

Intra- and Inter-Day Variability in Recess Physical Activity Over One Week in Young Children

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Category: Doctoral

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ABSTRACT

Researchers interested in outdoor free play (i.e., recess) may collect data on total (light-to-vigorous) physical activity (TPA) during a single recess period or over several days, yet little is known about intra- and inter-day variability or whether individual recess periods or days are representative of “typical” recess TPA.

PURPOSE: The purpose of the current study was to explore variability in TPA across a week of recess periods with the overarching goal of identifying how many recess periods may be needed to represent weekly recess TPA. **METHODS:** Children (n=29; age=2-6 y) from two on-campus early childhood education programs which shared a schoolyard wore a triaxial GENEActiv accelerometer at the right hip during school hours for a week. Euclidean norm minus one per 5-sec was calculated and used to estimate percent of recess time spent in TPA. A mixed effects model compared TPA by day and recess time of day (fixed effects) with child as a random effect. We averaged TPA for each of the 13 individual recesses, scheduled recess time (morning, afternoon, end of day), and day (Monday-Friday). T-tests were used to compare TPA during individual recess periods, scheduled recess times, and days to overall average weekly recess TPA. P-values were adjusted for multiple comparisons using the Bonferroni correction. **RESULTS:** Overall weekly recess TPA was 62.3±9.7%. TPA ranged from 47.3-82.5% across the 13 individual recess periods, 56.0-63.1% across scheduled recess times, and 54.0-69.2% across days. In the mixed effects model, there was a significant effect of day, but not scheduled recess time. Post-hoc comparisons indicated Friday TPA was different from Monday (p=0.006), Tuesday (p<0.001), and Wednesday (p<0.001). When comparing average TPA of individual recesses to weekly recess TPA, 1 was significantly different (82.5% TPA; p<0.001). There were no significant differences when TPA was averaged by scheduled recess time or day of the week. **CONCLUSIONS:** Although an individual recess period is insufficient, capturing recess PA over a single day or a single time of day (e.g., morning recess for a week) is representative of weekly recess TPA at the group level, although TPA may vary by day for individuals. This could be a less burdensome and more efficient method of characterizing recess TPA when informing and assessing interventions.