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Cardiac Rehabilitation and the Active Couch Potato phenomenon: Move less, Sit more.

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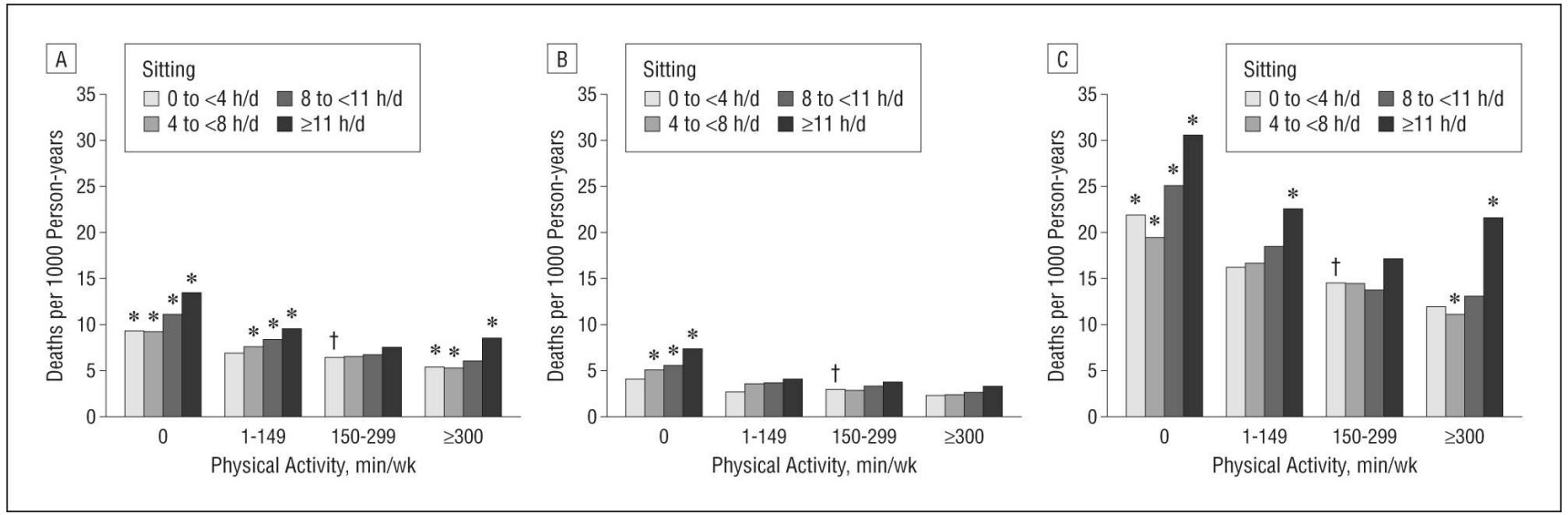
Physical activity in CHD

- Savage et al (2008) – baseline phase II CR (USA), non-CR days 5315 steps (**13% meet 10,000 steps**), CR days 7387 steps (n=107).
- Ayabe et al (2004) – phase III (Japan) , MVPA 18 mins /day (**MVPA 11 mins/day non-CR days**) (n=77).
- Evenson et al (2014) – NHANES (USA) CHD Dx (1-10 yrs), **MVPA 11 mins/day**, **sedentary behaviour 9 hrs/day** (n=318).
- Prince et al (2016) – 10/7 post CR program (Canada), **MVPA 25 mins/day, sedentary behaviour 8 hours/day (56% of day)** (n=263).

Active Couch Potato Phenomenon

Total Healthy CVD or diabetes



Sitting Time and All-Cause Mortality Risk in 222 497 Australian Adults FREE

Hidde P. van der Ploeg, PhD; Tien Chey, MAppStats; Rosemary J. Korda, PhD; Emily Banks, MBBS, PhD; Adrian Bauman, MBBS, PhD

JAMA Internal Medicine *Arch Intern Med.* 2012;172(6):494-500.

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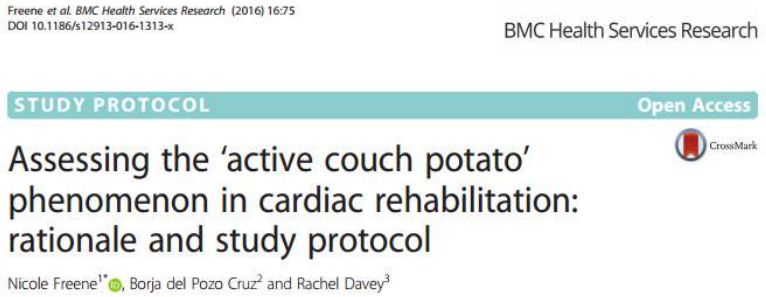
Aim

Assess the physical activity (PA) levels and sedentary behaviour of those with coronary heart disease (CHD) who have attended a 6-week hospital-based phase II CR program.

Methods



Freene et al. BMC Health Services Research (2016) 16:75
DOI 10.1186/s12913-016-1313-x

BMC Health Services Research

STUDY PROTOCOL Open Access

Assessing the 'active couch potato' phenomenon in cardiac rehabilitation: rationale and study protocol

Nicole Freene[1*], Borja del Pozo Cruz[2] and Rachel Davey[3]

- Prospective cohort study
- Consecutive recruitment
- Phase II hospital-based CR – 6 weeks, twice a week, exercise & education
- ≥ 18 years old, stable CHD +/- revascularisation (CABG, PCI, MI), no unstable medical conditions & able to complete 6MWT, adequate language (English) and cognitive skills

Outcome measures

- **Physical activity** (AAS, accelerometry (Actigraph ActiSleep, Freedson cut-points))
- **Sedentary behaviour** (PAST Q, accelerometry (<100 cpm))

- Body mass index (BMI)
- Waist-to-hip ratio (WHR)
- Blood lipid & glucose levels
- Blood pressure
- Exercise capacity (6MWT)
- QoL (MacNew Q)
- Anxiety & depression (HADS Q)
- Socio-demographic & clinical information (Q)

Results

Demographics	Baseline (n=72)
Age (yrs), mean (SD)	64.2 (9.6)
Gender, n males (%)	57 (79)
Heritage, n country born (Australia) (%)	38 (66)
Body mass index (kg/m2), mean (SD)	30.7 (5.0)
Education level, n tertiary (%)	41 (72)
Relationship status, n partner (%)	40 (70)
Type 2 diabetes, n yes (%)	14 (24)
Employment category, n paid work (%)	30 (52)
Diagnosis, n PCI (%)	58 (81)
Blood pressure medication, n yes (%)	49 (86)
Cholesterol medication, n yes (%)	51 (90)
MacNew Global, mean (SD)	5.56 (0.77)
HADS-total, mean (SD)	6.99 (5.52)
BGL, mean (SD)	6.13 (1.66)

Results

Outcome measure (n=72)	Baseline	6 weeks
SBP (mmHg), mean (SD)	125 (13)	123 (14)*
DBP (mmHg), mean (SD)	71 (8)	68 (7)***
MacNew Global, mean (SD)	5.56 (0.77)	5.96 (0.7)***
MacNew Physical, mean (SD)	5.23 (0.90)	5.84 (0.74)***
MacNew Social, mean (SD)	5.53 (1.02)	6.19 (0.77)***
MacNew Emotional, mean (SD)	5.81 (0.88)	6.05 (0.83)***
HADS-D, mean (SD)	3.02 (2.72)	2.38 (2.79)**
HADS-total, mean (SD)	6.99 (5.52)	5.70 (5.62)***
6MWTD (m), mean (SD)	487 (86)	530 (95)***

*p≤0.05, **p≤0.01, *** p≤0.001

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Results

n=63	ActiGraph 1s		ActiGraph 10 min bout		AAS / PAST (self-report)	
	baseline	6weeks	baseline	6weeks	baseline	6weeks
MVPA min/day (mean, SD)	38.67 (22.87)	39.44 (22.98)	9.88 (14.00)	9.46 (14.73)	43.17 (32.27)	56.17 (45.11)*
Sufficient PA (time) (n, %)	51 (81.0)#	55 (82.1)#	10 (15.9)	10 (14.9)	40 (72.7)#	50 (80.6)#
Sedentary min/day (mean, SD)	723.33 (58.39)	710.74 (65.71)			585.81 (190.01)	601.48 (216.42)
LPA min/day (mean, SD)	72.87 (22.23)	81.86 (30.07)*				

#VPA x 2; *p<0.01

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Total (n=63) Males (n=51) Females (n=12)

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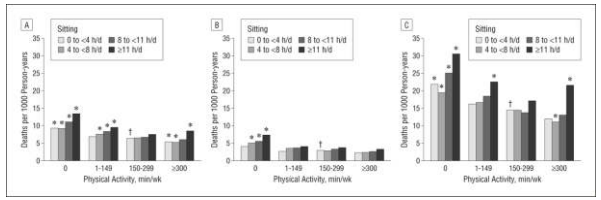
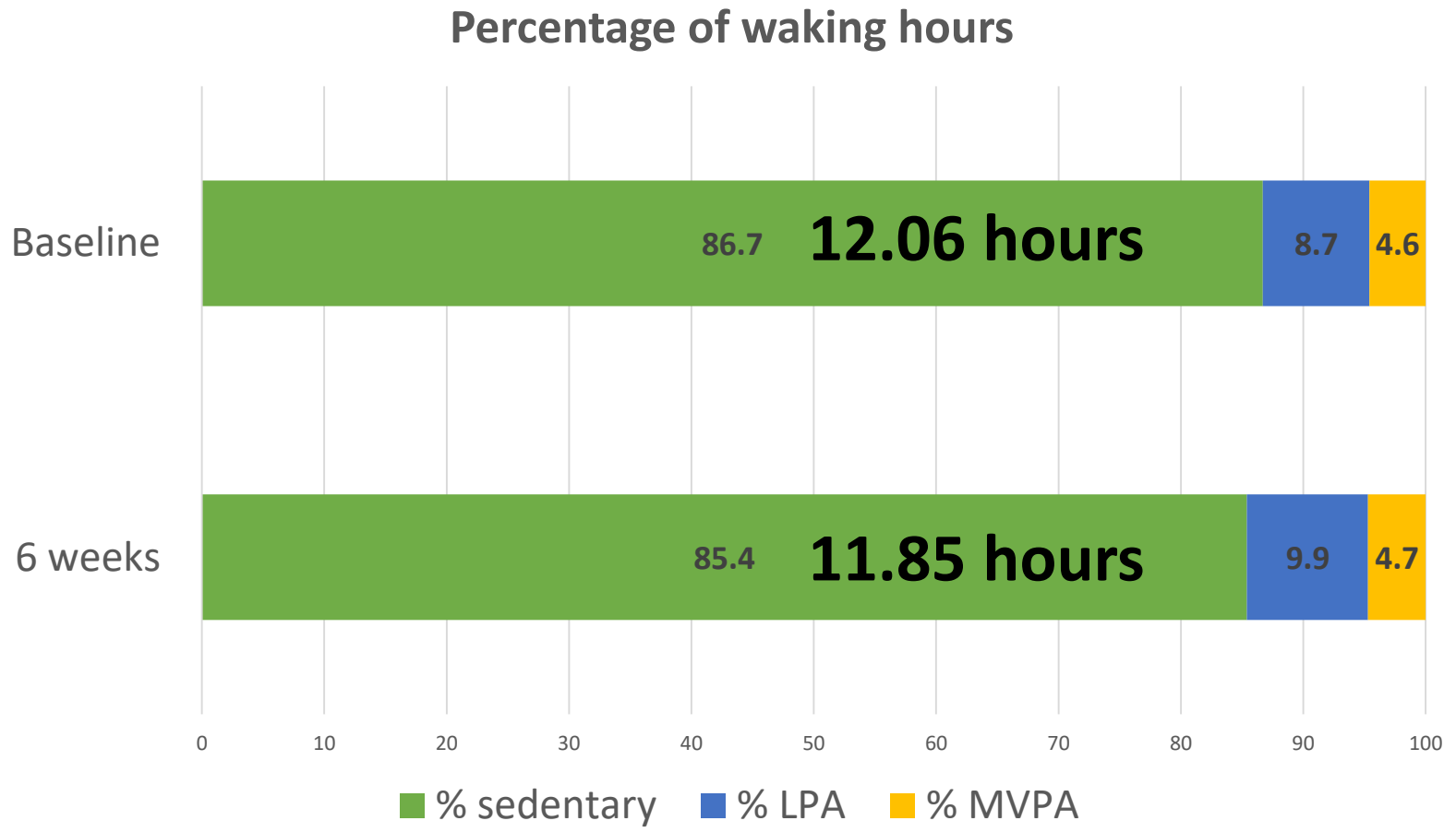
Results





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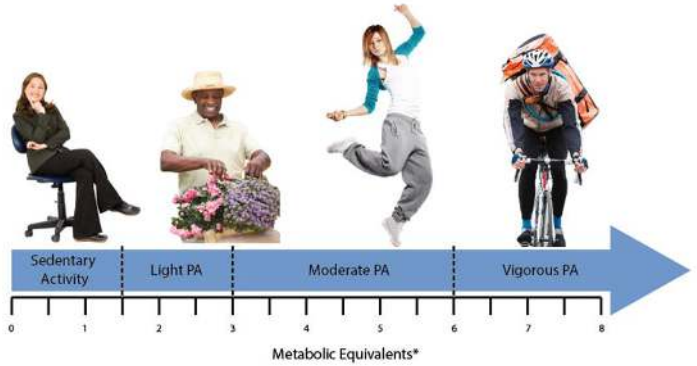
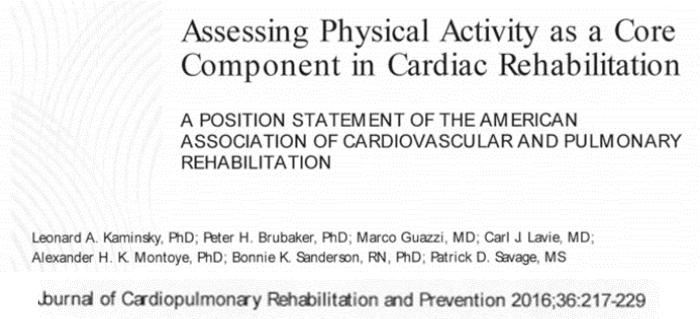
Practical Implications

- Education +++ on intensity
- Encourage ↓ sitting time & ↑ MVPA



http://www.sedentarybehaviour.org/what-is-sedentary-behaviour/

- Ax PA (risk factor) & sedentary behaviour – subjective or objective


Assessing Physical Activity as a Core Component in Cardiac Rehabilitation

A POSITION STATEMENT OF THE AMERICAN ASSOCIATION OF CARDIOVASCULAR AND PULMONARY REHABILITATION

Leonard A. Kaminsky, PhD; Peter H. Brubaker, PhD; Marco Guazzi, MD; Carl J. Lavie, MD; Alexander H. K. Montoye, PhD; Bonnie K. Sanderson, RN, PhD; Patrick D. Savage, MS

Journal of Cardiopulmonary Rehabilitation and Prevention 2016;36:217-229

- ? different strategies for ↑ MVPA & ↓ sedentary behaviour for males & females

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Practical Implications

Δ 6MWTD but not in MVPA???

- Learning effect
- ↓ fear (kinesophobia)
- accelerometer cut-points (relative vs absolute intensity)
- ↑ LPA might be enough!

Need to consider that ↑ X capacity (6MWTD) may not reflect an ↑ MVPA.

Conclusion

- Meeting the PA guidelines may be difficult to achieve in first 2/12 post event -↑ understanding & different strategies

- ↑ focus on ↓ sitting time - may be an achievable & feasible first-line or additional strategy to improve health in those with CHD

Acknowledgements

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  - Dr Ren Tan
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