1. **Title:**

   Enhancing implementation of an adolescent physical activity intervention: 2 year outcomes

2. **Author(s):**

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3. **Key words:**

   Randomized Controlled Trial, Adolescents, Physical activity, School based intervention

4. **Abstract text:**

   a. **Background and aims**

      Few interventions have successfully reduced the decline in physical activity (PA) observed among adolescents. Systematic reviews suggest future interventions should incorporate explicit implementation strategies to enhance success. *Physical Activity 4 Everyone* (PA4E1) aimed to reduce the decline in moderate-to-vigorous physical activity (MVPA) among adolescents. Student adiposity was also assessed.

   b. **Methods**

      A cluster RCT was conducted in 10 secondary schools (five intervention, five control) located in disadvantaged communities, with follow-up measures at 24-months. A multi-component school-based intervention based on the Health Promoting Schools Framework was implemented consisting of seven PA strategies. Six additional strategies supported school implementation of the PA strategies including a change agent, executive support, training, resources, prompts and performance feedback. The primary outcome, minutes/day in MVPA was objectively measured by accelerometer, at baseline, and 24-months. Student weight, BMI and BMI z-score was compared between groups.

   c. **Results**

      Participants (n = 1150, 49% male) were a cohort of students in Grade 7 at baseline and Grade 9 at follow-up. At 24-month follow-up there were significant effects in favour of the intervention group for daily minutes of MVPA, adjusted mean difference in change between groups was 7.0 minutes (2.7, 11.4, $p < 0.01$). Significant group-by-time effects for weight, BMI and for BMI z-score were also observed.

   d. **Conclusion**

      The PA4E1 intervention was effective in increasing adolescents' overall MVPA, and achieved reductions in adiposity. Implementation of the intervention by disadvantaged schools has the potential to slow the decline in PA and prevent unhealthy weight gain. Evaluation of a broader implementation model is warranted.