
Pregnancy: a time to sit down and put your feet up?

Investigating antenatal physical activity

Association for the Study of Obesity
Weight Management before, during and after pregnancy

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A bit of background...

- Physical activity (PA) during pregnancy is beneficial and can reduce adverse risks
 - Limit gestational weight gain (Ruchat et al. 2012)
 - Reduce obstetric risks (Tinloy et al. 2014)
 - Improve wellbeing and QoL (Claesson et al. 2013)
- Benefits of antenatal PA for women, regardless of BMI (Tinius et al., 2017)
- Healthy, low-risk pregnant women should remain active and aim to meet the current PA guidelines for the general population (ACOG, 2002)... currently, at least **150 minutes of moderate to vigorous intensity (MVPA) aerobic activity per week** with any bout of PA lasting at least 10 minutes (WHO, 2010).

Physical activity for pregnant women

- Helps to control weight gain
- Helps reduce high blood pressure problems
- Helps to prevent diabetes of pregnancy
- Improves fitness
- Improves sleep
- Improves mood



- No evidence of harm
- Listen to your body and adapt
- Don't bump the bump

Patterns of PA throughout pregnancy

- 3-15% of pregnant women meeting published guidelines (Borodulin et al., 2008; Evenson et al., 2004)
- Natural decrease in PA throughout pregnancy
- Reasons for non-adherence to PA guidelines
 - Self-efficacy
 - Time
 - Motivation and beliefs
 - Risk perceptions

What can be done about this?

- Teachable moment (Phelan, 2010)
- Behaviour change leading to health outcomes

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 PLOS ONE

Reducing the Decline in Physical Activity during Pregnancy: A Systematic Review of Behaviour Change Interventions

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Systematic review

- To explore the techniques and related theoretical components used in interventions addressing physical activity in pregnancy
- Findings:
 - Successful BCT's:
 - Goals and Planning
 - Shaping knowledge
 - Education
 - Face to face meetings
 - Over 20 weeks long
 - Focus on PA
 - Theoretically based

Intervention

*Does an individually tailored PA intervention **reduce the decline** in PA during pregnancy compared to usual antenatal care in pregnant women?*

- RCT
- 109 First time mothers
- Recruited at antenatal booking appointment
- Based on HAPA model

Intervention

- Randomised into:
 - control group or
 - Intervention group
 - 3 PA consultations (one per trimester). Based on HAPA model
 - Optional weekly walking group (from 20 weeks gestation)



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The APP Trial

**Active Profile in
Pregnancy Trial**

Outcome measures

- Measures taken once per trimester
- Primary
 - Physical Activity: accelerometers and diary
- Secondary
 - Mood, anxiety, self-esteem
 - Social support
 - Quality of life
 - Gestational weight gain
 - Obstetric outcomes

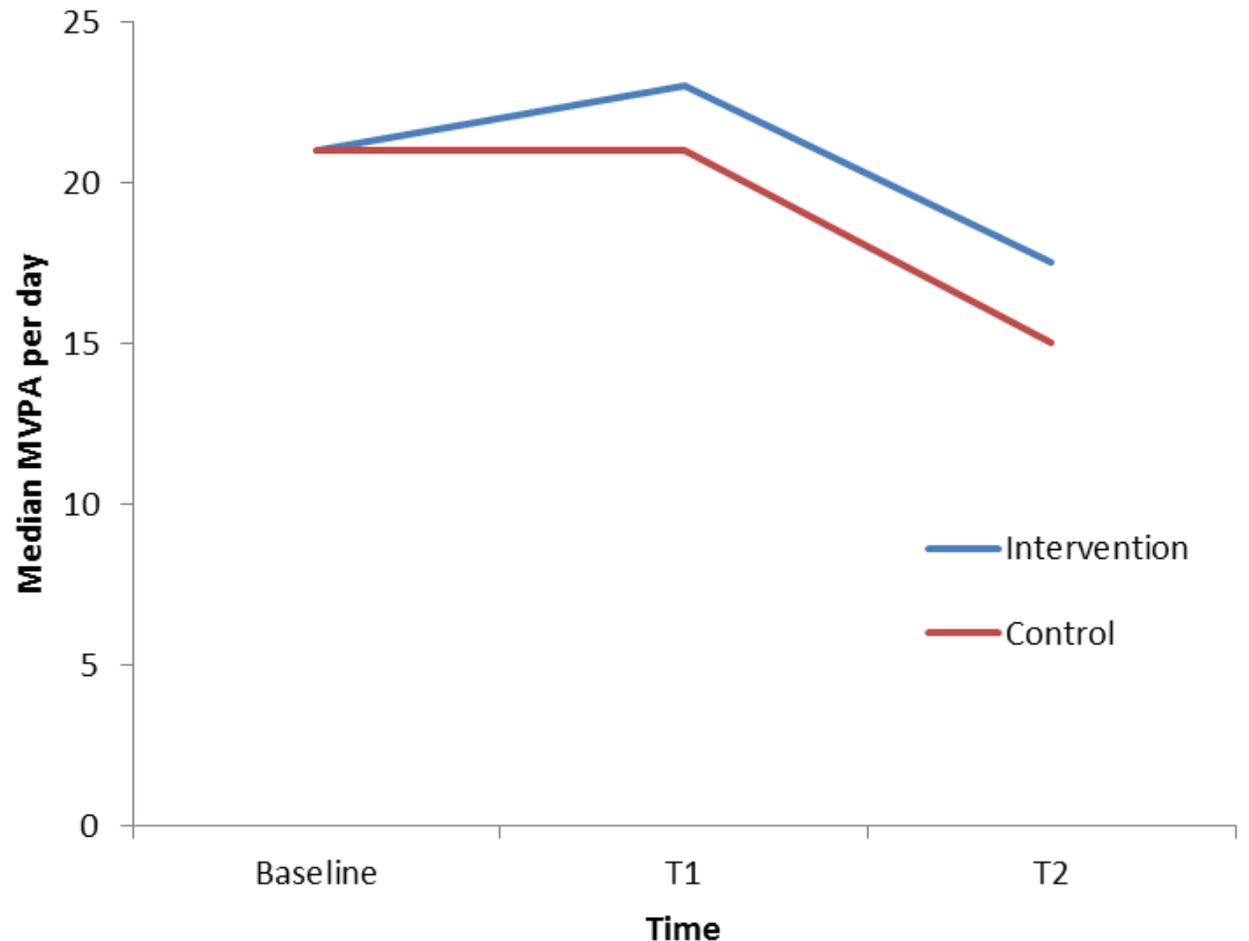


Demographics

Characteristic	Intervention	Control
Mean age at recruitment (SD), years	30.1 (4.5)	29.9 (5.0)
Mean booking BMI (SD)	25.8 (3.8)	25.9 (4.9)
Mean gestation, (SD), weeks	12.9 (2.2)	13.2 (1.9)

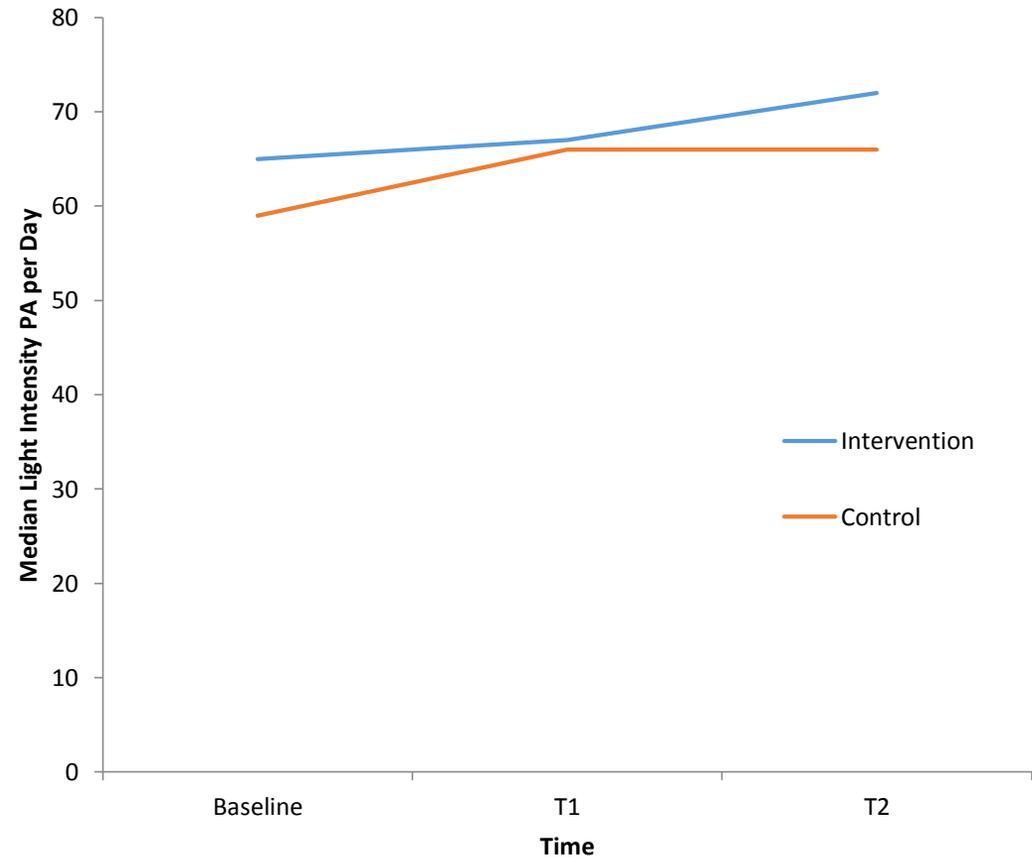
Results: Effect of intervention upon MVPA (Currie et al., 2015)

- MVPA significantly decreased over time in both groups ($p < 0.001$)
- No statistical significant difference in MVPA between group at any time point

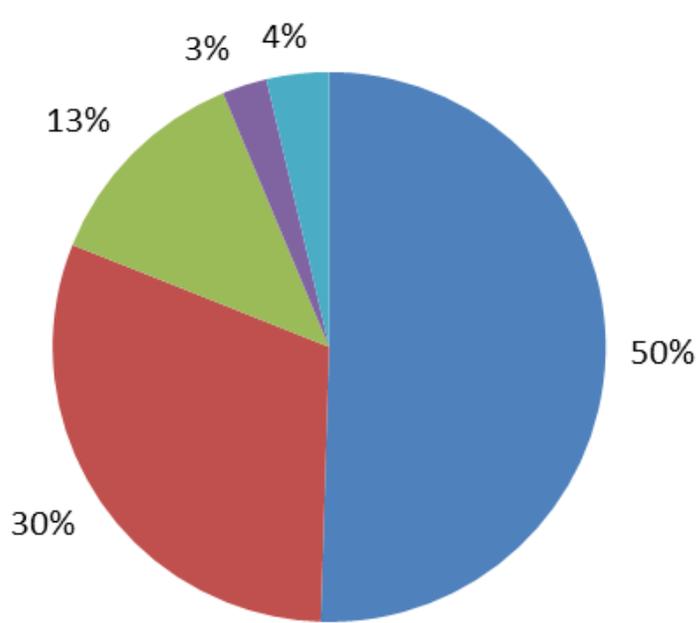


Results: effect of intervention on light PA

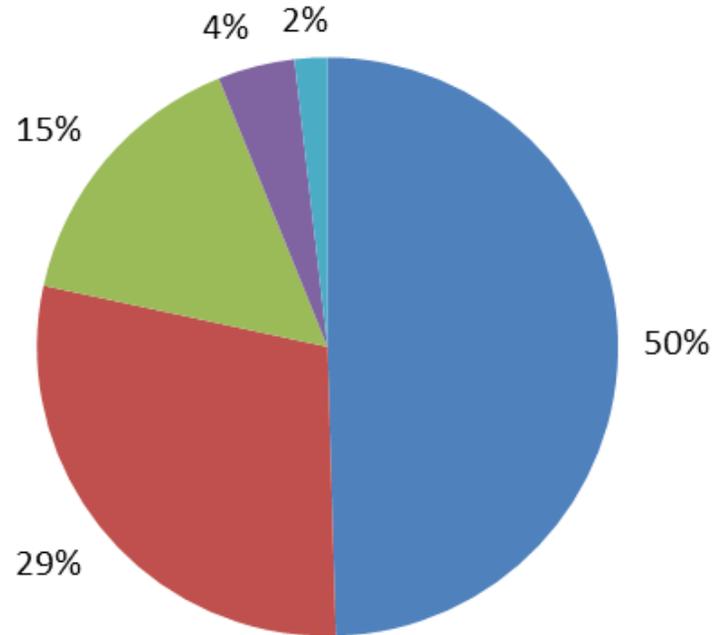
- Baseline to T2 light intensity PA increased significantly
 - Intervention $p=0.012$
 - Control $p=0.015$



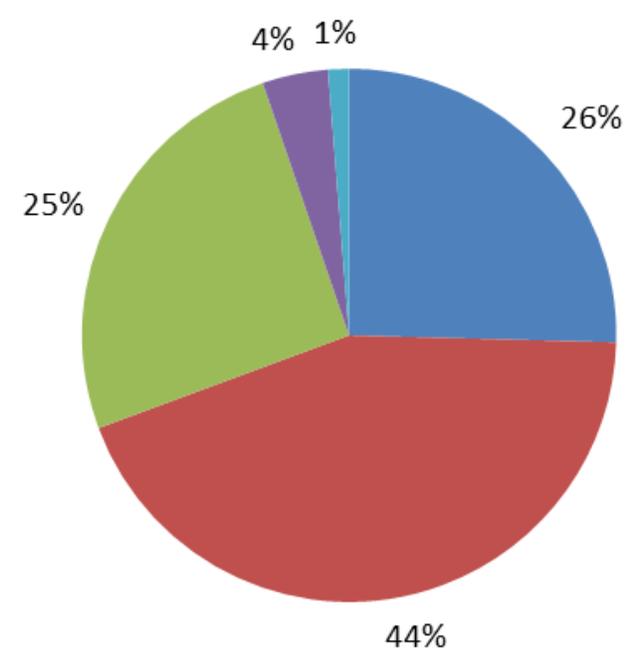
Results: Types of PA



Baseline/
trimester 1



T1/
trimester 2



T2/
trimester 3

- Occupational
- Leisure time
- Household
- Sports/Exercise
- Transport

Secondary outcomes

- At T2, compared with the control group, the Intervention group had:
 - higher positive mood scores ($p=0.003$)
 - Lower anxiety scores ($p=0.027$)

Summary of findings

- × Intervention not effective in reducing decline in MVPA behaviours
- MVPA declined across pregnancy
- Light intensity PA increased throughout pregnancy
- Occupational PA most common in trimesters 1 and 2 (baseline, T1)

Reasons for findings/future research areas

- Active sample: median MVPA per day at baseline was 21 minutes
 - Recruitment: how do we attract a diverse sample?
- Intensity of intervention?
 - Exercise programmes have higher success for exercise engagement
 - What is required for sustained change/engagement?
- Measurement issues of PA during pregnancy
 - Categorising data into intensities
 - How long did women wear the accelerometer for?
- Light intensity PA and sedentary behaviour

Where next...?

Antenatal walking groups (Currie et al., 2016)

- Focus groups with 24 women who have recently had a child to explore experience of antenatal PA and acceptability of antenatal walking groups:
 - Experiences were mixed. Competing demands
 - biological: weight a motivator
 - Psychological: fear of harm, self-efficacy and confidence
 - Social: new people and facilities
 - Walking is 'boring'
 - The leader would need to be 'fun' and not 'judgemental'
 - Social aspects would encourage attendance- hide the activity!

Pre-pregnancy behaviour

- Do antenatal PA interventions need to be targeting pre-pregnant women?
 - Pre-pregnancy PA is predictive of antenatal and postnatal PA
 - Pre-pregnant women who are currently meeting PA guidelines have significantly more positive attitudes to antenatal PA
 - Pre-pregnant women recognise similar barriers to antenatal PA as pregnant women experience
 - Can we change behaviour before pregnancy?

Summary

- Antenatal PA is a positive behaviour with many benefits to all women
- Pregnancy is a busy time and changing behaviour is a complicated process
- Proposed toolkit for tackling antenatal PA and developing intervention/support:
 - Input from target population
 - Theory and behaviour change techniques
 - Resources
- Sustained behaviour change is required for short and long term health

Relevant papers

- Currie, S., Sinclair, M., Murphy, M.H., Madden, E., Dunwoody, L., Liddle, D. (2013). Reducing the decline in physical activity during pregnancy: a systematic review of behaviour change interventions. *PLoS One*, 8(6), e66385. doi:10.1371/journal.pone.0066385
- Currie, S. Dunwoody, L., Sinclair, M., Liddle, D., Murphy, M.H., Madden, E. (2015). Excuses, excuses, excuses: What are the barriers to participate in an antenatal physical activity intervention? *Health Psychology Update*, 24(1), 8-15.
- Currie, S., Sinclair, M., Liddle, D.S., Nevill, A., Murphy, M.H. (2015). Application of objective physical activity measurement in an antenatal physical activity consultation intervention: a randomised controlled trial. *BMC Public Health*, 15 (1259), doi: 10.1186/s12889-015-2548-x.

Any Questions?

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