Children’s Physical Activity Participation and Physiological Adaptations During Community-Based Guided Active Play

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Despite our understanding of the benefits of physical activity (PA), approximately 90% of children and adolescents (8-12 years) are not meeting recommended guidelines. As lifestyle habits are often maintained from childhood into adulthood, the importance of community-based active play (AP) for tracking PA participation and interventions targeted at increasing PA in childhood are uncertain. This study sought to: a) assess the relevance of AP in tracking PA during childhood (9-11yrs); and b) investigate children’s (8-12yrs) physiological responses to two AP interventions (5 and 8 weeks). The tracking results show a strong correlation (rho = 0.88; p=0.000) for PA from AP over 2yr (n=65), with kappa (k) level of (0.54). The self-paced AP intervention resulted in PA (675 kcal·wk\(^{-1}\) with ~40% moderate-to-vigorous PA (MVPA)) over the 8-wks. Improvements were noted for blood pressure and estimated VO\(_2\)max (p<=0.05). For the 5-wk AP intervention, PA averaged 556±132 kcal·wk\(^{-1}\) and 34.3±16.8% MVPA. Changes for body mass index, leg power, grip strength and/or estimated VO\(_2\)max were minimal (p>0.05); compared to improvements for blood pressure and resting heart rate (p<0.05). Vascular functions (peak, average and total perfusion) following endothelial-dependent stimulation did not change (p>0.05). Endothelial-independent stimulation was increased by 46.5 ± 80.9pu (p<0.05) after 5wks of an AP intervention. In conclusion, the results from this dissertation provide evidence that a community-based guided active play program is an effective and important approach for eliciting children’s PA participation. Moreover, the PA levels attained in the self-paced program are associated with improvements in health and fitness parameters, particularly early vascular function, which if implemented across municipal community centres may lead to delays and/or prevention of pre-hypertension in children. Finally, the ability to track children’s PA within an AP session may provide a very important tool in assessing potential long-term benefits of children’s physical activity. [295 words]