“Physical Activity and Executive Functions in Youth: Exploring the Mediating Role of Motor Competence”

Abstract

Participation in physical activity of sufficient volume and intensity to improve cardiorespiratory fitness can positively impact cognitive development in children and adolescents. Activities requiring a higher allocation of attention and cognitive effort, such as dancing, may be more effective in enhancing cognition compared to those involving lower cognitive demands (e.g., riding a stationary bike). This argument, known as the “cognitive stimulation hypothesis,” suggests that coordinatively demanding activities stimulate areas of the brain that are responsible for higher-order cognitive processes. In my keynote, I will synthesize findings from a recent systematic review examining the associations between motor competence and executive functions in youth. I will also present findings from the ‘Learning to Lead’ cluster randomized controlled trial, which explored the mediating roles of cardiorespiratory and muscular fitness (the fitness hypothesis) and motor competence (the skill acquisition hypothesis) on executive functions in children. Finally, I will discuss practical implications and highlight the need for further research into both the quantitative (e.g., time, intensity) and qualitative (e.g., type, context) aspects of physical activity that may optimize cognitive outcomes.