Title: Effects of a School-Based Physical Activity Intervention on Physical Activity and Physical Fitness in Children and Adolescents with Disabilities: A Pre-Post Study

Authors: Dr. Mengyao Wang[1], Prof. Cindy Hui-ping Sit[1,*], Dr. Wen Yang[2], Prof. Stephen Heung-sang Wong[1], Prof. Raymond Kim-wai Sum[1], Dr. Jane Jie Yu[3] , Dr. Venus Ming-hui Li[4], Ms. Jingsi Wen[1], Dr. Jie Feng[1]

Authors' affiliations:

[1] Department of Sports Science and Physical Education, The Chinese University of Hong Kong, Hong Kong, China

[2] School of Physical Education, Hubei University, Wuhan, China

[3] Department of Sport and Exercise Science, Zhejiang University, Hangzhou, China.

[4] Faculty of Sports Science, Ningbo University, Ningbo, China

Underline – presenting author: Mengyao Wang

[*]**Corresponding author:** Cindy Hui-ping Sit

Department of Sports Science and Physical Education, The Chinese University of Hong Kong, Hong Kong, China

Tel: +852 3943 4126

Email: sithp@cuhk.edu.hk

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Introduction

Physical activity (PA) is essential for the health and well-being of children and adolescents with disabilities (Carty et al., 2021), who typically engage in lower levels of PA than their neurotypical peers (Martin Ginis et al., 2021). This study examined the effects of a school-based PA intervention on PA and physical fitness in children and adolescents with physical disabilities (PDs) and intellectual disabilities (IDs).

Methodology

A school-based PA intervention, consisting of (un)structured PA, teacher training, and parental involvement, was conducted with 100 children and adolescents with disabilities from five special schools in Hong Kong (mean age: 12.4 ± 2.9 years; 68.0% boys; 49% PDs and 51% IDs). PA was measured using wrist-worn GENEActiv accelerometers and expressed in minutes per day. Physical fitness was evaluated using the Brockport Physical Fitness Test, including body fat percentage, handgrip strength, sit-ups, and sit-and-reach assessments. A linear mixed model was used to assess the effectiveness of the intervention on PA and physical fitness, adjusting for age, sex, and disability type.

Results

Participants demonstrated increased light PA (Mean difference [MD]:19.34 min/day, 95% confidence interval [CI]: 4.91-33.78) and total PA (MD:17.13 min/day, 95%CI: 1.02-33.23) after the intervention compared to baseline; though moderate to vigorous PA showed no change. There were positive intervention effects on reduced body fat percentage in males (MD: 3.21, 95%CI: 0.68-5.74), improved left (MD:4.30 cm, 95%CI: 1.17-7.42) and right sit-reach (MD:3.10 cm, 95%CI: 0.18-6.02) in ID participants, and increased handgrip strength in all participants (MD: 1.71 kg, 95%CI: 0.60-2.82).

Conclusions

School-based PA interventions enhanced PA levels and physical fitness in children and adolescents with disabilities. Future randomized controlled trials are warranted to further explore the long-term effects of these interventions.

Keywords

School-based intervention, Physical activity, Physical fitness, Children and adolescents, Disabilities

References

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