

# Does 10 Minutes of Morning Exercise Stimulate Additional Moderate-Vigorous Activity in Children?

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# Introduction

- Recommendation of  $\geq 1$  hour/day of moderate-vigorous physical activity (HEA, 1999)
- Approximately 3/10 boys and 4/10 girls (aged 7-10 years) do not meet this standard (HSE, 2002)
- In 10 yr old boys, 8-14 minutes of physical activity at the beginning of the day is *associated with* greater physical activity after school and in the evening (Cooper, 2003; 2005)

# Aims

- To examine whether 10 minutes of instructor-led exercise early in the school day stimulates greater participation in moderate-vigorous physical activity.

# Design

- Pragmatic exploratory randomized trial

# Methods

- Two classes of healthy 9-10 year old children
- Classes randomized by coin flip into intervention and control
- Intervention: 16 boys 14 girls  
Control: 15 boys 15 girls
- For six consecutive weeks, an exercise leader delivered a 10 minute moderate to vigorous intensity exercise session to the intervention class

# Intervention: Circuit of fun activities

- Ball push at wall
  - Skipping
  - Sit ups passing bean bag
  - Stick jump
  - Balance cone on head
  - Bench step ups
  - Throwing bean bag into hoop
  - Ladders
  - Figure of eight ball bounce
  - Shuttle run
  - Six minutes running
- (UK: athletics  
shine: awards)*

# Physical Activity Record

- Assess daily MVPA over a six week period
- Parent and teacher supported
- Embedded in the learning curriculum
- Type, frequency and duration for Physical Activity
- Intensity?

# How do you feel?

## Effort Perception Scale

- Green = Very Easy
  - Blue = Easy
  - Yellow = A Bit Puffed
  - Orange = Puffed
  - Red = Very Puffed
- MVPA**
- Primary outcome: Mean daily MVPA (in minutes)
  - Groups equivalent at base line MVPA

# Data Analysis

- Primary Analysis
  - Mean difference (90% CI) in MVPA (mins) between intervention and control groups
- Sub-group analysis by gender
  - Regression of MVPA on group, gender, and their interaction: Slope of  $\text{gender} \times \text{Group}$  interaction = mean difference in intervention effect between boys and girls (90% CI)

# Results

- The mean intervention effect was an additional **21 min/day of MVPA** (90% CI, 7 to 35 min/day)
  - Control 57 (23) min/day; Intervention 78 (39) min/day
- Stronger effect in boys; mean effect (intervention - control) of **32 minutes** (90% CI, 10 to 54 min/day), compared with **10 minutes** in girls (90% CI, -5 to 25 min/day)
- The gender difference in mean response to the intervention was **22 minutes** (90% CI, -5 to 49 min/day)

# Conclusion

- The findings suggest that, at least in boys, 10 minutes of exercise integrated into the school day may stimulate additional moderate-vigorous physical activity – a possible '*spillover*' effect

# Take home message

- 10 minutes exercise intervention led to an ADDITIONAL 21 minutes per day of moderate to vigorous physical activity
- Intervention as a whole was responsible for increasing MVPA by 30 minutes on most days of the week in boys
- Energy expenditure approx. 100-200 kcal/day
- Definitive randomized trial with adequate follow-up required

# References

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