

Title - BMI and Average Steps Completed during a Six-minute Step Test in Mid-Michigan Middle School Students

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Abstract: The purpose of this study was to determine if average steps completed during a six-minute step test differed by BMI in middle school children. We used cross-sectional data collected from 11- and 12-year old students (1,925) recruited from six schools in mid-Michigan between 2011 and 2015. Height (cm) and weight (kg) were measured using a Child ShorrBoard and BC-534 Tanita InnerScan Body Composition monitor; step counts were recorded from an Ultrak 280 pedometer. Students were categorized into the Centers for Disease Control and Preventions's BMI percentile categories by gender and age. Analysis of variance was used to examine differences in BMI and average steps completed. For 11- and 12-year-old girls, obese children averaged fewer steps (649.1, 668.8) than normal weight (681.9, 677.7) and overweight girls (676.2, 672.9) ($p < 0.05$). For 11- and 12-year-old boys, obese children averaged fewer steps (551.7, 649.8) than normal weight (685.2, 687.4) ($p < 0.05$) but not overweight boys (665.4, 667.7) ($p > 0.05$). For both 11 and 12-year-old boys and girls, no difference in average steps completed between overweight and normal weight children was found. The impact of obesity on physical function was apparent in this sample of children thus stressing the importance of expanding school-based interventions that target childhood obesity.