Promoting self-regulation and executive functions in children: Evaluating the effectiveness of a brief physical activity intervention

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BACKGROUND
- Self-regulation and executive functions are critical for successful transition from kindergarten to school (Suchodoletz et al., 2014).
- Physical activity interventions have been shown to improve executive functions in studies with adult samples (Barenberg, Berse, & Duuke, 2011), probably driven by neurophysiological and affective mechanisms.

RESEARCH QUESTION
Does a brief physical activity intervention enhance executive function performance in children compared to a control condition?

DESIGN
Between-person randomized trial

N = 100 children, 4-7 y

Conditions
- Rabbit
  - Coordinative and moderate-intense activity
- Control
  - Sitting activity

Child session

1. Affect
   - Self-assessment manikin scale (SAM; Lang, 1980)
   - Video recording of condition
   - Heart rate & body movement
   - Condition: Rabbit/Control

2. Affect SAM
   - Executive functions
     - Head-Toes-Knees-Shoulders-task (Cameron Ponitz et al., 2009)
     - Day-Night-Stroop-like task
     - Berlin & Bohn, 2002

Parent report

Executive functions
- Brief self-control scale (Rauch et al., 2014)

ADHD symptoms
- Conners 3 (Lidzba et al., 2013)

Physical activity
- Social functioning
  - Strengths and difficulties questionnaire (Goodman, 1997)

Body mass index
- Demographics

Sample descriptors
N = 61 participants (24 female)
Age: M (SD) = 67.93 (11.72) months
BMI: M (SD) = 15.05 (1.45)
Condition: n = 30 Rabbit,
  n = 31 Control
Kindergarten: n = 52 participants
Primary school: n = 8 participants

MANIPULATION CHECKS

Heart rate (bpm)

Time

FIRST RESULTS

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References