

# Is Movement Proficiency the Precursor to Physically Active Behaviour and Health? An Investigation of the Relationship between Fundamental Movement Skills, Physical Activity and Health in Singaporean Primary School Children

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## KEY IMPLICATIONS

- Focus on process-oriented development of motor skills is necessary at pre-school and lower primary school levels.
- Physical education (PE) programme and learning outcomes should be adapted according to the fundamental movement skill (FMS) proficiency levels of children entering the primary school and during the lower primary years.
- PE can play a significant role in providing the lower primary children with effective movement experiences.

## BACKGROUND

Motor skills acquisition is both a basis for and an end product of sound instruction in PE. Children with greater FMS competence show higher engagement in spontaneous physical activity (PA) participation and those with motor difficulties may avoid PA as a coping strategy. Therefore, the lack of age-appropriate FMS proficiency in children can cause reduced motivation to engage in the PE lessons.

FMS proficiency is most successfully acquired during lower primary school years (Olrich, 2002) and is associated with an increased participation

in formal and habitual sports and PA (Fisher et al., 2005).

## FOCUS OF STUDY

- Assess FMS proficiency of Singaporean primary school children at the start (Primary 1) and mid-primary (Primary 3) levels
- Examine the relationship between FMS proficiency, PA levels and health in Singaporean primary school children
- Evaluate the efficacy of an FMS intervention programme

## KEY FINDINGS

The participants did not demonstrate age-appropriate FMS proficiency. Most children scored 'average' and 'below average' for the locomotion skills and 'poor' and 'below average' for the object control skills.

The participants were both excessively sedentary and physically less active. FMS scores significantly correlated with the proxy measures of fitness and health.

Following the FMS intervention, the experiment groups showed significant improvement in locomotion scores as compared to the

control group. However, there were no significant differences between the school-based and the school- and home-based intervention groups, suggesting that greater efforts are needed to increase PA during the out-of-school time.

## SIGNIFICANCE OF FINDINGS

### Implications for Practice

Greater emphasis on object control skills and movements requiring muscular fitness like hopping and jumping is required in PE at the lower primary level. PE content and learning outcomes need adaptation based on FMS proficiency levels. Home-based efforts by parents are critical for children to be active outside the school hours.

### Implications for Policy and Research

Movement development programmes are necessary at pre-school and lower primary levels. FMS assessment should be an outcome measure of PE during this period.

### Learning Gains

School-based PE is important for developing FMS and increasing PA in lower primary children. Home-based efforts by parents can ensure the continuity of movement stimuli and PA outside of school hours.

### Proposed Follow-up Activities

Long-term studies are needed to track FMS development, PA levels and health outcomes in

Singaporean children for deeper insights into the mechanisms and correlates of these measures.

## PARTICIPANTS

- Number of primary schools involved: 4
- Number of students involved: 244 (Primary 1: 120; Primary 3: 124)

## RESEARCH DESIGN

FMS proficiency was assessed using the Test of Gross Motor Development, 2nd Edition; PA assessment was done using accelerometry; cardiorespiratory fitness was measured using the Beep Test; and Body Mass Index (BMI), waist circumference and waist-hip ratio were measured as surrogate markers of metabolic health. Subsequently, a 40-week intervention programme using a randomised control design was implemented.

## REFERENCES

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