

Title: Comparing Moderate to Vigorous Physical Activity between Healthy Weight, Overweight and Obese 3rd-5th graders

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Introduction: Current guidelines recommend that children should partake in daily, moderate to vigorous physical activity (MVPA) for ≥ 60 minutes. Children are not meeting these recommendations and schools may contribute to this inactivity. Therefore, the purpose of this study was to examine bouts of MVPA in healthy weight (HW), overweight (OW) and obese (OB) children on days with and without an unstructured, before-school, MVPA program.

Methods: Eleven 3rd-5th graders [4 HW (25th-85th body mass index (BMI) percentile), 3 OW (BMI 85th-95th percentile), 4 OB ($\geq 95^{\text{th}}$ BMI percentile)] wore an accelerometer for 7 days, 3 which included the before-school MVPA program. Freedson bouts (MVPA > 10 minute period) were analyzed for the 7-day period. The number of bouts, total time in bouts, and max time per bouts were compared between HW, OW and OB.

Results: Over the 7-days, 78 Freedson bouts were recorded. Of these, 43 bouts (55%) occurred on the 3 days when the children participated in the before-school MVPA program with 47% of these bouts (20/43) performed by the HW. HW compared to OB number of Freedson bouts was significantly greater ($p=0.041$.) HW spent significantly more total time in Freedson bouts compared to OB ($p=0.040$.) No significant differences were found between groups for maximum time in bouts or between the OW group and the HW and OB groups.

Discussion: The HW performed a substantially higher number of MVPA bouts and of increased duration per bout compared to their OB peers. Regardless, it appeared the before-school program had a positive effect on activity in all groups as the majority of MVPA bouts were performed on days, which included the program. With the absence of physical activity during the school day, before-school MVPA programs may be viable options to help children reach MVPA recommendations.