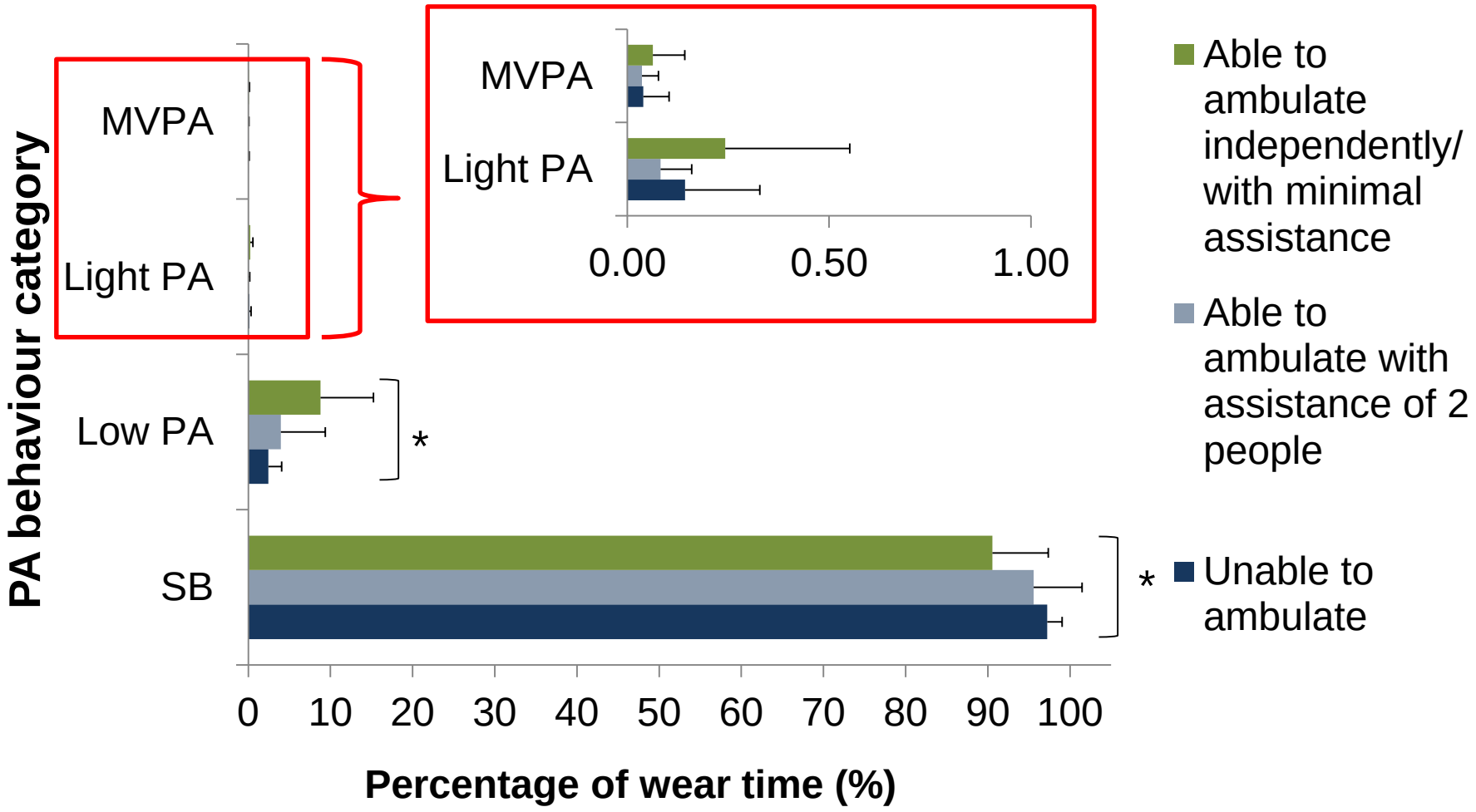

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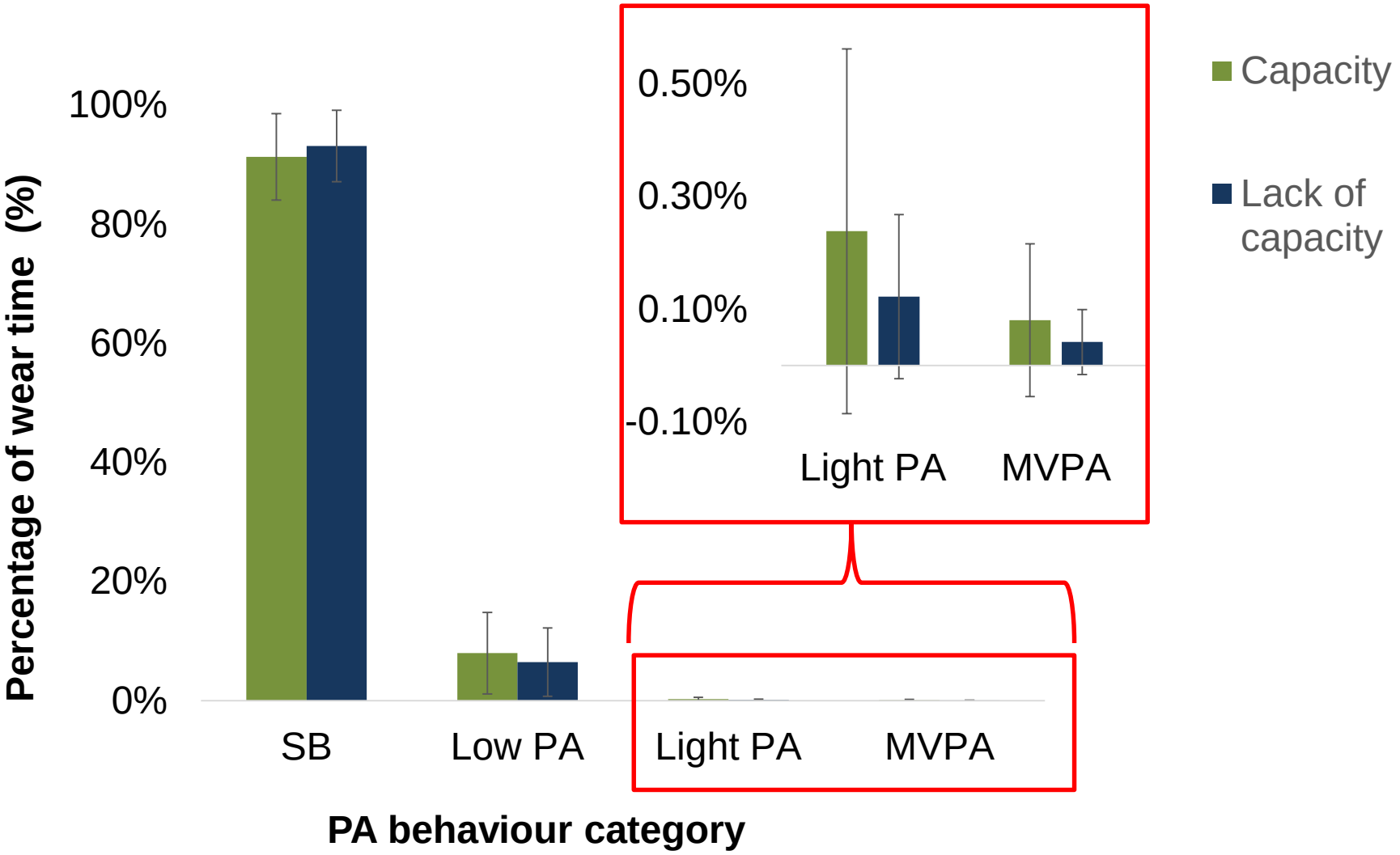

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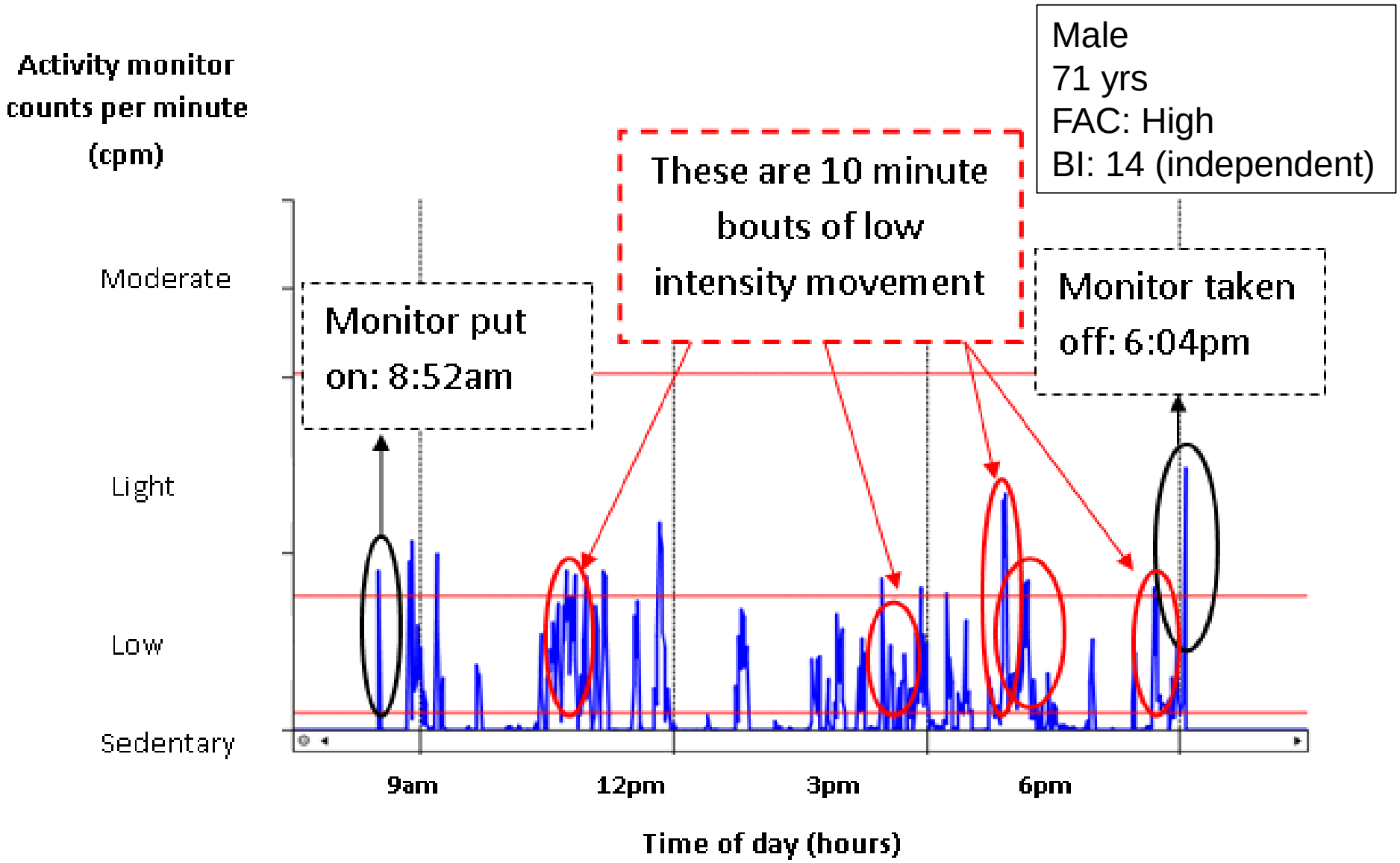
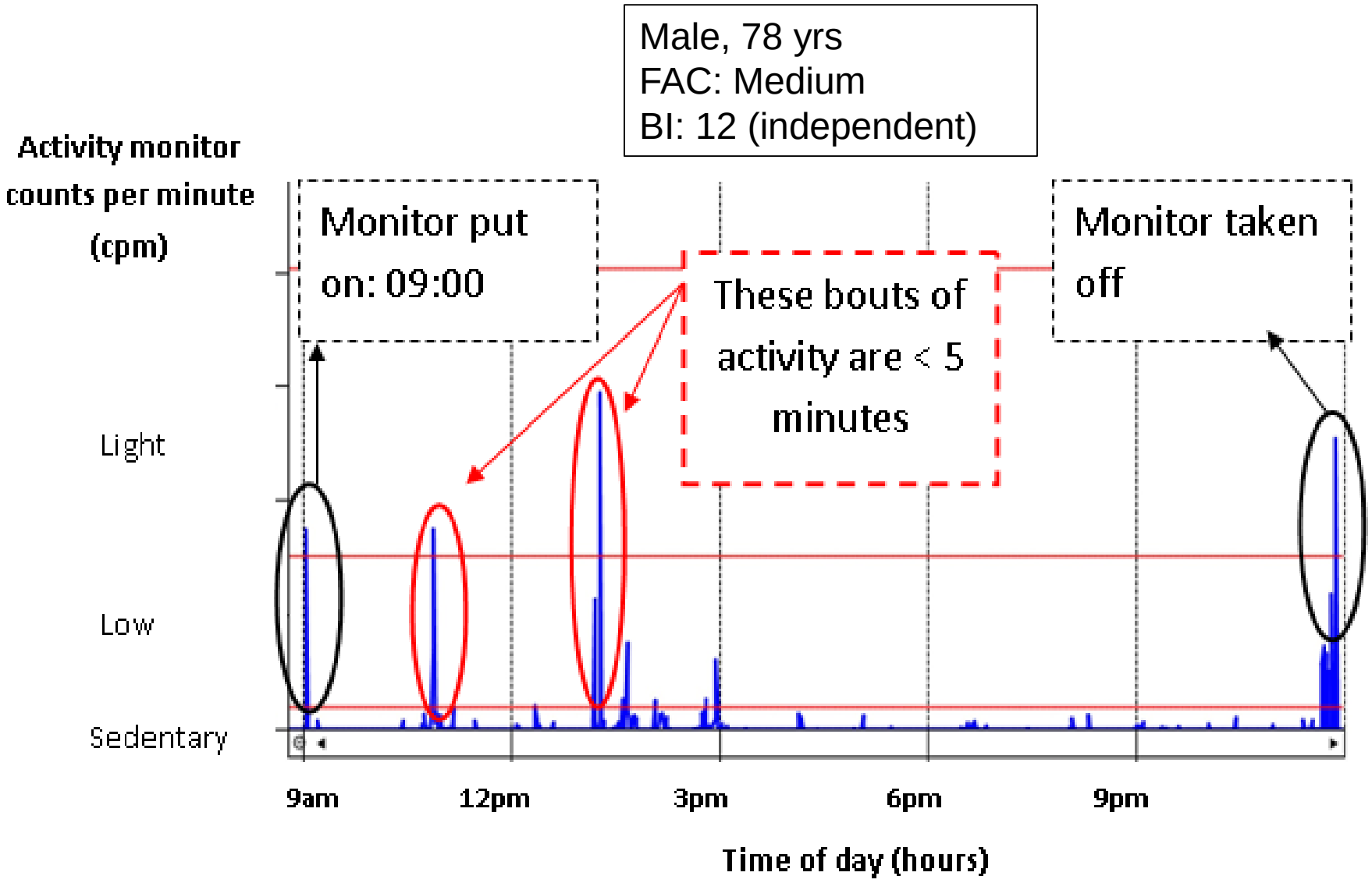
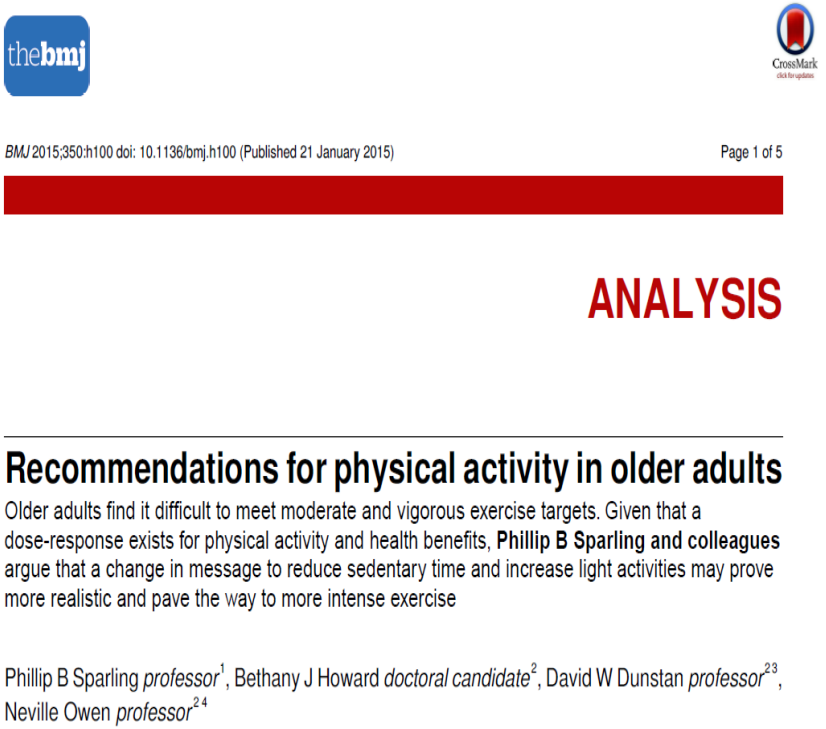



Male, 78 yrs
FAC: Medium
BI: 12 (independent)
Activity monitor counts per minute (cpm)
Monitor put on: 09:00
These bouts of activity are < 5 minutes
Monitor taken off
Light
Low
Sedentary
9am
12pm
3pm
6pm
9pm
Time of day (hours)

Summary, Concluding remarks and IMPACT

- 34% of the sample accumulated ≥ 30 min of PA daily.

- This suggests there is potential to increase the volume of low and light intensity PA that care home residents engage in.



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BMJ 2015;350:h100 doi: 10.1136/bmj.h100 (Published 21 January 2015)

ANALYSIS

Recommendations for physical activity in older adults

Older adults find it difficult to meet moderate and vigorous exercise targets. Given that a dose-response exists for physical activity and health benefits, **Phillip B Sparling and colleagues** argue that a change in message to reduce sedentary time and increase light activities may prove more realistic and pave the way to more intense exercise

Phillip B Sparling *professor*[1], Bethany J Howard *doctoral candidate*[2], David W Dunstan *professor*[2 3], Neville Owen *professor*[2 4]

- Breaking up long bouts
  is especially relevant f
  high levels of SB in thi

THE GERONTOLOGICAL SOCIETY OF AMERICA®
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OXFORD

Research Article

Independent Associations Between Sedentary Behaviors and Mental, Cognitive, Physical, and Functional Health Among Older Adults in Retirement Communities

Dori E. Rosenberg,[1] John Bellettiere,[2] Paul A. Gardiner,[3,4] Veronica N. Villarreal,[5] Katie Crist,[5] and Jacqueline Kerr[5]

[1]Group Health Research Institute, Group Health Cooperative, Seattle, Washington. [2]San Diego Joint Doctoral Program in Public Health

EUROPEAN SOCIETY OF CARDIOLOGY®
European Heart Journal (2015) 36, 2643–2649
doi:10.1093/eurheartj/ehv308

CLINICAL RESEARCH
Prevention and epidemiology

Replacing sitting time with standing or stepping: associations with cardio-metabolic risk biomarkers

Genevieve N. Healy[1,2,3]*, Elisabeth A. H. Winkler[1], Neville Owen[1,2,4,5,6], Satyamurthy Anuradha[1], and David W. Dunstan[1,2,4,7,8,9,10,11]

[1]School of Public Health, The University of Queensland, Herston Road, Herston, Brisbane, QLD 4006, Australia; [2]Baker IDI Heart and Diabetes Institute, Melbourne, VIC, Australia;

Clinical Care/Education/Nutrition/Psychosocial Research

ORIGINAL ARTICLE

Breaking Up Prolonged Sitting Reduces Postprandial Glucose and Insulin Responses

DAVID W. DUNSTAN, PHD[1,2,3,4,5] JONATHAN E. SHAW, MD[1,2]

and was characterized by light-intensity

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RESEARCH IN ENHANCING PHYSICAL ACTIVITY IN CARE HOMES

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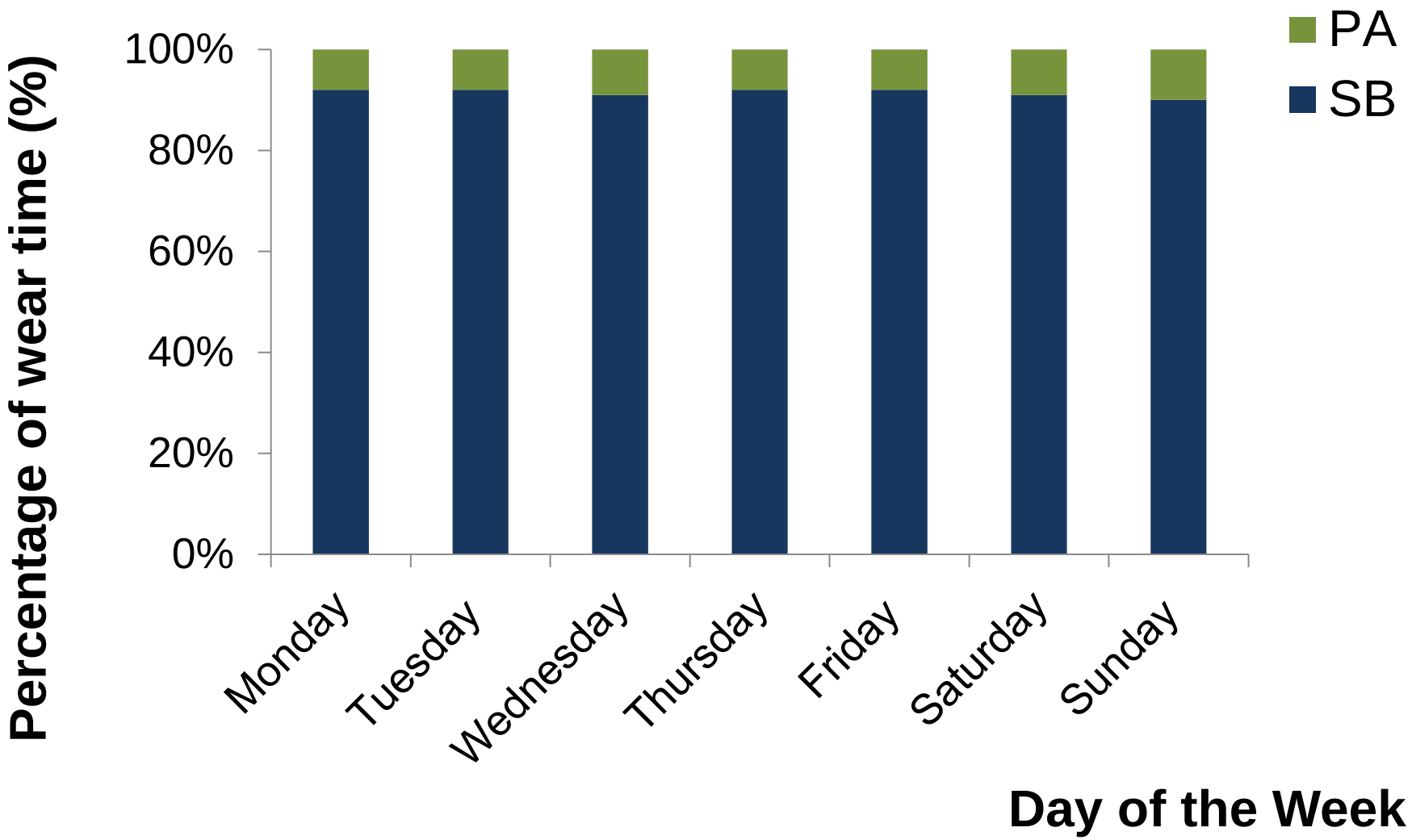

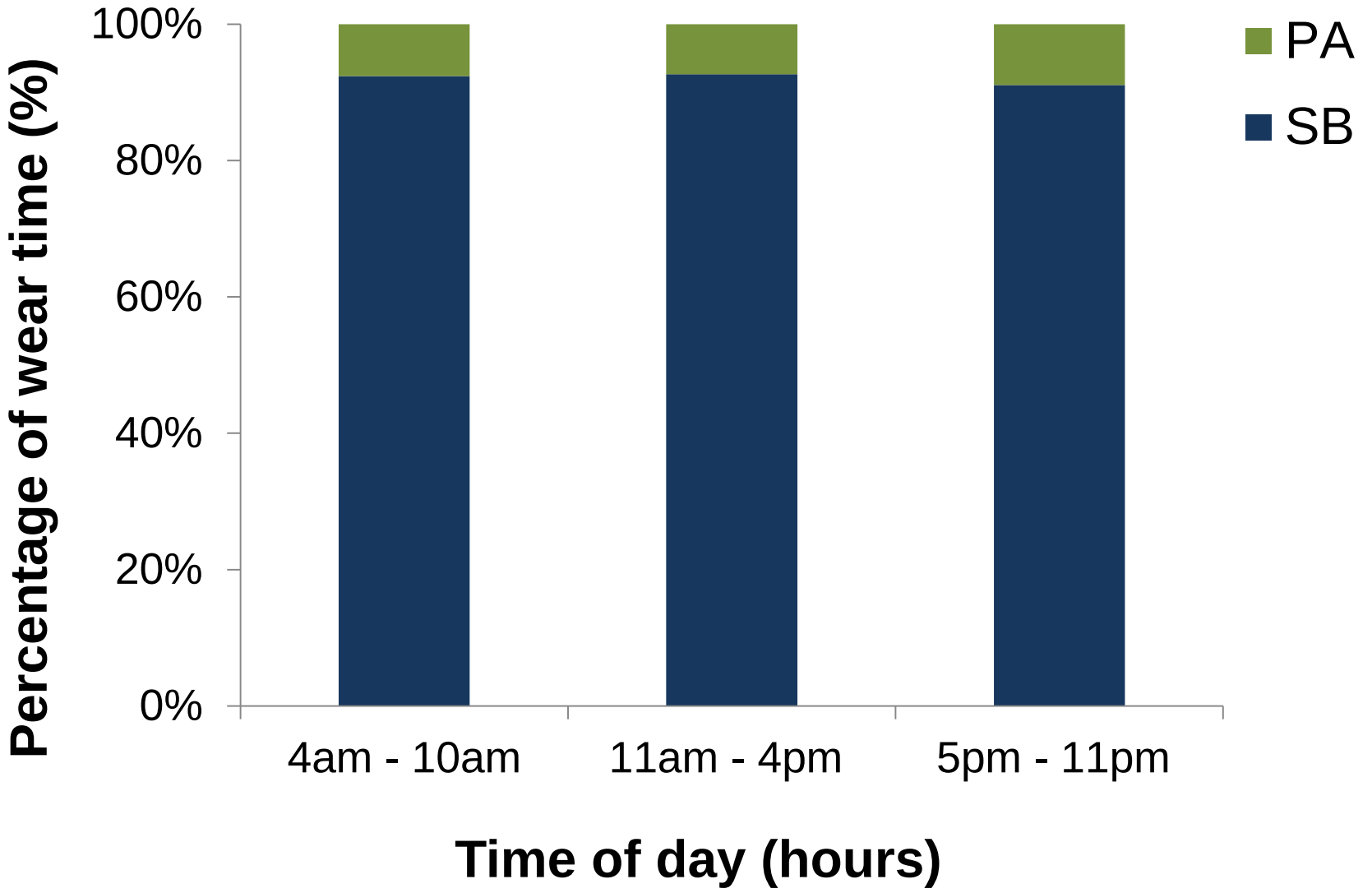
Percentage of wear time (%)
100%
80%
60%
40%
20%
0%
PA
SB
4am - 10am
11am - 4pm
5pm - 11pm
Time of day (hours)