A growing body of research has illuminated beneficial effects of a single bout of physical activity (i.e., acute physical activity) on cognitive function in school-age children. However, the impact of acute physical activity on preschoolers’ cognitive function has not been reported. To address this shortcoming, the present study examined the effects of a 30-minute bout of physical activity consisting of movement patterns that promote motor development and physical activity participation on preschoolers’ cognitive function. For this within-subject design study, preschoolers’ cognitive function, measured with the Picture Deletion Task for Preschoolers (PDTP), was assessed following a single bout of physical activity, which was part of a planned movement program, and a single sedentary period. The PDTP assesses both sustained attention as well as response inhibition. Physical activity levels were objectively measured by using Actigraph GTX3+ accelerometers. Results revealed that preschoolers engaged in significantly more moderate-to-vigorous physical activity during the planned movement program period compared to the sedentary period (p < .001, d = 5.32). Additionally, after engaging in physical activity, preschoolers exhibited markedly better ability to sustain attention, relative to after being sedentary (p = .006, d = 0.845). Further, after physical activity, preschoolers exhibited enhanced response inhibition, but this result failed to reach statistical significance (p = .195). Based on these findings, providing physical activity opportunities appears to enhance preschoolers’ cognitive function, which likely facilitates their academic engagement.