

An Eight-Week Physical Activity Intervention is Associated With Gross Motor Skills in Preschool Children

AZEEM A. HUSSAIN, FERNANDO JUAREZ, SHIYU LI, VANESSA ESTRADA, JILL JOHNSTONE, ERICA SOSA, and ZENONG YIN

Department of Kinesiology, Health, and Nutrition; University of Texas at San Antonio; San Antonio, TX

Category: Masters

Advisor / Mentor: Yin, Zenong (Zenong.Yin@utsa.edu)

ABSTRACT

The preschool age (three to five years old) is critical in developing gross motor skills. Additionally, children with higher fundamental movement skills are more likely to participate in high levels of physical activity (Han, Fu, Cogley, & Sanders, 2018). **PURPOSE:** To determine if the eight-week physical activity (PA) pilot intervention program is associated with gross motor development in preschool children ages three to five years old. **METHODS:** Study participants were 35 children (average age=3.74 (SD 0.74); 82.67% Hispanics, 8.57% African American, 2.86% white, and 5.71% others) enrolled in two Head Start Centers in San Antonio, Texas. Gross motor development was assessed by the Gross Motor Quotient (GMQ) scores of the Test of Gross Motor Development-2 (TGMD-2). TGMD-2 was administered at the baseline and the posttest by three trained research assistants, following an established protocol (CDC, 2012). Locomotor and Object Control raw scores of TGMD-2 were recorded and converted to GMQ. The physical activity intervention included a 20-hour teacher training on physical activity and gross motor skill instructions, lesson plans for structured outdoor and indoor activities, and provision of equipment for structured and unstructured outdoor play. Paired-T test was used to examine if the posttest GMQ was higher than the baseline GMQ (2 tailed test, $\alpha < .05$). Means and 95% confidence intervals (95% CIs) were presented. **RESULTS:** Twenty-nine children completed both baseline and posttest assessment of TGMD-2. Paired-T test showed that there was a statistically significant difference (mean difference = -22.55; 95% CI -26.75 to -18.35; $p < 0.001$) between the GMQ scores at the baseline ($M=87.90$, $SD=12.12$) and the GMQ scores at posttest ($M=110.45$, $SD=12.79$). **CONCLUSION:** The results of this study suggest the eight-week physical activity intervention was associated with improved gross motor skills in preschool children. Compared to a national sample of three to five year old's (Kit, Akinbami, Isfahani, & Ulrich, 2017), baseline locomotor scores in this study (28.08) were similar to the national average (28.2) but the follow up scores (33.54) greatly exceeded the national average. Baseline object control scores (16.58) were far lower than the national average (21.0) but follow up scores still greatly exceeded the national average (33.54). The eight-week intervention was associated with improved motor skill for both locomotor and object control. Limitations of this study include the lack of a control group. Future studies will incorporate a control group and longer intervention timeframe, and one year follow up to assess the intervention's impact on motor skill changes over time.